HAMILTON COUNTY
GENERAL HEALTH DISTRICT
Timothy I. Ingram, Health Commissioner

250 William Howard Taft Road, 2nd FL • Cincinnati, Ohio 45219
Phone 513/946-7800 • Fax 513/946-7890

November 13, 2003

MR. MARK NORMAN
VORYS, SATER, SEYMOUR AND PEASE LLP
P.O. BOX 236
CINCINNATI, OH 45201-0236

Re: 8200 Broadwell Road, Anderson Township, Hamilton County/Completion of Cleanup and Cover Activities

Dear Mr. Norman:

I have received a September 29, 2003 letter from Allan Yee, Environmental Affairs Manager of Ball Corporation (Ball). This letter documented the removal of openly dumped waste debris and the placement of cover soils on areas of historic metal can disposal located in a former gravel pit on the above-referenced property owned by your client, BWAY Corporation. I have also reviewed this District's correspondence to you, dated January 7, 2002 and clarifying correspondence between Ohio EPA to Ball's attorney, dated August 16 and September 5, 2002. Based upon a review of our entire file, including the documents noted above, and visual verification by Health District personnel on December 3, 2002, all waste debris materials required to be removed under the Ohio Administrative Code have been removed to the satisfaction of the Health District.

Further, the placement of a soil and vegetative cover over the remaining can waste material buried on-site has also been completed pursuant to the Ohio Administrative Code and to the satisfaction of the Health District. The Health District's personnel physically observed the soil/vegetative cover to be in place and completed by July 23, 2003. This work was documented per the September 11, 2003, "Soil and Vegetative Cover Documentation Report" prepared by Civil & Environmental Consultants, Inc. (CEC), a copy of which was included in Ball's September 29, 2003 submission. Based on the information submitted in the documentation report, the Health District concurs with the report, which was completed according to the agreed scope of this project.

I want to thank all those involved and appreciate the cooperation received to bring this project to a successful completion.

If you have any questions, please call me at (513)-946-7874.

Respectfully,

David L. Nutini

David L. Nutini, R.S.
Director of Waste Management

cc: Tim Ingram, Health Commissioner
Don Marshall, OEPA – Southwest District Office
Leon Parker, BWAY Corporation
Allan Yee, Ball Corporation
A. Christian Worrell, Esq., Graydon, Head & Ritchey

OhioEPA

State of Ohio Environmental Protection Agency

Southwest District Office

401 East Fifth Street
Dayton, Ohio 45402-2911

TELE: (937) 285-6357 FAX: (937) 285-6249

Bob Taft, Governor
Maureen O'Connor, Lt. Governor
Christopher Jones, Director

September 5, 2002

Mr. A. Christian Worrell III
Graydon Head and Ritchey LLP
P.O. Box 6464
Cincinnati, Ohio 45201-6464

Re: **BWAY Facility, 8200 Broadwell Road**

Dear Mr. Worrell:

This letter is concerning the disposal area at BWAY Facility at 8200 Broadwell Road. I have reviewed the information that you sent August 16, 2002 concerning the history of the site. The information confirms what was stated and seen at the March, 2002 inspection of the site. The waste at the site appeared to be mainly old cans buried in the 1960s and 1970s.

Sites which closed prior to March 1987 were only required to place two feet of soil to cover the waste. No additional monitoring was required. The information shows that the site had not been taking waste for several years when, in 1985, it was bulldozed and covered with available dirt. This action predates House Bill 592 (Ohio's Solid Waste Rules) which requires a much more extensive cap. Therefore, no additional regulatory requirements must be taken under Ohio's Solid Waste rules for closure of the landfill or monitoring the landfill.

As a reminder, should any construction activity take place on the landfill, permission must first be obtained from the Director per the Ohio Administrative Code 3745-27-13.

If you have any questions, please call me at (937) 285-6650.

Sincerely

Cheryl Allen

Cheryl Allen, R.S.
Division of Solid and Infectious Waste Management

cc: Dave Nutini, Hamilton County Health District

CA/rlf

BALL CORPORATION

SOIL AND VEGETATIVE COVER DOCUMENTATION REPORT
BWAY CORPORATION FACILITY – SOUTHERN GRAVEL PIT
8200 BROADWELL ROAD
CINCINNATI, HAMILTON COUNTY, OHIO

Prepared by:
Civil & Environmental Consultants, Inc.
Project No. 220119

September 11, 2003

Civil & Environmental Consultants, Inc.

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BALL CORPORATION

SOIL AND VEGETATIVE COVER DOCUMENTATION REPORT BWAY CORPORATION FACILITY – SOUTHERN GRAVEL PIT 8200 BROADWELL ROAD CINCINNATI, HAMILTON COUNTY, OHIO

Prepared by:
Civil & Environmental Consultants, Inc.
Project No. 220119

September 11, 2003

TABLE OF CONTENTS

Page

LIST OF FIGURES

Figure

TABLES

Table

LIST OF APPENDICES

Appendix

1.0 INTRODUCTION

Ball Corporation (Ball) recently completed the placement of a soil and vegetative cover over waste can material located in a former gravel pit (Southern Gravel Pit) on the subject property at 8200 Broadwell Road, Cincinnati, Hamilton County, Ohio (Figure 1). The decision to manage the site by placing a soil and vegetative cover over the material in the Southern Gravel Pit was made by Ball after meeting with and obtaining the consent of the Ohio EPA, the Hamilton County Health Department, and Bway Corporation (formerly Milton Can), the current owner of the property.

Civil & Environmental Consultants, Inc. (CEC) provided the environmental and civil engineering consulting services for the project. Surveying services were provided by Berding Surveying (Berding). Construction related services were provided by AST Environmental, Inc. (AST). This report documents the background of the site, the activities leading up to the placement of the soil and vegetative cover, the placement of the soil and vegetative cover, and the as-built documentation of the cover.

2.0 BACKGROUND

The waste can material was reportedly placed in the subject gravel pit (Figure 2) by the former owner/operators of the adjacent can manufacturing facility. Records show a manufacturing facility has been located on the Bway Corporation facility property since the early 1950s. Prior to the purchase of the facility by Bway Corporation, the facility was owned by Ball. Ball purchased the facility in the early 1990s from Heekin Can. The Heekin Can Company at 8200 Broadwell Road is listed on the Ohio Master Sites list and the "Superfund" No Further Remedial Action Planned (NFRAP) list. The reason for this listing was related to other issues on the property and not due to the presence of the waste can material in the gravel pit.

The gravel pit area was initially investigated by CEC in June 1999. The findings of this investigation are presented in the *Milton Can Facility Southern Gravel Pit Investigation Report* prepared by CEC in August 1999. Investigative activities included excavating backhoe test pits, surface water sampling, and soil and sediment sampling. Soil, sediment, and water sample analyses included analysis for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, and pesticides/herbicides.

All analytes were below the VAP or other analogous standards or below method detection limits. The involved regulatory agencies, the Hamilton County Health Department and the Ohio EPA, decided that the site could be managed by the placement of a soil and vegetative cover, over the existing waste material. However, prior to the placement of the cover several activities were necessary to prepare the site and plan for the covering activities. These activities included clearing and disposing of large debris located on the site, removing the large vegetation from the property, performing a survey of the existing ground topography, and preparing a basic engineering plan for the site. These activities were performed in the fall of 2002 and the winter of 2003 and are discussed below.

3.0 CLEARING AND DISPOSAL ACTIVITIES

Clearing and disposal activities commenced at the site on November 13, 2002 and ended November 23, 2002. Selected photographs from these activities are presented in Appendix I.

"Woody" vegetation was removed from the areas over the waste can material and from areas immediately adjacent to the waste can material to facilitate access (Photographs 1 & 2). Woody vegetation up to 14-inches in diameter and smaller was cut close to ground surface with hydraulic shears mounted on the front of a skid steer (Photograph 3). Larger trees were cut with a chain saw as close to ground surface as practical. Tree stumps in areas overlying the waste can material were sprayed and/or painted with "Pathway" herbicide or a similar product to prevent new growth. The stumps overlying the waste can material were left in place to improve the slope stability of the existing soil covering the material. Tree stumps in areas outside of the waste can areas were removed if soil in those areas was slated for use as future cover material.

A wood chipper was mobilized to the site to chip the smaller vegetative material for use and/or disposal on site (Photograph 3). The wood chipper was able to handle tree trunks, limbs, and branches up to approximately 9-inches in diameter. Larger material that could not be chipped was saw-cut into approximate 24-inch sections and stockpiled at the bottom of the gravel pit and/or hauled off site. Chipped wood was spread over the ground surface or moved to the bottom of the gravel pit. Tree stumps that could not be chipped were removed from the site and hauled to Newtown Fill, in Newtown, Ohio. Newtown Fill is a local construction/demolition debris landfill. Three loads of tree stumps were hauled off site for disposal at this facility.

Large metallic debris was removed from the gravel pit and slope areas and stockpiled for disposal (Photograph 4). Large concrete pieces observed imbedded in the waste can material near the top of the slopes was left in place since it seemed to be serving to stabilize the hillslopes. At the request of the Bway Corporation, debris was also removed from areas of the gravel pit that were not included in the original project area. Approximately 14 tons of non-hazardous waste was transported off site to Rumpke's Georgetown Sanitary Landfill. Waste tickets and manifests are included in Appendix II. This waste included old, rusted out, 55-gallon drums, tires on the rim, lumber, plastic trash drums, and assorted steel. Thirty seven (37) tires were also removed and disposed of off site during the clearing and disposal activities. CEC did not observe any potentially hazardous waste during the removal of the large debris. All activities during the clearing and debris removal activities were performed in such a manner to cause minimal disturbance to the waste can fill material.

Subsequent to the clearing of the area and the removal of the large debris, the soil material at the bottom of the slope was graded to facilitate the survey of the area for the basic engineering plan (Photograph 5). A topographic survey of the area was completed by Berding Surveying in early 2003. The survey covered the approximate horizontal extent of the waste can material and the associated fringe areas (Appendix III). Design drawings for the soil and vegetative cover were prepared based on the topographic survey (Appendix III).

Guidelines agreed upon by Ball, the Ohio EPA, and the Hamilton County Health Department called for the placement of the soil and vegetative cover with minimal disturbance to the underlying can material. Existing waste can material could not be regraded to facilitate the placement of the cover. Additional soil was imported to complete the cover while meeting the grades necessary to address slope stability issues. The basic engineering plan called for 2 horizontal (H):1 vertical (V) grades on the side slopes (southeast and northwest slopes) and a 3H:1V grade on the main slope (Appendix III). Calculations derived from the original topographic survey estimated that to cover the subject area, 4,860 cubic yards of soil (compacted) would be needed to complete the cover and meet the required grades. This compacted yardage equates to 6,400 yards of loose soil based on 1.3 cubic yards of loose soil equaling 1.0 compacted cubic yard. The basic engineering plan did not calculate possible compaction of the underlying waste material since this was unknown but estimated that the compaction could increase the loose yards of soil needed by ten percent.

4.0 COVER PLACEMENT ACTIVITIES

Cover placement activities consisted of the selection of a vendor for the soil, pre-mobilization sampling of the borrow material, additional site preparation, soil placement, and hydroseeding. These activities are discussed below.

4.1 Borrow Area Selection

Cover placement activities began with the selection of a borrow area from which to obtain the soil for the cover. Evans Landscaping, Inc. (Evans) was selected as a vendor for the soil. Evans has a borrow area located within one-mile of the site. Limited availability of material from other vendors and transportation costs associated with hauling the material a much longer distance made the consideration of other sources impractical.

4.2 Pre-Mobilization Sampling

Prior to hauling borrow to the site, three soil samples were collected of the borrow material to confirm that only "clean" soil was being hauled onto the property. The samples were collected from the following depths and areas of the borrow area.

- Sample 1 - 3 to 9 inches below ground surface (bgs) at the south end of the borrow area.
- Sample 2 - 6 to 12 inches bgs the central portion of the borrow area.
- Sample 3 – 15 to 21 inches bgs in the northern portion of the borrow area.

Samples were collected with a shovel in such a manner that the soil collected for the sample never came in contact with the surface of the shovel. This soil was transferred to the appropriate sample container using clean, disposable latex gloves and immediately placed on ice. The samples were analyzed for volatile organic compounds (VOCs) using U.S. EPA Method 8260B, semi-volatile organic compounds (SVOCs) using U.S. EPA Method 8270C, polychlorinated biphenyls (PCBs) using U.S. EPA Method 8082, and RCRA metals using U.S. EPA Method 6010B (7471 for mercury). Laboratory analysis was performed by Belmont Laboratories. Table 1 presents the concentrations of the detected compounds. Copies of the laboratory analytical data sheets are presented in Appendix IV.

No VOCs or PCBs were detected in any of the samples submitted for laboratory analysis. However, the SVOC, bis(2-ethylhexyl)phthalate, was detected in Sample 2 at a concentration of 570 μg/kg. Bis(2-ethylhexyl)phthalate is a compound commonly associated with different plasticizers and is frequently detected in soil samples. Detections are often attributed to laboratory contamination or to the gloves used to collect the sample. Furthermore, the concentration detected (570 μg/kg) is well below the Ohio EPA Voluntary Action Plan (VAP) – Generic Direct-Contact Soil Standards Summary table (VAP table) standard of 230 mg/kg (230,000 μg/kg) for both residential and commercial/industrial usage.

The RCRA metals arsenic, barium, chromium, and lead were detected in each of the samples at concentrations that would be expected to occur naturally in native soils. Detected concentrations of metals were compared to *Background Levels of Heavy Metals in Ohio Farm Soils (Logan & Miller, 1983)* and *Evaluation of Background Metal Concentrations in Ohio Soils (Cox & Colvin, 1996).* Arsenic concentrations ranged from 9.6 mg/kg to 12 mg/kg. Naturally occurring arsenic concentrations in Ohio soils have been determined to range from 0.50 mg/kg to 56 mg/kg (Cox & Colvin). Barium concentrations ranged from 84 to 120 mg/kg. Naturally occurring barium concentrations in Ohio soils have been determined to range from 9.3 mg/kg to 323 mg/kg (Cox & Colvin). Chromium was detected at concentrations ranging from 17 mg/kg to 21 mg/kg. Naturally occurring chromium concentrations in Ohio soils have been determined to range from 2.0 mg/kg to 80.5 mg/kg (Cox & Colvin) or 4 mg/kg to 23 mg/kg (Logan & Miller). Lead was detected at concentrations ranging from 13 mg/kg to 14 mg/kg. Naturally occurring lead concentrations in Ohio soils have been determined to range from 1.0 mg/kg to 147 mg/kg (Cox & Colvin) or 9 mg/kg to 39 mg/kg (Logan & Miller).

4.3 Additional Site Preparation

AST and CEC mobilized to the site on June 2, 2003 to begin the activities associated with the placement of the soil and vegetative cover. Some additional site preparation was necessary prior to importing the borrow material to the site. Since the initial clearing and grubbing activities were performed the area had become partially revegetated. The new vegetation was removed from the slope and placed in the bottom of the gravel pit with material generated during the original clearing. Several piles of wood material not hauled to the bottom of the pit in the fall were also moved to the bottom of the gravel pit.

Two additional test pits were excavated on the southeast side of the gravel pit at the bottom of the slope to better delineate the extent of the fill. These test pits were placed approximately 20 feet apart. The easternmost pit contained only natural material. Cans were encountered in the westernmost pit. The eastern extent of the cover was moved slightly westward from what was anticipated on the original design diagram. The location of the bottom anchor keyway was also shifted to the southwest to account for this shift while still allowing for a 3H:1V slope on the main slope area.

4.4 Soil Placement

Trucks from Evan's Landscaping began hauling soil to the site on the afternoon of June 2, 2003. Soil quantity information and truck count information are contained in documentation provided to CEC by AST and are presented in Appendix V. Soil quantities were calculated based on the loose yardage contained in each truck which was measured by AST. The trucks that were used contained either 8, 20, or 23 cubic yards of material each (loose). Daily production was somewhat controlled by the number of trucks that Evans could supply each day.

Soil placement activities were performed by having the trucks dump in a specific areas as directed by AST. The resultant soil piles were spread with the bulldozer in approximate 8 inch lifts (loose) and compacted with the bulldozer followed by a final compaction run with a "sheep's foot" compactor. The following is a chronological summary of the placement of the soil. Photographs from the soil placement activities are presented in Appendix I.

- **June 2, 2003** - A total of 414 cubic yards (loose) of soil was hauled, placed, and compacted. Most of the material the first day was placed at the base of the slope. This area included a depressional feature not delineated on the original topographic survey at the base of the slope on the northwest portion of the cover. CEC estimates that this area may have taken approximately 300 compacted yards (or 390 loose yards) of material to fill.

- **June 5, 2003** - Site work was halted on June 3rd and June 4th due to rainfall. Site work resumed on June 5th with the construction of haul roads into the gravel pit. Original estimates projected that approximately 83 tons of gravel would be needed to construct the haul roads. Excessive precipitation necessitated additional gravel be used to construct and maintain the haul roads. A total of 150 tons of gravel (including the 60 tons placed on June 9th) and 46 tons of soil (loose) were used in the construction of the haul roads over the course of the project. The bottom anchor keyway was excavated as shown on the as-built diagram. The keyway was 3 feet wide and 2 feet deep. No waste material was observed while excavating the keyway. A total of 1,260 cubic yards of soil (loose) was hauled, placed, and compacted in the gravel pit on June 5th. Most of this material was used on the southeastern slope of the gravel pit. Ms. Linda Zerwick, with the Hamilton County Health Department, visited the site to observe cover placement activities.

- **June 6, 2003** – Since the soil cover material was approaching the top of the slope on the southeastern portion of the gravel pit, the upper keyway in this area was excavated with a backhoe. The dimensions of the keyway are shown on the as-built drawing. A total of 1,196 cubic yards of soil (loose) was hauled, placed, and compacted.

- **June 9, 2003** – Additional gravel was added to the haul roads after the heavy weekend rains (approximately 60 tons). The excavation of the upper keyway was continued (Photograph 6). The surface of the cover that had been previously placed was regraded and recompacted. Due to the rain, the site was not ready for the first soil cover material until almost 2:00 pm. A total of 1,020 cubic yards of soil (loose) was hauled, placed, and compacted.

- **June 10, 2003** – The main slope was measured in several places and found to be approximately 3H:1V. The notch was also measured in several places and was found to be of dimensions consistent with or slightly greater than those proposed in the design diagram. A total of 2,691 cubic yards of soil (loose) was hauled, placed, and compacted. Light rain fell during the night of June 10th and 11th. Ms. Zerwick was onsite to observe cover placement activities.

- **June 11, 2003** – CEC noted that some of the soil material being brought to the site was slightly clumpy. Field modifications were made to the surface water diversion ditch such that the swale followed the existing topography draining predominantly to the east (Photograph 7). The modifications made the installation of the rip-rap on the northwestern portion of the covered area unnecessary. A total of 1,419 cubic yards of soil (loose) were hauled, placed, and compacted. The final grading with the bulldozer was completed (Photographs 8 and 9).

- **June 23, 2003** – Until this date, wet weather prevented the installation of the rip-rap and hydroseeding activities. Rip-rap was placed along the eastern periphery of the cover (Photograph 10). A small area of rip-rap was also placed at the southwest corner of the cover, a location to which a small portion of the area drains. The entire area covering the waste and the remainder of the project area including the haul roads was hydroseeded (Photographs 11 and 12). The hydroseeding procedure consisted of mixing water, seed, fertilizer, and mulch in batches and spraying the mixture onto the ground surface. A total of 200 pounds of fertilizer, 200 pounds of seed and 1,800 pounds of mulch were used to hydroseed the area. Ms. Zerwick was onsite to observe the hydroseeding activities.

- **July 23, 2003** – Mr. David Mutini and Mr. Chuck De Jonckheese visited the site to observe the completed soil and vegetative cover. They were escorted on the site visit by Mr. Ben Iden of CEC.

Activities performed subsequent to the placement of the cover included rearranging the rip-rap material to keep the water contained within the rip-rap, limited repair to the cover on the east slope, and a topographic survey of the area to prepare an as built survey of the site. These activities are discussed below.

During a follow up visit to the site, CEC observed that some erosion of the cover was evident adjacent to the rip-rap channel (Photograph 13). This erosion appeared to be the result of the rip-rap placement. CEC also noted an approximate one-inch crack along a relatively small area (approximately 30 feet) at the top of the east slope near the rip-rap (Photograph 14). A reconnaissance of the area did not reveal any settlement or down slope movement of the crack. CEC did not observe any widening of the crack during a subsequent inspection of the area several days later and believes that the cracking was likely due to some material not being compacted as much as needed against the upper portion of the keyway.

AST returned to the site on July 30, 2003 to correct the issues discussed above. AST rearranged the rip-rap to keep water in the rip-rap channel and off of the slope (Photograph 15). Soil was placed in the eroded areas and the areas were reseeded. AST also placed and compacted bentonite into the crack noted along the aforementioned portion of the east slope. Additional clay was placed in this area and the area was recompacted and reseeded (Photograph 16).

A topographic survey of the area was completed by Berding Surveying after the completion of the soil and vegetative cover placement. The as-built map generated from the survey is presented as Figure 2 and is discussed in the following section.

5.0 AS-BUILT DOCUMENTATION

Soil cover was placed over approximately 0.5 acre of waste can material to minimize infiltration of surface water and provide a 3H:1V finished slope (Photograph 17). As shown by the as-built survey, the majority of the soil cover varied from 2 to 12 feet thick. The finished slope was 3H:1V, except at the northwest and southeast ends of the fill area, where the finished slopes were approximately 2H:1V (Photograph 18). These slopes were finish graded to tie into the existing grade and the finished grade on the main slope.

The loose volume of soil required to complete this project was originally estimated at 6,370 cubic yards. This was based on a compacted-soil volume of 4,900 cubic yards and a swell factor of 30% (loose volume = compacted volume x 1.3). The compacted volume was determined based on the site topography as surveyed by G.J. Berding Surveying, Inc. (Berding) in December 2002 and the designed grades presented in Appendix III. After construction was complete, the loose volume of soil delivered to the site, based on the number of truck loads delivered, was 8,000 cubic yards.

The as-built compacted volume of soil, determined by comparing the as-built final survey to the Berding topographic survey, was 4,500 cubic yards. Using a swell factor of 30%, this accounts for 5,850 cubic yards of the 8,000 cubic yards delivered to the site. During construction, a low area was encountered near the southwest corner of the waste area that was not depicted in the Berding topographic survey. CEC estimates that approximately 390 loose cubic yards (300 compacted cubic yards) was placed to bring this area to grade and allow positive drainage. This, soil volume combined with the volume based on the as-built survey, accounts for 6,240 for the 8,000 loose cubic yards of soil delivered to the site. The remaining 1,760 cubic yards is attributable primarily to settling of the waste can material as the soil cover was placed and compacted. Based on past experience covering waste with soil, and given the nature of the waste material (rusted cans), CEC believes that 1 to 2 feet of settlement is not unreasonable. Over 0.5 acres of fill, this would account for an additional 1,050 to 2,100 loose cubic yards of cover soil. Assuming an average of 1.5 feet of settlement (1,575 loose cubic yards), combined with minor losses due to factors such as minor losses during construction, road maintenance, or the cover soil being more densely compacted than originally anticipated, the volume of additional soils used to complete the project is not unreasonable.

6.0 SUMMARY

Ball has completed the work requested by the Hamilton County Health Department on the subject property located at 8200 Broadwell Road, Cincinnati, Hamilton County, Ohio. This work consisted of the placement of a soil and vegetative cover over waste can material previously identified in a gravel pit area on the property in June 2003 and the supplemental tasks leading up to the placement of the cover, which were completed in the fall of 2002 and the winter and spring of 2003. This report documents the placement of the soil and vegetative cover and the related tasks. These related tasked included clearing and disposal activities, the preparation of a basic engineering plan, borrow area selection and sampling, a final topographic survey of the area, the preparation of an as-built drawing, and this report. No further action with regard to the subject waste can area is planned.

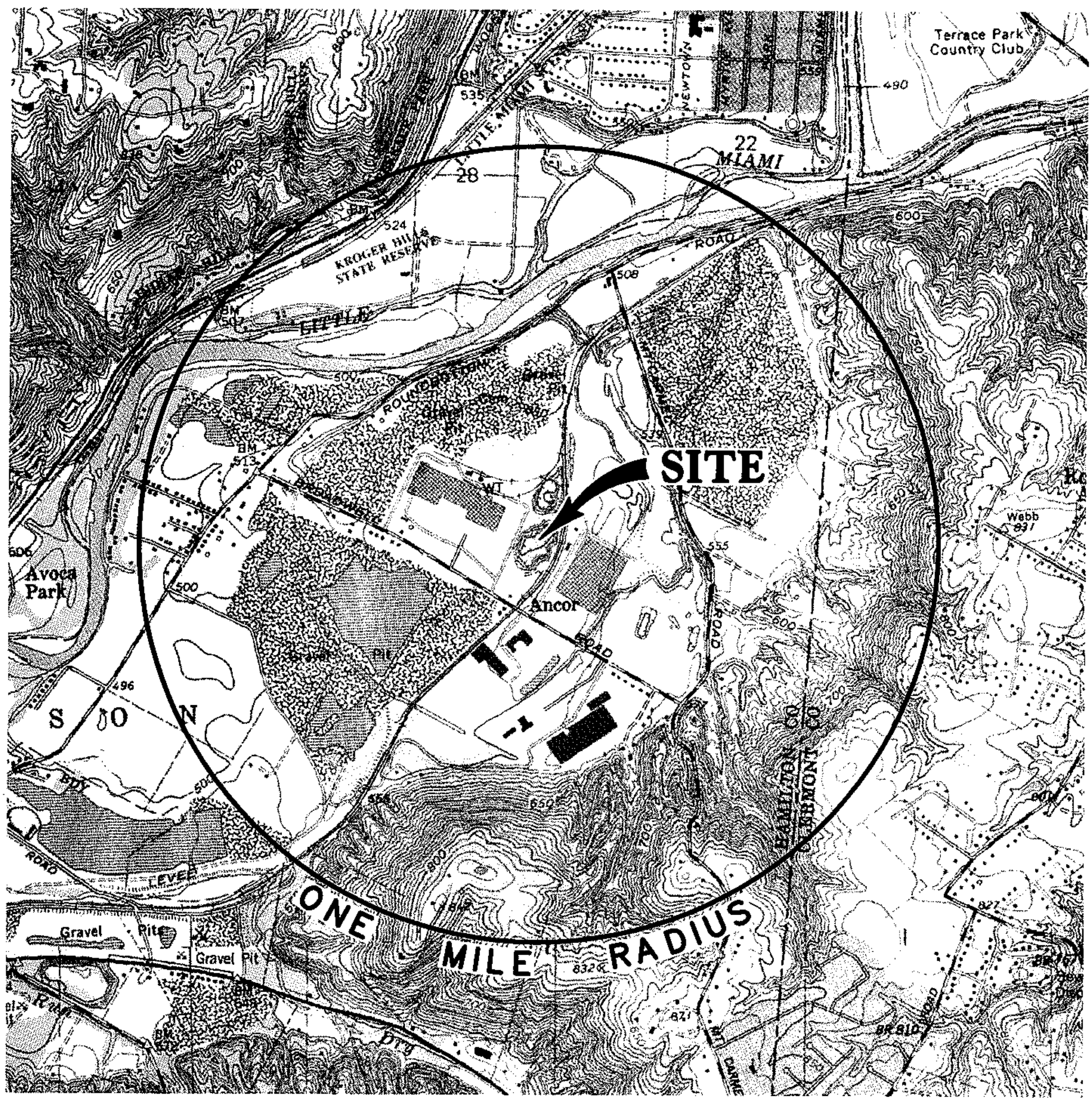
7.0 LIMITATIONS

Due to the nature of the waste material, additional settlement will likely occur. Erosion of the slope may also occur to some extent. Erosion can be limited by maintaining the vegetative cover on the slope. Such maintenance should include the removal of larger vegetation (i.e., trees, brush, etc.) and reseeding bare areas.

8.0 REFERENCES

Cox, Craig A., G.H. Colvin, 1996. *Evaluation of Background Metal Concentrations in Ohio Soils.* Presented to Ohio EPA June 21, 1996.

Logan, Terry J., R.H. Miller, 1983. *Background Levels of Heavy Metals in Ohio Farm Soils.* The Ohio State University. February 1983.



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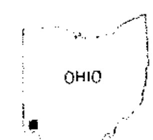
NORTH



QUADRANGLE LOCATION

SOURCE: USGS 7.5 MINUTE QUADRANGLE MADEIRA, OHIO, 1961 PHOTOREVISED 1988.

CEC

Civil & Environmental Consultants, Inc.
Cincinnati, OH
(513) 985-0226 (800) 759-5614
Pittsburgh, PA Nashville, TN | Columbus, OH Chicago, IL | Indianapolis, IN St. Louis, MO

Site Location Map
BALL CORPORATION
Bway Corporation Property
Southern Gravel Pit
8200 Broadwell Road
Cincinnati, Hamilton County, OH

DWN. BY: TJA	SCALE:	DATE:	PROJECT NO.:	FIGURE NO:
CHKD. BY: BHI	AS SHOWN	NOV. 2002	220119	1

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TABLE 1

ANALYTICAL LABORATORY RESULTS
BORROW AREA SOIL SAMPLES
BWAY CORPORATION FACILITY
MAY 2003

Sample	1	2	3	VAP Table	Ohio Soils	
Depth (inches below ground surface)	3-9	6-12	15-21		Cox & Colvin	Logan & Miller
Date	05/28/03	05/28/03	05/28/03			
Volatile Organic Compounds (ug/kg)						
ALL	ND	ND	ND	--	--	--
Semi-Volitile Organic Compounds (ug/kg)						
Bis(2-ethylhexyl)phthalate	ND	570	ND	230,000	--	--
Remainder SVOCs	ND	ND	ND	--	--	--
PCBs (µg/kg)						
ALL	ND	ND	ND	--	--	--
RCRA Metals (mg/kg)						
Arsenic	9.6	9.7	12	80	0.5 - 56	--
Barium	91	84	120	200,000	9.3 - 323	--
Chromium	17	18	21	8,900	2.0 -80.5	4 - 23
Lead	13	13	14	1,800	1.0 - 147	9 - 39

ND = Not Detected
VAP Table = Ohio EPA - VAP - Generic Direct-Contact Soil Standards Summary (Commercial/Industrial Single Chemical)
Ohio Soils = from Cox & Colvin (1996) and Logan & Miller (1983)

APPENDIX I

SITE PHOTOGRAPHS

Photo 1: View of clearing and disposal activities from the southeast facing northwest.

Photo 2: View of clearing and disposal activities from the north facing south.

Photo 3: View of skid steer with hydraulic shears and wood chipper.

Photo 4: View of metallic debris being staged for off-site transport and disposal.

Photo 5: View of grading from the southeast facing northwest.

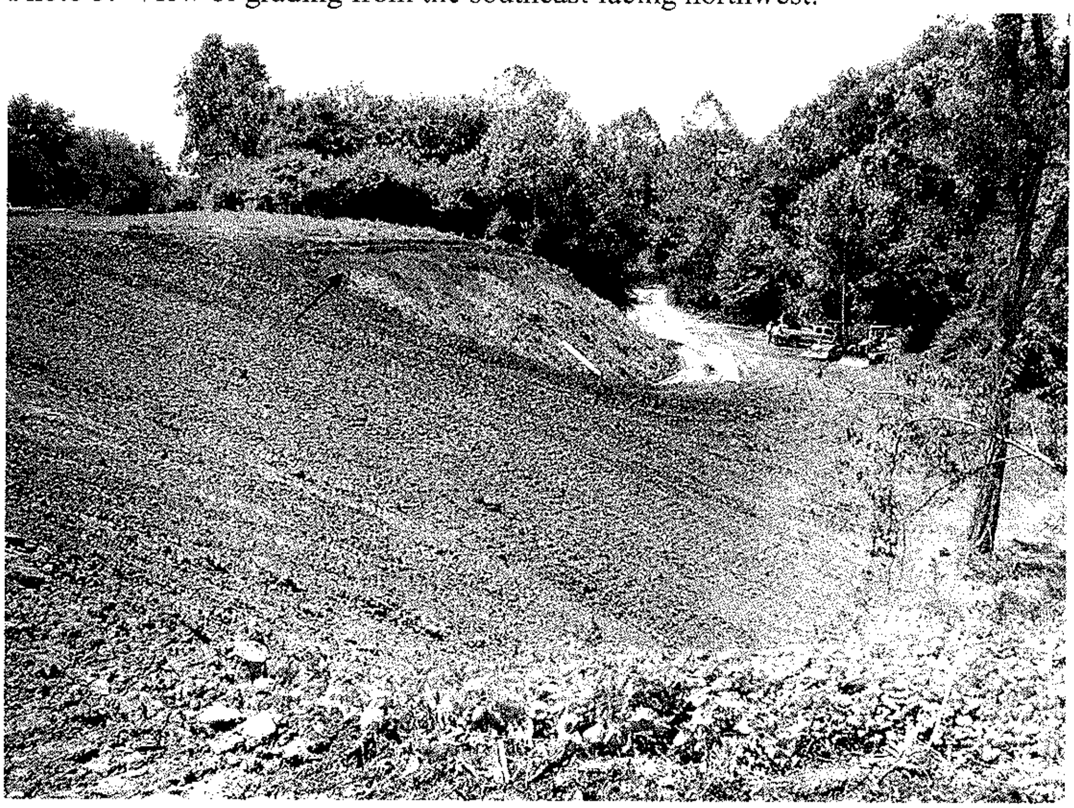

Photo 6: View of cover placement activities from the southeast facing northwest. Arrow points to keyway.

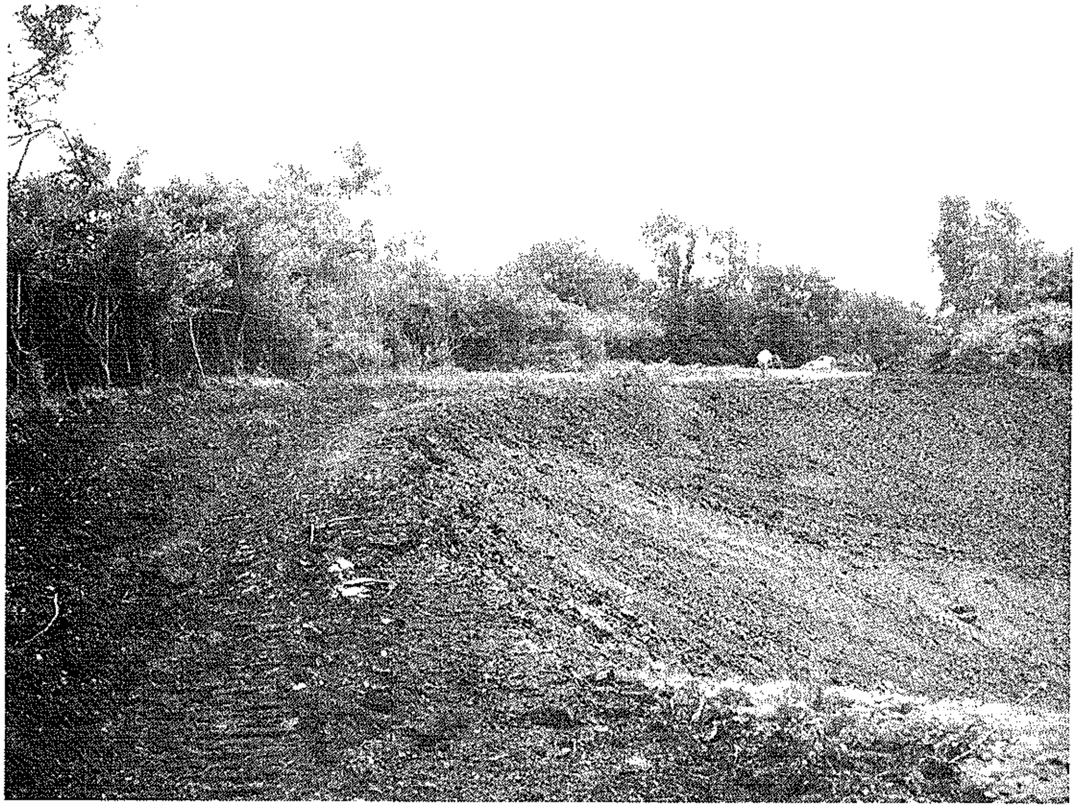

Photo 7: View of the surface water diversion ditch from the east facing west.

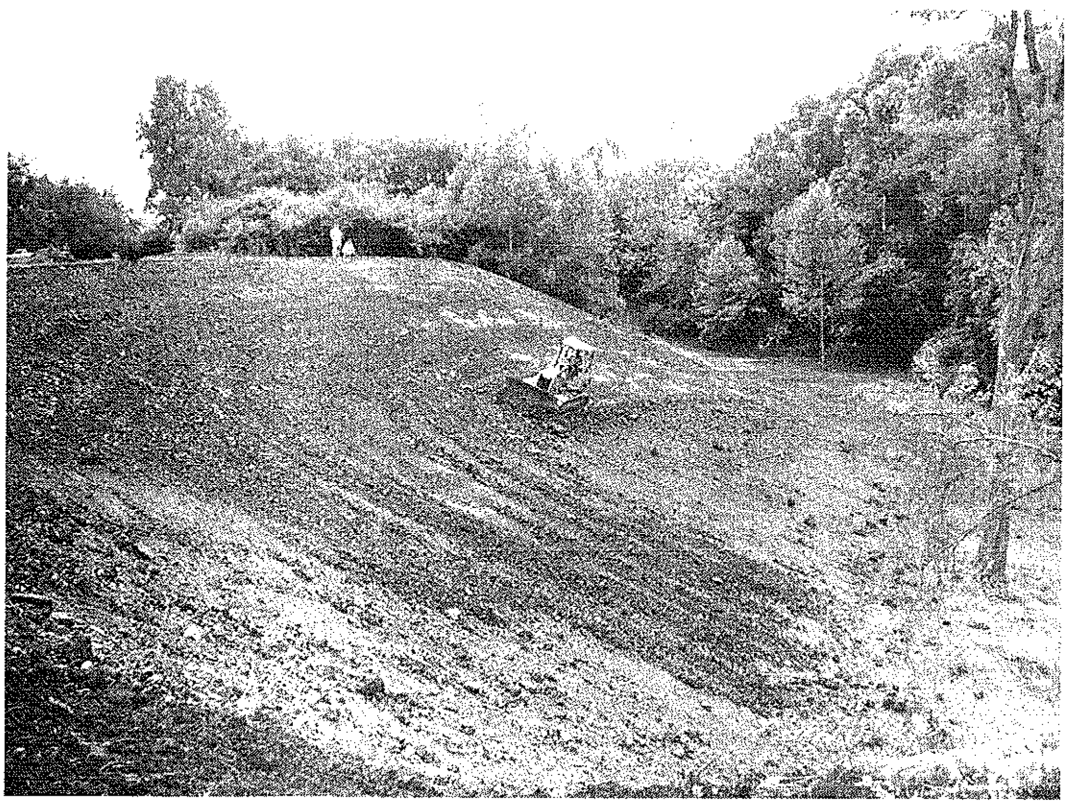

Photo 8: View of final grading from the southeast facing northwest.

Photo 9: View of final grading from the northwest facing southeast.

Photograph 10: View of rip-rap area from the northwest facing southeast.

SITE PHOTOGRAPHS

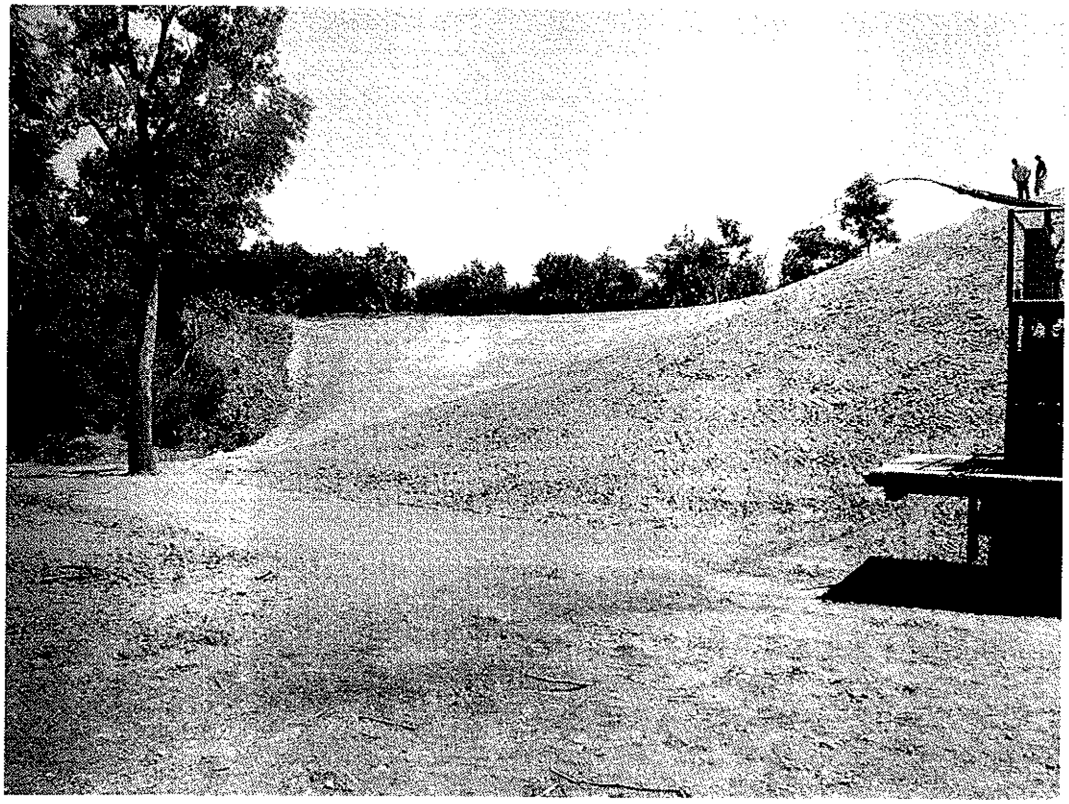

Photo 11: View of hydroseeded cover from the northwest facing southeast.

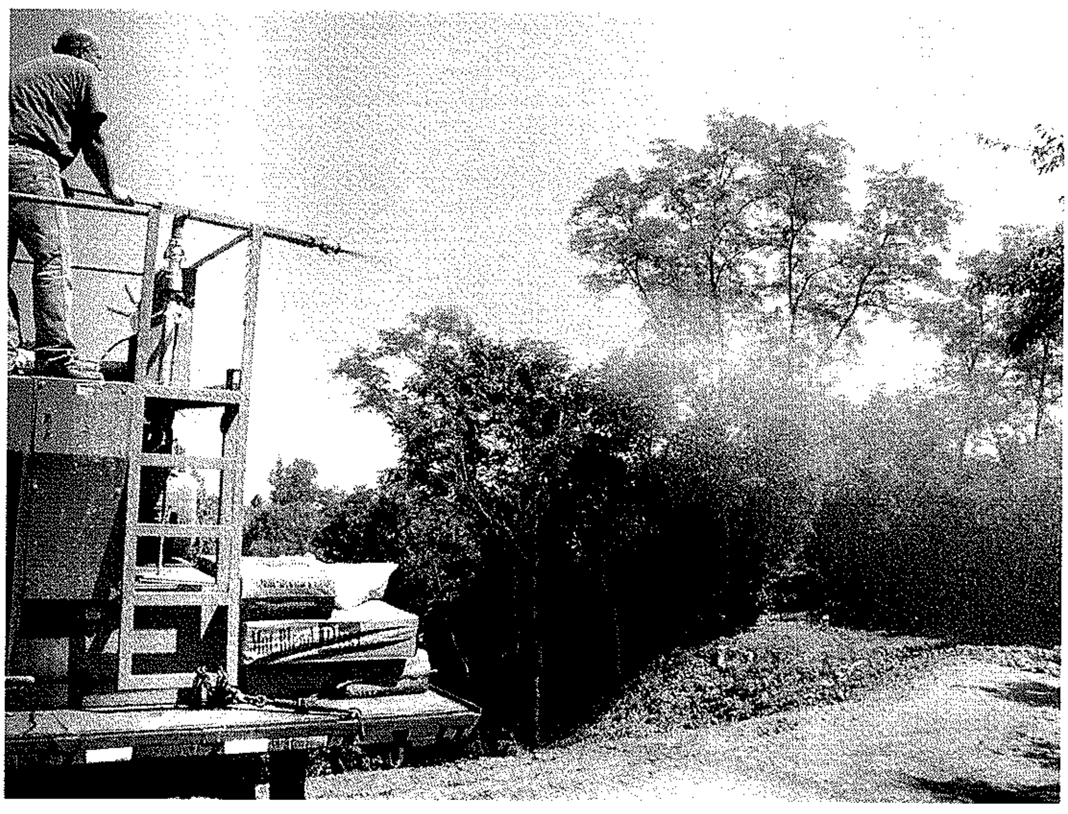

Photo 12: View of hydroseeding at the top of the slope.

Photo 13: View of eroded area from the northwest facing southeast.

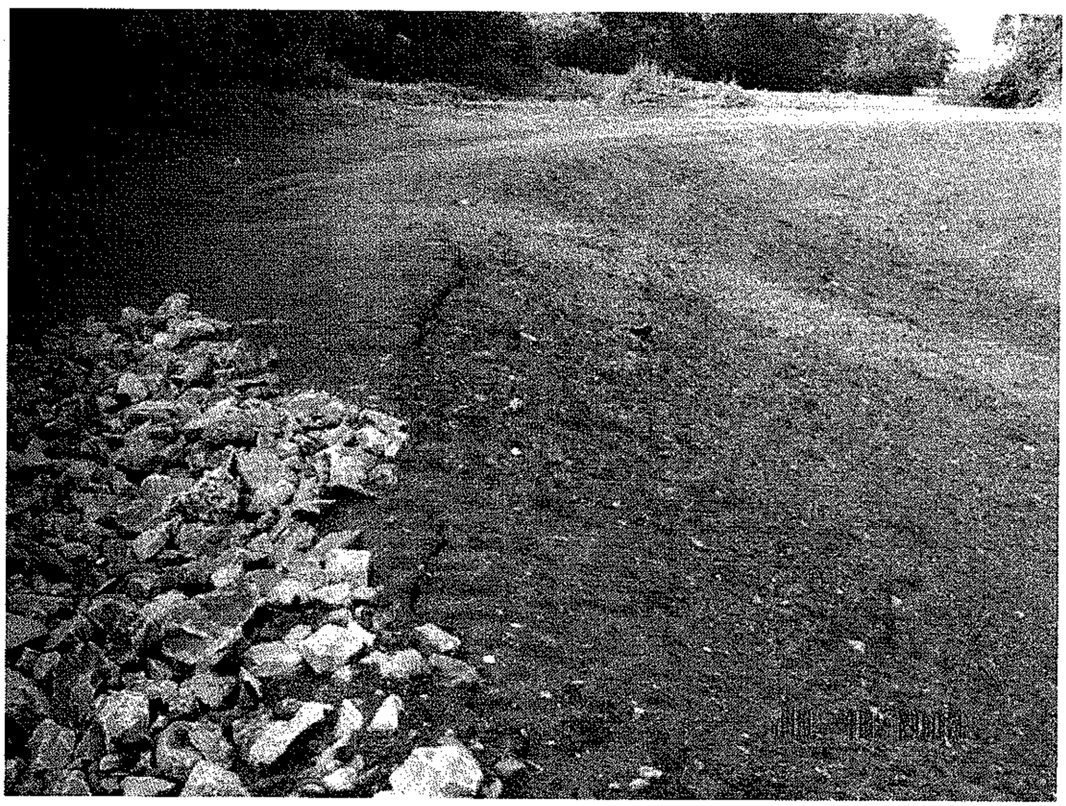

Photo 14: View of crack from the east facing west.

Photo 15: View of rearranged rip-rap from the east facing west.

Photo 16: View of area where crack was repaired and reseeded from the east facing west.

Photo 17: View of finished slope from the northwest facing southeast.

Photo 18: View of 2:1 slope on the northwest corner from the north facing south.

APPENDIX II

WASTE TICKETS AND MANIFESTS

Please print or type. (Form designed for use on elite (12 pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No.

2. Page 1 of 1

3. Generator's Name and Mailing Address: Ball Corp, 9300 West 108th Circle, Broomfield Colorado 80021

4. Generator's Phone (303) 460 5235

5. Transporter 1 Company Name: Red Bank Transport

6. US EPA ID Number

A. Transporter's Phone: 513-831-5491

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address: Georgetown Sant Landfill, 9427 Beyers Road, Georgetown OH 45121

10. US EPA ID Number

C. Facility's Phone: 800-626-3136

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non Haz Debris	001	DT	20	Ton
b.				
c.				
d.				

GENERATOR

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

AP # 02-1119-562

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
DS Agent for generator	DS for Ball Corp	1	21	02

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
BOB KING	Bob King	1	21	02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

TRANSPORTER

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Tammy Kidwell	Tammy Kidwell	1	21	02

FACILITY

Printed by J. J. KELLER & ASSOCIATES, INC. Neenah, WI 54957-0368

ORIGINAL - RETURN TO GENERATOR

12-BLC-M5

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No.

2. Page 1 of

3. Generator's Name and Mailing Address Ball Corp
9300 West 108th Circle
Broomfield Colorado 80021

4. Generator's Phone (303) 460 5235

5. Transporter 1 Company Name Red Bank Transport

6. US EPA ID Number

A. Transporter's Phone 513 831 5491

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
Georgetown Sant Land fill
9427, Beyers Road
Georgetown, OH 45121

10. US EPA ID Number

C. Facility's Phone 800-626-3136

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non Haz Debri	001	DT	20	Ton
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

APP # 02-1119-562

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
DS Agent for Generator	DS For Ball Corp	11	21	02

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Bob King	Bob King	11	21	02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
~~Bob King~~		11	21	02

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Tammy Kidwell	Tammy Kidwell	11	21	02

GENERATOR · TRANSPORTER · FACILITY

Printed by J. J. KELLER & ASSOCIATES, INC.
Neenah, WI 54957-0368

ORIGINAL - RETURN TO GENERATOR

Rumpke Waste, Inc.
9427 Beyers Rd

Georgetown OH 45121

11/21/2002
10:03:18

Invoice #: 169463
Scale ID : GEO

Vehicle ID : AST
Note : AST
Account No : 11111111
Acct Name : *** ACCOUNT # IS NOT ON FILE ******
Cntnr ID :
Customer Name : ....
Capacity :
Gross Wght : 45960
Customer Addr : ....
Tare Wght : 34700
Net Wght : 11260
|_| Check Box If This Is A Cash Transaction

	Mat.ID	Description	%	Tonnage	Municipality/County
1:	18	OTHER-ISW	100		ANDERSON,HAMILTON
				5.630	

Signature : Bob King

Rumpke Waste, Inc.
9427 Beyers Rd

Georgetown OH 45121

1/21/2002
2:32:18

Invoice #: 169504
Scale ID : GEO

Vehicle ID : AST
Note : AST
ccount No : 11111111
.cct Name : *** ACCOUNT # IS NOT ON FILE ******
Cntnr ID :
Customer Name : ....
apacity :
ross Wght : 51540
Customer Addr : ....
Tare Wght : 34700
et Wght : 16840
|_| Check Box If This Is A Cash Transaction

	Mat.ID	Description	%	Tonnage	Municipality/County
1:	18	OTHER-ISW	100		ANDERSON,HAMILTON
				8.420	

Signature : Bob King

APPENDIX III

TOPOGRAPHIC SURVEY AND DESIGN DRAWINGS FOR BASIC ENGINEERING PLAN

APPENDIX IV

ANALYTICAL LABORATORY DATA SHEETS

RECEIVED
JUN 2 0 2003

Wednesday, June 18, 2003

Ben Iden
Civil Environmental Consultants
3600 Park 42 Drive
Suite 130B
Cincinnati, OH 45241

TEL: (513) 985-0226
FAX (513) 985-0228

RE: Ball Can Rush

Order No.: 0305813

Belmont Labs received 3 sample(s) on 5/28/03 for the analyses presented in the following report.

There were no problems associated with the sample analyses unless noted in a Case Narrative.
If you have any questions regarding the test results, please feel free to call me at 937.832.8242.

Respectfully submitted,

Holly Green
Holly Green
Project Manager

FAX RESULTS
RUSH REPORT

Belmont Labs

Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants
Project:	Ball Can Rush
Lab Order:	0305813

CASE NARRATIVE

Analytical Comments for METHOD VOC_8260_S, SAMPLE LCS: Surrogate recoveries are slightly high, but matrix spike recoveries are acceptable.

Analytical Comments for METHOD VOC_8260_S, SAMPLE LCSD: Surrogate recoveries are slightly high, but matrix spike recoveries are acceptable.

Analytical Comments for METHOD VOC_8260_S, SAMPLE 0305813-001A: Toluene-d8 recovery is 1.4% low due to sample matrix interference.

Belmont Labs **Date:** *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

Lab ID:	0305813-001	**Collection Date:**	5/28/03 10:30:00 AM
Client Sample ID:	Sample 1 3-9"	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S IN SOIL OR SOLID WASTE		**SW8082**				Analyst: **DG**
Aroclor 1016	BDL	20		µg/Kg	1	5/29/03
Aroclor 1221	BDL	20		µg/Kg	1	5/29/03
Aroclor 1232	BDL	20		µg/Kg	1	5/29/03
Aroclor 1242	BDL	20		µg/Kg	1	5/29/03
Aroclor 1248	BDL	20		µg/Kg	1	5/29/03
Aroclor 1254	BDL	20		µg/Kg	1	5/29/03
Aroclor 1260	BDL	20		µg/Kg	1	5/29/03
Surr: Decachlorobiphenyl	89.1	21-192		%REC	1	5/29/03
Surr: Tetrachloro-m-xylene	94.1	23-159		%REC	1	5/29/03
MERCURY, TOTAL		**SW7471**				Analyst: **CE**
Mercury	BDL	0.10		mg/Kg	1	5/30/03
ICP METALS, TOTAL		**SW6010B**				Analyst: **CE**
Silver	BDL	1.0		mg/Kg	1	5/30/03
Arsenic	9.6	1.0		mg/Kg	1	5/30/03
Barium	91	5.0		mg/Kg	1	5/30/03
Cadmium	BDL	1.0		mg/Kg	1	5/30/03
Chromium	17	1.0		mg/Kg	1	5/30/03
Lead	13	5.0		mg/Kg	1	5/30/03
Selenium	BDL	5.0		mg/Kg	1	5/30/03
SEMIVOLATILE ORGANICS		**SW8270C**				Analyst: **KW**
Pyridine	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
N-Nitrosodimethylamine	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Aniline	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Pentachloroethane	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Bis(2-chloroethyl)ether	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Phenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
2-Chlorophenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
1,3-Dichlorobenzene	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
1,4-Dichlorobenzene	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
1,2-Dichlorobenzene	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Benzyl alcohol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Bis(2-chloroisopropyl)ether	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
2-Methylphenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Hexachloroethane	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
N-Nitrosodi-n-propylamine	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
3-Methylphenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
4-Methylphenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Nitrobenzene	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Acetophenone	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
Isophorone	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM
2-Nitrophenol	BDL	99		µg/Kg	1	5/30/03 11:59:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

SEMIVOLATILE ORGANICS		**SW8270C**			**Analyst: KW**
2,4-Dimethylphenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,4-Dichlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Bis(2-chloroethoxy)methane	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
1,2,4-Trichlorobenzene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Naphthalene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Hexachloropropene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,6-Dichlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2-Methylnaphthalene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Hexachlorobutadiene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
N-Nitroso-di-n-butylamine	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
4-Chloro-3-methylphenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
1,2,4,5-Tetrachlorobenzene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Hexachlorocyclopentadiene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,4,6-Trichlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,4,5-Trichlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2-Chloronaphthalene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Acenaphthylene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Dimethyl phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,6-Dinitrotoluene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Acenaphthene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,4-Dinitrophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Pentachlorobenzene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Dibenzofuran	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,4-Dinitrotoluene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
2,3,4,6-Tetrachlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
4-Nitrophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Fluorene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Diethyl phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
4-Chlorophenyl phenyl ether	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Hexachlorobenzene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
N-Nitrosodiphenylamine	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
4-Bromophenyl phenyl ether	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Pentachlorophenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Pentachloronitrobenzene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Anthracene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Phenanthrene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
4,6-Dinitro-2-methylphenol	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Di-n-butyl phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Fluoranthene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Pyrene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Butyl benzyl phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benz(a)anthracene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Chrysene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Bis(2-ethylhexyl)phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Di-n-octyl phthalate	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benzo(b)fluoranthene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benzo(k)fluoranthene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benzo(a)pyrene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM

CLIENT:	Civil Environmental Consultants			**Lab Order:**	0305813
Project:	Ball Can Rush				

SEMIVOLATILE ORGANICS		**SW8270C**			Analyst: **KW**
Indeno(1,2,3-cd)pyrene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Dibenz(a,h)anthracene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benzo(g,h,i)perylene	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Benzidine	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
1,2-Diphenylhydrazine	BDL	99	µg/Kg	1	5/30/03 11:59:00 AM
Surr: 2-Fluorophenol	43.7	26-113	%REC	1	5/30/03 11:59:00 AM
Surr: Phenol-d6	41.1	29-116	%REC	1	5/30/03 11:59:00 AM
Surr: Nitrobenzene-d5	40.8	30-127	%REC	1	5/30/03 11:59:00 AM
Surr: 2-Fluorobiphenyl	40.7	38-116	%REC	1	5/30/03 11:59:00 AM
Surr: 2,4,6-Tribromophenol	40.6	13-131	%REC	1	5/30/03 11:59:00 AM
Surr: p-Terphenyl-d14	38.9	16-167	%REC	1	5/30/03 11:59:00 AM
VOLATILE ORGANIC ANALYSIS		**SW8260B**			Analyst: **CP**
Acrolein	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM
Acrylonitrile	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM
Dichlorodifluoromethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Chloromethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Vinyl chloride	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Bromomethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Chloroethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Acetonitrile	BDL	40	µg/Kg	1	5/29/03 7:44:00 AM
Trichlorofluoromethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Acetone	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM
1,1-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Iodomethane	BDL	10	µg/Kg	1	5/29/03 7:44:00 AM
Methylene chloride	BDL	10	µg/Kg	1	5/29/03 7:44:00 AM
Carbon disulfide	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM
trans-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Methyl tert-butyl ether	BDL	10	µg/Kg	1	5/29/03 7:44:00 AM
1,1-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Vinyl acetate	BDL	10	µg/Kg	1	5/29/03 7:44:00 AM
2-Butanone	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM
cis-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Bromochloromethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Chloroform	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
2,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
1,2-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
1,1,1-Trichloroethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
1,1-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Carbon tetrachloride	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Benzene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Dibromomethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
1,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Trichloroethene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
Bromodichloromethane	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
2-Chloroethyl vinyl ether	BDL	10	µg/Kg	1	5/29/03 7:44:00 AM
cis-1,3-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 7:44:00 AM
4-Methyl-2-pentanone	BDL	20	µg/Kg	1	5/29/03 7:44:00 AM

Belmont Labs

Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

VOLATILE ORGANIC ANALYSIS		SW8260B				Analyst: CP
trans-1,3-Dichloropropene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
1,1,2-Trichloroethane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Toluene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
1,3-Dichloropropane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
2-Hexanone	BDL	20		µg/Kg	1	5/29/03 7:44:00 AM
Dibromochloromethane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
1,2-Dibromoethane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Tetrachloroethene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
1,1,1,2-Tetrachloroethane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Chlorobenzene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Ethylbenzene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
m,p-Xylene	BDL	10		µg/Kg	1	5/29/03 7:44:00 AM
Bromoform	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Styrene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
1,1,2,2-Tetrachloroethane	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
o-Xylene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Bromobenzene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
2-Chlorotoluene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
4-Chlorotoluene	BDL	5.0		µg/Kg	1	5/29/03 7:44:00 AM
Surr: Dibromofluoromethane	106	70-130		%REC	1	5/29/03 7:44:00 AM
Surr: 1,2-Dichloroethane-d4	88.9	70-121		%REC	1	5/29/03 7:44:00 AM
Surr: Toluene-d8	82.6	84-138	S	%REC	1	5/29/03 7:44:00 AM
Surr: 4-Bromofluorobenzene	79.7	59-113		%REC	1	5/29/03 7:44:00 AM

Belmont Labs Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

Lab ID:	0305813-002	**Collection Date:**	5/28/03 10:35:00 AM
Client Sample ID:	Sample 2 6-12"	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S IN SOIL OR SOLID WASTE		**SW8082**				Analyst: **DG**
Aroclor 1016	BDL	20		µg/Kg	1	5/29/03
Aroclor 1221	BDL	20		µg/Kg	1	5/29/03
Aroclor 1232	BDL	20		µg/Kg	1	5/29/03
Aroclor 1242	BDL	20		µg/Kg	1	5/29/03
Aroclor 1248	BDL	20		µg/Kg	1	5/29/03
Aroclor 1254	BDL	20		µg/Kg	1	5/29/03
Aroclor 1260	BDL	20		µg/Kg	1	5/29/03
Surr: Decachlorobiphenyl	89.1	21-192		%REC	1	5/29/03
Surr: Tetrachloro-m-xylene	92.1	23-159		%REC	1	5/29/03
MERCURY, TOTAL		**SW7471**				Analyst: **CE**
Mercury	BDL	0.10		mg/Kg	1	5/30/03
ICP METALS, TOTAL		**SW6010B**				Analyst: **CE**
Silver	BDL	1.0		mg/Kg	1	5/30/03
Arsenic	9.7	1.0		mg/Kg	1	5/30/03
Barium	84	5.0		mg/Kg	1	5/30/03
Cadmium	BDL	1.0		mg/Kg	1	5/30/03
Chromium	18	1.0		mg/Kg	1	5/30/03
Lead	13	5.0		mg/Kg	1	5/30/03
Selenium	BDL	5.0		mg/Kg	1	5/30/03
SEMIVOLATILE ORGANICS		**SW8270C**				Analyst: **KW**
Pyridine	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
N-Nitrosodimethylamine	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Aniline	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Pentachloroethane	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Bis(2-chloroethyl)ether	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Phenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
2-Chlorophenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
1,3-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
1,4-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
1,2-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Benzyl alcohol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Bis(2-chloroisopropyl)ether	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
2-Methylphenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Hexachloroethane	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
N-Nitrosodi-n-propylamine	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
3-Methylphenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
4-Methylphenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Nitrobenzene	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Acetophenone	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
Isophorone	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM
2-Nitrophenol	BDL	100		µg/Kg	1	5/30/03 1:28:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

SEMIVOLATILE ORGANICS		SW8270C			Analyst: KW
2,4-Dimethylphenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,4-Dichlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Bis(2-chloroethoxy)methane	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
1,2,4-Trichlorobenzene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Naphthalene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Hexachloropropene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,6-Dichlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2-Methylnaphthalene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Hexachlorobutadiene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
N-Nitroso-di-n-butylamine	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
4-Chloro-3-methylphenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
1,2,4,5-Tetrachlorobenzene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Hexachlorocyclopentadiene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,4,6-Trichlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,4,5-Trichlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2-Chloronaphthalene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Acenaphthylene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Dimethyl phthalate	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,6-Dinitrotoluene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Acenaphthene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,4-Dinitrophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Pentachlorobenzene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Dibenzofuran	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,4-Dinitrotoluene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
2,3,4,6-Tetrachlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
4-Nitrophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Fluorene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Diethyl phthalate	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
4-Chlorophenyl phenyl ether	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Hexachlorobenzene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
N-Nitrosodiphenylamine	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
4-Bromophenyl phenyl ether	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Pentachlorophenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Pentachloronitrobenzene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Anthracene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Phenanthrene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
4,6-Dinitro-2-methylphenol	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Di-n-butyl phthalate	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Fluoranthene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Pyrene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Butyl benzyl phthalate	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benz(a)anthracene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Chrysene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Bis(2-ethylhexyl)phthalate	570	100	µg/Kg	1	5/30/03 1:28:00 AM
Di-n-octyl phthalate	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benzo(b)fluoranthene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benzo(k)fluoranthene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benzo(a)pyrene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

SEMIVOLATILE ORGANICS		**SW8270C**			Analyst: **KW**
Indeno(1,2,3-cd)pyrene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Dibenz(a,h)anthracene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benzo(g,h,i)perylene	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Benzidine	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
1,2-Diphenylhydrazine	BDL	100	µg/Kg	1	5/30/03 1:28:00 AM
Surr: 2-Fluorophenol	42.5	26-113	%REC	1	5/30/03 1:28:00 AM
Surr: Phenol-d6	39.7	29-116	%REC	1	5/30/03 1:28:00 AM
Surr: Nitrobenzene-d5	41.8	30-127	%REC	1	5/30/03 1:28:00 AM
Surr: 2-Fluorobiphenyl	41.5	38-116	%REC	1	5/30/03 1:28:00 AM
Surr: 2,4,6-Tribromophenol	36.6	13-131	%REC	1	5/30/03 1:28:00 AM
Surr: p-Terphenyl-d14	39.7	16-167	%REC	1	5/30/03 1:28:00 AM
VOLATILE ORGANIC ANALYSIS		**SW8260B**			Analyst: **CP**
Acrolein	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
Acrylonitrile	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
Dichlorodifluoromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Chloromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Vinyl chloride	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Bromomethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Chloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Acetonitrile	BDL	40	µg/Kg	1	5/29/03 8:51:00 AM
Trichlorofluoromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Acetone	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
1,1-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Iodomethane	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
Methylene chloride	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
Carbon disulfide	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
trans-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Methyl tert-butyl ether	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
1,1-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Vinyl acetate	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
2-Butanone	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
cis-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Bromochloromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Chloroform	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
2,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,2-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,1,1-Trichloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,1-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Carbon tetrachloride	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Benzene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Dibromomethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Trichloroethene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Bromodichloromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
2-Chloroethyl vinyl ether	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
cis-1,3-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
4-Methyl-2-pentanone	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

VOLATILE ORGANIC ANALYSIS		**SW8260B**			**Analyst: CP**
trans-1,3-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,1,2-Trichloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Toluene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,3-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
2-Hexanone	BDL	20	µg/Kg	1	5/29/03 8:51:00 AM
Dibromochloromethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,2-Dibromoethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Tetrachloroethene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,1,1,2-Tetrachloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Chlorobenzene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Ethylbenzene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
m,p-Xylene	BDL	10	µg/Kg	1	5/29/03 8:51:00 AM
Bromoform	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Styrene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
1,1,2,2-Tetrachloroethane	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
o-Xylene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Bromobenzene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
2-Chlorotoluene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
4-Chlorotoluene	BDL	5.0	µg/Kg	1	5/29/03 8:51:00 AM
Surr: Dibromofluoromethane	122	70-130	%REC	1	5/29/03 8:51:00 AM
Surr: 1,2-Dichloroethane-d4	98.0	70-121	%REC	1	5/29/03 8:51:00 AM
Surr: Toluene-d8	88.5	84-138	%REC	1	5/29/03 8:51:00 AM
Surr: 4-Bromofluorobenzene	88.5	59-113	%REC	1	5/29/03 8:51:00 AM

Belmont Labs

Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

Lab ID:	0305813-003	**Collection Date:**	5/28/03 10:45:00 AM
Client Sample ID:	Sample 3 15-21"	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB'S IN SOIL OR SOLID WASTE		**SW8082**				Analyst: **DG**
Aroclor 1016	BDL	20		µg/Kg	1	5/29/03
Aroclor 1221	BDL	20		µg/Kg	1	5/29/03
Aroclor 1232	BDL	20		µg/Kg	1	5/29/03
Aroclor 1242	BDL	20		µg/Kg	1	5/29/03
Aroclor 1248	BDL	20		µg/Kg	1	5/29/03
Aroclor 1254	BDL	20		µg/Kg	1	5/29/03
Aroclor 1260	BDL	20		µg/Kg	1	5/29/03
Surr: Decachlorobiphenyl	83.1	21-192		%REC	1	5/29/03
Surr: Tetrachloro-m-xylene	76.1	23-159		%REC	1	5/29/03
MERCURY, TOTAL		**SW7471**				Analyst: **CE**
Mercury	BDL	0.10		mg/Kg	1	5/30/03
ICP METALS, TOTAL		**SW6010B**				Analyst: **CE**
Silver	BDL	1.0		mg/Kg	1	5/30/03
Arsenic	12	1.0		mg/Kg	1	5/30/03
Barium	120	5.0		mg/Kg	1	5/30/03
Cadmium	BDL	1.0		mg/Kg	1	5/30/03
Chromium	21	1.0		mg/Kg	1	5/30/03
Lead	14	5.0		mg/Kg	1	5/30/03
Selenium	BDL	5.0		mg/Kg	1	5/30/03
SEMIVOLATILE ORGANICS		**SW8270C**				Analyst: **KW**
Pyridine	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
N-Nitrosodimethylamine	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Aniline	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Pentachloroethane	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Bis(2-chloroethyl)ether	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Phenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
2-Chlorophenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
1,3-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
1,4-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
1,2-Dichlorobenzene	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Benzyl alcohol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Bis(2-chloroisopropyl)ether	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
2-Methylphenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Hexachloroethane	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
N-Nitrosodi-n-propylamine	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
3-Methylphenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
4-Methylphenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Nitrobenzene	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Acetophenone	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
Isophorone	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM
2-Nitrophenol	BDL	100		µg/Kg	1	5/30/03 2:11:00 AM

Belmont Labs

Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

SEMIVOLATILE ORGANICS		**SW8270C**			Analyst: **KW**
2,4-Dimethylphenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,4-Dichlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Bis(2-chloroethoxy)methane	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
1,2,4-Trichlorobenzene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Naphthalene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Hexachloropropene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,6-Dichlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2-Methylnaphthalene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Hexachlorobutadiene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
N-Nitroso-di-n-butylamine	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
4-Chloro-3-methylphenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
1,2,4,5-Tetrachlorobenzene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Hexachlorocyclopentadiene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,4,6-Trichlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,4,5-Trichlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2-Chloronaphthalene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Acenaphthylene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Dimethyl phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,6-Dinitrotoluene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Acenaphthene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,4-Dinitrophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Pentachlorobenzene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Dibenzofuran	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,4-Dinitrotoluene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
2,3,4,6-Tetrachlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
4-Nitrophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Fluorene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Diethyl phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
4-Chlorophenyl phenyl ether	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Hexachlorobenzene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
N-Nitrosodiphenylamine	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
4-Bromophenyl phenyl ether	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Pentachlorophenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Pentachloronitrobenzene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Anthracene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Phenanthrene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
4,6-Dinitro-2-methylphenol	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Di-n-butyl phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Fluoranthene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Pyrene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Butyl benzyl phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benz(a)anthracene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Chrysene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Bis(2-ethylhexyl)phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Di-n-octyl phthalate	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benzo(b)fluoranthene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benzo(k)fluoranthene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benzo(a)pyrene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

SEMIVOLATILE ORGANICS		**SW8270C**			Analyst: **KW**
Indeno(1,2,3-cd)pyrene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Dibenz(a,h)anthracene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benzo(g,h,i)perylene	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Benzidine	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
1,2-Diphenylhydrazine	BDL	100	µg/Kg	1	5/30/03 2:11:00 AM
Surr: 2-Fluorophenol	41.4	26-113	%REC	1	5/30/03 2:11:00 AM
Surr: Phenol-d6	39.4	29-116	%REC	1	5/30/03 2:11:00 AM
Surr: Nitrobenzene-d5	39.6	30-127	%REC	1	5/30/03 2:11:00 AM
Surr: 2-Fluorobiphenyl	39.3	38-116	%REC	1	5/30/03 2:11:00 AM
Surr: 2,4,6-Tribromophenol	36.5	13-131	%REC	1	5/30/03 2:11:00 AM
Surr: p-Terphenyl-d14	39.5	16-167	%REC	1	5/30/03 2:11:00 AM
VOLATILE ORGANIC ANALYSIS		**SW8260B**			Analyst: **CP**
Acrolein	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
Acrylonitrile	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
Dichlorodifluoromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Chloromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Vinyl chloride	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Bromomethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Chloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Acetonitrile	BDL	40	µg/Kg	1	5/29/03 9:58:00 AM
Trichlorofluoromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Acetone	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
1,1-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Iodomethane	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
Methylene chloride	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
Carbon disulfide	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
trans-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Methyl tert-butyl ether	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
1,1-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Vinyl acetate	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
2-Butanone	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
cis-1,2-Dichloroethene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Bromochloromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Chloroform	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
2,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,2-Dichloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,1,1-Trichloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,1-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Carbon tetrachloride	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Benzene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Dibromomethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,2-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Trichloroethene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Bromodichloromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
2-Chloroethyl vinyl ether	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
cis-1,3-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
4-Methyl-2-pentanone	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM

Belmont Labs

Date: *18-Jun-03*

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

VOLATILE ORGANIC ANALYSIS		**SW8260B**			Analyst: **CP**
trans-1,3-Dichloropropene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,1,2-Trichloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Toluene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,3-Dichloropropane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
2-Hexanone	BDL	20	µg/Kg	1	5/29/03 9:58:00 AM
Dibromochloromethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,2-Dibromoethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Tetrachloroethene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,1,1,2-Tetrachloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Chlorobenzene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Ethylbenzene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
m,p-Xylene	BDL	10	µg/Kg	1	5/29/03 9:58:00 AM
Bromoform	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Styrene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
1,1,2,2-Tetrachloroethane	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
o-Xylene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Bromobenzene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
2-Chlorotoluene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
4-Chlorotoluene	BDL	5.0	µg/Kg	1	5/29/03 9:58:00 AM
Surr: Dibromofluoromethane	129	70-130	%REC	1	5/29/03 9:58:00 AM
Surr: 1,2-Dichloroethane-d4	98.6	70-121	%REC	1	5/29/03 9:58:00 AM
Surr: Toluene-d8	86.4	84-138	%REC	1	5/29/03 9:58:00 AM
Surr: 4-Bromofluorobenzene	79.7	59-113	%REC	1	5/29/03 9:58:00 AM

CLIENT:	Civil Environmental Consultants	**Lab Order:**	0305813
Project:	Ball Can Rush		

Data Qualifiers (Flags)

*	Value exceeds Maximum Contaminant Level
B	Analyte detected in the associated Method Blank
BDL	Below Detection limit
C	Sample result confirmed
E	Value above quantitation range
F	Unable to obtain a reliable result due to matrix interference
H	Analysis completed outside holding times
J	Analyte detected below quantitation limits, estimated concentration for TICs
K	Result from method of standard additions
N	Presumptive evidence of analyte present
P	Percent difference between primary and secondary column concentrations exceeded acceptance limit
S	Surrogate recovery outside acceptance limits
V	Calibration criteria exceeded, but acceptable by method

APPENDIX V

AST DOCUMENTATION

6/2/03 Loads

~~||||~~ ~~||||~~ ~~||||~~ |||

Mary Ellen Thurs

Tom D 574 942 2702

Chuck 570 898 0518

6/2/03

1300 Truck 1 23CY

Truck 1 Dimet. 8' x 13' x 6'

1330 Truck Left Site

1344 2nd Load Arrived Same Truck

1409 3rd Load Arrived Same Truck

1427 4th load Arrived Same Truck

1511 5th load Arrived Same Truck

1512 6th Load Arrived Diff Truck

Measurements Truck 2

21' long 7' wide 5' high

1534 7th Load Truck 1

1547 8th Load Truck 2

1600 9th Load Truck 1

1613 10th Load Truck 2

1620 11th Load Truck 1

1633 12th Load Truck 2

1641 13th Load Truck 1

1654 14th load Truck 2
1703 15th load Truck 1
1713 16th load Truck 2
1722 17th load Truck 1
1742 18th load Truck 2

1745 Finished grading, graded
road, moved trailers
1830 Rob, Andy left site

Tuesday 6/3/03

0700 Rob Andy onsite
Doug getting Hydrolic
Hose Fixed
Weather is Raining
Called off Work
0900 Met Tommy on Site
Andy returned weed Eater
to ARTS
Rob Tom Doug Marking
out Toe of Slope and
Boundarys of Cap.
1030 Crew left Site
Had Breakfast ?

WEDNESDAY 6-4-03
- RAINED OUT

THURSDAY 6-5-03

0700 Rob Andy, Steve ON site
0730 2 loads of rock arrive
- Truck # 138 8yd. truck
- Truck # 225 16yd truck
0802 3rd load of rock truck # 138
0821 4th load of rock truck # 138
0933 Rob Andy relocation of
Stumps + mulch
0953 5th load of stone truck # 138
1012 6th load of stone truck # 290 (16yd.)
1029 7th load of stone truck # 138
1038 8th load of stone truck # 290

- START of Clay
1108 1st load of clay truck # 290 1
1116 2nd load of clay truck # 138 2
- small truck # 138
1126 3rd load truck # 290 1
1132 4th load truck # 138 2 (Sm Tr.)
1157 5th load # 138 2 ~~3 truck~~ (Sm Tr.)
6th load # ~~256~~ 256 3
Truck 3 first load Quad
Axel 23 cy Truck # 221
1212 7th load # 138 (Sm TK) 2
1216 8th load # 174 (Sm TK) 4
1225 9th load # 255 3
1232 10th load tr. # 138 2 (Sm TK)
1236 11th load tr # 142 5 (Sm TK)
1245 12th load tr # 143 6 (Sm TK)
1247 13th load tr # 255 3
1250 14th load tr # 138 2 (Sm TK)

~~15th~~ load

1254	15th load tr# 142 (5) (SmTK)		1401	32nd load tr# 138 (SmTK) (2)	
1257	16th load tr# 143 (SmTK) (6)		1403	33rd load tr# 142 (5) (SmTK)	
1303	17th load tr# 255 (3)		1414	34th load tr# 255 (3)	
1306	18th load tr# 138 (2) (SmTK)		1416	35th load tr# 138 (2) (Sm TK)	
1311	19th load tr# 142 (5) (SmTK)		1421	36th load tr# 142 (5) (SmTK)	
1313	20th load tr# 143 (6) (SmTK)		1427	37th load tr# 225 (8)	
1322	21st load tr# 255 (3)		1433	38th load tr# 255 (3)	
1325	22nd load tr# 290 (1)		1435	39th load tr# 138 (2) (SmTK)	
1331	23rd load tr# 138 (2) (SmTK)		1437	40th load tr# 142 (5) (SmTK)	
1332	24th load tr# 142 (5) (SmTK)		1451	41st load tr# 255 (3)	
1334	25th load tr# 255 (3)		1455	42nd load tr# 225 (8)	
1337	26th load tr# 143 (6) (SmTK)		1456	43rd load tr# 138 (2) (SmTK)	
1341	27th load tr# 255 (3)		1500	44th load tr# 142 (5) (SmTK)	
1345	28th load tr# 138 (2) (SmTK)		1511	45th load tr# 255 (3)	
1348	29th load tr# 142 (5) (SmTK)		1512	46th load tr# 138 (2) (SmTK)	
1351	30th load tr# 143 (6) (SmTK)		1520	47th load tr# 225 (8)	
1359	31st load tr# 255 (3)		1525	48th load tr# 142 (5) (SmTK)	
			1531	49th load tr# 255 (3)	

1532 50th load tr# 138 (2) (SmTK)
1542 51st load tr# 225 (8)
1551 52nd load tr# 255 (3)
1601 53rd load tr# 225 (8)
1607 54th load tr# 290 (1)
1609 55th load tr# 255 (3)
1621 56th load tr# 225 (8)
1625 57th load tr# 255 (3)
1635 58th load tr# 290 (1)
1640 59th load tr# 225 (8)
1644 60th load tr# 255 (3)
1656 61st load tr# 290 (1)
1701 62nd load tr# 225 (8)
1705 63rd load tr# 255 (3)
1716 64th load tr# 290 (1)
1720 65th load tr# 225 (8)
1725 66th load tr# 255 (3)
1735 67th load tr# 290 (1)

1739 68th load TR# 225 (8)
1754 69th load TR# 290 (1)
1805 70th load TR# 225 (8)
1812 71st load TR# 290 (1)
1834 72nd load TR# 225 (8)
1840 73rd load TR# 290 (1)
1906 74th load TR# 225 (8)
1910 75th load TR# 290 (1)

2000 Rob, Andy, Steve leave site

FRIDAY 6-6-03

0700 Bryan, Steve, Andy ON site, fuel ~~vehicles~~ equipment, get ready to go

Start of Clay 6/6/03

0814 1st load of clay TR# 255 1
0830 2nd load TR# 225 2
0836 3rd load TR# 255 1
0846 4th load TR# 235 3
0853 5th load TR# 255 1
0900 6th load TR# 225 2
0910 7th load TR# 255 1
0915 8th load TR# 235 3
0931 9th load TR# 255 1
0938 10th load TR# 225 2
0949 11th load TR# 255 1
0955 12th load TR# 235 3
1014 13th load TR# 225 2
1020 14th load TR# 235 3
1042 15th load TR# 225 2
1047 16th load TR# 235 3
1101 17th load TR# 225 2

1108 18th load TR# 235 3
1120 19th load TR# 225 2
1127 20th load TR# 235 3
1139 21st load TR# 225 2
1146 22nd load TR# 235 3

1150 Truckers take lunch &
works on one of trucks
- Cut us to two trucks
AT 0949

1245 23rd load TR# 225 2
1251 24th load TR# 235 3
1308 25th load TR# 225 2
1315 26th load TR# 235 3
1327 27th load TR# 225 2
1334 28th load TR# 235 3
1356 29th load TR# 225 2

1417 30th load TR# 210 (4)
1422 31st load TR# 225 (2)
1433 ~~32~~ 32nd load TR# 235 (3)
1442 33rd load TR# 210 (4)
1447 34th load TR# 225 (2)
1501 35th load TR# 210 (4)
1503 36th load TR# 235 (3)
1506 37th load TR# 225 (2)
1525 38th load TR# 235 (3)
1529 39th load TR# 225 (2)
1547 40th load TR# 235 (3)
1616 41st load TR# 235 (3)
1618 42nd load TR# 225 (2)
1636 43rd load TR# 235 (3)
1641 44th load TR# 225 (2)
1701 45th load TR# 235 (3)
1713 46th load TR# 225 (2)
1723 47th load TR# 235 (3)

1734 48th load TR# 225 (2)
1756 49th load TR# 225 (2)
1816 50th load TR# 235 (3)
1822 51st load TR# 225 (2)
1840 52nd load TR# 235 (3)

1850 STARTED grading out roads slopes etc.

2000 Bryan, Steve, Andy clean up + ~~[illegible]~~ leave site

MONDAY 6-9-03

0700 Rob, Andy arrive

0710 Walk through site, is pretty wet, Rob begins to scrape road ways + caps

0830 Steve arrived onsite

TK# 290

0905 1st load of rock arrives

- Rob starts relocating

rock with backhoe

1038 2nd load of stone TK# 137 (SmTK)

1058 3rd load of stone TK# R01

1059 4th load of stone TK# 137 (SmTK)

1115 Rob digging Keyway Steve

continues prepping for trucks

Stmer of Clay

1345 1st load TK# R01 (1)

1346 2nd load TK# R02 (2)

1350 Rob done digging Keyway

starts compacting

1407 3rd load TK# R01 (1)

1412 4th load TK# R02 (2)

1418 5th load TK# 245 (3)

1427 6th load TK# R01 (1)

1431 7th load TK# R02 (2)

1437 8th load TK# 245 (3)

1446 9th load TK# R01 (1)

1449 10th load TK# R02 (2)

1458 11th load TK# 245 (3)

1502 12th load TK# R01 (1)

1508 13th load TK# R02 (2)

1516 14th load TK# 245 (3)

1525 15th load TK# R01 (1)

1536 16th load TK# 245 (3)

1540 17th load TK# 226 (4)

1554 18th load TK# 245 (3)

1559 19th load TK# 226 (4)

1602 20th load TK# R02 (2)

1613 21st load TK# 245 (3)

1617 22nd load TK# 226 (4)

1621 23rd load TK# R02 (2)

1632 24th load TK# 245 (3)

1638	25th	load TR# 226	4
1640	26th	load TR# R02	2
1649	27th	load TR# 245	3
1655	28th	load TR# 226	4
1658	29th	load TR# R02	2
1707	30th	load TR# 245	3
1712	31st	load TR# 226	4
1720	32nd	load TR# R02	2
1725	33rd	load TR# 245	3
1731	34th	load TR# 226	4
1736	35th	load TR# R02	2
1742	36th	load TR# 245	3
1748	37th	load TR# 226	4
1755	38th	load TR# R02	2
1802	39th	load TR# 245	3
1806	40th	load TR# 226	4
1812	41st	load TR# R02	2

1820	42nd	load TR# 245	3
1823	43rd	load TR# 226	4
1831	44th	load TR# R02	2
1839	45th	load TR# 245	3
1846	46th	load TR# 226	4
1848	47th	load TR# R02	2
1902	48th	load TR# 226	4
1905	49th	load TR# R02	2
1921	50th	load TR# 226	4
1926	51st	load TR# R02	2

2000 Steve, Rob, Andy leave site

~~0700~~ 6-10-03 Tuesday

0700 Steve, Amy, Rob on site

0730 Start of day

0731	1st	load TR# 210 (1)
0749	2nd	load TR# 210 (1)
0805	3rd	load T.R# 210 (1)
0821	4th	load TR# R01 (2)
0825	5th	load TR# 210 (1)
0840	6th	load TR# R01 (2)
0845	7th	load TR# 210 (1)
0905	8th	load TR# R01 (2)
0911	9th	load TR# 210 (1)
0926	10th	load TR# R01 (2)
0931	11th	load TR# 210 (1)
0946	12th	load TR# R01 (2)
0951	13th	load TR# 210 (1)
1008	14th	load TR# R01 (2)
1014	15th	load TR# 210 (1)
1031	16th	load TR# R01 (2)
1036	17th	load TR# 210 (1)
1042	18th	load TR# R02 (3)
1050	19th	load TR# R01 (2)
1054	20th	load TR# 235 ~~(4)~~ (4)
1059	21st	load TR# 210 (1)
1105	22nd	load TR# R02 (3)
1113	23rd	load TR# 235 (4)
1119	24th	load TR# 210 (1)
1124	25th	load TR# R02 (3)
1130	26th	load TR# 235 (4)
1135	27th	load TR# 210 (1)
1141	28th	load TR# R02 (3)
1148	29th	load TR# 235 (4)
1152	30th	load TR# 210 (1)
1203	31st	load TR# 235 (5)
1209	32nd	load TR# 235 (4)

1213	33rd	load TK# 210	1
1225	34th	load TR# 225	5
1231	35th	load TR# 235	4
1235	36th	load TR# 210	1
1245	37th	load TK# 225	5
1249	38th	load TR# 235	4
1330	39th	load TR# 210	1
1332	40th	load TR# 225	5
1334	41st	load TR# 235	4
1344	42nd	load TR# 210	1
1352	43rd	load TR# 225	5
1356	44th	load TR# 235	4
1400	45th	load TR# 210	1
1401	46th	load TR# R01	2
1411	47th	load TR# 225	5
1415	48th	load TR# 235	4
1417	49th	load TR# 210	1

1422	50th	load TR# R01	2
1429	51st	load TR# 225	5
1434	52nd	load TK# 235	4
1440	53rd	load TK# R01	2
1441	54th	load TK# 210	1
1449	55th	load TR# 225	5
1452	56th	load TR# 235	4
1456	57th	load TR# 210	1
1500	58th	load TK# R01	2
1509	59th	load TK# 225	5
1512	60th	load TK# 235	4
1516	61st	load TK# R01	2
1527	62nd	load TK# 225	5
1529	63rd	load TK# 235	4
1530	64th	load TK# R01	2
1532	65th	load TR# 210	1
1543	66th	load TK# 225	5
1546	67th	load TR# 235	4

1547	68th	load TR#	R01	2
1549	69th	load TR#	210	1
1600	70th	load TR#	225	5
1603	71th	load TR#	235	4
1605	72nd	load TR#	R01	2
1607	73rd	load TR#	210	1
1617	74th	load TR#	225	5
1619	75th	load TR#	210	1
1621	76th	load TR#	R01	2
1623	77th	load TR#	235	4
1633	78th	load TR#	225	5
1636	79th	load TR#	210	1
1637	80th	load TR#	R01	2
1640	81st	load TR#	235	4
1649	82nd	load TR#	225	5
1652	83rd	load TR#	210	1
1654	84th	load TR#	R01	2

2

1656	85th	load TR#	235	4
1706	86th	load TR#	225	5
1709	87th	load TR#	210	1
1711	88th	load TR#	R01	2
1712	89th	load TR#	235	4
1728	90th	load TR#	225	5
1731	91st	load TR#	R01	2
1733	92nd	load TR#	210	1
1735	93rd	load TR#	235	4
1746	94th	load TR#	225	5
1752	95th	load TR#	R01	2
1753	96th	load TR#	210	1
1755	97th	load TR#	235	4
1808	98th	load TR#	210	1
1809	99th	load TR#	R01	2
1810	100th	load TR#	235	4
1823	101st	load TR#	210	1

1825 102nd load TR# 235 (4)
1827 103rd load TR# R01 (2)
1831 104th load TR# 225 (5)
1838 105th load TR# 210 (1)
1842 106th load TR# 235 (4)
1846 107th load TR# R01 (2)
1850 108th load TR# 225 (5)
1853 109th load TR# 210 (1)
1901 110th load TR# 235 (4)
1904 111th load TR# R01 (2)
1908 112th load TR# 225 (5)
1911 113th load TR# 210 (1)
1918 114th load TR# 235 (4)
1928 115th load TR# R01 (2)
1929 116th load TR# 210 (1)
1938 117th load TR# 235 (4)

2030 Rob, Andy, Steve left site

Wednesday 6-11-03

0700 Rob, Steve on site
check site, Ready to haul (0800 Andy arrived on site)

0730 STARTED hauling

0852 1st load TR# 180 (1) (SMTK)
2nd load TR# 142 (2) (SMTK)
3rd load TR# 143 (3) (SMTK)
4th load TR# 138 (4) (SMTK)
5th load TR# 142 (2) (SMTK)
6th load TR# 226 (5)
7th load TR# 143 (3) (SMTK)
8th load TR# 138 (4) (SM TK)
9th load TR# 142 (2) (SMTK)
10th load TR# 226 (5)

0855 11th load TR# 226 5
0858 12th load TR# 142 2 (SMTK)
0900 13th load TR# 143 3 (SMTK)
0902 14th load TR# 138 4 (SMTK)
0911 15th load TR# 226 5
0912 16th load TR# 142 2 (SMTK)
0914 17th load TR# 143 3 (SMTK)
0918 18th load TR# 138 4 (SMTK)
0922 19th load TR# 142 2 (SMTK)
0930 20th load TR# 226 5
0932 21st load TR# 143 3 (SMTK)
0937 22nd load TR# 138 4 (SMTK)
0939 23rd load TR# 142 2 (SMTK)
0946 24TH LOAD TR# 226 5
0948 25TH LOAD TR# 143 3 (SMTK)
0953 26TH LOAD TR# 138 4 (SMTK)
0954 27TH LOAD TR# 142 2 (SMTK)
10:01 28TH LOAD TR# 137 6 (SMTK)

1006 29TH LOAD TR# 226 5
1009 30TH LOAD TR# 138 4 (SMTK)
1010 31ST LOAD TR# 142 2 (SMTK)
1020 32ND LOAD TR# 235 7
1023 33RD LOAD TR# 137 6 (SMTK)
1032 34TH LOAD TR# 226 5
1034 35TH LOAD TR# 138 4 (SMTK)
1036 36TH LOAD TR# 142 2 (SMTK)
1041 37TH LOAD TR# 235 7
1043 38TH LOAD TR# 137 6 (SMTK)
1050 39TH LOAD TR# 226 5
1052 40TH LOAD TR# 138 4 (SMTK)
1054 41st load TR# 142 2 (SMTK)
1100 42nd load TR# 137 6 (SMTK)
1105 43rd load TR# 235 7
1107 44th load TR# 226 5
1113 45th load TR# 138 4 (SMTK)
118 46th load TR# 142 2 (SMTK)

1120 47th load TK# 137 6 (SMTK)
1126 48th load TK# 235 7
1133 49th load TK# 226 5
1135 50th load TK# 138 4 (SMTK)
1138 51st load TK# 142 2 (SMTK)
1140 52nd load TK# 137 6 (SMTK)
1147 53rd load TK# 235 7
1151 54th load TK# 226 5
1152 55th load TK# 138 4 (SMTK)
1153 56th load TK# 142 2 (SMTK)
1155 57th load TK# 137 6 (SMTK)
1205 58th load TK# 235 7
1207 59th load TK# 226 5
1209 60th load TK# 138 4 (SMTK)
1210 61st load TK# 142 2 (SMTK)
1214 62nd load TK# 137 6 (SMTK)
1222 63rd load TK# 235 7

1226 64th load TK# 226 5
1227 65th load TK# 138 4 (SMTK)
1228 66th load TK# 142 2 (SMTK)
1251 67th load TK# 226 5
1252 68th load TK# 138 4 (SMTK)
1253 69th load TK# 235 7
1257 70th load TK# 142 2 (SMTK)
1258 71st load TK# 137 6 (SMTK)
1306 72nd load TK# 226 5
1307 73rd load TK# 138 4 (SMTK)
1312 74th load TK# 235 7
1313 75th load TK# 142 2 (SMTK)
1316 76th load TK# 137 6 (SMTK)
1325 77th load TK# 226 5
1326 78th load TK# 138 4 (SMTK)
1327 79th load TK# 142 2 (SMTK)
1330 80th load TK# 235 7

1334 81st load TK# 137 6 (SMTK)
1335 82nd load TK# 142 2 (SMTK)
1337 83rd load TK# 138 4 (SMTK)
1342 84th load TK# 226 5
1343 85th load TK# 142 2 (SMTK)
1352 86th load TK# 235 7
1354 87th load TK# 137 6 (SMTK)
1356 88th load TK# 138 4 (SMTK)
1404 89th load TK# 226 5
1405 90th load TK# 142 2 (SMTK)
1409 91st load TK# 235 7
1411 92nd load TK# 137 6 (SMTK)
1413 93rd load TK# 138 4 (SMTK)
1419 94th load TK# 142 2 (SMTK)
1423 95th load TK# 226 5
1430 96th load TK# 137 6 (SMTK)
1431 97th load TK# 235 7

1435 98th load TK# 138 4 (SMTK)
1436 99th load TK# 142 2 (SMTK)
1444 100th load TK# 226 5
1447 101st load TK# 235 7
1450 102nd load TK# 137 6 (SMTK)
1452 103rd load TK# 142 2 (SMTK)
1456 104th load TK# 138 4 (SMTK)
1503 105th load TK# 226 5
1530 106th load TK# 235 7
1531 107th load TK# 138 4 (SMTK)
1532 108th load TK# 142 2 (SMTK)
1533 Cut trucks off after discussing new plan
1545 Steve final grading on cap,
Rob compacting + cleaning
up machine
1800 No Rip-Rap showed up
Rob left site
1830 ANDY leaves site

2030 Steve gets done
grading every thing
leaves site

Thuresday 6-12-03
0700 Rob, Away, steve
on site
- determine to wet
0800 Rob, Away, clean machines
steve leaves site
0900 Rob, Away leave site

6/23/03 Monday
0700 Rob on site
Doul Jack Andy
meeting @ Shop loaded
up Equipment.
0800 Rip Rap Arrived on-site
placed Rip Rap on Bank
and Finished Transporting
Debri (Trees mulch) to
Bottom of Hill.
1000 Started Hydro seeding
Area,

1200 Took Lunch
1230 Cont, Seeding
200 lbs seed / Acer
200 lbs Fert.
1800 lbs 50/50 mulch w Tac

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FAX (513) 272-5165

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CONVENIENT LOCATIONS:
NEWTOWN / LOVELAND
ANDERSON / MASON
PERINTOWN / TRENTON

INVOICE DATE	INVOICE NUMBER
05/28/03	107700

INVOICE

Todd

Noon

VISIT US ON THE WEB @ WWW.EVANSLANDSCAPING.COM

SOLD TO:
A & T ENVIRONMENTAL
[illegible] COMMERCIAL WAY
SPRINGBORO, OH [illegible]

SHIP TO:
[illegible]

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
107700	05/28/03	03951	AV			[illegible]	[illegible]

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
5	5	*WFD10	LOADS OF CLAY DIRT PER LOAD. 20-25 YDS PER LOAD			

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"BEST MULCH, TOPSOIL & CUSTOMERS IN TOWN"

280

365

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CONVENIENT LOCATIONS:
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INVOICE DATE	INVOICE NUMBER	PAGE
06/03/03	498561	1

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70 COMMERCIAL WAY
SPRINGBORO, OH 45066

SHIP TO:
BEHIND BWAY
BROADWELL RD
PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
498561	06/03/03	63351	AV			06/02/03	C. O. D.

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
13	13	*WFD10	LOADS OF CLAY DIRT PER LOAD HAND TICKETS: 120327 134186			

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RECEIVED BY

TAX

TOTAL

120327

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INVOICE DATE	INVOICE NUMBER
06/06/03	499102

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70 COMMERCIAL WAY
SPRINGBORO, OH 45066

SHIP TO
OFF BROADWELL
BEHIND DWAY
REF DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO	SHIP VIA	SHIP DATE	TERMS
499102	06/06/03	63351	A?			[illegible]	[illegible]

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
44 ~~48~~	48	*WFD10	CLAY DIRT PER QUAD LOAD			
31	31	*WFD10	CLAY DIRT PER SINGLE AXLE LOAD			
90	90	*W304L	GRAVEL 304 LIMESTONE W HAULED PER TON			

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INVOICE DATE	INVOICE NUMBER
06/07/03	499244

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SPRINGBORO, OH 45066

SHIP TO
BEHIND BWAY
OFF BROADWELL RD
PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
499244	06/07/03	02351	AV			06/09/03	C. O. D.

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
~~55~~	55	*WFD10	CLAY DIRT PER QUADAX LOAD			

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INVOICE DATE	INVOICE NUMBER
06/10/03	499496

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PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
499496	06/10/03	63351	AV			06/09/03	C. O. D.

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
51	51	*WFD10	CLAY DIRT PER QUAD LOAD			

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INVOICE DATE	INVOICE NUMBER
06/09/03	499349

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SHIP TO
BROADWELL RD JOB
PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
499349	06/09/03	63351	AV			06/09/03	C. O. D.

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS
60	60	*W304L	GRAVEL 304 LIMESTONE W HAULED PER TON		

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INVOICE DATE	INVOICE NUMBER	PAGE
06/11/03	499658	1

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BEHIND BWAY
PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALES MAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
499658	06/11/03	63351	AV			06/10/03	C. O. D

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNITS	AMOUNT
115	115	*WFD10	CLAY DIRT PER QUAD LOAD			

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CONVENIENT LOCATIONS:
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INVOICE DATE	INVOICE NUMBER	PAGE
06/12/03	499738	1

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70 COMMERCIAL WAY
SPRINGBORO, OH 45066

SHIP TO:
OFF BROADWELL
BEHIND BWAY
PER DOUG SMITH

ORDER NUMBER	ORDER DATE	CUSTOMER NUMBER	SALESMAN	PURCHASE ORDER NO.	SHIP VIA	SHIP DATE	TERMS
499738	06/12/03	63351	AV			[illegible]11/03	[illegible]

QUANTITY ORDERED	QUANTITY SHIPPED	ITEM	DESCRIPTION	UNIT PRICE	UNIT	AMOUNT
37 ~~38~~	38	*WED10	CLAY DIRT PER QUADAX LOAD			
10 ~~70~~	70	*WED10	CLAY DIRT PER SINGLE AXLE LOAD			

Evans
"BEST MULCH, TOPSOIL & CUSTOMERS IN TOWN"

Clay Quantity

8200 BROADWELL ROAD, BALL CAN

Date	20cy loads	23cy loads	8cy loads	Total cy
2-Jun		18		414
5-Jun		44	31	1,260
6-Jun		52		1,196
9-Jun	51			1,020
10-Jun		117		2,691
11-Jun		37	71	1,419
TOTAL				**8,000**

8,000 LOOSE YARDS/ 1.3 LOOSE YARDS/COMPACTED YARDS = 6,153.85

B-way Cincinnati Plant Oil Release – South Side of Litho Building - June 2003

Background

On June 19, 2003, an area of oil-covered soil was discovered near the southwest corner of the plant (south side of the Litho Building). Figure 1 shows the approximate location of the oil-stained area. The oil was apparently being discharged from the compressor condensation hose, which was vented out the plant window. Upon release, the area of immediate impact was approximately 10 feet by 8 feet in diameter, directly beneath the hose. From that point, drainage (rain water and condensate water) carried the oil along the perimeter of the building, covering an additional 5-foot by 3-foot area to the west; and an additional 15-foot by 4-foot area to the east. In total, an area of approximately 150 square feet was covered with oil. Photos of the oil-covered soil are shown in Figure 2 through 4.

Due to a compressor malfunction, the compressor oil mixed with water, then was ejected out the hose duct when the compressor started up. Indications from plant personnel are that this situation has been occurring for approximately 2 to 4 weeks. Per Plant Engineering, it is not possible to determine the amount of oil that was released since the system was closed. Based on visual inspection, an estimated 10 to 20 gallons of oil were ejected out the hose.

The oil is made specifically for compressors by Kaeser Compressors of Fredricksburg, Virginia. It is changed out of the compressor every 6 months and sent for recycling. It is listed as non-hazardous per Department of Transportation Regulations. An MSDS for the oil is provided as Attachment 1.

Regulatory Review

After the oil covered soil was discovered, a regulatory review was conducted to determine the appropriate reporting, clean-up and disposal requirements. This included conversations with several consultants from the Payne Firm, Cincinnati Ohio. Potentially applicable laws include CERCLA/SARA Section 313 (Emergency Planning and Community Right-to-know Act (EPCRA), the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Toxic Substances Control Act (TSCA) and State of Ohio-specific regulations. Findings are as follows:

- EPCRA: Oil (used or unused) is not listed as an extremely hazardous substance (EHS), though the oil may contain some EHS components. However, none are identified on the MSDS. Because the oil release was on B-way property, it would not qualify for Emergency notification. Also, the small amount of oil released did not trigger any threshold reporting quantities.

- RCRA: Used oil is not a RCRA-listed waste. However any used oil not intended for recycling required a hazardous waste determination based on generator knowledge or TCLP analysis. This will be the case for the oil-contaminated soil. Also, this is considered a "continuous release" under RCRA, and therefore, not subject to notification requirements.

- CWA: The greatest regulatory concern for the released oil is in regard to the CWA. However, because the oil did not reach a "navigable" body of water or any storm drains, regulations identified under the CWA do not apply.

- TSCA: because the oil in a maximum of 6 months old, it will not contain PCB's, and therefore, TSCA does not apply.

- State-specific regulations: Ohio has a requirement to report any oils releases greater than 25 gallons in a single release. This does not apply because this is a continuous release; plus this is likely less than 25 gallons (though the exact quantity cannot be determined).

In summary, there is no need for immediate notification to the State or Federal EPA. There is also no need for emergency response because the oil is contained to a small area along the Plant, and is not possible under natural circumstances for the oil to reach a storm drain or a navigable body of water.

Response/Corrective Actions:

Immediately upon identification, maintenance personnel were told of the problem, and an empty 55-gallon drum was placed on the ground immediately beneath the vent hose to minimize additional environmental impact. On June 23, 2003, an oil-water separator was hooked up to the compressor to remove any oil prior to condensate discharge. In addition, the vent hose was diverted to a sewer drain inside the plant, so no more release would occur directly into the environment.

Establishing Clean-up Goals:

Due to the nature of the contaminated material (used hydraulic oil), the goal of the cleanup was to demonstrate removal of all contaminants of concern below regulatory levels. For used hydraulic oil, the contaminants of concern are the BTEX series (benzene, toluene, ethylbenzene and xylene), along with total petroleum hydrocarbons (TPH). The clean-up level for these contaminants of concern was established using the "Site Feature Worksheet" per OEPA guidance, which accounts for site and locations specific characteristics using a scoring system. The results of this analysis indicate that the "Category 3" clean up levels apply, as follows:

- Benzene = 0.335 mg/kg
- Toluene = 9 mg/kg
- Ethylbenzene = 14 mg/kg
- Xylene = 67 mg/kg.
- TPH = 904 mg/kg.

Soil Disposal:

Rumpke, Inc. was contacted to determine their requirements for accepting the contaminated soil. They include: TCLP Metals analysis (for a RCRA hazardous waste determination) with results below the "characteristic" level, a MSDS for the oil, and a completed Rumpke Waste Profile Form.

On July 2, 2003, a sample of the soil was collected for the necessary TCLP metals analysis. The sample was collected from the point where the heaviest oil staining appeared. This was approximately one foot east of the area of immediate impact (i.e., the 10'x8' area), and one foot away from the building. The sample was collected with a clean plastic trowel to a depth of 6-inches, to represent the minimum depth of soil that will be removed during remedial excavation. The sample was placed in a container provided by GEL Laboratories of Ohio, labeled, preserved with ice, and taken to GEL, along with the Chain of Custody form.

TCLP results showed non-detected chromium, selenium and silver concentrations, while arsenic, barium, cadmium, lead and mercury were detected at levels well-below (more than an order of magnitude below) the characteristic concentration. The results were provided to Rumpke for approval via Rumpke's Waste Characterization Form. Approval was received on Monday, July 14th.

Soil Remedial Excavation:

The soil excavation was performed on July 11th by Huber General Contracting. A large Bobcat was used to excavate approximately one foot of soil from the center of the stained and along the perimeter of the building. A total of approximately 5 yards of soil was removed, and transferred directly to a roll-off container provided by Rumpke. The roll-off and the Contaminated Manifest (complete with the approval number provided by Rumpke), were removed the following day (July 12, 2003).

Based on OEPA guidelines, only one sample is necessary to demonstrate clean-up when the excavation footprint is less than 150 square feet. On Monday, July 14th, a soil sample (OIL-1) was collected from the top of the excavated surface immediately below the former location of the condensate hose, and several inches in front of the building. The sample along with a trip blank were placed in a container provided by GEL, labeled, preserved with ice, and taken to the lab along with the Chain of Custody form. There it was analyzed for TPH and BTEX plus napthalene. Analytical Results were received on July 21, 2003, and showed TPH levels of 4910 mg/kg in the soil, over five times the cleanup level. The BTEX series were all non-detected values, though napthlene was detected at a concentration of 3.4 mg/kg.

Based on these results, re-excavation was necessary. It appeared the contamination was able to migrate deeper along the building foundation where more gravel was present. On July 29th, a Bobcat and another roll off were brought in, and another two feet of soil were removed from the area along the perimeter of the building, and another approximately foot was removed from the center of the formerly stained area away from the plant. Approximately eight more cubic yards of soil were removed from the area, bringing the total volume of soil removed to 13 cubic yards.

After the excavation was complete, two soil samples were collected from the excavated. One (OIL-2) from the same location as the OIL-1 sample, and another (OIL-3) from approximately 6 feet away from the building where the excavation was not as deep. Again, these samples, along with a trip blank, were placed in a container provided by GEL, labeled, preserved with ice, and taken to GEL with the Chain of Custody form. The samples were again analyzed for TPH and BTEX plus napthalene. Results were received on August 5, 2003. The BTEX series and napthalene were non-detected in both samples. TPH concentrations were 183 and 321 mg/kg for the OIL-2 and OIL-3, respectively, thus below the clean-up level.

Based ppm the above data, the contaminated soil was considered clean, and the area was backfilled with clean fill, the topsoil was replaced, and seeded.

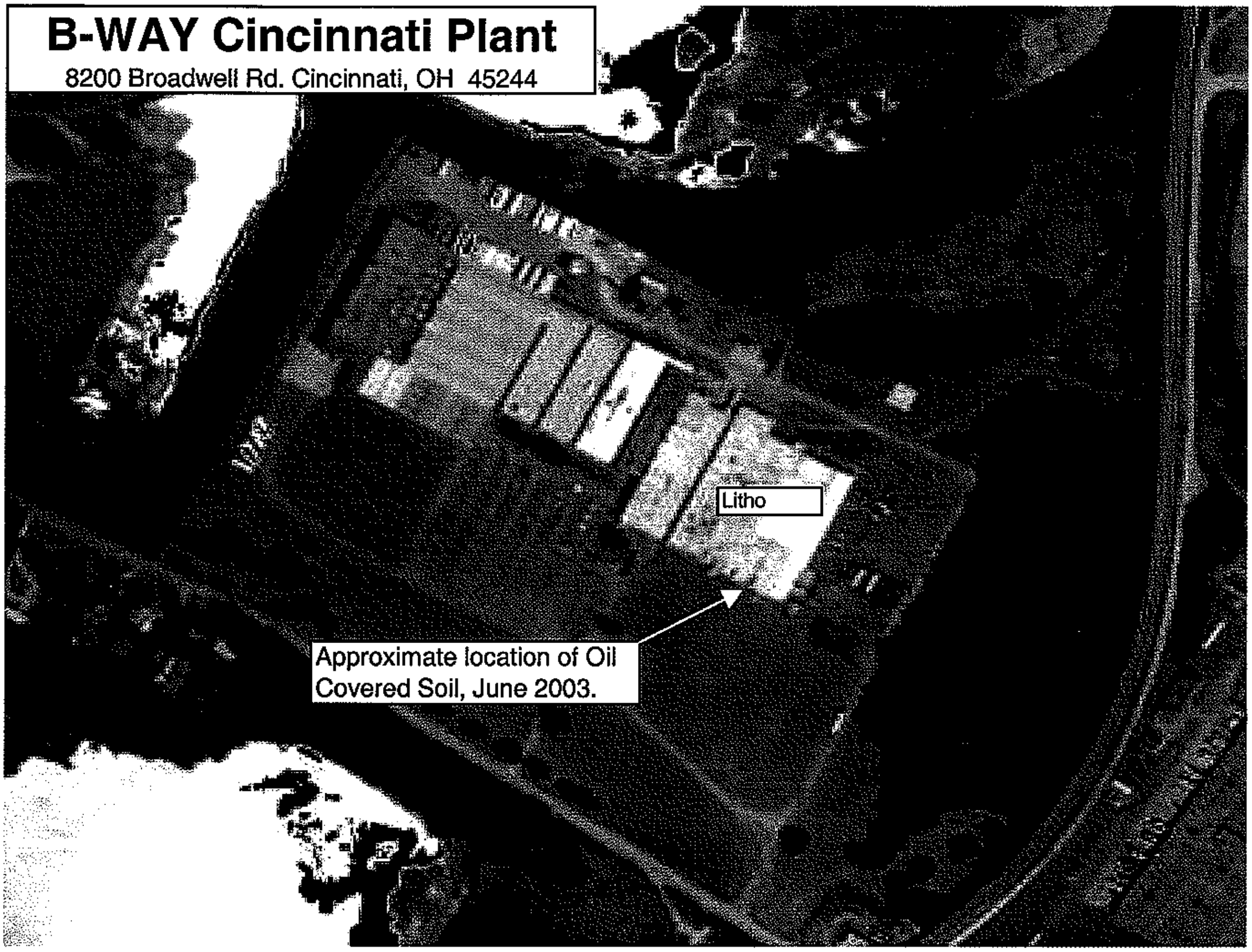

Figure 1. Location of Oil Covered Soil Discovered June 19, 2003

Oil Covered Soil - South side of Litho Building

Compressor Vent Hose, and 55-gallon
drum placed on-location upon discovery
to contain any additional release
until problem was corrected.

TCLP Metals Sample Location

SITE FEATURE WORK SHEET

Site Features	Column A		Column B		Column C	
	Score 15 Points	Enter Score	Score 10 Points	Enter Score	Score 5 Points	Enter Score
1. Proximity of perimeter of spill to a public or private well or water intake	>1000 feet	15	300 – 1000 feet		< 300 feet or inside of a designated sole source aquifer, sensitive area, well head protected area, or unknown	
2. Depth to ground water	>75 feet		25 – 75 feet (~50')	10	<25 feet or unknown	
3. Predominant type of substratum	Unfractured clay shale, claystone, mudstone, clay, silty clay, low permeable tills		Clayey silt, moderate permeable till, silty shale, unfractured siltstone-sandstone-limestone, sandy clay loam, barn, silt loam, silt, cemented sandstone, sandy clay, clay loam, silty clay barn, sandy silt, silty sand. clayey sand, coal, peat		Sand, gravel, loamy sand, sandy loam, poorly lithified sandstone, karst limestone, highly fractured rock, fill material or unknown	5
4. Proximity to structures or preferential migration pathways (see below)	<8 points	15	8 –12 points		>12 points	
5. Proximity to surface Water and/or proximity to sensitive areas	>120 feet	15	50 – 120 feet		<50 feet or unknown	
6. Land use	Commercial Industrial	15			Residential Recreational Agricultural	
Add Subtotals	+	60	+	10	+	5
					TOTAL SCORE	75

SITE FEATURE 4 WORK SHEET:

Structures with basements or subsurface foundations (i.e. crawl space, footer drains, basements) within 50 ft.	4 pt	0
Water line within 50 ft.	4 pt	0
Curtain drains, french drains or field tiles within 100 ft.	4 pt	0
Shallow injection wells; if within 50 ft. score 3 pts, if within 100 ft. score 1 pt.	3 pt or 1 pt	0
Septic systems (tank & associated leaching systems) within 50 ft.	2 pt	0
Building type structure without subsurface conditions listed above within 50 ft.	1 pt	1
Sanitary sewer line within 50 ft.	1 pt	0
Natural gas lines within 50 ft.	1 pt	?(1)
Pipelines or other conduits within 50 ft.	1 pt	?(1)
Buried telephone/television cable lines within 50 ft.	1 pt	0
Buried electrical cable 8 lines within 50 ft.	1 pt	?(1)
	TOTAL POINTS	4

If Total points from Site Feature 4 Work Sheet are:

<8	Enter score of 15 in Column A for Site Feature 4 in the above chart
8-12	Enter score of 10 in Column B for Site Feature 4 in the above chart
>12	Enter score of 5 in Column C for Site Feature 4 in the above chart

PETROLEUM ACTION LEVELS (PPM)

CONSTITUENT	CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
Total Score	< 46 Points	46-60 Points	~~61-75 Points~~	>75 Points
Soil BTEX	0.006 ppm Benzene 4 ppm Toluene 6 ppm Ethylbenzene 28 ppm total Xylenes	0.17 ppm Benzene 7 ppm Toluene 10ppm Ethylbenzene 47ppm Total Xylenes	0.335 Benzene ppm 9 ppm Toluene 14 ppm Ethylbenzene 67 ppm Total Xylenes	0.5 ppm Benzene 12 ppm Toluene 18 ppm Ethylbenzene 85 ppm Total Xylenes
Ground Water BTEX	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0.7ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes
Soil TPH (Gasoline)	105 ppm TPH	300 ppm TPH	450 ppm TPH	600 ppm TPH
Soil TPH (Others)	380 ppm TPH	642 ppm TPH	904 ppm TPH	1156 ppm TPH

PETROLEUM CONTAMINATED SITES

GUIDANCE DOCUMENT FOR EMERGENCY RESPONSE ACTIONS

OHIO ENVIRONMENTAL PROTECTION AGENCY
Division of Emergency and Remedial Response
Emergency Response and Special Investigations Section
Lazarus Government Building
P.O. Box 1049
122 South Front Street
Columbus, Ohio 43216-1049

Table of Contents

List of Revisions

Date of Initial Release	July 1997
Phone Number & Name Revision	January 2001
Conversion to MS Word Format	January 2002
Updated Drawings	January 2002
Table of Contents Added	January 2002
Numbered Pages	January 2002

SECTION I: INTRODUCTION

INTRODUCTION

Releases of petroleum to the environment in Ohio are regulated by the Bureau of Underground Storage Tank Regulations, Division of State Fire Marshal, Ohio Department of Commerce; the Divisions of Wildlife and Oil and Gas, Ohio Department of Natural Resources (ODNR); the Public Utilities Commission of Ohio; the Ohio Environmental Protection Agency (OEPA); the United States Coast Guard; the United States Environmental Protection Agency (US EPA); and various local municipalities which have adopted pollution prohibition regulations and ordinances. This document has been adapted from the Bureau of Underground Storage Tank Regulations Corrective Actions Guidance Document, which in turn, evolved from a Petroleum Contaminated Soils Policy originally created by OEPA.

The purpose of this document is to offer guidance in situations where a release of petroleum has occurred from a non-BUSTR regulated source. This document has been developed specifically for emergency response actions and may not be appropriate for use at sites where a long term clean up is necessary, such as where there is extensive ground water contamination or more than just petroleum contamination. In these long-term situations, the appropriate Ohio EPA District Office DERR Unit Supervisor should be contacted for guidance.

The following topics are outlined in this document:

- Release reporting requirements,
- Free product recovery recommendations,
- Permit application responsibilities,
- Petroleum action level calculations, and
- Field sampling procedures.

In no way does this document supersede any other applicable law, regulation, or cleanup criteria previously established by any governmental entity. OEPA reserves the right, pursuant to Chapters 3704, 3714, 3734, 3745, 3750, 6109 and 6111 of the Ohio Revised Code (ORC) and any other applicable state or federal laws or regulations to require further site investigation and abatement of release(s) of hazardous wastes, hazardous substances, industrial wastes or other wastes, pollutants or contaminants into the environment from any site and to seek civil penalties, reimbursement of oversight costs, response costs, and any other appropriate legal or equitable relief for any violation of law.

Another program has developed petroleum standards, which under certain circumstances are different from the BUSTR action levels applied in this document. OEPA's Voluntary Action Program (VAP) has developed cleanup standards based on land use and ground water use for various hazardous substances and petroleum under final rules adopted in December 1996.

However, Paragraph (B)(1) of §3746.04 of the Ohio Revised Code (ORC) requires that the petroleum standards for *residential* and *commercial* properties be the standards adopted under Division (B) of §3737.882 of the ORC, the standards developed by BUSTR and described in Chapter 130 1:7-9-13 of the Ohio Administrative Code (OAC). The VAP developed direct contact soil standards for petroleum releases at industrial properties; these standards are described in Paragraph (B)(3)(a)(ii) of Rule 3745-300-08 of the OAC. These standards, like all VAP generic numerical standards, are applicable to a property undergoing a Voluntary Action under the supervision of a Certified Professional in accordance with all of the requirements in §3745-300 of the OAC. Participating in the VAP and performing a cleanup in accordance with the VAP rules is an alternative is following this *Petroleum Contaminated Sites Guidance Document for Emergency Response Actions.*

SECTION II: IMMEDIATE RESPONSES TO RELEASES

REPORTING REQUIREMENTS

Immediate Verbal Notification
An owner or operator is required to report a discharge under ORC §3750.06 anytime there is a release or spill of a regulated substance that exceeds its assigned Reportable Quantity (RQ) and leaves the facility property line and/or vessel. The regulated substances are as follows:

1. Extremely Hazardous Substances 40 CFR, Part 355; Appendix A and B.
2. CERCLA Hazardous Substances 40 CFR Part 302; Table 302.4.
3. Oil (definition includes, without limitation, gasoline, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil).

The RQ for the discharge of oil including crude oil into or upon navigable waters is an amount that causes a visible film or sheen upon the surface of the water or causes a sludge or emulsion to be deposited beneath the surface of the water. The RQ for the release of oil into the environment, excluding navigable waters, is an amount of 25 gallons or more. The RQ for the release of crude oil from an oil and gas extraction storage facility into the environment, excluding navigable waters, is 210 gallons. The definition of navigable waters can be found in Ohio Administrative Code (OAC) 3754-1-O 1.

Upon determining that the facility or vessel has released a Reportable Quantity, verbal notification is required to be initiated within 30 minutes. Verbal notification shall be made to the local fire department, the Local Emergency Planning Committee, and the OEPA Emergency Response Hotline (1-800-282-9378). Note: In the case of a release to navigable waters, Federal rules require that the National Response Center at 800-424-8802 be notified also.

30 Day Written Follow-up Emergency Notice
After the release or discharge of a reportable quantity, written follow-up emergency notice must be submitted within thirty days to the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee of the planning district in which the release or discharge occurred. This report should follow the question sequence as listed below. If any of the questions are not applicable to your incident, indicate NA for that item. This information is required pursuant to §3750.06(D) ORC and OAC §3750-25-25(A)(2).

Submit the written emergency notice within 30 days of the release to:

Ohio EPA, DERR, ERSIS
P.O. Box 1049
Columbus, Ohio 43216-1049
ATTN: Duty Officer: SARA Spill Report

Written Report Protocol

1. General
   (a) Actual time, date, and duration of the discharge or release.
   (b) Actual time and date of discovery to the release or discharge.
   (c) Actions taken to respond to and contain the release or discharge.
   (d) Indicate the spill number assigned by OEPA. (If you do not know this number, call the duty officer during business hours and ask. The telephone number is 800-282-9378). If the National Response Center was notified, please provide their assigned case number.

2. Location
   (a) Location of facility from which the release or discharge occurred.
   (b) Location of release: county, township, and city.
   (c) Longitude and latitude of the release, if known.
   (d) Distance and direction from nearest intersection or milepost if transportation related release or discharge.

3. Product Release
   (a) Common and/or technical name(s) of the material(s) released or discharged and CAS Number(s).
   (b) What was the quantity and duration of the discharge? Indicate volume(s) in gallons or pounds.

4. Environmental Impact
   (a) Name of the environmental medium or media affected (i.e. navigable waters, land, and/or air). If navigable waters, please identify.
   (b) What was the length of area of navigable waterway?
   (c) What was the ground surface area (square feet or yards) and depth of soil contamination?
   (d) To the extent information is available, identify impact to human health and safety (i.e. evacuations, exposure, etc.).
   (e) To the extent information is available identify impact to human health safety (i.e. evacuations, exposure, etc.).
   (f) Where appropriate, identify medical advice provided for exposed individuals and/or local medical personnel.

5. Monitoring and Detection
   (a) If the release or discharge was monitored, indicate the method of detection and concentrations detected.
   (b) If the release was air-borne, how was the wind direction and speed determined?
   (c) Was the public warned, and if so, how?

6. Mitigation, Containment Action
   (a) How much product or waste was recovered or neutralized?
   (b) How was the material recovered or neutralized?
   (c) Were any other actions taken to reduce the impact of the discharge (containment, adsorbents, on-site treatment, etc.)?

7. Please provide plans to prevent recurrence of the discharge or releases that may occur at this specific source. This may include employee training, replacement of equipment, construction, or security measures such as lighting, fencing or locks.

8. Health Risks
   (a) List known or anticipated acute and chronic health risks of exposure to the substances that were released.

9. Indicate any air, water, or other permit numbers that may be pertinent to this incident (THIS INFORMATION IS VOLUNTARY). If this is a NPDES/air permit, please enclose a copy of your current effluent/emission limitations.

10. Provide a chronological review of the incident. Include a chronology of communications with state and local government.

11. Provide any reports or other documents that pertain to the incident (e.g. accident reports, manifest, bills of lading, laboratory analyses).

12. Describe any extenuating circumstances that caused the discharge.

13 Economic Impact (THIS INFORMATION IS VOLUNTARY)
   (a) Estimate the dollar value, if any, of the spilled product?
   (b) What was the equipment damage cost?
   (c) What was the cost of the spill cleanup (estimate)?
   (d) What are the estimated costs of spill prevention to eliminate possible reoccurrence of this event?

FREE PRODUCT RECOVERY

During an emergency response, immediately begin recovery efforts. Absorbents, bailers, pumps, skimmers. vacuum trucks, and/or other techniques that facilitate free product recovery may be utilized. These efforts are to continue until a non-recoverable level is reached.

APPLICABLE OEPA PROGRAMS AND PERMITS

During emergency response activities, it may be necessary to install and/or utilize certain treatment technologies. The use of a treatment technology may require the facility to obtain a permit. Please contact the appropriate district office for questions regarding the need for such permits (see Appendix C for the appropriate district office telephone number.)

SECTION III: PETROLEUM ACTION LEVELS

INTRODUCTION

The following "SITE FEATURE DEFINITIONS" and attached "SITE FEATURE WORK SHEET" (See Appendix A) can be used to determine petroleum cleanup standards at petroleum contaminated sites which are not regulated by BUSTR. The definitions are for further clarification while using the work sheet. Once the points have been assigned and totaled, match the total score with the corresponding category in the "PETROLEUM ACTION LEVELS TABLE". The applicable category lists the cleanup standards that are to be used at the scored site.

In order to complete the site feature worksheet it is necessary to gather site specific information. For those circumstances where site specific information has not been obtained, there are default 'unknown' values that may be used.

SITE FEATURE DEFINITIONS

Proximity to Water Supplies (Site Feature #1)
The proximity to a public or private water well or a water intake will be measured from the perimeter of the spill. The determination of sole source aquifer, sensitive area or well head-protected area will be made based on whether or not the spill site is within one of the designated areas. For the purpose of this site feature, sensitive area will be interpreted as defined in BUSTR OAC §1302:7-9-09.

Depth to Ground Water (Site Feature #2)
Depth to ground water shall be measured in linear feet from the ground surface to the first zone of saturation that acts as a preferential pathway for migration. OAC §3745-27-01-B (49) defines zone of saturation as that part of the earth's crust, excluding the capillary zone, in which all voids are filled with water.

Site specific information should be used in the determination of the depth to ground water. However, if this is not feasible, then the information can be obtained through an evaluation of ODNR well logs. Another possible source is the county soil surveys published by the United States Department of Agriculture, Soil Conservation Service. These provide information on subsurface conditions to approximately six feet, including information on the depth to the water table and whether the water is perched. Additional information concerning the depth of the ground water may be obtained from the ODNR Ground Water Resource Maps and Pollution Potential Maps. Emphasis must be placed on the fact that these sources do not provide site-specific information. These may help provide a first-cut approximation and help identify areas that are vulnerable to contamination.

Predominant Type of Substratum (Site Feature #3)
A substratum type that best represents native soil and/or bedrock to the depth to ground water must be selected. If the boundary of a particular substratum type is unclear, the highest permeability soil or bedrock type most typical of the area should be chosen. Predominant type of substratum should be determined either by existing site or area substratum data, on-site borings and soil analysis, or consultation of the soil surveys published by the United States Department of Agriculture, Soil Conservation Service.

(Note: If the predominant type of substratum is classified as fill material and the fill consists of a homogeneous mixture of clay-based soils, then the score for Column A may be used. However, if the fill material consists of a heterogeneous mixture of cement, bricks, asphalt and/or similar unconsolidated material, then the score from Column C must be used.)

Proximity to Structures or Preferential Migration Pathways (Site Feature #4)
The Site Feature 4 Worksheet must be completed and totaled in order to score this feature. The following are the structures and pathways considered:

1. Structures with basements or subsurface foundations refers to any structures, occupied or unoccupied, which have subsurface features such as crawl spaces, footer drains, or basements.
2. Water line includes water mains, laterals, tie-ins and any piping connected to a publicly or privately owned and/or operated drinking water distribution system.
3. Curtain drains, french drains or field tiles refers to manmade drainage systems used to conduct storm water away from a location, which may be affected by the release or can reasonably be assumed to be affected.
4. Shallow injection wells refers to injection of fluids into the subsurface. This could include storm water drainage, industrial/automotive waste and remediation wells.
5. Septic systems (tank & associated leaching systems) includes influent and effluent piping associated with the system, including, but not limited to, septic tanks, aerobic systems and cavitate systems. However, this does not include piping to a system that enters a publicly or privately owned and/or operated sewage treatment works.
6. Structures without subsurface conditions refers to structures, occupied or unoccupied, that do not have subsurface features (i.e. structures built on slabs, or directly on the ground).
7. Sanitary sewer lines includes sewer lines, tap-ins, laterals or any other conduit connected to a publicly or privately owned and/or operated sewage treatment works.
8. Natural gas lines
9. Pipelines or other conduits include piping trenches, lined or unlined, concrete or otherwise.

10. <u>Buried telephone/television cable lines</u> includes piping trenches, lined or unlined concrete or otherwise.
11. <u>Buried electrical cables & lines</u> includes piping trenches, lined or unlined concrete or otherwise.

Proximity to Surface Water and/or Sensitive Areas (Site Feature #5)
The proximity shall be measured from perimeter of spill to the surface water or sensitive area. Surface waters include all streams, lakes, reservoirs, ponds, marshes, wetlands, springs, irrigation systems, storm sewers, and other waterways and/or direct pathways to surface waters. Sensitive areas include any local, state or federal nature reserve, wildlife refuge, preserve, park or forest, or habitat for threatened and/or endangered species. Note: Consult ODNR Division of Natural Areas and Preserves for information regarding threatened and/or endangered species.

Land Use (Site Feature #6)

1. <u>Commercial/Industrial</u>
   Commercial land use refers to facilities that supply goods and/or services and are open to the public. Examples of such uses include, but are not limited to, warehouses, building supply facilities, retail gasoline stations, automobile service stations, automobile dealerships, retail warehouses, repair and service establishments for appliances and other goods, professional offices banks, credit unions, office buildings, retail businesses selling food or merchandise, hospitals, clinics, religious institutions, hotels, motels, personal service establishments and parking facilities. Industrial land use refers to property where the current or intended use is for manufacturing or assembling goods including parts, machines and chemicals, and transportation uses. Examples of such uses include, but are not limited to, lumber yards, power plants, metal-working and plating shops, blast furnaces, coke plants, oil refineries, brick factories, chemical plants, plastic plants, assembly plants, non-public airport areas, limited access highways, railroad switching yards and marine port facilities.

2. <u>Residential/ Agricultural/ Recreational</u>
   Residential land use refers to areas where the current or intended uses of the property would be for housing, education and health care for adults, children, the elderly and the infirm. Examples of such uses include, but are not limited to, family residences, day care facilities with open-air playgrounds with exposed soil, schools, colleges and other educational institutions with open-air facilities, nursing homes, elder care and other long-term health care facilities where exposure routes to soil, sediment, ground water or surface water from the property could exist. Agricultural land use is included in this category because this land use generally includes the residence of the farm family and farming operations where food crops are grown and farm animals are raised. Recreational land use includes playgrounds, parks, nature preserves and wildlife refuges.

Recreational land use has been included in this category because of the wide range of potential exposure frequencies and durations and to ensure protection of sensitive sub-populations such as young children who could frequent these areas on a regular basis.

TEST METHODS

Soil and water samples collected at the site should be analyzed using the following applicable U.S. EPA test methods:

Contaminant	Analytical Method for Soil	Analytical Method for Water
Benzene	SW-846, Method 8260 or 8020	US EPA Test Method 524.2 **
Toluene	SW-846, Method 8260 or 8020	US EPA Test Method 524.2 **
Ethyl benzene	SW-846, Method 8260 or 8020	US EPA Test Method 524.2 **
Total Xylenes	SW-846, Method 8260 or 8020	US EPA Test Method 524.2 **
TPH for Gasoline Range	SW-846, Modified Method 8015	Not applicable
TPH for Diesel Range	EPA Method 418.1	Not applicable

** U.S. EPA Test Method 524.2or 502.2 should be utilized in those situations where the Ohio Department of Health and/or a local health department and/or the OEPA Division of Drinking and Ground Waters require that this analysis be used. Otherwise, U.S. EPA SW-846 method may be utilized as long as the practical quantitation limit is lower that the action level stipulated by the Site Feature Work Sheet. Source: US EPA's Environmental Monitoring Systems Laboratory, "Methods for the Determination of Organic CPLs in Drinking Water", December 1988 (Revised July 1991).

Appendix A

SITE FEATURE WORK SHEET

SITE FEATURE WORK SHEET

Site Features	Column A: Score 15 Points	Enter Score	Column B: Score 10 Points	Enter Score	Column C: Score 5 Points	Enter Score
1. Proximity of perimeter of spill to a public or private well or water intake	>1000 feet		300 – 1000 feet		< 300 feet or inside of a designated sole source aquifer, sensitive area, well head protected area, or unknown	
2. Depth to ground water	>75 feet		25 – 75 feet		<25 feet or unknown	
3. Predominant type of substratum	Unfractured clay shale, claystone, mudstone, clay, silty clay, low permeable tills		Clayey silt, moderate permeable till, silty shale, unfractured siltstone-sandstone-limestone, sandy clay loam, barn, silt loam, silt, cemented sandstone, sandy clay, clay loam, silty clay barn, sandy silt, silty sand. clayey sand, coal, peat		Sand, gravel, loamy sand, sandy loam, poorly lithified sandstone, karst limestone, highly fractured rock, fill material or unknown	
4. Proximity to structures or preferential migration pathways (see below)	<8 points		8 –12 points		>12 points	
5. Proximity to surface Water and/or proximity to sensitive areas	>120 feet		50 – 120 feet		<50 feet or unknown	
6. Land use	Commercial Industrial				Residential Recreational Agricultural	
Add Subtotals	+		+		+	
					TOTAL SCORE	

SITE FEATURE 4 WORK SHEET:

Structures with basements or subsurface foundations (i.e. crawl space, footer drains, basements) within 50 ft. 4 pt ____
Water line within 50 ft. 4 pt ____
Curtain drains, french drains or field tiles within 100 ft. 4 pt ____
Shallow injection wells; if within 50 ft. score 3 pts, if within 100 ft. score 1 pt. 3 pt or 1 pt ____
Septic systems (tank & associated leaching systems) within 50 ft. 2 pt ____
Building type structure without subsurface conditions listed above within 50 ft. 1 pt ____
Sanitary sewer line within 50 ft. 1 pt ____
Natural gas lines within 50 ft. 1 pt ____
Pipelines or other conduits within 50 ft. 1 pt ____
Buried telephone/television cable lines within 50 ft. 1 pt ____
Buried electrical cable 8 lines within 50 ft. 1 pt ____
TOTAL POINTS _____

If Total points from Site Feature 4 Work Sheet are:

<8	Enter score of 15 in Column A for Site Feature 4 in the above chart
8-12	Enter score of 10 in Column B for Site Feature 4 in the above chart
>12	Enter score of 5 in Column C for Site Feature 4 in the above chart

PETROLEUM ACTION LEVELS (PPM)

CONSTITUENT	CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
Total Score	< 46 Points	46-60 Points	61-75 Points	>75 Points
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Ground Water BTEX	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0.7ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes	0.005 ppm Benzene 1 ppm Toluene 0 .7 ppm Ethylbenzene 10 ppm Total Xylenes
Soil TPH (Gasoline)	105 ppm TPH	300 ppm TPH	450 ppm TPH	600 ppm TPH
Soil TPH (Others)	380 ppm TPH	642 ppm TPH	904 ppm TPH	1156 ppm TPH

APPENDIX B

FIELD SAMPLING GUIDANCE

FIELD SAMPLING GUIDANCE

INTRODUCTION

Sampling is needed to determine if a petroleum contaminated site cleanup has achieved the specific concentrations presented in the Petroleum Action Levels Table in the *Petroleum Contaminated Sites Guidance Document for Emergency Response Actions*. Sampling will consist of collecting representative media from the area impacted by the petroleum release or discharge. For the purposes of this guidance document the following protocol is recommended to be followed. This protocol has been established to address only sites that are involved in an emergency response action. The sampling protocol utilizes a biased sampling method that may not adequately characterize a site for other purposes such as a risk evaluation and/or assessment. However, the sampling protocol will provide a framework for a sampling scheme that can be modified to address the needs of the facility and/or vessel cleanup process. The sampling protocol will assist in determining whether or not there are areas of contamination that may exceed the Petroleum Action Levels stipulated in the *Petroleum Contaminated Sites Guidance Document For Emergency Response Actions (April, 1997).*

SAMPLING PROTOCOL FOR EMERGENCY RESPONSE ACTIONS

Soil Sampling

The first step to be undertaken is to determine the size of the area impacted by the release. This determination may be based on direct physical observation (such as oil stained vegetation, soils, etc.) and/or field screening techniques (photoionization meter, flame ionization meter, immunoassay test kits, etc). Once the affected area has been determined, it may be sampled prior to initiating cleanup or the affected area may be remediated and then sampled. (Note: It has been the experience of the Ohio EPA, Emergency Response Unit, On Scene Coordinators, that the sampling and subsequent analysis of grossly contaminated media will result in analytical concentrations that exceed the Petroleum Action Levels stipulated in the *Petroleum Contaminated Sites Guidance Document*. For purposes of cost savings, the removal and proper disposal of grossly contaminated media may prove more cost effective.)

The size of the area impacted should be determined in approximate square feet. If the area impacted includes non-horizontal surfaces (such as the sidewalls of an excavation), these areas should also be included in the estimation. Upon arriving at a total square feet impacted by the spill, a determination of the number of samples to be collected can be made.

The area impacted will be divided in approximate 10' x 10' squares. These squares will be laid out so that they include as much of the impacted area as is possible although it is recognized that many spills can not be neatly broken into this shape. In each of these squares a grab sample will be collected from a point that would bias the sample towards the worst case concentration (i.e. that point where it would be suspected that the contamination would be at its highest concentration). This bias may be based on physical observation (i.e. media that is discolored or has a detectable odor of petroleum), geologic factors (i.e. sample collected from the most permeable layer on the sidewall of an excavation, perhaps the root zone or a sand lens where petroleum is most likely to migrate), and/or other site specific features noted by the facility/vessel.

The grab sample will be collected utilizing recommended USEPA and OEPA guidance and will incorporate media from the impacted area. For each sample point two samples will be collected. One of these will be used for field screening with either a photoionization meter, flame ionization detector, or any other field screening method that will allow the facility to determine relative concentrations of petroleum in grab samples collected. The other will be retained for possible laboratory submittal.

The following table indicates the recommended number of grab samples that will be submitted for laboratory analysis. In the case where only one field screened sample is recommended to be submitted for laboratory analysis and more than one sample has been collected (i.e. area affected is > 100 square feet and less than 500 square feet), the samples will be rank ordered by the concentration of petroleum detected by the field screening method. The sample containing the highest concentration of petroleum will then be submitted for analysis.

When more than one sample is to be submitted for laboratory analysis (i.e. area affected is greater than 500 square feet), the following procedure is recommended. The sample grid sections will be grouped in groups of five. The grouping will consist of sample grids that are adjacent to each other either horizontally or diagonally. If the number of grid sections is not a multiple of five then the grouping will consist of five adjacent grid sections and then the remainder would be grouped together. For each of these groupings, grab samples would be collected and field screened from each grid. A separate rank ordering of field screening results for each group would then be done and the highest concentration sample from each grouping would be submitted for laboratory analysis.

SIZE OF AREA IMPACTED IN SQUARE FEET (S.F.)	FIELD GRAB SAMPLES COLLECTED	FIELD SCREENED GRAB SAMPLES SUBMITTED FOR LABORATORY ANALYSIS
O-100 S.F.	1	1
101-200 S.F.	2	1
201-300 S.F.	3	1
301-400 S.F.	4	1
401-500 S.F.	5	1
501-600 S.F.	6	2
601-700 S.F.	7	2
701-800 S.F.	8	2
801-900 S.F.	9	2
901-1000 S.F.	10	2
CONTINUE WITH THIS PATTERN	ONE FOR EVERY 100 SQUARE FEET	ONE FOR EVERY 500 SQUARE FEET

Water Sampling

For those sites where ground water and/or surface water may be or have been impacted by a spill or release, it is recommended that a site-specific sampling protocol be developed and utilized. For ground water this protocol could incorporate sampling existing wells if installed at appropriate depths, installing and sampling monitoring wells, or sampling any nearby surface discharge points. Monitoring wells are determined to be necessary; geoprobe samples may be useful in selecting appropriate locations for the wells. All water samples should be submitted for laboratory analysis.

GEL LABORATORIES
DATA PACKAGE DOCUMENT INVENTORY LIST

CUSTOMER NAME: B-WAY MANUFACTURING

WORK ORDER NUMBER: 85038

DOCUMENT	PAGE#
SUMMARY PACKAGE:	---
Completeness Review Checklist	1
Cover Letter	2
Customer Chain-of-Custody (with cooler receipt, sample login & problem & corrective action sheet)	3-4
TPH – 418.1:	--
Narrative	5-7
Sample Results	8-11
QC Data	12*
VOLATILE:	--
Narrative	14-16
Sample Results	17-20
QC Data	21

* - page 13 not used.

GEL LABORATORIES OF OHIO, LLC

Checklist for Completeness Review **Work Order:** 85038

Verify that the Certificates of Analyses are signed	✓
Verify customer letter information is correct	✓
Verify appropriate case narratives are submitted	✓
Verify all analyses were completed using appropriate method	✓
Verify all & only the analyses requested are reported	✓
Verify client specific information is submitted	✓
Verify customer COC, sample receipt review sheet, and NCRs (if appropriate) are submitted	✓
Verify sample results for each sample and analyses	✓
Verify QC results for each analysis	✓
Verify table of contents (if appropriate) is provided and accurate	✓

Reviewed by

8/8/03
Date

Q:\QA Web Misc\Forms\completeness review sheet.doc

GEL LABORATORIES OF OHIO, LLC
an Affiliate of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

August 8, 2003

B-WAY MANUFACTURING
ATTN: Mr. Eric Kroger
8200 Broadwell Road
Cincinnati, OH 45244

Dear Mr. Kroger:

Please find enclosed the results of analysis for the following samples:

Work Order No.:	85038
No of Samples:	5 (4 reported)
Date Received:	July 29, 23003
Total No. of Pages:	22

This report shall not be reproduced except in full, without the written approval of GEL Laboratories.

The contents of this data package have been reviewed for technical compliance and project completeness. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or the Director's designee, as verified by the signature below.

We appreciate the opportunity to service your analytical needs. If you have any further questions, please feel free to contact us.

Sincerely,

Robert George
Laboratory Director

RG:dmr

Enclosures

6954 Cornell Road, Suite 300 • Cincinnati, OH 45242
Phone (513) 489-2001 • Fax (513) 489-2223

GEL Laboratories of Ohio, LLC
Chain of Custody and Analytical Request

Page: 1 of 1
Project #: B-way Soil
GEL Quote #:
COC Number (1): 1
PO Number:

GEL Laboratories of Ohio, LLC
6954 Cornell Road, Suite 300
Cincinnati, OH 45242
Phone: (513) 489-2001
Fax: (513) 489-2223

Client Name: B-way Manufacturing Phone #: (513) 388-2348
Project/Site Name: Cincinnati Plant Fax #: (513) 388-2215
Address: 8200 Broadwell Rd
Collected by: Eric Kroger Send Results To: Eric Kroger

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Radioactive	TSCA Regulated	Total number of containers	TPH - 418.1 (4°)	BTEX+Napth. (4°)	8260 (HCl 4°C)	Comments
OIL-TPH-2	07-29-03	1120	N		SO			1	1			Note: extra sample is required for sample specific QC
OIL-BTEX+N-2	07-29-03	1120	N		SO			1		1		
OIL-TPH-3	07-29-03	1130	N		SO			1	1			
OIL-BTEX+N-3	07-29-03	1130	N		SO			1	~~1~~	1		
OIL-TB-2	07-29-03	1130	TB		W			1		~~1~~	1	

TAT Requested: Normal: ✓ Rush: ______ Specify: ______ (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

***Remarks:** Are there any known hazards applicable to these samples? If so, please list the hazards*

None.

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time		Received by (signed)	Date	Time
1	[signature]	7-29-03	1205	1	Erik C. Corbin	7/29/03	1205
2				2			
3				3			

Sample Delivery Details / Laboratory Receipt

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, W = Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste, O = Oil, F = Filter, P = Wipe, U = Urine, F = Fecal, N = Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. *8260B - 3, 6010B/7470A - 1*).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? *YES* *NO*
Cooler Temp: ______ *C*

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL LABORATORIES OF OHIO, LLC - SAMPLE RECEIPT REVIEW SHEET

SAMPLE RECEIPT REVIEW

Date 7/29/03

Client B-WAY

Received by J. Kicklsy

SAMPLE REVIEW CRITERIA

		YES	NO	N/A	COMMENTS / QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	X			
2	Were chain of custody documents included?	X			15°C
3	Shipping container temperature(s) checked:	X			
4	Is temperature documented on Chain of Custody		X		
5	Was shipping container temperature within specifications (4 +/- 2 C) If no, notify Project Manager	X			SEE BELOW
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt		X		
	Any samples not identified by the client as radioactive must be screened for radioactivitiy.				observed background
	If screening results indicate > x2 background inform the RSO.				Observed sample
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	X			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	X			
9	Were all sample containers properly labeled?		X		SEE Below
10	Were correct sample containers received?	X			
11	Preserved samples checked for pH?			X	
12	Were samples preserved correctly? If no, notify Project Manager	X			
13	Were samples received within holding time? If No, notify Project Manager	X			
14	Were VOA vials free of headspace?	X			
15	ARCOC#			X	
16	SDG#			X	

PM(A) Review: DR

Date Reviewed: 7-29-03

Additional Comments:

Temp 15°C samples taken <4 hour before Receipt. COOLER TEMP OK. Samples cooled upon Reciept.

Sample (OIL-TB-2) ~~table~~ Label on sample Reads (OIL-BTEX+N-TB2) PM Notified.

Trip Blank looked tampered with Although Seal Applyed by Client was intact, Original Trip Blank tape seemed torn. JK 7/29/03

000004

Ohio GenChem Narrative
(OBWY)
Work Order 85038
SDG 85038

FAXED
Rlr3

Method/Analysis Information

Procedure:	**Total Recoverable Petroleum Hydrocarbons**
Analytical Method:	EPA 418.1 MODIFIED
Prep Method:	EPA 418.1 MODIFIED Prep
Analytical Batch Number:	267903
Prep Batch Number:	267901

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 418.1 MODIFIED:

Sample ID	**Client ID**
85038001	OIL-TPH-2
85038002	OIL-TPH-3
1200466556	Method Blank (MB)
1200466558	Laboratory Control Sample (LCS)
1200466557	85038001(OIL-TPH-2) Sample Duplicate (DUP)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with INORG18 REV # 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Perkin Elmer IR Spectrophotometer

Initial Calibration

The instrument was properly calibrated.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery

The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control

The following sample was designated for Quality Control: 85038001 (OIL-TPH-2)

Sample Spike Recovery

Matrix spike not performed due to limited solvent volume.

Sample Duplicate Acceptance

The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Reanalysis

No samples in this sample group were reprepped and/or reanalyzed for any reason other than dilutions.

Miscellaneous Information

Nonconformance Reports
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. An NCR was not generated for this SDG.

Additional Comments
EPA Method 418.1 modified to accommodate a soil matrix. Samples were extracted on a Soxtherm and the extracts were analyzed per SOPInorg18.

Review Validation:

Initial VC Date 8/6/13

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 6, 2003

Client Sample ID: OIL-TPH-2
Sample ID: 85038001
Matrix: Soil
Collect Date: 29-JUL-03 11:20
Receive Date: 29-JUL-03
Collector: Client
Moisture: 5.86%

Project: OBWY00103
Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
General Analysis											
EPA Method 418.1 Modified TPH											
Total Petroleum Hydrocarbons		183	17.9	57.8	mg/kg	1	SH1	08/06/03	1210	267903	1

The following Prep Methods were performed

Method	Description		Analyst	Date	Time	Prep Batch
EPA 418.1 MOD TPH by IR PREP		08/01/03	SH1		1005	

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 418.1 MODIFIED	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 6, 2003

Client Sample ID: OIL-TPH-2
Sample ID: 85038001

Project: OBWY00103
Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 6, 2003

Client Sample ID:	OIL-TPH-3	Project:	OBWY00103
Sample ID:	85038002	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	29-JUL-03 11:30		
Receive Date:	29-JUL-03		
Collector:	Client		
Moisture:	7.69%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
General Analysis											
EPA Method 418.1 Modified TPH											
Total Petroleum Hydrocarbons		321	18.4	59.5	mg/kg	1	SH1	08/06/03	1213	267903	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 418.1 MOD TPH by IR PREP		SH1	08/01/03	1005	

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 418.1 MODIFIED	

Notes:
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H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 6, 2003

Client Sample ID: OIL-TPH-3
Sample ID: 85038002
Project: OBWY00103
Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road, Suite 300 Cincinnati, OH 45242 - Phone (513) 489-2001

QC Summary

Report Date: August 6, 2003
Page 1 of 1

Client : **B-Way Corporation**
Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio

Contact: **Eric Kroger**

Workorder: **85038**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio WetChem: General										
Batch 267903										
QC1200466557 85038001 DUP										
Total Petroleum Hydrocarbons		183		199	mg/kg	8 ^		(+/-57.8)	SH1	08/06/03 12:12
QC1200466558 LCS										
Total Petroleum Hydrocarbons	250			210	mg/kg		84	(80%-120%)		08/06/03 12:09
QC1200466556 MB										
Total Petroleum Hydrocarbons			J	17.6	mg/kg					08/06/03 12:07

Notes:
The Qualifiers in this report are defined as follows:

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- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D.
- U Indicates the target analyte was analyzed for but not detected above the detection limit.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- Y QC Samples were not spiked with this compound.
- h Sample preparation or preservation holding time exceeded.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Volatiles Case Narrative
(OBWY)
Work Order 85038
SDG 85038

AUG 04 2003

FAXED 8-4-03

Method/Analysis Information

Procedure:	**GC-MS Analysis of Volatile 8260B**
Analytical Method:	SW846 8260B
Prep Method:	SW846 5035
Analytical Batch Number:	267154
Prep Batch Number:	267153

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8260B:

Sample ID	Client ID
85038003	OIL-BTEX+N-2
85038004	OIL-BTEX+N-3
1200464869	Method Blank (MB)
1200464870	Laboratory Control Sample (LCS)
1200464871	85038003(OIL-BTEX+N-2) Post Spike (PS)
1200464872	85038003(OIL-BTEX+N-2) Post Spike Duplicate (PSD)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with ORG11 REV # 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: HP 5973 Mass Spectrometer

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recovery
Surrogate recoveries in all samples and quality control samples were within the established acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Spike analyses were performed on the following sample: 85038003 (OIL-BTEX+N-2).

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
Duplicate analysis is not required for this procedure.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required

acceptance criteria.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Reanalyses were not required for samples in this sample group/work order.

Miscellaneous Information

Nonconformance (NCR) Documentation
Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. An NCR was not generated for this SDG.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

Review Validation:

Level 2 Initial K Date 8-4-3

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 4, 2003

Client Sample ID:	OIL-BTEX+N-2	Project:	OBWY00103
Sample ID:	85038003	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	29-JUL-03 11:20		
Receive Date:	29-JUL-03		
Collector:	Client		
Moisture:	5.57%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatiles Analysis											
Ohio GEL 8260B Method List Soil											
Benzene	U	ND	0.324	2.02	ug/kg	1	CC1	07/30/03	1439	267154	1
Ethylbenzene	U	ND	0.304	2.02	ug/kg	1					
Naphthalene	U	ND	0.992	3.04	ug/kg	1					
Toluene	U	ND	0.263	2.02	ug/kg	1					
m,p-Xylenes	U	ND	0.597	4.05	ug/kg	1					
o-Xylene	U	ND	0.385	2.02	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	Ohio 5035/8260B Prep Solids	CC1	07/30/03	1215	267153

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	Ohio GEL 8260B Method List Soil	108%	(74%-121%)
Bromofluorobenzene	Ohio GEL 8260B Method List Soil	97%	(85%-128%)
Dibromofluoromethane	Ohio GEL 8260B Method List Soil	108%	(86%-114%)
Toluene-d8	Ohio GEL 8260B Method List Soil	101%	(80%-120%)

Notes:
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P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 4, 2003

Client Sample ID: OIL-BTEX+N-2 Project: OBWY00103
Sample ID: 85038003 Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

K

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 4, 2003

Client Sample ID:	OIL-BTEX+N-3	Project:	OBWY00103
Sample ID:	85038004	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	29-JUL-03 11:30		
Receive Date:	29-JUL-03		
Collector:	Client		
Moisture:	7.9%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatiles Analysis											
Ohio GEL 8260B Method List Soil											
Benzene	U	ND	0.341	2.13	ug/kg	1	CC1	07/30/03	1620	267154	1
Ethylbenzene	U	ND	0.319	2.13	ug/kg	1					
Naphthalene	U	ND	1.04	3.19	ug/kg	1					
Toluene	U	ND	0.277	2.13	ug/kg	1					
m,p-Xylenes	U	ND	0.628	4.26	ug/kg	1					
o-Xylene	U	ND	0.405	2.13	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	Ohio 5035/8260B Prep Solids	CC1	07/30/03	1215	267153

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	Ohio GEL 8260B Method List Soil	109%	(74%-121%)
Bromofluorobenzene	Ohio GEL 8260B Method List Soil	98%	(85%-128%)
Dibromofluoromethane	Ohio GEL 8260B Method List Soil	108%	(86%-114%)
Toluene-d8	Ohio GEL 8260B Method List Soil	101%	(80%-120%)

Notes:
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P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: August 4, 2003

Client Sample ID: OIL-BTEX+N-3 Project: OBWY00103
Sample ID: 85038004 Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Report Date: August 4, 2003

Client : **B-Way Corporation**
Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio
Contact: **Eric Kroger**

Workorder: **85038**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio Volatiles: GC-MS											
Batch 267154											
QC1200464870 LCS											
Benzene	50.0				41.1	ug/kg		82	(56%-133%)	CC1	07/30/03 12:57
Ethylbenzene	50.0				44.3	ug/kg		89	(56%-129%)		
Naphthalene	50.0				46.6	ug/kg		93	(45%-127%)		
Toluene	50.0				47.2	ug/kg		95	(56%-124%)		
m,p-Xylenes	100				87.3	ug/kg		87	(54%-129%)		
o-Xylene	50.0				44.5	ug/kg		89	(59%-128%)		
*1,2-Dichloroethane-d4	50.0				54.0	ug/kg		108	(74%-121%)		
*Bromofluorobenzene	50.0				51.1	ug/kg		102	(85%-128%)		
*Dibromofluoromethane	50.0				53.6	ug/kg		107	(86%-114%)		
*Toluene-d8	50.0				51.4	ug/kg		103	(80%-120%)		
QC1200464869 MB											
Benzene				U	ND	ug/kg					07/30/03 12:23
Ethylbenzene				U	ND	ug/kg					
Naphthalene				J	1.09	ug/kg					
Toluene				U	ND	ug/kg					
m,p-Xylenes				U	ND	ug/kg					
o-Xylene				U	ND	ug/kg					
*1,2-Dichloroethane-d4	50.0				54.2	ug/kg		108	(74%-121%)		
*Bromofluorobenzene	50.0				50.8	ug/kg		102	(85%-128%)		
*Dibromofluoromethane	50.0				54.7	ug/kg		109	(86%-114%)		
*Toluene-d8	50.0				51.0	ug/kg		102	(80%-120%)		
QC1200464871 85038003 PS											
Benzene	50.0	U	ND		40.8	ug/L		82	(56%-133%)		07/30/03 15:12
Ethylbenzene	50.0	U	ND		39.6	ug/L		79	(56%-129%)		
Naphthalene	50.0	U	ND		33.2	ug/L		66	(45%-127%)		
Toluene	50.0	U	ND		44.9	ug/L		90	(56%-124%)		
m,p-Xylenes	100	U	ND		77.6	ug/L		78	(54%-129%)		
o-Xylene	50.0	U	ND		39.7	ug/L		79	(59%-128%)		
*1,2-Dichloroethane-d4	50.0		54.1		55.1	ug/L		110	(74%-121%)		
*Bromofluorobenzene	50.0		48.4		49.7	ug/L		99	(85%-128%)		
*Dibromofluoromethane	50.0		54.2		53.2	ug/L		106	(86%-114%)		
*Toluene-d8	50.0		50.5		51.4	ug/L		103	(80%-120%)		
QC1200464872 85038003 PSD											
Benzene	50.0	U	ND		42.0	ug/L	3	84	(0%-30%)		07/30/03 15:46
Ethylbenzene	50.0	U	ND		40.4	ug/L	2	81	(0%-30%)		
Naphthalene	50.0	U	ND		35.4	ug/L	6	71	(0%-30%)		
Toluene	50.0	U	ND		47.2	ug/L	5	94	(0%-30%)		
m,p-Xylenes	100	U	ND		78.9	ug/L	2	79	(0%-30%)		
o-Xylene	50.0	U	ND		41.0	ug/L	3	82	(0%-30%)		
*1,2-Dichloroethane-d4	50.0		54.1		52.6	ug/L		105	(74%-121%)		
*Bromofluorobenzene	50.0		48.4		49.5	ug/L		99	(85%-128%)		
*Dibromofluoromethane	50.0		54.2		53.2	ug/L		106	(86%-114%)		

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Workorder: 85038

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ohio Volatiles: GC-MS											
Batch 267154											
*Toluene-d8	50.0	50.5		52.0	ug/L		104	(80%-120%)			

Notes:
The Qualifiers in this report are defined as follows:

<	Result is less than amount reported.
>	Result is greater than amount reported.
B	Target analyte was detected in the sample as well as the associated blank.
BD	Flag for results below the MDC or a flag for low tracer recovery.
E	Concentration of the target analyte exceeds the instrument calibration range.
H	Analytical holding time exceeded.
J	Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P	The response between the confirmation column and the primary column is >40%D.
U	Indicates the target analyte was analyzed for but not detected above the detection limit.
UI	Uncertain identification for gamma spectroscopy.
X	Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y	QC Samples were not spiked with this compound.
h	Sample preparation or preservation holding time exceeded.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates the analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL LABORATORIES
DATA PACKAGE DOCUMENT INVENTORY LIST

CUSTOMER NAME: B-WAY CORPORATION

WORK ORDER NUMBER: 84043

DOCUMENT	PAGE#
SUMMARY PACKAGE:	---
Level III Review Checklist	1
Cover Letter	2
Customer Chain-of-Custody (with cooler receipt, sample login & problem & corrective action sheet)	3-4
TPH – 418.1:	--
Narrative	5-7
Sample Results	8-9
QC Summary	10
VOLATILE:	--
Narrative	11-13
Sample Results	14-17
QC Summary	18-19

GEL LABORATORIES OF OHIO, LLC

Checklist for Level III Review

Login: 84043

Verify that the Levels I, II are signed and dated on data review checklists	NA
Customer letter information is correct	✓
All analyses completed using appropriate method	✓
All & only the analyses requested are reported	✓
Client specific information submitted	✓
Customer COC, cooler receipt form, sample login sheet and corrective action form (if appropriate) submitted	✓
Sample results for each sample and analyses	✓
QC results for each analysis	✓
Table of contents provided and accurate	✓

Reviewed by

7/23/03
Date

GEL LABORATORIES OF OHIO, LLC
an Affiliate of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

July 22, 2003

B-WAY CORPORATION
ATTN: Mr. Eric Kroger
8200 Broadwell Road
Cincinnati, OH 45244

Dear Mr. Koger:

Please find enclosed the results of analysis for the following samples:

Work Order No.: 84043

No of Samples: 4 (3 reported)

Date Received: July 14, 23003

Total No. of Pages: 19

This report shall not be reproduced except in full, without the written approval of GEL Laboratories.

The contents of this data package have been reviewed for technical compliance and project completeness. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or the Director's designee, as verified by the signature below.

We appreciate the opportunity to service your analytical needs. If you have any further questions, please feel free to contact us.

Sincerely,

Robert George
Laboratory Director

RG:dmr

Enclosures

6954 Cornell Road, Suite 300 • Cincinnati, OH 45242
Phone (513) 489-2001 • Fax (513) 489-2223

Page: 1 of 1
Project #: B-way soil
GEL Quote #:
COC Number (1): 1
PO Number: VO30072

GEL Laboratories of Ohio, LLC
Chain of Custody and Analytical Request

GEL Laboratories of Ohio, LLC
6954 Cornell Road, Suite 300
Cincinnati, OH 45242
Phone: (513) 489-2001
Fax: (513) 489-2223

Client Name: BWAY CORP. Phone #: 388-2348
Project/Site Name: " " Fax #: 388-2215
Address: 8200 BROADWELL RD
Collected by: ERIC KROGER Send Results To: ERIC KROGER

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	TSCA Regulated	Total number of containers	TPH	BTEX+Napth.									<-- Preservative Type (6) / Comments Note: extra sample is required for sample specific QC
OIL-TPH-1	07-14-03	0905	N	N/A	SO	N	N	1	1										
OIL-BTEX+N-1	07-14-03	0905	N	N/A	SO	N	N	1		1									
OIL-TB1	07-14-03	0905	TB	N/A	W	N	N	1	1										
OIL-TB2	07-14-03	0905	TB	N/A	W	N	N	1		1									

TAT Requested: Normal: ✓ Rush: ____ Specify: ____ (Subject to Surcharge) Fax Results: Yes / No Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

None

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time		Received by (signed)	Date	Time
1	[signature]	7-14-03	0920	1	Tom Reed	7/14/03	9/20
2	Tom Reed	7/14/03		2	[signature]	7/14/03	1120
3				3			

Sample Delivery Details / Laboratory Receipt

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite
3.) Field Filtered: For liquid matrices, indicate with a - **Y** - for yes the sample was field filtered or - **N** - for sample was not field filtered.
4.) Matrix Codes: **DW** = Drinking Water, **GW** = Groundwater, **SW** = Surface Water, **WW** = Waste Water, **W** = Water, **SO** = Soil, **SD** = Sediment, **SL** = Sludge, **SS** = Solid Waste, **O** = Oil, **F** = Filter, **P** = Wipe, **U** = Urine, **F** = Fecal, **N** = Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* - 3, *6010B/7470A* - 1).
6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If **no preservative** is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: ____ C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL LABORATORIES OF OHIO, LLC - SAMPLE RECEIPT REVIEW SHEET

SAMPLE RECEIPT REVIEW

Date 7/14/03

Client B-WAY CORP

Received by J. KICKISH

SAMPLE REVIEW CRITERIA

		YES	NO	N/A	COMMENTS / QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	X			
2	Were chain of custody documents included?	X			
3	Shipping container temperature(s) checked:	X			5°C
4	Is temperature documented on Chain of Custody		X		
5	Was shipping container temperature within specifications (4 +/- 2 C) If no, notify Project Manager	X			
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt		X		
	Any samples not identified by the client as radioactive must be screened for radioactivitiy. If screening results indicate > x2 background inform the RSO.				observed background Observed sample
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	X			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	X			
9	Were all sample containers properly labeled?	X			
10	Were correct sample containers received?	X			
11	Preserved samples checked for pH?			X	
12	Were samples preserved correctly? If no, notify Project Manager	X			
13	Were samples received within holding time? If No, notify Project Manager	X			
14	Were VOA vials free of headspace?	X			
15	ARCOC#			X	
16	SDG#			X	

PM(A) Review: TD

Date Reviewed: 7-15-03

Additional Comments:

ALL ACCEPTABLE

Per Eric Kroger on 7/14/03 - both 40 mL VOC vials are trip blanks for the 8260 soil sample. There is no water samples designated for TPH analysis. Analyze trip blank only if there is a hit in sample. EC 7/14/03

Ohio GenChem Narrative
(OBWY)
Work Order 84043
SDG 84043

E-MAILED
7/21/03

Method/Analysis Information

Procedure:	**Total Recoverable Petroleum Hydrocarbons**
Analytical Method:	EPA 418.1 MODIFIED
Prep Method:	EPA 418.1 MODIFIED Prep
Analytical Batch Number:	264295
Prep Batch Number:	264294

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 418.1 MODIFIED:

Sample ID	Client ID
84043001	OIL-TPH-1
1200457842	Method Blank (MB)
1200457843	Laboratory Control Sample (LCS)
1200457844	84043001(OIL-TPH-1) Sample Duplicate (DUP)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with INORG18 REV # 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by

GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Perkin Elmer IR Spectrophotometer

Initial Calibration
The instrument was properly calibrated.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control: 84043001 (OIL-TPH-1)

Sample Spike Recovery
MS not required by client.

Sample Duplicate Acceptance
The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
Modifications were made due to the sample matrix. Samples were extracted using the Soxtherms and the extracts were analyzed in accordance with the SOP.

Sample Reanalysis
No samples in this sample group were reprepped and/or reanalyzed for any reason other than dilutions.

Miscellaneous Information

Additional Comments

No additional comments are needed for this SDG.

Review Validation:

Initial __VF__ Date __7/21/13__

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 21, 2003

Client Sample ID:	OIL-TPH-1	Project:	OBWY00103
Sample ID:	84043001	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	14-JUL-03 09:05		
Receive Date:	14-JUL-03		
Collector:	Client		
Moisture:	13.5%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
General Analysis											
Ohio EPA Method 418.1 Modified TPH by IR Solids											
Total Petroleum Hydrocarbons		4910	196	634	mg/kg	10	SH1	07/18/03	1109	264295	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 418.1 MODIFIED Pre	Ohio EPA 418.1 MOD TPH by IR PREP	SH1	07/17/03	1030	264294

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 418.1 MODIFIED	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 21, 2003

Client Sample ID: OIL-TPH-1 Project: OBWY00103
Sample ID: 84043001 Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Report Date: July 21, 2003

Client : **B-Way Corporation**
Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio
Contact: **Eric Kroger**

Workorder: **84043**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio WetChem: General										
Batch 264295										
QC1200457844 84043001 DUP										
Total Petroleum Hydrocarbons		4910		4820	mg/kg	2		(0%-20%)	SH1	07/18/03 11:10
QC1200457843 LCS										
Total Petroleum Hydrocarbons	250			225	mg/kg		90	(80%-120%)		07/18/03 11:07
QC1200457842 MB										
Total Petroleum Hydrocarbons			U	ND	mg/kg					07/18/03 11:05

Notes:
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- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D.
- U Indicates the target analyte was analyzed for but not detected above the detection limit.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- Y QC Samples were not spiked with this compound.
- h Sample preparation or preservation holding time exceeded.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates the analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Volatiles Case Narrative
(OBWY)
Work Order 84043
SDG 84043

E-MAILED
7-21-03

Method/Analysis Information

Procedure:	**GC-MS Analysis of Volatile 8260B**
Analytical Method:	SW846 8260B
Prep Method:	SW846 5035
Analytical Batch Number:	263522
Prep Batch Number:	263521

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8260B:

Sample ID	**Client ID**
84043002	OIL-BTEX+N-1
1200455896	Method Blank (MB)
1200455899	Laboratory Control Sample (LCS)
1200455897	84043002(OIL-BTEX+N-1) Post Spike (PS)
1200455898	84043002(OIL-BTEX+N-1) Post Spike Duplicate (PSD)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with ORG11 REV # 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: HP 5973 Mass Spectrometer

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recovery
Surrogate recoveries in all samples and quality control samples were within the established acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Spike analyses were performed on the following sample: 84043002 (OIL-BTEX+N-1).

Spike Recovery Statement
The following recoveries did not meet the established control limits due to matrix: 1200455897 (OIL-BTEX+N-1) and 1200455898 (OIL-BTEX+N-1).

Spike Duplicate Recovery Statement
The following spike recoveries did not meet the control limits due to matrix: 1200455897 (OIL-BTEX+N-1) and 1200455898 (OIL-BTEX+N-1).

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
Duplicate analysis not required for this project.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required

acceptance criteria.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Reanalyses were not required for samples in this sample group/work order.

Miscellaneous Information

Nonconformance (NCR) Documentation
NCR ID 46692 The following NCR was generated for this SDG:
NCR 46692 was generated due to Failed Recovery for LCS/MS/PS.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

Review Validation:

Level 2 Initial K Date 7-21-3

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 18, 2003

Client Sample ID:	OIL-BTEX+N-1	Project:	OBWY00103
Sample ID:	84043002	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	14-JUL-03 09:05		
Receive Date:	14-JUL-03		
Collector:	Client		
Moisture:	13.9%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatiles Analysis											
Ohio GEL 8260B Method List Soil											
Benzene	U	ND	0.371	2.32	ug/kg	1	CC1	07/15/03	1704	263522	1
Ethylbenzene	U	ND	0.348	2.32	ug/kg	1					
Naphthalene	J	3.40	1.14	3.48	ug/kg	1					
Toluene	U	ND	0.301	2.32	ug/kg	1					
m,p-Xylenes	U	ND	0.684	4.64	ug/kg	1					
o-Xylene	U	ND	0.441	2.32	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	Ohio 5035/8260B Prep Solids	CC1	07/15/03	1200	263521

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	Ohio GEL 8260B Method List Soil	111%	(74%-121%)
Bromofluorobenzene	Ohio GEL 8260B Method List Soil	99%	(85%-128%)
Dibromofluoromethane	Ohio GEL 8260B Method List Soil	110%	(86%-114%)
Toluene-d8	Ohio GEL 8260B Method List Soil	102%	(80%-120%)

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 18, 2003

Client Sample ID: OIL-BTEX+N-1 Project: OBWY00103
Sample ID: 84043002 Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

K

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 18, 2003

Client Sample ID: OIL-TB2
Sample ID: 84043003
Matrix: Water
Collect Date: 14-JUL-03 09:05
Receive Date: 14-JUL-03
Collector: Client

Project: OBWY00103
Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Volatiles Analysis										
Ohio GEL 8260B Method List Liquid										
Benzene	U	ND	0.200	2.00	ug/L	1	CC1 07/15/03	1341	263519	1
Ethylbenzene	J	0.333	0.280	2.00	ug/L	1				
Naphthalene	U	ND	0.340	2.00	ug/L	1				
Toluene	U	ND	0.310	2.00	ug/L	1				
m,p-Xylenes	U	ND	0.630	4.00	ug/L	1				
o-Xylene	U	ND	0.310	2.00	ug/L	1				

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	Ohio GEL 8260B Method List Liquid	104%	(77%-118%)
Bromofluorobenzene	Ohio GEL 8260B Method List Liquid	97%	(84%-121%)
Dibromofluoromethane	Ohio GEL 8260B Method List Liquid	107%	(87%-120%)
Toluene-d8	Ohio GEL 8260B Method List Liquid	101%	(85%-112%)

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on an "as received" basis.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 18, 2003

Client Sample ID: OIL-TB2 Project: OBWY00103
Sample ID: 84043003 Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Report Date: July 18, 2003

Client : B-Way Corporation
Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio

Contact: Eric Kroger

Workorder: 84043

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio Volatiles: GC-MS											
Batch 263522											
QC1200455899 LCS											
Benzene	50.0				45.8	ug/kg		92	(56%-133%)	CC1	07/15/03 14:49
Ethylbenzene	50.0				48.1	ug/kg		96	(56%-129%)		
Naphthalene	50.0				52.0	ug/kg		104	(45%-127%)		
Toluene	50.0				52.5	ug/kg		105	(56%-124%)		
m,p-Xylenes	100				95.6	ug/kg		96	(54%-129%)		
o-Xylene	50.0				48.6	ug/kg		97	(59%-128%)		
**1,2-Dichloroethane-d4	50.0				51.9	ug/kg		104	(74%-121%)		
**Bromofluorobenzene	50.0				50.0	ug/kg		100	(85%-128%)		
**Dibromofluoromethane	50.0				51.5	ug/kg		103	(86%-114%)		
**Toluene-d8	50.0				51.7	ug/kg		103	(80%-120%)		
QC1200455896 MB											
Benzene				U	ND	ug/kg					07/15/03 12:34
Ethylbenzene				U	ND	ug/kg					
Naphthalene				U	ND	ug/kg					
Toluene				U	ND	ug/kg					
m,p-Xylenes				U	ND	ug/kg					
o-Xylene				U	ND	ug/kg					
**1,2-Dichloroethane-d4	50.0				51.8	ug/kg		104	(74%-121%)		
**Bromofluorobenzene	50.0				49.1	ug/kg		98	(85%-128%)		
**Dibromofluoromethane	50.0				54.1	ug/kg		108	(86%-114%)		
**Toluene-d8	50.0				50.9	ug/kg		102	(80%-120%)		
QC1200455897 84043002 PS											
Benzene	50.0	U	ND		30.5	ug/L		61	(56%-133%)		07/15/03 17:38
Ethylbenzene	50.0	U	ND		21.4	ug/L		43*	(56%-129%)		
Naphthalene	50.0	J	2.94		13.1	ug/L		20*	(45%-127%)		
Toluene	50.0	U	ND		26.7	ug/L		53*	(56%-124%)		
m,p-Xylenes	100	U	ND		42.3	ug/L		42*	(54%-129%)		
o-Xylene	50.0	U	ND		21.5	ug/L		43*	(59%-128%)		
**1,2-Dichloroethane-d4	50.0		55.6		55.5	ug/L		111	(74%-121%)		
**Bromofluorobenzene	50.0		49.3		51.3	ug/L		103	(85%-128%)		
**Dibromofluoromethane	50.0		54.9		53.6	ug/L		107	(86%-114%)		
**Toluene-d8	50.0		50.8		51.2	ug/L		102	(80%-120%)		
QC1200455898 84043002 PSD											
Benzene	50.0	U	ND		29.2	ug/L	4	59	(0%-30%)		07/15/03 18:12
Ethylbenzene	50.0	U	ND		19.2	ug/L	11	38	(0%-30%)		
Naphthalene	50.0	J	2.94		11.9	ug/L	12	18	(0%-30%)		
Toluene	50.0	U	ND		24.8	ug/L	7	50	(0%-30%)		
m,p-Xylenes	100	U	ND		37.9	ug/L	11	38	(0%-30%)		
o-Xylene	50.0	U	ND		19.2	ug/L	11	38	(0%-30%)		
**1,2-Dichloroethane-d4	50.0		55.6		57.0	ug/L		114	(74%-121%)		
**Bromofluorobenzene	50.0		49.3		50.6	ug/L		101	(85%-128%)		
**Dibromofluoromethane	50.0		54.9		53.7	ug/L		107	(86%-114%)		

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Workorder: 84043

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ohio Volatiles: GC-MS											
Batch 263522											
**Toluene-d8	50.0	50.8		50.7	ug/L		101	(80%-120%)			

Notes:
The Qualifiers in this report are defined as follows:

<	Result is less than amount reported.
>	Result is greater than amount reported.
B	Target analyte was detected in the sample as well as the associated blank.
BD	Flag for results below the MDC or a flag for low tracer recovery.
E	Concentration of the target analyte exceeds the instrument calibration range.
H	Analytical holding time exceeded.
J	Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P	The response between the confirmation column and the primary column is >40%D.
U	Indicates the target analyte was analyzed for but not detected above the detection limit.
UI	Uncertain identification for gamma spectroscopy.
X	Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y	QC Samples were not spiked with this compound.
h	Sample preparation or preservation holding time exceeded.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates the analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL LABORATORIES
DATA PACKAGE DOCUMENT INVENTORY LIST

CUSTOMER NAME: B-WAY CORPORATION

WORK ORDER NUMBER: 83321

GEL LABORATORIES OF OHIO, LLC

Checklist for Level III Review

Login: 83321

Verify that the Levels I, II are signed and dated on data review checklists	NA
Customer letter information is correct	✓
All analyses completed using appropriate method	✓
All & only the analyses requested are reported	✓
Client specific information submitted	✓
Customer COC, cooler receipt form, sample login sheet and corrective action form (if appropriate) submitted	✓
Sample results for each sample and analyses	✓
QC results for each analysis	✓
Table of contents provided and accurate	✓

Reviewed by: [signature]

Date: 7/16/03

GEL LABORATORIES OF OHIO, LLC
an Affiliate of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

July 15, 2003

B-WAY CORPORATION
ATTN: Mr. Eric Kroger
8200 Broadwell Road
Cincinnati, OH 45244

Dear Mr. Koger:

Please find enclosed the results of analysis for the following samples:

Work Order No.:	83321
No of Samples:	1
Date Received:	July 2, 2003
Total No. of Pages:	16

This report shall not be reproduced except in full, without the written approval of GEL Laboratories.

The contents of this data package have been reviewed for technical compliance and project completeness. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or the Director's designee, as verified by the signature below.

We appreciate the opportunity to service your analytical needs. If you have any further questions, please feel free to contact us.

Sincerely,

Robert George
Laboratory Director

RG:dmr

Enclosures

6954 Cornell Road, Suite 300 • Cincinnati, OH 45242
Phone (513) 489-2001 • Fax (513) 489-2223

Page: 1 of 1
Project #:
GEL Quote #:
COC Number (1): 1
PO Number:

GEL Laboratories of Ohio, LLC
Chain of Custody and Analytical Request

GEL Laboratories of Ohio, LLC
6954 Cornell Road, Suite 300
Cincinnati, OH 45242
Phone: (513) 489-2001
Fax: (513) 489-2223

Client Name: B-way   Phone #: 388-2348
Project/Site Name: Cincinnati Plant   Fax #: 388-2215
Address: 8200 Broadwell Rd.
Collected by: Eric Kroger   Send Results To: Eric Kroger

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	TSCA Regulated	Total number of containers	TCLP Metals										<-- Preservative Type (6) / Comments Note: extra sample is required for sample specific QC
OIL-TCLP-M	07-02-03	0900	N	N/A	SO			1	1										

TAT Requested: Normal: ____ Rush: ____ Specify: 5 day (Subject to Surcharge)   Fax Results: Yes / No   Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*
Soil contaminated with used compressor oil

Chain of Custody Signatures Tom Reed Jr.

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	E. J. Kroger	7-2-03	0900	Tom Reed		9:00 AM
2				[illegible] GEL	7/2/03	~~0900~~ 1020
3						

Sample Delivery Details / Laboratory Receipt

GEL PM:
Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, W = Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste, O = Oil, F = Filter, P = Wipe, U = Urine, F = Fecal, N = Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. *8260B* - 3, *6010B/7470A* - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? *YES* *NO*
Cooler Temp: ____ *C*

WHITE = LABORATORY   **YELLOW = FILE**   **PINK = CLIENT**

APPENDIX 2: SAMPLE RECEIPT REVIEW SHEET

SAMPLE RECEIPT REVIEW
Date 7/2/03
Client B-WAY
Received by J. Kickish

	SAMPLE REVIEW CRITERIA	YES	NO	N/A	COMMENTS/QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	X			
2	Were chain of custody documents included?	X			
3	Shipping container temperature(s) checked:	X			4.0°C
4	Is temperature documented on Chain of Custody		X		
5	Was shipping container temperature within specifications (4 +/- 2 C) If no, notify Project Manager	X			
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt form		X		
	Any samples not identified by the client as radioactive must be screened for radioactivitiy.				observed background CPM
	If screening results indicate > x2 background inform the RSO.				Observed sample CPM
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	X			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	X			
9	Were all sample containers properly labeled?	X			
10	Were correct sample containers received?	X			
11	Preserved samples checked for pH?			X	
12	Were samples preserved correctly? If no, notify Project Manager	X			
13	Were samples received within holding time? If No, notify Project Manager	X			
14	Were VOA vials free of headspace?			X	
15	ARCOC#			X	
16	SDG#			X	

PM(A) Review: DK
Date Reviewed: 7-2-03

Additional Comments:

ALL ACCEPTABLE JK 7/2/03

Ohio Metals
(OBWY)
Work Order 83321
SDG 83321

FAXED 7-10-03

Method/Analysis Information

Procedure:	**Mercury by Cold Vapor Method 7470A**
Analytical Method:	SW846 7470A
Prep Method:	SW846 7470A Prep
Ohio SW846 1311 Metals TCLP Leaching Solids Method:	SW846 1311
Analytical Batch Number:	261336
Prep Batch Number:	261334
Ohio SW846 1311 Metals TCLP Leaching Solids Batch Number:	261153

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 7470A:

Sample ID	Client ID
83321001	OIL-TCLP-M
1200449960	TCLP Blank (TB)
1200450277	Method Blank (MB)
1200450282	Laboratory Control Sample (LCS)
1200450278	83240001(03-2156-M) Sample Duplicate (DUP)
1200450280	83240001(03-2156-M) Matrix Spike (MS)
1200450288	83240001(03-2156-M) Matrix Spike Duplicate (MSD)

1200450281 83240001(03-2156-M) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with INORG3 REV # 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: P.S. Analytical Mercury (Detector)

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer s specifications. All initial calibration requirements have been met for this SDG.

Initial Calibration (ICV) Requirements
All initial calibration verification requirements have been met for this SDG.

ICSA/ICSAB Statement
ICSA and ICSAB analysis are not applicable to this method.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Blank Acceptance
The method blank and tumble blank associated with this SDG showed contamination less than 1/2 the RL.

LCS/LCSD Recovery Statement
The laboratory control sample (LCS) met the acceptance criteria for percent recovery (%R) for all applicable analytes.

Quality Control (QC) Sample Statement
Sample 83240001 was selected for quality control analysis consisting of DUP, MS, and MSD.

Matrix Spike Recovery Statement
The Matrix Spike(MS) recovery associated with this SDG passed.

Matrix Spike Duplicate Recovery Statement
The Matrix Spike Duplicate(MSD) recovery associated with this SDG passed.

MSD RPD Statement
The RPD between the MS and MSD associated with this SDG passed.

Duplicate RPD Statement
The RPD between the designated sample and its duplicate passed.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Re-prep/Re-analysis
No samples in this SDG required redigestion and/or reanalysis.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. An NCR was not generated for this SDG.

Additional Comments
No additional comments are needed for this sample group.

Method/Analysis Information

Procedure:	**ICP analysis of waters and solids according to epa method 6010B**
Analytical Method:	SW846 6010B
Prep Method:	SW846 3010A
Ohio SW846 1311 Metals TCLP Leaching Solids Method:	SW846 1311
Analytical Batch Number:	261211
Prep Batch Number:	261210
Ohio SW846 1311 Metals TCLP Leaching Solids Batch Number:	261153

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 6010B:

Sample ID	Client ID
83321001	OIL-TCLP-M
1200449960	TCLP Blank (TB)
1200450029	Method Blank (MB)
1200450033	Laboratory Control Sample (LCS)
1200450030	83321001(OIL-TCLP-M) Sample Duplicate (DUP)
1200450031	83321001(OIL-TCLP-M) Matrix Spike (MS)
1200450032	83321001(OIL-TCLP-M) Matrix Spike Duplicate (MSD)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories of Ohio, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with INORG1 REV # 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories of Ohio, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Thermo Jarrell-Ash ICAP 61E Trace Analyzer

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer s specifications. All initial calibration requirements have been met for this SDG.

Initial Calibration (ICV) Requirements
All initial calibration verification requirements have been met for this SDG.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
A continuing calibration blank had chromium >1/2 PQL but the sample had no chromium so results were reported.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Blank Acceptance
All analytes of interest were below the MDl except for chromium which was >1/2 PQL. The sample had no chromium, so results were reported.

LCS/LCSD Recovery Statement
The laboratory control samples (LCS) recoveries were within the acceptance limits.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this batch: 83321001 (OIL-TCLP-M).

Matrix Spike Recovery Statement
The matrix spike (MS) recoveries were within the acceptance limits.

Matrix Spike Duplicate Recovery Statement
The matrix spike duplicate (MSD) recoveries were within the acceptance limits.

MSD RPD Statement
The relative percent differences (RPD) between the MS and MSD recoveries were within the acceptance limits.

Duplicate RPD Statement
The relative percent differences (RPD) between the sample and its duplicate within acceptable limits for all elements.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Re-prep/Re-analysis
No samples in this SDG required redigestion and/or reanalysis.

Miscellaneous Information

Nonconformance Documentation
NCR ID 44022 was submitted for a failure to maintain custody of a tclp sample. Chemist required additional training. The following NCR was generated for this SDG:
NCR 44022 was generated due to Failure to maintain Custody.

Additional Comments

The Tumble blank had contamination above 1/2 PQL for barium and chromium and <1/2 PQL for silver. There was no chromium found in the sample and the barium contamination found in the tumble blank is less than 5% of the sample value.

Review Validation:

Carolyn J. Horwatt 7-10-03

Level 1 Initial Carolyn J. Horwatt______ Date 7-10-03________

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 10, 2003

Client Sample ID:	OIL-TCLP-M	Project:	OBWY00103
Sample ID:	83321001	Client ID:	OBWY001
Matrix:	Soil		
Collect Date:	02-JUL-03 09:00		
Receive Date:	02-JUL-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
ICP Analysis											
Ohio TCLP Non-Trace Metals Solids											
Arsenic		0.0225	0.00524	0.020	mg/l	1	ASD	07/08/03	1625	261211	1
Barium		1.01	0.000294	0.0025	mg/l	1					
Cadmium		0.00231	0.000403	0.002	mg/l	1					
Chromium	U	ND	0.000807	0.005	mg/l	1					
Lead	J	0.0139	0.00219	0.020	mg/l	1					
Selenium	U	ND	0.00214	0.015	mg/l	1					
Silver	U	ND	0.0015	0.010	mg/l	1					
Mercury Analysis											
Ohio TCLP Hg Solids											
Mercury	J	0.000127	0.000079	0.0002	mg/L	1	MAK	07/04/03	1144	261336	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	Ohio SW846 1311 Metals TCLP Leaching Solids	PS1	07/02/03	1510	261153
SW846 3010A	Ohio Metals Leachate Digestion SW846 3010A	PS1	07/03/03	1035	261210
SW846 7470A Prep	Ohio EPA 7470A Mercury Prep TCLP Liquids	MAK	07/03/03	1410	261334

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 6010B	
2	SW846 7470A	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

Certificate of Analysis

Company : B-Way Corporation
Address : Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Contact: Eric Kroger
Project: Cincinnati Plant

Report Date: July 10, 2003

Client Sample ID: OIL-TCLP-M
Sample ID: 83321001

Project: OBWY00103
Client ID: OBWY001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with GEL Laboratories of Ohio, LLC standard operating procedures. Please direct any questions to your Project Manager, Erik Corbin.

Candy J. Howatt 7-10-03
Reviewed by

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Client : B-Way Corporation
Cincinnati Plant
8200 Broadwell Road
Cincinnati, Ohio

Contact: Eric Kroger

Workorder: 83321

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio Metals: ICP											
Batch 261211											
QC1200450030 83321001 DUP											
Arsenic			0.0225		0.0235	mg/l	4 ^		(+/-0.020)	ASD	07/08/03 16:31
Barium			1.01		1.01	mg/l	0		(0%-20%)		
Cadmium			0.00231	J	0.00191	mg/l	N/A ^		(+/-0.002)		
Chromium		U	ND	U	ND	mg/l	N/A		(+/-0.005)		
Lead		J	0.0139	J	0.0116	mg/l	N/A ^		(+/-0.020)		
Selenium		U	ND	U	ND	mg/l	N/A		(+/-0.015)		
Silver		U	ND	U	ND	mg/l	N/A		(+/-0.010)		
QC1200450033 LCS											
Arsenic	0.500				0.484	mg/l		97	(80%-120%)		07/08/03 16:19
Barium	2.00				2.10	mg/l		105	(80%-120%)		
Cadmium	0.500				0.497	mg/l		100	(80%-120%)		
Chromium	0.500				0.508	mg/l		102	(80%-120%)		
Lead	2.00				2.01	mg/l		100	(80%-120%)		
Selenium	0.500				0.462	mg/l		92	(80%-120%)		
Silver	0.500				0.502	mg/l		100	(75%-120%)		
QC1200450029 MB											
Arsenic				U	ND	mg/l					07/08/03 16:13
Barium				U	ND	mg/l					
Cadmium				U	ND	mg/l					
Chromium				J	0.00283	mg/l					
Lead				U	ND	mg/l					
Selenium				U	ND	mg/l					
Silver				U	ND	mg/l					
QC1200450031 83321001 MS											
Arsenic	0.500		0.0225		0.509	mg/l		97	(80%-120%)		07/08/03 16:37
Barium	2.00		1.01		3.04	mg/l		102	(80%-120%)		
Cadmium	0.500		0.00231		0.470	mg/l		94	(80%-120%)		
Chromium	0.500	U	ND		0.491	mg/l		98	(80%-120%)		
Lead	2.00	J	0.0139		1.89	mg/l		94	(80%-120%)		
Selenium	0.500	U	ND		0.454	mg/l		91	(80%-120%)		
Silver	0.500	U	ND		0.564	mg/l		113	(80%-120%)		
QC1200450032 83321001 MSD											
Arsenic	0.500		0.0225		0.514	mg/l	1	98	(0%-20%)		07/08/03 16:43
Barium	2.00		1.01		3.02	mg/l	1	101	(0%-20%)		
Cadmium	0.500		0.00231		0.470	mg/l	0	94	(0%-20%)		
Chromium	0.500	U	ND		0.489	mg/l	0	98	(0%-20%)		
Lead	2.00	J	0.0139		1.91	mg/l	1	95	(0%-20%)		
Selenium	0.500	U	ND		0.459	mg/l	1	92	(0%-20%)		
Silver	0.500	U	ND		0.556	mg/l	1	111	(0%-20%)		
QC1200449960 TB											
Arsenic				U	ND	mg/l					07/08/03 16:07
Barium					0.0298	mg/l					

GEL LABORATORIES OF OHIO, LLC

6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Workorder: 83321

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ohio Metals: ICP											
Batch 261211											
Cadmium				U	ND	mg/l					
Chromium					0.0158	mg/l					
Lead				U	ND	mg/l					
Selenium				U	ND	mg/l					
Silver				J	0.00234	mg/l					
Ohio Metals: Mercury											
Batch 261336											
QC1200450278 83240001 DUP											
Mercury		U	ND	U	ND	mg/L	N/A		(+/-0.0002)	MAK	07/04/03 11:10
QC1200450282 LCS											
Mercury	0.005				0.00486	mg/L		97	(83%-118%)		07/04/03 11:06
QC1200450277 MB											
Mercury				J	0.000088	mg/L					07/04/03 11:04
QC1200450280 83240001 MS											
Mercury	0.005	U	ND		0.00502	mg/L		99	(80%-120%)		07/04/03 11:12
QC1200450288 83240001 MSD											
Mercury	0.005	U	ND		0.0049	mg/L	2	97	(0%-20%)		07/04/03 11:14
QC1200450281 83240001 PS											
Mercury	1.58	U	ND		.00163	mg/L		100	(85%-115%)		07/04/03 11:25
QC1200449960 TB											
Mercury				J	0.000088	mg/L					07/04/03 10:58

Notes:
The Qualifiers in this report are defined as follows:

- < Result is less than amount reported.
- > Result is greater than amount reported.
- B Target analyte was detected in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D.
- U Indicates the target analyte was analyzed for but not detected above the detection limit.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- Y QC Samples were not spiked with this compound.
- h Sample preparation or preservation holding time exceeded.

GEL LABORATORIES OF OHIO, LLC
6954 Cornell Road Suite 300 Cincinnati OH 45242 - (513) 489-2001

QC Summary

Workorder: **83321**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates the analyte is a surrogate compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

RUMPKE

NONHAZARDOUS INDUSTRIAL WASTE MANIFEST

GENERATOR

GENERATOR NAME B-way Corporation	TELEPHONE NO. (513) 388-2348
ADDRESS 8200 Broadwell Rd., Cincinnati, OH 45244	
GENERATING LOCATION Same as above	
DISPOSAL SITE NAME Georgetown Sanitary Landfill	TELEPHONE NO. 800-636-3136
DISPOSAL SITE ADDRESS 9427 Beyers Rd. Georgetown, OH 45121	

NAME OF WASTE	RUMPKE APPROVAL NO.	CONTAINER TYPE	CONTAINER QUANTITY
Soil Contaminated with Used Oil	03 - 0714 - 277	BSS	8 CY
	- -		
	- -		
	- -		
	- -		
	- -		

TYPE
MD - Metal Drum
PD - Plastic Drum
BSS - Bulk Solid/Sludge
L - Liquid

QUANTITY
CY - Cubic Yards
TON - Tonnage
GAL - Gallons
For drums, please note the number of drums.

SPECIAL HANDLING AND ADDITIONAL INFORMATION
None

GENERATOR CERTIFICATION

I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged according to applicable regulations.

Print/Type Name	Signature	Shipment Date
Eric J. Kroger	E J Kroger	8-7-03

TRANSPORTER

TRANSPORTER 1	TRANSPORTER 2
NAME OF TRANSPORTER Rumpke	NAME OF TRANSPORTER
ADDRESS 9427 Beyers Rd Georgetown, OH	ADDRESS
DRIVER NAME Wade Clark	DRIVER NAME
TRUCK NO. RC 394 / TELEPHONE NO. 378-4126	TRUCK NO. / TELEPHONE NO.
I hereby certify that the above named material was transported from the above listed location	I hereby certify that the above named material was transported from the above listed location
Signature Wade Clark / Date 8/7/03	Signature / Date

DISPOSAL SITE

SITE NAME	
ADDRESS	TELEPHONE NO.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Print Name	Signature	Receipt Date

RUMPKE®
www.rumpke.com

Work Order # 1620604
Cust. #
Action Date 8-7-03
Route Code
Truck 394 Wade

BILL TO
B-Way Corp.

SERVICE ADDRESS / PHONE
8200 Broadwell

LINE #	DATE	Sz	Cg	QTY	DESCRIPTION	AMOUNT
			E		Remove 20yd	

Accepted By Tom Reed 8/7/03.

NOT RESPONSIBLE ... PROPERTY WHERE DELIVERY IS MADE INSIDE CURB. (... TERMS & CONDITIONS)

RUMPKE

NONHAZARDOUS INDUSTRIAL WASTE MANIFEST

GENERATOR

GENERATOR NAME B-way Corporation	TELEPHONE NO. (513) 388-2348
ADDRESS 8200 Broadwell Rd., Cincinnati, OH 45244	
GENERATING LOCATION Same as above	
DISPOSAL SITE NAME Georgetown Sanitary Landfill	TELEPHONE NO. 800-636-3136
DISPOSAL SITE ADDRESS 9427 Beyers Rd. Georgetown, OH 45121	

NAME OF WASTE	RUMPKE APPROVAL NO.	CONTAINER TYPE	CONTAINER QUANTITY	TYPE
Soil Contaminated with Used Oil	03 - 0714 - 277	BSS	5 CY	MD - Metal Drum PD - Plastic Drum BSS - Bulk Solid/Sludge L - Liquid QUANTITY CY - Cubic Yards TON - Tonnage GAL - Gallons For drums, please note the number of drums.
	- -			
	- -			
	- -			
	- -			
	- -			

SPECIAL HANDLING AND ADDITIONAL INFORMATION
None

GENERATOR CERTIFICATION

I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged according to applicable regulations.

Print/Type Name	Signature	Shipment Date
Eric J. Kroger	EJ Kroger	07-14-03

TRANSPORTER

TRANSPORTER 1		TRANSPORTER 2	
NAME OF TRANSPORTER		NAME OF TRANSPORTER	
ADDRESS		ADDRESS	
DRIVER NAME		DRIVER NAME	
TRUCK NO.	TELEPHONE NO.	TRUCK NO.	TELEPHONE NO.
I hereby certify that the above named material was transported from the above listed location		I hereby certify that the above named material was transported from the above listed location	
Signature	Date	Signature	Date

DISPOSAL SITE

SITE NAME		
ADDRESS	TELEPHONE NO.	
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		
Print Name	Signature	Receipt Date

INDUSTRIAL WASTE CHARACTERIZATION REVIEW

Rumpke Disposal Facility:	**Georgetown Sanitary Landfill** **9427 Beyers Road** **Georgetown, Ohio 45121** **Phone: (800) 626-3136**
Generator:	**B-Way Corporation**
Waste Stream:	**Soil Contaminated with Used Oil**
Waste Description:	**Used Oil from Air Compressor**
Disposal Process:	**Landfill**
Rumpke Approval #:	**03-0714-277**
Approval Expiration Date:	**7/14/2004**
Technical Supporting Information:	**- MSDS for Oil** **- 7/03 analytical results for TCLP Metals**
Conditions of Approval:	• **Waste may not contain free liquids or create a dust hazard.** • **A Rumpke Nonhazardous Industrial Waste Manifest or similar manifest with Rumpke approval number must accompany each load of material.** • **Wastes may not be derived from nor have come in contact with any listed hazardous wastes.** • **Any changes in the process generating the waste require notification to Rumpke Ind. Waste Dept.**
Special Handling:	**None**
Additional Comments:	**None**
Duration of Disposal:	**"One-time"**
Rumpke Approval:	***APPROVED 7/14/2003*** Brian W. Burgemeir Brian W. Burgemeir, Rumpke Industrial Waste Environmental Manager

RUMPKE

RUMPKE INDUSTRIAL WASTE CHARACTERIZATION DATA SHEET COMPLETION INSTRUCTIONS

Generator, Waste Generation Location, Billing Information

Please fill in the appropriate information.

Waste Stream Information and Process Generating Waste

Name of Waste and Process Generating the Waste

Indicate the waste, including all contaminants, and the process by which the waste was generated.

Volume, Duration, and Method of Shipment

Indicate the amount of waste in tons, cubic yards, or gallons, whether the disposal event is one-time only or continuous, and how the material is shipped – in drums, in bulk, or liquid form.

Recommended Special Handling

Are any special precautions, protective equipment, etc. utilized at your facility while managing the waste? Please identify.

Transportation By

Please indicate who will be hauling the material.

Method of Shipment

Please indicate whether the waste will be in bulk, drummed or in liquid form (for solidification).

Please Circle the Appropriate Answer Below - Circle "yes" or "no" accordingly:

Does the waste contain free liquids?

This question refers to the state of the material at the time of disposal. A waste is considered to contain free liquids if it fails the Paint Filter Liquids Test Method 9095 as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846."

A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

*****Please note Rumpke cannot accept free liquids unless subject to our solidification program*****

Pursuant to 40 CFR 260-261 is this waste a listed or characteristic hazardous waste?

A waste is a listed hazardous waste if it has been identified by the EPA in 40 CFR 260-261 in the P, U, F, or K lists (listed hazardous waste) or the D list (characteristic hazardous waste).

*****Please note Rumpke cannot accept any hazardous waste*****

Does the waste contain regulated asbestos material?

Indicate if there is asbestos material contained in the waste.

Does the waste generate fugitive dust or heat?

If the material would release dust to the air (baghouse dust, flour, etc,) or generate heat under normal conditions (lime, etc.) - please specify.

Is this waste a listed DOT hazardous material? (if yes, please identify)

Indicate whether the material is a hazardous material according to DOT (different from being a hazardous waste).

Does the waste exhibit an odor?

Identify any **strong** or **pungent** odors the waste may have - aside from "ordinary" odors.

Does the waste contain any regulated radioactive material or regulated concentrations of PCB's?

Indicate if any radioactive material or PCB's (polychlorinated biphenyls) are present.

Is the waste regulated by 40 CFR 61 (National Emission Standard for Hazardous Air Pollutants), 40 CFR 150-189 (Federal Insecticide, Fungicide, and Rodenticide Act) or 40 CFR 761 (Toxic Substances and Control Act)?

Indicate whether your waste stream contains any materials regulated by the referenced environmental laws.

Generator's Waste Review and Certification

Please read the certification statement and sign and date underneath if applicable.

B-WAY Corporation

8200 BROADWELL ROAD
CINCINNATI, OH 45244
PH: 513-388-2200 – FAX: 513-388-2215

FACSIMILE TRANSMITTAL SHEET

TO: Chris Johnson	FROM: Eric Kroger, 388-2348
COMPANY: Rumpke	DATE: 7-10-03
FAX NUMBER: 741-5272	TOTAL NO. OF PAGES INCLUDING COVER: 14
PHONE NUMBER: 851-0122	SENDER'S REFERENCE NUMBER:
RE: Info. for Waste Disposal	YOUR REFERENCE NUMBER:

☐ URGENT ☒ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Please find included w/ this fax the information necessary for accepting our soil for disposal, including:

1. Rumpke Waste Characterization form
2. MSDS for spilled oil
3. COC for soil sample
4. Analytical results of requested TCLP metals analysis.

Let me know if you need anything else.

Thanks,
Eric

RUMPKE

RUMPKE INDUSTRIAL WASTE CHARACTERIZATION DATA SHEET

For Rumpke Use:	Approval No. ___ ___ - ___ ___ ___ ___ - ___ ___ ___	Expiration Date ___ ___/___ ___/___ ___

This form to be completed by an employee or an authorized representative of the generator.

GENERATOR INFORMATION

Generator Name: B-way Corporation		Email: eric.kroger@bwaycorp.com	
Address: 8200 Broadwell Rd.	City: Cincinnati	State: OH	Zip: 45244
Company Contact: Eric Kroger	Phone: (513) 388-2348	Fax: (513) 388-2215	
EPA Generator ID Number (if applicable):		Facility SIC Code: 3411	

WASTE GENERATION LOCATION

Generating Facility Location: B-way - Cincinnati Plant			
Address: Same as above	City:	State:	Zip:
Facility Contact Name: Same as above	Phone:	Fax:	

BILLING INFORMATION

Name of Company:			
Address:	City:	State:	Zip:
Billing Contact:	Phone:	Fax:	
Purchase Order Number:	P.O. Amount:	P.O. Expiration Date:	

WASTE STREAM INFORMATION

Name of Waste: Soil Contaminated w/ Used Oil (hydraulic oil from compressor)

Process Generating the Waste: Soil Excavation

Volume: ~5 yd^3	Duration: One-time Continuous	Shipped via: Bulk Drum Liquid
Special Handling: None		Transportation By: Rumpke

PLEASE CIRCLE "YES" OR "NO"

Does the waste contain free liquids?	YES	NO
Pursuant to 40 CFR 260 - 261 is this waste a listed or characteristic hazardous waste? (TCLP data attached)	YES	NO
Does the waste contain regulated asbestos material?	YES	NO
Does the waste generate fugitive dust or generate heat? *If Yes, please specify:*	YES	NO
Is this waste a listed DOT hazardous material? *If yes, indicate USDOT Shipping Name:* *Hazard Class ID No.:*	YES	NO
Does the waste exhibit an odor? If YES, please describe: Petroleum-like odor	YES	NO
Does the waste contain any regulated radioactive material or regulated concentrations of PCB's? *If yes, indicate source:*	YES	NO
Is the waste regulated by 40 CFR 61 (National Emission Standard for Hazardous Air Pollutants), 40 CFR 150-189 (Federal Insecticide, Fungicide, and Rodenticide Act) or 40 CFR 761 (Toxic Substances and Control Act)?	YES	NO

GENERATOR CERTIFICATION

I personally have examined and am familiar with the waste analysis, or through generator knowledge of the waste, can attest that this waste is not classified as a hazardous waste pursuant to 40 CFR 260-261, or applicable state regulations. All information is true, accurate and complete, and I am aware of the significant penalties for submitting a false certification, including the possibility of fine and imprisonment. All supporting information, (analytical results, QA/QC reports and other technical documentation) has been collected from a representative sample of the waste outlined above and will be supplied to the disposal facility and or state agencies upon request. THE RUMPKE IND. WASTE DEPT. WILL BE NOTIFIED IMMEDIATELY WITH ANY CHANGES TO THE WASTE PROCESS OR CHARACTER.

Generator Name: Eric J. Kroger Title: Environmental/Regulatory Engineer

Generator Signature: E. J. Kroger Date: 7-10-03

RUMPKE APPROVAL

For Rumpke Use:	Waste Approved/Rejected By: ________ Date: ___/___/___
	Waste Approved/Rejected For: ________ Landfill
	Approval Number: ___ ___ - ___ ___ ___ ___ - ___ ___ ___ Approval Exp. Date: ___/___/___

DAVE BRAFFORD

1

SIGMA S-460

KAESER COMPRESSORS

P.O. Box 946
Fredericksburg, VA 22404

MATERIAL SAFETY DATA SHEET

HMIS/NFPA Health: 0 Fire: 1 Reactivity: 0 PPI: N/A

SECTION 1: DESCRIPTION

PRODUCT NAME SIGMA S-460 Synthetic Air Compressor Oil	DOT PROPER SHIPPING NAME Not Listed	
(Manufactured for Kaeser by: Royal Purple, Inc.)	DOT HAZARD CLASS Non-Hazardous	
CHEMICAL FAMILY Synthetic Lubricants	DATE September 3, 1998	BY JBW (281-446-1000)

SECTION 2: INGREDIENTS

COMPONENT	CAS No.	%
Poly Ester Synthetic	68515-49-1	5 to 10%
Poly Alpha Olefin Synthetic	68037-01-4	75 to 80%
Hydrogenated ISO-Paraffin	64742-65-0	10 to 15%
Synthetic Oxidation Inhibitor	68608-77-5	0.5 to 1%
Synthetic Corrosion Inhibitor	55906-42-8	0.5 to 1%
Synthetic Ashless Oxidation Inhibitor	10254-57-6	0.5 to 1%

This product contains no hazardous substance within the definition of OSHA Regulation 29 CFR 1910.1200.

Royal Purple Lubricants certifies that this product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous wastes. This is because product uses, transformations, mixtures, processes, etc. may render the resulting material hazardous.

SECTION 3: PHYSICAL DATA

Boiling Point °C/°F	>700°F	Pour Point °C/°F	-50°F or lower
Vapor Pressure mm Hg @ 20 °C	Less Than 0.1	Evaporation Rate	Negligible
Vapor Density (Air = 1)	Greater Than Air	Specific Gravity	Greater Than 0.86
Solubility in Water	Negligible	Physical State	Liquid
Appearance	Golden	Odor	Lube Oil

SECTION 4: FIRE AND EXPLOSION HAZARD DATA

Flash Point °C/°F	>460°F
Extinguishing Media	Dry Chemical, Foam, CO_2, Water Fog
Special Fire Fighting Procedures	Positive pressure, self-contained breathing apparatus should be worn.
Unusual Fire and Explosion Hazards	None

DAVE BRAFFORD

2

SECTION 5: REACTIVITY HAZARDS

Stability	Unstable ☐ Stable ☒	Conditions to avoid	Extreme Heat & Open Flame
Incompatibility (materials to Avoid)	Strong Oxidizers		
Hazardous Decomposition Products	Carbon Monoxide, Hydrogen, Aldehydes, smoke & fumes		
Hazardous Polymerization	May Occur ☐ Will Not Occur ☒	Conditions to Avoid	

SECTION 6: HEALTH HAZARDS

1. Acute Overexposure	No significant adverse health effects are expected upon short-term exposure
2. Chronic Overexposure	Repeated and long time skin contact for persons hypersensitive to petroleum products may cause redness and irritation of eyes and skin.
Chemical Listed as Carcinogen or Potential Carcinogen	National Toxicology Program: Yes ☐ No ☒; I.A.R.C. Monographs: Yes ☐ No ☒; OSHA: Yes ☐ No ☒
Threshold Limit Value	5mg / m³ for mineral oils and synthetic lubricants
Emergency and First Aid Procedures / Primary Routes of Entry	
1. Inhalation	Vaporization is not expected at ambient temperatures, so there should be no problem.
2. Eyes	Wash with copious quantities of water. If irritation persists, get medical attention. Slightly irritating but does not damage eye tissue.
3. Skin	Wash with soap and water. Low order of toxicity.
4. Ingestion	Do not induce vomiting; call physician. Medical Conditions Aggravated by Exposure: None Known

SECTION 7: SPECIAL PROTECTION INFORMATION

Respiratory Protection	None required with adequate ventilation. In enclosed areas, supplied-air may be used.
Ventilation	If mists are present in a confined space, provide adequate ventilation to control level below the permissable exposure limit.
Protective Gloves	Oil resistant. Eye Protection: Use splash goggles or safety glasses when eye contact may occur.
Other Protective Clothing or Equipment	If there is a likelihood of oil splashing, an oil resistant apron should be worn to protect clothing.

SECTION 8: SPECIAL PRECAUTIONS AND SPILL / LEAK PROCEDURES

Precautions to be Taken in Handling and Storage	Normal precautions - keep away from flames, sparks or ignition sources. Do not weld, or use torch, on the container or near the container.
Other Precautions	Launder oil soaked clothing before reuse.
Steps to be Taken in Case Material is Released or Spilled	Contain spill and keep from entering waterways or sewers. Absorb on porous inert material. Large quantities can be pumped.
Waste Disposal Methods	Dispose according to current Local, State and Federal regulations. Consider recycling.

APPENDIX D
Release Report Form

Report Date: June 17, 2002
Time: Approx. 10:30pm (a.m. or p.m.)
Name: Roseanne M. Swangler

I. Release Description

1. Type of material released: Mobil Hydraulic Oil AW32
   (specify chemical or trade name)
2. Quantity released: 150 gallons
   (specify units, i.e., gallons, pounds)
3. Identify media: land
   (i.e., air, water, groundwater, land)

   a. Floor or ground covered: 30 ft. length 30 ft. width
   b. Depth >1" inches above ground surface
   c. Depth of soil penetrated with release materials N/A
   d. Description of soil onto which release flowed N/A
   e. Did material enter storm drain? [X] Yes [] No

4. Describe circumstances leading to material release: Hydraulic cylinder broke on can crusher spraying hydraulic Oil on ~~ground~~. Black Top Surface. under + Around hydraulic Press.

II. Agency Notification

Time	Agency	Person
______	[] Regional EPA Emergency Response	
______	[] National Emergency Response	
______	[] Publicly Owned Treatment Works (POTW)	
______	[] Air Pollution Control Agency	
______	[] Local Emergency Response Commission	
______	[] State Emergency Response Commission	
______	[] Coast Guard (if applicable)	

III. Clean up

1. Describe release control and counter measures taken by Plant:
   (Attach additional sheets if necessary)

Pig mat dikes placed around stormdrain. Can crusher locked out preventing additional spillage. Heritage Environmental emergency Response notified and requested for clean up

Photos taken? [] Yes (by ______________) [] No

(Note: Photographer's name must be recorded on back of each photo. Note photo direction, i.e., North, South, East, West)

[] Photos before clean up

[] Photos during clean up

[] Photos after clean up

3. Describe release debris material removal procedure: ______________________

4. Describe number and size of container(s) removed/material removed:

5. Describe release clean up equipment disposition: ______________________

6. Sample taken of released material? [] Yes [] No
   a. Analytical labs sent to: ______________________
   b. Where was sample taken? ______________________

Approx. 10:30pm. Utility operator, Delilah Knause was cleaning debris from under and around can crusher. Tracy Jahnigen, Utility operator had previously dumped a load of cans into the crusher. The crusher was clear and conveyor empty. Delilah stated she heard hissing from the can crusher while she was sweeping. The hissing noise became louder and she saw fluid spraying from the machine. She immediately called the supervisor and maintenance to the area. Ed Murphy, Press Supervisor and Walt Valentine responded. Barry Blevins, Electrician locked out power to can crusher adjacent to machine. Main power left on since circuitry feeds external lighting to area. Supervisors Murphy and Valentine diked storm sewer with pig mat pillows. Ed Murphy contacted Roseanne Swangler, Safety Manager at 11:30pm.

12:00pm Roseanne Swangler notifies Roger Reed, Operations Manager AND Dave Layton Maintenance Manager AND apprises them of spill. Dave Layton will respond to plant. Area is measured. MSDS retrieved. Calculation of approximate loss of chemical from tank done by Dave Layton. Heritage Environmental Emergency Response is contacted for clean-up. Voice mail left for Leon Parker. Spill monitored AND DIKING ADDED.

P. 704

583013-00 MOBIL HYDRAULIC OIL AW 32

1. PRODUCT AND COMPANY IDENTIFICATION

APPROVAL DATE: 01/01/95

PRODUCT NAME: MOBIL HYDRAULIC OIL AW 32
SUPPLIER: MOBIL OIL CORP.
AMERICAS MARKETING AND REFINING
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Emergency (call collect):	609-737-4411	
Product and MSDS Information:	800-662-4525	703-849-5700
CHEMTREC:	800-424-9300	202-483-7616

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: PET. HYDROCARBONS AND ADDITIVES

INGREDIENTS CONSIDERED HAZARDOUS TO HEALTH:

This product is not formulated to contain ingredients which have exposure limits established by U.S. agencies. It is not hazardous to health as defined by the European Union Dangerous Substances/Preparations Directives. See Section 15 for a regulatory analysis of the ingredients.

See Section 15 for European Label Information.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not to be hazardous.
EFFECTS OF OVEREXPOSURE: No significant effects expected.
EMERGENCY RESPONSE DATA: Amber Liquid. Note: Pressurized mists may form a flammable mixture. DOT ERG No. - NA

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.
SKIN CONTACT: Wash contact areas with soap and water. High pressure accidental injection through the skin requires immediate medical attention for possible incision, irrigation and/or debridement.
INHALATION: Not expected to be a problem.
INGESTION: Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Note: Pressurized mists may form a flammable mixture. Flash Point C(F): > 190(374) (ASTM D-92). Flammable limits - LEL: NA, UEL: NA.
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides. Elemental oxides.

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills as required to appropriate authorities. U. S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.
PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Adsorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.
ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering storm sewers or drains and contact with soil.
PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention.
STORAGE: Do not store in open or unlabelled containers. Store away from strong oxidizing agents or combustible material.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.
RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.
EYE PROTECTION: Normal industrial eye protection practices should be employed.
SKIN PROTECTION: No special equipment required. However, good personal hygiene practices should always be followed.
EXPOSURE LIMITS: This product does not contain any components which have recognized exposure limits. However, a threshold limit value of 5.00 mg/m3 is suggested for oil mist.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Amber
ODOR: Mild
ODOR THRESHOLD-ppm: NA
pH: NA
BOILING POINT C(F): > 316(600)
MELTING POINT C(F): NA
FLASH POINT C(F): > 190(374) (ASTM D-92)
FLAMMABILITY: NA
AUTO FLAMMABILITY: NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: < 0.1
VAPOR DENSITY: > 2.0
EVAPORATION RATE: NA
RELATIVE DENSITY, 15/4 C: 0.873
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 3.5
VISCOSITY AT 40 C, cSt: > 29.8
VISCOSITY AT 100 C, cSt: 5.4
POUR POINT C(F): -18(0)

(Section continued next page)

FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: EXEMPT IN U.S.
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Extreme heat.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides. Elemental oxides.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
INHALATION TOXICITY (RATS): Not applicable ---Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.
EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.
SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.
OTHER ACUTE TOXICITY DATA: The acute toxicological results summarized above are based on testing of representative Mobil products.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

Representative Mobil formulations have been tested at the Mobil Environmental and Health Sciences Laboratory by dermal applications to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations, including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

Dermal exposure of pregnant rats to representative formulations did

(Section continued next page)

not cause adverse effects in either the mothers or their offspring.

---CHRONIC TOXICOLOGY (SUMMARY)---

The base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using the Mobil Modified Ames Test.

---SENSITIZATION (SUMMARY)---

Representative Mobil formulations have not caused skin sensitization in guinea pigs.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: Not established.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION

USA DOT: NOT REGULATED BY USA DOT.

RID/ADR: NOT REGULATED BY RID/ADR.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

15. REGULATORY INFORMATION

Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, MITI, and DSL.

EU Labeling: EU labeling not required.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

This product contains no chemicals reportable under SARA (313) toxic release program.

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (0.05%)	7440-66-6	22
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP) (0.43%)	68649-42-3	22

--- REGULATORY LISTS SEARCHED ---

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RTK	23 = MN RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK

Code key: CARC = Carcinogen; SUS = Suspected Carcinogen

16. OTHER INFORMATION

USE: HYDRAULIC OIL

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

Please call the Customer Response Center on 800-662-4525 for formulation disclosure.

****

For Mobil Use Only: MHC: 1* 1* NA 1* 1*, MPPEC: A, REQ: US - MARKETING, SAFE USE: L

****

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0730 AM ARRIVAL

HERITAGE®

EMERGENCY SERVICES ORDER AGREEMENT

NAME OF COMPANY BWAY Corporation ("CLIENT")

ADDRESS 8200 Broadwell Rd. Cincinnati, OH 45244

CONTACT Roseanne Swangler HERITAGE JOB NO.

PHONE NO. 513 388 2220 FAX NO. 513-388-2250 P.O. No.
cell 513-678-0406

EMERGENCY SERVICES ORDERED FROM: Heritage Environmental Services, LLC (HERITAGE)
Louisville Service Center
4925 Heller Street
Louisville, Kentucky 40218

CONTACT: Don Grudzielanek – Division Manager
Louisville Service Center

PHONE NUMBER: (502) 473-0638 FAX: (502) 459-4988

18JUN02 RMS 12:30AM RMS

Emergency services ordered on «Date», at approximately «time». by the Client's representative contacting HERITAGE (hereinafter referred to as the "Notice to Proceed"). Due to the nature of the emergency response exact details of work conditions were impossible to provide. The Scope of Work ("Work") listed below generally represents the services requested to be performed by HERITAGE by the Notice to Proceed:

«ScopeofWork»

HERITAGE has agreed to provide all labor, equipment, supplies and bill for these services in accordance with the following terms and conditions:

1. Safety. All HERITAGE work crews are supervised by persons familiar with safety procedures and work rules. All operations will be performed in accordance with existing Federal OSHA safety requirements. Protective gear will be provided for all conditions necessary. HERITAGE and its employees shall comply with Client's safety procedures while on Client's premises, provided that such procedures (1) do not unreasonably hinder, in HERITAGE's sole judgment, HERITAGE's performance of the Work; and (2) are conspicuously and legibly posted on the Client's premises; and/or (3) have been delivered in writing to HERITAGE prior to the commencement of the Work on Client's premises.

2. Estimate of Service Charges. A verbal estimate of total charges, if requested and given, is only a rough estimate. Responding on an emergency basis does not allow time required to fully analyze the exact circumstances and conditions, and therefore, the determination of the ultimate and final costs with any preciseness. HERITAGE, therefore, will not be held to any amount which may be estimated.

3. Pricing. For work performed by HERITAGE under this Agreement, Client shall pay HERITAGE in U.S. dollars according to HERITAGE's Schedule of Standard Fees, incorporated into this Agreement and attached hereto as Exhibit A; provided, however, Client shall pay HERITAGE its cost plus a handling fee of 20%, in addition to compensation based upon Exhibit A, for any costs or charges incurred by HERITAGE in performing the work which are not shown in Exhibit A.

4. Payment Terms.

(b) Invoices shall be payable upon receipt. All outstanding balances remaining unpaid thirty (30) days after the invoice date shall be subject to interest at the rate of 1.5 percent per month or the maximum permissible under applicable law, whichever is less, starting from the invoice date and continuing until paid in full. Payments received will be applied first, to collection costs (including reasonable attorneys' fees), if any, second to accrued interest and the balance of the payment, to any unpaid fees.

(c) HERITAGE may, after giving seven (7) days written notice, suspend the Work conducted under this Agreement, without liability, until all past due amounts (including collection costs, reasonable attorneys' fees, fees and interest accrued) have been paid.

(d) Invoices may cover a billing period of fourteen (14) calendar days or a monthly period, depending on the project, and will be issued on or after the day ending each billing period. HERITAGE's initial invoice may be issued any time after the work is commenced. Detailed itemized invoices can be provided only upon special request. HERITAGE's invoice for final payment shall be submitted to the Client as soon as is practical after receipt by HERITAGE of bills for any reimbursable costs of performing the work. HERITAGE reserves the right to increase or decrease the billing period on a case-by-case basis. All invoices not contested in writing within ten (10) business days of receipt are deemed accepted by the Client as true and accurate and are payable in full.

(d) In the event of a default hereunder by Client, HERITAGE may, as its election, return to the Client any wastes, products, materials or substances which have been removed from Client's premises in connection with an incident, at Client's cost or, at HERITAGE's election, file and attach a lien on Client's property to take any other legally permitted action to enforce its right hereunder. In the event legal action is required to enforce this Agreement, the prevailing party shall be reimbursed for its collection and legal costs (including reasonable attorneys' fees and court costs) by the other party.

1. Required Notification. It shall be solely the responsibility of Client to notify all persons and governmental agencies or authorities of any incident for which HERITAGE is requested to perform Work, as required by any applicable federal, state or local laws, statutes, rules, regulations or orders and to protect the health and safety of persons or property and to make any other notifications required by governmental agencies or authorities which may relate in any way to the Work provided hereunder, unless HERITAGE has agreed to do so in writing prior to initiation of the Work.

2. Term. This Agreement shall become effective on the date HERITAGE received the Notice to Proceed from Client and shall continue in force until terminated pursuant to Paragraph 12 or until the Work has been completed by HERITAGE and HERITAGE has been completely compensated therefor.

3. HERITAGE Responsibilities.

7.1 HERITAGE will advise the Client regarding the appropriate methods and techniques necessary to perform the Work and will undertake such methods and techniques where instructed to do so by the Client.

7.2 As it deems appropriate, HERITAGE will recommend for Client's selection storage, recycling, treatment, and/or disposal facilities that to the best of HERITAGE's knowledge have permits, licenses, certificates, or approvals required by applicable federal, state and local laws, statutes, rules and regulations.

7.3 Notwithstanding any other provision of this Agreement, HERITAGE shall not be responsible for contamination of any product, raw material or other material handled by HERITAGE or its subcontractor during the performance of this Agreement.

7.4 Emergency conditions may dictate that HERITAGE serve as the Client's agent for purposes limited to coordinating transportation, permitting, treatment, storage and/or disposal of waste in the absence of the Client's authorized representative. Client agrees that HERITAGE is hereby authorized to coordinate these activities as necessary, provided that in such event, in accordance with Section 13 hereof, Client shall retain all responsibility for the selection of the entities and/or facilities utilized in connection with such activities, and HERITAGE agrees that in coordinating such activities, it shall not utilize entities or facilities which have not previously been selected and approved by Client. This Agreement expressly authorizes the use of Heritage Environmental Services, LLC's storage, treatment and disposal facilities permitted to accept waste materials generated by an incident, laboratories for analytical services and Heritage Transport for waste transportation services.

1: Client Warranties and Representation.

8.1 Client shall disclose any information known by it or discovered by it related to hazardous materials, wastes, products, petroleum products, or other materials handled or existing at Client's facilities, or any component or portion thereof, present or may present a hazard or risk to persons, property or the environment. In the event of such discovery or receipt of information, HERITAGE reserves the right to immediately cancel or amend any of the terms of this Agreement, as deemed appropriate in the sole determination of HERITAGE, notwithstanding Sections 12 without any liability whatsoever to Client.

8.2 Client holds sole and clear title to all hazardous materials, wastes, products, petroleum products and other materials and/or any hazardous or contaminated waste or materials which may be tendered to HERITAGE in connection with Services performed by HERITAGE, and Client is under no legal restraint, whether statutory, regulatory , administrative, judicial or otherwise, which prohibits the transportation, or the transfer of possession to HERITAGE or its subcontractors of such wastes, products or materials. In the event Client does not hold clear title, Client will assume all liabilities from third party claims in tendering above stated materials to HERITAGE.

8.3 Client agrees to provide HERITAGE, its employees and subcontractors, a safe working environment for such performance of this Agreement as is undertaken on premises owned or controlled by Client, except to the extent that any risk or hazard is inherent in wastes, substances or materials which are handled by HERITAGE in connection with the Work and which risk or hazard has been communicated to HERITAGE prior to such performance in conformance with Section 8.1 hereof, and provided that Client has furnished HERITAGE with all technical information known to it concerning such hazard or risk. Client further agrees to provide HERITAGE with all information which may be required under 29 CFR ô 1910.120(b)(1)(iv) prior to HERITAGE's initiation of the Work hereunder.

8.4 Client shall provide HERITAGE complete, legal access to all sites, locations, facilities and information as deemed necessary by HERITAGE for the safe, lawful and proper provision of Services under this Agreement.

8.5 Notwithstanding any other provision of this Agreement with regard to emergency response services, where HERITAGE and Client have agreed to a specific course of performance for emergency response services in writing and HERITAGE has advised Client of all known laws and regulations requiring compliance and performs the services in accord with such specified plan, to that extent only, HERITAGE's performance shall not be considered noncompliance with applicable law and the Client agrees to indemnify HERITAGE from any and all liability from Client and third party claims arising from such performance.

2. HERITAGE's Warranties and Representations. HERITAGE warrants and represents only that: (a) HERITAGE will use reasonable efforts to perform the Work in material compliance with applicable federal, state and local laws and regulations and in a safe manner using industry-accepted practices and procedures; (b) HERITAGE is in the business of providing the Services and has the requisite knowledge, experience, equipment and qualified personnel to perform the Work; and (c) any facilities or equipment used by HERITAGE to perform the Work shall be licensed or permitted as required and in material compliance with applicable federal, state and local laws and regulations. This warranty is the sole and exclusive warranty given by HERITAGE in connection with any Work performed by HERITAGE. **HERITAGE MAKES NO OTHER REPRESENTATION, GUARANTEE OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.** HERITAGE's liability hereunder, as limited by Section 11.1 hereof, shall apply only if Client notifies HERITAGE in writing of its claim against HERITAGE within one (1) year of the completion of the Services and such claim sets forth in reasonable detail all the facts upon which it is based.

3. HERITAGE Insurance:

HERITAGE shall maintain, at its own expense, during the term of this Agreement, the following insurance coverage:

Worker's Compensation	-	Statutory Requirements;
Employer's Liability	-	$1,000,000 Each Accident;
Commercial General Liability	-	$5,000,000 Each Occurrence, $5,000,000 General Aggregate;
Automobile Liability	-	$5,000,000 Each Accident (Contains MCS-90 Endorsement)
Contractors Pollution Liability (Clients' site)	-	$5,000,000 Each Occurrence, $5,000,000 Policy Aggregate
Pollution Legal Liability (HERITAGE TSDFs)	-	$10,000,000

Upon the written request of Client, HERITAGE shall furnish insurance certificates showing the types and amounts of coverage in effect, the expiration dates of such policies, and a statement that no insurance under such policies will be cancelled by HERITAGE without ten (10) days' prior written notice to Client.

1. Limits of Liability and Indemnification.

01.1 Limits of Liability. The fees and payments provided for in this Agreement are based solely on the cost of performing the Work and are unrelated to the value of any property, product, materials or substance of the Client or any other value. Client agrees that HERITAGE is not an insurer of the Work, and will not be liable for losses which may occur as a result of malfunction or non-function of equipment utilized in performing the Work, even if due to negligence or failure of performance by HERITAGE. Any liability or obligation of HERITAGE, and the remedy of Client, in connection with any Work performed by HERITAGE shall be limited to repeating the Work if possible or, at the sole option of HERITAGE, refunding in full or in part the fees paid by Client for the Work. In no event shall the liability on the part of HERITAGE for defects in services and materials provided under this agreement exceed the compensation paid by Client for services and materials provided under this agreement directly by HERITAGE, but exclusive of any compensation paid to or through HERITAGE for services and materials provided by HERITAGE's subcontractor or any third party. Such sum shall constitute liquidated damages and shall constitute the sole and exclusive liability of HERITAGE, whether such defects are caused by the performance or nonperformance of Services under this Agreement or by the negligence, active or otherwise, of HERITAGE, its employees, agents, representatives or subcontractors.

11.2 Indemnification of HERITAGE. Client shall indemnify, defend and hold harmless, and hereby forever releases, HERITAGE and its affiliates, directors, officers, shareholders, employees, agents and subcontractors from and against any and all claims, causes of action, penalties, suits, judgments, damages, losses, liabilities, expenses, direct or indirect, payments, taxes, duties, fines and/or other costs (including but not limited to liability to a third party, reasonable attorneys' fees and court and arbitration costs), which all or any one of them incur or are liable in connection with, arising from, alleged to arise from the work provided and performed pursuant to this Agreement. To the fullest extent permitted by the law governing this Agreement and by the public policy of the State or States in which this Agreement is performed, this indemnification is made notwithstanding whether HERITAGE is determined to be wholly, partly, or together with Client, its employees, agents or any third party, jointly, negligent.

1. Termination. Notwithstanding any other provision of this Agreement to the contrary, HERITAGE may immediately terminate and cancel this Agreement and cease performing Services without liability to Client under the following circumstances:

(b) Client is insolvent, adjudged bankrupt or bankruptcy proceedings are commenced by or against Client;

(c) Client makes a general assignment for the benefit of creditors;

(d) A receiver is appointed for Client; or

(e) Client fails to make any payment to HERITAGE when such payment is due.

In the event of such termination, Client shall pay and reimburse HERITAGE for all Work performed by HERITAGE for which payment has not already been made. In the event of a default hereunder by Client, HERITAGE may, at its election, return to the Client any wastes, products, materials or substances which have been removed from Client's premises in connection with an incident, at Client's cost or, at HERITAGE's election, file and attach a lien on Client's property to take any other legally permitted action to enforce its right hereunder. In the event legal action is required to enforce this Agreement, the prevailing party shall be reimbursed for its collection and legal costs (including reasonable attorneys' fees and court costs) by the other party.

13. RCRA/CERCLA Status. Nothing contained within this Agreement shall be construed or interpreted as requiring HERITAGE to assume the status of a generator, or a treatment, storage or disposal facility (TSDF) as those terms are defined by RCRA or any other federal, state or local law, statute, rule or regulation governing the generation, treatment, storage or disposal of hazardous wastes, solid wastes or special wastes unless said waste is managed by a HERITAGE TSDF. If the Services include the transportation of waste materials from Client's premises or facilities, HERITAGE may evaluate and recommend possible disposal sites for Client's use. However, under RCRA and the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601 et seq., as amended ("CERCLA"), and regulations thereunder, Client, as the generator of the wastes, has the ultimate legal liability for the evaluation and "selection" of the proper disposal site for its waste. HERITAGE cannot accept ownership, title or responsibility for Client's wastes or materials or substances involved in Client's incident unless and until it is managed at a HERITAGE TSDF. Client hereby acknowledges that it shall evaluate and "select" the proper disposal site for storage, treatment or disposal of its wastes and/or materials or substances involved in any incident and shall be solely responsible therefor.

14. Independent Contractor. HERITAGE is and shall perform this Agreement as an independent contractor and, as such, shall have and maintain complete control over all of its employees, agents and operations. Neither HERITAGE nor anyone employed by it shall be or be deemed to be the agent, representative, employee or servant of the Client. This Section does not apply with respect to Section 7.4.

15. Excuse of Performance. The performance of this Agreement, except for the payment of money for Work already rendered, may be suspended by either party in the event the Work by HERITAGE is prevented by a cause or causes beyond the reasonable control of such party. Such causes shall include, but not be limited to, acts of God, acts of war, riot, fire, explosion, accident, flood, adverse weather conditions or sabotage; lack of adequate fuel, power, raw materials, labor or transportation facilities; governmental laws, regulations, requirements, orders or actions; breakage or failure of machinery or apparatus; national defense requirements; injunctions or restraining orders; labor trouble, strikes, lockouts or injunctions (provided that neither party shall be required to settle a labor dispute against its own best judgement).

16. Delegation and Assignment. HERITAGE may at any time delegate the performance of the Work, or any portion hereof, which is by this Agreement undertaken by HERITAGE. Either party may at any time upon written notice to the other party, assign its rights under this Agreement.

17. Entire Agreement. This Agreement represents the entire understanding and agreement between the parties hereto regarding the Work and supersedes any and all prior agreements, whether written or oral, that may exist between the parties regarding same and supersedes any and all terms and conditions that may be contained in any purchase orders or other documents issued by the Client.

18. Waiver. Any waiver by either party of any provision or condition of this Agreement shall not be construed or deemed to be a waiver of a subsequent breach of the same provision or conditions, unless such waiver be so expressed in writing and signed by the party to be bound.

19. Governing Law. This agreement shall be deemed to have been executed in Indianapolis, Indiana, county of Marion and shall be governed by the laws of the state of Indiana.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

CLIENT

BWAY Corporation
Client Company Name

Roseanne M Swangler
Signature

Roseanne M Swangler
Printed Name

Safety MANAGER
Title

HERITAGE ENVIRONMENTAL SERVICES, LLC

Mike Gibson
Signature

Mike Gibson
Printed Name

Operations Superintendent
Title

6-18-02
Date

Recycled Paper

Revised 6/1/94

FILE COPY

The Payne Firm, Inc.
Environmental Consultants

11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

PRIVILEGED AND CONFIDENTIAL
Prepared at the request of Legal Counsel

March 8, 2001

Kirkland & Ellis
655 15th Street, NW
Washington, D.C. 20005

Attention: Mr. Lewis Putman

Reference: Quarterly Sampling Status Report
December 2000 to February 2001
Milton Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244
Project No. 0846.01

Dear Mr. Putman:

As specified in our proposal dated February 4, 2000, Kirkland & Ellis, on behalf of its client, Milton Can Company, has retained The Payne Firm, Inc. (Payne Firm) to provide monthly ground water gauging and quarterly ground water sampling at the above-referenced facility (Figure 1). This status report presents ground water quality data collected during this monitoring period, as well as a summary of historical ground water quality data. This is the fourth quarterly sampling event at the facility.

BACKGROUND

Three monitoring wells located around the perimeter of an existing sanitary wastewater spray field were initially sampled by EMG, Inc. on July 8, 1999 as part of a property acquisition evaluation. At that time, monitoring wells OW-1 and OW-2 produced non-detectable levels of volatile organic compounds (VOCs). Monitoring well OW-3 produced a detection of trichloroethene (TCE) at 1,090 micrograms per liter (µg/l). The Payne Firm re-sampled monitoring well OW-3 on July 26, 1999. The concentration of TCE was reported at 300 µg/l.

On March 17, 2000, all monitoring wells were surveyed to a common datum by a licensed surveyor. The vertical datum is based upon an arbitrary elevation of 100.00 feet using, as a benchmark, a railroad spike found on the power pole in the spray field west of the wastewater treatment facility. Also on this date, the first of four quarterly sampling events scheduled for 2000 was performed.

GROUND WATER GAUGING AND SAMPLING

On December 1, 2000, all monitoring wells were gauged and sampled. The wells were gauged utilizing an electronic water level meter to measure the depth to water. Static ground water was measured between 52.83 (OW-1) and 69.70 (OW-3) feet below top of casing (TOC) during the gauging event. A ground water gradient map, generated from the December 1, 2000 gauging data, is presented as Figure 2. Water table elevation data is presented in Table 1. Ground water flow direction exhibits a northwesterly flow with an average hydraulic gradient of 0.01 feet/foot. The current flow direction approximately parallels the northern side of the facility with flow from the monitored area toward an adjacent off-property sand and gravel quarry. OW-2 is in the downgradient position relative to the monitored area; whereas, OW-3 is, hydraulically, in a lateral position at the corner of the property.

Each well was purged utilizing a Teflon hand bailer. Prior to use, the bailer was thoroughly decontaminated utilizing an Alconox and water solution, and thoroughly rinsed with distilled water. All wells were purged of at least three well volumes or until dry. A tabular summary of the purge volume extracted during the December 2000 sampling event is presented as Table 1.

The ground water samples were collected using the Teflon hand bailer and placed in laboratory-provided 40-milliliter (ml) glass vial containing a hydrochloric acid preservative. The samples were immediately placed on ice and shipped to Severn Trent Laboratories, Inc. (STL) in North Canton, Ohio under chain-of-custody protocol. The ground water samples were analyzed for chlorinated VOCs via United States Environmental Protection Agency (US EPA) Method 8021B. The results were compared to the Ohio Environmental Protection Agency (OEPA) Voluntary Action Program's (VAP) Generic Unrestricted Potable Use Standards (VAP Standard). This standard was chosen as a potentially applicable standard for comparative purposes only. The gauging and sampling activities were performed in accordance to the Payne Firm's standard operating procedures (SOP) SOP 6-3 and SOP 6-4, respectively.

The laboratory results from the December 1, 2000 sampling event indicate that monitoring well OW-3 showed a concentration of TCE at 210 µg/l in the ground water sample. The VAP standard for this compound is five µg/l, which is the same as the US EPA's maximum contaminant level (MCL) for drinking water. No other target analytes were detected above the reporting limits in the samples. No target analytes were detected above the reporting limits in the trip blank. The laboratory analytical report is attached. Historical ground water sample data is included in Table 2.

On January 5, 2001 and February 8, 2001, all site monitoring wells were gauged as part of the monthly gauging program. The wells were gauged utilizing an electronic water meter to measure the depth to water. Static ground water was measured between 52.93 (OW-1) and 69.87 (OW-3) feet below TOC during the January 2001 gauging event and between 53.11 (OW-1) and 69.69 (OW-3) feet below TOC during the February 2001 gauging event. Ground water gradient maps were not generated from this data. However, data was compared to that of the December 1, 2000 gauging event. No significant differences were apparent in the data. Ground water flow direction continues to exhibit a northwesterly flow path with an average hydraulic gradient of 0.01 feet/foot. The four quarters of data confirm little to no seasonal variances in ground water flow direction beneath the area of concern. Water table elevation data is presented in Table 1 and Chart 1.

CONCLUSIONS

The Payne Firm has performed four continuous quarters of groundwater monitoring, including monthly gauging and quarterly sampling events. The data collected from this monitoring indicates that little seasonal variation is evident in the northwesterly direction of ground water flow or the gradient beneath the area of concern despite variations in ground water elevations. This conclusion is evident from data depicted on Table 1, Figure 2 and Chart 1.

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Prepared at the Request of Legal Counsel

The concentration of TCE in monitoring well OW-3 has remained at a level well below the initial sampling concentrations in July 1999. In addition, there have been no detections of TCE in OW-1 or OW-2 during the quarterly sampling program, and there have been no detections of any other VOC constituents on the Method 8021B list in any of the three wells. The concentration of TCE detected in OW-3 has shown a continued downward trend through the first three quarters of monitoring as depicted on Table 2 and Chart 2. However, a slight increase (121 μg/l) in TCE concentration was observed in the fourth quarter. This increase in TCE concentration occurred during the lowest water levels to date. The water level drop and/or slight seasonal variation may have been the reason for the apparent increase in TCE concentration during the fourth quarterly sampling event. TCE concentrations to date, showing the overall downward trend, are presented as Chart 2.

In conclusion, the monthly water level and quarterly sampling data indicate that there is a consistent ground water flow direction beneath the area of concern and that detected TCE concentrations at OW-3 are decreasing. The data also supports the conclusion that the source of the TCE is likely off the property, upgradient from OW-3.

RECOMMENDATIONS

Based on the data obtained over the last year, it is the Payne Firm's opinion that continued monitoring (monthly gauging and quarterly sampling events) of the ground water at this site is not necessary or warranted. The previous four quarters of gauging data has shown that very little to no variation in ground water flow direction occurs in the vicinity of the three monitoring wells. The Payne Firm does not expect that additional water level gauging will yield information appreciably different from that collected to date. Data collected to date indicates that the contamination in monitoring well OW-3 originated from an upgradient off-site source. Existing data is sufficient to show that the TCE is a pass-through plume from an off-site source as defined by current OEPA VAP regulations at Ohio Administrative Code (OAC) 3745-300-08. This eliminates the need for additional investigations or continued monitoring of the groundwater at this site. In summary, no technical basis exists for, nor do potentially applicable regulations require, any additional work be performed in support of this matter.

The Payne Firm also recommends that a review of existing facility wastewater permit and monitoring requirements be completed to determine any further need for the monitoring wells. If there is no further need for the wells, they should be abandoned following OAC 3701-28-07.

The Payne Firm appreciates the opportunity to provide professional services on this project. Please do not hesitate to contact the undersigned at (513) 489-2255, if you have any further questions.

Sincerely,

The Payne Firm, Inc.

Michael T. Haines
Geologist

Daniel D. Weed, C.P.G.
Principal

cc: Mr. Leon Parker, BWAY Corporation

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Prepared at the Request of Legal Counsel

Kirkland & Ellis

Milton Can Company

Cincinnati, Ohio

Project No. 0846.01

The Payne Firm, Inc.
Environmental Consultants

TABLE 1: Monitoring Well Gauging and Purging Results

Data Date: December 1, 2000								
Monitoring Well	Well Diameter (inches)	Depth to Water (feet)	Total Depth (feet)	Height of Water (feet)	Three Well Volumes (gallons)	Amount Purged (gallons)	Casing Elevation (feet)	Ground Water Elevation (feet)
OW-1	2	52.83	61.6	8.77	4.3	4.3	100.22	47.39
OW-2		55.52	64.92	9.4	4.6	2*	100	44.48
OW-3		69.7	79.98	10.28	5	2*	116.74	47.04

* Wells were purged until dry.

Data Date: January ____, 2001								
Monitoring Well	Well Diameter (inches)	Depth to Water (feet)	Total Depth (feet)	Height of Water (feet)	Three Well Volumes	Amount Purged (gallons)	Casing Elevation (feet)	Ground Water Elevation (feet)
OW-1	2	52.93	61.6	8.67	4.2	NA	100.22	47.29
OW-2		55.62	64.92	9.3	4.6	NA	100	44.38
OW-3		69.87	79.98	10.11	4.9	NA	116.74	46.87

Data Date: Februrary ____, 2001								
Monitoring Well	Well Diameter (inches)	Depth to Water (feet)	Total Depth (feet)	Height of Water (feet)	Three Well Volumes	Amount Purged (gallons)	Casing Elevation (feet)	Ground Water Elevation (feet)
OW-1	2	53.11	61.6	8.49	4.2	NA	100.22	47.11
OW-2		55.69	64.92	9.23	4.5	NA	100	44.31
OW-3		69.69	79.98	10.29	5	NA	116.74	47.05

Kirkland & Ellis

Milton Can Company

Cincinnati, Ohio

Project No. 0846.01

The Payne Firm, Inc.

Environmental Consultants

TABLE 2: Historical Ground Water Data for Trichloroethene

Date	OW-1 (µg/l)	OW-2 (µg/l)	OW-3 (µg/l)
07/08/99*	ND	ND	1,040
7/26/99	ND	ND	300
3/17/00	ND	ND	150
6/14/00	ND	ND	160
9/12/00	NS	NS	89
12/1/00	ND	ND	210

*Performed by EMG
ND – Not detected at a level above the detection limit.
NS – Not sampled.

Chart 1
Ground Water Levels

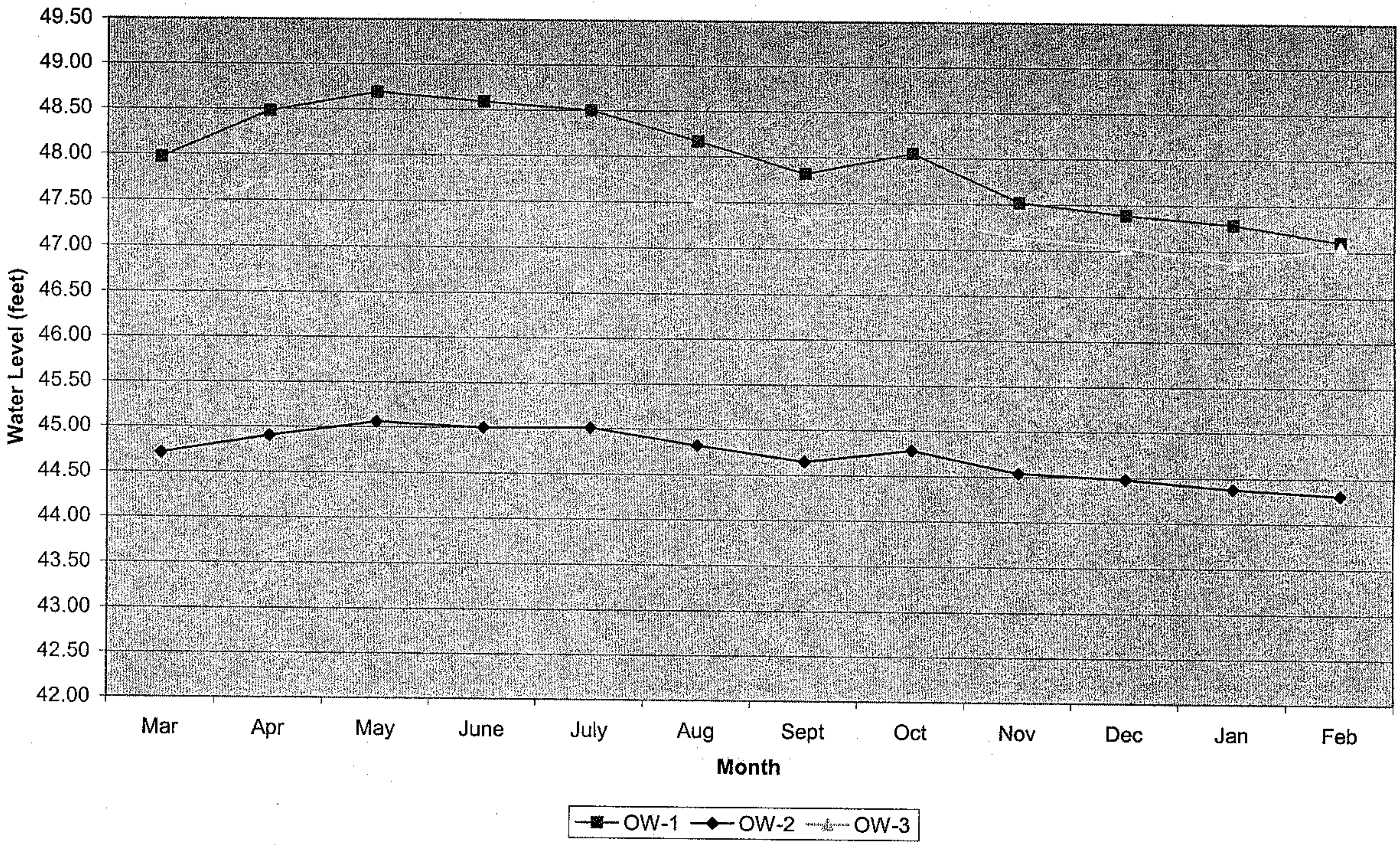
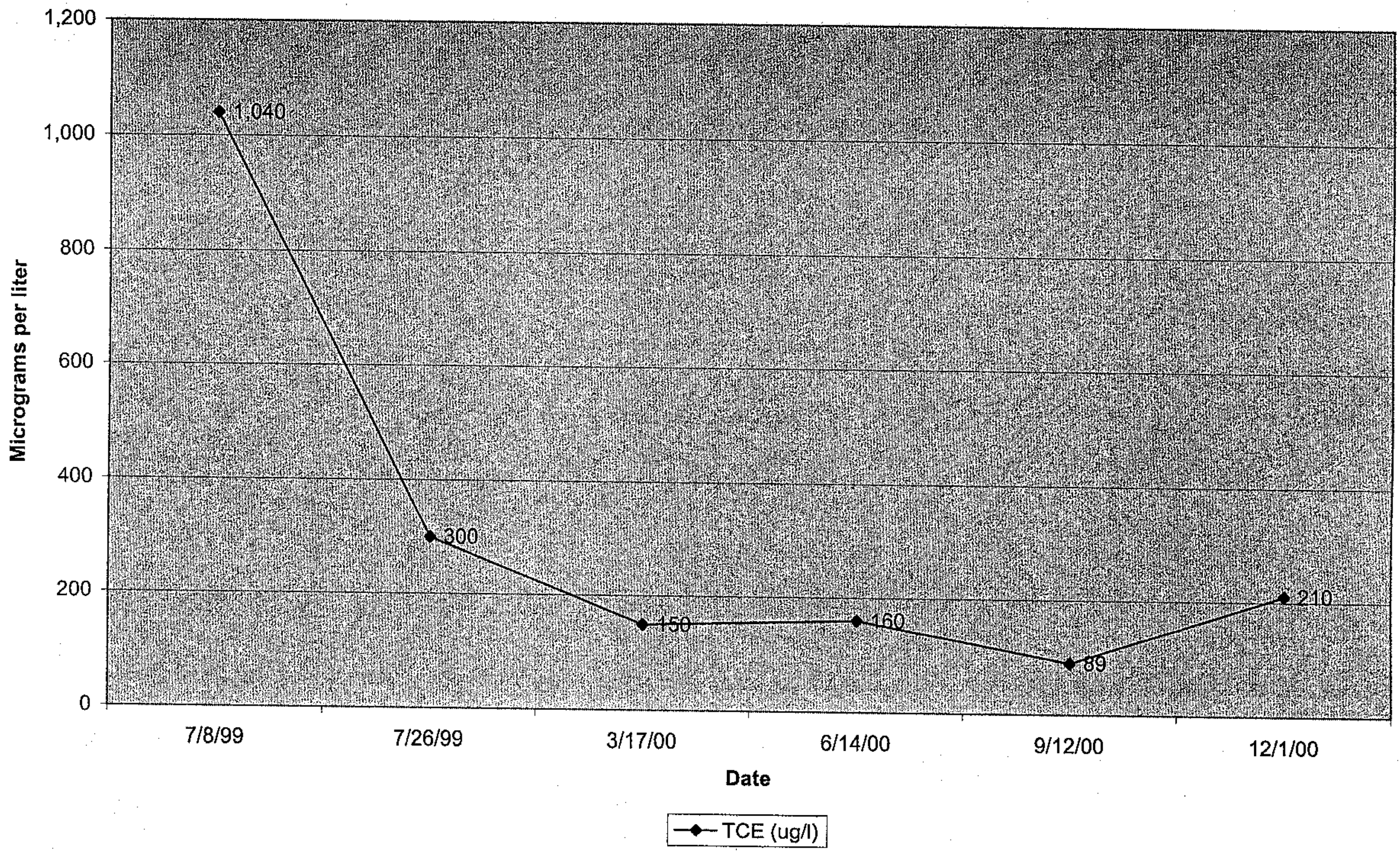


Chart 2
TCE Concentrations in OW-3



SEVERN TRENT SERVICES

STL North Canton
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Tel: 330 497 9396
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ANALYTICAL REPORT

PROJECT NO. 846.01

MILTON CAN / B-WAY

Lot #: A0L020136

Dan Weed

The Payne Firm, Inc.
11231 Cornell Park Drive
Cincinnati, OH 45242

SEVERN TRENT LABORATORIES, INC.

Gary L. Wood
Project Manager

December 14, 2000

CASE NARRATIVE

A0L020136

The following report contains the analytical results for three water samples and one quality control sample submitted to STL North Canton by the Payne Firm from the Milton Can/B-Way Site, project number 846.01. The samples were received December 2, 2000, according to documented sample acceptance procedures.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter listed on the analytical methods summary page in accordance with the method indicated. A summary of QC data for these analyses is included at the rear of this report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The samples were received at the laboratory at a temperature of 1.0° C.

The chain-of-custody listed two Trip Blanks but one was received at the laboratory.

GC VOLATILES

2-Chloroethyl vinyl ether cannot be reliably recovered in an acid preserved sample.

ANALYTICAL METHODS SUMMARY

A0L020136

PARAMETER	ANALYTICAL METHOD
Volatiles by GC	SW846 8021B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A0L020136

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DQP4F	001	OW-1/120100	12/01/00	09:42
DQP4H	002	OW-2/120100	12/01/00	10:15
DQP4J	003	OW-3/120100	12/01/00	10:50
DQP4K	004	TRIP BLANK	12/01/00	13:55

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PAYNE FIRM INC.

Client Sample ID: OW-1/120100

GC Volatiles

Lot-Sample #...: A0L020136-001 **Work Order #...:** DQP4F1AA **Matrix.........:** WG
Date Sampled...: 12/01/00 09:42 **Date Received..:** 12/02/00
Prep Date......: 12/05/00 **Analysis Date..:** 12/05/00
Prep Batch #...: 0341144
Dilution Factor: 1 **Method.........:** SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromobenzene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Chloroethyl vinyl ether	ND		ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorodibromomethane	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichloromethane	ND	5.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	97	(50 - 150)
Trifluorotoluene	105	(50 - 150)

PAYNE FIRM INC.

Client Sample ID: OW-2/120100

GC Volatiles

Lot-Sample #...: A0L020136-002 **Work Order #...:** DQP4H1AA **Matrix.........:** WG
Date Sampled...: 12/01/00 10:15 **Date Received..:** 12/02/00
Prep Date......: 12/05/00 **Analysis Date..:** 12/05/00
Prep Batch #...: 0341144
Dilution Factor: 1 **Method.........:** SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromobenzene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Chloroethyl vinyl ether	ND		ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorodibromomethane	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichloromethane	ND	5.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	95	(50 - 150)
Trifluorotoluene	105	(50 - 150)

PAYNE FIRM INC.

Client Sample ID: OW-3/120100

GC Volatiles

Lot-Sample #...:	A0L020136-003	Work Order #...:	DQP4J1AA	Matrix.........:	WG
Date Sampled...:	12/01/00 10:50	Date Received..:	12/02/00		
Prep Date......:	12/05/00	Analysis Date..:	12/05/00		
Prep Batch #...:	0341144				
Dilution Factor:	5	Method.........:	SW846 8021B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlorobenzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
2-Chloroethyl vinyl ether	ND		ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorodibromomethane	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Dichloromethane	ND	25	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
Trichloroethene	**210**	**5.0**	**ug/L**
Vinyl chloride	ND	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	105	(50 - 150)
Trifluorotoluene	105	(50 - 150)

PAYNE FIRM INC.

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...:	A0L020136-004	**Work Order #...:**	DQP4K1AA	**Matrix.........:**	WQ
Date Sampled...:	12/01/00 13:55	**Date Received..:**	12/02/00		
Prep Date......:	12/05/00	**Analysis Date..:**	12/05/00		
Prep Batch #...:	0341144				
Dilution Factor:	1	**Method.........:**	SW846 8021B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromobenzene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
2-Chloroethyl vinyl ether	ND		ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorodibromomethane	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Dichloromethane	ND	5.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	92	(50 - 150)
Trifluorotoluene	105	(50 - 150)

QUALITY CONTROL SECTION

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

** for analyses run on TJA Trace ICP or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch is acceptable if the Method Blank, LCS, and LCSD surrogate recoveries are within acceptance criteria. The only exception is if the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: A0L020136 **Work Order #...:** DQWGX1AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: A0L060000-144 DQWGX1AD-LCSD
Prep Date......: 12/05/00 **Analysis Date..:** 12/05/00
Prep Batch #...: 0341144
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**106**	**(35 - 127)**			**SW846 8021B**
	103	**(35 - 127)**	**2.6**	**(0-20)**	**SW846 8021B**
Trichloroethene	**101**	**(58 - 131)**			**SW846 8021B**
	97	**(58 - 131)**	**3.8**	**(0-20)**	**SW846 8021B**
Chlorobenzene	**110**	**(61 - 134)**			**SW846 8021B**
	105	**(61 - 134)**	**5.2**	**(0-20)**	**SW846 8021B**
Toluene	**110**	**(71 - 132)**			**SW846 8021B**
	105	**(71 - 132)**	**4.9**	**(0-20)**	**SW846 8021B**
Benzene	**109**	**(73 - 134)**			**SW846 8021B**
	105	**(73 - 134)**	**3.8**	**(0-20)**	**SW846 8021B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	105	(50 - 150)
	120	(50 - 150)
Trifluorotoluene	112	(50 - 150)
	108	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: A0L020136 **Work Order #...:** DQWGX1AA **Matrix.........:** WATER
MB Lot-Sample #: A0L060000-144

Prep Date......: 12/05/00
Analysis Date..: 12/05/00 **Prep Batch #...:** 0341144
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Bromodichloromethane	ND	1.0	ug/L	SW846 8021B
Trichloroethene	ND	1.0	ug/L	SW846 8021B
Bromoform	ND	1.0	ug/L	SW846 8021B
Bromomethane	ND	1.0	ug/L	SW846 8021B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8021B
Chlorobenzene	ND	1.0	ug/L	SW846 8021B
Chlorodibromomethane	ND	1.0	ug/L	SW846 8021B
Chloroethane	ND	1.0	ug/L	SW846 8021B
2-Chloroethyl vinyl ether	ND		ug/L	SW846 8021B
Chloroform	ND	1.0	ug/L	SW846 8021B
Chloromethane	ND	1.0	ug/L	SW846 8021B
Dibromomethane	ND	1.0	ug/L	SW846 8021B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8021B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8021B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8021B
Dichlorodifluoromethane	ND	1.0	ug/L	SW846 8021B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8021B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8021B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8021B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8021B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8021B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8021B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8021B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8021B
Dichloromethane	ND	5.0	ug/L	SW846 8021B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8021B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8021B
Tetrachloroethene	ND	1.0	ug/L	SW846 8021B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8021B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8021B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8021B
Vinyl chloride	ND	1.0	ug/L	SW846 8021B
Bromobenzene	ND	1.0	ug/L	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	94	(50 - 150)
Trifluorotoluene	106	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: A0L020136 **Work Order #...:** DQP4J1AC-MS **Matrix.........:** WG
MS Lot-Sample #: A0L020136-003 DQP4J1AD-MSD
Date Sampled...: 12/01/00 10:50 **Date Received..:** 12/02/00
Prep Date......: 12/05/00 **Analysis Date..:** 12/05/00
Prep Batch #...: 0341144
Dilution Factor: 5

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**109**	**(14 - 151)**			**SW846 8021B**
	108	**(14 - 151)**	**0.73**	**(0-28)**	**SW846 8021B**
Trichloroethene	**183**	**(10 - 229)**			**SW846 8021B**
	259 a	**(10 - 229)**	**7.2**	**(0-41)**	**SW846 8021B**
Chlorobenzene	**110**	**(42 - 147)**			**SW846 8021B**
	112	**(42 - 147)**	**2.2**	**(0-23)**	**SW846 8021B**
Toluene	**108**	**(55 - 159)**			**SW846 8021B**
	111	**(55 - 159)**	**2.1**	**(0-25)**	**SW846 8021B**
Benzene	**108**	**(55 - 161)**			**SW846 8021B**
	109	**(55 - 161)**	**0.29**	**(0-25)**	**SW846 8021B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,4-Dichlorobutane	109	(50 - 150)
	105	(50 - 150)
Trifluorotoluene	106	(50 - 150)
	113	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

The Payne Firm, Inc.
Environmental Consultants
11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

No

CHAIN OF CUSTODY RECORD

PROJ. NO.: 846.01
PROJECT NAME: MILTON CAN / B-WAY
SAMPLERS: (Signature) [signature] CURTIS KUGLER

STA. NO.	DATE 2000	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	VOC 8021						REMARKS
													ATTN: GARY WOOD
	12/01	0942		X	OW-1 / 120100	3	X						
	12/01	1015		X	OW-2 / 120100	3	X						- FAX RESULTS TO
	12/01	1050		X	OW-3 / 120100	3	X						MIKE HAINS
	12/1	1355		X	TRIP BLANK	2	✓						
													- NORMAL TURN
													ANALYZE FOR
													CHLORINATED VOC'S
													ONLY

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	12/01/00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Anne Sanders	12-2-00 945 AM	

Distribution: Original Accompanies Shipment; Copy to Field Files

The Payne Firm, Inc.
Environmental Consultants

11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

February 5, 1999

Milton Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244

Attention: Mr. Randall W. Stapp
Manager, Environmental and Safety

Reference: Process Tank Removal
Milton Can Company
Broadwell Road Facility
Project No. 0654.06.03

Dear Mr. Stapp:

This letter summarizes the removal activities of two underground process tanks conducted at the above-referenced facility. The Milton Can Company (Milton Can) retained The Payne Firm, Inc. (Payne Firm) to conduct the coordination, oversight, and reporting of the removal activities. The results of field observations recorded during the activities are provided below. The property location is shown in Figure 1.

BACKGROUND

Two flow-through process tanks of 170-gallon capacity each were used in the Compound Pump Room of the Milton Can facility from the late 1950s to the mid-1990s. The Compound Pump Room is concrete block construction covering approximately 400 square feet of area. The tanks were cylindrical in shape and staged in an upright position. Each tank could be accessed through an open top lid that could be locked down in the closed position if needed. Each tank also contained a mixing rod powered by an electric motor that was positioned on top of each tank.

The process tanks served as an introduction and mixing point for the bulk compounds used in the compound dispensing system. The compounds mixed included Darex Disp Solvent 4 and Darex SLC 9385E-57. The main constituents of these compounds were identified as heptane isomers with minor amounts of hexane isomers, alcohol, resins, fillers, pigments and other modifiers. This information was listed on the plant Material Safety Data Sheets.

The tanks were situated in a poured concrete vault with a concrete bottom. The dimensions of the vault were measured to be six feet long by four feet wide and seven feet deep. The tanks were situated in the vault on angle iron legs that extended to the bottom of the cavity and anchored to the floor. The top one-foot of each tank extended above the concrete floor. Gravel was poured around the tanks from the bottom of the vault to just below grade and then concrete was poured around the tanks level to the existing floor slab grade (Figure 2). Therefore, the tops of the tanks were situated such that the top one-foot of each tank was exposed above grade (approximately one foot above the concrete floor). The floor material adjacent to the north side of the tanks was constructed of wood. The wood floor was approximately one foot wide between the concrete vault and the Compound Pump Room wall.

The two process tanks are not regulated underground storage tanks under the Ohio State Fire Marshal's Bureau of Underground Storage Tank Regulations (BUSTR) because of the following:

Under BUSTR regulations, the process tanks were defined as ***flow-through process tanks***. This type of tank is not regulated by BUSTR, according to OAC 1302:7-9-02(B)(52)(f). According to OAC 1301:7-9-01(B)(16), a flow through process tank is: "A tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process, or for the storage of finished process or by-products from the production process."

Additionally, the Anderson Township Fire Department Inspector (AFI) was contacted prior to the removal activities. Milton Can was informed by the Anderson Township Fire Department that since the tanks were not regulated underground storage tanks under BUSTR due to their use as flow-through process tanks, no permit was needed to conduct the removal; however, a permit was provided for documentation purposes and they requested a report summarizing the removal activities be presented to them. A copy of the permit is attached with this letter. It is our understanding that Milton Can will receive a letter of acceptance from the Anderson Township Fire Department.

REMOVAL ACTIVITIES

All liquid compound was removed from the dispensing system and tanks prior to the removal activities. Residual compounds had remained at the bottom of the tanks that solidified into a semi-liquid and hardened form. The Payne Firm subcontracted Alpha Ram of Cincinnati, Ohio to conduct the removal activities. All personnel conducting the removal and oversight of the project have completed OSHA 40 hour Health and Safety Training Course with annual 8 hour refresher updates. A site specific Health & Safety Plan dated October 20, 1998 was prepared by the Payne Firm and reviewed by all contractors prior to conducting all on site activities.

Removal activities began on October 20, 1998. Mr. Chip Tokar, a representative of the Payne Firm was on site during all activities to conduct ambient air monitoring for oxygen content, lower explosive limit (LEL) and volatile organic vapors. The oxygen and LEL readings were recorded using an Industrial Scientific TMX 412 Multi-Gas meter calibrated each day prior to use. Organic vapor readings were collected using a Foxboro TVA-1000 total vapor analyzer. Readings for each parameter were recorded on approximately an hourly basis from the breathing air space when work was being conducted in the compound room. The specific action levels and other Health & Safety guidelines are presented in the Health & Safety Plan prepared by the Payne Firm for this specific project. Action levels for each parameter monitored were not exceeded during the project.

Alpha-Ram, Inc. (Alpha-Ram) of Cincinnati, began removal of the tanks by using an air hammer to remove the concrete floor on top of the vault and around the tanks. Once the concrete surface had been removed, it was observed that the gravel in the vault was pebble to cobble size which did not permit the collection of confirmatory samples. Some residual hardened compound in the gravel was noted along the north end of the tanks at the surface where no concrete cap was present. The affected gravel was easily recognized because it had been cemented together by the hardened compound. No liquid compound staining was observed at any time curing the removal activities. The gravel that was observed to be clean (no visual compound observed) was removed from the vault and staged on 4 mil plastic next to the vault. Any gravel observed to be affected by the compound was contained in a 55-gallon drum and staged for proper disposal by Milton Can.

Clean gravel was removed from around the tanks in the vault to a depth of three feet. The bottoms of the tanks were reached at this depth and it was noted that each tank was attached to four legs of angle-iron construction. It was anticipated that the legs were fastened to the concrete floor of the vault. In order to remove the tanks in a practical manner, each tank was cut from the angle-iron legs and removed from the vault on October 27, 1998. The tanks were staged outside of the Milton Can facility and will be cleaned and cut. The residual material in the tanks will be disposed of in a proper manner by Milton Can. The tanks will be taken off site by a scrap metal vendor.

After the tanks were removed, a limited amount of the hardened product was observed along the north wall of the vault. This material was removed from the vault and placed in 55-gallon drums. A total of three 55-gallon drums were filled with the hardened material and gravel matrix. The three drums were labeled and staged on site by Milton Can for proper disposal. Due to the nature of the backfill material (gravel) and the fact that no liquids were observed in the vault (only hardened compound) no closure samples could be collected for laboratory analysis. Therefore, the closure was completed based upon visual observation and removal of all the hardened compound from the vault. After removal of the residual hardened compound, gravel was cleared away from the bottom of the vault. A concrete floor was observed at a depth of seven feet below the ground surface. After confirming that no residual compound remained in the vault and that the bottom was constructed of concrete, the vault was backfilled with the clean gravel that had been previously removed from around the process tanks. It is our understanding that the intention of Milton Can is to fill the vault to grade with additional clean gravel and a load-bearing concrete floor will be installed over the concrete vault.

CLOSING

Two 170-gallon process tanks were removed from the compound mixing room at the Milton Can facility in Anderson Township, Ohio. Limited residual amounts of the hardened compound that were mixed with the gravel backfill material were observed along the north wall of the concrete vault to a depth of approximately four feet. No holes or cracks were observed in the tanks themselves. This residual contamination likely originated from an unknown amount of minor overfills that may have occurred over a period of thirty years. The compounds appeared to have entered the vault through the wood-constructed part of the floor located at the north end of the tanks. Since the compound material hardened when exposed to air, no liquids were observed to have migrated to the bottom of the vault. The vault that contained the tanks was constructed of concrete and was observed to have a concrete bottom. Therefore, it is unlikely that residual contamination from any spills or overfills of the compound has migrated into the subsurface. The residual contamination was removed from the north wall of the vault and placed in 55-gallon drums for proper disposal by Milton Can. No closure samples could be collected due to the nature of the backfill material and the lack of a sampling media (i.e., soil or groundwater). After visual confirmation determined the residual contamination had been removed, the vault was backfilled with clean gravel and prepared to be capped with concrete.

We trust this letter report clearly summarized the closure activities associated with the two compound process tanks. Please contact the undersigned with any questions.

Sincerely,

The Payne Firm, Inc.

Chip Tokar

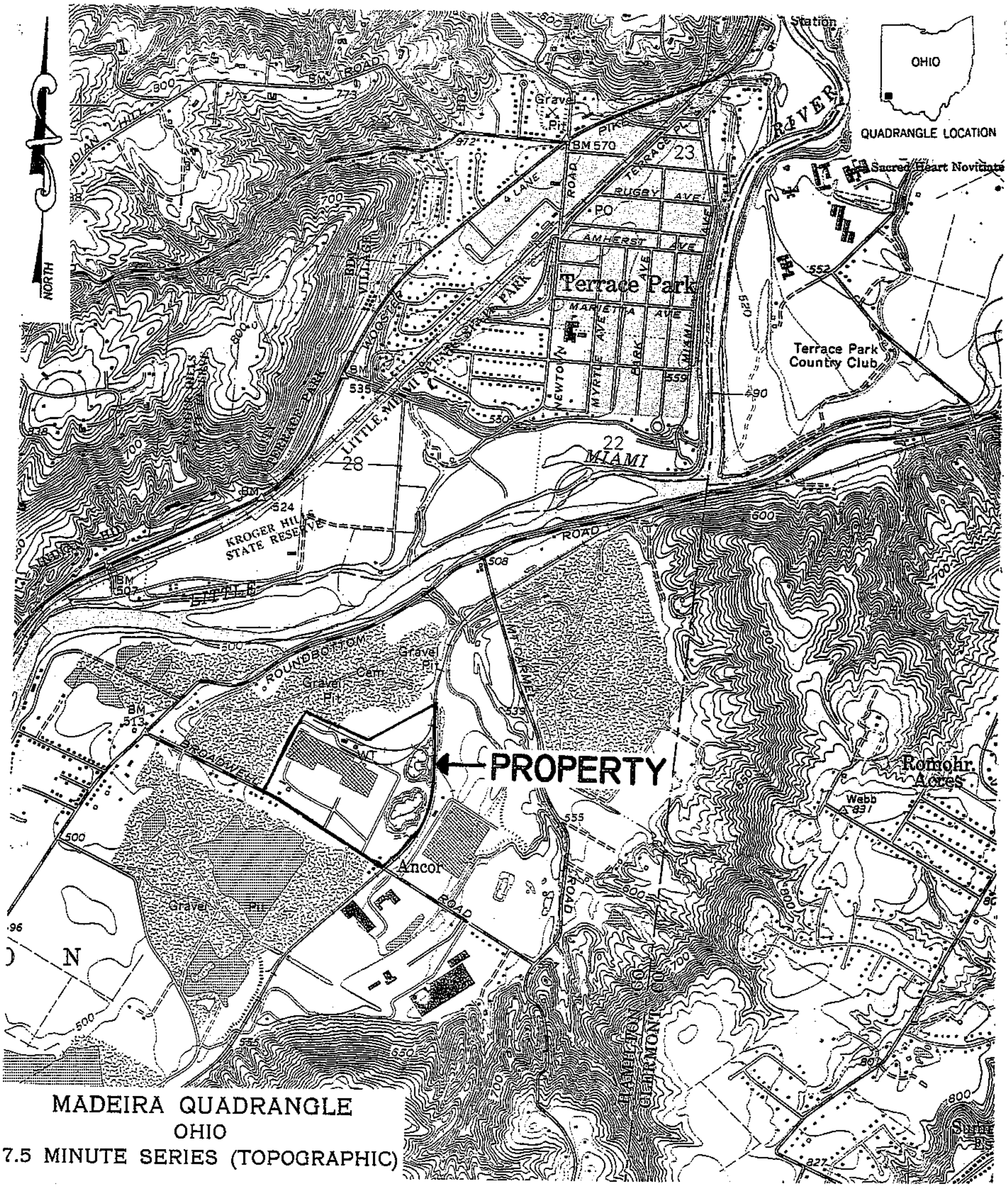
Frank "Chip" J. Tokar, Jr., C.P.G.
Geologist

Daniel Weed

Daniel D. Weed, C.P.G.
Project Manager

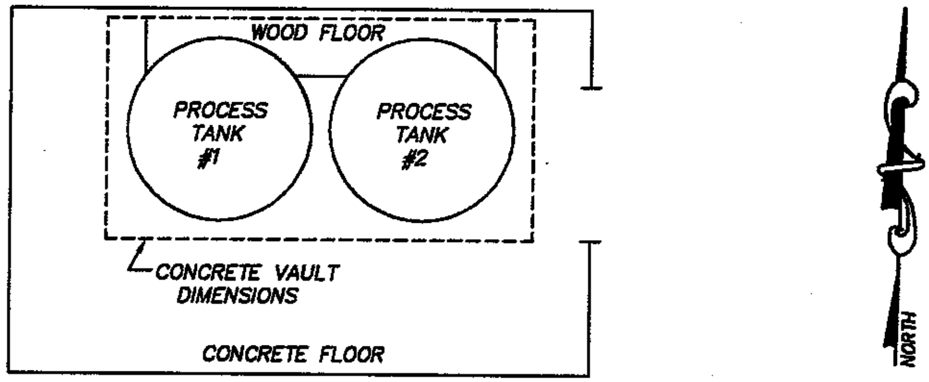
FJT:DDW:eml

Attachments: Figure 1
Figure 2
Removal of Combustible Substance Permit #98-048

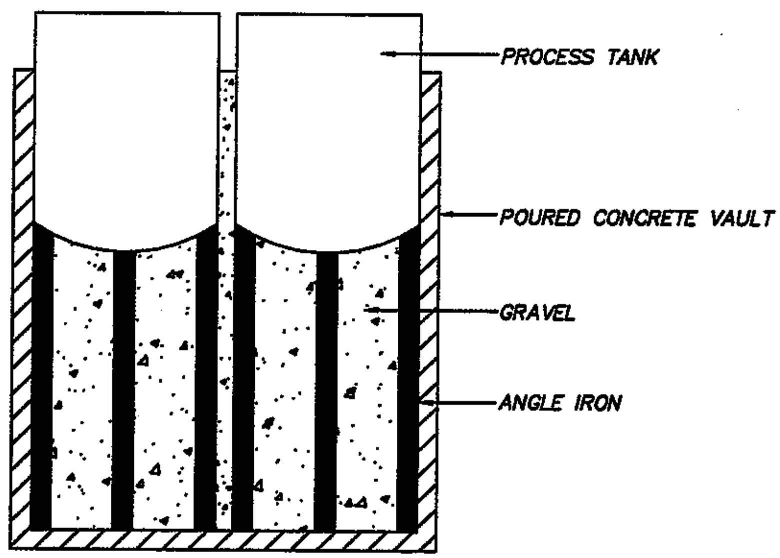


DRAWN BY	APPROVED BY	PROJECT NO.	DATE	FIGURE
MRD	CJT	0654.06	01/15/99	1

CLIENT: *MILTON CAN COMPANY*	TITLE: *PROPERTY LOCATION*
The Payne Firm, Inc. *Environmental Consultants Cincinnati, Ohio 45242*	



COMPOUND PUMP ROOM
(PLAN VIEW)



CONCRETE VAULT
(CROSS SECTION)

FIGURE NOT TO SCALE

DRAWN BY	APPROVED BY	PROJECT NO.	DATE	FIGURE
MRD	CJT	0654.06	01/15/99	2

CLIENT	TITLE
MILTON CAN COMPANY	
The Payne Firm, Inc. Environmental Consultants Cincinnati, Ohio 45242	COMPOUND PUMP ROOM DETAIL

Anders Township Fire and Rescue partment

Life Safety Division
6211 Salem Rd.
Cincinnati, Ohio 45230
(513) 474-5562

Application Date	Date Issued	Expiration Date	Permit Number
10/16/98	10/17/98	11/3/98	98-048

Applicant	Address	Phone Number
Milton Can Company	8200 Broadwell Road	388-2000

THE ABOVE NAMED INDIVIDUAL / BUSINESS HEREBY MAKES APPLICATION TO CONDUCT THE FOLLOWING BUSINESS AT: Milton Can Company

PER CHAPTER 32 OF THE SOUTHWEST F.S.C. UNIFIED FIRE CODE FOR:

Removal of Comb. Substance

N ACCORDANCE WITH SECTION 107.0 (PERMITS) AND SECTION(S) OF THE SOUTHWEST OHIO FIRE SAFETY COUNCIL UNIFIED FIRE CODE: CL F-3201.2

Approved by Fire Official	Date	Fee
Craig A. Best	October 17, 1998	$25.00

Form 402 A

THIS PERMIT MUST BE POSTED ON THE ABOVE MENTIONED PREMISIS

Rev 10/96

0654.06.03

RECEIVED
JAN 2 0
The Payne Firm, Inc

received
9/13/99 UPS

Prepared for:

Corporate Realty Investment Company
1 Exeter Plaza
Boston, Massachusetts 02116
Ms. Cara Ahola

Midland Loan Services, Inc.
210 West 10th Street
Kansas City, Missouri 64105
Ms. June Cho

BWAY Corporation
8607 Roberts Drive, Suite 250
Atlanta, Georgia 30350

Phase II Environmental Assessment of the Industrial Plant 8200 Broadwell Road Cincinnati, Ohio 45244

Mentioned to Env Comp Audit

EMG Project No.: 59714

Date: August 17, 1999

BWAY Cinci Site Include Final EMF Phase II report

$29-
$42

Wed has opened

Prepared by:

EMG
EMG Corporate Center
11011 McCormick Road
Baltimore, Maryland 21031
(410) 785-6200
(410) 785-6220 (fax)

Call Steve Hess

EMG

August 17, 1999

Mr. Blair Schlossberg
BWAY Corporation
8607 Roberts Drive
Suite 250
Atlanta, Georgia 30350

RE: Phase II Environmental Assessment
Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
EMG Project No. 59714

Dear Mr. Schlossberg:

EMG has performed a Phase II Environmental Assessment at the above referenced property, which consisted of a subsurface investigation. The assessment was performed to address the following potential concerns:

- Historical manufacturing operations and waste management activities
- Five former USTs which contained various solvents and petroleum distillates
- The historical disposal of chromium containing wastewater to the north adjacent gravel pit

These potential concerns were identified in EMG's Phase I ESA (Project #55857) of the Project in May 1999.

The assessment of historical manufacturing operations, waste management activities, and former USTs was performed along the northeast side and rear entrance area of the existing industrial plant facility. The assessment consisted of the advancement of four soil borings and the collection of soil samples. Selected soils were analyzed for VOCs, semi-VOCs, and Priority Pollutant Metals.

The assessment of the Project's former wastewater disposal was performed in the "spray field" where the existing wastewater treatment plant is located in the southeastern portion of the Project. The assessment consisted of the advancement of three soil borings and the collection of soil samples. In addition, "grab" ground water samples were collected from three existing ground water monitoring wells located in the spray field area. Selected soils and ground water samples were analyzed for VOCs and semi-VOCs. The results of the investigation are further discussed in the attached report.

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220
ATLANTA • BALTIMORE • BOSTON • CHICAGO • DALLAS • DENVER • DETROIT • HARTFORD • KANSAS CITY • LAS VEGAS
LOS ANGELES • MILWAUKEE • NEW YORK • PHOENIX • PORTLAND • SAN FRANCISCO • SEATTLE • SPOKANE • TRENTON

We appreciate the opportunity to provide you with this service. If you have any questions regarding the project, please feel free to call us at your convenience.

Surveyed by: Richard McKinney, California RG, Project Manager

Written by: Richard McKinney, California RG, Project Manager

Reviewed by:

Charles W. Caron
Program Director

Jeffrey T. Smith
Senior Program Supervisor

EMG

Phase II Environmental Assessment
Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
EMG Project # 59714

TABLE OF CONTENTS

1 Introduction

EMG was contracted by BWAY Corporation to perform a Phase II Environmental Assessment at the Industrial Plant property located at 8200 Broadwell Road in Cincinnati, Ohio. The assessment was performed to address potential contamination on-site as a result of the following activities:

- Historical manufacturing operations and waste management activities. According to EMG's Phase I Assessment, the Project has been utilized long term for industrial purposes. The historic uses, which may have occurred at the Project, include the manufacture of munitions and the known manufacture of metal cans, and involved the storage and use of numerous hazardous materials, as well as the generation of numerous hazardous wastes.
- Five former USTs which contained various solvents and petroleum distillates
- The historical disposal of chromium containing wastewater to the north adjacent gravel pit

These potential concerns were identified in EMG's Phase I ESA (Project #55857) of the Project in May 1999.

The scope of services included:

- Subsurface Soil Sampling and Laboratory Analyses.
- "Grab" Ground Water Sampling and Laboratory Analyses.

The scope of work conducted for this investigation is outlined below.

- Subsurface Sampling
  - EMG obtained the services of Terra Probe to perform the advancement of seven soil borings at the Project utilizing a truck-mounted Geoprobe drill rig.
  - EMG monitored the advancement of the soil borings to equipment refusal at approximately 12 feet and 16 feet below the ground surface (bgs). The advancement of the soil borings to depths greater than 16 feet bgs was restricted by cobbles and rock fragments. Ground water was not encountered in any of the soil borings advanced at the Project. Soil samples were collected continuously from the soil borings during the drilling operations in order to aid in the lithologic logging of subsurface geologic conditions in the borings. Field screening of the soil samples collected was conducted utilizing a Photoionization detector (PID). In addition, visual and olfactory examination of the soil samples was performed.

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220

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- Selected soil samples recovered from the soil borings were delivered to an accredited laboratory and analyzed for volatile organic compounds (VOCs) via EPA method 8260; semi-VOCs via EPA method 8270; and Priority Pollutant Metals.

■ "Grab" Ground Water Sampling

- Three existing ground water monitoring wells are located in the spray fields area of the Project. Each well was observed to be completed at the surface with a concrete monument, locked cover, and 2-inch PVC well casing. Information concerning the wells (date of construction, depth, well log etc.) was not available at the time of the assessment. EMG collected a "grab" ground water sample from each of the three wells during the assessment. Prior to collection of a ground water sample, a disposable bailer was used to purge well water until each well was dry. The volume of well water purged from each well was approximately four gallons. Following purging, the wells were allowed to recharge and a ground water sample was then collected with a disposable bailer. The depth below the top of casing to ground water was estimated to range from 50 feet to 62 feet. Upon completion of the sampling activities, the purge water was re-injected into the respective wells.
- The "grab" ground water samples were immediately placed in a cooler for preservation and delivered to an accredited laboratory for VOC and semi-VOC analyses.

■ The Payne Firm, Inc. Monitoring Well Sampling

Following EMG's initial sampling, the Payne Firm was retained by Kirkland & Ellis to re-sample one monitoring well. The sampling report is attached (Appendix E).

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220

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2 Environmental Investigation

2.1 Subsurface Soil Sampling Program

On July 7 and 8, 1999, EMG monitored the advancement of seven soil borings along the northeast and southeast portions of the Project. Soil borings B1, B2, B6, and B7 were advanced in the area of USTs, historical manufacturing operations, and waste management practices located along the northeast portion of the Project and rear entry to the industrial plant building. Soil borings B3, B4, and B5 were advanced in the spray fields located in the southeast portion of the Project to address wastewater disposal. All downhole drilling equipment was thoroughly cleaned prior to commencement of drilling operations and between each boring and sampling interval. Soil samples were obtained continuously from the Geoprobe borings during drilling operations to allow for lithologic logging of subsurface conditions. Shallow ground water was not encountered in any of the borings advanced at the Project.

The soil samples recovered from the borings were screened with a PID, as well as visually and olfactorally inspected. No evidence of VOC contamination was identified.

The locations of the soil borings are illustrated on the Soil Boring Location Map included in Appendix A. Upon completion, the boreholes were backfilled with bentonite chips and soil.

2.2 "Grab" Ground Water Sampling Program

On July 8, 1999, EMG collected a "grab" ground water sample from each of the three existing ground water monitoring wells located in the spray fields area of the Project. Disposable bailers were utilized to purge well water and to collect ground water samples. Prior to collection of a ground water sample, a disposable bailer was used to purge well water until each well was dry. The volume of well water purged from each well was approximately four gallons. Following purging, the wells were allowed to recharge and a ground water sample was then collected with a disposable bailer. The depth below the top of casing to ground water was estimated to range from 50 feet to 62 feet. No unusual odors, sheens, or discoloration were noted in the ground water samples collected from borings. Upon completion of the sampling activities, the purge water was re-injected into the respective wells.

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3 Sample Collection and Analysis

3.1 Soil Sample Collection

On the day of the subsurface soil sampling program, soil samples were collected from the soil borings at varying depths. Selected soil samples were placed in pre-labeled glass jars with teflon-lined plastic lids for chemical analyses. The samples selected for chemical analyses were immediately placed in a cooler for preservation. The soil samples were then delivered to an accredited laboratory for analyses. Analyses of the samples were performed within their respective holding times. The samples collected from the UST sites, former manufacturing operation areas, and waste handling areas (borings B1, B2, B6, and B7) were analyzed for VOCs via EPA method 8260; semi-VOCs via EPA method 8270; and Priority Pollutant Metals. The samples collected from the wastewater disposal "spray fields" area (borings B3, B4, and B5) were analyzed for VOCs via EPA method 8260 and semi-VOCs via EPA method 8270. Chain-of-custody was maintained utilizing laboratory chain-of custody tracking forms.

3.2 "Grab" Ground Water Sample Collection

"Grab" ground water samples were collected from each of the three existing ground water monitoring wells and placed in pre-labeled: 40 ml glass VOA vials; one liter amber glass jars; and half liter plastic containers; each with teflon-lined plastic lids for chemical analyses. The samples were immediately placed on ice in a cooler for preservation and delivered to an accredited laboratory for analyses. Laboratory analyses were performed within their respective holding times. Samples were analyzed for VOCs via EPA method 8260 and semi-VOCs via EPA method 8270. Chain-of-custody was maintained utilizing laboratory chain-of custody tracking forms.

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4 Analytical Results

The analytical results for the soil samples are illustrated in Table 1and 2 - Soil Sample Analytical Results. The analytical results for the ground water samples are illustrated in Table 3 - Ground Water Sample Analytical Results. A copy of the analytical results and chain-of-custody are included in Appendix B.

TABLE 1 - SOIL SAMPLE ANALYTICAL RESULTS		
Sample No./Depth	VOC (ppb)	Semi-VOC (ppb)
B1-16	ND	ND
B2-16	ND	ND
B3-16	ND	ND
B4-12	ND	ND
B5-12	ND	ND
B6-14	ND	ND
B7-16	ND	ND

ppb = Parts per billion (ug/kg)
ND = Non-detectable (below analytical method detection limit)
VOC MDL = 5 ppb
Semi-VOC MDL = 400 ppb

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TABLE 2 – SOIL SAMPLE ANALYTICAL RESULTS – PRIORITY POLLUTANT METALS					
Sample # Analyte	B1-16	B2-16	B6-14	B7-16	Naturally Occurring Concentrations
Antimony	ND	ND	ND	ND	2 to 10
Arsenic	2.25	ND	ND	ND	1 to 50
Cadmium	ND	ND	ND	ND	0.01 to 0.7
Chromium	7.9	10	10	9.3	1 to 1,000
Copper	5.1	4.3	10	4.7	2 to 100
Lead	50	40	30	20	2 to 200
Mercury	ND	ND	ND	ND	0.01 to 0.3
Nickel	ND	ND	ND	ND	5 to 500
Selenium	ND	ND	ND	ND	0.1 to 2
Silver	ND	ND	ND	ND	0.01 to 5
Thallium	ND	ND	ND	ND	0.1 to 0.8
Zinc	60	20	30	20	10 to 300

ND = None detected
All Results in ppm (Parts Per Million)
Minimum Reporting Limits (ppm) – Detection Limits

Antimony – 0.05	Arsenic – 0.04	Cadmium – 0.02
Chromium – 0.04	Copper – 0.03	Lead – 0.2
Mercury – 0.005	Nickel – 0.03	Selenium – 0.05
Silver – 0.02	Thallium – 0.05	Zinc – 0.05

Naturally Occurring Concentration Ranges in soil. USEPA/1983

TABLE 3 – GROUND WATER SAMPLE ANALYTICAL RESULTS		
Sample No./Depth	VOC (ppb)	Semi-VOC (ppb)
MW-1	ND	ND
MW-2	ND	ND
MW-3	Trichloroethene – 1,040	ND
MW-3 (Payne Env – August 4, 1999)	Trichloroethene – 300	NA

ppb = Parts per billion (ug/kg)
ND = Non-detectable (below analytical method detection limit)
NA = Not Analyzed
VOC MDL = 5 ppb
Semi-VOC MDL = 10 ppb

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5 Discussion and Conclusions

Results of the analysis of the soil samples at the Project for VOCs, Semi-VOCs and Metals detected only the presence of chromium, copper, lead, arsenic and zinc above the analytical method detection limits. The concentrations of the above referenced metals fall within the range of metal concentrations naturally occurring in soil as documented by the USEPA (illustrated in the analytical table). Therefore, the concentrations of metals identified in the soil do not appear to represent an environmental concern.

Analysis of the water samples collected did not reveal any detectable concentrations of Semi-Volatiles. However, analysis of the water samples for VOCs revealed the detection of trichloroethene (TCE) in the water sample collected from monitoring well #3 at a concentration of 1,040 ppb. No TCE was identified in the two additional water samples. Based on the location of the monitoring well and lack of evidence of TCE (or any other solvents) in monitoring wells MW-1 and MW-2, the source of the contamination may be from an off site source. Reportedly, the adjacent gravel pits were utilized for disposal of waste water from the former operations. However, the potential theory of an off-site source has not been confirmed. The concentration of TCE identified in the water exceeds the USEPA MCL (Drinking Water Standard) of 5 ppb. To confirm the results of the initial testing, the Payne Firm was retained by Kirkland & Ellis to re-sample the monitoring well. The results indicated a significantly lower concentration of 300 ppb. The sampling report is attached (Appendix E).

Based on the results of the investigation, evidence of impact to the Project by chlorinated solvents (i.e. TCE) has been identified. At this time, the source of the contamination is unknown.

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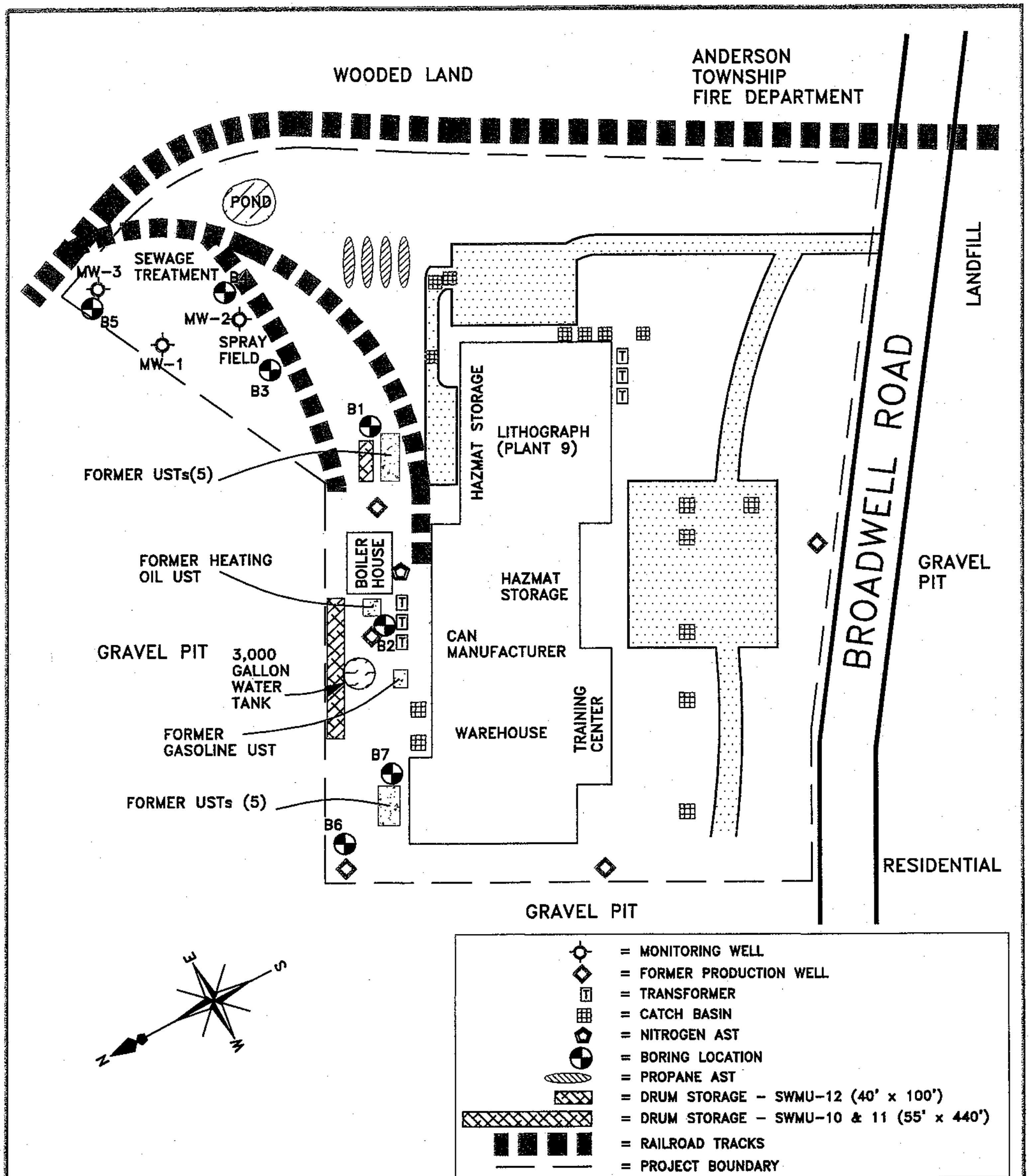
6 Qualifications

This assessment was performed at BWAY's request utilizing methods and procedures consistent with good commercial or customary practices designed to conform with acceptable industry standards. This report may be distributed to and relied upon by BWAY, its successors and assigns, and the conduit to be named by BWAY, its successors and assigns, as well as Corporate Realty Investment Company (CRIC) and Midland Loan Services, Inc., with respect to a loan upon the Project, together with any rating agency or any issuer or purchaser of any security collateralized or otherwise backed up by such loan. The independent conclusions represent EMG's best professional judgment based on the conditions that existed and the information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the owner or their representatives have been assumed to be correct and complete.

7 Appendices

Appendix A

Site Maps



EMG	Title: INDUSTRIAL PLANT		
	Date: 7/8/99	Scale: NOT TO SCALE	
	Drawn: RM	Job No.: 59714	

Appendix B

Photographic Documentation

EMG

EMG PHOTOGRAPHIC RECORD

Project No.: 59714 **Project Name: Industrial Plant**

Photo #1: View towards wastewater treatment facility and spray fields

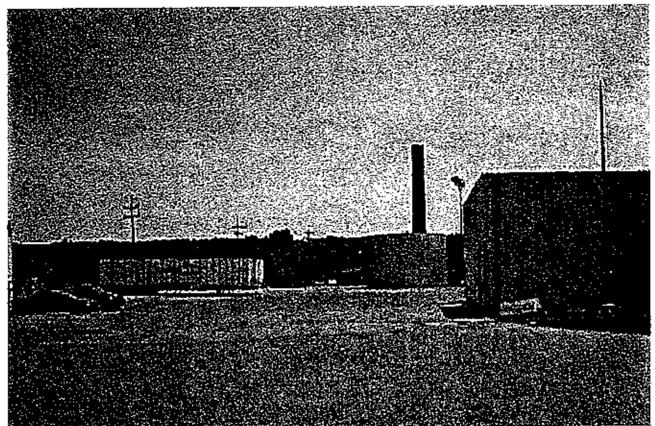


Photo #2: Rear view of Industrial Plant — site of former USTs and soil boring B7

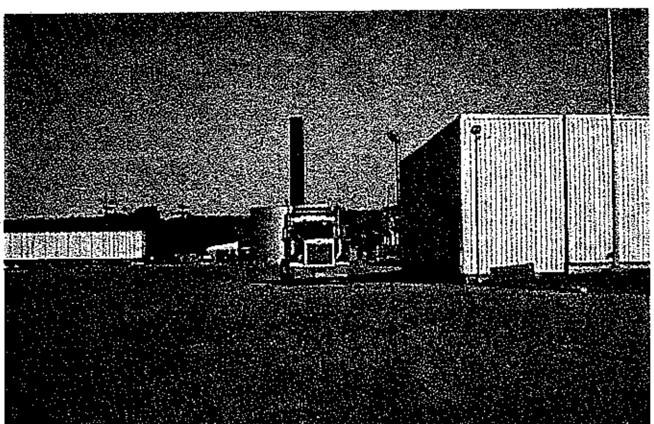


Photo #3: Former UST site (truck location) and soil boring B7

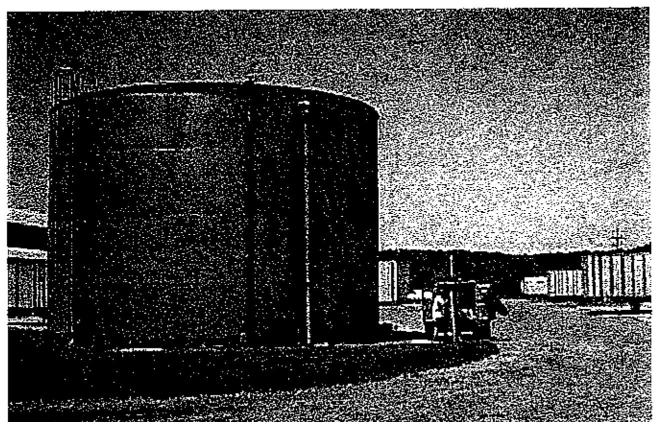


Photo #4: Geoprobe soil boring operation — boring b2

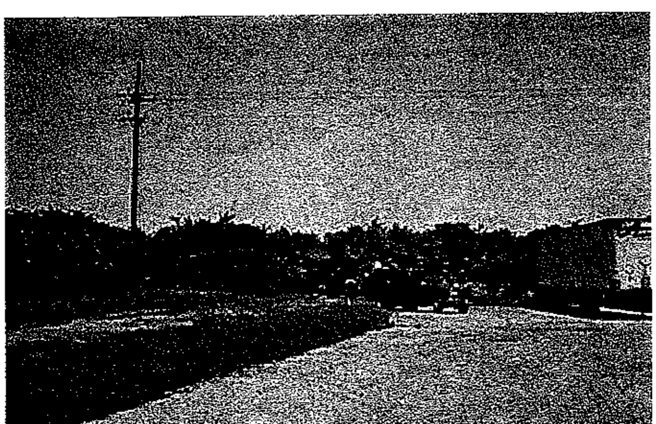


Photo #5: Geoprobe soil boring operation — boring B6 location

Photo #6: Existing ground water monitoring well — EMG ground water sample location MW1

Appendix C

Boring Logs

SOIL BORING LOG – FIELD READINGS
EMG Project # 59714
Project NAME Industrial Plant
BORING METHOD: Geoprobe DATE: July 7 and 8,1999

Sample #	Depth (FT)	Moisture (H-M-L)	PID Reading	Soil Description
B1-4	3-4	L	2	Silty SAND (SM) with gravel and cobbles, brown, medium and coarse sand, loose, no odor
B1-8	7-8	L	1	SAND (SW) with gravel and cobbles, gray and light brown, loose, no odor
B1-12	11-12	L	3	SAND (SW) with gravel and cobbles, gray and brown, loose, no odor
B1-16	15-16	L	5	SAND (SW) with gravel/cobbles/ rock fragments, gray and brown, loose, no odor
Bottom of Boring 16' at equipment refusal, no ground water				
B2-4	3-4	L	0	SAND (SW) with gravel and cobbles, gray and light brown, loose, no odor
B2-8	7-8	L	0	SAND (SW) with gravel and cobbles, gray and light brown, loose, no odor
B2-12	11-12	L	0	SAND (SW) with gravel and cobbles, some clay and silt, brown, loose, no odor
B2-16	15-16	L	50	SAND (SW) with gravel/cobbles/ rock fragments, some clay and silt, brown, loose, no odor
Bottom of Boring 16' at equipment refusal, no ground water				
B3-4	3-4	L	60	Silty CLAY (CL-ML), trace sand and gravel, medium brown, firm, no odor
B3-8	7-8	L	0	SAND (SP), fine sand, some silt, brown, loose, no odor
B3-12	11-12	L	0	SAND (SW) with gravel and cobbles, gray and brown, loose, no odor
B3-15	14-15	L	120	SAND (SW), silty, coarse sand and gravel, brown, loose, no odor
B3-16	15-16	L	60	SAND (SW) with gravel/cobbles/ rock fragments, gray and brown, loose, no odor
Bottom of Boring 16' at equipment refusal, no ground water (Sample from bottom of boring analyzed based on geologist discretionary authority)				
B4-4	3-4	L	20	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B4-8	7-8	L	7	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B4-12	11-12	L	4	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
Bottom of Boring 12' at equipment refusal, no ground water (Sample from bottom of boring analyzed based on geologist discretionary authority)				

SOIL BORING LOG - FIELD READINGS EMG Project # 59714 Project NAME Industrial Plant BORING METHOD: Geoprobe DATE: July 7 and 8,1999				
Sample #	Depth (FT)	Moisture (H-M-L)	PID Reading	Soil Description
B5-4	3-4	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B5-8	7-8	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B5-12	11-12	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
Bottom of Boring 12' at equipment refusal, no ground water				
B6-4	3-4	L	0	Clayey GRAVEL (GC) with cobbles, medium brown, firm, no odor
B6-8	7-8	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B6-12	11-12	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B6-14	13-14	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
Bottom of Boring 14' at equipment refusal, no ground water				
B7-4	3-4	L	0	Clayey GRAVEL (GC) with cobbles, medium brown, firm, no odor
B7-8	7-8	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B7-12	11-12	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
B7-16	15-16	L	0	SAND (SW) with gravel/cobbles/rock fragments, tan, loose, no odor
Bottom of Boring 16' at equipment refusal, no ground water				

Appendix D

Laboratory Results/Chain of Custody Forms

SCHNEIDER LABORATORIES

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LABORATORY ANALYSIS REPORT

SEMIVOLATILE ORGANIC ANALYSIS BY GC/MS
EPA SW-846 Method 8270B

ACCOUNT: 1188-99-356
CLIENT: EMG Phase II
ADDRESS: 11011 McCormick Drive
Hunt Valley MD 21031
PO NO.:
PROJECT NAME: Industrial Plant
PROJECT NO.: 59714
JOB LOCATION: Cincinnati, OH

DATE COLLECTED: 7/8/99
DATE RECEIVED: 7/12/99
DATE ANALYZED: 7/13/99
DATE REPORTED: 7/15/99

SLI Sample No.:	1487412	1487413	1487414
Client Sample No.:	MW-1	MW-2	MW-3
Sample Matrix:	Aqueous	Aqueous	Aqueous

Compound	Concentration µg/L	Concentration µg/L	Concentration µg/L	PQL µg/L
aphthene	<10	<10	<10	10
Acenaphthylene	<10	<10	<10	10
Anthracene	<10	<10	<10	10
Benzidine	<10	<10	<10	10
Benzo(a)anthracene	<10	<10	<10	10
Benzo(b)fluoranthene	<10	<10	<10	10
Benzo(k)fluoranthene	<10	<10	<10	10
Benzoic acid	<10	<10	<10	10
Benzo(g,h,I)perylene	<10	<10	<10	10
Benzo(a)pyrene	<10	<10	<10	10
Benzyl alcohol	<10	<10	<10	10
Bis(2-chloroethoxy)methane	<10	<10	<10	10
Bis(2-chloroethyl)ether	<10	<10	<10	10
Bis(2-chloroisopropyl)ether	<10	<10	<10	10
Bis(2-ethylhexyl)phthalate	<10	<10	<10	10
4-Bromophenyl phenyl ether	<10	<10	<10	10
Butyl benzyl phthalate	<10	<10	<10	10
roaniline	<10	<10	<10	10
4-Chloro-3-methylphenol	<10	<10	<10	10
2-Chloronaphthalene	<10	<10	<10	10

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SLI Sample No.:	1487412	1487413	1487414
Client Sample No.:	MW-1	MW-2	MW-3
Sample Matrix:	Aqueous	Aqueous	Aqueous

Compound	Concentration µg/L	Concentration µg/L	Concentration µg/L	PQL µg/L
2-Chlorophenol	<10	<10	<10	10
4-Chlorophenyl phenyl ether	<10	<10	<10	10
Chrysene	<10	<10	<10	10
Dibenz(a,h)anthracene	<10	<10	<10	10
Dibenzofuran	<10	<10	<10	10
Dibutyl phthalate	<10	<10	<10	10
1,2-Dichlorobenzene	<10	<10	<10	10
1,3-Dichlorobenzene	<10	<10	<10	10
1,4-Dichlorobenzene	<10	<10	<10	10
3,3'-Dichlorobenzidine	<10	<10	<10	10
2,4-Dichlorophenol	<10	<10	<10	10
[illegible]yl phthalate	<10	<10	<10	10
2,4-Dimethylphenol	<10	<10	<10	10
Dimethyl phthalate	<10	<10	<10	10
4,6-Dinitro-2-methylphenol	<10	<10	<10	10
2,4-Dinitrophenol	<10	<10	<10	10
2,4-Dinitrotoluene	<10	<10	<10	10
2,6-Dinitrotoluene	<10	<10	<10	10
Di-n-octyl phthalate	<10	<10	<10	10
Fluoranthene	<10	<10	<10	10
Fluorene	<10	<10	<10	10
Hexachlorobenzene	<10	<10	<10	10
Hexachlorobutadiene	<10	<10	<10	10
Hexachlorocyclopentadiene	<10	<10	<10	10
Hexachloroethane	<10	<10	<10	10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	10
Isophorone	<10	<10	<10	10
2-Methylnaphthalene	<10	<10	<10	10
[illegible]hylphenol	<10	<10	<10	10
4-Methylphenol	<10	<10	<10	10
Naphthalene	<10	<10	<10	10

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SLI Sample No.:	1487412	1487413	1487414
Client Sample No.:	MW-1	MW-2	MW-3
Sample Matrix:	Aqueous	Aqueous	Aqueous

Compound	**Concentration µg/L**	**Concentration µg/L**	**Concentration µg/L**	**PQL µg/L**
2-Nitroaniline	<10	<10	<10	10
3-Nitroaniline	<10	<10	<10	10
4-Nitroaniline	<10	<10	<10	10
Nitrobenzene	<10	<10	<10	10
2-Nitrophenol	<10	<10	<10	10
4-Nitrophenol	<10	<10	<10	10
N-nitrosodimethylamine	<10	<10	<10	10
N-nitrosodiphenylamine	<10	<10	<10	10
N-nitroso-di-n-propylamine	<10	<10	<10	10
Pentachlorophenol	<10	<10	<10	10
Phenanthrene	<10	<10	<10	10
[illegible]iol	<10	<10	<10	10
Pyrene	<10	<10	<10	10
1,2,4-Trichlorobenzene	<10	<10	<10	10
2,4,5-Trichlorophenol	<10	<10	<10	10
2,4,6-Trichlorophenol	<10	<10	<10	10
Surrogate Standards				
2-Fluorophenol	24%	24%	27%	
Phenol d-5	19%	18%	22%	
Nitrobenzene d-5	54%	43%	49%	
2-Fluorobiphenyl	55%	42%	49%	
2,4,6-Tribromophenol	59%	35%	30%	
Terphenyl d-14	140%	101%	105%	

Analyst: MIKA O. BOWMAN

M Choksi
Reviewed By

[illegible]L: Practical Quantitation Limit is defined as the minimum reporting limit for the sample, as [illegible]mined by instrument sensitivity, dilution factor and methods used to extract the sample to [illegible]ate target compounds.

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LABORATORY ANALYSIS REPORT

VOLATILE ORGANICS ANALYSIS

SW-846 8260A

ACCOUNT:	1188-99-356	**Date Collected:**	7/8/99
CLIENT:	EMG PHASE II	**Date Received:**	7/10/99
ADDRESS:	11011 McCORMICK DRIVE HUNT VALLEY MD 21031	**Date Reported:**	7/14/99
PO NO.:			
PROJECT NAME:	Industrial Plant		
PROJECT NO.:	59714		
JOB LOCATION:	Cincinnati, OH		

Work Order 1188-99-356

SLI Sample No.:	1487412	1487413	1487414
Client Sample No.:	MW-1	MW-2	MW-3
Sample Type:	Aqueous	Aqueous	Aqueous
Sample Analysis Date:	7/13/99	7/13/99	7/13/99

Compound	Concentration (μg/L)	Concentration (μg/L)	Concentration (μg/L)	PQL* (μg/L)
Benzene	BDL	BDL	BDL	5.0
Bromobenzene	BDL	BDL	BDL	5.0
Bromochloromethane	BDL	BDL	BDL	5.0
Bromodichloromethane	BDL	BDL	BDL	5.0
Bromoform	BDL	BDL	BDL	5.0
Bromomethane	BDL	BDL	BDL	5.0
n-Butylbenzene	BDL	BDL	BDL	5.0
sec-Butylbenzene	BDL	BDL	BDL	5.0
tert-Butylbenzene	BDL	BDL	BDL	5.0
Carbon tetrachloride	BDL	BDL	BDL	5.0
Chlorobenzene	BDL	BDL	BDL	5.0
Chloroethane	BDL	BDL	BDL	5.0
Chloroform	BDL	BDL	BDL	5.0
Chloromethane	BDL	BDL	BDL	5.0
2-Chlorotoluene	BDL	BDL	BDL	5.0
4-Chlorotoluene	BDL	BDL	BDL	5.0
1,2-Dibromo-3-chloropropane	BDL	BDL	BDL	5.0
1,2-Dibromoethane	BDL	BDL	BDL	5.0
Dibromochloromethane	BDL	BDL	BDL	5.0
Dibromomethane	BDL	BDL	BDL	5.0
1,2-Dichlorobenzene	BDL	BDL	BDL	5.0
1,3-Dichlorobenzene	BDL	BDL	BDL	5.0
1,4-Dichlorobenzene	BDL	BDL	BDL	5.0
Dichlorodifluoromethane	BDL	BDL	BDL	5.0
1,1-Dichloroethane	BDL	BDL	BDL	5.0
1,2-Dichloroethane	BDL	BDL	BDL	5.0
1,1-Dichloroethene	BDL	BDL	BDL	5.0
cis-1,2-Dichloroethene	BDL	BDL	BDL	5.0
trans-1,2-Dichloroethene	BDL	BDL	BDL	5.0
1,2-Dichloropropane	BDL	BDL	BDL	5.0
1,3-Dichloropropane	BDL	BDL	BDL	5.0
2,2-Dichloropropane	BDL	BDL	BDL	5.0
1,1-Dichloropropene	BDL	BDL	BDL	5.0

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Work Order 1188-99-356

SLI Sample No.:	1487412	1487413	1487414
Client Sample No.:	MW-1	MW-2	MW-3
Sample Type:	Aqueous	Aqueous	Aqueous
Sample Analysis Date:	7/13/99	7/13/99	7/13/99

Compound	**Concentration (µg/L)**	**Concentration (µg/L)**	**Concentration (µg/L)**	**PQL* (µg/L)**
Ethylbenzene	BDL	BDL	BDL	5.0
Hexachlorobutadiene	BDL	BDL	BDL	5.0
Isopropylbenzene	BDL	BDL	BDL	5.0
p-Isopropyltoluene	BDL	BDL	BDL	5.0
Methylene chloride	BDL	BDL	BDL	5.0
4-Methyl-2-pentanone	BDL	BDL	BDL	5.0
Naphthalene	BDL	BDL	BDL	5.0
n-Propylbenzene	BDL	BDL	BDL	5.0
Styrene	BDL	BDL	BDL	5.0
1,1,1,2-Tetrachloroethane	BDL	BDL	BDL	5.0
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	5.0
Tetrachloroethene	BDL	BDL	BDL	5.0
Toluene	BDL	BDL	BDL	5.0
1,2,3-Trichlorobenzene	BDL	BDL	BDL	5.0
1,2,4-Trichlorobenzene	BDL	BDL	BDL	5.0
1,1,1-Trichloroethane	BDL	BDL	BDL	5.0
1,1,2-Trichloroethane	BDL	BDL	BDL	5.0
Trichloroethene	BDL	BDL	1,040	5.0
Trichlorofluoromethane	BDL	BDL	BDL	5.0
1,2,3-Trichloropropane	BDL	BDL	BDL	5.0
1,2,4-Trimethylbenzene	BDL	BDL	BDL	5.0
1,3,5-Trimethylbenzene	BDL	BDL	BDL	5.0
Vinyl chloride	BDL	BDL	BDL	5.0
m-,p-Xylene	BDL	BDL	BDL	10.0
o-Xylene	BDL	BDL	BDL	5.0

Surrogate Compounds for Quality Control, Expressed as Percent Recovery			
Dibromofluoromethane	104 %	104 %	108 %
1,2-Dichloroethane d-4	102 %	100 %	108 %
Toluene d-8	100 %	102 %	102 %
4-Bromofluorobenzene	106 %	108 %	104 %

Analyst: HOMIYAR N. CHOKSI

Bernard H Howard
Reviewed By BERNARD H. HOWARD

All testing is done in strict accordance with Schneider Laboratories, Inc. protocol. The PQL (Practical Quantitation Limit) is defined as the minimum reporting limit as determined by instrument sensitivity, dilution factor, and method.
BDL (Below Detection Limit) refers to analysis results less than the PQL indicated.

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SUBMITTING COMPANY: EMG PHASE II
HUNT VALLEY, MD 21031

ACCOUNT NO: 1188-356
PHONE NO: 1-800-733-0660
FAX: 1-410-785-6220

PROJECT NAME: INDUSTRIAL PLANT
SAMPLING LOCATION: CINCINNATI OH
PROJECT NUMBER: 59714
PURCHASE ORDER NO: ____

MATRIX
☐ AIR ☐ AQUEAOUS ☐ OIL ☐ PAINT ☐ SLUDGE
☒ SOIL ☐ SOLID ☐ WASTE ☐ WASTEWATER ☒ OTHER GROUND WATER
☐ WATER, DRINKING ☐ COMPLIANCE ☐ WIPE ☐ WIPE, COMPOSITE

TURNAROUND TIME REQUESTED
ASBESTOS / LEAD: ☐ 6-8 Hours ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ 5 Days
INDUSTRIAL HYGIENE: ☐ 48 Hours* ☐ 24 Hours* ☐ STANDARD
ENVIRONMENTAL: ☐ 48 Hours* ☐ STANDARD
SPECIAL: ☐ WEEKEND* ☒ OTHER 72 hr
* INDICATES ADDITIONAL CHARGE
Rush environmental and weekend analysis must be scheduled with laboratory.

SPECIAL INSTRUCTIONS:
(**EXPLANATION OF PRESERVATIVE)

ASBESTOS
AIR: ☐ PCM (NIOSH 7400) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ OTHER
BULK: ☐ PLM, EPA/600/R-93/116 ☐ PLM, EPA Point Count ☐ PLM, Gravimetry ☐ NYELAP 198.1/4 ☐ TEM, Chatfield ☐ Other

METALS
TOTAL CONCENTRATION: ☐ LEAD ☐ RCRA METALS ☐ OTHER

HAZARDOUS WASTE
WASTE/TCLP: ☐ LEAD TCLP ☐ RCRA METALS ☐ FULL TCLP ☐ OTHER

FILTER
☐ PMIO ☐ TSP ☐ TOTAL DUST ☐ RESPIRABLE DUST ☐ SILICA ☐ OTHER

Other Analysis Requested (Organics)
Enter "X" to indicate request, Enter "P" if preservative** added

SAMPLE NUMBER	DATE SAMPLED	SAMPLE IDENTIFICATION E.G. OPERATION BEING PERFORMED, BLDG., ROOM, EMPLOYEE NAME, SS#, ETC.	For Wipe Samples Area Wiped in Sq. Ft.	Type[1] A,B,P,E	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total Air Vol	Number of Containers	VOCs	SEMI-VOC	PRIORITY POLLUTANT METAL			Media
B7-16	7.8.99	SOIL 16 FT								2	X	X	X			SOIL
MW-1	↓	EXISTING MONITOR WELLS								7	X	X				WATER
MW-2	↓	↓								7	X	X				↓
MW-3	↓	↓								7	X	X				↓

[1]TYPE: A - AREA, B - BLANK, P - PERSONAL E - EXCURSION
[2]BEGINNING/END OF SAMPLE PERIOD
[3]CALIBRATION IN LITERS/MINUTE

TYPE OF RESPIRATOR USED: ____
SAMPLE CONDITION/TEMPERATURE ____
☐ RETURN SAMPLE ☐ DISPOSE OF SAMPLE (EXTRA CHARGE MAY APPLY)

SUBMITTED BY: Rick McKinney (PLEASE PRINT YOUR FULL NAME)
DATE SUBMITTED: 7.9.99
SIGNATURE: [signature]
RECEIVED BY: ____ (LAB SIGNATURE)
DATE/TIME RECEIVED: ____
COURIER: UPS

CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB.

J Simmons 7/10/99 12:10 1222899 1000 5894

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LABORATORY ANALYSIS REPORT

ACCOUNT #: 1188-99-357
CLIENT: EMG PHASE II
ADDRESS: 11011 McCORMICK DRIVE
HUNT VALLEY MD 21031
PO NO.: 59714
PROJECT NAME: Industrial Plant
PROJECT NO.:
JOB LOCATION: Cincinnati, OH

DATE COLLECTED: 7/7/99
DATE RECEIVED: 7/12/99
DATE ANALYZED: 07/19/99
DATE REPORTED: 07/19/99

SLI Sample No.	1487525				1487526					
Client Sample No.	B6-14				B7-16					
Sample Description	14'				16'					
Sample Type	Soil				Soil					
/ te	Sample Weight (mg)	Total Analyte (µg)*	Analyte Conc. (% by wt)*	Analyte Conc. (PPM)*	Sample Weight (mg)	Total Analyte (µg)*	Analyte Conc. (% by wt)*	Analyte Conc. (PPM)*	*Analysis Method*	*Minimum Reporting Limit (ppm*
Antimony (Sb)	1639	< 5.00	< 0.001	< 10	1719	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Arsenic (As)	1639	< 4.00	< 0.001	< 10	1719	< 4.00	< 0.001	< 10	EPA 3050B/6010B	0.04
Cadmium (Cd)	1639	< 2.00	< 0.001	< 10	1719	< 2.00	< 0.001	< 10	EPA 3050B/6010B	0.02
Chromium (Cr)	1639	20.00	0.001	10	1719	16.00	< 0.001	9.3	EPA 3050B/6010B	0.04
Copper (Cu)	1639	22.00	0.001	10	1719	8.00	< 0.001	4.7	EPA 3050B/6010B	0.03
Lead (Pb)	1639	50.3	0.003	30	1719	40.9	0.002	20	EPA 3050B/7420	0.2
Mercury (Hg)	226	< 0.500	< 0.001	< 10	287	< 0.500	< 0.001	< 10	EPA 7471A	0.005
Nickel (Ni)	1639	< 3.00	< 0.001	< 10	1719	< 3.00	< 0.001	< 10	EPA 3050B/6010B	0.03
Selenium (Se)	1639	< 5.00	< 0.001	< 10	1719	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Silver (Ag)	1639	< 2.00	< 0.001	< 10	1719	< 2.00	< 0.001	< 10	EPA 6010B	0.02
Thallium (Tl)	1639	< 5.00	< 0.001	< 10	1719	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Zinc (Zn)	1639	53.00	0.003	30	1719	30.00	0.002	20	EPA 3050B/6010B	0.05

ANALYST: MATTHEW ASBURY

Matthew D Kelly
REVIEWED ~~BY~~ M. Tyler Smith, Analyst
For

Amended Report

Control data available upon request. *For true values, assume two (2) significant figures.
ting is performed in strict accordance with Schneider Laboratories, Inc. protocol.

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LABORATORY ANALYSIS REPORT

ACCOUNT #: 1188-99-357
CLIENT: EMG PHASE II
ADDRESS: 11011 McCORMICK DRIVE
HUNT VALLEY MD 21031
PO NO.: 59714
PROJECT NAME: Industrial Plant
PROJECT NO.: -
JOB LOCATION: Cincinnati, OH

DATE COLLECTED: 7/7/99
DATE RECEIVED: 7/12/99
DATE ANALYZED: 07/19/99
DATE REPORTED: 07/19/99

SLI Sample No.	1490280				1490281					
Client Sample No.	B1-16				B2-16					
Sample Description	16'				16'					
Sample Type	Soil				Soil					
Analyte	Sample Weight (mg)	Total Analyte (µg)*	Analyte Conc. (% by wt)*	Analyte Conc. (PPM)*	Sample Weight (mg)	Total Analyte (µg)*	Analyte Conc. (% by wt)*	Analyte Conc. (PPM)*	*Analysis Method*	*Minimum Reporting Limit(ppm*
Antimony (Sb)	1776	< 5.00	< 0.001	< 10	1640	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Arsenic (As)	1776	4.00	< 0.001	2.25	1640	< 4.00	< 0.001	< 10	EPA 3050B/6010B	0.04
Cadmium (Cd)	1776	< 2.00	< 0.001	< 10	1640	< 2.00	< 0.001	< 10	EPA 3050B/6010B	0.02
Chromium (Cr)	1776	14.00	< 0.001	7.9	1640	17.00	0.001	10	EPA 3050B/6010B	0.04
Copper (Cu)	1776	9.00	< 0.001	5.1	1640	7.00	< 0.001	4.3	EPA 3050B/6010B	0.03
Lead (Pb)	1776	83.3	0.005	50	1640	69.2	0.004	40	EPA 3050B/7420	0.2
Mercury (Hg)	275	< 0.500	< 0.001	< 10	287	< 0.500	< 0.001	< 10	EPA 7471A	0.005
Nickel (Ni)	1776	< 3.00	< 0.001	< 10	1640	< 3.00	< 0.001	< 10	EPA 3050B/6010B	0.03
Selenium (Se)	1776	< 5.00	< 0.001	< 10	1640	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Silver (Ag)	1776	< 2.00	< 0.001	< 10	1640	< 2.00	< 0.001	< 10	EPA 6010B	0.02
Thallium (Tl)	1776	< 5.00	< 0.001	< 10	1640	< 5.00	< 0.001	< 10	EPA 3050B/6010B	0.05
Zinc (Zn)	1776	99.00	0.006	60	1640	32.00	0.002	20	EPA 3050B/6010B	0.05

ANALYST: MATTHEW ASBURY

REVIEWED BY M.Tyler Smith, Analyst 2012

Amended Report

Control data available upon request. *For true values, assume two (2) significant figures.
ing is performed in strict accordance with Schneider Laboratories, Inc. protocol.

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LABORATORY ANALYSIS REPORT

SEMIVOLATILE ORGANIC ANALYSIS BY GC/MS
EPA SW-846 Method 8270B

ACCOUNT: 1188-99-355
CLIENT: EMG Phase II
ADDRESS: 11011 McCormick Drive
Hunt Valley MD 21031
PO NO.:
PROJECT NAME: Industrial Plant
PROJECT NO.: 59714
JOB LOCATION: Cincinnati, OH

DATE COLLECTED: 7/7/99-7/8/99
DATE RECEIVED: 7/12/99
DATE ANALYZED: 7/13/99
DATE REPORTED: 7/15/99

SLI Sample No.:	1487404	1487405	1487406	1487407	
Client Sample No.:	B1-16	B2-16	B3-16	B4-12	
Sample Matrix:	Soil	Soil	Soil	Soil	
	Concentration	**Concentration**	**Concentration**	**Concentration**	**PQL**
Compound	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
aphthene	<400	<400	<400	<400	400
Acenaphthylene	<400	<400	<400	<400	400
Anthracene	<400	<400	<400	<400	400
Benzidine	<400	<400	<400	<400	400
Benzo(a)anthracene	<400	<400	<400	<400	400
Benzo(b)fluoranthene	<400	<400	<400	<400	400
Benzo(k)fluoranthene	<400	<400	<400	<400	400
Benzoic acid	<400	<400	<400	<400	400
Benzo(g,h,l)perylene	<400	<400	<400	<400	400
Benzo(a)pyrene	<400	<400	<400	<400	400
Benzyl alcohol	<400	<400	<400	<400	400
Bis(2-chloroethoxy)methane	<400	<400	<400	<400	400
Bis(2-chloroethyl)ether	<400	<400	<400	<400	400
Bis(2-chloroisopropyl)ether	<400	<400	<400	<400	400
Bis(2-ethylhexyl)phthalate	<400	<400	<400	<400	400
4-Bromophenyl phenyl ether	<400	<400	<400	<400	400
Butyl benzyl phthalate	<400	<400	<400	<400	400
oroaniline	<400	<400	<400	<400	400
4-Chloro-3-methylphenol	<400	<400	<400	<400	400
2-Chloronaphthalene	<400	<400	<400	<400	400

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SLI Sample No.:	1487404	1487405	1487406	1487407	
Client Sample No.:	B1-16	B2-16	B3-16	B4-12	
Sample Matrix:	Soil	Soil	Soil	Soil	

Compound	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**PQL µg/kg**
2-Chlorophenol	<400	<400	<400	<400	400
4-Chlorophenyl phenyl ether	<400	<400	<400	<400	400
Chrysene	<400	<400	<400	<400	400
Dibenz(a,h)anthracene	<400	<400	<400	<400	400
Dibenzofuran	<400	<400	<400	<400	400
Dibutyl phthalate	<400	<400	<400	<400	400
1,2-Dichlorobenzene	<400	<400	<400	<400	400
1,3-Dichlorobenzene	<400	<400	<400	<400	400
1,4-Dichlorobenzene	<400	<400	<400	<400	400
3,3'-Dichlorobenzidine	<400	<400	<400	<400	400
[illegible]ichlorophenol	<400	<400	<400	<400	400
[illegible]yl phthalate	<400	<400	<400	<400	400
2,4-Dimethylphenol	<400	<400	<400	<400	400
Dimethyl phthalate	<400	<400	<400	<400	400
4,6-Dinitro-2-methylphenol	<400	<400	<400	<400	400
2,4-Dinitrophenol	<400	<400	<400	<400	400
2,4-Dinitrotoluene	<400	<400	<400	<400	400
2,6-Dinitrotoluene	<400	<400	<400	<400	400
Di-n-octyl phthalate	<400	<400	<400	<400	400
Fluoranthene	<400	<400	<400	<400	400
Fluorene	<400	<400	<400	<400	400
Hexachlorobenzene	<400	<400	<400	<400	400
Hexachlorobutadiene	<400	<400	<400	<400	400
Hexachlorocyclopentadiene	<400	<400	<400	<400	400
Hexachloroethane	<400	<400	<400	<400	400
Indeno(1,2,3-cd)pyrene	<400	<400	<400	<400	400
Isophorone	<400	<400	<400	<400	400
2-Methylnaphthalene	<400	<400	<400	<400	400
[illegible]thylphenol	<400	<400	<400	<400	400
4-Methylphenol	<400	<400	<400	<400	400
Naphthalene	<400	<400	<400	<400	400

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SLI Sample No.:	1487404	1487405	1487406	1487407
Client Sample No.:	B1-16	B2-16	B3-16	B4-12
Sample Matrix:	Soil	Soil	Soil	Soil

Compound	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**PQL µg/kg**
2-Nitroaniline	<400	<400	<400	<400	400
3-Nitroaniline	<400	<400	<400	<400	400
4-Nitroaniline	<400	<400	<400	<400	400
Nitrobenzene	<400	<400	<400	<400	400
2-Nitrophenol	<400	<400	<400	<400	400
4-Nitrophenol	<400	<400	<400	<400	400
N-nitrosodimethylamine	<400	<400	<400	<400	400
N-nitrosodiphenylamine	<400	<400	<400	<400	400
N-nitroso-di-n-propylamine	<400	<400	<400	<400	400
Pentachlorophenol	<400	<400	<400	<400	400
[illegible]nanthrene	<400	<400	<400	<400	400
[illegible]ol	<400	<400	<400	<400	400
Pyrene	<400	<400	<400	<400	400
1,2,4-Trichlorobenzene	<400	<400	<400	<400	400
2,4,5-Trichlorophenol	<400	<400	<400	<400	400
2,4,6-Trichlorophenol	<400	<400	<400	<400	400
Surrogate Standards					
2-Fluorophenol	76%	67%	74%	49%	
Phenol d-5	80%	73%	80%	55%	
Nitrobenzene d-5	83%	74%	81%	55%	
2-Fluorobiphenyl	88%	76%	83%	58%	
2,4,6-Tribromophenol	53%	45%	47%	40%	
Terphenyl d-14	174%	172%	190%	165%	

Analyst: MIKA O. BOWMAN

Reviewed By

[illegible]L: Practical Quantitation Limit is defined as the minimum reporting limit for the sample, as [illegible]mined by instrument sensitivity, dilution factor and methods used to extract the sample to isolate target compounds.

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LABORATORY ANALYSIS REPORT

SEMIVOLATILE ORGANIC ANALYSIS BY GC/MS

EPA SW-846 Method 8270B

ACCOUNT: 1188-99-355
CLIENT: EMG Phase II
ADDRESS: 11011 McCormick Drive
Hunt Valley MD 21031
PO NO.:
PROJECT NAME: Industrial Plant
PROJECT NO.: 59714
JOB LOCATION: Cincinnati, OH

DATE COLLECTED: 7/7/99-7/8/99
DATE RECEIVED: 7/12/99
DATE ANALYZED: 7/13/99
DATE REPORTED: 7/15/99

SLI Sample No.:	1487408	1487409	1487410	
Client Sample No.:	B5-12	B6-14	B7-16	
Sample Matrix:	Soil	Soil	Soil	
Compound	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**PQL µg/kg**
aphthene	<400	<400	<400	400
Acenaphthylene	<400	<400	<400	400
Anthracene	<400	<400	<400	400
Benzidine	<400	<400	<400	400
Benzo(a)anthracene	<400	<400	<400	400
Benzo(b)fluoranthene	<400	<400	<400	400
Benzo(k)fluoranthene	<400	<400	<400	400
Benzoic acid	<400	<400	<400	400
Benzo(g,h,i)perylene	<400	<400	<400	400
Benzo(a)pyrene	<400	<400	<400	400
Benzyl alcohol	<400	<400	<400	400
Bis(2-chloroethoxy)methane	<400	<400	<400	400
Bis(2-chloroethyl)ether	<400	<400	<400	400
Bis(2-chloroisopropyl)ether	<400	<400	<400	400
Bis(2-ethylhexyl)phthalate	<400	<400	<400	400
4-Bromophenyl phenyl ether	<400	<400	<400	400
Butyl benzyl phthalate	<400	<400	<400	400
oroaniline	<400	<400	<400	400
4-Chloro-3-methylphenol	<400	<400	<400	400
2-Chloronaphthalene	<400	<400	<400	400

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SLI Sample No.:	1487408	1487409	1487410
Client Sample No.:	B5-12	B6-14	B7-16
Sample Matrix:	Soil	Soil	Soil

Compound	Concentration µg/kg	Concentration µg/kg	Concentration µg/kg	PQL µg/kg
2-Chlorophenol	<400	<400	<400	400
4-Chlorophenyl phenyl ether	<400	<400	<400	400
Chrysene	<400	<400	<400	400
Dibenz(a,h)anthracene	<400	<400	<400	400
Dibenzofuran	<400	<400	<400	400
Dibutyl phthalate	<400	<400	<400	400
1,2-Dichlorobenzene	<400	<400	<400	400
1,3-Dichlorobenzene	<400	<400	<400	400
1,4-Dichlorobenzene	<400	<400	<400	400
3,3'-Dichlorobenzidine	<400	<400	<400	400
2,4-Dichlorophenol	<400	<400	<400	400
l phthalate	<400	<400	<400	400
2,4-Dimethylphenol	<400	<400	<400	400
Dimethyl phthalate	<400	<400	<400	400
4,6-Dinitro-2-methylphenol	<400	<400	<400	400
2,4-Dinitrophenol	<400	<400	<400	400
2,4-Dinitrotoluene	<400	<400	<400	400
2,6-Dinitrotoluene	<400	<400	<400	400
Di-n-octyl phthalate	<400	<400	<400	400
Fluoranthene	<400	<400	<400	400
Fluorene	<400	<400	<400	400
Hexachlorobenzene	<400	<400	<400	400
Hexachlorobutadiene	<400	<400	<400	400
Hexachlorocyclopentadiene	<400	<400	<400	400
Hexachloroethane	<400	<400	<400	400
Indeno(1,2,3-cd)pyrene	<400	<400	<400	400
Isophorone	<400	<400	<400	400
2-Methylnaphthalene	<400	<400	<400	400
ylphenol	<400	<400	<400	400
4-Methylphenol	<400	<400	<400	400
Naphthalene	<400	<400	<400	400

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SLI Sample No.:	1487408	1487409	1487410
Client Sample No.:	B5-12	B6-14	B7-16
Sample Matrix:	Soil	Soil	Soil

Compound	**Concentration µg/kg**	**Concentration µg/kg**	**Concentration µg/kg**	**PQL µg/kg**
2-Nitroaniline	<400	<400	<400	400
3-Nitroaniline	<400	<400	<400	400
4-Nitroaniline	<400	<400	<400	400
Nitrobenzene	<400	<400	<400	400
2-Nitrophenol	<400	<400	<400	400
4-Nitrophenol	<400	<400	<400	400
N-nitrosodimethylamine	<400	<400	<400	400
N-nitrosodiphenylamine	<400	<400	<400	400
N-nitroso-di-n-propylamine	<400	<400	<400	400
Pentachlorophenol	<400	<400	<400	400
Phenanthrene	<400	<400	<400	400
[illegible]ol	<400	<400	<400	400
Pyrene	<400	<400	<400	400
1,2,4-Trichlorobenzene	<400	<400	<400	400
2,4,5-Trichlorophenol	<400	<400	<400	400
2,4,6-Trichlorophenol	<400	<400	<400	400
Surrogate Standards				
2-Fluorophenol	54%	62%	74%	
Phenol d-5	60%	68%	84%	
Nitrobenzene d-5	59%	68%	90%	
2-Fluorobiphenyl	62%	72%	93%	
2,4,6-Tribromophenol	40%	47%	74%	
Terphenyl d-14	136%	163%	126%	

Analyst: MIKA O. BOWMAN

M Choksi

Reviewed By

**PQL: Practical Quantitation Limit is defined as the minimum reporting limit for the sample, as determined by instrument sensitivity, dilution factor and methods used to extract the sample to isolate target compounds.*

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AIHA 8936, ELLAP 8936, NVLAP 1150, NYELAP 11413, CAELAP 2078

LABORATORY ANALYSIS REPORT

VOLATILE ORGANICS ANALYSIS

SW-846 8260A

ACCOUNT:	1188-99-355	**Date Collected:**	7/7-8/99
CLIENT:	EMG PHASE II	**Date Received:**	7/10/99
ADDRESS:	11011 McCORMICK DRIVE HUNT VALLEY MD 21031	**Date Reported:**	7/15/99
PO NO.:			
PROJECT NAME:	Industrial Plant		
PROJECT NO.:	59714		
JOB LOCATION:	Cincinnati, OH		

Work Order 1188-99-355

SLI Sample No.:	1487404	1487405	1487406	1487407
Client Sample No.:	B1-16	B2-16	B3-16	B4-12
Sample Type:	Solid	Solid	Solid	Solid
Sample Analysis Date:	7/13/99	7/13/99	7/13/99	7/13/99

Compound	Concentration (µg/kg)	Concentration (µg/kg)	Concentration (µg/kg)	Concentration (µg/kg)	PQL* (µg/kg)
Benzene	BDL	BDL	BDL	BDL	5.0
Bromobenzene	BDL	BDL	BDL	BDL	5.0
Bromochloromethane	BDL	BDL	BDL	BDL	5.0
Bromodichloromethane	BDL	BDL	BDL	BDL	5.0
Bromoform	BDL	BDL	BDL	BDL	5.0
Bromomethane	BDL	BDL	BDL	BDL	5.0
n-Butylbenzene	BDL	BDL	BDL	BDL	5.0
sec-Butylbenzene	BDL	BDL	BDL	BDL	5.0
tert-Butylbenzene	BDL	BDL	BDL	BDL	5.0
Carbon tetrachloride	BDL	BDL	BDL	BDL	5.0
Chlorobenzene	BDL	BDL	BDL	BDL	5.0
Chloroethane	BDL	BDL	BDL	BDL	5.0
Chloroform	BDL	BDL	BDL	BDL	5.0
Chloromethane	BDL	BDL	BDL	BDL	5.0
2-Chlorotoluene	BDL	BDL	BDL	BDL	5.0
4-Chlorotoluene	BDL	BDL	BDL	BDL	5.0
1,2-Dibromo-3-chloropropane	BDL	BDL	BDL	BDL	5.0
1,2-Dibromoethane	BDL	BDL	BDL	BDL	5.0
Dibromochloromethane	BDL	BDL	BDL	BDL	5.0
Dibromomethane	BDL	BDL	BDL	BDL	5.0
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	5.0
1,3-Dichlorobenzene	BDL	BDL	BDL	BDL	5.0
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	5.0
Dichlorodifluoromethane	BDL	BDL	BDL	BDL	5.0
1,1-Dichloroethane	BDL	BDL	BDL	BDL	5.0
1,2-Dichloroethane	BDL	BDL	BDL	BDL	5.0
1,1-Dichloroethene	BDL	BDL	BDL	BDL	5.0
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	5.0
trans-1,2-Dichloroethene	BDL	BDL	BDL	BDL	5.0
1,2-Dichloropropane	BDL	BDL	BDL	BDL	5.0
1,3-Dichloropropane	BDL	BDL	BDL	BDL	5.0
2,2-Dichloropropane	BDL	BDL	BDL	BDL	5.0
1,1-Dichloropropene	BDL	BDL	BDL	BDL	5.0

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Work Order 1188-99-355

SLI Sample No.:	1487404	1487405	1487406	1487407
Client Sample No.:	B1-16	B2-16	B3-16	B4-12
Sample Type:	Solid	Solid	Solid	Solid
Sample Analysis Date:	7/13/99	7/13/99	7/13/99	7/13/99

Compound	Concentration (μg/kg)	Concentration (μg/kg)	Concentration (μg/kg)	Concentration (μg/kg)	PQL* (μg/kg)
Ethylbenzene	BDL	BDL	BDL	BDL	5.0
Hexachlorobutadiene	BDL	BDL	BDL	BDL	5.0
Isopropylbenzene	BDL	BDL	BDL	BDL	5.0
p-Isopropyltoluene	BDL	BDL	BDL	BDL	5.0
Methylene chloride	BDL	BDL	BDL	BDL	5.0
4-Methyl-2-pentanone	BDL	BDL	BDL	BDL	5.0
Naphthalene	BDL	BDL	BDL	BDL	5.0
n-Propylbenzene	BDL	BDL	BDL	BDL	5.0
Styrene	BDL	BDL	BDL	BDL	5.0
1,1,1,2-Tetrachloroethane	BDL	BDL	BDL	BDL	5.0
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	BDL	5.0
Tetrachloroethene	BDL	BDL	BDL	BDL	5.0
Toluene	BDL	BDL	BDL	BDL	5.0
1,2,3-Trichlorobenzene	BDL	BDL	BDL	BDL	5.0
1,2,4-Trichlorobenzene	BDL	BDL	BDL	BDL	5.0
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	5.0
1,1,2-Trichloroethane	BDL	BDL	BDL	BDL	5.0
Trichloroethene	BDL	BDL	BDL	BDL	5.0
Trichlorofluoromethane	BDL	BDL	BDL	BDL	5.0
1,2,3-Trichloropropane	BDL	BDL	BDL	BDL	5.0
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	5.0
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	5.0
Vinyl chloride	BDL	BDL	BDL	BDL	5.0
m-,p-Xylene	BDL	BDL	BDL	BDL	10.0
o-Xylene	BDL	BDL	BDL	BDL	5.0

Surrogate Compounds for Quality Control, Expressed as Percent Recovery				
Dibromofluoromethane	108 %	106 %	108 %	108 %
1,2-Dichloroethane d-4	100 %	98 %	100 %	102 %
Toluene d-8	102 %	104 %	100 %	102 %
4-Bromofluorobenzene	106 %	104 %	104 %	106 %

Analyst: HOMIYAR N. CHOKSI

Bernard H Howard

Reviewed By BERNARD H. HOWARD

All testing is done in strict accordance with Schneider Laboratories, Inc. protocol. The PQL (Practical Quantitation Limit) is defined as the minimum reporting limit as determined by instrument sensitivity, dilution factor, and method.
BDL (Below Detection Limit) refers to analysis results less than the PQL indicated.

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LABORATORY ANALYSIS REPORT

VOLATILE ORGANICS ANALYSIS

SW-846 8260A

ACCOUNT:	1188-99-355	**Date Collected:**	7/8/99
CLIENT:	EMG PHASE II	**Date Received:**	7/10/99
ADDRESS:	11011 McCORMICK DRIVE HUNT VALLEY MD 21031	**Date Reported:**	7/15/99
PO NO.:			
PROJECT NAME:	Industrial Plant		
PROJECT NO.:	59714		
JOB LOCATION:	Cincinnati, OH		

Work Order 1188-99-355

SLI Sample No.:	1487408	1487409	1487410
Client Sample No.:	B5-12	B6-14	B7-16
Sample Type:	Solid	Solid	Solid
Sample Analysis Date:	7/13/99	7/13/99	7/13/99

Compound	Concentration (µg/kg)	Concentration (µg/kg)	Concentration (µg/kg)	PQL* (µg/kg)
Benzene	BDL	BDL	BDL	5.0
Bromobenzene	BDL	BDL	BDL	5.0
Bromochloromethane	BDL	BDL	BDL	5.0
Bromodichloromethane	BDL	BDL	BDL	5.0
Bromoform	BDL	BDL	BDL	5.0
Bromomethane	BDL	BDL	BDL	5.0
n-Butylbenzene	BDL	BDL	BDL	5.0
sec-Butylbenzene	BDL	BDL	BDL	5.0
tert-Butylbenzene	BDL	BDL	BDL	5.0
Carbon tetrachloride	BDL	BDL	BDL	5.0
Chlorobenzene	BDL	BDL	BDL	5.0
Chloroethane	BDL	BDL	BDL	5.0
Chloroform	BDL	BDL	BDL	5.0
Chloromethane	BDL	BDL	BDL	5.0
2-Chlorotoluene	BDL	BDL	BDL	5.0
4-Chlorotoluene	BDL	BDL	BDL	5.0
1,2-Dibromo-3-chloropropane	BDL	BDL	BDL	5.0
1,2-Dibromoethane	BDL	BDL	BDL	5.0
Dibromochloromethane	BDL	BDL	BDL	5.0
Dibromomethane	BDL	BDL	BDL	5.0
1,2-Dichlorobenzene	BDL	BDL	BDL	5.0
1,3-Dichlorobenzene	BDL	BDL	BDL	5.0
1,4-Dichlorobenzene	BDL	BDL	BDL	5.0
Dichlorodifluoromethane	BDL	BDL	BDL	5.0
1,1-Dichloroethane	BDL	BDL	BDL	5.0
1,2-Dichloroethane	BDL	BDL	BDL	5.0
1,1-Dichloroethene	BDL	BDL	BDL	5.0
cis-1,2-Dichloroethene	BDL	BDL	BDL	5.0
trans-1,2-Dichloroethene	BDL	BDL	BDL	5.0
1,2-Dichloropropane	BDL	BDL	BDL	5.0
1,3-Dichloropropane	BDL	BDL	BDL	5.0
2,2-Dichloropropane	BDL	BDL	BDL	5.0
1,1-Dichloropropene	BDL	BDL	BDL	5.0

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Work Order 1188-99-355

SLI Sample No.:	1487408	1487409	1487410
Client Sample No.:	B5-12	B6-14	B7-16
Sample Type:	Solid	Solid	Solid
Sample Analysis Date:	7/13/99	7/13/99	7/13/99

Compound	Concentration (μg/kg)	Concentration (μg/kg)	Concentration (μg/kg)	PQL* (μg/kg)
Ethylbenzene	BDL	BDL	BDL	5.0
Hexachlorobutadiene	BDL	BDL	BDL	5.0
Isopropylbenzene	BDL	BDL	BDL	5.0
p-Isopropyltoluene	BDL	BDL	BDL	5.0
Methylene chloride	BDL	BDL	BDL	5.0
4-Methyl-2-pentanone	BDL	BDL	BDL	5.0
Naphthalene	BDL	BDL	BDL	5.0
n-Propylbenzene	BDL	BDL	BDL	5.0
Styrene	BDL	BDL	BDL	5.0
1,1,1,2-Tetrachloroethane	BDL	BDL	BDL	5.0
1,1,2,2-Tetrachloroethane	BDL	BDL	BDL	5.0
Tetrachloroethene	BDL	BDL	BDL	5.0
Toluene	BDL	BDL	BDL	5.0
1,2,3-Trichlorobenzene	BDL	BDL	BDL	5.0
1,2,4-Trichlorobenzene	BDL	BDL	BDL	5.0
1,1,1-Trichloroethane	BDL	BDL	BDL	5.0
1,1,2-Trichloroethane	BDL	BDL	BDL	5.0
Trichloroethene	BDL	BDL	BDL	5.0
Trichlorofluoromethane	BDL	BDL	BDL	5.0
1,2,3-Trichloropropane	BDL	BDL	BDL	5.0
1,2,4-Trimethylbenzene	BDL	BDL	BDL	5.0
1,3,5-Trimethylbenzene	BDL	BDL	BDL	5.0
Vinyl chloride	BDL	BDL	BDL	5.0
m-,p-Xylene	BDL	BDL	BDL	10.0
o-Xylene	BDL	BDL	BDL	5.0

Surrogate Compounds for Quality Control, Expressed as Percent Recovery

Dibromofluoromethane	106 %	110 %	108 %
1,2-Dichloroethane d-4	104 %	102 %	102 %
Toluene d-8	102 %	102 %	102 %
4-Bromofluorobenzene	104 %	104 %	106 %

Analyst: HOMIYAR N. CHOKSI

Bernard H Howard

Reviewed By BERNARD H. HOWARD

All testing is done in strict accordance with Schneider Laboratories, Inc. protocol. The PQL (Practical Quantitation Limit) is defined as the minimum reporting limit as determined by instrument sensitivity, dilution factor, and method.
BDL (Below Detection Limit) refers to analysis results less than the PQL indicated.

1188-9 355

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SUBMITTING COMPANY: EMG PHASE II
HUNT VALLEY, MD 21031

ACCOUNT NO:
PHONE NO: 1-800-733-0660
FAX: 1-410-785-6220

PROJECT NAME: INDUSTRIAL PLANT
SAMPLING LOCATION: CINCINNATI OH
PROJECT NUMBER: 59714
PURCHASE ORDER NO:
PAGE 1 OF 4

MATRIX
☐ AIR ☒ SOIL ☐ WATER, DRINKING
☐ AQUEOUS ☐ SOLID ☐ COMPLIANCE
☐ OIL ☐ WASTE ☐ WIPE
☐ PAINT ☐ WASTEWATER ☐ WIPE, COMPOSITE
☐ SLUDGE ☒ OTHER GROUND WATER

TURNAROUND TIME REQUESTED
ASBESTOS / LEAD: ☐ 6-8 Hours ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ 5 Days
INDUSTRIAL HYGIENE: ☐ 48 Hours* ☐ 24 Hours* ☐ STANDARD
ENVIRONMENTAL: ☐ 48 Hours* ☐ STANDARD
SPECIAL: ☐ WEEKEND* ☒ OTHER 72 hr
* INDICATES ADDITIONAL CHARGE
Rush environmental and weekend analysis must be scheduled with laboratory.

SPECIAL INSTRUCTIONS:
(**EXPLANATION OF PRESERVATIVE)

ASBESTOS
AIR: ☐ PCM (NIOSH 7400) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ OTHER
BULK: ☐ PLM: EPA/600/R-93/116 ☐ PLM: EPA Point Count ☐ PLM: Gravimetry ☐ NYELAP 198.1/4 ☐ TEM: Chatfield ☐ Other

METALS
TOTAL CONCENTRATION: ☐ LEAD ☐ RCRA METALS ☐ OTHER

HAZARDOUS WASTE
WASTE/TCLP: ☐ LEAD TCLP ☐ RCRA METALS ☐ FULL TCLP ☐ OTHER

FILTER
☐ PM10 ☐ TSP ☐ TOTAL DUST ☐ RESPIRABLE DUST ☐ SILICA ☐ OTHER

Other Analysis Requested (Organics)
Enter "X" to indicate request, Enter "P" if preservative** added

SAMPLE NUMBER	DATE SAMPLED	SAMPLE IDENTIFICATION E.G. OPERATION BEING PERFORMED, BLDG., ROOM, EMPLOYEE NAME, SS#, ETC.	For Wipe Samples Area Wiped in Sq. Ft.	Type[1] A,B,P,E	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total Air Vol	Number of Containers	VOCS 8260	SEMI-VOC-8270	PRIORITY POLLUTANT METAL			Media
B1-4	7-7-99	SOIL 4 ft								1						SOIL
B1-8		8														
B1-12		12														
B1-16		16									X	X	X			
B2-4		4														
B2-8		8														
B2-12		12														
B2-14		14														
B2-16		16									X	X	X			

[1]TYPE: A - AREA, B - BLANK, P - PERSONAL E - EXCURSION [2]BEGINNING/END OF SAMPLE PERIOD [3]CALIBRATION IN LITERS/MINUTE

TYPE OF RESPIRATOR USED:
SUBMITTED BY: Rich McKinney (PLEASE PRINT YOUR FULL NAME)
DATE SUBMITTED: 7-9-99
SIGNATURE: Rich M
SAMPLE CONDITION/TEMPERATURE
☐ RETURN SAMPLE ☐ DISPOSE OF SAMPLE (EXTRA CHARGE MAY APPLY)
RECEIVED BY: Simmons (LAB SIGNATURE)
DATE/TIME RECEIVED: 7/10/99 12:30
COURIER: UPS
1Z 2E2 899 22 1000 588 5
CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB

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SUBMITTING COMPANY: EMG PHASE II.
HUNT VALLEY, MD 21031

ACCOUNT NO: 1188 - . . -358
PHONE NO: 1-800-733-0660
FAX: 1-410-785-6220

PROJECT NAME: INDUSTRIAL PLANT
SAMPLING LOCATION: CINCINNATI OH
PROJECT NUMBER: 59714
PURCHASE ORDER NO: RL
PAGE 2 OF 4

MATRIX
☐ AIR ☒ SOIL ☐ WATER, DRINKING
☐ AQUEAOUS ☐ SOLID ☐ COMPLIANCE
☐ OIL ☐ WASTE ☐ WIPE
☐ PAINT ☐ WASTEWATER ☐ WIPE, COMPOSITE
☐ SLUDGE ☒ OTHER GROUND WATER

TURNAROUND TIME REQUESTED
ASBESTOS / LEAD: ☐ 6-8 Hours ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ 5 Days
INDUSTRIAL HYGIENE: ☐ 48 Hours* ☐ 24 Hours* ☐ STANDARD
ENVIRONMENTAL: ☐ 48 Hours* ☐ STANDARD
SPECIAL: ☐ WEEKEND* ☒ OTHER 72 hr
* INDICATES ADDITIONAL CHARGE
Rush environmental and weekend analysis must be scheduled with laboratory.

SPECIAL INSTRUCTIONS:
(**EXPLANATION OF PRESERVATIVE)

ASBESTOS
AIR: ☐ PCM (NIOSH 7400) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ OTHER
BULK: ☐ PLM, EPA/600/R-93/116 ☐ PLM, EPA Point Count ☐ PLM, Gravimetry ☐ NVELAP 198.1/4 ☐ TEM, Chatfield ☐ Other

METALS
TOTAL CONCENTRATION: ☐ LEAD ☐ RCRA METALS ☐ OTHER

HAZARDOUS WASTE
WASTE/TCLP: ☐ LEAD TCLP ☐ RCRA METALS ☐ FULL TCLP ☐ OTHER

FILTER
☐ PM10 ☐ TSP ☐ TOTAL DUST ☐ RESPIRABLE DUST ☐ SILICA ☐ OTHER

Other Analysis Requested (Organics)
Enter "X" to indicate request. Enter "P" if preservative** added.

SAMPLE NUMBER	DATE SAMPLED	SAMPLE IDENTIFICATION E.G. OPERATION BEING PERFORMED, BLDG., ROOM, EMPLOYEE NAME, SS#, ETC.	For Wipe Samples Area Wiped in Sq. Ft.	Type[1] A,B,P,E	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total Air Vol	Number of Containers	VOC	SEMI-VOC				Media
B3-4	7.7.99	SOIL 4 FT								1						SOIL
B3-8		8								1						
B3-12		12								1						
B3-16	7.8.99	16								2	X	X				
~~B3~~ B3-15		15														
B4-4		4														
B4-8		8														
B4-12		12									X	X				
B5-4		4														

[1]TYPE: A - AREA, B - BLANK, P - PERSONAL E - EXCURSION
[2]BEGINNING/END OF SAMPLE PERIOD
[3]CALIBRATION IN LITERS/MINUTE

TYPE OF RESPIRATOR USED:
SAMPLE CONDITION/TEMPERATURE
☐ RETURN SAMPLE ☐ DISPOSE OF SAMPLE (EXTRA CHARGE MAY APPLY)

SUBMITTED BY: Rich McKinney (PLEASE PRINT YOUR FULL NAME)
DATE SUBMITTED: 7.9.99
SIGNATURE Rich McKinney

RECEIVED BY: J Simmons (LAB SIGNATURE)
DATE/TIME RECEIVED: 7/10/99 12:50
COURIER: UPS

CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB.

122E2899221000 5885

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SUBMITTING COMPANY: EMG PHASE II
HUNT VALLEY, MD 21031

ACCOUNT NO: 1188 - -35B
PHONE NO: 1-800-733-0660
FAX: 1-410-785-6220

PROJECT NAME: INDUSTRIAL PLANT
SAMPLING LOCATION: CINCINNATI OH
PROJECT NUMBER: ~~#~~59714
PURCHASE ORDER NO:

MATRIX
☐ AIR ☒ SOIL ☐ WATER, DRINKING
☐ AQUEAOUS ☐ SOLID ☐ COMPLIANCE
☐ OIL ☐ WASTE ☐ WIPE
☐ PAINT ☐ WASTEWATER ☐ WIPE, COMPOSITE
☐ SLUDGE ☒ OTHER GROUND WATER

TURNAROUND TIME REQUESTED
ASBESTOS / LEAD: ☐ 6-8 Hours ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ 5 Days
INDUSTRIAL HYGIENE: ☐ 48 Hours* ☐ 24 Hours* ☐ STANDARD
ENVIRONMENTAL: ☐ 48 Hours* ☐ STANDARD
SPECIAL: ☐ WEEKEND* ☒ OTHER 72hr
* INDICATES ADDITIONAL CHARGE
Rush environmental and weekend analysis must be scheduled with laboratory.

SPECIAL INSTRUCTIONS:
**EXPLANATION OF PRESERVATIVE)

ASBESTOS
AIR: ☐ PCM (NIOSH 7400) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ OTHER
BULK: ☐ PLM, EPA/600/R-93/116 ☐ PLM, EPA Point Count ☐ PLM, Gravimetry ☐ NYELAP 198.1/4 ☐ TEM, Chatfield ☐ Other

METALS
TOTAL CONCENTRATION: ☐ LEAD ☐ RCRA METALS ☐ OTHER

HAZARDOUS WASTE
WASTE/TCLP: ☐ LEAD TCLP ☐ RCRA METALS ☐ FULL TCLP ☐ OTHER

FILTER
☐ PM10 ☐ TSP ☐ TOTAL DUST ☐ RESPIRABLE DUST ☐ SILICA ☐ OTHER

Other Analysis Requested (Organics)
Enter "X" to indicate request; Enter "P" if preservative** added

SAMPLE NUMBER	DATE SAMPLED	SAMPLE IDENTIFICATION E.G. OPERATION BEING PERFORMED, BLDG., ROOM, EMPLOYEE NAME, SS#, ETC.	For Wipe Samples Area Wiped in Sq. Ft.	Type[1] A,B,P,E	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total Air Vol	Number of Containers	VOC	SEMI-VOC	PRIORITY POLLUTANT METAL			Media
B5-8	7.8.99	SOIL 8 Ft								2						SOIL
B5-12		12									X	X				
B6-4		4														
B6-8		8														
B6-12		12														
B6-14		14									X	X	X			
B7-4		4														
B7-8		8														
B7-12		12														

[1]TYPE: A - AREA, B - BLANK, P - PERSONAL E - EXCURSION
[2]BEGINNING/END OF SAMPLE PERIOD
[3]CALIBRATION IN LITERS/MINUTE

TYPE OF RESPIRATOR USED:
SUBMITTED BY: Rich McKinney
PLEASE PRINT YOUR FULL NAME
DATE SUBMITTED: 7.9.99
SIGNATURE: Rich McKinney
SAMPLE CONDITION/TEMPERATURE
☐ RETURN SAMPLE ☐ DISPOSE OF SAMPLE (EXTRA CHARGE MAY APPLY)
RECEIVED BY: J Simmons
LAB SIGNATURE
DATE/TIME RECEIVED: 7/10/99 12:50
COURIER: UPS
CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB.

122E2899221000 5885

SCHNEIDER LABORATORIES INCORPORATED
2512 W. Cary Street • Richmond, Virginia • 23220
804-353-6778 • 800-785-LABS(5227) • FAX: 804-353-6928
VISIT OUR WEBSITE AT HTTP://www.slabinc.com
Excellence in Service and Technology

SUBMITTING COMPANY: EMG PHASE II
HUNT VALLEY, MD 21031

ACCOUNT NO: 1188 - 9 358
PHONE NO: 1-800-733-0660
FAX: 1-410-785-6220

PROJECT NAME: INDUSTRIAL PLANT
SAMPLING LOCATION: CINCINNATI OH
PROJECT NUMBER: 59714
PURCHASE ORDER NO:
PAGE 4 OF 4

MATRIX
☐ AIR ☒ SOIL ☐ WATER, DRINKING
☐ AQUEAOUS ☐ SOLID ☐ COMPLIANCE
☐ OIL ☐ WASTE ☐ WIPE
☐ PAINT ☐ WASTEWATER ☐ WIPE, COMPOSITE
☐ SLUDGE ☒ OTHER GROUND WATER

TURNAROUND TIME REQUESTED
ASBESTOS / LEAD: ☐ 6-8 Hours ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ 5 Days
INDUSTRIAL HYGIENE: ☐ 48 Hours* ☐ 24 Hours* ☐ STANDARD
ENVIRONMENTAL: ☐ 48 Hours* ☐ STANDARD
SPECIAL: ☐ WEEKEND ☒ OTHER 72hr
* INDICATES ADDITIONAL CHARGE
Rush environmental and weekend analysis must be scheduled with laboratory.

SPECIAL INSTRUCTIONS:
(**EXPLANATION OF PRESERVATIVE)

ASBESTOS
AIR: ☐ PCM (NIOSH 7400) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ OTHER
BULK: ☐ PLM, EPA/600/R-93/116 ☐ PLM, EPA Point Count ☐ PLM, Gravimetry ☐ NYELAP 198.1/.4 ☐ TEM, Chatfield ☐ Other

METALS
TOTAL CONCENTRATION: ☐ LEAD ☐ RCRA METALS ☐ OTHER

HAZARDOUS WASTE
WASTE/TCLP: ☐ LEAD TCLP ☐ RCRA METALS ☐ FULL TCLP ☐ OTHER

FILTER
☐ PM10 ☐ TSP ☐ TOTAL DUST ☐ RESPIRABLE DUST ☐ SILICA ☐ OTHER

Other Analysis Requested (Organics)
Enter "X" to indicate request. Enter "P" if preservative** added

SAMPLE NUMBER	DATE SAMPLED	SAMPLE IDENTIFICATION E.G. OPERATION BEING PERFORMED, BLDG., ROOM, EMPLOYEE NAME, SS#, ETC.	For Wipe Samples Area Wiped in Sq. Ft.	Type[1] A,B,P,E	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total Air Vol	Number of Containers	VOCs	SEMI-VOC	PRIORITY POLLUTANT METAL			Media
B7-16	7-8-99	SOIL 16 FT								2	X	X	X			SOIL
MW-1	↓	EXISTING MONITOR WELLS								7	X	X				WATER
MW-2		↓								7	X	X				↓
MW-3	↓									7	X	X				↓

[1]TYPE: A - AREA, B - BLANK, P - PERSONAL E - EXCURSION
[2]BEGINNING/END OF SAMPLE PERIOD
[3]CALIBRATION IN LITERS/MINUTE

TYPE OF RESPIRATOR USED:
SUBMITTED BY: Rich McKinney (PLEASE PRINT YOUR FULL NAME)
DATE SUBMITTED: 7-9-99
SIGNATURE: Rich McKinney

SAMPLE CONDITION/TEMPERATURE
☐ RETURN SAMPLE ☐ DISPOSE OF SAMPLE (EXTRA CHARGE MAY APPLY)
RECEIVED BY: J Simmons (LAB SIGNATURE)
DATE/TIME RECEIVED: 7/10/99 1250
COURIER: UPS

CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB.

1Z2E2699 2210005885

Appendix E

The Payne Firm, Inc. Well Sampling Report

The Payne Firm, Inc.
Environmental Consultants
11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

PRIVILEGED AND CONFIDENTIAL
Prepared at the Request of Legal Counsel

August 4, 1999

Kirkland & Ellis
655 Fifteenth Street, N.W.
Washington, D.C. 20005

Attention: Mr. Walter Lohmann, Jr., Esq.

Reference: Milton Can Sampling
Project No. 0654.07

Dear Mr. Lohmann:

This correspondence summarizes results of the recent sampling at the Milton Can facility located at 8200 Broadwell Road in Cincinnati, Ohio by The Payne Firm, Inc. (Payne Firm). At your request, the Payne Firm sampled well OW-3 for volatile organic compounds (VOCs) to confirm whether a recent detection of tricholorethene (TCE) by EMG is representative. EMG sampled well OW-3 on July 8, 1999 for VOCs.

LOCATION

Monitoring well OW-3 is located at the northeastern part of the facility and is the northeasternmost of three wells monitoring a spray field adjacent to the plant's wastewater treatment facility. Wells OW-1 and OW-2 are situated between OW-3 and the facility. An inactive gravel quarry is present to the northwest of the wells and north of the facility. The facility and other old gravel pits are located to the west and southwest of the monitoring wells. Senco Products, Inc., an industrial metals manufacturer, is present to the southeast. The other two wells (OW-1 and OW-2) were not included in the sampling event and showed no detection of VOCs during the July 8, 1999 EMG sampling event.

SAMPLING

Well OW-3 was redeveloped by the Payne Firm on July 23, 1999 by pumping, surging and bailing approximately three gallons of water from the well. The well was purged dry and observed to recharge slowly, thereby limiting the amount of water removal during development. Well construction data was not available to evaluate the well. Field measurements showed the well is approximately 80 feet deep; approximately 10 feet of water was present in the well prior to developing and purging. The well was purged and sampled on July 26, 1999 by bailing dry and allowing the well to recharge. Upon recharge the well was sampled by bailer for VOCs by method SW846-8260B. A duplicate sample was collected and designated as PW-3. Both samples were placed in an iced cooler and sent under proper chain-of-custody via overnight delivery to Quanterra Laboratories in North Canton, Ohio. Laboratory results are attached and show that TCE was detected at 300 micrograms/liter (ug/l) in the sample and duplicate from OW-3.

39 02 29 01
41 80

Mr. Walter Lohmann, Jr., Esq.
Kirkland & Ellis
Project No. 0654.07
August 4, 1999
Page 2

PRIVILEGED AND CONFIDENTIAL
Prepared at the Request of Legal Counsel

DISCUSSION

The resample results for OW-3 (300 ug/l of TCE) are lower than the result detected by EMG (1040 ug/l of TCE). No other VOCs were detected during either sampling event. No known source of TCE has been identified at the facility. EMG conducted a Phase II soil investigation at the facility in addition to its ground water sampling. The soil investigation included sampling and analysis for VOCs from three soil samples in the immediate vicinity of OW-3 as well as at other potential source areas. This investigation did not identify VOCs in soil or a source for the TCE. In addition, a discussion with Mr. Alan Yee, Environmental Manager for Ball Can (prior owner), indicated that preliminary results from their investigation of debris fill associated with old gravel pits southwest of OW-3 did not show evidence of a TCE source. The location of OW-3 at the facility and the absence of detection in OW-1 and OW-2 or any of the soil samples suggests the existence of an off-property source for the TCE contamination. Water level measurements from the three wells in August 1997 by the Payne Firm suggested a northwesterly flow at that time; however, it is likely that regional flow would be to the southwest within the buried valley aquifer beneath the facility. The ground water flow direction may be complicated by flow of the Little Miami River within 1,500 feet to the north and infiltration effects from the inactive quarry and gravel pits in the immediate vicinity of the facility.

We are unaware of any reporting requirement associated with this detection. The detected concentration is above the Safe Drinking Water Act, Maximum Contaminant Level (MCL) for TCE of 5 ug/l. In the absence of any known or potential threat to drinking water or potable well users in the area, this detection will not be a priority for Ohio EPA. We concur with the implementation of a program of water level measurements and sampling to monitor conditions. At this time, monthly water level measurements and quarterly sampling for one year would identify seasonal conditions and fluctuations.

CLOSING

The Payne Firm appreciates this opportunity to provide professional and technical services. Please contact the undersigned with questions.

Sincerely,

The Payne Firm, Inc.

Michael L. Woodruff

Michael L. Woodruff, C.P.G.
Project Manager

Daniel D. Weed /Amu

Daniel D. Weed, C.P.G.
Project Manager

MLW:DDW:sap

Enclosures

Bickell - - -

2/10

Michael DeWitt

another Michael

303-460-5235
- dye test
- well clams

Thursday 9
→ 11 am est.

T-W

no good for Bickell

→ Cachalcan → 751-2022

41030.LTR/sap

08/04/99

Quanterra

Environmental Services

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

ANALYTICAL REPORT

PROJECT NO. 654.07

MILTON CAN

Lot #: A9G270122

Michael Woodruff

The Payne Firm, Inc.

QUANTERRA INCORPORATED

Gary L. Wood
Project Manager

August 2, 1999

CASE NARRATIVE

The following report contains the analytical results for two water samples submitted to Quanterra-North Canton by The Payne Firm, Inc. from the Milton Can site, project number 654.07. The samples were received July 27, 1999, according to documented sample acceptance procedures.

Quanterra-North Canton utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameter listed on the method reference page in accordance with the methods indicated. Results were provided by facsimile transmission to Michael Woodruff on July 27, 1999.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

ANALYTICAL METHODS SUMMARY

A9G270122

PARAMETER	ANALYTICAL METHOD
Volatile Organics by GC/MS	SW846 8260B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A9G270122

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D0J02	001	OW-3/072699	07/26/99	
D0J04	002	PW-3/072699	07/26/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PAYNE FIRM INC.

Client Sample ID: OW-3/072699

GC/MS Volatiles

Lot-Sample #...: A9G270122-001
Work Order #...: D0J02101
Matrix.........: WATER
Date Sampled...: 07/26/99
Date Received..: 07/27/99
Prep Date......: 07/27/99
Analysis Date..: 07/27/99
Prep Batch #...: 9208311
Dilution Factor: 10
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	100	ug/L
Bromomethane	ND	100	ug/L
Vinyl chloride	ND	100	ug/L
Chloroethane	ND	100	ug/L
Methylene chloride	ND	50	ug/L
Acetone	ND	200	ug/L
Carbon disulfide	ND	50	ug/L
1,1-Dichloroethene	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
1,2-Dichloroethene (total)	ND	50	ug/L
Chloroform	ND	50	ug/L
1,2-Dichloroethane	ND	50	ug/L
2-Butanone	ND	200	ug/L
1 [illegible] 1-Trichloroethane	ND	50	ug/L
[illegible] on tetrachloride	ND	50	ug/L
B[illegible]modichloromethane	ND	50	ug/L
1,2-Dichloropropane	ND	50	ug/L
cis-1,3-Dichloropropene	ND	50	ug/L
Trichloroethene	**300**	**50**	**ug/L**
Dibromochloromethane	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
Benzene	ND	50	ug/L
trans-1,3-Dichloropropene	ND	50	ug/L
Bromoform	ND	50	ug/L
4-Methyl-2-pentanone	ND	200	ug/L
2-Hexanone	ND	200	ug/L
Tetrachloroethene	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
Toluene	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
Styrene	ND	50	ug/L
Xylenes (total)	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	109	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	92	(86 - 115)
Dibromofluoromethane	112	(86 - 118)

PAYNE FIRM INC.

Client Sample ID: PW-3/072699

GC/MS Volatiles

Lot-Sample #...: A9G270122-002
Work Order #...: D0J04101
Matrix.........: WATER
Date Sampled...: 07/26/99
Date Received..: 07/27/99
Prep Date......: 07/27/99
Analysis Date..: 07/27/99
Prep Batch #...: 9208311
Dilution Factor: 10
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	100	ug/L
Bromomethane	ND	100	ug/L
Vinyl chloride	ND	100	ug/L
Chloroethane	ND	100	ug/L
Methylene chloride	ND	50	ug/L
Acetone	ND	200	ug/L
Carbon disulfide	ND	50	ug/L
1,1-Dichloroethene	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
1,2-Dichloroethene (total)	ND	50	ug/L
Chloroform	ND	50	ug/L
1,2-Dichloroethane	ND	50	ug/L
2-Butanone	ND	200	ug/L
1,1,1-Trichloroethane	ND	50	ug/L
Carbon tetrachloride	ND	50	ug/L
Bromodichloromethane	ND	50	ug/L
1,2-Dichloropropane	ND	50	ug/L
cis-1,3-Dichloropropene	ND	50	ug/L
Trichloroethene	300	50	ug/L
Dibromochloromethane	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
Benzene	ND	50	ug/L
trans-1,3-Dichloropropene	ND	50	ug/L
Bromoform	ND	50	ug/L
4-Methyl-2-pentanone	ND	200	ug/L
2-Hexanone	ND	200	ug/L
Tetrachloroethene	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
Toluene	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
Styrene	ND	50	ug/L
Xylenes (total)	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	101	(80 - 120)
Toluene-d8	96	(88 - 110)
Bromofluorobenzene	87	(86 - 115)
Dibromofluoromethane	106	(86 - 118)

QUALITY CONTROL SECTION

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra® Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the MS/MSD RPDs are within acceptance criteria, the batch is acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

* *for analyses run on TJA Trace ICP or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported. If the LCS, LCSD, or the Method Blank surrogates fail to meet recovery criteria (exception for dilutions), the entire batch of samples is reprepared and reanalyzed.

If the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch may be acceptable based on the analyst's judgment that sample matrix effects are indicated.

For the GC/MS BNA methods, the surrogate criteria is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, TPH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A9G270122 Work Order #...: D0JNP102 Matrix.........: WATER
LCS Lot-Sample#: A9G270000-311
Prep Date......: 07/27/99 Analysis Date..: 07/27/99
Prep Batch #...: 9208311
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	88	(70 - 122)	SW846 8260B
Trichloroethene	98	(82 - 112)	SW846 8260B
Chlorobenzene	104	(85 - 115)	SW846 8260B
Toluene	102	(86 - 119)	SW846 8260B
Benzene	95	(83 - 110)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(80 - 120)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	92	(86 - 115)
Dibromofluoromethane	103	(86 - 118)

NOTE(S):

C 'ions are performed before rounding to avoid round-off errors in calculated results.

I ...ic denotes control parameters

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A9G270122
MB Lot-Sample #: A9G270000-311

Work Order #...: D0JNP101

Matrix..........: WATER

Analysis Date..: 07/27/99
Dilution Factor: 1

Prep Date......: 07/27/99
Prep Batch #...: 9208311

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/L	SW846 8260B
Bromomethane	ND	10	ug/L	SW846 8260B
Vinyl chloride	ND	10	ug/L	SW846 8260B
Chloroethane	ND	10	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
Acetone	ND	20	ug/L	SW846 8260B
Carbon disulfide	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
2-Butanone	ND	20	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
C[illegible]n tetrachloride	ND	5.0	ug/L	SW846 8260B
B[illegible]dichloromethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Benzene	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/L	SW846 8260B
2-Hexanone	ND	20	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B
Toluene	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Ethylbenzene	ND	5.0	ug/L	SW846 8260B
Styrene	ND	5.0	ug/L	SW846 8260B
Xylenes (total)	ND	5.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	103	(80 - 120)
Toluene-d8	95	(88 - 110)
Bromofluorobenzene	91	(86 - 115)
Dibromofluoromethane	107	(86 - 118)

NOT[illegible]):
Calc[illegible] are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A9G270122
MS Lot-Sample #: A9G270122-002
Date Sampled...: 07/26/99
Prep Date......: 07/27/99
Prep Batch #...: 9208311
Dilution Factor: 1

Work Order #...: D0J04102-MS
D0J04103-MSD
Date Received..: 07/27/99
Analysis Date..: 07/27/99

Matrix.........: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**103**	**(75 - 113)**			**SW846 8260B**
	101	**(75 - 113)**	**1.7**	**(0-20)**	**SW846 8260B**
Trichloroethene	**80**	**(71 - 110)**			**SW846 8260B**
	90	**(71 - 110)**	**2.4**	**(0-22)**	**SW846 8260B**
Benzene	**97**	**(78 - 117)**			**SW846 8260B**
	97	**(78 - 117)**	**0.95**	**(0-17)**	**SW846 8260B**
Toluene	**101**	**(78 - 126)**			**SW846 8260B**
	101	**(78 - 126)**	**0.46**	**(0-24)**	**SW846 8260B**
Chlorobenzene	**102**	**(81 - 115)**			**SW846 8260B**
	102	**(81 - 115)**	**0.76**	**(0-18)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	97	(80 - 120)
	99	(80 - 120)
T[illegible]ne-d8	99	(88 - 110)
	99	(88 - 110)
Bromofluorobenzene	89	(86 - 115)
	92	(86 - 115)
Dibromofluoromethane	106	(86 - 118)
	107	(86 - 118)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

The Payne Firm, I
Environmental Consultants
11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

FILE COPY

CHAIN OF CUSTODY RECORD

No

PROJ. NO.	PROJECT NAME
65401	Milton Can

SAMPLERS: (Signature) Timothy J Bush

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 8260					REMARKS
	7/26			X	OW-3/072699	3	X					Attn: Gary Wood
	7/26			X	PW-3/072699	3	X					Need Results by
												Wed. July 28th
												Results to Mike Wadlutf
												of PFT

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Timothy J Bush Jr.	072699 1220				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		[signature]	7-27-99 10:00		

Distribution: Original Accompanies Shipment; Copy to Field Files

EMG

August 17, 1999

BWAY Corporation
8607 Roberts Drive, Suite 250
Atlanta, Georgia 30350
Mr. Blair Schlossberg

RE: Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Loan No.: TBD
EMG Project #55857

Dear Mr. Schlossberg:

In accordance with our agreement dated April 15, 1999, EMG has performed a Phase I Environmental Site Assessment of the above-referenced property ("site"). The findings of the assessment are presented in the attached report.

Thank you for the opportunity to be of service to BWAY Corporation. If you have any questions or need information, please do not hesitate to call us at your convenience.

Sincerely,
EMG

Mr. David V. Maglietta, LPG
Program Supervisor

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EMG

Client:

Corporate Realty Investment Company
1 Exeter Plaza
Boston, Massachusetts 02116
Ms. Cara Ahola

Midland Loan Services, Inc.
210 West 10th Street
Kansas City, Missouri 64105
Ms. June Cho

BWAY Corporation
8607 Roberts Drive, Suite 250
Atlanta, Georgia 30350

Phase I
Environmental Site Assessment of
Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244
Loan No.: TBD

EMG Project No.: 55857

Date of Report: August 17, 1999

On-site Date: April 22, 1999

Prepared by:

EMG
EMG Corporate Center
11011 McCormick Road
Baltimore, Maryland 21031
(410) 785-6200
(410) 785-6220 (fax)

EMG

55857

PROJECT SUMMARY

Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244

Assessment Component	Acceptable	Routine Solution	Phase II	Estimated Cost §	Reference Section	Page
Historical Review			(1)	$10,000 - $20,000	4.2.1	38
Adjacent Properties	✓				4.1.3	37
Regulatory Database Review		(2)		N/A	4.2	38
Operational Activities	✓				3.1.3	15
Storm Water Control	✓				5.1.3	51
Hazardous Materials	✓				5.2.1	53
Waste Generation		(3)		See below	5.2.4	54
PCBs	✓				5.2.6	56
Asbestos		(4)		$495	5.2.7	56
Radon	✓				5.2.8	58
Lead-Based Paint	✓				5.2.9	58
Lead in Water	✓				5.2.10	58
Tanks/Pipelines	✓				5.2.13	59
Additional Hazards	✓				5.2.15	64
Special Resources	✓				5.3	64

§ Costs depicted are for investigation/program development activities. Remediation costs, if required, will be identified as a result of the activities.

(1) A subsurface investigation of the Project is recommended to determine if it has been adversely impacted by historical manufacturing and waste management operations, and by the historical disposal of chromium containing wastewater to an off-site gravel pit pond to the north.

(2) Based on review of the regulatory database report, the Project is listed on the RCRIS-Generator, LUST, NFRAP, ERNS, and HWS databases. On-site evaluation and review of available information identified that the Project is listed on these databases because of a previous tenant at the Project (Heekin Can Company). Based on the available information, no further action or investigation regarding the LUST and ERNS listings appears warranted. In order to obtain detailed information regarding the nature of the RCRIS, NFRAP and SHWS listings for the Project, and in accordance with the assessment Scope of Work, EMG requested copies of the file information for these listings through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through these FOIA requests will be summarized and forwarded in an addendum to this report.

(3) EMG recommends that the potential liability issue associated with disposal of Project waste at several facilities of environmental concern be addressed by consulting appropriate legal counsel. Cost for this activity will depend on the fee structure of the counsel chosen.

(4) Develop and implement an Operations and Maintenance (O&M) Program for asbestos-containing materials.

55857

TABLE OF CONTENTS

1. Introduction

1.1. Executive Summary

EMG performed a Phase I Environmental Site Assessment, that included on-site observations of the accessible areas of the Industrial Plant (the "Project"), on April 22, 1999. The Project is located at 8200 Broadwell Road in Cincinnati, Ohio 45244, and is situated on approximately 43 acres of land.

The Project, originally constructed in 1952 through 1979, is currently a steel sheet fed lithograph and coating facility and a three piece aerosol can manufacturing facility. Historically, the Project was farmland prior to construction of the current improvements. Operations in the general vicinity of the Project include a landfill, gravel pits and residential and industrial land uses.

The following summarizes the independent conclusions representing EMG's best professional judgment based on information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the Client, owner, or their representative have been assumed to be correct and complete. Additionally, the conclusions presented are based on the conditions that existed at the time of the assessment.

Operational Activities

- The Project is currently a steel sheet fed lithograph and coating facility and a three piece aerosol can manufacturing facility. EMG observed no recognized environmental conditions associated with the activities at the Project (Section 3.1.3). No further action or investigation is recommended regarding operational activities at the Project.

Historical Data

- The review of the historical data available for the Project revealed that the previous Project uses include farmland (prior to 1938-1952), a piano manufacturing facility (1952-1958), and Heekin Can Company (1958/1959-1996) prior to commencement of the current Project operations in 1996 (Section 4.1.2). Based on the long term industrial use of the site, which included the manufacture of metal cans, and involved the storage and use of numerous hazardous materials, as well as the generation of numerous hazardous wastes, there is the potential that the environmental integrity of the Project has been adversely impacted.

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- In 1988 to 1989, the five USTs located north of the lithography plant were uncovered and all five tanks, as well as 13 of 15 lines, were found to be leaking. State and local authorities were notified, and the Project was listed as a LUST site. The tanks were abandoned in place by being cut open, cleaned, and filled with pea gravel. It was reported by facility personnel that a soil vapor extraction system was installed in this area, however, no information was provided to ENVIRON regarding this system. An 'approval of closure' letter issued by the OEPA in August of 1992 which stated that the LUST case was closed was reportedly reviewed by ENVIRON. EMG reviewed OEPA file information for the Project (as discussed below) but found no documentation regarding the closure letter or a soil vapor extraction system. However, a copy of this letter (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed, was provided by the Project. Therefore, no further action or investigation regarding the Project's former USTs is warranted or recommended.

Adjacent Properties

- EMG identified no adjacent properties that are anticipated to have a negative impact on the environmental integrity of the Project (Section 4.1.3). No further action or investigation is recommended regarding the adjacent properties.

Regulatory Review

- Based on review of the regulatory database report, the Project is listed on the RCRIS-Generator, LUST, NFRAP, ERNS, and HWS databases (Section 4.2). On-site evaluation and review of available information identified that these listings are associated with the operations of a previous Project occupant (Heekin Can Company). Based on the No Further Action designation for the LUST listing, the minor spill associated with the ERNS listing, and the No Further Remedial Action Planned status of the site, no further action or investigation appears warranted. However, in order to obtain detailed information regarding the nature of the RCRIS, NFRAP and SHWS listings, and in accordance with the assessment Scope of Work, EMG requested copies of the file information for these listings through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through these FOIA requests will be summarized and forwarded in an addendum to this report.

- Based on review of the regulatory database report, none of the remaining listed sites are anticipated to adversely impact the Project (Section 4.2).

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Storm Water Systems

- Visual observation of the storm water system did not identify any abnormal accumulation of petroleum run-off or foreign material (Section 5.1.3). No unusual blockages of the storm water control system were observed. No unusual ponding of storm waters was observed on the parking, roof, or surface areas. No further action or investigation is recommended regarding storm water systems at the Project.

Hazardous Substances/Petroleum Products

- The Project is involved in the use of hazardous materials and petroleum products in the form of routine janitorial and maintenance supplies, propane, nitrogen, inks, coatings, solvents, oils, and grease (Section 5.2.1). The materials observed do not appear to pose a hazard to the Project, provided they continue to be used as designed, are properly handled, and all regulations regarding their use are followed. No further action or investigation is recommended regarding the use of hazardous materials or petroleum products at the Project.

Waste Generation

- The Project generates hazardous waste in the form of solvents and coatings, as well as non-hazardous solid and liquid wastes (Sections 5.1.1, 5.1.2, and 5.2.4). Generated wastes appear to be disposed of properly. No further action or investigation is recommended regarding wastes currently generated at the Project.
- Between 1973 and 1985, the Project reportedly disposed of chromium-containing wastewater to a gravel pit pond located to the north of the Project. Regulatory officials were aware of this disposal and requested that Heekin Can investigate alternative disposal options. Apparently the facility was never cited for improper disposal activities, was not required to perform surface water monitoring, and was not required to investigate or remediate this pond. This pond is located downgradient of the Project, however because the site is basically surrounded by gravel pits it is difficult to determine the current and former direction of ground water flow in the area. Therefore, based on the type of material discharged and the length of time that this disposal practice was employed, as well as the uncertain ground water flow patterns in the area, there is the potential that it adversely impacted the environmental integrity of the area of the gravel pit pond, including the Project itself.

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- Hazardous waste generated at the Project by former owners/operators has been transported to several facilities of environmental concern: Mercury Refining, Inc., in Colonie, New York; Laidlaw Environmental Services (aka Triangle Resource Industries) in Greenbriar, Tennessee; Safety-Kleen in New Castle, Kentucky; Coyne Textile Service in Huntington, West Virginia; Safety Kleen in Hebron, Ohio; and Rumpke Sanitary Landfill in Cincinnati, Ohio. EMG is of the opinion that although it is unlikely the Project would be held liable for investigation or remediation associated with one of these sites, the possibility of some liability does exist.

Polychlorinated Biphenyls (PCBs)

- EMG identified utility-owned transformers that use dielectric fluid potentially containing levels of polychlorinated biphenyls (PCBs) of at least 50 ppm, but less than 500 ppm (Section 5.2.6). These units are within current regulatory guidelines. No further action or investigation is recommended regarding the transformers at the Project.
- The Project contains a cardboard baler, a trash compactor, and a can crusher that use hydraulic fluid (Section 5.2.6). The installation dates of these pieces of equipment are unknown. Therefore, EMG is of the opinion that the hydraulic fluid in this equipment potentially contains PCBs. No visual indication of leakage was observed in areas of this equipment, which should be periodically inspected for leakage. If leakage is identified, the unit should be repaired and any fluid or fluid-soaked waste disposed of in accordance with applicable federal, state, and local regulations.

Asbestos-Containing Materials (ACM)

- The identified asbestos-containing pipe insulation, pipe fitting insulation and floor tiles, and the suspect ACM in the form of wallboard/joint compound can be maintained in place if an Operations and Maintenance (O&M) Program is developed and implemented (Section 5.2.7). A properly designed O&M Program is sufficient to maintain the Project in accordance with current regulatory standards and sound business practice. ACM maintained with an O&M Program can remain in place, provided the ACM remain intact and undisturbed.

Radon Gas

- Radon is beyond the Scope of Work unless the Project is a residential property (Section 5.2.8). No further action or investigation is recommended with regard to radon gas levels at the Project.

Lead-Based Paint (LBP)

- Lead-based paint is beyond the Scope of Work unless the Project is a residential property (Section 5.2.9). No further action or investigation is recommended regarding lead-based paint at the Project.

Lead in Water

- The Project is supplied with water from the City of Cincinnati Water Department, the public utility and based on conversations with utility personnel, the water at the Project is not expected to contain elevated levels of lead (Section 5.2.10). No further action or investigation is recommended regarding lead in drinking water at the Project.

Storage Tanks / Pipelines

- No evidence of current underground storage tanks or pipelines was identified (Section 5.2.13).
- In 1988 to 1989, five USTs located north of the lithography plant were uncovered and all five tanks, as well as 13 of 15 lines, were found to be leaking. State and local authorities were notified, and the Project was listed as a LUST site. The tanks were abandoned in place by being cut open, cleaned, and filled with pea gravel. It was reported by facility personnel that a soil vapor extraction system was installed in this area, however, no information was available regarding this system. An 'approval of closure' letter which stated that the LUST case was closed was issued by the OEPA in August of 1992 and was reviewed by a previous environmental consultant. In addition, a copy of this letter (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed, was provided by the Project. Therefore, no further action or investigation regarding the Project's former USTs is warranted or recommended.
- There were two 170-gallon open end process tanks located in a small flammable storage room by the can assembly punch press area. These tanks were installed in 1958, and the tank tops were above floor level, but the lower portions were below grade in a concrete vault. The walls of this vault were concrete, but the floor was reportedly gravel or bare soil. It was recommended that the floor of this area be sealed to minimize potential leaks, or that the tanks be raised above grade.

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EMG could not locate these tanks during the site assessment, and found no below-grade areas/pits at the Project. As discussed later in Section 4.2.2, EMG contacted the Anderson Township Fire Department regarding file information for the Project address. According to Assistant Chief Best, these tanks were removed from the Project without incident. The fire department and environmental personnel were on-site during the removal, and Mr. Best was unaware of any releases or incidents at the Project.

Furthermore, EMG was provided with a copy of the removal/closure report for these tanks, prepared by The Payne Firm, Inc. and dated February 5, 1999. These tanks served as an introduction and mixing point for bulk compounds used in the compound dispensing system. The main constituents of the compounds mixed were identified as heptane isomers with minor amounts of hexane isomers, alcohol, resins, fillers, pigments and other modifiers. According to this report, these flow-through process tanks were located in the Compound Pump Room from the late 1950s to the mid-1990s. The tanks were situated in a poured concrete vault with a concrete bottom, and were on angle iron legs that were bolted to the floor. Gravel was poured around the tanks from the bottom of the vault to just below grade and then concrete was poured around the tanks level to the existing floor slab grade. The top one foot of each tank extended above the concrete floor of the plant. These tanks were not regulated under the Ohio Fire Marshal's Burea of Underground Storage Tank Regulations (BUSTR). The Anderson Township Fire Department Inspector was contacted prior to the removal activities, and the Project was informed that since the tanks were not regulated under the BUSTR no removal permit was required; however, a permit was provided for documentation purposes and they requested a report summarizing the removal activities.

Removal activities began on October 20, 1998. An air hammer was used to remove the concrete floor on top of the vault and around the tanks. Once the concrete surface had been removed, it was observed that the gravel in the vault was pebble to cobble size which did not permit the collection of confirmatory samples. Some residual hardened compound in the gravel was noted along the north end of the tanks at the surface where no concrete cap was present. The affected gravel was easily recognized because it had been cemented together by the hardened compound. No liquid compound staining was observed at any time during the removal activities. Clean gravel was removed from around the tanks in the vault to a depth of three feet. The bottoms of the tanks were reached at this depth, each tank was cut from the angle iron legs and removed from the vault, and they taken off-site by a scrap metal vendor.

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After the tanks were removed, a limited amount of hardened product was observed along the north wall of the vault. This material was removed from the vault and placed in three 55-gallon drums for disposal. Due to the nature of the backfill material (gravel) and the fact that no liquids were observed in the vault, no closure samples could be collected for laboratory analysis. Therefore, the closure was completed based upon visual observation and removal of all the hardened compound from the vault. A concrete floor was observed at a depth of seven feet below the ground surface. After confirming that no residual compound remained in the vault and that the bottom was constructed of concrete, the vault was backfilled with the clean gravel that had been previously removed from around the tanks, and Milton Can was to fill the vault to grade with additional clean gravel and a load-bearing concrete floor.

Based upon this information, these former tanks are not anticipated to have adversely impacted the environmental integrity of the Project, and no further action or investigation is recommended.

- Aboveground storage tanks (ASTs) are currently located at the Project (Section 5.2.13). Review of available information indicates that the ASTs are used for storage of propane, nitrogen, coatings, and water. There was no visual indication of releases from the ASTs. The ASTs appear to be operated in accordance with current regulatory requirements and are not anticipated to adversely impact the Project.

Additional Hazards

- The Project maintains approximately 30 parts washers which store petroleum-based solvent used for cleaning metal parts (Section 5.2.15). Each of these units has a total capacity of approximately 25 gallons of solvent. No evidence of spills, leaks or stains were observed in the vicinity of these units, which are serviced by Safety Kleen on a regular basis. Safety Kleen provides new solvent and takes spent solvent to an off-site facility for recycling or disposal. Review of hazardous waste manifests and the facility waste management program indicated that the waste disposal operations appear to be performed in accordance with regulatory requirements. No further action or investigation is recommended with regard to additional hazards at the Project.

Special Resources

- No special resources, including endangered species; historical property; wetlands; undeveloped flood plains; wild or scenic rivers; scientific or archaeologically significant areas; wilderness areas; natural national landmarks; sole source aquifer zones; or undeveloped coastal zones, were identified at the Project (Section 5.3). No further action or investigation is required regarding special resources at the Project.

Recommendations

The following additional action is recommended:

- EMG recommends that the potential liability issue associated with disposal of Project waste at several facilities of environmental concern be addressed by consulting appropriate legal counsel.
- The development and implementation of an Asbestos Operations and Maintenance (O&M) Program. Costs indicated are for O&M Program Document development only. Comprehensive survey costs, if required, will be identified as a result of O&M Program implementation.

  Associated cost estimate.. $495

A Phase II Environmental Site Assessment is recommended. Activities required to more completely assess the environmental condition of the Project, including their associated cost estimates, are as follows:

- Subsurface investigation of the Project is recommended to determine if it has been adversely impacted by historical manufacturing and waste management operations, and by the historical disposal of chromium containing wastewater to an off-site gravel pit pond to the north.

  Associated cost estimate.. $10,000 - $20,000

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1.2. Purpose

The purposes of this Phase I Environmental Site Assessment are to identify existing or potential environmental conditions or circumstances on the Project that 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the Project or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to petroleum and hazardous substances on or affecting the Project under any applicable environmental law; 4) may affect the value of the Project; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by the Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout, or seller financing, 2) evaluate the Property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the Property and or, 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout, or seller financing of the Property.

1.3. Scope of Work

EMG conducted an on-site Environmental Site Assessment of the Project that consisted of a walk-through observation of the accessible areas and interviews with facility personnel and local agency representatives. On-site activities and/or interviews were conducted by Mr. Gregory P. Shingler, EMG Project Manager, with:

- Mr. Randy Stapp, On-site Point of Contact and Environmental Manager

Areas accessed included all interior areas; all common areas; all exterior areas; and the Project boundaries.

Weather conditions at the time of the Project assessment were clear, with temperatures in the high 60s (°F) and moderate winds.

EMG reviewed available federal, state, and local records in an effort to identify sites of known or suspected hazardous waste activity located at or near the Project which could have an adverse impact on the Project. In an attempt to determine whether historical uses of the Project and adjacent properties have had an environmental impact on the Project, EMG interviewed individuals knowledgeable about the Project and reviewed available pertinent records and documents. This assessment is based on the evaluation of the information gathered, laboratory analysis of samples collected (when required), and accessibility at the time of the assessment.

The purpose of this report is to provide the Client an assessment concerning environmental conditions (limited to those issues identified in the report) as they existed at the Project. The assessment was conducted utilizing generally accepted Phase I industry standards in accordance with ASTM Standard E 1527-97. The scope of work included an evaluation of:

- The Project history in an attempt to identify any possible ownership(s) and/or uses that would suggest an impact to the environmental integrity of the Project as identified through review of reasonably ascertainable standard historical sources.
- Physical characteristics of the Project as identified through review of reasonably ascertainable topographic, wetlands, flood plain, soils, geology, and ground water data.
- Current Project conditions (as applicable), including compliance with appropriate regulations as they pertain to the presence or absence of:
  - Facility storage tanks, drums, containers (above or below ground), etc.
  - Transformers and other electrical equipment which utilize fluid which may potentially contain PCBs
  - The use of hazardous materials/chemicals and petroleum products, and/or the generation, treatment, storage, or disposal of hazardous, regulated, or medical wastes
- A screening approach for the potential existence of:
  - Asbestos, including the identification of all suspect materials in accessible areas (interior and exterior) and the collection and analysis bulk samples from homogeneous areas of accessible friable and damaged suspect ACM. Any materials not sampled are considered suspect until tested and proven otherwise.

    The basis for "suspect" determination is taken from the materials listed in Appendix G of the USEPA publication *Managing Asbestos in Place* (the "Green Book"). Only materials listed in the Green Book which were installed prior to 1981 are considered suspect.

    The laboratory reports list the samples taken from the Project and their subsequent analytical results using polarized light microscopy with dispersion staining *(Interim Method for Determination of Asbestos in Bulk Insulation Sample — EPA 600/M4-82-020)* for asbestos. Analysis was performed using the "positive-stop" method, whereby analysis is stopped on a group of samples once the first positive sample is analyzed, the entire homogeneous material is considered asbestos-containing.

- Lead in water, based on information provided by the municipal water provider.

■ An evaluation of information contained in programs such as the NPL, CERCLIS, RCRIS, SWF, LUST, SHWS, and other governmental information systems within specific search distances of the Project. This evaluation was performed in order to identify any sites that would have the potential to impact the environmental integrity of the Project.

The regulatory agency report provided is based on an evaluation of the data collected and compiled by a contracted data research company. The report is based on a radius search which focuses on both the Project and neighboring sites which may impact the Project. Neighboring sites listed in governmental environmental records are identified within a specific search distance. The search distance varies depending upon the particular government record being checked. The search is designed to meet the requirements of the current industry approach and the ASTM Standard E 1527-97. The information provided is assumed to be correct and complete.

■ Visual observation of the adjacent properties to identify high-risk neighbors and the potential for known or suspected contamination to migrate onto the Project.

Our services did not include assessments for the presence of pesticides, herbicides or urea formaldehyde foam insulation (UFFI). In addition, no air quality monitoring or chemical analyses of building materials, soil, surface water, or ground water were performed as part of this assessment (except as noted within this report). The site was not assessed for compliance with the Clean Air Act. Observations were made of the site as indicated in this report. Where access to portions of the site were unavailable or limited, EMG renders no opinion as to the presence of hazardous wastes or the presence of indirect evidence of hazardous wastes in those portions of the site.

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1.4. Investigation Requirements Not Met

The assessment was done in accordance with the Phase I ESA Scope of Work (SOW) attached in Appendix 8.6, and the requirements of the SOW were met, with the exception of the following:

- In order to obtain detailed information regarding the nature of the RCRIS, NFRAP and SHWS listings for the Project (Section 4.2), and in accordance with the assessment Scope of Work, EMG requested copies of the file information for these listings through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through these FOIA requests will be summarized and forwarded in an addendum to this report.

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2. Property Information

2.1. Property Name and Address

Industrial Plant
8200 Broadwell Road
Cincinnati, Ohio 45244

2.2. Loan Number

TBD

3. Property Description

3.1. Property Location and Description

The Project is located at 8200 Broadwell Road in Cincinnati, Hamilton County, Ohio 45244. The Project is located in an industrial area and the general vicinity of the Project consists of gravel pits, a landfill, residential land use, and industrial properties.

3.1.1. Legal Description

Review of information available from the Hamilton County Assessors Office indicated that the Project is shown on tax book 500, page 0081 as parcel 0001. The Project is further located within Anderson Township.

3.1.2. Property Description

The Project is situated on approximately 43 acres.

The Project is currently a steel sheet fed lithograph and coating facility and a three piece aerosol can manufacturing facility and contains two tenants (Milton Can Company and BMAT). The Project is currently 100 percent occupied. The Project was constructed in 1952 through 1979 in several phases. Project improvements consist of two one-story structures consisting of the main plant and the boiler house (totaling approximately 463,751 square feet in size and 12,250 square feet in size respectively) and one, one-story ancillary building used for a storage barn (totaling approximately 4,000 square feet in size). Additional Project improvements consist of landscaping, surface-level asphalt paved parking/drive areas, and an sewage treatment facility.

Structural components of the main plant building consist of a slab on-grade foundation; steel I-beam interior framing; brick, block, and metal perimeter walls. This building utilizes both flat and pitched-style roofs. Roofing materials consist of rubber membrane and metal materials.

Structural components of the boiler house building consist of a slab on-grade foundation; concrete block and brick interior framing; and brick perimeter walls. This building utilizes a pitched-style roof. Roofing materials consist of asphalt shingle materials.

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Structural components of the storage barn building consist of a slab on-grade foundation; wooden interior framing; and wooden perimeter walls. This building utilizes a pitched-style roof. Roofing materials consist of asphalt shingle materials.

The Project is serviced by the public water system and an on-site sewage treatment system. The on-site slow rate sewage treatment facility is described in greater detail in Section 5.1.2.

Miscellaneous systems observed included:

- Sewage treatment facility — The Project utilizes an on-site sewage treatment facility, which consists of a pond, an aerator, and a spray field. See Section 6.1.2 for more information concerning this equipment.
- Trash compactor, cardboard baler, and can crusher — There is a trash compactor, cardboard baler, and can crusher located at the Project which utilize hydraulic fluid. See Section 5.2.6 for more information concerning this equipment.

3.1.3. Current Use(s) of Property

The Project is a steel sheet fed lithograph and coating facility and a three piece aerosol can manufacturing facility and is occupied by the tenants listed in the Project Tenants Table in Section 3.1.4.

3.1.4. Owners & Occupants of Property

The current owner of the Project is Milton Can Company. The Property Manager of the Project is David Layton.

The Project is occupied by the following tenants:

Project Tenants	
Tenant	**Description of Operations**
Building 1	
Milton Can Company	Three piece aerosol can manufacturing
BMAT	Steel lithograph and coating facility

Sanitary sewage generated at the Project is disposed of in an on-site slow-rate land sewage treatment system located in the northeastern portion of the Project. The system consists of a settling pond, an aeration system and a spray field. The system was installed in 1985 in accordance with a plan submitted and approved by the Ohio EPA (OEPA). The Application for Permit to Install (PTI) for this system was received by the OEPA on November 23, 1984. This PTI was a result of the OEPA's request that Heekin Can eliminate it's discharge of wastewater to a nearby gravel pit. The OEPA felt that there was a strong potential for ground water contamination from this practice. This system has been assigned permit #05-1299. This is a wastewater permit and not a hazardous waste permit.

This system is equipped with a flow meter and sampling valve at the discharge side of the spray pumps so that the wastewater can be monitored. The soil is analyzed on an annual basis for nutrients (Potassium, Ammonia and Phosphorous), pH, heavy metals, and cation exchange capacity. The ground water is monitored on an annual and semi-annual basis for specific conductance, chemical oxygen demand, nitrate, total phosphorous, hardness, chloride, fluoride and sulfate. According to Ms. Martha Burbeck of the OEPA Surface Water Department, this sewage treatment system is operated in accordance with all applicable codes and regulations, and there are no records of violations for the Project. Historical waste disposal practices are discussed in greater detail in Section 3.1.5.

The Project also maintains multiple air emissions permits related to their manufacturing activities (including permit #0000004136), and maintains a storm water discharge permit through the Ohio EPA (permit #OHG000001) which expires in October of 1999. In addition, the Project maintains hazardous waste generator permit #OHD004253225). EMG requested detailed permit information (permit numbers, expirations dates, etc.) as well as copies of the permits from the Project, however at the time this report was issued this information had not been received. Information received in response to this request, if any, will be forwarded as an addendum to this report.

3.1.5. Summary of Prior ESAs and Environmental Checklists

EMG was provided with a copy of a previous environmental assessment for the Project, conducted by ENVIRON International Corporation (ENVIRON) and dated November of 1996. The Scope of Work for this previous assessment consisted of identifying any on-site or off-site environmental issues which could result in potentially significant liabilities or costs, as well as other noteworthy issues. The assessment was conducted in accordance with the Phase I Environmental Site Assessment Process Standard E1527-94. At the time of this prior assessment, the Project was occupied by Ball's Cincinnati Operation and was used for the manufacturing of aerosol cans. Pertinent information identified in that report is as follows:

- ENVIRON prepared a summary of historical operations at the Project based on interviews and a review of the information provided during the course of their assessment (which included prior environmental reports).

  The Project was owned by the American Nitrogen Corporation (Ancor) in the early 1900s. Ancor reportedly used this site during World War I to manufacture munitions. Alternatively, according to facility personnel, the site and surrounding area may have been developed in the mid-1940s by Ancor for manufacture and storage of military munitions. The center portion of the building has been referred to as the Ancor building, was likely built in the 1940s, and was reportedly used for the storage and manufacturing of military munitions. These manufactured munitions were reportedly stored within concrete bunkers located on what is now the east adjacent property. ENVIRON saw no visual evidence (i.e. concrete footers or bunkers) of historical munitions storage areas at the Project.

  ENVIRON reviewed a 1989 A.T. Kearny report which reportedly stated that Baldwin Piano purchased the property sometime after World War I, constructed the original plant building sometime prior to 1950, and manufactured bomb fuses during World War II. Facility personnel, however, stated that the Ancor facility had been sold to Baldwin Piano Company in the early to mid-1950s. An aerial photograph taken in 1949 shows that the Project contained farm-related structures and farm fields. No structures of an apparent industrial nature were present on-site, nor was there any evidence of historic building foundations. In addition, an undated site drawing provided to ENVIRON by facility personnel indicated that the original on-site building was constructed in 1952. Therefore, the possibility of munitions manufacturing at the Project appears to be anecdotal and unsubtantiated.

Apparently, pianos were manufactured at this site for only a few years before the Project was sold to Heekin Can in 1959. Heekin Can sold the facility to Diamond International Corporation sometime in the 1970s, who in turn sold the plant to Wesray Packaging, Inc. in late 1982 or early 1983. Although ownership of the facility changed several times, Heekin Can, Inc. operated at the site until March 1993, when it was acquired by Ball.

Additions were constructed to the Project building in phases in 1952, 1958, 1960, 1963, 1965, 1968, and 1979.

- At the time of ENVIRON's assessment, the Project was occupied by Ball, an aerosol can manufacturer. Operations consisted of coating/lithography, assembly, and warehousing. Hazardous materials used consisted of solvents (ethers, xylenes, alcohols, methyl ethyl ketone, and methyl isobutyl ketone), lubricants, and other materials. Exhaust hoods were in place to capture fugitive emissions and direct emissions to an incinerator unit. Water-based inks were used, and therefore no solvents were used in the lithographic process.

- Ball operated a waste water treatment facility for sanitary waste water which consisted of a small package system with an activated sludge basin and a settling basin. Treated waste water was discharged to a clay-lined wastewater holding pond prior to being discharged to a six acre spray field adjacent to the packing plant. Sludge was reported to be pumped out and hauled to a landfill for disposal. A Slow Rate Land Treatment System permit was issued to Heekin Can for this process in 1985. Per this permit, the owner of the Project is required to monitor and report various chemical constituents and application rates on a semi-annual basis. EMG's observation during the current site assessment revealed that this system is still being used (Section 5.1.2).

  The facility also reportedly disposed of chromium-containing wastewater from a two-piece can operation to the permitted spray field. Prior to or shortly after completion of the wastewater treatment system, the facility discontinued using chromium in its two piece can coating process. Although on-site chromium contamination was suspected in 1989, it didn't appear to ENVIRON that any testing was ever conducted.

In addition, the facility reportedly generated large volumes of process water from a chrome reduction system which was part of the two-piece can manufacturing process. The effluent from the process was reportedly discharged to an off-site gravel pit pond located to the north of the plant. Analysis of the wastewater in the early 1980s indicated that it did not exhibit a hazardous characteristic, however there were no analytical results to document these findings. The chromium-based can treatment process was discontinued in July 1989 when the two-piece can operation was discontinued.

As part of the current assessment, EMG reviewed documentation pertaining to the slow-rate land treatment system. The Application for Permit to Install (PTI) for this system was received by the OEPA on November 23, 1984. This PTI was a result of the OEPA's request that Heekin Can eliminate it's discharge of wastewater to a nearby gravel pit. OEPA felt that there was a strong potential for ground water contamination from this practice. According to the OEPA files, Heekin Can generated wastewater from washing two-piece aluminum cans. This wastewater was treated by chromium reduction, pH adjustment, flocculation and settling, and the effluent flowed to a sand and gravel pit north of the Heekins property. The discharge volume was approximately 67,000 gallons per day, and the solids were disposed of off-site in a RCRA-approved manner. In addition, sanitary wastewater was treated in a package treatment plant consisting of primary settling, aeration basins and secondary settling prior to discharge to a gravel pit to the northwest of the Heekins property.

Heekin Can planned to eliminate their discharge to the gravel pits by the installation of a land treatment system (the previously discussed spray field system). This system was to be equipped with a flow meter and sampling valve at the discharge side of the spray pumps so that the wastewater could be monitored. The soil was to be analyzed on an annual basis for nutrients (Potassium, Ammonia and Phosphorous), pH, heavy metals, and cation exchange capacity. The ground water was to be monitored on an annual and semi-annual basis for specific conductance, chemical oxygen demand, nitrate, total phosphorous, hardness, chloride, fluoride and sulfate.

According to information provided to EMG by current facility representatives, the off-site discharge of chromium-containing wastewater took place from approximately 1973 to 1985. Milton Can believes that chrome-containing compounds were probably used in plant processes only for the first two or three years of this period and that such wastewaters were always pretreated for metals removal prior to discharge, however no documentation to this effect was provided. Milton's best sense based upon interviews with plant personnel is that the sludges from this pretreatment were never disposed of into the north gravel pit. This corroborates the information contained in the ENVIRON report.

According to information provided to EMG by current facility representatives and through review of OEPA file information, beginning in 1985 wastewater was discharged to the current spray field system with ground water monitoring in place. According to Mr. Randy Stapp, chromium containing wastewater was never discharged to the spray field because all metals had been precipitated out of the wastewater prior to discharge as part of the pretreatment process.

EMG was also provided with copies of soil and groundwater analyses and water level measurements taken from the spray field every six months from 1990 to 1995 and from December, 1997. The ground water samples were analyzed for chloride, chemical oxygen demand, conductivity, fluoride, hardness, nitrate, pH, phosphorous, total phosphate and nitrogen. No analysis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) or metals was performed.

The soil samples were composite samples collected from the top six inches of soil and from a depth of approximately 36 inches, and were analyzed for Arsenic, Silver, Barium, Cadmium, Mercury, Lead, Chromium and Selenium. No analysis for VOCs or SVOCs was performed. The Single Chemical Generic Direct Contact Standard for arsenic in soil at industrial properties is 86 parts per million (ppm), and the highest level of arsenic detected in the spray field soil was 8.48 ppm. The Single Chemical Generic Direct Contact Standard for silver in soil at industrial properties is 200 ppm, and the highest level of silver detected in the spray field soil was less than 4 ppm. The Single Chemical Generic Direct Contact Standard for barium in soil at industrial properties is 140,000 ppm, and the highest level of barium detected in the spray field soil was 93.5 ppm. The Single Chemical Generic Direct Contact Standard for cadmium in soil at industrial properties is 300 ppm, and the highest level of cadmium detected in the spray field soil was less than 2 ppm. The Single Chemical Generic Direct Contact Standard for mercury in soil at industrial properties is 230 ppm, and the highest level of mercury detected in the spray field soil was 5.05 ppm. The Single Chemical Generic Direct Contact Standard for lead in soil at industrial properties is 2,800 ppm, and the highest level of lead detected in the spray field soil was 25.3 ppm. The Single Chemical Generic Direct Contact Standard for chromium in soil at industrial properties is 2,800 ppm, and the highest level of chromium detected in the spray field soil was 20.9 ppm. Finally, a Single Chemical Generic Direct Contact Standard for selenium in soil at industrial properties has not been published, therefore the OEPA uses a Risk Based Concentration level above which further investigation is recommended. The Risk Based Concentration level for selenium in soil at industrial properties is 5,100 ppm, and the highest level of selenium detected in the spray field soil was 10.3 ppm.

Based upon review of the testing data provided, the spray field soils do not appear to have been impacted by metals contamination. However, the analytical parameters for the ground water samples were insufficient for the purpose of determining whether or not the ground water in this area has been impacted by metals, VOCs or SVOCs related to the long-term industrial use of the Project. Therefore, additional analysis of the ground water in this area is recommended.

- Four drum storage areas were noted at the Project. These areas, which were located along the northern side of the building, were in good condition and were not anticipated to impact the Project. In addition, it was reported that Heekin formerly stored hazardous waste on an exterior cement pad which did not have secondary containment. The cement pad and stained soils had been removed and the area was sodded. ENVIRON stated that no documentation regarding the adequacy of this remediation was available.

  According to Project personnel, this pad was removed by Heritage Environmental Services of Hamilton, Ohio in 1995. Following removal of the pad and affected soils, four soil samples were collected and analyzed for TCLP volatile organic compounds. EMG was provided with copies of the analytical results. Analytical results were non-detect except for minimal amounts of Methyl Ethyl Ketone ($\leq$9 parts per billion). Based on the results of this analysis, and the removal of this pad and the affected soils, no further action or investigation regarding this issue is recommended.

- Ball generated greater than 1,000 kilograms of non-acutely hazardous waste per month and was considered a Large Quantity Generator of Hazardous waste. Ball appeared to be in substantial compliance with RCRA requirements, with a few exceptions.

  RCRA inspections on four different dates identified RCRA violations. A total of 23 Solid Waste Management Units (SWMUs) and one Area Of Concern (AOC) were noted. Further actions suggested by A.T. Kearny (1989) consisted of installing secondary containment around the outdoor waste storage areas, sampling and removing an 8,000-gallon AST from the scrap yard, covering plastic pails to minimize solvent emissions, and comparing data from ground water wells to the waste water treatment plant (WWTP) concentrations. It did not appear that Heekin Can acted specifically on these requirements, but they apparently eliminated the SWMUs and the AOC. ENVIRON concluded that given the time period since the inspections were conducted, it was unlikely that any of the issues were unresolved. They also stated that many of these SWMUs had been eliminated or corrected. In addition, Ball began conducting biennial internal environmental compliance audits for hazardous waste management.

EMG did not observe the referenced ground water wells during the site inspection. However, review of OEPA file information identified a site map indicating the locations of these wells. These wells were apparently abandoned when the Project was connected to the municipal water supply. Furthermore, there was nothing to indicate if the recommended water testing was ever performed. Based on the long term industrial use of the site, which included the manufacture of metal cans, and involved the storage and use of numerous hazardous materials, as well as the generation of numerous hazardous wastes, there is the potential that the environmental integrity of the Project has been adversely impacted. Therefore, a subsurface investigation in the vicinity of the Project building is recommended to further determine if the site has been impacted. This investigation is in addition to that previously recommended to address the possible impact from chromium wastewater discharged off-site to the north.

- It was also noted that hazardous waste generated at this site has been transported to several facilities of environmental concern: Mercury Refining, Inc., in Colonie, New York; Laidlaw Environmental Services (aka Triangle Resource Industries) in Greenbriar, Tennessee; Safety-Kleen in New Castle, Kentucky; Coyne Textile Service in Huntington, West Virginia; Safety Kleen in Hebron, Ohio; and Rumpke Sanitary Landfill in Cincinnati, Ohio.

  ENVIRON concluded that given the length of time since the last investigations at the Mercury Refining and Laidlaw Environmental Services sites, it was unlikely that significant future liabilities would be incurred by Ball for disposal of their waste at these locations. Furthermore, Coyne Textile Service had been recently investigated under CERCLIS because of a leak of diesel and/or fuel oil into a tributary of the Ohio River, and ENVIRON concluded that it was unlikely that Ball would be held liable for investigation or remediation costs associated with this release. ENVIRON also concluded that it was unlikely that Ball would be held liable for investigation or remediation costs at any of the other sites, given the sites' regulatory status and/or their financial ability to historical willingness to address any regulatory issues.

  EMG is of the opinion that although it is unlikely the Project would be held liable for investigation or remediation associated with one of these sites, the possibility of some liability does exist. Therefore, EMG recommends that this potential liability issue be addressed by consulting appropriate legal counsel.

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- Scrap metal was discarded into rail cars staged on the north side of the plant. ENVIRON was concerned that lubricants sprayed on metal parts would leak from the cars onto the underlying soils. ENVIRON recommended that a roof be constructed over this area. EMG observed no cover in this area, however no evidence of significant staining was observed and no impact to the Project is anticipated.

- Violations were also recorded regarding air emissions by Ball. However, EMG concludes that based on the nature of the releases (air) and the fact that Ball no longer operates at the Project, no further action or investigation regarding past air emissions is warranted.

- Asbestos was previously identified in pipe insulation, pipe fitting insulation, and floor tile at the Project. It was recommended that this material remain in place with the use of an Operations and Maintenance (O&M) Program. EMG's discussion of this environmental concern is contained in Section 5.2.7.

- Five ground water wells which supplied potable water to the Project were reportedly abandoned in the late 1980s to early 1990s when the Project was connected to the municipal water system. Ground water is reported approximately 50 feet below grade. No evidence of these past wells was noted during ENVIRON's or EMG's assessment. These former wells are not considered a threat to the environmental integrity of the Project and no further action or investigation is recommended.

- Twelve underground storage tanks (USTs) had been located at the Project. Five USTs were located between the two rail spurs north of the lithography building (aka Plant 9), five USTs were located near the northwest corner of the building, one UST was south of the 3,000-gallon water tank, and one UST was on the west side of the boiler house.

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In 1988 to 1989, the five USTs located north of the lithography plant were uncovered and all five tanks, as well as 13 of 15 lines, were found to be leaking. State and local authorities were notified, and the Project was listed as a LUST site. The tanks were abandoned in place by being cut open, cleaned, and filled with pea gravel. It was reported by facility personnel that a soil vapor extraction system was installed in this area, however, no information was provided to ENVIRON or EMG regarding this system. An 'approval of closure' letter issued by the OEPA in August of 1992 which stated that the LUST case was closed was reviewed by ENVIRON. EMG reviewed OEPA file information for the Project (as discussed below) but found no documentation regarding the closure letter or a soil vapor extraction system. However, a copy of this letter (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed, was provided by the Project.

In 1991, the seven remaining tanks were taken out of service. All seven tanks were excavated and disposed of off-site. None of the tanks were observed to be leaking, however, residual petroleum constituents were detected in the soils beneath a gasoline pump island (south of the large water holding tank). Some of the contaminated soils were excavated and disposed of properly, however all of the impacted soil could not be removed due to physical/engineering constraints (the location of the building foundation and utilities). The excavations were all backfilled. When the State Fire Marshal received the closure report, Initial Corrective Actions and a Site Investigation were required for the gasoline pump area. A subsequent investigation consisted of a limited removal of the soils in the area (due to the building foundation), collection of a sample from a drinking water well 250 feet from the tank field, and collection a surface water sample from a gravel pit pond north of the Project. No contamination was identified in the water samples and case closure was granted by the OEPA in March of 1992. To obtain additional information regarding this tank removal, EMG reviewed the OEPA BUSTR file for this site. This review is discussed later in this section.

- There were two 170-gallon open end process tanks located in a small flammable storage room by the can assembly punch press area. These tanks were installed in 1958, and the tank tops were above floor level, but the lower portions were below grade in a concrete vault. The walls of this vault were concrete, but the floor was reportedly gravel or bare soil. It was recommended that the floor of this area be sealed to minimize potential leaks, or that the tanks be raised above grade.

EMG could not locate these tanks during the site assessment, and found no below-grade areas/pits at the Project. As discussed later in Section 4.2.2, EMG contacted the Anderson Township Fire Department regarding file information for the Project address. According to Assistant Chief Best, these tanks were removed from the Project without incident. The fire department and environmental personnel were on-site during the removal, and Mr. Best was unaware of any releases or incidents at the Project.

Furthermore, EMG was provided with a copy of the removal/closure report for these tanks, prepared by The Payne Firm, Inc. and dated February 5, 1999. These tanks served as an introduction and mixing point for bulk compounds used in the compound dispensing system. The main constituents of the compounds mixed were identified as heptane isomers with minor amounts of hexane isomers, alcohol, resins, fillers, pigments and other modifiers. According to this report, these flow-through process tanks were located in the Compound Pump Room from the late 1950s to the mid-1990s. The tanks were situated in a poured concrete vault with a concrete bottom, and were on angle iron legs that were bolted to the floor. Gravel was poured around the tanks from the bottom of the vault to just below grade and then concrete was poured around the tanks level to the existing floor slab grade. The top one foot of each tank extended above the concrete floor of the plant. These tanks were not regulated under the Ohio Fire Marshal's Burea of Underground Storage Tank Regulations (BUSTR). The Anderson Township Fire Department Inspector was contacted prior to the removal activities, and the Project was informed that since the tanks were not regulated under the BUSTR no removal permit was required; however, a permit was provided for documentation purposes and they requested a report summarizing the removal activities.

Removal activities began on October 20, 1998. An air hammer was used to remove the concrete floor on top of the vault and around the tanks. Once the concrete surface had been removed, it was observed that the gravel in the vault was pebble to cobble size which did not permit the collection of confirmatory samples. Some residual hardened compound in the gravel was noted along the north end of the tanks at the surface where no concrete cap was present. The affected gravel was easily recognized because it had been cemented together by the hardened compound. No liquid compound staining was observed at any time during the removal activities. Clean gravel was removed from around the tanks in the vault to a depth of three feet. The bottoms of the tanks were reached at this depth, each tank was cut from the angle iron legs and removed from the vault, and they taken off-site by a scrap metal vendor.

After the tanks were removed, a limited amount of hardened product was observed along the north wall of the vault. This material was removed from the vault and placed in three 55-gallon drums for disposal. Due to the nature of the backfill material (gravel) and the fact that no liquids were observed in the vault, no closure samples could be collected for laboratory analysis. Therefore, the closure was completed based upon visual observation and removal of all the hardened compound from the vault. A concrete floor was observed at a depth of seven feet below the ground surface. After confirming that no residual compound remained in the vault and that the bottom was constructed of concrete, the vault was backfilled with the clean gravel that had been previously removed from around the tanks, and Milton Can was to fill the vault to grade with additional clean gravel and a load-bearing concrete floor.

Based upon this information, these former tanks are not anticipated to have adversely impacted the environmental integrity of the Project, and no further action or investigation is recommended.

- Above ground storage tanks were noted at the Project. The tanks appeared to be in good condition, however, the majority of the tanks were not located in secondary containment. No further action was recommended regarding these tanks. EMG's discussion of ASTs at the Project is contained in Section 5.2.13.

EMG also reviewed information maintained at the State of Ohio Fire Marshal's Office, Bureau of Underground Storage Tanks, which was obtained via the Freedom of Information Act (FOIA) as part of the current assessment. Pertinent information identified in the State files is as follows:

- A Suspected Release Report was filed in June of 1989 during the removal of five 4,000-gallon USTs (removal of the first five tanks, discussed previously in the ENVIRON report). As indicated in the regulatory database report discussed in Section 4.2.1, this LUST incident was assigned incident #319446-00 by the Ohio Bureau of Underground Storage Tank Regulations (BUSTR). During the removal activities, a UST had been filled with water and by the next morning 400 gallons had leaked to the subsurface, indicating the tank was highly perforated. The tank had originally contained Cyclesolve, a mix of acetone, MEK, toluene, xylene, ethyl acetate, and methyl isobutyl ketone. The release report indicates that the remaining tanks also contained various solvents (benzenes, butylcellusolve, ethylene glycol acetate, napthalene, petroleum distillants, etc.). A second Suspected Release Report was filed in June which stated that three of the five tanks had failed tightness testing. No further information regarding the removal of these five tanks was in the BUSTR files.

As discussed previously, an August 20, 1992 letter from the OEPA provided by the Project) concludes that all USTs under the Project's ownership have been removed and properly closed. Based upon this, no further action or investigation regarding these former tanks is warranted or recommended.

- An Underground Storage Tank Closure Assessment Report, prepared by Environmental Quality Management, Inc. (EQM) and dated May 1991 was enclosed in the file. This report summarized the removal activities of the (remaining) seven underground storage tanks from the Project in 1991, and referenced incident #319446-00 which was originally assigned to track a release from the five USTs discussed above. The seven tanks were located in three separate zones located northwest of the plant (See Site Plan enclosed with report in Appendix 8). The seven tanks contained vegetable oil, water based lacquer (2 tanks), waste vegetable oil and water (2 tanks), gasoline, and fuel oil.

  Soil samples were collected from the excavation of four of the tanks (USTs 2, 3, 6 & 7). Petroleum contamination was detected in a sample collected from the pump pad for UST #6 (the gasoline tank). Contamination levels from the pump pad included toluene (5.9 ppm), ethylbenzene (10 ppm), xylenes (110 ppm), and total petroleum hydrocarbons (TPH) at 190 ppm. This contamination was attributed to spills during fueling operations. The contaminated soils could not be removed due to physical/engineering constraints (i.e. the presence of the building foundation and utilities). TPH was detected in the soil samples collected from the vicinity of UST #6, and in the samples collected from the vicinity of UST# 7. TPH levels ranged from 38 to 190 ppm. No indication of releases from the piping for any of these seven tanks was noted. Based on the low levels of contamination identified, no further action was considered to be necessary and the excavation was backfilled.

- In June of 1991, the Ohio Department of Commerce issued a letter to Heekin Can stating that the report for the closure of the gasoline UST had been reviewed and it was evident that soil/water contamination was still present at the Project. Consequently, the Project was required to conduct an Initial Corrective Action and a Site Investigation.

- The required Corrective Action/Site Investigation Report was received by the State Fire Marshal on March 2, 1992. The preparer of this report is unknown.

  According to this report, the UST in question was removed on March 15, 1991, and representatives of the BUSTR and the Anderson Township Fire Department were present at that time. The gasoline dispensing pump and its concrete pad were removed, and odors and visibly contaminated soils were found under the pump pad. However, no free product or water was encountered in the excavation zone.

Multiple soil samples were collected from the walls and floors of the UST excavation. Laboratory analysis of these samples for BTEX (benzene, toluene, ethylbenzene and xylene) and TPH (total petroleum hydrocarbons) found no BTEX, however TPH constituents ranged from 55 to 58 ppm. Analysis of soil samples from the pump dispenser area revealed petroleum constituents up to 110 ppm BTEX and 190 ppm TPH. No benzene was detected, and xylene (the least mobile of the BTEX constituents) was most prevalent, indicating that this was old contamination. The proximity to the building foundation and the presence of underground utilities made further excavation of the impacted soils impractical.

Two aquifers are situated below the Project. The shallower aquifer is located within fluvial deposits and yields up to 500 gallons per minute. The second aquifer source is in Upper Ordovician bedrock and is a poor source of ground water (yields less than 3 gallons per minute). Local borings conducted near the Project indicate that sand and gravel is found to a depth of 70 feet, where clay is encountered. The clay layer is so dense that it is likely to prevent any downward movement of groundwater, acting as an aquiclude between the upper and lower aquifers.

As part of the Corrective Action, downgradient groundwater and surface water quality were monitored. A groundwater sample was collected from a former production well located approximately 250 feet northwest of the gasoline pump pad (the area of concern). In addition, a surface water sample was collected from a gravel pit north of the Project. Significant contamination was not detected in either sample. Therefore, the consultant concluded that there has been no impact to either groundwater or surface water due to the activities associated with the former UST. Based on the low concentrations remaining in the soil, the lack of mobility (clay layer), and the results of the water sampling, the consultant concluded that no risk was posed to the public, employees, or to the environment, and that no further action was warranted.

- The Ohio Department of Commerce issued a letter dated March 27, 1992 which stated that the State Fire Marshal, Bureau of Underground Storage Tank Regulations, received all required information and no further action was required.

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4. Records Review

4.1. General Public Records

4.1.1. Physical Setting Sources

4.1.1.1.Topography

Review of the Madeira, Ohio Topographic Quadrangle, published by the United States Geological Survey (USGS) and dated 1961 (photorevised in 1988), indicated the following:

- The Project has an average elevation of approximately 560 feet above mean sea level. Elevations do not vary significantly across the Project lands. Slope in the general area of the Project is to the north.
- The Project is shown to be improved with five outlined structures. The Project is also identified as containing a water tank.
- The slope of the Project is estimated between approximately zero to two percent in a northerly direction. The nearest surface water feature is a large gravel pit located approximately 300 feet south of the Project. In addition, the Little Miami River is located approximately 900 feet north of the Project.
- The Project appears to be located in the floodplain of the Little Miami River. Furthermore, there are several gravel pits located to the north and south of the Project, and two depressional features located along the eastern/southeastern edge of the Project. One of these depressions (the northernmost) is on the Project, and appears to be the pond associated with the on-site wastewater treatment system (Section 5.1.2). The other depressional feature is on the east adjacent property.

A copy of the topographic map is appended (Section 8).

Observations during EMG's assessment identified that the Project lands are graded to provide slope and swale to direct storm water away from the on-site buildings. The land surface of the Project slopes gently to the north.

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4.1.1.2.Soils

Review of the Soil Survey of Hamilton County, Ohio published by the United States Department of Agriculture Soil Conservation Service (USDA SCS) and dated 1982, indicated the following:

- The Project is located in an area comprised of one soil type known as Eldean (ErA) with estimated slopes between zero and two percent.
- The Eldean soil series is considered to be a well drained, clay loam textured soil with a depth of at least 60 inches.
- General characteristics of the Eldean soil include moderately slow to very rapid permeability and a moderately alkaline to slightly acidic soil reaction. Depth to the seasonal high water table is greater than six feet.

4.1.1.3.Geology

Review of the Geologic Map of the United States, published by the United States Geological Survey and dated 1974, and the Soil Survey of Hamilton County, Ohio published by the USDA SCS and dated 1982, indicated the following:

- The Project is located within the Lexington till plains physiographic province of Ohio, which consists of unconsolidated glacial materials.
- The Project is further located over an Ordovician-aged marine stratified formation with an unknown estimated thickness. Depth to bedrock is greater than 100 feet. The bedrock consists of low porosity limestones and shales

4.1.1.4.Hydrology

Review of the Ground Water Resources of Hamilton County, published by the Ohio Department of Natural Resources and dated 1982, indicated the following:

- The Project is located within the Miami aquifer formation with estimated ground water levels between 20 and 50 feet below ground surface (bgs).
- Shallow ground water flow is expected to follow the ground level slope of surface elevations towards the nearest open body of water or intermittent stream. The direction of this flow at the Project is anticipated to be toward the north or northwest, however the gravel pits in the area might have some impact on the direction of ground water flow in the immediate vicinity of the Project.

- Estimated depth to shallow groundwater is greater than six feet bgs.
- Estimated ground water levels may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations.
- Surface water runoff at the site is directed to catch basins via overland flow. This drainage is directed to the municipal storm water management system.

4.1.2. Historical Use Information

4.1.2.1.Prior Uses of Property

According to Mr. Randy Stapp, On-site Point of Contact and Environmental Manager, the Project was developed in 1952 through 1979 into the current use. Mr. Stapp was unaware of any prior uses of the Project. However, Mr. Stapp stated that the existing buildings at the Project were previously occupied by Baldwin Piano, General Motors, and Heekin Can Company, prior to BWAY's occupation of the Project in 1996. Mr. Stapp indicated that he has been associated with the Project since 1997.

According to information contained in a previous environmental assessment report for the Project, prepared by ENVIRON International Corporation and dated November 1996, the Project was owned by the American Nitrogen Corporation (Ancor) in the early 1900s. Ancor reportedly used this site during World War I to manufacture munitions. Alternatively, according to facility personnel, the site and surrounding area may have been developed in the mid-1940s by Ancor for manufacture and storage of military munitions. The center portion of the building has been referred to as the Ancor building, was likely built in the 1940s, and was reportedly used for the storage and manufacturing of military munitions. These manufactured munitions were reportedly stored within concrete bunkers located on what is now the east adjacent property.

A 1989 A.T. Kearny report reportedly stated that Baldwin Piano purchased the property sometime after World War I, constructed the original plant building sometime prior to 1950, and manufactured bomb fuses during World War II. Facility personnel, however, stated that the Ancor facility had been sold to Baldwin Piano Company in the early to mid-1950s. An aerial photograph taken in 1949 shows that the Project contained farm-related structures and farm fields. No structures of an apparent industrial nature were present on-site, nor was there any evidence of historic building foundations. In addition, an undated site drawing provided to ENVIRON by facility personnel indicated that the original on-site building was constructed in 1952. Therefore, the possibility of munitions manufacturing at the Project appears to be anecdotal and unsubtantiated, and no further action or investigation regarding this issue is recommended.

Apparently, pianos were manufactured at this site for only a few years before the Project was sold to Heekin Can in 1959. Heekin Can sold the facility to Diamond International Corporation sometime in the 1970s, who in turn sold the plant to Wesray Packaging, Inc. in late 1982 or early 1983. Although ownership of the facility changed several times, Heekin Can, Inc. operated at the site until March 1993, when it was acquired by Ball.

Based upon interviews and a review of prior environmental reports, chain of title information, local agency records, zoning records, city directories, and aerial photographs; the previous Project uses include farmland (prior to 1938-1952), a piano manufacturing facility (1952-1958), and Heekin Can Company (1958/1959-1996) prior to commencement of the current Project operations in 1996.

4.1.2.2.Recorded Land Title Records

Review of the available deed records indicates that the Project has been owned by Milton Can Company since 1996. Deed records were researched back to 1957. Due to a lack of previous deed references and incomplete property descriptions, EMG was unable to trace the Project's chain of title prior to 1957.

No environmental encumbrances were identified for the Project through review of available land title records.

Review of available deed records did not identify any previous environmentally suspect ownership, easements, right of ways or other environmental entries/restrictions associated with the Project.

4.1.2.3.Chain Of Title

Deeds and titles identified are as follows:

Owner	Year Purchased
Milton Can Company	1996
Heekin Can Inc.	1993
Corporate Properties	1982
Heekin Can Company	1965
The Heekin Can Company	1958
General Motors Corporation	1958
Baldwin Piano Company	1957

4.1.2.4.Aerial Photographs

Review of the 1938 aerial photograph, available from the Hamilton County USDA SCS, indicated the following:

- The Project is improved with two small farm type structures and scattered vegetation. The buildings are situated in the southwestern portion of the Project. The remainder of the Project consists of farmland. Vehicular access is available from Broadwell Road.
- The areas north, south, and west of the Project are shown as farmland. The area east of the Project is shown as railroad tracks, beyond which is farmland.

The 1950 aerial photograph, available from the Hamilton County USDA SCS, differs from the 1938 aerial photograph in that:

- The area south of the Project is shown as residential land use and farmland.

The 1956 aerial photograph, available from the Hamilton County USDA SCS, differs from the 1950 aerial photograph in that:

- The Project is improved with two structures, surface-level parking and scattered vegetation. The large industrial building and a smaller building (the boiler house) are situated in the north central portion of the Project.

The 1962 aerial photograph, available from the Hamilton County USDA SCS, differs from the 1956 aerial photograph in that:

- An addition has been built on the western portion of the industrial building at the Project.
- The area north of the Project is shown as a gravel pit. The area south of the Project is shown as residential land and gravel pits.

The 1968 aerial photograph, available from the Hamilton County USDA SCS, differs from the 1962 aerial photograph in that:

- An addition has been built on the western portion of the industrial building at the Project.
- The area west of the Project is shown as farmland and a gravel pit.

The 1975 aerial photograph, available from the Hamilton County USDA SCS, differs from the 1968 aerial photograph in that:

- The area east of the Project is shown as railroad tracks and wooded land, beyond which is industrial land use. The area west of the Project is shown as a gravel pit.

The 1987 aerial photograph, available from the Hamilton County USDA SCS, does not differ significantly from the 1975 aerial photograph, except that additional parking has been added.

The 1990 aerial photograph, available from the Hamilton County USDA SCS, does not differ significantly from the 1987 aerial photograph.

Copies of the 1938, 1950, 1956, 1962, 1968, 1975, 1987, and 1990 aerial photographs are appended (Section 8).

4.1.2.5.Fire Insurance Maps

EMG attempted to review historical maps of the Project and adjacent properties at the Cincinnati Public Library. But according to the reference librarian, historical maps have never been developed for the area of the Project. In addition, there was no historic map coverage for the Project in the VISTA Historic Map Collection, for the period covering the years 1867-1994. As a general rule, the absence of historical maps for a given area tends to support evidence that the area was not significantly developed.

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4.1.2.6.City Directories

Historical city directories were reviewed for the Project at the Cincinnati Public Library. City directories have tenant listings by address. This review revealed the following information:

- **1931, 1935, 1940, 1945, 1951, 1954, 1961, 1967, 1971, 1974, 1980, 1985, and 1991** — The Project address is not listed. Additionally, Broadwell Road addresses in the vicinity of the Project are not listed in either City of Cincinnati or Hamilton County city directories.
- **1995** — The Project address is listed as Ball Corporation.

  Adjacent properties include industrial land uses.
- **1998** — The Project address is listed as Brockaway Standard New Jersey (metal cans).

  Adjacent properties include industrial land uses.

City directories were not identified between the years 1915 and 1931. Additionally, city directories date back to 1855, however, these directories are not listed by address making further research impractical.

Copies of the Historical City Directory pages were not available because of out of order photocopy machines; city directories are not permitted to be removed from the third floor and therefore copies were not available. However, hand written field notes of the Historical City Directory pages are appended (Section 8).

4.1.2.7.Other Maps and Data

No other maps or historical data were identified.

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4.1.3. Properties and Areas Surrounding the Site

4.1.3.1.Current Uses of Adjoining Properties

The general vicinity of the Project consists of a landfill, a gravel pit and residential and industrial land uses. The following adjacent properties were observed:

North — The Project is bordered to the north by a gravel pit, beyond which is the Little Miami River.

East — The Project is bordered to the east by wooded land and the Anderson Township Fire Department. Further east is are railroad tracks and Senco, which is a nail and staple gun, nails, and staples manufacturer.

South — The Project is bordered to the south by Broadwell Road, beyond which is residential land use, a gravel pit and the Anderson Township Landfill. The Anderson Township landfill is identified on the SWF listing and is discussed in greater detail in Section 4.2.1.

West — The Project is bordered to the west by a gravel pit.

The adjacent property use is not anticipated to impact the environmental integrity of the Project.

4.1.3.2.Past Uses of Adjoining Properties

The aerial photographs dated 1938, 1950, and 1956 showed the adjacent properties as farmland.

The aerial photographs dated 1962, 1968 and 1975 showed the adjacent properties as a mixture of farmland, gravel pits and residential use.

4.1.3.3.Current Uses of Surrounding Areas

Properties observed in proximity to the Project included the following:

- The area to the north of the Project is currently a gravel pit.

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- The area to the east of the Project is currently wooded land and industrial land.
- The area to the south of the Project is currently a gravel pit, residential land use and a landfill.
- The area to the west of the Project is currently a gravel pit.

4.1.3.4.Past Uses of Surrounding Areas

Historical sources indicated:

- The area to the north of the Project was historically farmland.
- The area to the east of the Project was historically farmland.
- The area to the south of the Project was historically farmland.
- The area to the west of the Project was historically farmland.

4.2. Environmental Records Reviews and Interviews

4.2.1. Mapped Database Records Search

NPL, RCRA-TSD, RCRA-CORRACTS, SHWS, CERCLIS, NFRAP, SWF, LUST, UST, RCRIS-Generators, and ERNS listings were reviewed. Based on review of the regulatory database report, and by cross-referencing name, address, and zip code, EMG concludes that the Project is listed on the RCRIS-Generators, LUST, NFRAP, ERNS, and HWS databases. Furthermore, the area search of the Project for sites listed in these databases identified various sites outlined in the Regulatory Agency Data Report Findings included in the Appendices, Section 8. Information about the listed sites is included in the following database discussions.

EMG reviewed the unmappable sites in the database report, cross-referencing addresses and site names. Unmappable sites are environmental risk sites that cannot be plotted with confidence, but can be located by zip code or city name. In general, a site cannot be geocoded because of inaccurate or missing location information in the record provided by the agency. Any identified unmappable site is included in the corresponding database discussion that follows.

The following table indicates the number of sites identified for each regulatory database:

Database	On-site	Adjacent	Remaining within 1/8 mile	1/8 - 1/4 mile	1/4 - 1/2 mile	1/2 - 1 mile
NPL	0	0	0	0	0	0
RCRA-TSD	0	0	0	0	0	N/A
RCRA-Corracts	1	0	0	0	0	0
CERCLIS	0	0	0	0	0	N/A
NFRAP	1	0	0	0	0	N/A
SHWS	1	0	0	0	0	0
SWF	0	1	0	0	0	N/A
LUST	1	0	0	0	1	N/A
UST	0	0	N/A	N/A	N/A	N/A
RCRIS-Generators	1	0	N/A	N/A	N/A	N/A
ERNS	1	N/A	N/A	N/A	N/A	N/A

- **NPL Listing:** The National Priorities (Superfund) List is United States Environmental Protection Agency (USEPA's) database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund Program.
  - Based on review of the regulatory database report, neither the Project nor any sites within 1.0 mile of the Project were identified on the NPL database.

- **RCRA-TSD Facilities Listing:** The USEPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA-TSD database is a compilation by the USEPA of reporting facilities that transport, treat, store or dispose of hazardous waste.
  - Based on review of the regulatory database report, neither the Project nor any sites within 0.5 mile of the Project were identified on the RCRA-TSD database.

- **RCRA-CORRACTS Facilities Listing:** The USEPA's Resource Conservation and Recovery Act (RCRA) Corrective Action-sites Listing contains information pertaining to hazardous waste treatment, storage, and disposal facilities (RCRA TSD) which have conducted, or are currently conducting, a corrective action(s) as regulated under RCRA.

  - Based on review of the regulatory database report, neither the Project nor any sites within 1.0 mile of the Project were identified on the RCRA-CORRACTS database. However, review of the RCRA TSD and Generators Data on page 10 of the regulatory database report indicates that the Project is a CORRACTS site (listed as Milton Can Company).

    According to the information provided by the database report, a 9/28/89 RCRA Facility Assessment (RFA) of the Project determined that a RCRA Facility Investigation (RFI) was necessary. Medium Priority corrective action prioritizations were assigned to the facility on 9/27/91 and 3/31/94. In order to obtain additional information regarding this listing, EMG requested copies of the RCRA file information for the Project through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. Any pertinent information received through this FOIA request will be summarized and forwarded in an addendum to this report.

    Although the requested regulatory information has not been received, review of a 1996 ENVIRON report (Section 3.1.5.) yielded some additional information. According to this previous environmental report, a RCRA Facility Assessment (a preliminary Review/Visual Site Inspection or PR/VSI) of the Project was conducted by A.T. Kearny in 1989. A RCRA Facility Investigation (RFI) determination was conducted and no RFI was imposed. As of 1996, no subsequent RCRA Corrective Action studies or investigations had been undertaken at the Project.

- **SHWS Listing:** This database is a comprehensive listing of sites which are considered to be a threat to the public health and welfare by the Ohio Environmental Protection Agency Division of Emergency and Remedial Response. Further, this is the ASTM equivalent of a State Hazardous Waste Sites List.

  - Based on review of the regulatory database report, no sites within 1.0 mile of the Project were identified on the SHWS database. However, the Project was identified on the SHWS database.

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TM

Heekin Can Division
8200 Broadwell Road
Cincinnati, Ohio 45244
Distance: N/A (The Project)
Direction: N/A (The Project)

The above facility is a former Project occupant. The status of this site is not listed. However, this site is listed as a NFRAP site. NFRAP indicates that further action is not required by the regulatory agency (i.e., a case-closed status). A case-closed status is awarded only when contamination, if any, has been investigated and/or remediated in accordance with currently accordance with currently accepted regulatory standards. Additionally, this site has received No Further Action status from the Ohio State Fire Marshal for a LUST listing which indicates that contamination has been remediated to acceptable levels as established by the Ohio State Fire Marshal for underground storage tanks.

Based on the listed regulatory status, no further investigation appears to be warranted. However, in order to obtain detailed information regarding the nature of this SHWS listing, and in accordance with the assessment Scope of Work, EMG has requested copies of the file information for this listing through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through this FOIA request will be summarized and forwarded in an addendum to this report.

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- **CERCLIS Listing:** This database is a compilation of sites which the USEPA has investigated or is currently investigating for a release or threatened release of hazardous substances.
  - Based on review of the regulatory database report, neither the Project nor any sites within 0.5 mile of the Project were identified on the CERCLIS database.
- **NFRAP Listing:** This database contains information regarding sites which have been removed from the USEPA CERCLIS database.
  - Based on review of the regulatory database report, no sites within 0.5 mile of the Project were identified on the NFRAP database. However, the Project was identified on the NFRAP database.

    ™ **Heekin Can Division (SIA)**
    8200 Broadwell Road
    Cincinnati, Ohio 45244
    Distance: N/A (The Project)
    Direction: N/A (The Project)

    The above facility is a former Project occupant. More information regarding this former tenant at the Project is presented in the HWS listing above. The identification of a site on the NFRAP database indicates that the regulatory agency with oversight required no further action (i.e., a case-closed status). The regulatory agency awards a case-closed status only when contamination, if any, has been investigated and/or remediated in accordance with currently accepted regulatory standards. As such, this site is not anticipated to adversely impact the environmental integrity of the Project. Therefore, no further action or investigation appears warranted regarding this listing.

However, in order to obtain detailed information regarding the nature of this NFRAP listing, and in accordance with the assessment Scope of Work, EMG has requested copies of the file information for this listing through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through this FOIA request will be summarized and forwarded in an addendum to this report.

- **SWF Listing:** This database is a comprehensive listing of all State Permitted Solid Waste Landfills.
  - Based on review of the regulatory database report, the Project was not identified on the SWF database; however, one SWF site was identified within 0.5 mile of the Project.
    - ™ **Anderson Township Landfill**
      South of junction of Broadwell and Roundbottom Road
      Anderson Township, Ohio
      Distance: Adjacent
      Direction: South

      The above site is located beyond Broadwell Road to the south of the Project. This site is listed as having been closed in 1986 and is an inactive solid waste facility. Based on the inactive status of this facility, as well as its absence from any other databases of known or suspected contamination, this site is not anticipated to impact the Project.

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■ **Leaking Underground Storage Tanks (LUST)**

- Based on review of the regulatory database report, both the Project and one site within 0.5 mile of the Project were identified on the LUST database.

  ™ **Heekin Can Inc.**
  8200 Broadwell Road
  Cincinnati, Ohio 45244
  Distance: N/A (The Project)
  Direction: N/A (The Project)

  The above facility is a former Project occupant, and the LUST incident has been assigned incident #319446. Information in the LUST database indicates that this site has received No Further Action status from the Ohio State Fire Marshal (OSFM) Bureau of Underground Storage Tank Regulations (BUSTR). No Further Action indicates that a site has been remediated to acceptable levels as established by the OSFM. Additionally, no current underground storage tanks are located at the Project (Section 6.2.13).

  Review of the BUSTR LUST file for this site revealed that incident #319446 was originally assigned to a release associated with the removal of five USTs from the outside the northeast corner of the building. This incident number was also assigned to a different release associated with seven different USTs removed from outside the north central and northwest portions of the building. Review of the BUSTR file information revealed that the LUST case associated with the removal of the seven USTs was closed with no further action required. In addition, EMG was provided with a copy of a letter from the OEPA (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed. This issue was discussed in detail in Section 3.1.5.

™ **Interpave Corporation**
8479 Broadwell Road
Cincinnati, Ohio 45244
Distance: 0.49 mile
Direction: Southeast

The above site is located approximately 2,500 feet southeast of the Project. This site has been assigned a No Further Action status by the OSFM BUSTR. No Further Action indicates that a site has been remediated to below OSFM action levels, and no more action or investigation is required by the regulatory agency. Based on its distance from the Project, and its regulatory status, this site is not anticipated to impact the Project.

- **Underground Storage Tanks (UST)**
  - Based on review of the regulatory database report, neither the Project nor any adjoining properties were identified on the UST inventory.

- **RCRIS-Generator Listing:** The USEPA identifies and tracks hazardous waste from the point of generation to the point of disposal through the Resource Conservation and Recovery Information System (RCRIS). The RCRIS-Generators database is a compilation by the USEPA of facilities that report hazardous waste generation.
  - Based on review of the regulatory database report, no adjoining properties were identified on the RCRIS-Generator listing. The Project, however, was identified on the RCRIS-Generator listing.

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™ **Milton Can Company Inc.**
8200 Broadwell Road
Cincinnati, Ohio 45244
Distance: N/A (The Project)
Direction: N/A (The Project)

The above facility is a current occupant of the Project and is listed as a large quantity generator of hazardous waste. Although the regulatory database report references Milton Can Company, the listings in the database report are dated 1985 through 1992, during which time the Project was actually occupied by Heekin Can. Information contained in the RCRIS-Generator database indicates that this site is not listed in the RCRA Administrative Action Tracking System (RAATS), but the Project is apparently a CORRACTS site. According to the database report, a RCRA Facility Assessment (RFA) was completed and a determination of need for a RCRA Facility Investigation (RFI) was recorded on 9/29/89. Additionally, corrective action prioritizations were performed in 1991 and 1994. These activities were discussed in the ENVIRON report discussed in Section 3.1.5., and any related concerns were discussed in that section.

The RCRIS-Generator listing identified five RCRA-related violations (Generator – Any Requirements). These violations were resolved on 10/22/86 (#OHD004253225S0001), 10/12/88 (#OHD004253225S0002 and 0003), and 11/29/91 (#OHD004253225S0001), but a resolution date for #OHD004253225S0004 was not provided, indicating that it has not yet been resolved.

Six written informal enforcement actions were recorded, but no detailed information regarding the specific nature of these enforcement actions was provided in the database report.

One RCRA 3008(a) compliance order. According to facility personnel and the 1996 ENVIRON report, the compliance order was issued for a failure to develop and submit a waste minimization program, and a $25,000 penalty was assessed against Heekin Can. Facility personnel reported that a waste minimization program has been developed to comply with the compliance order. More information regarding the hazardous waste generated at this tenant space is included in Section 5.2.4.

Based on the current regulatory status and the absence of reported releases, there is nothing in the RCRIS listing to suggest that this facility has had an adverse impact on the environmental integrity of the Project. However, in accordance with the assessment Scope of Work, EMG has requested copies of the file information for this listing through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through this FOIA request will be summarized and forwarded in an addendum to this report.

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- **Emergency Response Notification System (ERNS):** The ERNS is a national database used to collect information on reported releases of oil or hazardous substances.
  - Based on review of the regulatory database report, the Project was identified on the ERNS database. Information in the ERNS listing indicates that a release occurred on September 11, 1995 at 4:20 PM. The release occurred during Heekin Can Company's occupation of the Project. The release consisted of a 55-gallon drum spill during a transfer from an 800-gallon bulk tank drum overflow. The material released was a coating solvent (xylene, butanol, isophorone, and MIBK), and the quantity released was reported as approximately 32 pounds which were released to a concrete surface. The release is listed as secured, a contractor was hired for the cleanup, and the Fire Department was on the scene. Based on the above information, this release is not anticipated to have had an adverse impact on the Project.

4.2.2. Regulatory Agency Records Reviewed

EMG contacted the Anderson Township Fire Department regarding file information for the Project address. Records dating back to 1996 are maintained by this department. According to Assistant Chief Best, half tanks (which are partially above ground and partially below ground storage tanks) were removed from the Project without incident. The fire department and environmental personnel were on-site during the removal. The removal of these tanks was discussed in detail in Section 3.1.5. According to Mr. Best, there are no other underground storage tanks at the Project. Mr. Best was unaware of any releases or incidents at the Project.

EMG contacted the Ohio Environmental Protection Agency, Surface Water Division regarding file information for the Project address. Records dating back to the 1980s are maintained by this department for the Project address. According to Ms. Martha Burbeck, the slow-rate sewage treatment system at the Project is permitted correctly and recent analytical results are within acceptable levels. No environmentally significant information was identified.

EMG contacted the Anderson Township Building Department regarding permits for the Project address. Records dating back to 1987 are maintained by this department. According to Mr. Harry (last name withheld), no significant building information was available for the Project address. No environmentally significant information was identified.

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Review of the available zoning records from the Anderson Township Zoning Department indicates that the Project is currently zoned Industrial Development (ID). The Project has maintained the ID zoning designation since 1996. Prior to the current zoning designation the Project was zoned Heavy Industrial (G) from 1949 to 1996. According to the records, no additional zoning changes were listed for the Project. Records dating back to 1949 are maintained by this department. Available zoning records do not indicate the potential presence of past military usage in conjunction with the Project lands.

4.2.3. Interviews with Regulatory Agency Officials

EMG contacted Ms. Sue Kist of the OSFM BUSTR regarding file information for the former USTs at the Project (Section 5.2.1). According to Ms. Smith a Freedom of Information Act (FOIA) form must be submitted in order to obtain file information for a specific facility. EMG submitted a FOIA form to the OSFM BUSTR in order to obtain additional information regarding former USTs at the Project. This information was subsequently received and reviewed, and is summarized in Section 3.1.5.

5. Property Reconnaissance and Investigation

EMG conducted an on-site Environmental Site Assessment of the Project that consisted of a walk-through observation of the accessible areas and interviews with facility personnel and local agency representatives. On-site activities and/or interviews were conducted by Mr. Gregory P. Shingler, EMG Project Manager, with:

- Mr. Randy Stapp, On-site Point of Contact and Environmental Manager

Areas accessed included all interior areas; all common areas; all exterior areas; and the Project boundaries.

Weather conditions at the time of the Project assessment were clear, with temperatures in the high 60s (°F) and moderate winds.

5.1. General Property Characteristics

5.1.1. Solid Waste Disposal

The Project/tenants generate the solid wastes listed in the Solid Waste Generation Table below.

Solid Waste Generation			
Type of Waste	Generation Process	Pre-Disposal Storage	Disposal Method
■ Non-Hazardous Solid			
Municipal trash	N/A	Dumpsters	Contracted waste hauler
Scrap metal	Aerosol can manufacturing	Rail car	Contracted waste hauler

No overflowing, excessive odors, or excessive ground trash were observed in the vicinity of the dumpsters. No hazardous, regulated, or medical wastes were noted in the dumpsters.

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5.1.2. Sewage Discharge and Disposal

Sanitary sewage generated at the Project is disposed of in an on-site slow-rate land sewage treatment system located in the northeastern portion of the Project. The system consists of a settling pond, an aeration system and a spray field. The system was installed in 1985 in accordance with a plan submitted and approved by the Ohio EPA (OEPA). Furthermore, the system was installed as a result of the OEPA's request that Heekin Can eliminate it's discharge of wastewater to a nearby gravel pit; the OEPA felt that there was a strong potential for ground water contamination from this practice. As discussed previously in Section 3.1.5, the off-site discharge of chromium-containing wastewater reportedly took place from approximately 1973 to 1985. Milton Can believes that chrome-containing compounds were probably used in plant processes only for the first two or three years of this period and that such wastewaters were always pretreated for metals removal prior to discharge, however no documentation to this effect was provided.

The average daily amount of wastewater applied each month is reported to the OEPA on a quarterly basis. Additionally, the wastewater is sampled and analyzed for chemical oxygen demand (COD), total suspended solids, total dissolved solids, pH, fluoride, sulfate, total chromium on a semi-annual basis. These results are submitted to the OEPA. According to Ms. Martha Burbeck of the OEPA Surface Water Department, this sewage treatment system is operated in accordance with all applicable codes and regulations, and there are no records of violations for the Project. Based on this information no adverse impact to the Project from this system is anticipated, and no further action or investigation regarding the current operation of this system is recommended. Permits and recent soil and ground water testing results are appended (Section 8).

5.1.3. Surface Water Drainage

Storm water from the roofs is directed to the storm sewer system via internal roof drains as well as to the ground via gutters and downspouts. Storm water from drive and parking surfaces is directed to the storm sewer system via surface runoff. Storm water from vegetated surface areas naturally infiltrates into the subsurface and is directed to catch basins via surface runoff.

There was no information available within the municipal files indicating that the Project is not in compliance with federal, state, or local storm water drainage requirements.

5.1.4. Heating and Cooling

HVAC systems observed consisted of the following:

- Heat and air-conditioning are supplied to the office areas of the Project from combination electrically operated and natural gas-fired units. Conditioned air is distributed via thermostatically controlled, ducted supply and plenum return systems. Where observed, duct work associated with the HVAC systems was insulated with fiberglass. The exhaust flues associated with the natural gas-fired units were observed to be uninsulated.
- Heat is also supplied to the Project via a recirculating hot water system. Water is heated by a natural gas-fired boiler, and is distributed via piping to radiators throughout the Project. The majority of the piping associated with the heating system was observed to be uninsulated. However, portions of the piping in the boiler house were observed to be insulated with suspect asbestos-containing materials. These materials were sampled and submitted for analysis and are described in greater detail in Section 6.2.7. The exhaust flue associated with the natural gas-fired boiler was observed to be uninsulated.

Review of previous environmental information for the Project (Section 3.1.5) revealed that heating oil was formerly used to heat the boiler house at the Project. Interviews with facility personnel during the current assessment did not reveal any additional historical sources of heat other than natural gas.

5.1.5. Wells and Cisterns

No cisterns were observed at the Project.

The Project contains three ground water monitoring wells which are located in the spray field and are used to monitor water quality in that area, as required by the operating permit issued by the OEPA.

5.1.6. Wastewater

No wastewater discharges were identified at the Project.

5.1.7. Additional Property Observations

No additional features of concern were observed at the Project.

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5.2. Environmental Hazards

5.2.1. Hazardous Substances and Petroleum Products Used or Stored at Property

Visual observation for the use and/or storage of hazardous materials and petroleum products was performed. The following products listed in the Observed Materials Table below were identified.

Observed Materials			
Type of Material	**Quantity**	**Storage Location**	**Use**
Routine janitorial and maintenance supplies	Retail sized containers	Storage closets throughout the Project	Project maintenance and upkeep
Propane (tanks)	Four – 5,000-gallon ASTs	ASTs in the northeastern portion of the Project	Backup fuel to fire on-site equipment
Propane (cylinders)	Approximately 40 cylinders	Within caged racks	Powers tow motors
Nitrogen (liquid)	One – 1,000-gallon AST	AST north of main Project building	Welding
Inks	Approximately 100 – five pound containers	Within the ink storage room	Lithography
Solvents (petroleum-based)	Approximately 20 – 55-gallon drums	Storage rooms	Cleaning and thinning
Parts washer solvent (petroleum-based)	Approximately 750 gallons	Within parts washers (approximately 30)	Parts washing
Oils	Approximately 20 – 55-gallon drums	Storage rooms	Machinery maintenance
Grease	Approximately 20 – 55-gallon drums	Storage rooms	Machinery maintenance

According to Mr. Randy Stapp, Environmental Manager, the Project does have an *"Employee Right-to-Know"* hazard communication program. Material Safety Data Sheets (MSDS) are available on-site.

The identified chemicals, materials, and products were observed in their sealed, original containers. According to Mr. Leon J. Parker, Director of Engineering & Technology for the Project, there are no large quantities of petroleum stored at the Project, but the Project does have an SPCC plan. Mr. Parker stated that the petroleum products stored at the Project are used for machine lubrication and are stored in small quantities in drums ranging in size from 30 to 55 gallons.

In addition to the materials discussed above, the Project uses several different types of coatings to protect the interior and exterior surfaces of the cans from the products they hold and from the atmosphere. According to Mr. Parker, the manufacturers for these coatings are Glidden, Valspar, Akzo, PPG, Dexter, Unichem, and National Coatings. The specific chemical constituents of the coatings vary depending on the product, but they generally consist of a resin, a color constituent and a blend of solvents which are petroleum based. Mr. Parker stated that none of the solvents in the coatings are chlorinated.

5.2.2. Labeled Containers and Drums

The labeled containers and drums identified on-site are for the materials and products identified in the Observed Materials Table in Section 5.2.1 and the wastes identified in the Waste Generation Table in Section 5.2.4. The containers and drums are in good condition with no spills, leaks or stains observed in the area of container and drum storage.

5.2.3. Unlabeled Containers and Drums

There were no unlabeled containers or drums observed at the Project.

5.2.4. Hazardous, Regulated, Medical Waste/Disposal Locations

Visual observation for the generation, treatment, storage, and disposal of hazardous, regulated, and medical wastes was performed.

The Project is not involved in the generations treatment, storage, or disposal of regulated or medical wastes. However, EMG identified the following hazardous waste generation listed in the Waste Generation Table below.

Waste Generation			
Type of Waste	Generation Process	Pre-Disposal Storage	Disposal Method
■ Hazardous			
Solvents	Cleaning	Drums and totes	Licensed waste hauler (Heritage Environmental Services, Inc.)
Coatings	Lithography and can coating	Drums and totes	Licensed waste hauler (Heritage Environmental Services, Inc.)
Parts washer solvents (petroleum-based)	Parts washing	Within the parts washers	Licensed waste hauler (Safety Kleen)

Review of hazardous waste manifests and the facility waste management program indicated that the waste disposal operations appear to be performed in accordance with regulatory requirements.

5.2.5. Evidence of Releases

Minor staining was observed on the concrete floors in the area of waste coating pre-disposal storage. Floor drains or other subsurface entry points were not located in the areas of staining. In addition, the concrete floors appeared intact and no cracks were observed in the area of staining. The staining appeared to be a result of minor spills during the transfer of waste coatings to storage drums and totes. This staining appeared surficial in nature and is not anticipated to have a negative impact on the environmental integrity of the Project. No other spills or leakage was observed in the areas of hazardous material storage/usage or waste generation/pre-disposal storage.

5.2.6. Polychlorinated Biphenyls (PCBs)

The Project is supplied with underground secondary electrical service from six pad-mounted exterior electrical transformers. The transformers are designated as the property of Cincinnati Energy (Cinergy), the public utility. Contact with a utility representative indicated that the units are classified as potentially PCB-contaminated, defined as containing PCB concentrations of at least 50, but less than 500 ppm (parts per million). To date, PCB-contaminated transformers are not required to be removed from service. PCB-contaminated transformers, like most potential environmental concerns, can be maintained in place by use of a periodic monitoring program. The units should be periodically inspected for leakage. If leakage is visible, the Project owner/manager should contact the public utility, who will remediate the situation. Should the units have to be replaced, the utility is responsible, provided the cause is equipment failure, not customer misuse. No leakage of the transformers was observed at the time of the assessment.

A cardboard baler, a trash compactor, and a can crusher are located at the Project. PCB-containing hydraulic fluid has not been manufactured since 1979. According to Mr. Leon Parker, the installation dates of these pieces of equipment are unknown. Therefore, EMG is of the opinion that the hydraulic fluid in this equipment potentially contains PCBs. No visual indication of leakage was observed in areas of this equipment, which should be periodically inspected for leakage. If leakage is identified, the unit should be repaired and any fluid or fluid-soaked waste disposed of in accordance with applicable federal, state, and local regulations.

No additional equipment with the potential to utilize dielectric or hydraulic fluid was observed during the site assessment.

5.2.7. Asbestos-Containing Material (ACM)

As indicated in Section 3.1.5, asbestos was previously identified in the pipe insulation, pipe fitting insulation, and floor tile at the Project. The prior consultant recommended that this material remain in place with the use of an Operations and Maintenance (O&M) Program. Copies of the analytical results from this previous testing were not available.

The ACM survey for the current assessment was conducted by EMG Project Manager Mr. Gregory P. Shingler (AHERA Certification Number 33364).

As-built/renovation-site plans, drawings, and specifications were not available for review.

Suspect ACM in the form of floor tiles, wallboard, and pipe insulation were identified. According to Mr. Stapp, ceiling tiles identified throughout the Project were installed after 1981. Based on their date of installation, the ceiling tiles at the Project are not suspect ACM.

Random samples of the accessible friable and damaged suspect ACM were collected. Each of the samples collected and the results of the associated laboratory analysis are listed in the Asbestos Screening Sampling Table below.

Asbestos Screening Sampling Table							
No.	Material Type	Location	Friable	Condition	Analytical Results	Potential For Disturbance	Estimated Quantity
1A 1B 1C	Pipe insulation	Boiler house, center of south room	Yes	Good	25% Amosite, 35% Chrysotile	Low	200 LF
2A	QA/QC sample (pipe insulation)	Boiler house, center of north room	Yes	Good	25% Amosite, 35% Chrysotile	Low	200 LF

LF = Linear Feet

The following suspect materials were not sampled, but should be assumed to contain asbestos, unless they are sampled and proven otherwise.

Assumed Asbestos-Containing Materials					
Material Type	Location	Friable (Yes/No)	Condition (Potential for Disturbance)	Estimated Quantity	Reason Not Sampled
Floor tiles	Office areas	No	Good	40,000 SF	Per Scope of Work
Wallboard/joint compound	Throughout the Project	No	Good	100,000 SF	Per Scope of Work

Asbestos-containing material (ACM) in the form of floor tiles, and in the form of pipe insulation and pipe fitting insulation in the boiler room, was previously identified at the Project. In addition, suspect ACM in the form of additional floor tile and wallboard/joint compound were observed at the Project. The materials observed can be maintained in place if an Operations and Maintenance (O&M) Program is developed and implemented. A properly designed O&M Program is sufficient to maintain the Project in accordance with current regulatory standards and sound business practice. ACM maintained with an O&M Program can remain in place, provided the ACM remain intact and undisturbed.

Associated cost estimate to develop an Operations and Maintenance (O&M) Program $495

Roofing materials were not sampled at the time of the assessment because roof sampling would invalidate existing roof warranties.

5.2.8. Radon

Radon is beyond the Scope of Work unless the Project is a residential property.

5.2.9. Lead-Based Paint

Lead-based paint is beyond the Scope of Work unless the Project is a residential property.

5.2.10. Lead in Drinking Water

The Project and site vicinity are serviced by the municipal water supply. The municipal water supply is derived from the Ohio River located approximately five miles to the south of the Project. The Project is supplied with water from the Cincinnati Water Department. According to utility representative Mr. Kevin Reynolds, the utility meets the requirements as established by the USEPA, state, county, and local authorities for water quality, and has had no lead problems.

Hot water is generated by both electric and natural gas-fired water heaters. The exhaust flues associated with the natural gas-fired water heaters were observed to be uninsulated. The associated piping was observed to be uninsulated.

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5.2.11. Landfills

Based on a review of local and state records and information provided by the Ohio Environmental Protection Agency Division of Solid and Infections Waste Management, one inactive landfill was identified within one-half mile of the Project. More information concerning the landfill is included in Section 5.2.1. As indicated in that Section, no impact to the Project is expected from this facility.

5.2.12. Pits, Sumps, Drywells, and Catch basins

Fifteen storm water catch basins were observed in the paved parking areas and landscaped areas. These catch basins drain to the municipal system.

5.2.13. On-site Aboveground and Underground Storage Tanks and Pipelines

Visual observations for manways, vent pipes, fill connections, concrete pads, and saw cuts in paved areas did not identify any surface connections or disturbances that would indicate the potential for current underground storage tank(s) (UST) installation at the Project. However, interviews and historical research indicated that 12 USTs were formerly located at the Project. As discussed previously in Section 3.1.5, the OEPA issued a letter to the Project (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed. This issue was discussed in detail in Section 3.1.5.

The Storage Tank Table below describes the existing aboveground storage tanks (ASTs) and former underground storage tanks (USTs) that were identified at the Project:

Storage Tank Table				
	Tank ID Numbers 1 through 4	Tank ID Number 5	Tank ID Number 6	Tank ID Numbers 7 through 14
Type: AST/UST	Four ASTs	AST	AST	Eight ASTs
Year Tank Installed	Unknown	Unknown	Unknown	1996
Tank Size/Capacity	5,000 gallons each	30,000 gallons	1,000 gallons	3,750 gallons each

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Storage Tank Table				
	Tank ID Numbers 1 through 4	Tank ID Number 5	Tank ID Number 6	Tank ID Numbers 7 through 14
Tank and Associated Piping Construction Material	Steel	Steel	Steel	Steel
Tank Status (Active, Inactive, Removed, Abandoned)	Active	Active	Active	Active
Corrosion Protection Method (Tank and Piping)	N/A	N/A	N/A	N/A
Leak Detection Method	N/A	N/A	N/A	N/A
Overfill Protection Method	N/A	N/A	N/A	N/A
Containment Structure	N/A	N/A	N/A	Steel
Evidence of Leakage, Spillage, or Staining	None	None	None	None
Does Tank Contain Product?	Yes	Yes	Yes	Yes
Type of Product	Propane	Water	Nitrogen	Coatings
Quantity of Product	Unknown	30,000 gallons	< 1,000 gallons	Unknown
Registration/Closure Status	N/R	N/R	N/R	N/R

N/R = Tank is not required to be registered

N/A = Not Applicable

Storage Tank Table					
	Tank ID Number 15	Tank ID Number 16	Tank ID Number 17	Tank ID Number 18	Tank ID Number 19
Type: AST/UST	UST	UST	UST	UST	UST
Year Tank Installed	1968	1968	1968	1968	1968
Tank Size/Capacity	4,000 gal.	4,000 gal.	4,000 gal.	4,000 gal.	4,000 gal.
Tank and Associated Piping Construction Material	Unknown	Unknown	Unknown	Unknown	Unknown
Tank Status (Active, Inactive, Removed,	Removed	Removed	Removed	Removed	Removed

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Storage Tank Table					
	Tank ID Number 15	Tank ID Number 16	Tank ID Number 17	Tank ID Number 18	Tank ID Number 19
Abandoned)					
Corrosion Protection Method (Tank and Piping)	Unknown	Unknown	Unknown	Unknown	Unknown
Leak Detection Method	Unknown	Unknown	Unknown	Unknown	Unknown
Overfill Protection Method	Unknown	Unknown	Unknown	Unknown	Unknown
Containment Structure	Unknown	Unknown	Unknown	Unknown	Unknown
Evidence of Leakage, Spillage, or Staining	No	No	No	No	No
Does Tank Contain Product?	N/A	N/A	N/A	N/A	N/A
Type of Product	Cyclesolv 60	Hi Sol	Butylcelluso lve	Ethylene Glycol	VM & P Naptha
Quantity of Product	N/A	N/A	N/A	N/A	N/A
Registration/Closure Status	No further action required	No further action required	No further action required	No further action required	No further action required

N/A = Not Applicable

Storage Tank Table					
	Tank ID Number 20	Tank ID Number 21	Tank ID Number 22	Tank ID Number 23	Tank ID Number 24
Type: AST/UST	UST	UST	UST	UST	UST
Year Tank Installed	Unknown	Unknown	Unknown	Unknown	Unknown
Tank Size/Capacity	8,000 gal.	8,000 gal.	10,000 gal.	8,000 gal.	8,000 gal.
Tank and Associated Piping Construction Material	Carbon steel	Stainless steel	Stainless steel	Carbon steel	Carbon steel
Tank Status (Active, Inactive, Removed, Abandoned)	Removed	Removed	Removed	Removed	Removed
Corrosion Protection Method (Tank and Piping)	Unknown	Unknown	Unknown	Unknown	Unknown
Leak Detection Method	Unknown	Unknown	Unknown	Unknown	Unknown
Overfill Protection Method	Unknown	Unknown	Unknown	Unknown	Unknown

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Storage Tank Table					
	Tank ID Number 20	Tank ID Number 21	Tank ID Number 22	Tank ID Number 23	Tank ID Number 24
Containment Structure	Unknown	Unknown	Unknown	Unknown	Unknown
Evidence of Leakage, Spillage, or Staining	No	No	No	No	No
Does Tank Contain Product?	N/A	N/A	N/A	N/A	N/A
Type of Product	Vegetable oil	Water-based lacquer	Water-based lacquer	Waste vegetable oil and water	Waste vegetable oil and water
Quantity of Product	N/A	N/A	N/A	N/A	N/A
Registration/Closure Status	No further action required	No further action required	No further action required	No further action required	No further action required

N/A = Not Applicable

Storage Tank Table		
	Tank ID Number 25	Tank ID Number 26
Type: AST/UST	UST	UST
Year Tank Installed	Unknown	Unknown
Tank Size/Capacity	1,000 gal.	10,000-gal.
Tank and Associated Piping Construction Material	Carbon steel	Carbon steel
Tank Status (Active, Inactive, Removed, Abandoned)	Removed	Removed
Corrosion Protection Method (Tank and Piping)	Unknown	Unknown
Leak Detection Method	Unknown	Unknown
Overfill Protection Method	Unknown	Unknown
Containment Structure	Unknown	Unknown
Evidence of Leakage, Spillage, or Staining	Yes	Yes
Does Tank Contain Product?	N/A	N/A
Type of Product	Gasoline	No. 2 Fuel oil (heating oil)
Quantity of Product	N/A	N/A
Registration/Closure Status	No further action required	No further action required

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N/A = Not Applicable

Based on review of available information, the ASTs at the Project are utilized for the storage of propane, nitrogen, coatings, and water. The propane is utilized for backup fuel for on-site natural gas-fired equipment. The nitrogen is utilized for welding purposes. The water is utilized for fire prevention. The coatings are utilized as part of the manufacturing process. Current local and state regulations do not require registration of these types of aboveground tanks. Mr. Stapp was unaware of any releases from the ASTs. The ASTs appeared to be in good condition with no evidence of releases such as staining. No secondary containment was observed around the ASTs, with the exception of the coatings ASTs which have secondary containment in the form of steel containment walls around the ASTs. The ASTs at the Project are not anticipated to have adversely impacted the environmental integrity of the Project.

The manways and surface caps observed at the Project were for site services (i.e., domestic water, storm water, and sanitary sewer system).

Furthermore, review of currently installed mechanical equipment, and historical information concerning mechanical equipment, identified the use of alternate fuel sources (i.e., electric, natural gas) thereby eliminating the need for additional on-site fuel storage at the Project.

Based on the review of the state list of registered USTs, no USTs are currently registered for the Project.

Interviews with persons knowledgeable of the Project did not identify any evidence of current underground storage tanks at the Project.

Visual observations did not identify any surface markings indicating the existence of subsurface product pipelines at the Project.

5.2.14. Radiological Hazards

No radiological hazards were identified at the Project.

5.2.15. Additional Hazard Observations

The Project maintains approximately 30 parts washers which store petroleum-based solvent used for cleaning metal parts. Each of these units has a total capacity of approximately 25 gallons of solvent. No evidence of spills, leaks or stains were observed in the vicinity of these units, which are serviced by Safety Kleen on a regular basis. Safety Kleen provides new solvent and takes spent solvent to an off-site facility for recycling or disposal. Review of hazardous waste manifests and the facility waste management program indicated that the waste disposal operations appear to be performed in accordance with regulatory requirements.

5.3. Special Resources

5.3.1. Endangered Species

The Project lies in a suburban area, and is therefore unlikely to contain endangered species.

5.3.2. Historic Property

Considering the age of the Project buildings (constructed beginning in 1952), they are not likely to be considered historic structures.

5.3.3. Wetlands

Review of the National Wetlands Inventory (NWI) Map, published by the United States Fish and Wildlife Service and dated 1985, indicated the following:

- Wetlands are indicated on the northeastern portion of the Project and the northern, eastern, and southern adjacent properties. The wetland on the northeastern portion of the Project consists of a small pond which is part of the sewage treatment system. Any development of wetland areas, or of areas that might disturb wetlands, should be coordinated with applicable federal, state, and local agencies.

A copy of the wetland map is appended (Section 8).

5.3.4. Undeveloped Flood Plains

Review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency (FEMA) and dated 1982, indicated the following:

- The Project is located in Zone C, defined as an area of minimal flooding.

A copy of the 1982 flood plain map was not available for reproduction.

5.3.5. Additional Special Resources Observations

Other commonly known special resources, such as Wild and Scenic Rivers, scientific or archaeologically significant sites, wilderness areas, natural national landmarks, properties within sole source aquifers, or undeveloped coastal zones were not identified on the subject property.

5.4. Interviews

5.4.1. Property

Individuals interviewed at the Project included the following:

- Mr. Randy Stapp, Environmental Manager of Milton Can Company
- Mr. Leon J. Parker, Director of Engineering & Technology for the Project

A copy of the above Record of Communication is included in Appendices, Section 8.

5.4.2. Surrounding Area

No individuals were interviewed at or regarding the facilities proximate to the Project since no environmentally significant tenants occupied those facilities.

5.4.3. Regulatory Officials

Individuals interviewed at state, local, and county regulatory agencies included the following:

- Reference librarian of the Cincinnati Public Library

- Mr. Harry (last name withheld) of the Anderson Township Building and Zoning Department
- Assistant Chief Craig Best of the Anderson Township Fire Department
- Ms. Martha Burbeck of the OEPA, Surface Water Division
- Mr. Kevin Reynolds of the Cincinnati Water Department
- Ms. Sue Kist of the OSFM BUSTR
- Mr. Bruce Dunlavy with the OEPA

Copies of the above Records of Communication are included in Appendices, Section 8.

5.5. Additional Services

No additional services were required or performed as part of this assessment.

6. Summary and Recommendations

6.1. Findings and Conclusions

6.1.1. On-site Environmental Concerns

- Based on the long term industrial use of the site, which included the manufacture of metal cans, and involved the storage and use of numerous hazardous materials, as well as the generation of numerous hazardous wastes, there is the potential that the environmental integrity of the Project has been adversely impacted.
- In 1988 to 1989, the five USTs located north of the lithography plant were uncovered and all five tanks, as well as 13 of 15 lines, were found to be leaking. State and local authorities were notified, and the Project was listed as a LUST site. The tanks were abandoned in place by being cut open, cleaned, and filled with pea gravel. It was reported by facility personnel that a soil vapor extraction system was installed in this area, however, no information was provided to ENVIRON regarding this system. An 'approval of closure' letter issued by the OEPA in August of 1992 which stated that the LUST case was closed was reportedly reviewed by ENVIRON. EMG reviewed OEPA file information for the Project but found no documentation regarding the closure letter or a soil vapor extraction system. However, a copy of this letter (dated August 20, 1992), in which the OEPA concludes that all USTs under the Project's ownership have been removed and properly closed, was provided by the Project. Therefore, no further action or investigation regarding the Project's former USTs is warranted or recommended.

- Based on review of the regulatory database report, the Project is listed on the RCRIS-Generator, LUST, NFRAP, ERNS, and HWS databases (Section 4.2). On-site evaluation and review of available information identified that these listings are associated with the operations of a previous Project occupant (Heekin Can Company). Based on the No Further Action designation for the LUST listing, the minor spill associated with the ERNS listing, and the No Further Remedial Action Planned status of the site, no further action or investigation appears warranted. However, in order to obtain detailed information regarding the nature of the RCRIS, NFRAP and SHWS listings, and in accordance with the assessment Scope of Work, EMG requested copies of the file information for these listings through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through these FOIA requests will be summarized and forwarded in an addendum to this report.

- Asbestos-containing material (ACM) in the form of floor tiles, and in the form of pipe insulation and pipe fitting insulation in the boiler room, was previously identified at the Project. In addition, suspect ACM in the form of additional floor tile and wallboard/joint compound were observed at the Project. The materials observed can be maintained in place if an Operations and Maintenance (O&M) Program is developed and implemented. A properly designed O&M Program is sufficient to maintain the Project in accordance with current regulatory standards and sound business practice. ACM maintained with an O&M Program can remain in place, provided the ACM remain intact and undisturbed.

- There were two 170-gallon open end process tanks located in a small flammable storage room by the can assembly punch press area. These tanks were installed in 1958, and the tank tops were above floor level, but the lower portions were below grade in a concrete vault. The walls of this vault were concrete, but the floor was reportedly gravel or bare soil. It was recommended that the floor of this area be sealed to minimize potential leaks, or that the tanks be raised above grade.

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EMG could not locate these tanks during the site assessment, and found no below-grade areas/pits at the Project. As discussed later in Section 4.2.2, EMG contacted the Anderson Township Fire Department regarding file information for the Project address. According to Assistant Chief Best, these tanks were removed from the Project without incident. The fire department and environmental personnel were on-site during the removal, and Mr. Best was unaware of any releases or incidents at the Project.

Furthermore, EMG was provided with a copy of the removal/closure report for these tanks, prepared by The Payne Firm, Inc. and dated February 5, 1999. These tanks served as an introduction and mixing point for bulk compounds used in the compound dispensing system. The main constituents of the compounds mixed were identified as heptane isomers with minor amounts of hexane isomers, alcohol, resins, fillers, pigments and other modifiers. According to this report, these flow-through process tanks were located in the Compound Pump Room from the late 1950s to the mid-1990s. The tanks were situated in a poured concrete vault with a concrete bottom, and were on angle iron legs that were bolted to the floor. Gravel was poured around the tanks from the bottom of the vault to just below grade and then concrete was poured around the tanks level to the existing floor slab grade. The top one foot of each tank extended above the concrete floor of the plant. These tanks were not regulated under the Ohio Fire Marshal's Burea of Underground Storage Tank Regulations (BUSTR). The Anderson Township Fire Department Inspector was contacted prior to the removal activities, and the Project was informed that since the tanks were not regulated under the BUSTR no removal permit was required; however, a permit was provided for documentation purposes and they requested a report summarizing the removal activities.

Removal activities began on October 20, 1998. An air hammer was used to remove the concrete floor on top of the vault and around the tanks. Once the concrete surface had been removed, it was observed that the gravel in the vault was pebble to cobble size which did not permit the collection of confirmatory samples. Some residual hardened compound in the gravel was noted along the north end of the tanks at the surface where no concrete cap was present. The affected gravel was easily recognized because it had been cemented together by the hardened compound. No liquid compound staining was observed at any time during the removal activities. Clean gravel was removed from around the tanks in the vault to a depth of three feet. The bottoms of the tanks were reached at this depth, each tank was cut from the angle iron legs and removed from the vault, and they taken off-site by a scrap metal vendor.

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After the tanks were removed, a limited amount of hardened product was observed along the north wall of the vault. This material was removed from the vault and placed in three 55-gallon drums for disposal. Due to the nature of the backfill material (gravel) and the fact that no liquids were observed in the vault, no closure samples could be collected for laboratory analysis. Therefore, the closure was completed based upon visual observation and removal of all the hardened compound from the vault. A concrete floor was observed at a depth of seven feet below the ground surface. After confirming that no residual compound remained in the vault and that the bottom was constructed of concrete, the vault was backfilled with the clean gravel that had been previously removed from around the tanks, and Milton Can was to fill the vault to grade with additional clean gravel and a load-bearing concrete floor.

Based upon this information, these former tanks are not anticipated to have adversely impacted the environmental integrity of the Project, and no further action or investigation is recommended.

6.1.2. Off-site Environmental Concerns

- Between 1973 and 1985, the Project reportedly disposed of chromium-containing wastewater to a gravel pit pond located to the north of the Project. Regulatory officials were aware of this disposal and requested that Heekin Can investigate alternative disposal options. Apparently the facility was never cited for improper disposal activities, was not required to perform surface water monitoring, and was not required to investigate or remediate this pond. This pond is located downgradient of the Project, however because the site is basically surrounded by gravel pits it is difficult to determine the current and former direction of ground water flow in the area. Therefore, based on the type of material discharged and the length of time that this disposal practice was employed, as well as the uncertain ground water flow patterns in the area, there is the potential that it adversely impacted the environmental integrity of the area of the gravel pit pond, including the Project itself.

- Hazardous waste generated at the Project by former owners/operators has been transported to several facilities of environmental concern: Mercury Refining, Inc., in Colonie, New York; Laidlaw Environmental Services (aka Triangle Resource Industries) in Greenbriar, Tennessee; Safety-Kleen in New Castle, Kentucky; Coyne Textile Service in Huntington, West Virginia; Safety Kleen in Hebron, Ohio; and Rumpke Sanitary Landfill in Cincinnati, Ohio. EMG is of the opinion that although it is unlikely the Project would be held liable for investigation or remediation associated with one of these sites, the possibility of some liability does exist.

6.2. Recommendations

6.2.1. Recommendations for Further Investigation

A Phase II Environmental Site Assessment is recommended. Activities required to more completely assess the environmental condition of the Project, including their associated cost estimates, are as follows:

- Subsurface investigation of the Project is recommended to determine if it has been adversely impacted by historical manufacturing and waste management operations, and by the historical disposal of chromium containing wastewater to an off-site gravel pit pond to the north.

  Associated cost estimate..$10,000 - $20,000

6.2.2. Recommendations for Regulatory Reporting

EMG does not make any recommendations for regulatory reporting at this time.

6.2.3. Recommendations for Any Other Actions

The following additional action is recommended:

- EMG recommends that the potential liability issue associated with disposal of Project waste at several facilities of environmental concern be addressed by consulting appropriate legal counsel.
- The development and implementation of an Asbestos Operations and Maintenance (O&M) Program. Costs indicated are for O&M Program Document development only.

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Associated cost estimate.. $495

6.3. Investigation Requirements Not Satisfied

The requirements of the Scope of Work were met, with the exception of the following:

- In order to obtain detailed information regarding the nature of the RCRIS, NFRAP and SHWS listings for the Project (Section 4.2), and in accordance with the assessment Scope of Work, EMG requested copies of the file information for these listings through the Freedom of Information Act (FOIA). At the time this report was issued the requested information had not been made available. It is EMG's opinion that the subsurface investigation recommended to address other issues at the Project will be sufficient to determine if there are any significant contamination issues at the Project. However, any information received through these FOIA requests will be summarized and forwarded in an addendum to this report.

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7. Consultant Information

7.1. ESA Personnel

Project Manager: Mr. Gregory P. Shingler

Reviewed by: Mr. David V. Maglietta, LPG

Program Supervisor:
Mr. David V. Maglietta, LPG

7.2. Report Certification

The Program Supervisor has reviewed and approved this Phase I Environmental Site Assessment. This assessment was performed under my direct supervision. The methods and procedures employed in the development of this report conform to minimum industry standards.

David G. Straume
Operations Manager

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7.3. Certification/Licensing

EMG and all subcontractors, if any, utilized for this assessment are properly licensed and/or certified, where required, to perform the work described within this report.

7.4. Report Reliance

This assessment was performed at BWAY's request utilizing methods and procedures consistent with good commercial or customary practices designed to conform with acceptable industry standards. This report may be distributed to and relied upon by BWAY, its successors and assigns, and the conduit to be named by BWAY, its successors and assigns, as well as Corporate Realty Investment Company (CRIC) and Midland Loan Services, Inc., with respect to a loan upon the Project, together with any rating agency or any issuer or purchaser of any security collateralized or otherwise backed up by such loan. The independent conclusions represent EMG's best professional judgment based on the conditions that existed and the information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the owner or their representatives have been assumed to be correct and complete.

8. Appendices

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8.1. Property Background Attachments

8.1.1 Photographs

8.1.2 Site Drawing

8.1.3 Area Maps

8.1.4 Aerial Photographs

8.1.5 Topographical Map

8.1.6 Fire Insurance Maps

8.1.7 City Directories

8.1.8 Other Maps and Data

8.1.9 Title Search Records

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EMG PHOTOGRAPHIC RECORD

Project No.: 55857 **Project Name: Industrial Plant**

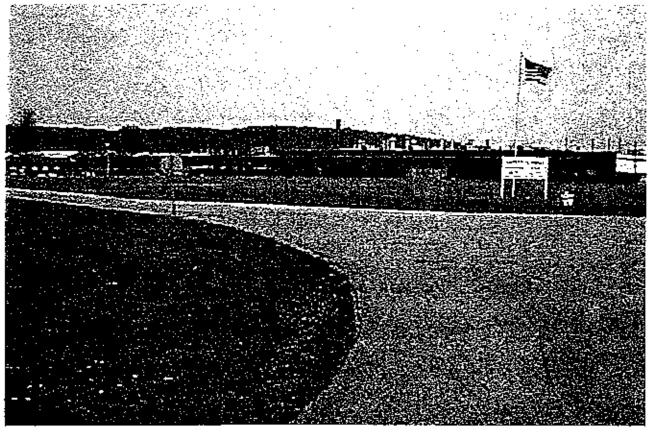

Photo #1: Front of building and general site conditions

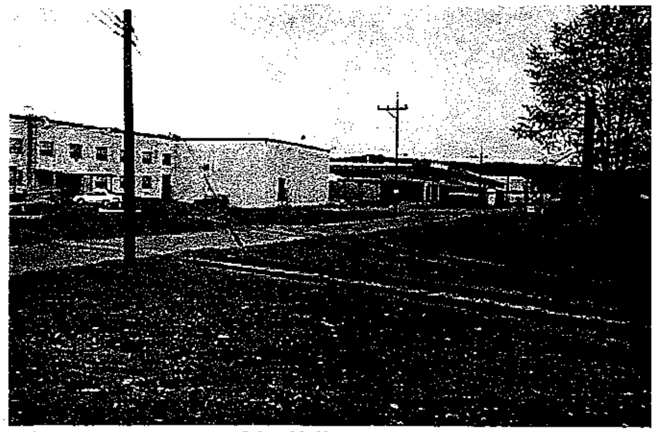

Photo #2: Rear of building

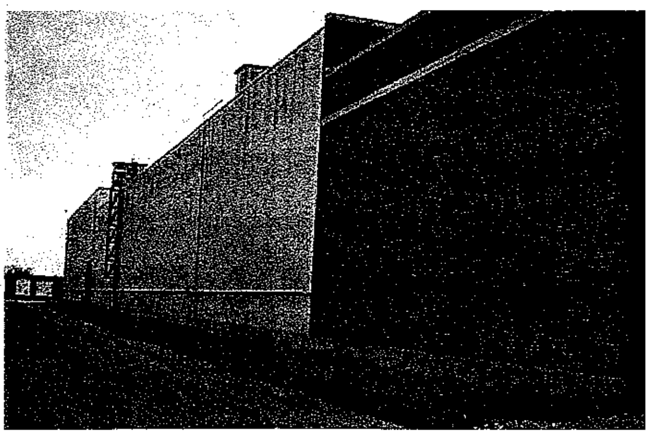

Photo #3: Left side of building

Photo #4: Right side of building

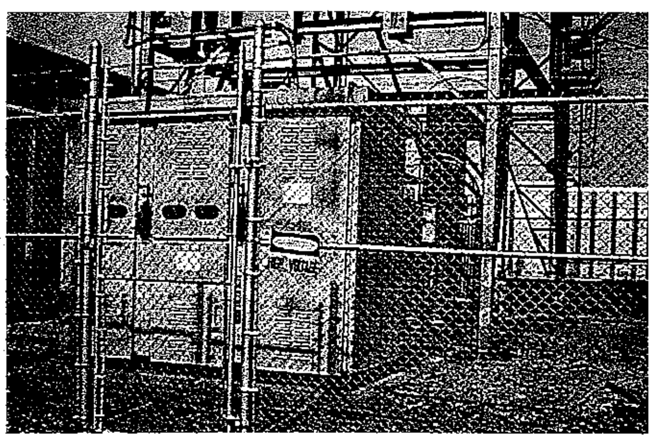

Photo #5: Transformer installation

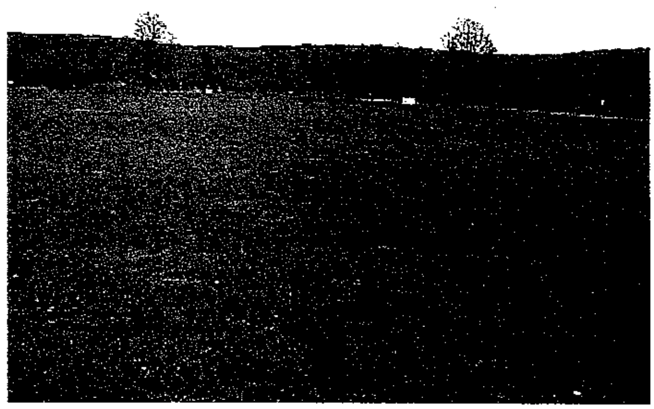

Photo #6: General landscaping

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Project No.: 55857 **Project Name: Industrial Plant**

Photo #7: Adjacent property north — gravel pit

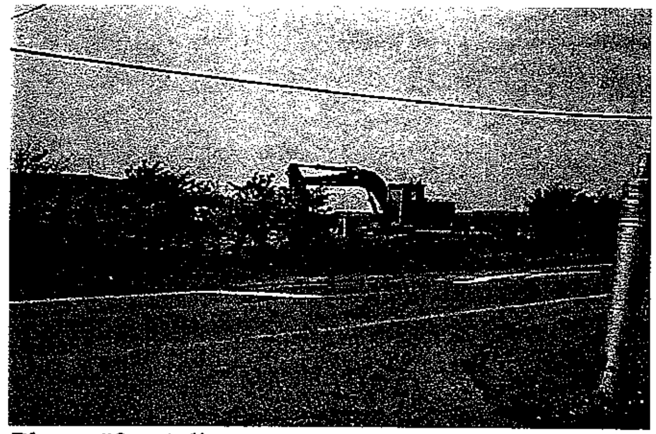

Photo #8: Adjacent property south — landfill and gravel pit

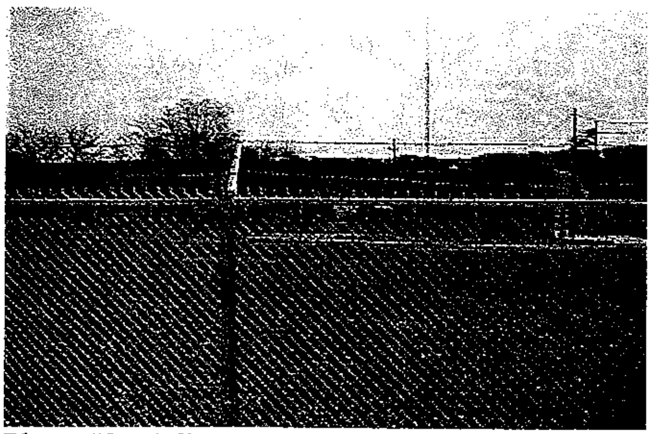

Photo #9: Adjacent property east — Anderson Township Fire Department

Photo #10: Adjacent property west — gravel pit

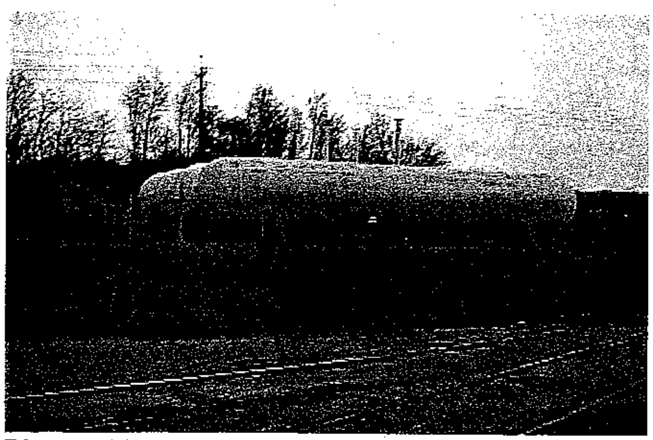

Photo #11: Propane ASTs

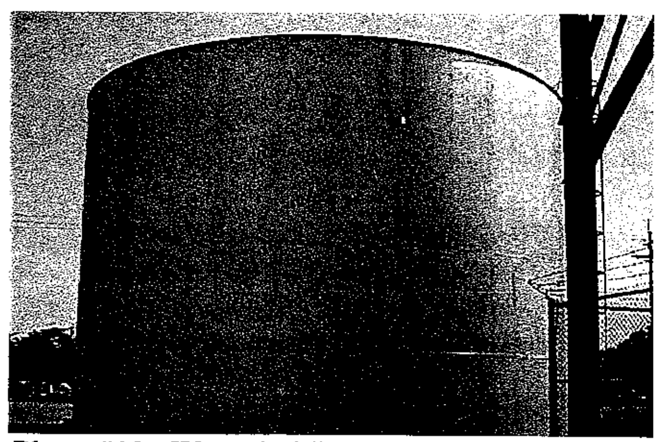

Photo #12: Water holding tank

EMG PHOTOGRAPHIC RECORD

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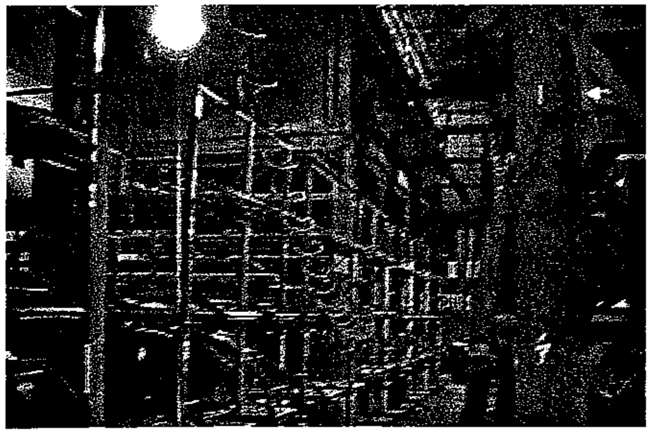

Photo #13: Coating AST and drum storage

Photo #14: Coating drum and AST storage

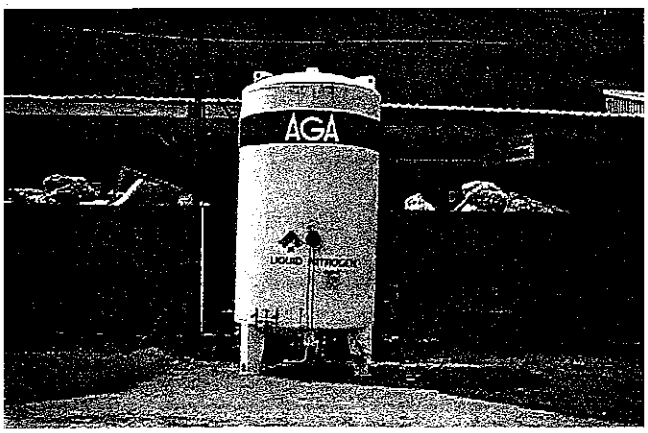

Photo #15: 1,000 nitrogen AST

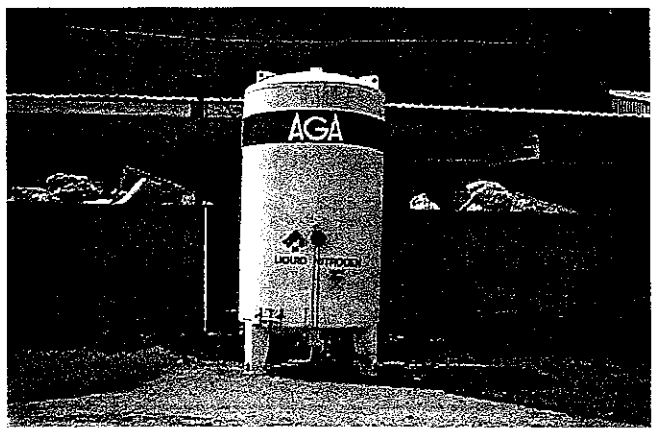

Photo #16: Rear of building, water holding tank and boiler house

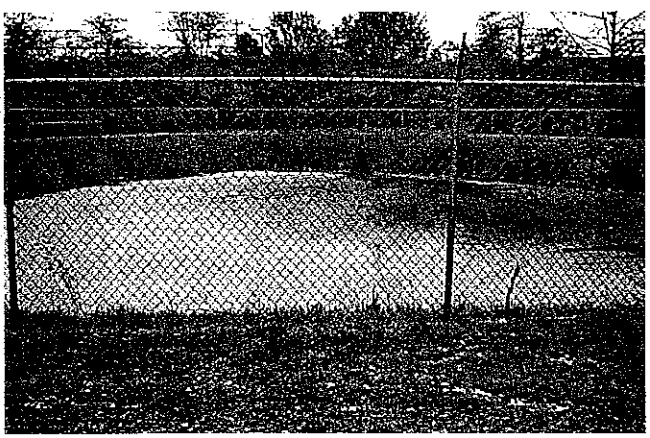

Photo #17: Pond

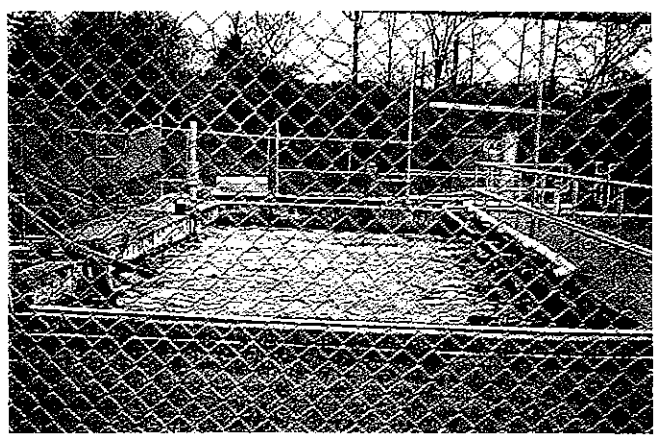

Photo #18: Sewage aeration

EMG Photographic Record

Project No.: 55857 **Project Name: Industrial Plant**

Photo #19: Spray field

Photo #20: Storage barn

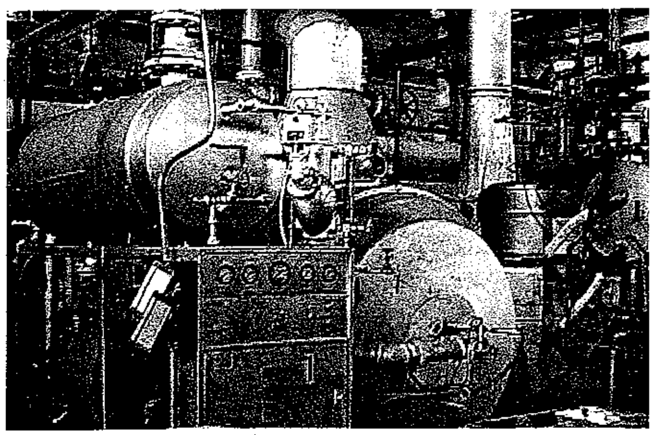

Photo #21: Boiler house interior and boiler

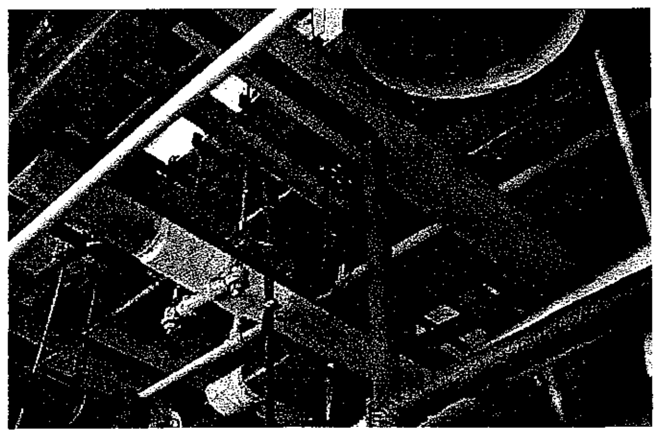

Photo #22: Suspect ACM, pipe insulation

Photo #23: Warehousing

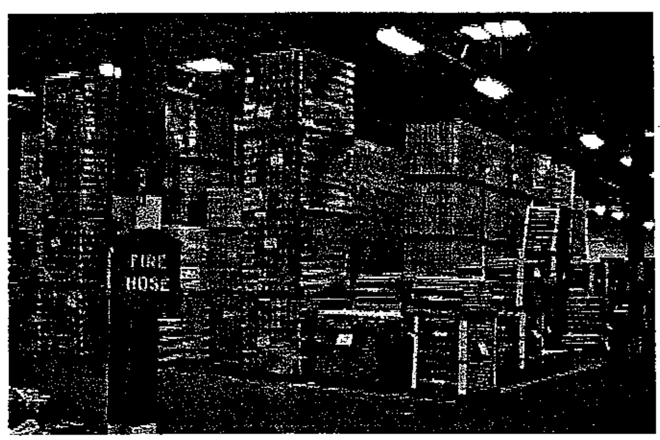

Photo #24: Warehouse

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EMG PHOTOGRAPHIC RECORD

Project No.: 55857 **Project Name: Industrial Plant**

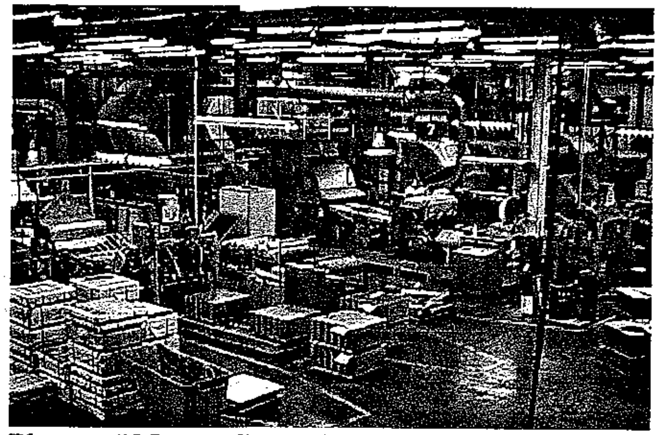


Photo #25: General interior conditions, lithography

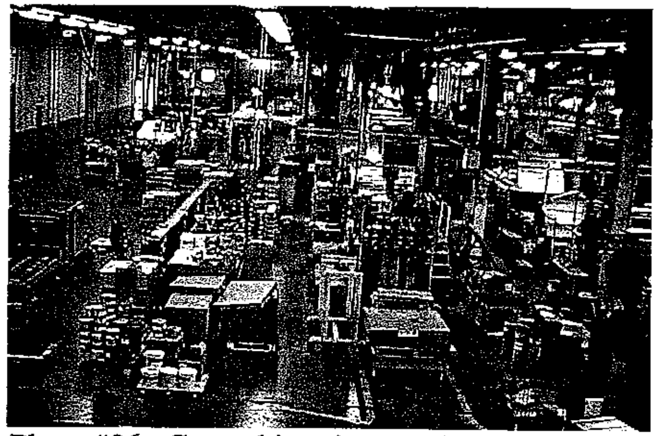


Photo #26: General interior conditions, lithography

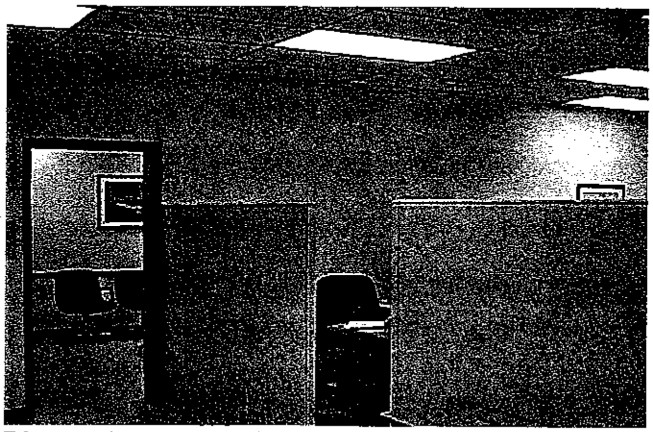


Photo #27: General office conditions

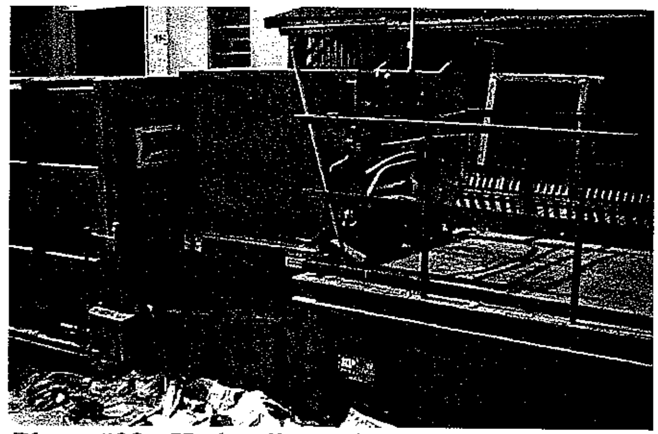


Photo #28: Hydraulic trash compactor

Photo #29: Drum storage

Photo #30: Ink storage

Project No.: 55857 **Project Name: Industrial Plant**

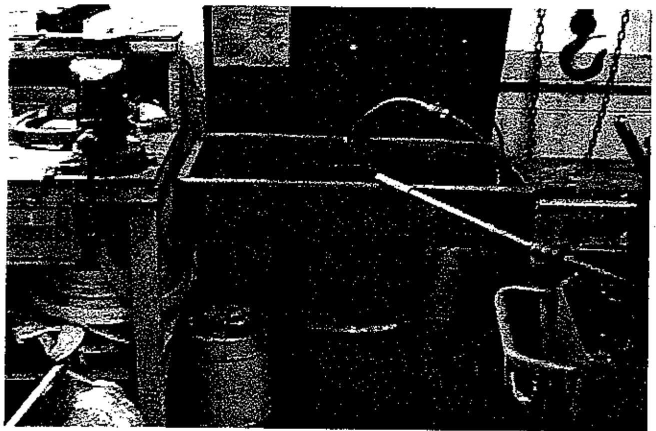


Photo #31: Parts washer

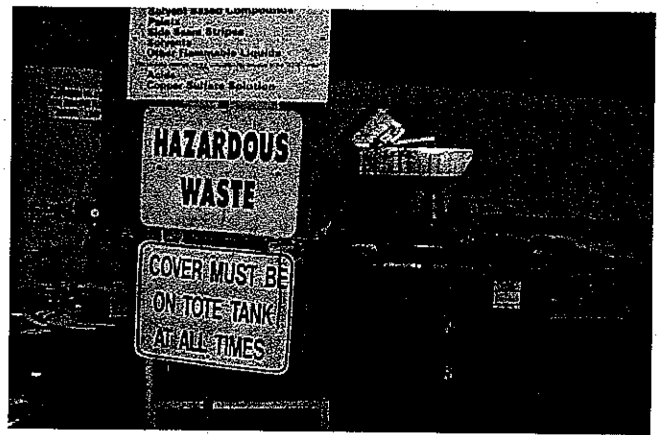
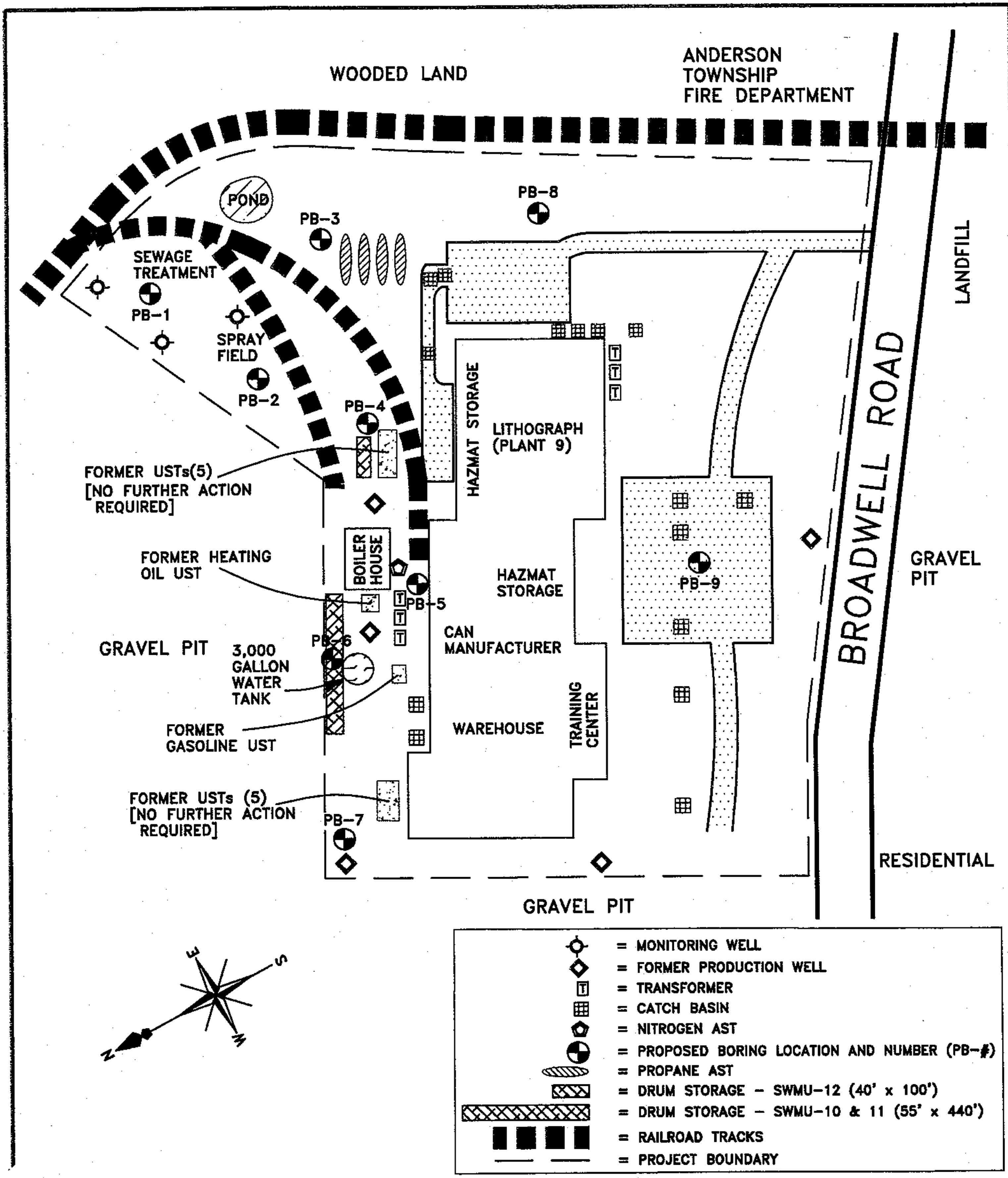
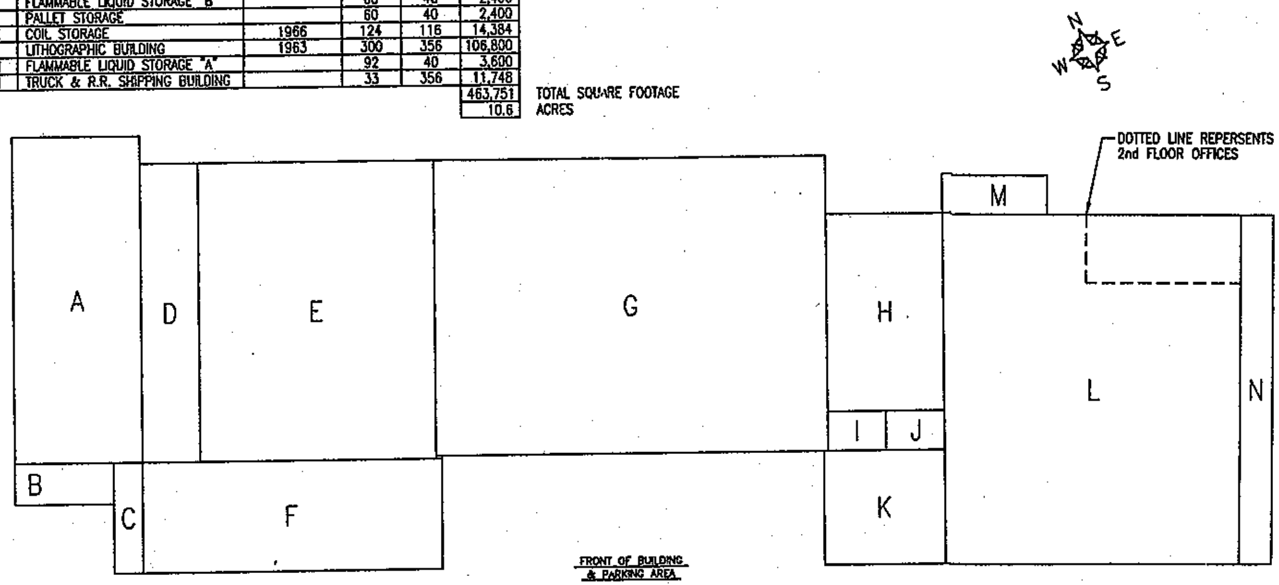


Photo #32: Hazardous waste storage



EMG	Title: INDUSTRIAL PLANT	
	Date: 4/22/99	Scale: NOT TO SCALE
	Drawn: GPS	Job No.: 55857

BLDG.	DESCRIPTION	YEAR BUILT	WIDTH	LENGTH	AREA
A	D & I ADDITION	1979	132	330	43,560
B	D & I OFFICE	1979	100	44	4,400
C	D & I COIL STORAGE	1968	32	112	3,584
D	D & I BUILDING	1965	60	302	18,120
E	WAREHOUSE	1958	242	302	73,084
F	WAREHOUSE ADDITION	1968	308	112	34,496
G	MANUFACTURING BUILDING	1952	405	299	121,095
H	PLATE STORAGE BUILDING	1960 - 61	120	200	24,000
I	FLAMMABLE LIQUID STORAGE "B"		60	40	2,400
J	PALLET STORAGE		60	40	2,400
K	COIL STORAGE	1966	124	116	14,384
L	LITHOGRAPHIC BUILDING	1963	300	356	106,800
M	FLAMMABLE LIQUID STORAGE "A"		92	40	3,600
N	TRUCK & R.R. SHIPPING BUILDING		33	356	11,748
	TOTAL SQUARE FOOTAGE				463,751
	ACRES				10.6



LTR	DATE	REVISION	BY / CHKD / APVD / APVD / CEF

MATERIAL
HEAT TREAT — FINISH
DESIGNED — DATE
DRAWN D.SCHACK — DATE 11/13/96
CHECKED — DATE
APPROVED — DATE
APPROVED — DATE
KEYED — DATE

SCALE 1" = 100'

DIMENSION TOLERANCE
(UNLESS OTHERWISE SPECIFIED)

FRACTIONS
MACHINED PARTS = ±1/64
HOLE LOCATIONS ON WELDED ASSEMBLIES = ±1/32
LINEAR DIMENSIONS ON STRUCTURAL WELDMENTS = ±1/16
ANGLES = ±1°

MILLIMETERS:
.X = ±0.5
.XX = ±0.10
.XXX = ±0.010
ANGLES = ±0.5°

INCHES:
.X = ±.020
.XX = ±.010
.XXX = ±.005
.XXXX = ±.0002
ANGLES = ±.5°

DO NOT SCALE PRINT

PLANT | PRODUCT | MACHINE | NEXT ASSEMBLY | QTY

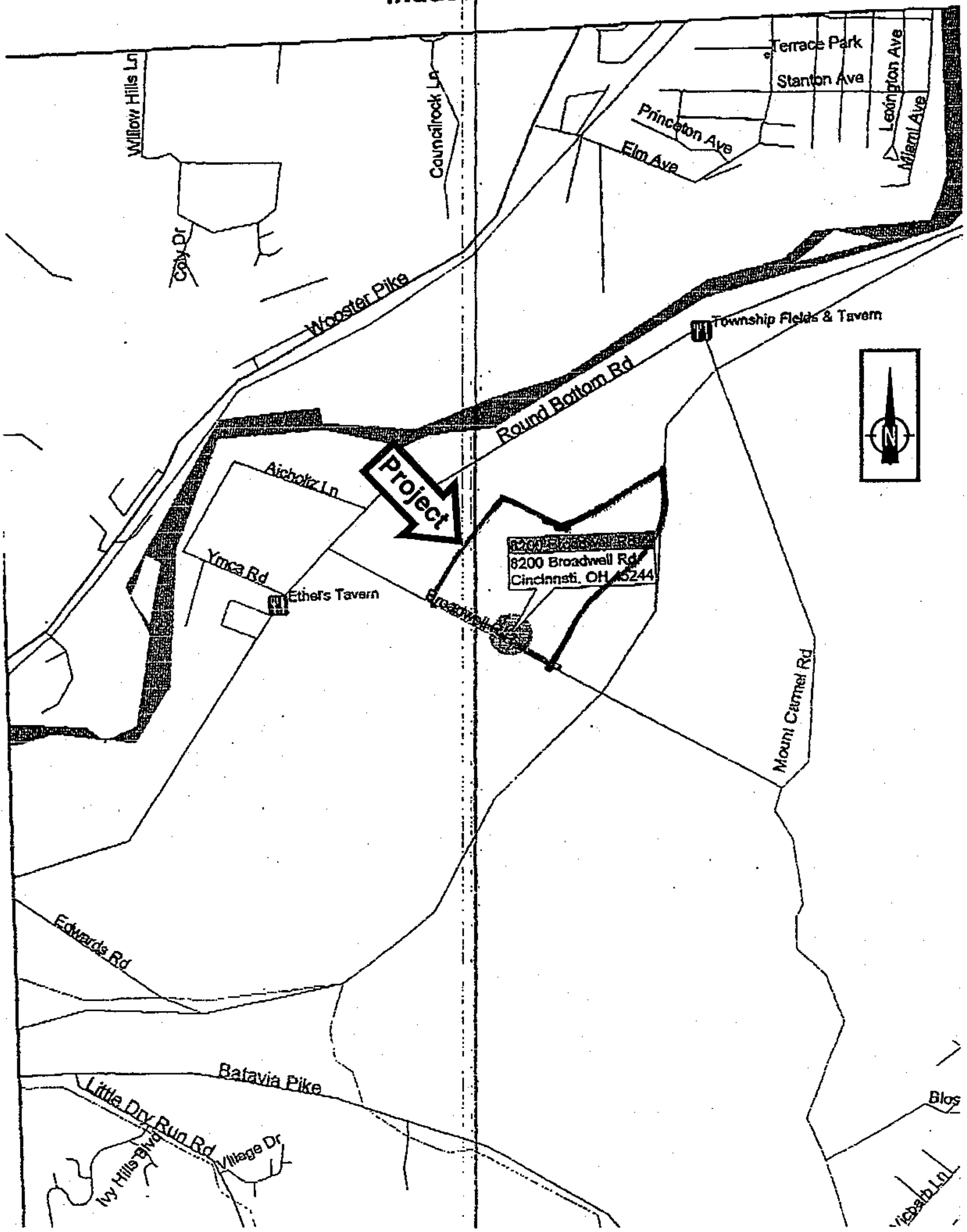
DIMENSIONS
& SQUARE FOOTAGE
CINCINNATI, OHIO
COMPLEX

MILTON CAN COMPANY
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244-1698

THE DESIGNS, INFORMATION AND DATA CONTAINED HEREIN ARE PROPRIETARY AND ARE SUBMITTED IN CONFIDENCE AND SHALL NOT BE DISCLOSED, USED, OR DUPLICATED IN WHOLE OR IN PART, FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN PERMISSION OF MILTON CAN COMPANY. RECEIPT OF THIS DOCUMENT SHALL BE DEEMED TO BE AN ACCEPTANCE OF THE CONDITIONS SPECIFIED HEREIN.

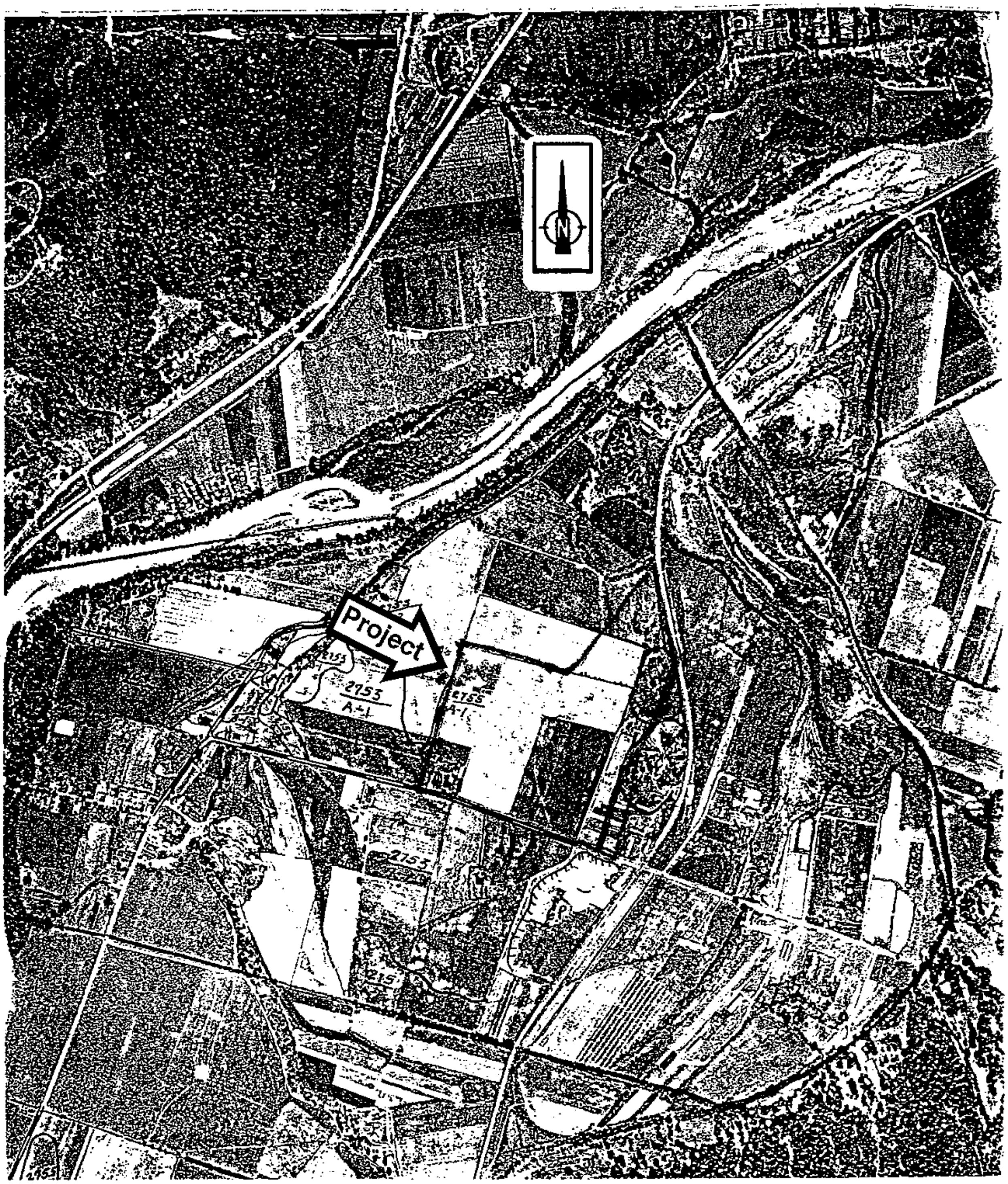
DWG. NO. 60180361
REV

Industrial Plant



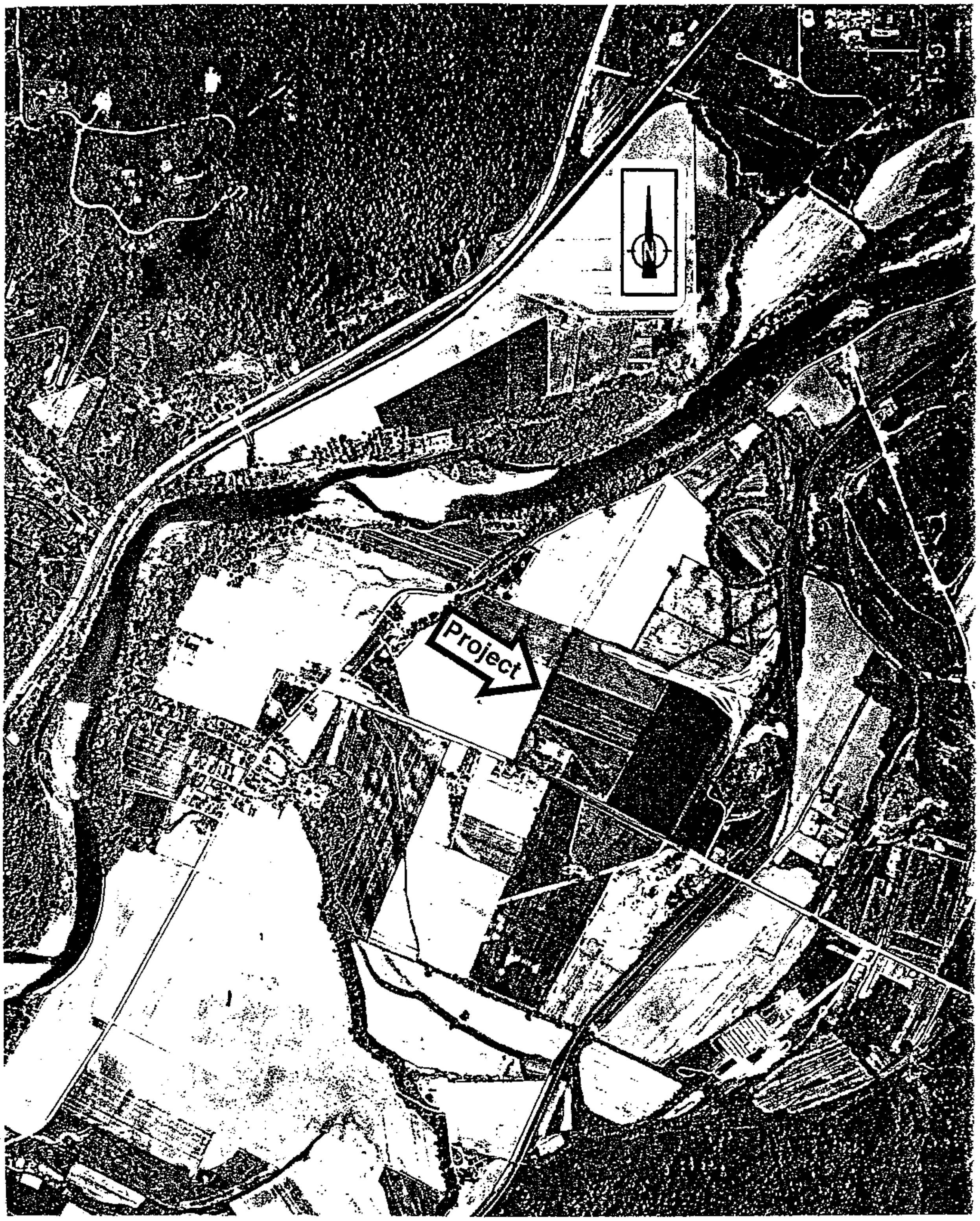
EMG

Project Number: 55857
Project Name: Industrial Plant
Description: Site Plan



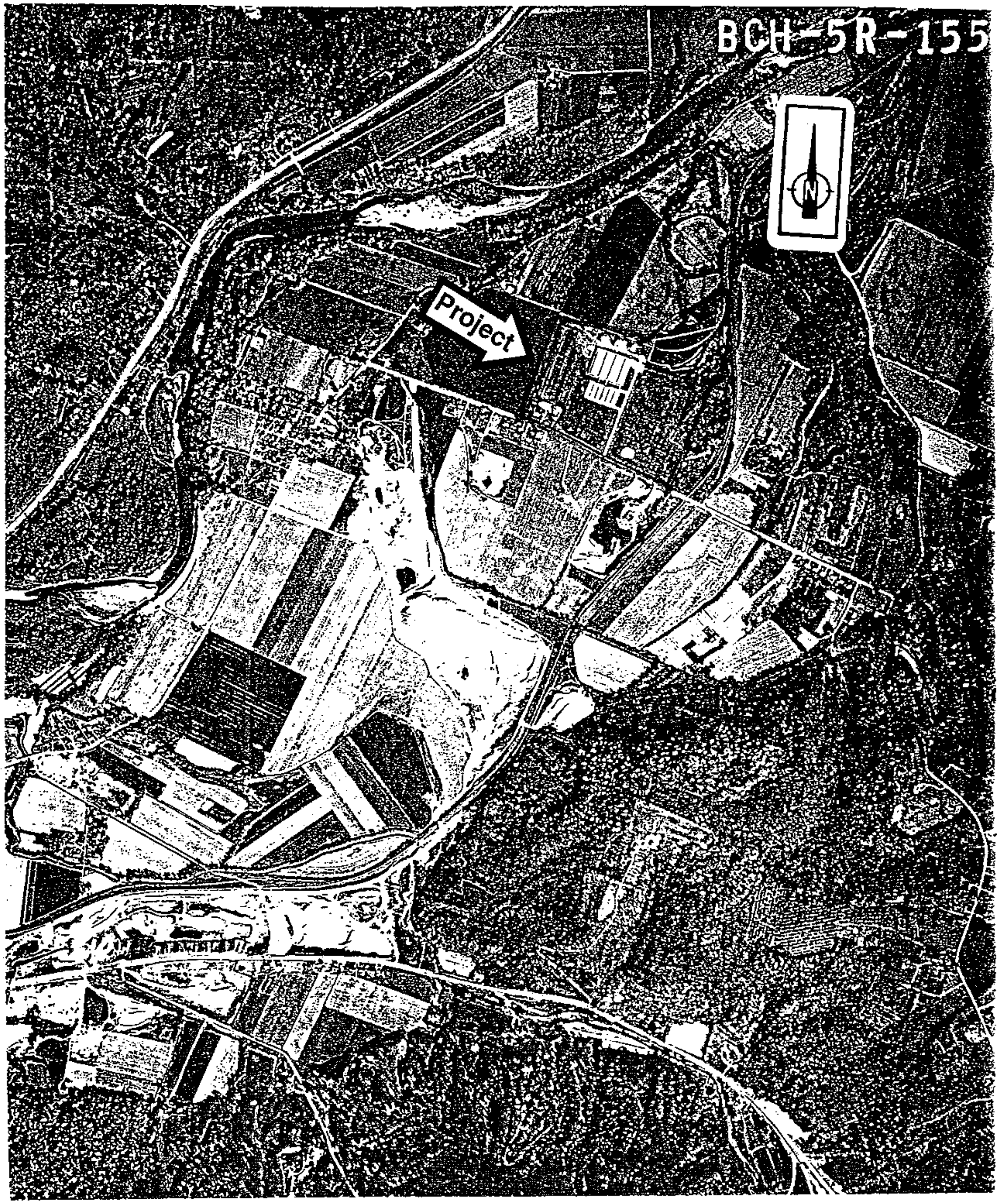
EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1938 Aerial Photograph



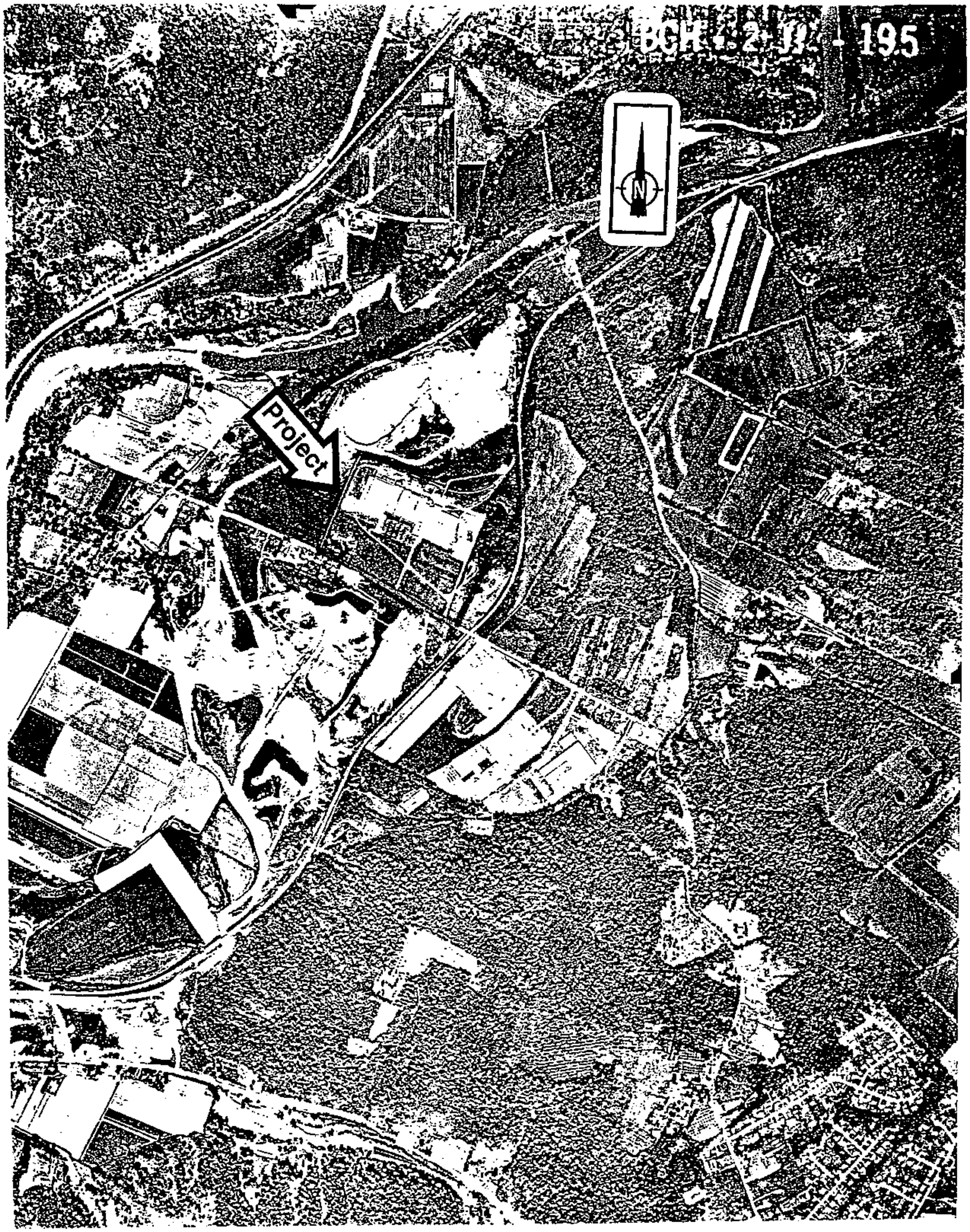
EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1950 Aerial Photograph

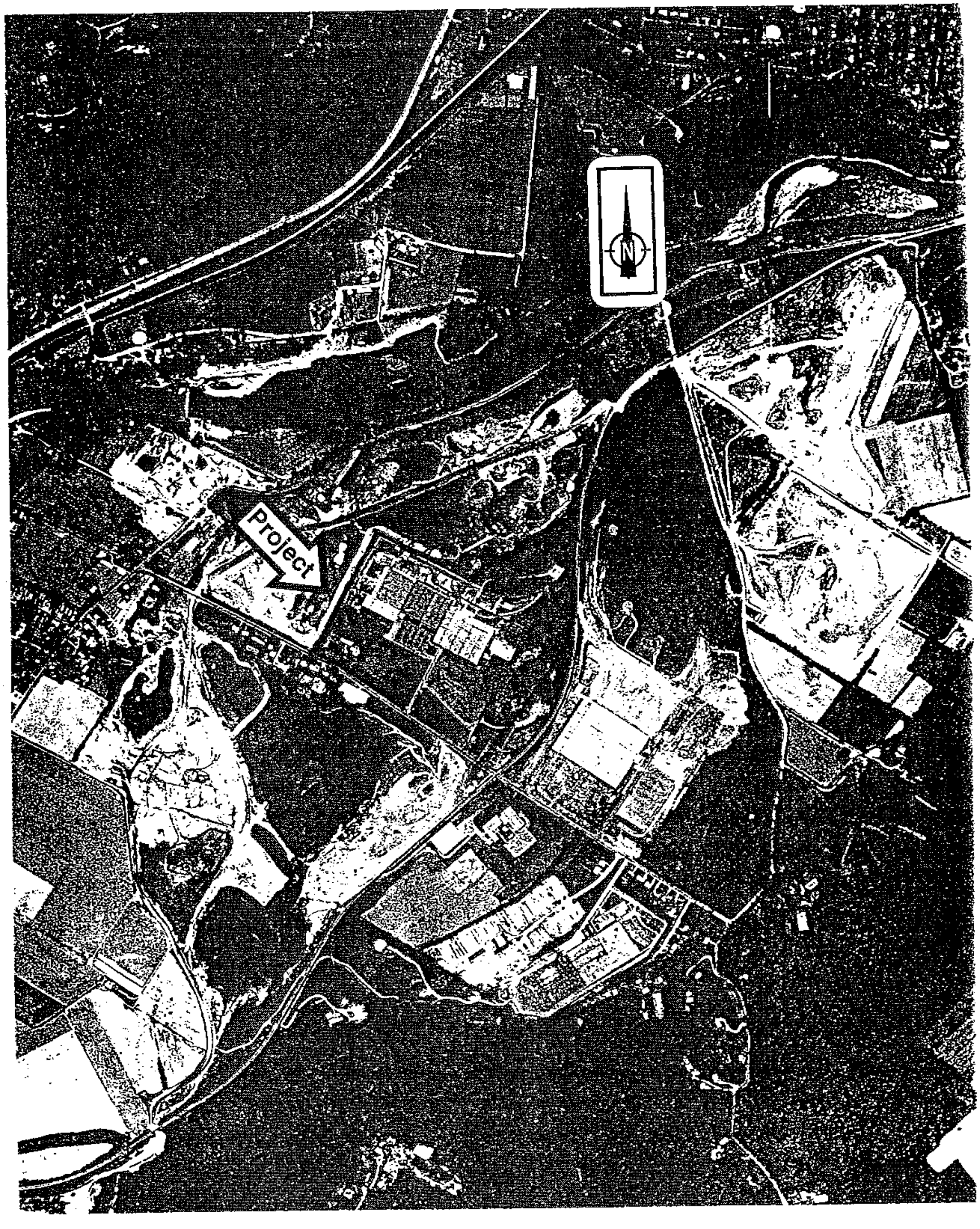


Project Number: 55857
Project Name: Industrial Plant
Description: 1956 Aerial Photograph

Project Number: 55857
Project Name: Industrial Plant
Description: 1962 Aerial Photograph



Project Number: 55857
Project Name: Industrial Plant
Description: 1968 Aerial Photograph

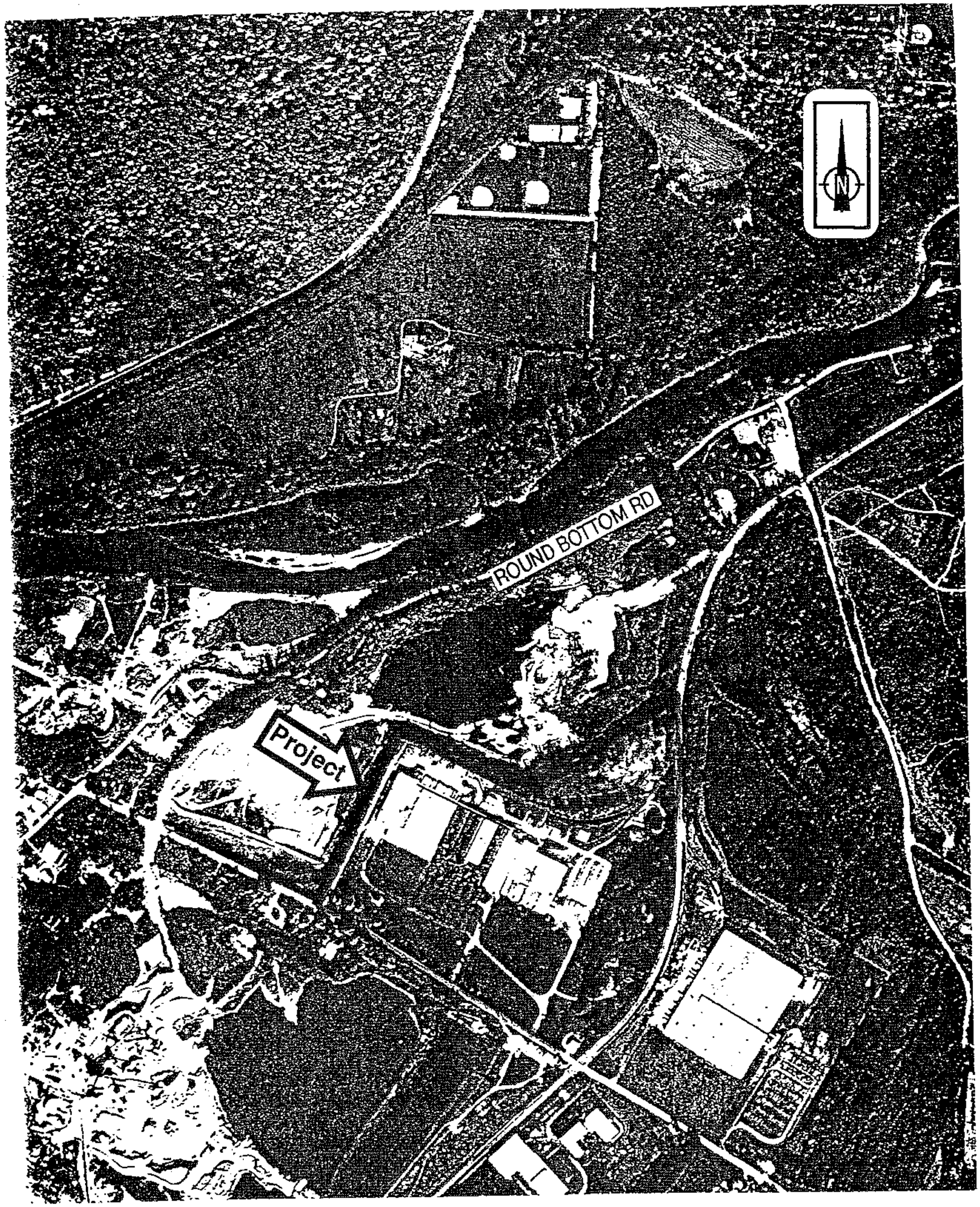


EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1975 Aerial Photograph

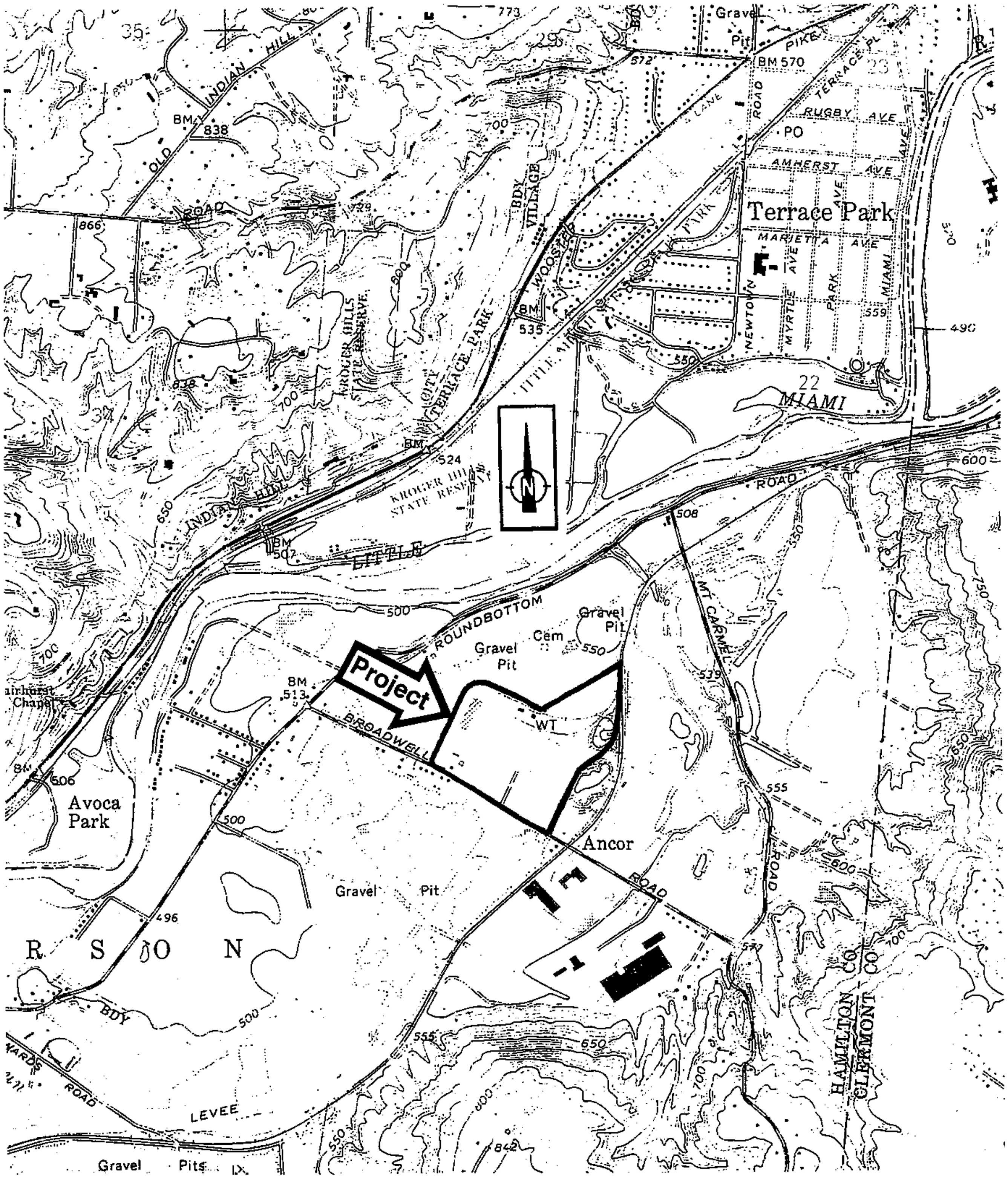
Project Number: 55857
Project Name: Industrial Plant
Description: 1987 Aerial Photograph

EMG



EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1990 Aerial Photograph



EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1961 USGS Topographic Map
Madiera, Ohio Quadrangle
Photorevised: 1988

VISTA INFORMATION SOLUTIONS, INC.

Search Results
VISTA Historical Map Collection

Pertaining to: 55857, 8200 Broadwell Road,
Cincinnati, OH, 45244
Order Number: 199904261343077055

... ...

No historic map coverage is available for this site in VISTA's Historic Map Collection, for the period covering the years 1867 - 1994.

The VISTA Historic Map Collection is the largest and most extensive private collection of prior-use maps in the United States, thereby affording the greatest degree of historic due diligence. VISTA's inventory includes images from the following publishers:

- Bracey
- Bromley
- Dakin
- Hexamer
- Hopkins
- Manufacturers Mutual Fire Insurance Maps
- Nirenstein Real Estate Atlases
- Sanborn Fire Insurance Map Collections
- Scarlett and Scarlett
- Rascher
- William G Baist

5060 Shoreham Place San Diego, CA 92122-5903
1-800-989-0403, FAX: (703) 834-0606

Industrial Plant
#55857

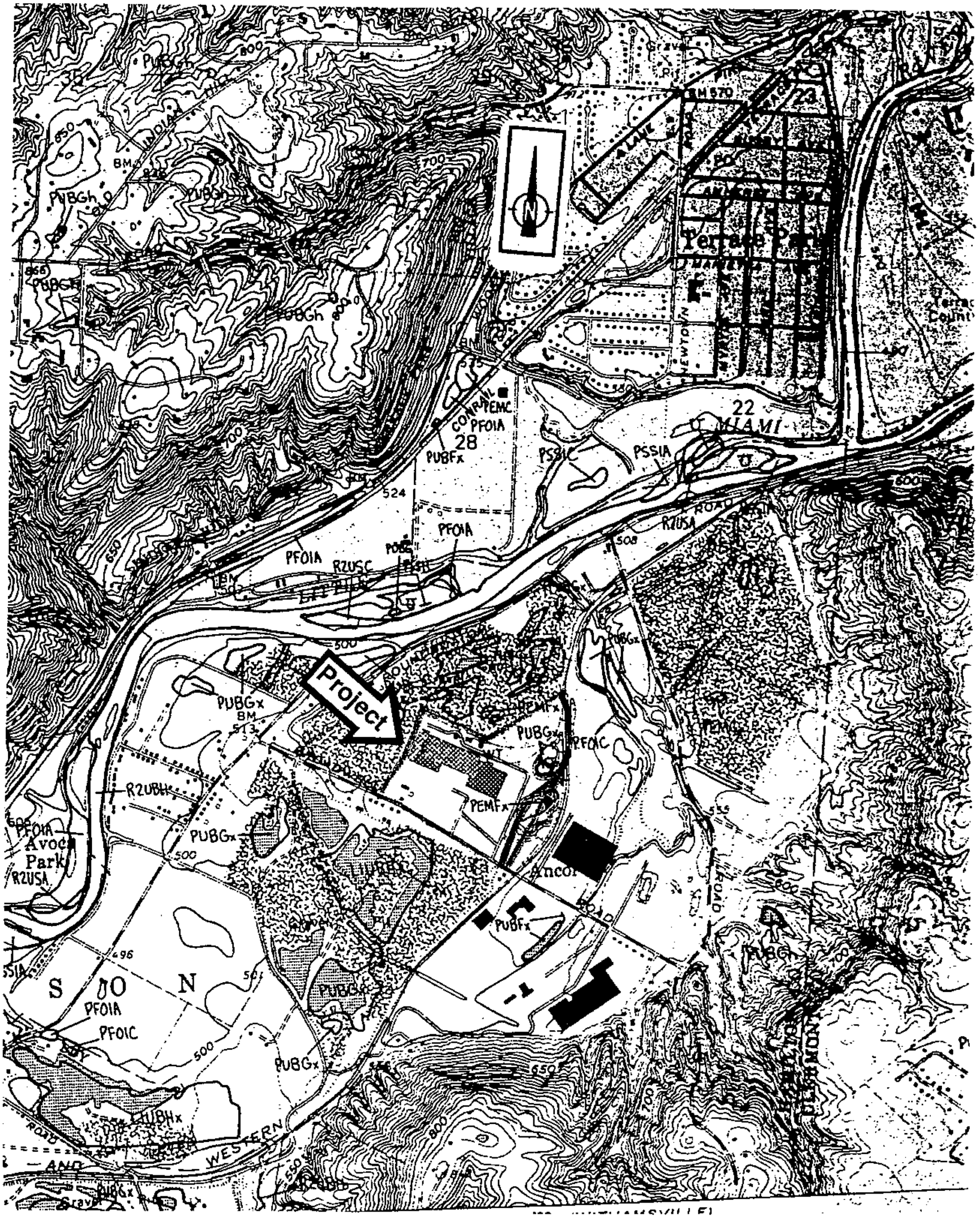
NOTES

City Directories Cincinnati Public Library

1855 - 1915 directories are not listed by address.
1915 - 1931 city directories were not available.

1931, 1935, 1940, 1945, 1951, 1954, 1961, 1967, 1971, 1974, 1980, 1985, and 1991 - The Project is not listed. Additionally Broadwell Road addresses in the vicinity of the Project are not listed in either Cincinnati or Hamilton County directories.
1995 - The Project is listed as Ball Corp.
Adjacent properties include industrial + residential listings
1998 - Brockway Standard New Jersey (metal cans)

Copies could not be produced due to out of order copy machines and the policy that directories must stay on the third floor of the library



EMG

Project Number: 55857
Project Name: Industrial Plant
Description: 1985 NWI Wetlands Map

Deed/Title Record Table

Project No: 55857 **Project Name:** Industrial Plant **Date:** 4/22/99
Performed by:

LIBER/FOLIO	PARTICIPANTS	DATE
	Milton Can Company Inc.	1996
	Heekin Can Inc.	1993
	Corporate Properties	1982
	Heekin can company	1965
	The Heekin Can company	1958
	General Motors Corp	1958
	Baldwin Piano Company	1957

8.2. Governmental Agency Records Attachments

8.2.1 General Public Records
8.2.2 Mapped Database Report
8.2.3 Regulatory Compliance Records
8.2.4 Regulatory Violations
8.2.5 Regulatory Agency Correspondence

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220

ATLANTA • BALTIMORE • BOSTON • CHICAGO • DALLAS • DENVER • DETROIT • HARTFORD • KANSAS CITY • LAS VEGAS
LOS ANGELES • MILWAUKEE • NEW YORK • PHOENIX • PORTLAND • SAN FRANCISCO • SEATTLE • SPOKANE • TRENTON

EcoSearch Environmental Resources, Inc.

9365 Counselors Row Suite 104
Indianapolis, Indiana 46240
ph: (317) 574-8830 fax: (317) 574-8840

EcoSearch Environmental Site Assessment

Type of Report:	Instant Online Risk Report
Site Location:	**Industrial Plant** **8200 Broadwell Rd** **Cincinnati, OH 45244**
Date:	April 19, 1999
Report ID Number:	1719-701
Especially Prepared For:	Ms. Stephanie Roberts Environmental Management Group
PO Number:	55857

Thank you for choosing EcoSearch.

Database Descriptions -- Federal Databases

NPL

National Priorities List

US Environmental Protection Agency	Data Date:	October 7, 1998
Office of Solid Waste and Emergency Response	Release Date:	November 18, 1998
(703) 603-8881	Active Date:	December 9, 1998

The NPL is a subset of the CERCLIS and lists over 1,150 of the nation's most dangerous sites of uncontrolled or hazardous waste which require cleanup. Also known as the Superfund List, the sites are scored according to the hazardous ranking system.

CERCLA (Active)

Comprehensive Environmental Response, Compensation, and Liability Information System (Active)

US Environmental Protection Agency	Data Date:	October 7, 1998
Office of Solid Waste and Emergency Response	Release Date:	November 18, 1998
	Active Date:	December 9, 1998

CERCLIS maintains information on over 15,000 sites nationally identified as hazardous or potentially hazardous which may require action. These sites are currently being investigated or an investigation has been completed regarding the release of hazardous substances. The most serious of this list as ranked by the hazardous ranking system are transferred to the NPL.

CERCLA (NFRAP Archive)

Comprehensive Environmental Response, Compensation, and Liability Information System (NFRAP Archive)

US Environmental Protection Agency	Data Date:	October 7, 1998
Office of Solid Waste and Emergency Response	Release Date:	November 18, 1998
	Active Date:	December 9, 1998

For more complete information purposes we include sites which have been reclassified as No Further Remedial Action Planned (NFRAP) by the EPA. This action was taken by the EPA beginning February 1995 as a part of the Brownfields Redevelopment Program. These former CERCLIS sites, also known as the CERCLIS Archive, have been delisted because a lack of significant contamination was found.

RCRA TSD

Resource Conservation and Recovery Information System -- Treatment, Storage, and Disposal Facilities

US Environmental Protection Agency	Data Date:	January 1, 1999
Office of Solid Waste and Emergency Response	Release Date:	February 2, 1999
(202) 260-4348	Active Date:	April 5, 1999

RCRIS contains information on hazardous waste handlers regulated by the US Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA). It is a national system used to track events and activities which fall under RCRA. The TSD database is a subset of the complete RCRIS file which includes facilities which treat, store, dispose, or incinerate hazardous waste. Additionally, compliance and corrective action (CORRACTS) information is included.

RCRA LQ Generator

Resource Conservation and Recovery Information System -- Large Quantity Generator

US Environmental Protection Agency	Data Date:	January 1, 1999
Office of Solid Waste and Emergency Response	Release Date:	February 2, 1999
(202) 260-4348	Active Date:	April 5, 1999

RCRIS contains information on hazardous waste handlers regulated by the US Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA). It is a national system used to track events and activities which fall under RCRA. The generators database is a subset of the complete RCRIS file which includes hazardous waste generators which create more than 100kg of hazardous waste per month or meet other requirements of RCRA.

RCRA SQ Generator

Resource Conservation and Recovery Information System -- Small Quantity Generator

US Environmental Protection Agency
Office of Solid Waste and Emergency Response
(202) 260-4348

Data Date: January 1, 1999
Release Date: February 2, 1999
Active Date: April 5, 1999

RCRIS contains information on hazardous waste handlers regulated by the US Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA). It is a national system used to track events and activities which fall under RCRA. The generators database is a subset of the complete RCRIS file which includes hazardous waste generators which create more than 100kg of hazardous waste per month or meet other requirements of RCRA.

RAATS

RCRA Administrative Action Tracking System

US Environmental Protection Agency
Office of Enforcement and Compliance Assurance
(202) 564-4104

Data Date: April 14, 1995
Release Date: Not Available
Active Date: April 17, 1995

The RCRA Administrative Action Tracking System contains additional information on RCRA enforcement actions. Data includes the type of action, proposed penalty, and final penalty amount.

CORRACTS

Resource Conservation and Recovery Information System -- Corrective Action Sites

US Environmental Protection Agency
Office of Solid Waste and Emergency Response
(202) 260-4610

Data Date: January 1, 1999
Release Date: February 2, 1999
Active Date: April 5, 1999

The CORRACTS database includes RCRIS (Resource Conservation and Recovery Information System) sites with reported corrective action. This information is also reported in the standard RCRIS detailed data.

ERNS

Emergency Response Notification System

US Environmental Protection Agency
Office of Solid Waste and Emergency Response
(202) 260-2342

Data Date: January 19, 1999
Release Date: January 19, 1999
Active Date: March 8, 1999

ERNS is a national database which contains information on specific notification of releases of oil and hazardous substances into the environment. The system stores data regarding the site of the spill, the material released, and the medium into which it occured. As a joint effort, the Department of Transportation and the Environmental Protection Agency have collaborated to compile more than 290,000 records.

Database Descriptions -- State Databases

MSL (HWS)

Ohio Master Sites List

Ohio Environmental Protection Agency		Data Date:	December 31, 1996
Division of Emergency and Remedial Response		Release Date:	February 3, 1997
(614) 644-2924		Active Date:	March 5, 1997

This database identifies sites deemed by the State of Ohio for remediation. It is released on an annual basis by the Ohio EPA.

SWF

Ohio Solid Waste Facilities

Ohio Environmental Protection Agency		Data Date:	October 15, 1998
Division of Solid and Infectious Waste Management		Release Date:	October 15, 1998
(614) 728-5354		Active Date:	December 18, 1998

This state database lists known active and inactive solid waste disposal sites in the State of Ohio. For more complete information purposes, identified town gas sites are included. Where incomplete address information was given, inactive and town gas sites were plotted according to the latitude and longitude provided by the State. The current portion of this list is updated and released annually by the Ohio EPA.

LUST

Ohio Leaking Underground Storage Tank List

Ohio Division of State Fire Marshal		Data Date:	November 20, 1998
Bureau of Underground Storage Tank Regulation		Release Date:	December 1, 1998
(614) 752-7938		Active Date:	February 5, 1999

The Ohio LUST list provides information on known leaking underground storage tanks and tank removal actions in the State of Ohio.

UST

Ohio Underground Storage Tank List

Ohio Division of State Fire Marshal		Data Date:	November 20, 1998
Bureau of Underground Storage Tank Regulation		Release Date:	December 1, 1998
(614) 752-7924		Active Date:	February 5, 1999

The Ohio UST list provides the location of registered underground storage tanks. Recently, the Bureau of Underground Storage Tank Regulation removed from the publicly available list of underground storage tanks all tanks with a "removed" status, citing the availability of all sites with tank removals on the LUST list.

EcoSearch Statistical Overview

Property Information					
8200 Broadwell Rd					
Cincinnati, OH 45244					
Latitude:	39.13905	N	Longitude:	84.321493	W

Search Parameters	
Report:	Instant Online Risk Report
Radii:	ASTM*
Zip Code(s):	45244
City:	Cincinnati

FEDERAL DATABASES	Radius (miles)	Mappable Sites					Unmappable Sites		
		Total	Site	within 0.13mi	0.13 - 0.50mi	0.50 - 1.00mi	Zip Code	City	County
NPL	1.000	0	0	0	0	0	0	0	0
CERCLA (Active)	0.500	0	0	0	0	-	0	0	0
CERCLA (NFRAP Archive)	0.500	1	1	0	0	-	0	0	0
RCRA TSD	1.000	0	0	0	0	0	0	0	0
RCRA LQ Generator	0.125	1	1	0	-	-	0	0	0
RCRA SQ Generator	0.125	0	0	0	-	-	0	0	0
CORRACTS	1.000	0	0	0	0	0	0	0	0
ERNS	0.125	1	1	0	-	-	-	-	-

STATE DATABASES	Radius (miles)	Mappable Sites					Unmappable Sites		
		Total	Site	within 0.13mi	0.13 - 0.50mi	0.50 - 1.00mi	Zip Code	City	County
MSL (HWS)	1.000	1	1	0	0	0	0	0	0
SWF	0.500	1	0	1	0	-	0	0	0
LUST	0.500	2	1	0	1	-	0	0	0
UST	0.125	0	0	0	-	-	0	0	0

MANUAL GEOCODING:^ For this city/township, **3455** sites were manually plotted by EcoSearch.

* This database search and study radii meets or exceeds the ASTM (American Society of Testing and Materials)standards for a government records review. N/A denotes an ASTM-required database which is not available from the state.

^ Manual Geocoding: Plotting environmental site data using paper maps and phone calls to properly place the information on the map.

Accurate street addresses are required for records to be found at the study property.

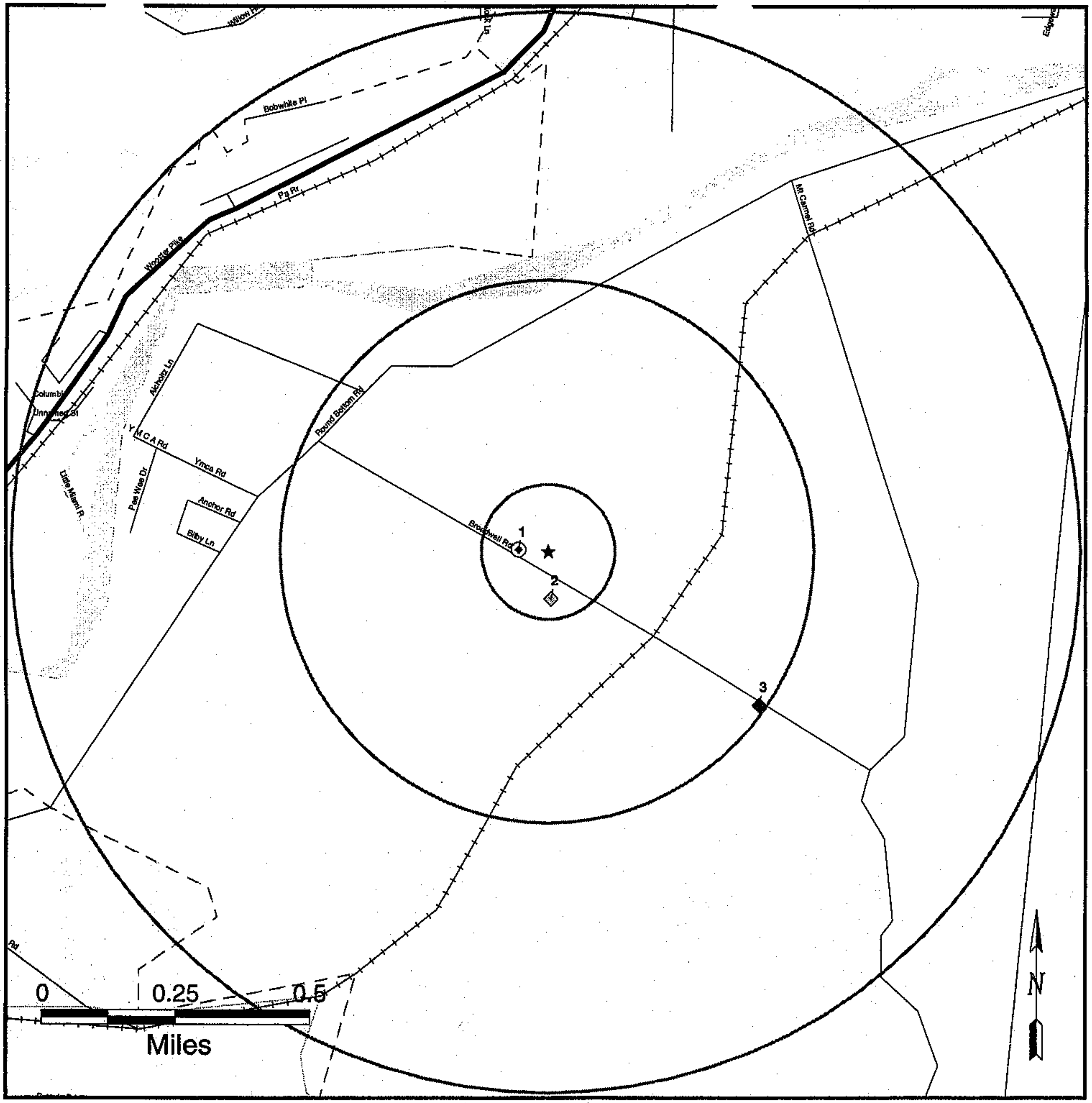
Mappable Sites are environmental sites which were located and appear on the enclosed EcoSearch Map, Site Summary, and Detailed Data sections of the report. These sites are summarized based on proximity to the study site.

Unmappable Sites are governmental records with incomplete or inaccurate address information. These sites could not be located on the street map, but have been searched by the Zip Codes, Cities, and County specified in the search parameters. Further investigation of these sites and their relationship to your study site is necessary.

EcoSearch Environmental Resources, Inc.

Instant Online Risk Report Map

Report ID: 1719-701
Site: 8200 Broadwell Rd
Cincinnati, OH 45244



★ Study Site
Study Site Matches Database

FEDERAL DATABASES	Radius (mi)
NPL Sites	1.00
CERCLA (Active) Sites	0.50
CERCLA (NFRAP Archive) Sites	0.50
RCRA TSD Sites	1.00
RCRA LQ Generator Sites	0.13
RCRA SQ Generator Sites	0.13
CORRACTS Sites	1.00
ERNS Sites	0.13
STATE DATABASES	
MSL (HWS) Sites	1.00
SWF Sites	0.50
LUST Sites	0.50
UST Sites	0.13

MULTIPLE MATCHES / AREAS

Two Database Matches
Three or More Matches
Database Area Site

MAP LEGEND

Parks
Incorp. Areas
Water
Cemeteries
Streets
Secondary Roads
Primary Roads
Freeways
Railroads
Boundaries

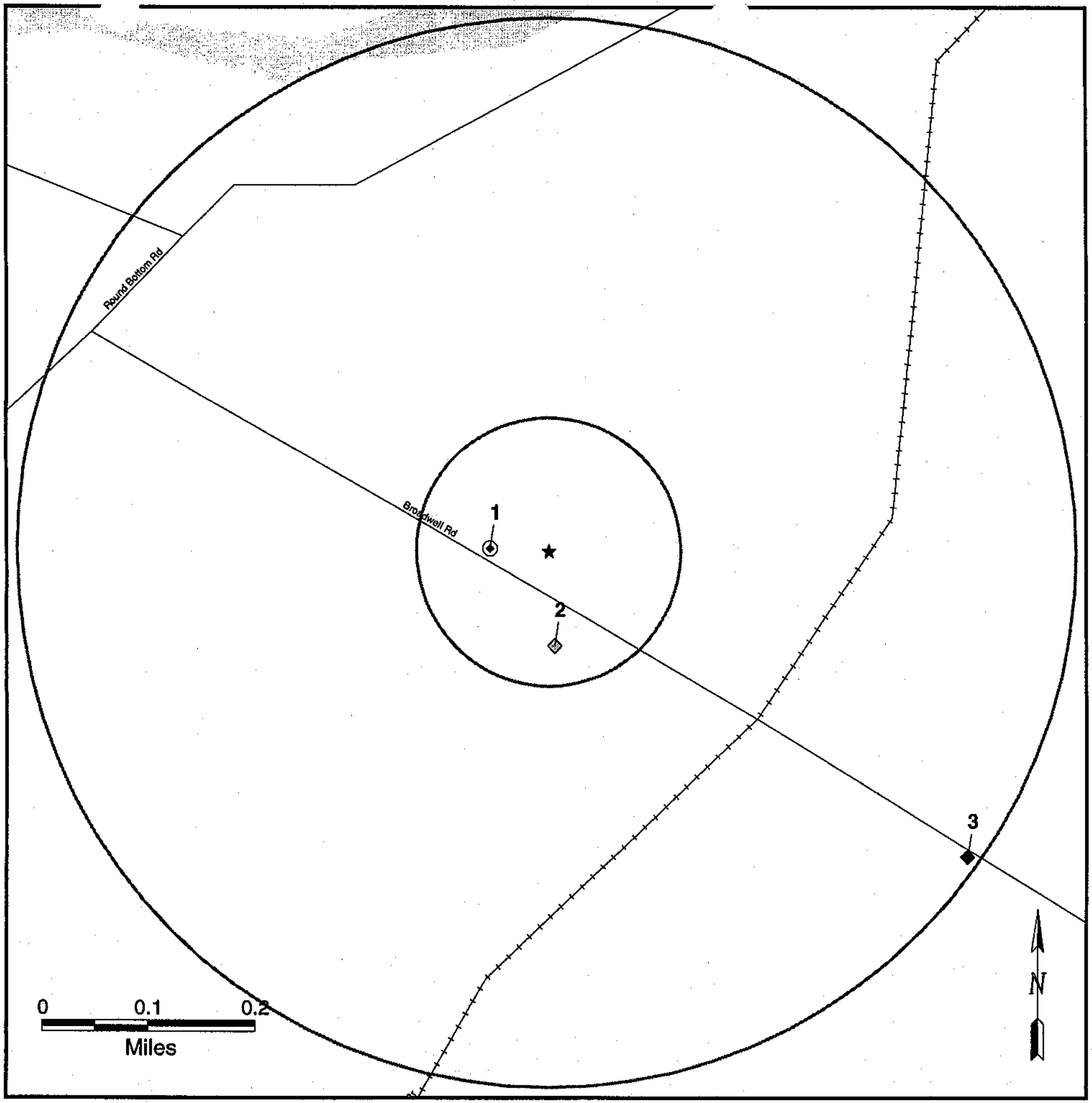
Note: The information contained on this map is subject to the general disclaimer on the first page.

EcoSearch Environmental Resources, Inc.

Instant Online Risk Report Map

Report ID: 1719-701

Site: 8200 Broadwell Rd
Cincinnati, OH 45244



★ Study Site
Study Site Matches Database

FEDERAL DATABASES	Radius (mi)
NPL Sites	1.00
CERCLA (Active) Sites	0.50
CERCLA (NFRAP Archive) Sites	0.50
RCRA TSD Sites	1.00
RCRA LQ Generator Sites	0.13
RCRA SQ Generator Sites	0.13
CORRACTS Sites	1.00
ERNS Sites	0.13
STATE DATABASES	
MSL (HWS) Sites	1.00
SWF Sites	0.50
LUST Sites	0.50
UST Sites	0.13

MULTIPLE MATCHES / AREAS

Two Database Matches
Three or More Matches
Database Area Site

MAP LEGEND

Parks
Incorp. Areas
Water
Cemeteries
Streets
Secondary Roads
Primary Roads
Freeways
Railroads
Boundaries

Radii: 0.13 mile, 0.50 mile, 1.00 mile

Note: The information contained on this map is subject to the general disclaimer on the first page.

Source: United States Geological Survey, 7.5 minute Topographic Map (Digital Raster Graphics)

EcoSearch Environmental Resources, Inc.

USGS 7.5 Minute Topographical Map

Report ID: 1719-701

Site: 8200 Broadwell Rd
Cincinnati, OH 45244

○ Study Site

Map Features are Color Coded

Black -- Cultural features such as roads and buildings.

Blue -- Hydrographic features such as lakes and rivers.

Brown -- Hypsographic (elevation) features shown by contour lines.

Green -- Woodland cover, scrub, orchards, and vineyards.

Red -- Important roads and public land survey system.

Purple -- Features added from aerial photographs during map revision. The changes are not field checked.

A detailed Topographic Map Symbols pamphlet is available from EcoSearch free upon request.

Radii: 0.25 mile, 0.50 mile, 1.00 mile

Topographical Maps:
Madeira, OH -- 1961
Photorevised 1988
Withamsville, OH KY -- 1983
Photorevised 1992

Site Summary

Map ID#	Database / Agency ID#	Site Name, Address, and County	Distance/Direction
1A	RCRA LQ Generator RCRA Large Quantity Generator OHD004253225	MILTON CAN CO INC 8200 BROADWELL RD CINCINNATI, OH 45244-1608 HAMILTON	0.05589 mi W **Manually Geocoded***
1B	LUST Ohio Leaking Underground Storage Tank 31944600-0	HEEKIN CAN INC 8200 BROADWELL RD CINCINNATI, OH 45244-1608 HAMILTON	0.05589 mi W **Manually Geocoded***
1C	CERCLA CERCLA Site (Delisted NFRAP Site) OHD004253225	HEEKIN CAN DIVISION (SIA) 8200 BROADWELL RD CINCINNATI, OH 45244-1608 HAMILTON	0.05589 mi W **Manually Geocoded***
1D	ERNS Emergency Response Notification System 453681	HEEKIN CAN INC 8200 BROADWELL RD CINCINATTI, OH HAMILTON	0.05589 mi W **Manually Geocoded***
1E	MSL (HWS) Ohio Master Sites List 531-0963	HEEKIN CAN DIVISION 8200 BROADWELL RD CINCINNATI, OH 45244-1608 HAMILTON	0.05589 mi W **Manually Geocoded***
2	SWF Ohio Inactive Solid Waste Facility 240	ANDERSON TOWNSHIP LANDFILL SOUTH OF JUNCTION OF BROADWELL & ROUNDBOTTOM ROADS ANDERSON TWP., OH HAMILTON	0.08806 mi S **Agency Provided Lat/Long****
3	LUST Ohio Leaking Underground Storage Tank 31503140-0	INTERPAVE CORP 8479 BROADWELL RD CINCINNATI, OH 45244-1611 HAMILTON	0.48831 mi ESE **Manually Geocoded***

* -- Manually Geocoded: Site plotted or corrected using paper maps, phone calls, and other resources to properly place the site on the map.

** -- Agency Provided Lat/Long: Site plotted using the latitude and longitude given by the federal or state government agency.

*** -- Area Manually Plotted: Area manually drawn using digital and paper maps.

CERCLA Archive Data

Delisted Comprehensive Environmental Response, Compensation, and Liability Act Sites (Archive Sites)

Map ID#: **1C**
Distance (mi): **0.055890**
Direction: **W**
EPA ID#: **OHD004253225**
CERCLIS Site ID#: **0504188**
Status: This site has been delisted from CERCLIS
No Further Remedial Action Planned

Facility Name: **HEEKIN CAN DIVISION (SIA)**
Address: **8200 BROADWELL ROAD**
City, State, Zip: **CINCINNATI, OH 45244**
County: **HAMILTON**

Federal Facility Indicator: **Not a Federal Facility**
Ownership Indicator: **Other**
Comments: **Not Reported**

NPL Status: **Not on the NPL**
RCRIS Facility Indicator: **Not Reported**

Event	Date Started	Date Completed
DISCOVERY	**Not Reported**	**1986-10-27**
PRELIMINARY ASSESSMENT	**Not Reported**	**1987-10-27**
SITE INSPECTION	**Not Reported**	**1992-11-09**

RCRA TSD and Generators Data

Facility and Compliance Information

Map ID#:	1A	Distance (mi):	0.055890	Name:	MILTON CAN CO INC		
		Direction:	W	Address:	8200 BROADWELL RD		
EPA ID#:	OHD004253225			City, State, Zip:	CINCINNATI	OH	45244
Status:	Large Quantity Generator						

Land Type: **Private Land**

SIC Code: **3411**
Contact Name: **T WILKENING**
Contact Phone: **513-474-3020**

RCRA Evaluation / Violation / Enforcement Data

EVALUATIONS

Eval. #:	19850514001	Agency:	State	Evaluation Date:	05/14/1985
Eval. #:	19860306002	Agency:	State	Evaluation Date:	03/06/1986
Eval. #:	19860415003	Agency:	State	Evaluation Date:	04/15/1986
Eval. #:	19860724004	Agency:	State	Evaluation Date:	07/24/1986
Eval. #:	19870220005	Agency:	State	Evaluation Date:	02/20/1987
Eval. #:	19880616006	Agency:	State	Evaluation Date:	06/16/1988
Eval. #:	19880916007	Agency:	State	Evaluation Date:	09/16/1988
Eval. #:	19880916008	Agency:	State	Evaluation Date:	09/16/1988
Eval. #:	19890106009	Agency:	State	Evaluation Date:	01/06/1989
Eval. #:	19891030010	Agency:	State	Evaluation Date:	10/30/1989
Eval. #:	19900731011	Agency:	State	Evaluation Date:	07/31/1990
Eval. #:	19900731012	Agency:	State	Evaluation Date:	07/31/1990
Eval. #:	19911017013	Agency:	State	Evaluation Date:	10/17/1991
Eval. #:	19970318001	Agency:	State	Evaluation Date:	03/18/1997

VIOLATIONS

Viol. #:	OHD004253225S0001	Violation Type:	Generator - Any Requirements	Actual Resolution Date:	10/22/1986
Viol. #:	OHD004253225S0002	Violation Type:	Generator - Any Requirements	Actual Resolution Date:	10/12/1988
Viol. #:	OHD004253225S0003	Violation Type:	Generator - Any Requirements	Actual Resolution Date:	10/12/1988
Viol. #:	OHD004253225S0004	Violation Type:	Generator - Any Requirements		
Viol. #:	OHD004253225S0005	Violation Type:	Generator - Any Requirements	Actual Resolution Date:	11/29/1991

ENFORCEMENTS

Enf. #:	19860724001	Agency:	State	Type:	Written Informal	Date:	07/24/1986
Enf. #:	19880620002	Agency:	State	Type:	Written Informal	Date:	06/20/1988
Enf. #:	19880919003	Agency:	State	Type:	Written Informal	Date:	09/19/1988
Enf. #:	19900806005	Agency:	State	Type:	Written Informal	Date:	08/06/1990
Enf. #:	19900914004	Agency:	State	Type:	Written Informal	Date:	09/14/1990
Enf. #:	19911028006	Agency:	State	Type:	Written Informal	Date:	10/28/1991
Enf. #:	19921021007	Agency:	State	Type:	Final 3008(a) Compliance Order	Date:	10/21/1992

RAATS (RCRA Administrative Action Tracking System) Data

No RAATS Information Reported for this Site

RCRA Corrective Action Data (CORRACTS) Instrument and Event Data

No Corrective Action Instrument Information for this Site

Event Date	Event Description	Agency	Program	Reported Status
9/29/89	RFA Completed	EPA	RCRA	Not Reported
9/29/89	Determination of a need for an RFI	EPA	RCRA	RFI is necessary
9/27/91	Corrective Action Prioritization	EPA	RCRA	Medium Priority
3/31/94	Corrective Action Prioritization	EPA	RCRA	Medium Priority

RCRA Wastes and Waste Code Information previously reported by EcoSearch have been removed from the RCRIS database by the USEPA.

ERNS Data

Emergency Response Notification System Data

Map ID#: **1D** Distance (mi): **0.055890** Direction: **W**

ID #: **453681** Location: **HEEKIN CAN INC 8200 BROADWELL RD** City, State, Zip: **CINCINATTI, OH**

Time Released: **9/11/95 18:20** Deaths: **0** Injuries: **1** Evacuations: **0** Property Damage: **0.00**

Medium Affected: **Air**
Name of Affected Medium: **ATMOSPHERE / CONCRETE**

Cause of Release: **Not Reported**
Additional Cause: **Not Reported**

Source: **Not Reported**
Transportation Mode: **Fixed Facility**

Discharger Information (if reported):
BALL CORP
9300 W 108 CIRCLE
BROOMFEILD CO 80021

Release Description: **55 GAL DRUM / DURING TRANSFER FROM 800GAL BULK TANK DRUM OVERFLOW**

Action Description: **SECURED / CONTRACTOR HIRED FOR CLEANUP / FIRE DEPT ON SCENE / RELEASED MATERIAL WAS WITHIN COATING SOLVENT (ZYLENE,MIBK,ISOPHORONE,BUTANOL)**

Misc. Information: **TOTAL AMOUNT OF COATING SOLVENT RELEASED TO CONCRETE: 50GAL / SOLVENT IS EVAPORATING AT UNKNOWN RATE / WILL NOTIFY: STATE AIR DISTRICT**

Material(s) Spilled:	Quantity	Units	Quan in Water	Units in Water	Pounds
BUTYL CELLOSOLVE	32.00	LBS		NON	32.00

Ohio MSL Data

Ohio Master Sites List Data

Map ID#:	1E	Distance (mi):	0.05589	Name:	HEEKIN CAN DIVISION
		Direction:	W	Address:	8200 BROADWELL RD
Agency ID:	531-0963			City, State, Zip:	CINCINNATI, OH 45244
EPA ID:	OHD004253225				
Status:	Not Reported				

Ohio Inactive SWF Data

Ohio Inactive Solid Waste Facilities Data

Map ID#:	2	Distance (mi):	0.08806	Name:	ANDERSON TOWNSHIP LANDFILL
		Direction:	S	Reported Location:	SOUTH OF JUNCTION OF BROADWELL & ROUNDBOTTOM ROADS.
EcoSearch ID:	240			Reported Street:	8311 BROADWELL ROAD
				City, State, Zip:	ANDERSON TWP., OH
Year Reported Closed:	1986			County:	HAMILTON
Waste Types:	GENERAL			Reported Latitude:	39 08 16
Reported Capacity:	22AC50FT			Reported Longitude:	84 19 17
Owner Information:	ANDERSON TOWNSHIP LANDFILL, INC.				
Address:	10777 HUGHES ROAD				
Town / City / Zip:	CINCINNATI		45247		

Ohio LUST Data

Ohio Leaking Underground Storage Tank Data

Map ID#:	1B	Distance (mi):	0.05589	Name:	HEEKIN CAN INC
Agency ID:	31944600-0	Direction:	W	Address:	8200 BROADWELL RD
				City, State Zip:	CINCINNATI, OH 45244

Status: **No Further Action -- A release was confirmed with initial and/or long-term corrective action performed. The Bureau has determined that further corrective actions are not necessary.**

Classification: **D -- Known, suspected, or confirmed source and responsible party is voluntarily or after informal action, proceeding with investigation or corrective action.**

Priority: **2 -- Lower priority** Record Last Update by Bureau: **03/20/92**

Map ID#:	3	Distance (mi):	0.48831	Name:	INTERPAVE CORP
Agency ID:	31503140-0	Direction:	ESE	Address:	8479 BROADWELL RD
				City, State Zip:	CINCINNATI, OH 45244

Status: **No Further Action -- A release was confirmed with initial and/or long-term corrective action performed. The Bureau has determined that further corrective actions are not necessary.**

Classification: **D -- Known, suspected, or confirmed source and responsible party is voluntarily or after informal action, proceeding with investigation or corrective action.**

Priority: **2 -- Lower priority** Record Last Update by Bureau: **06/26/95**

Unmappable Sites

A limitation of many records of governmental databases is incomplete or incorrect address information. Without proper addresses, it is more difficult to locate and map these sites.

Instead of leaving these potentially important sites out of the manually geocoded EcoSearch report, we implement a painstaking manual geocoding strategy aimed at plotting these unmappable sites by looking at zip codes, city names, and county names identified with the radius around your study site. The zip codes, cities, and counties searched are identified on the EcoSearch Statistical Overview page.

Our sophisticated mapping software, enhanced TIGER street maps, and address correction database processing methods find and plot most environmental sites. We then perform manual geocoding, plotting those sites the computer fails to find using a variety of resources. These include using our in-house collection of paper maps, directories, cross-referencing database information, and calling post offices, local government, or the sites themselves to accurately locate environmental records. We also correct obvious TIGER street map errors and omissions.

This effort at manual geocoding results in a short or non-existant orphan/unmappable list and increases accuracy and reliability of the data in our reports. The EcoSearch Instant Online and Preview reports take advantage of all previous geocoding work that has been done providing the highest quality report virtually instantaneously. The potential remains that an order can be placed in an area which has not been worked, thus resulting in more unmappables than typically associated with an EcoSearch report.

The limited number of sites which could not be reasonably found through our geocoding strategy are presented in this section for further review to assess their impact on your study site.

After the summary unmappable site information, the detailed data follows.

Unmappable Sites

Database	Agency ID#	Site Name and Address	County

No unmappable sites were found for this report.

FAX
Cover Sheet

TO: Name	GREG SHINGLER	Fax #	(410) 78~~3~~5-5220
Company	EMG, INC.	Phone #	(410) 785-6200
FROM Name	CINDY LEWIS	Fax #	(614) 644-3250
Company	OHIO EPA / DERR / ER	Phone #	(614) 644-2084

DESCRIPTION

There was nothing found on the following request:

Re: Former Heekin Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244

No. of pages (including cover) 1

Date: June 10, 1999	Time: 7:37am

If there are any problems receiving this transmission call:	Name: Brenda Jones
	Phone: (614) 752-0788

EMG An Environment For Success.

11011 McCORMICK ROAD
BALTIMORE, MARYLAND 21031

410 785 6200 / 800 733 0660
FAX 410 785 6220

1 Page.

Fax # (614) 752-7942

Hamilton County
Incident # 3/944600-0

File review

Re: Heekin Can Inc.
8200 Broadwell Road
Cincinnati, Ohio 45244

Dear Ms. Sue Kist

EMG is an environmental consulting firm acting pursuant to the request of the owners of the subject facility to conduct an investigation of current or historical conditions which could potentially impact the environmental condition of the property. Through the Freedom of Information Act, we request any available information on file which is related to potential environmental issues concerning the above referenced facility. Specifically, please provide access to information concerning existing or historical conditions and violations relating to:

- Please copy, invoice and send all file information for the above listed site. regarding the following:
  - UST removal(s)
  - Remediation (if any)

Please include EMG Project Number 55857 on all correspondence forwarded to our offices; any written responses should be sent to the following address:

EMG, Inc.
11011 McCormick Road
Hunt Valley, Maryland 21031

Environmental Management Group appreciates your efforts in responding to this request and if you have additional questions, please contact this office at (410) 785-6200 or 1-(800)-733-0660.

Greg Shingler
Sincerely,

EMG, Inc.

Attn: Region 5
FOIA Officer

EMG An Environment For Success.

11011 McCORMICK ROAD
BALTIMORE, MARYLAND 21031

410 785 6200 / 800 733 0660
FAX 410 785 5220

F (312) 886-1515
1 page.

Re: Former Heekin Can Company
8200 Broadwell Road
Cincinnati, ohio 45244

Dear Region 5 FOIA officer

EMG is an environmental consulting firm acting pursuant to the request of the owners of the subject facility to conduct an investigation of current or historical conditions which could potentially impact the environmental condition of the property. Through the Freedom of Information Act, we request any available information on file which is related to potential environmental issues concerning the above referenced facility. Specifically, please provide access to information concerning existing or historical conditions and violations relating to:

- ERNS
  RCRIS - Generator
  and NFRAP (Cercla archive) listings for above site.

Please include EMG Project Number 5585 on all correspondence forwarded to our offices; any written responses should be sent to the following address:

EMG, Inc.
11011 McCormick Road
Hunt Valley, Maryland 21031

Environmental Management Group appreciates your efforts in responding to this request and if you have additional questions, please contact this office at (410) 785-6200 or 1-(800)-733-0660.

Sincerely,
Greg Shingler
EMG, Inc.

EMG An Environment For Success.

F (614) 644-2924
1 page

11011 McCORMICK ROAD
BALTIMORE, MARYLAND 21031

410 785 6200 / 800 733 0660
FAX 410 785 6220

Re: Former Heekin Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244

Dear Ms. Cindy Lewis

EMG is an environmental consulting firm acting pursuant to the request of the owners of the subject facility to conduct an investigation of current or historical conditions which could potentially impact the environmental condition of the property. Through the Freedom of Information Act, we request any available information on file which is related to potential environmental issues concerning the above referenced facility. Specifically, please provide access to information concerning existing or historical conditions and violations relating to:

- Hazardous Waste Site (HWS) listing for above site.

Please include EMG Project Number 55857 on all correspondence forwarded to our offices; any written responses should be sent to the following address:

EMG, Inc.
11011 McCormick Road
Hunt Valley, Maryland 21031

Environmental Management Group appreciates your efforts in responding to this request and if you have additional questions, please contact this office at (410) 785-6200 or 1-(800)-733-0660.

Sincerely,
Greg Shingler
EMG, Inc.

8.3. Interview Records Attachments

8.3.1 Records of Communication

EMG

Record of Communication

Date: April 24, 1999 **Time:** 9:00 AM
Project Number: 55857 **Recorded by:** Greg Shingler
Project Name: Industrial Plant

Communication with: Assistant Chief Craig Best
of: Anderson Township Fire Department
Phone: (513) 474-5562

Communication via:

- [x] Telephone Conversation
- [ ] Discussions During Site Inspection
- [ ] Office Visitation/Meeting at: ___
- [ ] Other: ___

Re:
Tanks and hazardous materials

Summary of Communication:
There are only above ground tanks at the Project. Mr. Best was unaware of any hazardous materials mishandlings or releases. Available records date to the 1990s. Two process tanks (170 gal. each) were removed from the Project in 1998. Tanks were removed without incident, and no further action was required. These were not regulated tanks (under BUSTR). No removal permit required.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

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EMG

Record of Communication

Date: April 23, 1999
Time: 2:00 PM
Project Number: 55857
Recorded by: Greg Shingler
Project Name: Industrial Plant

Communication with: Martha Burbeck
of: Ohio EPA, Surface Water Division
Phone: (614) 644-3020

Communication via:

- [x] Telephone Conversation
- [ ] Discussions During Site Inspection
- [ ] Office Visitation/Meeting at: ___
- [ ] Other: ___

Re:
Sewer treatment facilities

Summary of Communication:
The Project has a sewer treatment facility which was permited in 1985. The Project submits analytical results on a semi-annual basis and meets the requirements of the OEPA.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

EMG

Record of Communication

Date: April 23, 1999
Time: 10:00 AM
Project Number: 55857
Recorded by: Greg Shingler
Project Name: Industrial Plant

Communication with: Kevin Reynolds
of: Cincinnati Water Department
Phone: ( )

Communication via:
- ☒ Telephone Conversation
- ☐ Discussions During Site Inspection
- ☐ Office Visitation/Meeting at: ___
- ☐ Other: ___

Re:
Water quality and source

Summary of Communication:
The Cincinnati water supply is obtained the Ohio River approximately five miles south of the Project. The utility meets all federal, state and local water quality standards, including lead.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

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Record of Communication

Date: April 22, 1999
Time: 4:00 PM
Project Number: 55857
Recorded by: Greg Shingler
Project Name: Industrial Plant

Communication with: Reference librarian
of: Cincinnati Public Library
Phone: ( )

Communication via:

- [ ] Telephone Conversation
- [x] Discussions During Site Inspection
- [ ] Office Visitation/Meeting at: ___
- [ ] Other: ___

Re:
Historical information

Summary of Communication:
Sanborn maps are available but do not extend to the Project area. City directories date to the 1800s. Copies can not be made due to the out of order copy machines and the directories must remain on the third floor of the library.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

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EMG

Record of Communication

Date: April 22, 1999
Time: 2:30 PM
Project Number: 55857
Recorded by: Greg Shingler
Project Name: Industrial Plant

Communication with: Harry (last name withheld)
of: Anderson Township Building and Zoning Department
Phone: (513) 474-5123

Communication via:

- ☒ Telephone Conversation
- ☐ Discussions During Site Inspection
- ☐ Office Visitation/Meeting at: ___
- ☐ Other: ___

Re:
Permits and zoning

Summary of Communication:
Building records date to 1987. No significant permits were noted in the Project file. The Project is zoned Industrial Development (ID) since 1996. The Project was previously zoned Heavy Industrial (G) from 1949 to 1996. Zoning records date to 1949.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220
ATLANTA • BALTIMORE • BOSTON • CHICAGO • DALLAS • DENVER • DETROIT • HARTFORD • KANSAS CITY • LAS VEGAS
LOS ANGELES • MILWAUKEE • NEW YORK • PHOENIX • PORTLAND • SAN FRANCISCO • SEATTLE • SPOKANE • TRENTON

EMG

Record of Communication

Date:	April 22, 1999	Time:	9:00 AM
Project Number:	55857	Recorded by:	Greg Shingler
Project Name:	Industrial Plant		

Communication with: Randy Stapp
of: Environmental Manager of Milton Can Company
Phone: (513) 388-2386

Communication via:

- [ ] Telephone Conversation
- [x] Discussions During Site Inspection
- [ ] Office Visitation/Meeting at: ___
- [ ] Other: ___

Re:
Site history

Summary of Communication:
The Project was constructed in 1952 through 1979 and has been occupied by Baldwin pianos, General Motors, and Heekin Can prior to Milton Can's occupation of the Project in 1996. The ceiling tiles at the Project have been replaced since 1981. Associated with the Project since 1997. Did not have any access to any prior reports.

Conclusions, Actions Taken, Required, or Recommended:
None

Follow-up Required: When, With and By Whom:
None

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220
ATLANTA • BALTIMORE • BOSTON • CHICAGO • DALLAS • DENVER • DETROIT • HARTFORD • KANSAS CITY • LAS VEGAS
LOS ANGELES • MILWAUKEE • NEW YORK • PHOENIX • PORTLAND • SAN FRANCISCO • SEATTLE • SPOKANE • TRENTON

RECORD OF COMMUNICATION

Date: 6/10/99 **Time:** 9:50am

Project Number: 55857 **Recorded by:** Bill Houser

Project Name: Industrial Plant

Communications with: Bruce Dunlavy

of: Ohio EPA

Phone: 419-352-8461

Communication via: Telephone Conversation

If Other, Explain: ____________

Re: Maximum contaminant levels for Selenium in soil

Summary of Communication: Ohio has not established a maximum contaminant level for selenium contamination in soil. There are, however, "Risk Based Concentrations". This level is 5100 mg/kg (ppm) for industrial properties and 390 mg/kg for residential properties. RBC's are used for preliminary assessments only, just to give an idea if further investigation is needed.

Conclusions, Actions Taken, Required, or Recommended: ____________

Follow up Required: When, With and By Whom: ____________

Corporation
(330) 487-5559

Via Facsimile Transmission
July 6, 1999
To: Gregory P. Shingler
EMG

Dear Greg:

The following are answers to the questions you asked of Randy Stapp regarding Phase One Environmental Assessment:

1. Q. What Type of permits are maintained? What are they for and what are their numbers for Air Permits, Storm Water Permits, Hazardous Waste Permits, Spray Field?
   A. All permits are environmental.
   -Air Permit, Title V #0000004136
   -Storm Water Permit—General Permit
   -Slow Rate Land Treatment 05-1299
   -Hazardous Waste Permit-- OHD004253225

2. Q. It looks like the Maintenance Building once utilized heating oil. Has any other portion of the facility used heating oil or any other alternate heat source (other than natural gas and electric). If so, what?
   A. The Maintenance Building houses the boilers that were used to generate steam for heating the entire facility. Now the boilers are fired by natural gas. No other part of the facility uses heating oil. All heat sources are either natural gas, propane or electric.

3. Q. -What are the coatings used for? 1)What are the Brand Names? 2)What are the chemical constituents? 3)Same for Solvents? 4)Are they chlorinated or petroleum based? 5)Excluding propane, what is the total amount of petroleum storage? 6)Is there a SPCC Plan?
   A. 1)The coatings provide the interior and exterior protection of the can from the products it holds and from the atmosphere. 2)The brand name of the coatings are: Glidden, Valspar, Akzo, PPG, Dexter, Unichem, National Coatings. There are numerous different coatings purchased from these suppliers. 3)The chemical constituents consist generally of a resin, a color constituent and a blend of solvents. 4)The solvents are petroleum based and used for clean up of the coating during change over from coating to coating. None of the solvents used in either the coating or solvents are chlorinated. They are all petroleum based. 5)Other than propane there are no large quantities stored at the facility. The petroleums at the facility are used for machine lubrication and stored in small quantities in 30-55 gallon drums. 6)The facility has an SPCC Plan.

4. Q. Dates of installation for: Trash Compactor; Cardboard Baler; Can Crusher?
   A. The installation dates are unknown.

Yours truly,

Leon J. Parker

Leon J. Parker
Director, Engineering & Technology

TOTAL P.01

Project Number: ________

CLIENT QUESTIONNAIRE

Communication with: Randy Stapp

Project No.: 55857

Project Name: Industrial Plant

Directions: Please answer all questions to the best of your knowledge and in good faith. Mark the column corresponding to the appropriate response. Note: *U-NR* indicated *"Unknown"* or *"No Response"*.

	Question	Owner/Occupant Yes	No	U-NR	Comments
1A.	Is the Project used for an industrial use?	✓			Aerosol can mfg & Lithography
1B.	Are any Adjoining Properties used for an industrial use?		✓		
2A.	To the best of your knowledge, has the Project been used for an industrial use in the past?	✓			Former can Mfg Facility
2B.	To the best of your knowledge, has any Adjoining Properties been used for an industrial use in the past?		✓		
3A.	Is the Project used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?		✓		
3B.	Is any Adjoining Property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?		✓		
4A.	To the best of your knowledge, has the Project been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?		✓		
4B.	To the best of your knowledge, has any Adjoining Property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	✓			Land Fill is South of The Project is inactive.
5A.	Are there currently any automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on or used at the Project?	✓			Large quantities of coatings, solvents & oils.

Project Number: 55857

5B.	To the best of your knowledge, have there been previously any automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on or used at the Project?			✓	
6A.	Are there currently any industrial Drums (typically 55 gallon) or sacks of chemicals located on the Project?	✓			
6B.	To the best of your knowledge, have there been previously any industrial Drums (typically 55 gallon) or sacks of chemicals located on the Project?	✓			Likely with Heekin Can
7A.	Has Fill Dirt been brought onto the Project which originated from a contaminated site?		✓		
7B.	Has Fill Dirt been brought onto the Project which is of an unknown origin?		✓		
8A.	Are there currently any Pits, Ponds or Lagoons located on the Project in connection with waste treatment or waste disposal?	✓			Pond associated with sewer treatment plant
8B.	To the best of your knowledge, have there been previously any Pits, Ponds or Lagoons located on the Project in connection with waste treatment or waste disposal?		✓		
9A.	Is there currently, any stained soil on the Project?		✓		
9B.	To the best of your knowledge, has there been previously any stained soil on the Project?		✓		
10A.	Are there currently any registered or unregistered storage tanks (above or underground) located on the Project?	✓			Above ground tanks. For water, Propane, Coatings, + nitrogen
10B.	To the best of your knowledge, have there been previously any registered or unregistered storage tanks (above or underground) located on the Project?	✓			Former USTs.
11A.	Are there currently any vent pipes, fill pipes or access ways indicating a fill pipe protruding from the ground on the Project or adjacent to any structure located on the Project?	✓			ASTs see (10a)
11B..	To the best of your knowledge, have there been previously any vent pipes, fill pipes or access ways indicating a fill pipe protruding from the ground on the Project or adjacent to any structure located on the Project?	✓			Former USTs.
12A.	Are there currently any flooring, drains, or walls located at the Project that are stained by substances other than water or are emitting foul odors?		✓		
12B.	To the best of your knowledge, have there been previously any flooring, drains, or walls located at the Project that are stained by substances other than water or are emitting foul odors?		✓		
13A.	If the Project is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system?		✓		

Project Number: 55857

13B.	If the Project is served by a private well or non-public water system, has the well been designated as contaminated by any government environmental/health agency?		✓		
14.	Are there any Environmental Liens or governmental notification relating to past or current violations of environmental laws with respect to the Project or any facility located on the Project?		✓		
15A.	Has the owner or occupant of the Project been informed of the past existence of Hazardous Substances or Petroleum Products with respect to the Project or any facility located on the Project?		✓		
15B.	Has the owner or occupant of the Project been informed of the current existence of Hazardous Substances or Petroleum Products with respect to the Project or any facility located on the Project?		✓		
15C.	Has the owner or occupant of the Project been informed of the past existence of environmental violations with respect to the Project or any facility located on the Project?		✓		
16.	Have there been any Environmental Site Assessments of the Project that indicated the presence of Hazardous Substances or Petroleum Products on, or contamination of, the Project or recommended further assessment of the Project?			✓	
17.	Are there any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any Hazardous Substance or Petroleum Products involving the Project?		✓		
18A.	Does the Project discharge waste water on or adjacent to the project, other than storm water, into a storm water sewer system?	✓			On-site sewage treatment system
18B.	Does the Project discharge waste water on or adjacent to the project, other than storm water, or into a sanitary system?		✓		
19.	Have any Hazardous Substances or Petroleum Products, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the Project?		✓		
20.	Is there a transformer, capacitor or any hydraulic equipment for which there are any records indicating the presence of PCBs?		✓		
21.	Is there now or has there ever been any asbestos-containing materials (ACM), in any application, on the Project?			✓	
22.	Has there ever been any ACM testing conducted on the Project?			✓	
23.	Is there now or has there ever been any lead-based paint (LBP) applications on the Project?			✓	
24.	Has there ever been LBP testing conducted on the Project?			✓	
25.	Has the water at the Project ever been tested for lead?			✓	

Project Number: 55857

26.	Has Radon testing ever been conducted at the Project?			√	
27.	Is the Project or any portion of the Project located or involved in any environmentally sensitive areas (i.e., wetlands, coastal barrier resource areas, coastal barrier improvement act areas, flood plains, endangered species, etc.)?		√		
28.	Summarize historical Project use (when was the Project developed with the current improvements, what modifications have taken place, what was the Project used for prior to it's current use)	The Project was previously farmland prior to the current Project developments between 1952 + 1979. The Project was also utilized as a piano manufacturer, a can company and occupied by General Motors.			

EMG

HEADQUARTERS: EMG CORPORATE CENTER 11011 McCORMICK ROAD BALTIMORE, MARYLAND 21031 800 733 0660 FAX 410 785 6220
ATLANTA • BALTIMORE • BOSTON • CHICAGO • DALLAS • DENVER • DETROIT • HARTFORD • KANSAS CITY • LAS VEGAS
LOS ANGELES • MILWAUKEE • NEW YORK • PHOENIX • PORTLAND • SAN FRANCISCO • SEATTLE • SPOKANE • TRENTON

Ohio EPA

Re: Hamilton County
Anderson Township
Application for Slow Rate Land Treatment System
Received November 23, 1984
~~From Mr. Thomas Wilkening, Director of Engineering~~

February 20, 1985

RECEIVED
FEB 22 1985
GENERAL ENGINEERING

Heekin Can, Inc.
8200 Broadwell Road
Cincinnati, Ohio 45244

CERTIFIED MAIL

Gentlemen:

Enclosed is the Ohio EPA Permit to Install which will allow you to install the described source in the manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

As indicated on the permit, you are required to pay a permit fee as provided for by Section 3745.11 of the Ohio Revised Code and any rules established thereunder. The exact amount of this fee is indicated on page 1 of the Permit to Install. This amount must be remitted within fifteen (15) days of the effective date of the Permit to Install. Checks should be made payable to: Treasurer, State of Ohio and sent to Permits Bookkeeper, Ohio Environmental Protection Agency, 361 East Broad Street, Columbus, Ohio 43216.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code by any person who was a party to this proceeding. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Law Division of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address:

Environmental Board of Review
250 East Town Street
Room 101
Columbus, Ohio 43215

You should note that a general condition of your permit states that issuance of the permit does not relieve you of the duty of complying with all applicable federal, state and local laws, ordinances and regulations.

If you have any questions, please contact the Ohio EPA District Office to which you submitted your application.

Sincerely,

Sandra J. Kemper

Sandra J. Kemper, Manager
Permits & Compliance Programs

SJK/sc

Copy to Mr. Roy O. Ball, PH.D., P.E.
" " Hamilton County Health Department
" " Southwest District Office, Industrial Waste

This permit shall expire if construction has not been initiated by applicant within eighteen months of the effective date of this permit. By accepting this permit, applicant acknowledges that this eighteen month period shall not be considered or construed as extending or having any effect whatsoever on any compliance schedule or deadline set forth in any administrative or court order issued to or binding upon the permit applicant, and applicant shall abide by such compliance schedules or deadlines to avoid the initiation of additional legal action by the Ohio EPA.

The Director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, examining records or reports pertaining to the construction, modification or installation of the above described source of environmental pollutants.

Issuance of this permit does not relieve you of the duty of complying with all applicable federal, state, and local laws, ordinances, and regulations.

This permit is conditioned upon payment of applicable fees as required by Section 3745.11 of the Ohio Revised Code.

The proposed wastewater disposal system shall be constructed in strict accordance with the plans and application approved by the Director of the Ohio Environmental Protection Agency. There may be no deviation from these plans without the express, written approval of the agency. Any deviations from these plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of this permit does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

This permit shall be invalid unless the permit fee specified above has been paid in full to the Ohio EPA within fifteen days of issuance of this permit to install.

No liquids, sludges, or toxic or hazardous wastes other than those set forth in the approved permit shall be accepted for disposal without the written approval of the Ohio Environmental Protection Agency.

The appropriate district office of the Ohio Environmental Protection Agency shall be notified, in writing prior to the start of construction, as to (a) the construction starting date; (b) the construction completion date; and (c) the date the wastewater disposal system was placed into operation.

The owner shall be responsible for the proper operation and maintenance of the wastewater disposal system.

SPECIAL CONDITIONS

1. All wasteater land applied shall be monitored for COD, total suspended solids, total dissolved solids, pH, fluoride, sulfate and total chromium, on a semi annual basis. This information should be submitted to Ohio Environmental Protection Agency (OEPA), Southwest District Office, Industrial Wastewater Group during the months of January and July.

2. The average daily amount of wastewater applied each month shall be reported for the previous three months on a quarterly basis to Ohio Environmental Protection Agency, Southwest District Office, Industrial Wastewater Group, in January, April, July and October.

3. All data on the ground water and soil monitoring shall be kept on file for a period of five years. This information shall be made available to the Ohio Environmental Protection Agency upon request.

4. Surface runoff to waters of the state and ponding must be avoided.

5. The land application field shall be seeded with a cover crop which must be cut and/or harvested as needed to maintain an effective treatment system.

6. Any major upset in the treatment system, resulting in treatment unit bypass or use of additional application areas shall be reported within twenty-four (24) hours to Ohio Environmental Protection Agency, Southwest District Office, Industrial Wasteater Group.

OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit to Install

Application No. 05-1299

Applicant's Name: Heekin Can, Inc. Permit Fee $300.00

Address: 8200 Broadwell Road

City: Cincinnati State: Ohio 45244

Telephone: (513) 388-2267

Description of Proposed Source: Slow Rate Land Treatment System, Anderson Township, Hamilton County

Issuance Date: February 20, 1985

Effective Date: February 20, 1985

The above named entity is hereby granted a permit to install for the above described source pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described source of pollutants will be granted the necessary operating permits. This permit is granted subject to the following conditions attached hereto:

Ohio Environmental Protection Agency

Steven J. Grossman
Acting Director
361 East Broad Street
Columbus, Ohio 43215

RECEIVED
FEB 22 1985
GENERAL ENGINEERING

REPORT ON PERMIT TO INSTALL

SLOW RATE LAND TREATMENT SYSTEM

TO SERVE HEEKIN CAN, INCORPORATED

LOCATED IN CINCINNATI, OHIO

Spray fields

Introduction

Application for Permit to Install (PTI) #05-1299 was received at the Southwest District Office of the Ohio Environmental Protection Agency (OEPA), November 23, 1984. This PTI was submitted by Thomas L. Wilkening, Director of Engineering for Heekin Can, Incorporated 8200 Broadwell Road, Cincinnati, Ohio 45244.

This PTI was a result of OEPA's request that Heekin Can eliminate it's discharge of wastewater to a nearby gravel pit. OEPA felt there was a strong potential for ground water contamination.

Heekin Can has submitted previously, three reports on their wastewater and disposal practices. The first report by Burgess and Niple, Limited, was done to study the effect of the discharge on ground water and was submitted to OEPA in April, 1983. The second report, prepared by Environmental Resources Management (ERM)-North Central, Incorporated, was a preliminary investigation into the possibility of land treatment, was submitted September 29, 1983. This was followed by "The Conceptual Design Report" submitted on July 12, 1984, by ERM. The final submittal was the actual PTI application received November 23, 1984.

Heekin Can manufactures two-piece aluminum and three-piece steel cans for the food and beverage industry. The plant is located on a 77-acre lot north of Broadwell Road, Anderson Township, Hamilton County, Ohio.

Heekin Can generates wastewater from the washing of the two piece aluminum cans. This is treated by chromium reduction, pH adjustment, flocculation and settling. The effluent currently flows to a sand and gravel pit north of Heekins property. The discharge volume is approximately 67,000 gallons per day. The solids are disposed of off site in a RCRA approved manner.

The sanitary wastewater is treated in a package treatment plant consisting of primary settling, aeration basins and secondary settling prior to discharging to a gravel pit northwest of Heekins property. Heekin has approximately 585 employees, resulting in 30,000 gallons of sanitary wastewater daily.

Summary of New Facilities

Heekin Can plans to eliminate their discharge to the gravel pits by the installation of a land treatment system. The existing treatment units, described above will remain in use. The effluent from each of those units will be combined in a wet well, prior to pumping for land treatment.

The wastewater will be distributed from the 5000 gallon wet well through eight (8) force mains, branching to small PVC lateral lines to fixed sprinkler heads. The force mains will be controlled by automatic air-operated diaphagm valves, which will allow the wastewater to be distributed on a predetermined timed cycle. The sprinkler heads will be evenly spaced over the 4.5 acre land application area.

The system is designed for a flow of 97,000 gallons per day (0.8 inches per day). The system will include a 500,000 gallon storage reservoir which will provide 5 days storage capacity for use in periods of excessive rainfall, freezing soil or high wastewater generation.

Three aspects of the system will be monitored. A flow meter and sampling valve will be at the discharge side of the spray pumps, so that the wastewater can be monitored. The soil will be analyzed on an annual

Ammonia & Phosphorus

basis for nutrients, pH, heavy metals and exchange cations. The groundwater will be monitored on an annual and semi annual basis for specific conductance, COD, nitrate (as nitrogen), total phosphorus, hardness,

Cation exchange capacity

chloride, floride and sulfate.

EP Tox metals

Evaluation and Recommendations

This land application of wastewater will eliminate the unpermitted discharge of Heekin's wastewater to the nearby gravel pits. The slow rate system should work well in this area. Heekin's wastewater analysis show that the combined waste stream is compatible for land treatment.

Heekin has almost six and a half (6.49) additional acres available for land application if necessary. Any failure in the land treatment system will most likely show as vegetation stress in the application area. The ground water, soil and wastewater monitoring will be useful in trouble shooting any potential problem.

Cost and Construction Schedule

The estimated cost of the land application system is $150,000. It is scheduled to be complete and operational by October 1985.

Conclusion

The above plans are considered satisfactory. It is recommended they be approved with the following conditions:

1. All wastewater land applied shall be monitored for COD, total suspended solids, total dissolved solids, pH, fluoride, sulfate and total chromium, on a semi annual basis. This information should be submitted to Ohio Environmental Protection Agency, (OEPA), Southwest District Office, Industrial Wastewater Group during the months of January and July.
2. The average daily amount of wastewater applied each month shall be reported for the previous three months on a quarterly basis to OEPA, Southwest District Office, Industrial Wastewater Group in January, April, July and October.
3. All data on the ground water and soil monitoring shall be kept on file for a period of five years. This information shall be made available to the OEPA upon request.
4. Surface runoff to waters of the state and ponding must be avoided.
5. The land application field shall be seeded with a cover crop which must be cut and/or harvested as needed to maintain an effective treatment system.
6. Any major upset in the treatment system, resulting in treatment unit bypass or use of additional application areas shall be reported within twenty-four (24) hours to OEPA, Southwest District Office, Industrial Wastewater Group.

JCS

Valerie J. Brinker
Industrial Wastewater Group

12/27/84

SCHNEIDER LABORATORIES
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AIHA 8936, ELLAP 8936, NVLAP 1150, NYELAP 11413, CAELAP 2078

LABORATORY ANALYSIS REPORT
Asbestos Identification by EPA Method 600/R-93/116

ACCOUNT: 992-99-8553
CLIENT: EMG PHASE I
ADDRESS: 11011 McCORMICK DRIVE
HUNT VALLEY, MD 21031
PO NO.: Greg Shingler
PROJECT NAME: Industrial Plant
PROJECT NO.: 55857
JOB LOCATION:

DATE COLLECTED: 4/22/99
DATE RECEIVED: 4/27/99
DATE ANALYZED: 4/27/99
DATE REPORTED: 4/27/99

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
1A	1442523	Boiler hs S rm cntr		
	Layer 1:	Pipe insulation	Yes	White, Powdery
	60% Asbestos	AMOSITE 25%, CHRYSOTILE 35%		
	40% Non-Asbestos	NON FIBROUS MATERIAL 40%		
1B	1442524	Boiler hs S rm stair		
	Layer 1:			
	Not analyzed due to positive stop instructions.			
1C	1442525	Boilerhs N rm Ncntrl		
	Layer 1:			
	Not analyzed due to positive stop instructions.			
2A	1442526	Boilerhs N rm Ncntrl		
	Layer 1:	Pipe insulation	Yes	White, Powdery
	60% Asbestos	AMOSITE 25%, CHRYSOTILE 35%		
	40% Non-Asbestos	NON FIBROUS MATERIAL 40%		
	Layer 2:	Cover		
	Not analyzed due to positive stop instructions.			

ANALYST: SALLY SNEAD

REVIEWED BY

This report relates only to the items tested and must not be reproduced except in full with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. government. Samples are analyzed according to the EPA Test Method and are subject to the inherent limitations of light microscopy and interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials.

FROM : SCHNEIDER LABS PHONE NO. : 8043591475 Aug. 16 1999 05:33PM P2

SCHNEIDER LABORATORIES
INCORPORATED

2_ _ W. CARY STREET • RICHMOND, VA 23220
304-353-6778 • 800-785-5227 • FAX 804-353-6928

SUBMITTING COMPANY:
EMG 492 99-8553
11011 McCORMICK RD.
HUNT VALLEY, MD 21031
ACCOUNT NUMBER 992
PHONE NUMBER 800-733-0660

PROJECT NAME: Industrial Plant

PROJECT NUMBER: 55857

PROJECT SUPERVISOR: Dave Maglietta

PHONE: 800-733-0660

PROJECT MANAGER (SU P.O./NO.): Greg Shingler

ANALYSIS REQUESTED

ASBESTOS BULK	DRINKING WATER	LEAD TOTAL CONCENTRATION
☒ PLM ANALYSIS	☐ LEAD ☐ COPPER	☐ DUST WIPE ☐ PAINT

TURNAROUND TIME REQUESTED

LAB DUE DATE: 4/28/99

SPECIAL INSTRUCTIONS:

LINE NUMBER	SAMPLE ID/NUMBER	DATE COLLECTED	SAMPLE DESCRIPTION
1	1A	4/22/99	Pipe insulation – Boiler house, south room, center
2	1B	"	" " – " ", south room, near stairs.
3	1C	"	" " – " ", north room, (north central)
4	2A	"	" " – " ", north room, (north central)
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

☐ RETURN COMPLETED CHAIN OF CUSTODY FORM TO EMG

SUBMITTED BY: Gregory P. Shingler (PLEASE PRINT YOUR FULL NAME) DATE SUBMITTED: 4/24/99 SIGNATURE: Greg P. Shingler

UPS 9:15am # 1Z2E2 8992210004822

RECEIVED BY: D Murray DATE RECEIVED: 4/27/99 SIGNATURE:

CHAIN OF CUSTODY DOCUMENTATION CONTINUED INTERNALLY WITHIN LAB.

ASBESTOS SAMPLING TABLE

Project No: 55857

Date: 4/22/99

Material Type/Location	Sample Number	Analyzed Yes/No	% Asbestos/Type	Estimated Quantity (sf/lf)	Condition
Pipe Insulation	ACM - 1 A	Yes	25 % Amosite 35 % chrysotile	200 LF.	Good
Boiler House	- 1 B	No	—		
↓	- 1 C	No	—		
QA/QC Sample	ACM - 2 A	Yes	25 % Amosite 35 % chrysotile	200 LF.	Good
	- B				
	- C				
	ACM - A				
	- B				
	- C				
	ACM - A				
	- B				
	- C				
	ACM - A				
	- B				
	- C				
	ACM - A				
	- B				
	- C				

Copies of the asbestos survey results from a previous environmental assessment of the Project, prepared by ENVIRON International Corporation and dated November 1996, were not provided to EMG. A discussion of the results of this previous testing can be found on page II-4 of the ENVIRON report (appended in Section 8.4.9).

PRIVILEGED AND CONFIDENTIAL
PREPARED AT THE REQUEST OF COUNSEL

ENVIRONMENTAL ASSESSMENT OF BALL CORPORATION'S METAL FOOD CONTAINER FACILITY CINCINNATI, OHIO

Prepared for

Kirkland & Ellis
Washington, D.C.

On behalf of

BWAY Corporation

Prepared by

ENVIRON International Corporation
Arlington, Virginia

November 1996

I. INTRODUCTION

ENVIRON International Corporation (ENVIRON), a division of APBI Environmental Sciences Group, Inc., was retained by Kirkland & Ellis on behalf of BWAY Corporation to conduct a Phase I environmental assessment of Ball Corporation's (Ball) Metal Food Container facility located near Cincinnati, Ohio. The purpose of ENVIRON's review was to identify any on-site and off-site environmental issues that could result in potentially significant liabilities or compliance costs, as well as other noteworthy issues. In addition, occupational safety and health issues were briefly reviewed to determine whether any major areas of concern are present. In the context of this report, the term "potentially significant" is generally used to describe potential areas of concern that could reasonably result in liabilities or compliance costs in excess of $25,000. The term "noteworthy" is generally used to describe areas of concern that could, but are not likely to, result in liabilities or compliance costs in excess of $25,000. ENVIRON's conclusions about the relative significance of the identified areas of concern are based primarily on our professional judgment and are meant to provide guidance in areas of uncertainty.

This assessment was conducted in accordance with the Scope of Work agreed upon between ENVIRON and Kirkland & Ellis, consistent with the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process Standard E1527-94, issued by the American Society for Testing and Materials (ASTM), and generally included the following components:

- A site visit to the subject facility by Gordon Cobb of ENVIRON on September 23, 1996.

- Interviews during the site visit with Kent Bickell, Manager of Environmental Services; Jerry Dinser, Manager of Plant Engineering; and Dixie Rorem, Environmental Engineer.

- A review of documents made available by Ball personnel at the time of and subsequent to the site visit.

- A review of regulatory agency documents obtained by Kirkland & Ellis and provided to ENVIRON. These included a 1989 Preliminary Review/Visual Site Inspection (PR/VSI) conducted by A.T. Kearney, a 1987 Preliminary Assessment conducted by the Ohio Environmental Protection Agency (OEPA), and various RCRA inspections and compliance correspondence from USEPA and OEPA during the 1980s.

- A search of federal and state environmental data bases prepared by Vista Environmental Information, Inc. (Vista), initiated the week of September 16, 1996. Data bases were searched by Vista for entries located in the vicinity of each subject facility, and are consistent with ASTM standards. Because the environmental data bases themselves are sometimes not updated by the specific regulatory agencies for periods of up to one year (depending on the data base and the state), the data base search conducted herein will not necessarily list any facility or site for which an environmental investigation/listing has been initiated subsequent to the last update. The Vista data base searches contained a number of unmapped sites. Although ENVIRON briefly reviewed the list of unmapped sites for any properties observed during the site visit to be nearby or adjacent to the subject site, it was beyond the scope of this assessment to locate each of the unmapped sites.

  Federal and state data bases searched by Vista for entries located in the vicinity of each subject site are described in Appendix A. The radius searched for a particular data base is in accordance with ASTM guidance. In addition to searches of federal and state data bases for entries located in the vicinity of the subject facility, Vista also compiled information on the subject facility, including records of existing or potential contamination, records of hazardous materials or environmental permits, and records of environmental noncompliance.

- A review of the CERCLIS list, National Priorities List, and the State Priorities List for past and current off-site disposal facilities used by Ball.

- A review of United States Geologic Survey (USGS) 7.5 minute topographic map for the Madeira, Ohio quadrangle (a 1961 map, photorevised in 1988). Historical topographic maps from 1898, 1912, 1953, 1961, and 1970, 1974 and 1982 photorevisions of the 1961 map.

- A search for historical Sanborn Fire Insurance maps and County Planning maps for the subject site. Vista confirmed that neither Sanborn maps, nor County Planning maps exist for this site.

- A review of the National Wetland Inventory (NWI) map from the United States Department of the Interior's Fish and Wildlife Service for the subject site.

- A review of Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) for the subject site.

- A review of historical aerial photographs of the subject site and surrounding location for the years 1949, 1970 and 1991.

No environmental samples were collected as part of this review, nor were chain-of-title documents provided for ENVIRON's review. ENVIRON did not independently verify all of the written or oral information provided. Consequently, this report is accurate and complete only to the extent that information provided to ENVIRON was itself accurate and complete.

II. SUMMARY OF CONCLUSIONS

ENVIRON International Corporation (ENVIRON), a division of APBI Environmental Sciences Group, Inc., was retained by Kirkland & Ellis on behalf of BWAY Corporation to conduct a Phase I environmental assessment of Ball Corporation's (Ball) Metal Food Container facility located near Cincinnati, Ohio. The purpose of ENVIRON's review was to identify any on-site and off-site concerns or area of environmental or regulatory noncompliance. ENVIRON's conclusions are based primarily on our professional judgment and are meant to provide guidance in areas of uncertainty.

ENVIRON identified two potentially significant issues during its review of this facility, as discussed below.

1. Air Emissions Issues

ENVIRON identified several issues associated with air emissions and emission sources at the Ball facility. A summary of those issues is discussed below:

> Pursuant to the permit renewal applications submitted for the facility's solvent-based coating lines, Ball was required by the Hamilton County Environmental Services Department to conduct capture and efficiency testing on these lines by March 1996. Results of this compliance testing indicated that Ball's overall line efficiency ranged from 73% to 76% for the five lines tested. Because the minimum allowable overall efficiency is 80% (Ball's permits indicate 81%, Hamilton County indicated 80% in its Violation letter), Ball is in violation of its permit conditions. Facility personnel reported that a second round of capture efficiency testing is to be conducted the week of October 7, 1996. Should Ball fail to comply with its permit conditions in the October testing, it is likely that Ball would be required to improve the capture efficiency of the incineration system by installing additional exhaust capture hoods and duct work on each of the coating lines in order to meet permit requirements. Because the extent of infrastructural upgrades that might be required and the ability of the existing incineration units to handle increased volumetric throughput is uncertain, the cost to upgrade the air handling systems,

including the incinerators, could be as little as $250,000, but as much as $2.5 million.

- Ball's air permits specify allowable VOC content and emissions. A review of Ball's most recent semi-annual material usage report to Ohio EPA (OEPA) suggests that the facility may not be in compliance with certain permit requirements for its coating lines. Permit conditions for the coating lines limit the VOC content per gallon of coating, less water, to 2.8 pounds. The reported VOC content in coatings, less water, typically exceeds 4.0 pounds per gallon. It appears that Ball personnel have interpreted the permit conditions as pounds of VOCs **emitted** per gallon of coating, which is consistent with VOC mass emission limitations stated in permits OEPA has issued to Ball for sources other than coating lines. Ball has not been cited by OEPA recently for any violations of its permit conditions, but the facility had been cited by the Southwestern Ohio Air Pollution Control Agency (SWOAPCA) in December 1983 for operating coating lines using non-compliant coatings. Implementation of compliant coating usage before 1986 was stipulated by SWOAPCA. Despite this, several of the coatings identified in 1983 are still used today. No documentation was provided to ENVIRON indicating that SWOAPCA or OEPA has issued the facility a waiver from instituting the use of compliant coatings. As such, ENVIRON believes Ball is out of compliance with permit conditions and recommends that Ball confirm the specific language in its permit conditions to ensure that it will not be subject to future compliance violations.

- Ball has emissions of hazardous air pollutants (HAPs) that appear to exceed major source thresholds under Title III of the Clean Air Act Amendments (CAAA). As a consequence, Ball likely will be subject to the metal can surface coating category on account of both the coating and side seam stripe application operations. The Maximum Achievable Control Technology (MACT) standard for the metal can source category is due to be promulgated by November 2000. As a major source under Title III, it is likely that, unless a lower- or non-HAP substitute is developed, emission controls would be required subsequent to promulgation of the MACT standard, particularly for the side seam stripe application operations. The cost to install emission control equipment likely would be significant. At present, ENVIRON does not have sufficient information to evaluate potential MACT alternatives to develop a cost estimate. Compliance with the future MACT standard likely will not be required until November 2003 at the earliest.

- A review of Ball's air permits indicated that a number of them expired in 1995 and 1996. According to facility personnel, Ball has submitted timely renewal applications for these expired permits, but OEPA discontinued issuing renewal of air permits as of January 1, 1996 in anticipation of issuing facility-wide permits under the Title V Operating Permit Program of the CAAA. Ball reportedly has been told by OEPA that existing permit conditions will remain in force until the Title V operating permit is issued. Ball submitted a Title V operating permit application to OEPA in a timely fashion (i.e., September 26, 1996).

2. Rail Car Siding

Scrap metal is discarded into rail cars staged on the north side of the plant. Because some lubricants are sprayed onto the metal during various fabrication processes and may remain on the scrap metal, they could be discharged to the pavement during precipitation events, ultimately discharging into an on-site pond. The potential for release of oil could be minimized by constructing a roofed structure over the rail car siding, which would represent a Best Management Practice. The facility has a storm water discharge permit that requires reporting the release of oil in storm water discharges. Because there reportedly have been no such discharges, the current rail car siding configuration appears to comply with environmental permit conditions and regulatory requirements. The cost to construct a roof over the rail car area to minimize the potential for precipitation contacting the rail cars likely would exceed $25,000, and could exceed $50,000.

Although not potentially significant, ENVIRON identified nine noteworthy issues, as discussed below.

1. Environmental Data Base Search Results

The facility has been the subject of regulatory scrutiny, primarily for historic operations conducted at the site prior to Ball's acquisition of Heekin Can. Based on ENVIRON's review of regulatory correspondence, it appears that the facility is in substantial compliance with environmental regulations and is not currently the subject of regulatory investigation, compliance orders, or site remediation. A brief summary of past regulatory activity is presented below:

- The facility is on USEPA's CERCLIS list. Subsequent to a November 1992 site inspection, the facility was deferred to RCRA.

- The facility is on OEPA's Unregulated Sites Master Sites List (the state-equivalent CERCLIS list). Based on information provided by OEPA, the site underwent a RCRA corrective action.

- The facility is on the RCRA CORRACTS list. A RCRA Facility Assessment (a Preliminary Review/Visual Site Inspection or PR/VSI) was conducted by A.T. Kearney in 1989. A RCRA Facility Investigation (RFI) determination was conducted and no RFI was imposed. No subsequent RCRA Corrective Action studies or investigations have been undertaken at this site.

- The facility received four RCRA violations in the middle to late 1980s. No penalties were assessed as a result of these violations. In 1992, the facility came under a RCRA compliance order, reportedly for a failure to develop and submit a waste minimization program. A $25,000 penalty was assessed against Heekin Can, but no record of payment was provided to ENVIRON. Facility personnel indicated that a waste minimization program is now in place.

2. Asbestos-containing Materials

Ball personnel conducted an internal asbestos survey in late 1985, collecting approximately 50 insulation, tile (both floor and ceiling) and mastic samples from various locations around the facility. Samples from the roof, approximately 75-80% of which reportedly has a urethane spray foam, and inside of curing ovens were not collected. On the basis of sampling results, sixteen areas of insulation (mostly pipes and elbow fittings) and floor tiles were identified as having asbestos-containing materials (ACM). Specifically, approximately 1,900 linear feet of pipe insulation, 1,000 square feet of pipe fittings, and 2,450 square feet of floor tile were delineated. With the exception of two areas of pipe insulation in the boiler house that comprise approximately 335 linear feet, areas with detected ACM were deemed by Ball to have a moderate to low potential for future damage and were in areas with little air flow. ENVIRON is in general agreement with this assessment. The cost to abate the two higher priority areas likely would not cost in excess of $6,000, depending upon the ease of access to the piping in question.

Unless ACM is damaged or friable, there is no need for repair or abatement. Until all ACM is removed, however, Ball should develop and implement an ACM Operations and Maintenance (O&M) program. The purpose of such a program is to avoid unnecessary disturbance or damage to remaining ACM and to establish procedures for employee awareness to achieve this goal. The cost to prepare an O&M plan for the site likely should not exceed $10,000.

3. Former Underground Storage Tanks

Historically, there were at least twelve outdoor underground storage tanks on the north side of the building. All twelve tanks were removed or closed in place between 1989 and 1991. During the closure of the five tanks north of the lithography building in 1989, each was observed to be leaking. This triggered suspected release requirements and local and state authorities were notified. Following closure in place, a passive soil vapor extraction system reportedly was installed, however, no information on this remediation system was located in facility files.

In 1991, the remaining seven tanks were excavated, none of which were observed to be leaking. Residual petroleum constituents were detected in soils beneath a gasoline pump pad associated with one tank. Heekin Can was required to conduct a Corrective Actions/Site Investigation, which involved removal of impacted soils, to the extent possible. The State Fire Marshal indicated in a March 1992 letter that no further corrective actions would be required.

Based on actions taken and lack of regulatory scrutiny since 1992, it is unlikely that further site investigation or remediation for these tanks will be required.

4. Historic Site Disposal

Between 1974 and 1986, the facility reportedly disposed of chromium-containing wastewater and some sludge to a gravel pit pond located to the north of the site. Regulatory officials were aware of this disposal and requested that Heekin Can investigate alternative disposal options. The facility was never cited for improper disposal activities, was not required to conduct surface water monitoring, and was not required to investigate or remediate this pond. Given that the facility removed the chromium source and discontinued the disposal activity ten years ago, it is unlikely that there will be future scrutiny imposed by regulatory officials.

The facility disposes of sanitary wastewater on-site via a permitted spray field. The spray field was constructed, in part, to handle chromium-containing wastewater from a former two-piece can operation. Prior to or shortly after completion of the wastewater treatment system, the facility discontinued using chromium in its two-piece can coating process. Although on-site chromium contamination was suspected during the 1989 PR/VSI, no sampling was ever conducted. Although Ball monitors its wastewater effluent prior to on-site discharge, there is no longer a chromium component. Future regulatory scrutiny does not appear to be likely.

5. Indoor Tanks and Vault

There are two approximately 170-gallon end compound tanks located within a flammable storage room by the punch press area. The tops of these tanks and associated piping are located above floor level, but the lower portions are within a below-grade concrete vault. The walls of this vault are concrete, but the floor of the vault reportedly has either a gravel cover over bare soil or a floor drain that discharges directly to soil. If the tanks, which apparently were installed in 1958, are considered to be underground storage tanks, they would be in violation of release detection requirements. Moreover, if they are deemed to be underground storage tanks, they have not been registered with OEPA. As a best management practice, ENVIRON recommends that, at a minimum, the floor of this vault be sealed to minimize the potential for leaks or discharges to contact soils beneath the building. Alternatively, Ball might consider raising these tanks above grade and eliminating the concrete vault. The cost to effect either of these changes likely would not cost in excess of $15,000.

6. Historic Remediation Activities

During Heekin's ownership, three areas of contamination reportedly were remediated: a former underground storage tank area north of the lithography area in 1989, beneath a gasoline pump pad north of the assembly building in 1991, and a former outdoor hazardous waste drum storage area in 1991. No other areas of contamination were reported to ENVIRON. Passive soil vapor extraction reportedly was used to vent soils in the vicinity of the former underground storage tanks near the lithographing building. No documentation on this system or the adequacy of remediation of this area was available in facility files. The gasoline pump pad was the subject of a Corrective Action/Site Investigation, as noted above, and the issue is considered closed by OEPA. Facility personnel report that surface soils were removed from a former hazardous waste drum storage area. There was no documentation provided to confirm the adequacy of remediation activities that reportedly occurred in this area, or that the reported remediation activities had been conducted (ENVIRON did observe evidence of top soil placement in the area where the former drum storage area had been). In the absence of information for two of these areas, confirmatory samples may be warranted to verify that no residual contamination remains.

7. Off-site Disposal Facilities

At present, Ball generates in excess of 500,000 pounds of hazardous waste per year. A review of the CERCLIS data base for the off-site waste management facilities known to have been used by Ball or its corporate predecessors was conducted. One facility, Mercury Refining Inc. is on the National Priorities List. Three facilities are on State Priorities Lists (Mercury Refining, Safety-Kleen in Hebron, Ohio, and the Rumpke Sanitary Landfill). The Mercury Refining site has undergone remediation and is an actively operating facility. Similarly, both Safety-Kleen and Rumple Landfill also are active facilities. Despite the past regulatory scrutiny at these facilities, ENVIRON believes that is unlikely that Ball would incur significant financial liabilities associated with disposal of wastes at these locations.

Ten facilities, including the three noted above, are on the CERCLIS list. Six of the sites, including the Safety-Kleen site in Hebron and the Rumpke Landfill, have been classified as "No Further Remedial Action Planned." Two of the sites have not been the subject of regulatory scrutiny in more than ten years. Mercury Refining has undergone site remediation. The tenth site, Coyne Textile Service, an industrial launderer, had a site discovery in 1994 due to an oil release to a local waterway. Since Coyne Textile is an active facility, it is likely that this oil release will not be managed under CERCLA. Despite the past regulatory scrutiny at these facilities, ENVIRON believes that is unlikely that Ball would incur significant financial liabilities associated with disposal of wastes at these locations.

8. Debris in On-site Woods

ENVIRON's review of historical aerial photographs from 1970 and 1991 revealed a potential area of debris disposal in what was observed at the time of the site visit to be a generally inaccessible wooded area near the southeastern corner of the site. At the time of the site visit, there was no obvious visual evidence of past or current human activity (e.g., a trail) in or around these woods and facility personnel reported that there was no known environmental impairment in this portion of the site. Based on ENVIRON's review of the aerial photograph, there did not appear to be any disposal of drums in this area. This could only be confirmed by a more detailed survey within this wooded area.

9. Site History

Based on information reviewed, the facility may have been used for the manufacture of munitions during World War I and World War II. A review of a 1949 aerial photograph, however, indicates that the subject site was cultivated farmland with no apparent industrial development. Other documentation suggested that the property was developed in 1952 by Baldwin Piano Company for the manufacture of pianos. Heekin Can acquired the property around 1959, and metal cans have been manufactured at this site since that time. Based on ENVIRON's review of contradictory information sources, it appears that the subject site was not developed for industrial use prior to 1950, although nearby properties had been developed earlier and could have been the location of munitions manufacturing.

III. FACILITY REVIEW

A. Introduction

Ball Corporation (Ball) operates a sheet metal coating and aerosol can fabricating facility in Anderson Township, Ohio.

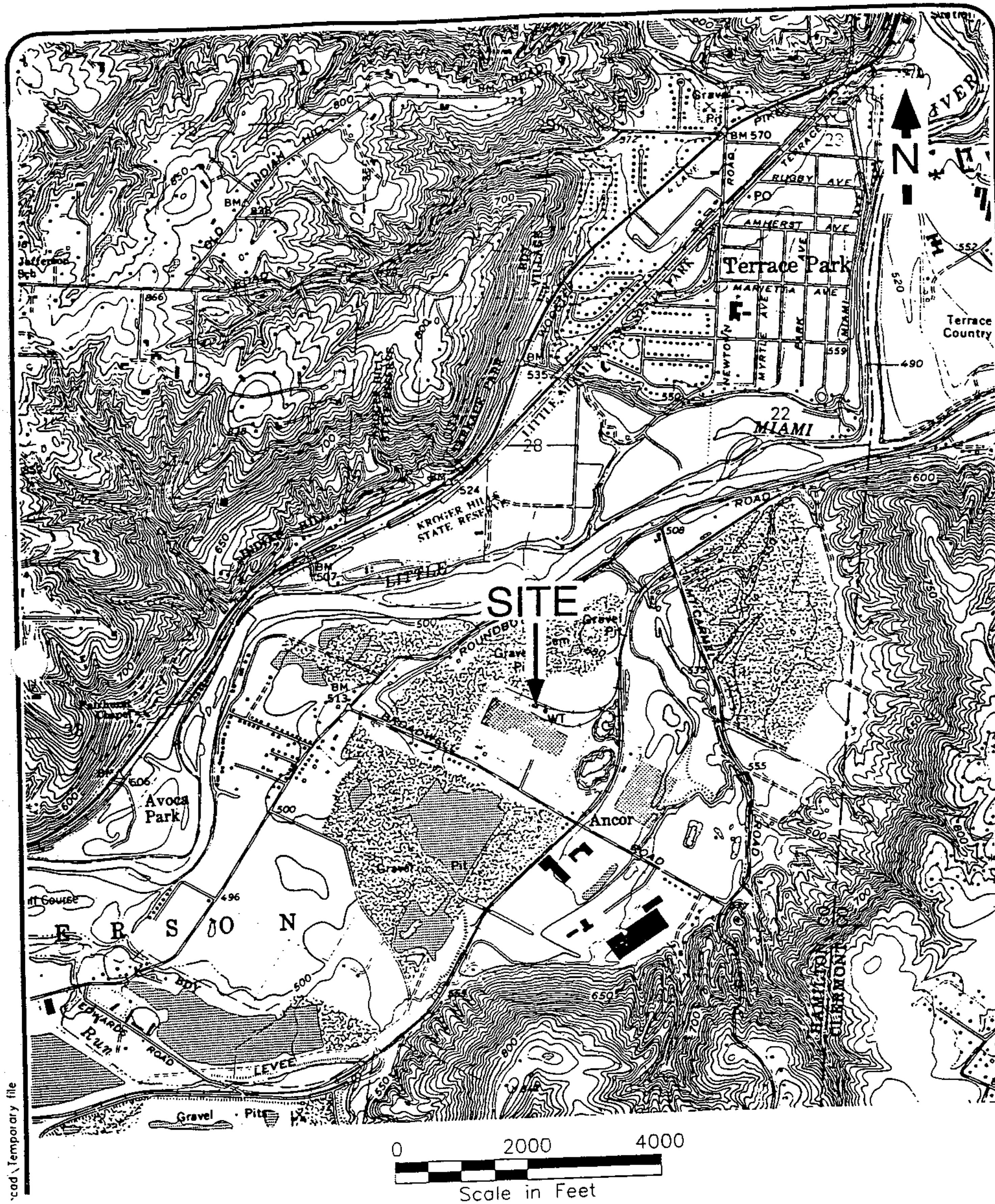
B. Site Setting

Ball's Cincinnati Operation is located at 8200 Broadwell Road in Anderson Township, Hamilton County, Ohio. This facility is located within a generally rural, residential/industrial area inside the greater Cincinnati beltway, approximately ten miles northeast of downtown Cincinnati (Figure III-1). Approximately 375 individuals are employed in the coating and inking of steel sheet and in the fabrication of aerosol cans. All operations are conducted within a single, approximately 475,000 square foot building situated on an approximately 77-acre site. The majority of floor space is devoted to manufacturing and warehouse operations, with the remainder consisting of office space, a graphic arts/plate making operation, a cafeteria, and locker rooms.

The area immediately surrounding the building is paved, with two large parking areas located on the south side of the facility. An active rail spur serves the loading docks on the north side of the building. An undeveloped grassy area exists on the south side of the building, and a wooded area is present along the southeastern border. A small package wastewater treatment plant and associated spray fields are located northeast of the building. A small cemetery plot and storage barn are located along the southwestern property boundary. A small pond is located in a wooded area along the eastern property boundary. A lined wastewater holding pond also is located on the eastern side of the site.

The site is located in a residential/industrial area typified by sand and gravel mining operations. Former or current sand and gravel mining operations are located to the north, south and southwest of the site. A fire station is located on what was formerly the southeastern corner of the site. Senco, a fastener systems manufacturing firm, is located to the east-southeast, across a railroad right-of-way. The closest residential area is located across Broadwell Road to the southwest. ENVIRON did not specifically identify any areas of environmental concern associated with neighboring properties that might impact the Ball site.

Although the detection of noise and odors is dependent on the weather conditions and ongoing operations at the time of the site visit, ENVIRON did not note strong odors or excessive

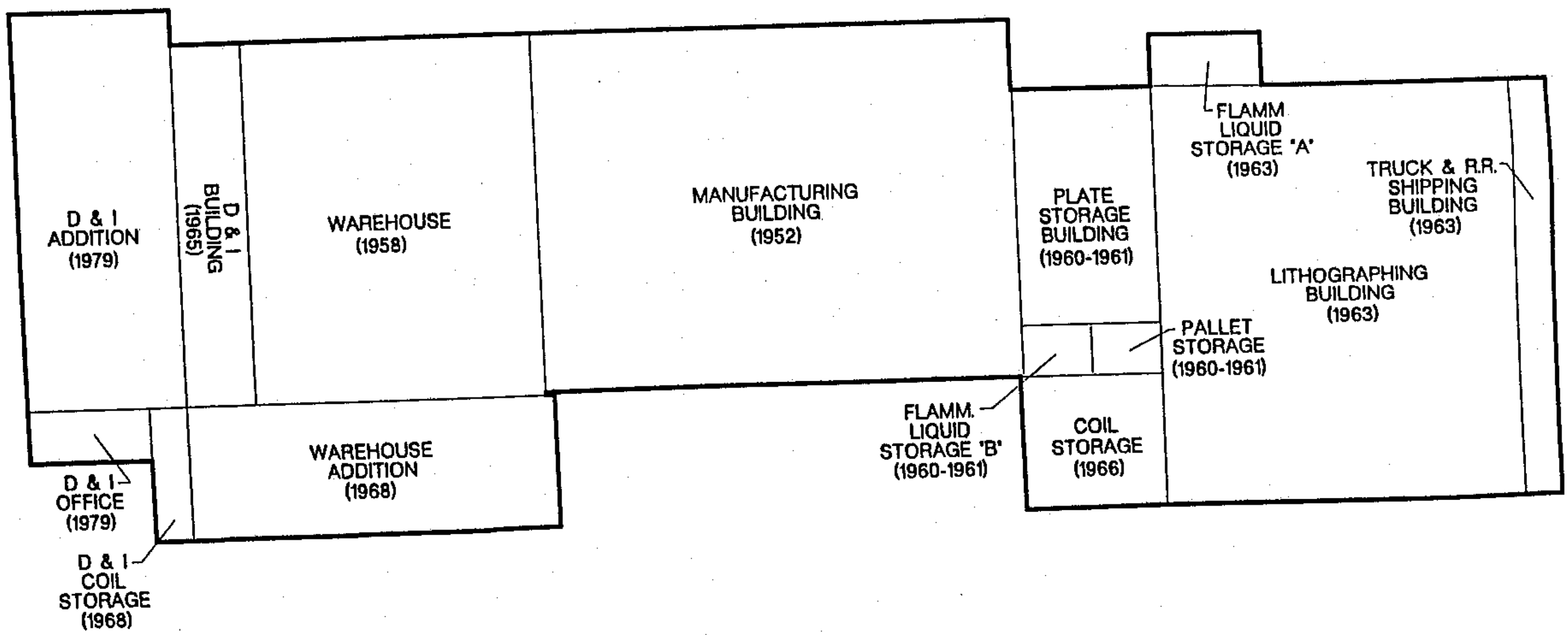


cad\Temporary file

SOURCE: USGS 7.5 MINUTE (TOPOGRAPHIC); MADEIRA, OHIO QUADRANGLE

ENVIRON	SITE LOCATION MAP BALL CORPORATION CINCINNATI, OHIO	Figure III-1

c:\acad\MISC\BALL1



NOTE: Not to Scale
Dates of construction in parentheses

ENVIRON

SITE PLAN
BALL CORPORATION FACILITY
CINCINNATI, OHIO

Figure
III-2

noise emanating from the facility. According to facility personnel, no complaints have been received from neighboring facilities or residents regarding noise or odors during Ball's occupancy. In addition, the facility reportedly has not received any recent correspondence from regulatory agencies regarding noise or odors. Historically, the facility had received some complaints from neighbors regarding solvent odors.

Based on ENVIRON's review of the site and the USGS topographic map for Madeira, Ohio, the facility appears to lie in a river valley at an elevation of approximately 530 feet above mean sea level (msl). A range of hills with elevations of more than 800 feet msl run from northeast to southwest approximately one-half mile east from the site. The land generally slopes to the north-northwest, toward the Little Miami River, the nearest natural body of water, which is located approximately one-quarter mile north of the site. A similar range of hills exists beyond the Little Miami River. The Little Miami River ultimately discharges into the Ohio River several miles southwest of the site.

Due to historic gravel pit operations, there are a number of large ponds on adjacent properties that have been formed after mining operations have ceased. Two smaller gravel pits remain on-site, the northern pond, which is associated with facility storm water run-off management, and the southern "pond," which facility personnel reported is generally dry except during precipitation events. It appears that the site is located at least twenty-five feet above the grade of the ponds nearest the site, such that it would not be subject to flooding. Based on maps provided by facility personnel, the site is not located within the 500-year flood plain, although nearby low-lying areas off-site are within the 100- and 500-year flood plains. ENVIRON reviewed a flood insurance rate map from FEMA for Hamilton County which confirmed that the facility is not located within a flood plain area.

Based upon an inspection of the site, there appears to be some aquatic vegetation typical of wetlands areas that is associated with the on-site ponds on the eastern portion of the property. A review of the National Wetlands Inventory map confirms that there are limited wetlands areas identified with these two ponds. The wastewater holding pond is identified as being excavated palustrine unconsolidated bottom that is intermittently exposed.[1] The eastern edge of the other on-site pond (the northern pond) is identified as being an excavated palustrine emergent area that is seasonally flooded. There are also palustrine and lacustrine wetlands areas associated with the gravel pits and mining operations occurring on neighboring properties. Given that wetlands on-

[1]Facility personnel reported that a plastic liner was installed on this pond at the time of its construction in 1987. The PR/VSI indicated that a compacted clay liner had been installed.

site appear to have been created by man-made activities, it is unlikely that there would be any compliance issues of concern related to wetlands areas management.

According to facility personnel, potable water services at the site are supplied by Anderson Township's municipal water department. Facility personnel were not aware of the source of the township's water supply, but speculated that it either would come from the Ohio River or the Teas River, an underground glacial formation that reportedly could supply water to Cincinnati. The PR/VSI report indicated that the Ohio River, which is located approximately seven miles southwest of the site, was the source of Cincinnati's municipal water supply.

There are currently no ground water supply or injection wells on the site. Historically, there had been at least five ground water wells located on the site, which reportedly had supplied potable water at the site. These wells reportedly were abandoned in the late 1980s and early 1990s, and there was no visual evidence of these former wells in the approximate vicinities where they reportedly had been located. According to a 1992 Corrective Action/Site Investigation associated with remediation of an underground storage tank (see Section F.1 of this Chapter), several local residences near the southwest corner of the site apparently had active ground water wells at that time. Ground water is associated with fluvial deposits of thickness up to 100 feet in the vicinity of the site. The static ground water depth in a former on-site well reportedly was 50 feet below ground surface. No specific information on ground water flow direction in the vicinity of the site was provided. Typically, ground water flow follows local topography, which slopes to the north-northwest toward the Little Miami River. Based on the extensive gravel mining operations in the area, local shallow ground water flow patterns likely have been altered.

Ball operates its own wastewater treatment facility on-site. The facility's wastewater treatment system consists of a small package treatment system, which includes both an activated sludge basin and solids settling basin. Treated water is discharged to a lined wastewater holding pond prior to on-site discharge via a six-acre spray field located adjacent to the package plant on the northeast side of the facility. Facility personnel were unaware of historic septic field use at the site. It is likely that a septic field existed for the farm property that was on-site prior to industrial development.

Electrical service is provided by Cinergy (formerly Cincinnati Energy). Natural gas, which is used for both building heat and manufacturing equipment (primarily curing ovens and off-gas incinerators) also is provided by Cinergy. A boiler house is present to the north of the main plant building. Propane cylinders are maintained on-site for the facility's forklifts. Ball also maintains four 30,000-gallon liquid propane tanks to the northeast of the building as a back-up fuel source for natural gas. A propane vaporization station is located to the west of the boiler house.

C. Site History

Based on ENVIRON's review of various information sources (anecdotal recollections by current facility personnel, historic documents, aerial photographs, historical topographic maps, etc.), there is considerable uncertainty or conflict concerning historic site development activities. This section presents this divergent information, but notes where discrepancies between information sources exist.

According to the PR/VSI report, the property was owned by the American Nitrogen Corporation (Ancor) in the early 1900s. Ancor reportedly used this site during World War I to manufacture munitions. Alternatively, according to facility personnel, the site and surrounding area may have been developed in the middle 1940s by Ancor for manufacture and storage of military munitions. The central core of the current building (now known as Plant 2), where aerosol can assembly currently takes place, apparently has been referred to as the Ancor building. It is reported that torpedoes or bombs may have been manufactured in this building, but manufactured munitions reportedly were stored within concrete bunkers located on what is now Senco's property to the east of the site. There was no visual evidence (e.g., concrete footers or bunkers) of historical munitions storage areas on-site.

The PR/VSI report states that Baldwin Piano purchased the property sometime after World War I, constructed the original plant building sometime prior to 1950, and manufactured bomb fuses during World War II. An underground storage tank closure report prepared by Dames & Moore (D&M) in 1989 reported that Baldwin Piano had built a manufacturing plant at the subject site in the 1940s. Facility personnel reported, however, that the Ancor facility had been sold to Baldwin Piano Company in the early to middle 1950s. An aerial photograph taken in 1949 shows that the site contained farm-related structures and the subject site contained agricultural fields. No structures of an apparent industrial nature were present on-site, nor was there any evidence of historic building foundations. Moreover, an undated site drawing provided by facility personnel indicates that the Plant 2 structure (i.e., the original on-site building) was constructed in 1952.

Site drawings from 1956 confirmed that Baldwin Piano had conducted operations at this site. Facility personnel reported that Baldwin Piano manufactured pianos at this location for only a few years before the property was sold to Heekin Can in 1959. There is no visual evidence, based on the current site configuration, that either munitions or piano manufacturing took place at this site.[2] No information on any manufacturing processes conducted by Ancor or Baldwin were available for review from Ball personnel. Based on the types of operations that might have been conducted, use of degreasing and cleaning solvents, varnishes and wood stains would have been expected. The historic environmental management practices of Ancor or Baldwin is unknown.

Heekin Can historically had a metal can manufacturing in downtown Cincinnati since the 1890s. Upon acquisition of the present site in 1957 according to the PR/VSI (1959 according to current facility personnel), manufacturing operations from Heekin's downtown facility were transferred to the present location. According to the PR/VSI, three-piece steel can manufacture began in 1958. Facility personnel reported that two-piece aluminum can production was initiated in the middle 1960s (1973 according to the PR/VSI) and discontinued in 1989. Three-piece cans were manufactured at the site until the late 1980s (aerosol cans are still manufactured today).

According to the PR/VSI, Heekin Can sold the facility to Diamond International Corporation sometime in the 1970s (ENVIRON saw documentation indicating Diamond International's ownership of the business). Diamond International sold the plant to Wesray Packaging, Inc. in late 1982 or early 1983. The company's stock reportedly went public in 1985, with Wesray no longer holding any interest. Heekin Can, Inc. operated at this site until March 1993, when its operations in the Cincinnati area were acquired by Ball. Prior to Ball's acquisition, the can manufacturing operations apparently were known as Heekin Can, despite the various changes in business ownership.

Numerous building additions have been constructed since the Plant 2 building was erected in 1952. A summary of building additions and their dates of construction are summarized in Table III-1. Building additions are shown in Figure III-2.

As discussed in detail in Section D below, the facility presently coats and inks steel sheet material and assembles aerosol cans at the site. Heekin also had manufactured two-piece cans, using a D&I (drawn and ironed) process. When this operation was discontinued in July 1989, the D&I operational area was converted into warehouse space.

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[2]Facility personnel reported that a below-grade passageway beneath the floor in the assembly area may have existed as a water-filled, open-top concrete trench during Ancor's tenure, and was used to "float" torpedoes or bombs across the plant in order to minimize the potential for detonation. Baldwin reportedly covered the top of the trench. The resulting passageway reportedly might have been used as an underground conveyor system for wood scrap and sawdust during Baldwin's ownership. There is no specific information available to confirm these prior past uses. At the time of the site visit, ENVIRON observed that this passageway is now generally empty, except for limited storage of some spare equipment.

TABLE III-1
Summary of Building Additions - Ball Corporation Facility

Building Addition	Date Constructed	Square Footage
Manufacturing Building (Plant 2)	1952	121,095
Boiler House [a]	1952	4,620
Warehouse	1958	73,084
Plate Storage Building	1960-1961	24,000
Flammable Liquid Storage "B"	[b]	2,400
Pallet Storage	[b]	2,400
Lithographing Building (Plant 9)	1963	106,800
Flammable Liquid Storage "A"	[c]	3,680
Truck and Railroad Shipping Building	[c]	11,748
D & I Building	1965	18,120
Coil Storage	1966	14,384
D & I Coil Storage	1968	3,584
Warehouse Addition	1968	34,496
D & I Addition	1979	43,560
D & I Office	1979	4,400

[a] The boiler house is a separate structure located to the north of the manufacturing building.

[b] No date of construction was given, but it is likely that these rooms, which are adjacent to the plate storage building, were constructed around the same time.

[c] No date of construction was given, but it is likely that these rooms, which are adjacent to the lithographing building, were constructed around the same time.

Note: This list does not include an aluminum recovery room constructed to the north of the D & I building, as no information on its size or date of construction was available.

ENVIRON reviewed historical topographic maps for the general vicinity area. Specifically, maps for the years 1898, 1912, 1953, 1961, and photorevised versions of the 1961 map from 1970, 1974 and 1982 were made available for review. A discussion of relevant findings is presented below.

- In 1898, Broadwell Road, which is the southern property boundary, and the railroad right-of-way (the Cincinnati, Portsmouth and Virginia Railroad), which forms the eastern property boundary, are present. There is no evidence that the site itself has been developed. Specific physical site conditions (e.g., woodlands versus grasslands versus agricultural fields) cannot always be discerned from topographic maps.[3]

- In 1912, the site appears to be the location of Lafayette School. It is not clear to what extent the property has been developed, although two or three structures may be present on-site. The railroad right-of-way is shown as being operated by the Norfolk and Western Railroad.

- In 1953, the main building (likely Plant 2) and the boiler house are present on-site. Two rail spurs serve the northern side of the facility. There is evidence of two on-site ponds or depressions on the east side of the plant, but no indication that these are associated with gravel pit operations.[4] It should be noted that the intersection of Broadwell Road with the railroad right-of-way, which is near the southeastern corner of the site, is identified as "Ancor." There are also references to gravel pit operations to the south and east of the site.

- There appears to have been an addition on the western side of the on-site building by 1961. A water tower also has been constructed on-site. Gravel pit operations and a small cemetery are identified to the north of the site. The gravel pit operations to the south appear to have expanded.

- By 1970, there have been two additions to the main building, on the southwestern and the eastern (i.e., what is now the lithographing building) sides. It also appears

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[3]It should be noted that the scale of the 1898 and 1912 maps is 1:62,500 versus 1:24,000 for the more recent maps.

[4]Facility personnel reported that the southern pond was dry (this "pond" was not readily accessible due to dense trees and undergrowth at the time of the site visit). The northern pond, which is predominantly surrounded by woods, is presently associated with the facility's storm water runoff management system.

that the storage barn has been constructed on-site. Gravel pit operations on the property to the north of the site appear to be extending along the northwestern boundary of the plant.

- The current Senco building has been constructed by 1974. There is no evidence prior to its construction that any munitions-related structures or site modifications, other than some gravel pit operations, were present at the Senco site. There are no apparent modifications to the site during this time.

- By 1982, there appears to have been another small addition constructed on the west side of the building. Gravel pit operations to the northwest of the property extend south to Broadwell Road.

- The most recent map (1988) generally shows that the site and surrounding area are consistent with observations made at the time of the site visit.

Based on its review of historical topographic maps, ENVIRON did not identify any obvious areas of potentially significant environmental impact or risk.

ENVIRON also ordered historical aerial photographs that were intended to cover, to the extent available, periods of manufacturing use at the site, and obtained photographs for the years 1949, 1970 and 1991. A discussion of relevant findings is presented below.

- The 1949 photograph shows the site to have been undeveloped for industrial purposes. A farmhouse and related structures are present along Broadwell Road. Cultivated fields are present to the north of the farm buildings. There is evidence of apparent gravel mining operations on the eastern border of the site, adjacent to the railroad tracks. There is no clear visual evidence of any munitions-related facilities in the immediate vicinity of the site, although several industries on nearby properties have been constructed.

- By 1970, most of the subject site has been constructed. What appears to be a water storage tower is present to the east of the boiler house (at the time of the site visit, only the concrete footers for this tower still remained). Limited outdoor storage to the north of the building is evident. A hazardous waste drum storage area is active to the north of the lithographing building in 1970 (due to the scale of the photograph, it cannot be determined if this pad has a concrete or asphalt base, or the number of drums present). The wastewater holding pond is present in an area that had been associated with gravel mining in 1949. An area of apparent debris disposal is located in the wooded area on the east side of the property that reportedly had been the site of gravel mining operations in the past.[5] Due to the scale and clarity of the photograph and the size of the debris, ENVIRON cannot specifically ascertain what materials have been disposed. It does not appear that drums have been discarded in this area, but this could only be confirmed by a more detailed survey within this wooded area. Extensive gravel mining operations are evident on the property to the north of the site. Portions of the property to the west are still being cultivated.

- The 1991 photograph shows the site and surrounding area much as it exists today. Outdoor material storage on the north side of the facility is more substantial in 1991 than ENVIRON observed during the site visit. A variety of scrap materials, drums, pallets, and other objects not readily identified are present along the paved access road that traverses the northern portion of the property (a description of waste management areas is presented in Section J.1 of this Chapter). The drum storage area to the north of the lithographing building is still active in 1991. The water storage tank noted in the 1970 photograph is no longer present. Soils outside the northwest corner of the building appear to be disturbed, which apparently reflects the removal of underground storage tanks in that area, as discussed in Section F.1 of this Chapter. There are five large tanks staged adjacent to this disturbed soil area that would be indicative of this removal. The area of apparent debris disposal is still evident in the wooded area on the east side of the property (clarity of this photograph, although at a higher scale than the 1970 photograph, still precludes a specific determination of drum disposal in this area).

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[5]Due to this area being heavily wooded with considerable undergrowth at the time of the site visit, it was not readily apparent that there might presently be an area of existing debris, nor were any representations concerning the existence of any debris made by facility personnel. ENVIRON did not observe any conditions that warranted further investigation of this wooded area at the time of the site visit.

A fire station has been built in the southeast corner of the property, adjacent to the intersection of Broadwell Road and the railroad right-of-way.

Although outdoor storage areas were present that would not be considered a Best Management Practice today, there is no clear evidence of gross contamination based on ENVIRON's review of these historical aerial photographs.

D. Description of Operations

Ball conducts sheet metal coating and inking operations, as well as the fabrication of aerosol cans. Operations are basically divided into three main areas: coating/lithography, assembly, and warehousing.

Prior to the coating operation, coiled steel sheet is punched in two punch press units. The punched steel sheet "blanks" are loaded onto one of six coating lines. The blanks are individually fed into the coater, where a thin enamel film is applied to the surface of the steel sheet at a prescribed thickness. The coatings employed are solvent-based, with glycol ethers, xylenes, isopropyl alcohol, methyl ethyl ketone, and methyl isobutyl ketone as the most common solvents used. After passing the coater application rolls, exhaust hoods capture fugitive emissions emanating from the uncured coating, directing them to an incinerator unit via an exhaust duct (a discussion of air emissions is presented in Section H of this Chapter). The coated sheet then passes through a gas-fired curing oven to cure the enamel film to a hard surface. Solvents emitted during the oven curing process also are routed to an incinerator (there are three incinerator units, each of which is dedicated to two coating lines). After curing, the coated sheet is stacked for transfer to the lithographing machines or the can assembly area. Facility personnel reported that several hundred different coating blends are employed at the site annually.

The lithographic operation is similar in scope to the coating units, with the exception that a multi-colored decorative design, rather than a single "prime" coat, is applied to the metal surface. Water-based ink pastes, which are custom-blended in an on-site mixing laboratory, are used in the five printing presses. After application of the inks, the printed sheets pass through gas-fired curing ovens. Because solvents are not used in the lithographic process, there are no emission controls for this process (one of the printing presses can be operated as a seventh coating line and has exhaust ducting that allows the transfer of emissions to an incinerator unit). After curing, the printed sheets are transferred to the assembly operation.

Ball has the capability to produce printing plates for use in the printing presses. Ball maintains three automatic vertical developer systems.

In the assembly operation, two basic processes are conducted to produce aerosol cans: end formation and body blank welding. Body blanks are stamped from coated or printed sheet metal. The blank is then rolled into a cylinder and passed through a welding roll. The welding roll conducts an electrical current, using a copper wire "catalyst," and applies pressure to weld along the side seam of the can. The welded can body is transferred over liquid side stripe spray nozzles, which apply a side seam stripe to the interior and exterior of the welded can body.

In the end formation process, coated sheets are punched into either can ends (disks) or heads (domes). The outer edge of the disk or dome is curled, which forms a small channel into which an end seal compound is applied. After compound lining, the ends are packaged into paper sleeves and kept in the warehouse for at least twenty-four hours while they cure. The welded can body and the end pieces are then attached, forming a hermetic seal when the ends are double seamed onto the can body.

E. Records Review

ENVIRON reviewed the results of the environmental data base searches performed by Vista. A description of the data bases and the radial areas over which they were searched is provided in Appendix A. The subject site was identified on seven data bases, as noted below:

- USEPA's CERCLIS list. During the period of Heekin Can's ownership, the facility had a federally-led site discovery in October 1986. A state-led preliminary assessment was conducted in October 1987, concluding that the site represented a "lower priority." A federally-led site inspection in November 1992 resulted in the facility being deferred to RCRA Subtitle C.

- OEPA's Unregulated Sites Master Sites List (i.e., the state-equivalent CERCLIS list). Heekin Can is noted on the SCL. This listing appears to be related to the facility's CERCLIS status. Based on information provided by OEPA, the site underwent a RCRA corrective action.

- The CORRACTS list. This facility received a "medium" prioritization status (the timing of this determination was not provided) and a RCRA Facility Assessment (RFA) has been completed (the PR/VSI by A.T. Kearney in 1989). A RCRA Facility Investigation (RFI) determination was conducted and no RFI was imposed. No subsequent RCRA Corrective Action studies or investigations have been undertaken at this site.

- The RCRA Violators list. The facility received four RCRA violations between 1986 and 1990. The specific violations cited are not identified in the data base. With the exception of the 1990 violation, the facility has achieved compliance with the alleged violations (compliance with the 1990 violation is listed as "not reported"). No penalties have been assessed as a result of these four violations.

  In 1992, the facility came under a RCRA 3008(A) compliance order. According to facility personnel, this compliance order was issued for a failure to develop and submit a waste minimization program. A $25,000 penalty was assessed against Heekin Can at the time the compliance order was issued, but no record of payment of this fine was provided to ENVIRON. Facility personnel reported that a waste minimization program has since been developed to comply with the compliance order.

- The Ohio Division of State Fire Marshal's List of Petroleum UST Release Incidents. Heekin Can reported leakage from a regulated active tank. The data base indicates "no action taken/no further remedial action." The period and extent of release was not provided in the data base. A discussion of underground storage tanks is presented in Section F.1 of this Chapter.

- The Toxic Release Inventory (TRI) data base. The facility reported airborne release of xylenes, unreported compounds (presumed to be VOCs), and methyl isobutyl ketone. The specific reporting year for this listing is not given in the data base. A discussion of TRI reporting is presented in Section L of this Chapter.

- The RCRIS list of hazardous waste generators. The facility is identified as a large quantity generator of hazardous waste (i.e., a generator of at least 1,000 kilograms of nonacutely hazardous waste). A discussion of hazardous waste generator status is presented in Section G.1 of this Chapter.

In general, it appears that the regulatory data base listings involve activities conducted prior to Ball's acquisition of the property. Several of the manufacturing processes that led to these listings are no longer conducted at the site. Environmental management systems appear to have been upgraded substantially since the 1980s. It appears unlikely at the present time, therefore, that future regulatory activities will result from these historical data base listings.

No NPL sites were identified within one mile of the site. Other than Ball, no facilities within one mile of the site are identified on either OEPA's Unregulated Sites Master Sites List or USEPA's CORRACTS list. Similarly, no facilities within one-half mile of the site, other than Ball, are identified on the CERCLIS list. No facilities in the vicinity of the site have reported spill events under ERNS. Finally, there are no RCRA-permitted treatment, storage and disposal facilities within one mile of the site.

No facilities within one-quarter mile of the site have registered underground or aboveground storage tanks. In addition to Ball, one other facility within one-half mile of the site has a reported leaking underground storage tank; Interpave Corporation, which is located approximately one-half mile southeast of the site. The data base indicates that the tank was closed and "no action taken/no further action." No information pertaining to the leak reporting date, the materials released, and remedial actions taken was provided in the data base. Although Interpave likely is upgradient of the site, based on local topography, there is no specific information to indicate that this leaking tank has impacted the subject site adversely.

Except for Ball, no other facilities within one-quarter mile of the site are on either the Toxic Release Inventory data base or the RCRA Violators list. Similarly, except for Ball, there are no RCRA-registered hazardous waste generators within one-eighth mile of the site.

Based on the information provided in the data bases and obtained from Ball personnel, there are no known areas of environmental concern associated with neighboring facilities.

F. Chemical and Chemical Waste Storage

1. Underground Storage Tanks

Based on ENVIRON's review, it appears that there were at least twelve outdoor underground storage tanks (USTs) at this location during the period of Heekin's ownership. Five of these USTs had been located between the two rail spurs located immediately to the north of the lithographing building (Plant 9). Five USTs were located outside the northwestern corner of the building. One UST was located to the south of the fire water tank. The final UST was located on the west side of the boiler house building. A summary of these USTs is presented in Table III-2. Facility personnel reported that all USTs were removed prior to Ball's acquisition of the site. At the time of the site visit, ENVIRON did not observe any evidence of active USTs (e.g., fill pipes, vent pipes).

Heekin Can contracted with The H.C. Nutting Company (HCN) in 1988 to locate the five USTs north of Plant 9 and to investigate potential solvent contamination from these USTs. HCN collected four soil samples, all of which were collected in the vicinity of only one UST (the westernmost UST, which contained HiSol 15, a petroleum-based solvent). Using gas chromatography, butyl cellosolve and HiSol 15 were detected in soil samples collected around this UST, but concentrations could not be quantified due to an extended retention time for naphthalene, one of the constituents detected.

According to a 1989 UST closure report prepared by D&M for the Plant 9 USTs, two of these tanks reportedly had experienced collapsed vent lines, prompting Heekin to remove all five tanks from service and to close them. Subsequent testing revealed that all five tanks and thirteen of fifteen lines (i.e., the fill, suction, and vent lines for each tank) were leaking. Discovery of leakage in the first tank tested triggered suspected release notification requirements, and D&M notified local and state authorities regarding these tanks. This reported leak triggered Heekin Can's listing on the leaking underground storage tank data base. D&M closed all five tanks in place by excavating soil to the tops of each tank, opening an access hole, pressure washing the interior, and filling with clean pea gravel. A ground water sample was collected by D&M from a former supply well located near the tanks, but the results were not provided in the D&M report. Facility personnel reported that no known well sampling data is present in on-site files.

Facility personnel indicated that, following closure activities, a passive soil vapor extraction system was installed in the vicinity of the five Plant 9 USTs. Facility personnel reported that there was no information on the operation of this system in facility files. ENVIRON did review, however, an approval of closure letter issued by OEPA for these USTs in August 1992, which stated that the issue was closed. A discussion of soil and ground water contamination and remediation issues are discussed in Section J of this Chapter.

TABLE III-2
Former Underground Storage Tanks - Ball Corporation Facility

Tank ID *	Volume	Contents	Location
89-1	4,000	HiSol 15	North of Plant 9
89-2	4,000	Cellosolve acetate	North of Plant 9
89-3	4,000	Butyl cellosolve	North of Plant 9
89-4	4,000	Reclaimed mix	North of Plant 9
89-5	4,000	VM&P naphtha	North of Plant 9
91-1	8,000	Cimflo (soluble vegetable oil)	Northwest of D & I building
91-2	8,000	Water-based lacquer	Northwest of D & I building
91-3	10,000	Water-based lacquer	Northwest of D & I building
91-4	8,000	Waste Cimflo/water	Northwest of D & I building
91-5	8,000	Waste Cimflo/water	Northwest of D & I building
91-6	1,000	Gasoline	South of fire water tank
91-7	10,000	#2 fuel oil	West of boiler house

* Tank ID values have been ascribed by ENVIRON due to the same tank ID numbers being used by different contractors for removal of different tanks. The prefix (i.e., 89 or 91) refers to the year the UST was taken out of service.

In 1991, Heekin retained Environmental Quality Management, Inc. (EQM) of Cincinnati, Ohio to conduct closure activities for the seven other USTs located at the site. All seven tanks were excavated and disposed off-site (the 1991 aerial photograph clearly indicated that tanks 91-1 through 91-5, which had been located outside the northwest corner of the property, had been removed). According to EQM's report, none of the seven tanks were observed to be leaking upon removal. Residual petroleum constituents were detected in soils beneath the gasoline pump pad for the gasoline UST (tank 91-6, Table III-2) and adjacent to holes found at the top of the heating oil UST (tank 91-7). Soils beneath the gasoline pump pad containing elevated petroleum constituents (total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylenes (BTEX)) were not removed due to physical constraints. Outside of the holes on tank 91-7, no indication of releases was observed. Thus, further action was not deemed appropriate in either case and the excavated areas were backfilled and returned to grade. EQM prepared a closure report in May 1991.

Upon review of the May 1991 closure report, the State Fire Marshal responded that Heekin was subject to the state and federal regulations governing the investigation and clean-up of releases from UST systems. Specifically, Heekin was required to conduct Initial Corrective Actions and a Site Investigation (CA/SI) for the gasoline pump pad area, pursuant to OAC §1301:7-7-36(C). In response, Heekin completed a CA/SI in February 1992. Heekin reportedly attempted to remove contamination to the extent possible through soil excavation, but the building foundation and underground utilities interfered with complete remediation. Up to 100 ppm of xylene and 200 ppm of total petroleum hydrocarbons were present in a limited area beneath the former gasoline dispensing pump. Ground water samples were collected from a former production well believed to be downgradient (250 feet northwest)[6] of the remediated area, but no organic compound or metal contamination was detected. A surface water sample from a gravel pit pond to the north of the site also was sampled, with no specific evidence of contamination (low levels of trichlorofluoromethane and chloroform were detected at concentrations of 18 μg/L and 1 μg/L, respectively). Based on a review of the CA/SI, the State Fire Marshal indicated in a March 1992 letter that no further corrective actions would be required by the Ohio Bureau of Underground Storage Tanks.

There are two approximately 170-gallon end compound tanks located within a small flammable storage room by the can assembly punch press area. There is some controversy among facility personnel as to whether these tanks would meet the definition of an UST. The tops of these tanks and associated piping are located above floor level, but the lower portions are within a below-grade concrete vault. The walls of this vault are concrete, but the floor of the vault reportedly has either a gravel cover over bare soil or a floor drain that discharges directly to soil. If the tanks, which apparently were installed in 1958, are considered to be USTs, they would be in violation of release detection requirements. Moreover, if these tanks are USTs, they have not been registered with OEPA. As a best management practice, ENVIRON recommends that, at a minimum, the floor of this vault be sealed to minimize the potential for leaks or discharges to contact soils beneath the building. Alternatively, Ball might consider raising these tanks above grade and eliminating the concrete vault. The cost to effect either of these changes likely would not cost in excess of $15,000.

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[6]As noted, no specific ground water flow data are available for the subject site.

2. Aboveground Storage Tanks

There are several aboveground storage tanks (ASTs) located at the site. ENVIRON observed seven outdoor ASTs, all of which are north of the building. There is a 300,000-gallon tank for fire suppression water storage, a 2,500-gallon tank for mop water[7] located beneath a roofed structure to the east of the railroad loading dock, four 30,000-gallon propane storage tanks, and one 500-gallon tank containing anti-freeze that is associated with the propane vaporization equipment (used when there is a natural gas curtailment and propane is used as the back-up fuel source). With the exception of the propane vaporizer, none of the tanks had secondary containment. Given the contents in some of these tanks (e.g., water and propane), there is a limited concern for environmental release. Ball should consider, however, installing a berm around the mop water AST.

There are a number of indoor ASTs associated with the storage of coating materials. These tanks are located in flammable liquids storage room "A" (the lithographing plant drum room); most of them have been built over top of the racks of 55-gallon drums. Facility personnel did not have any information on the number and size of these ASTs, although there appeared to be approximately eight tanks ranging in size from 1,000 to 5,000 gallons. The storage room appears to have sufficient secondary containment to contain a catastrophic release from any of these ASTs.

3. Drum and Other Storage Areas

Ball maintains four drum storage areas within the plant. The primary storage area is flammable liquids storage room "A," which is located on the north side of the plant, near the paint mixing room at the northwest corner of the lithographing area. ENVIRON observed in excess of 400 55-gallon drums of various coating compounds stored horizontally on a series of racks four tiers high. As noted previously, ASTs are located above the racks of drums. Despite the large number of drums, the room appeared to be well organized and there was limited evidence of spills or releases. The room itself is constructed below grade to provide secondary containment. Facility personnel indicated that there have been discussions with Ball's insurance carrier concerning several low-level vents around the perimeter of the room. Ball has expressed a desire to maintain these vents as a potential water escape route should the room flood as a result of any fire

[7]Mop water can be characterized as various wash water and oil/water mixtures generated at the site.

suppression activities that might occur. Ball's insurer reportedly has expressed concern that the vents would allow for outdoor discharge of materials released from the drums. Given the relatively large surface area (approximately 2,400 square feet) and containment depth in the room (approximately one foot), it appears that there is sufficient capacity to contain a substantial release, independent of fire suppression activities.

ENVIRON observed approximately 100 55-gallon drums and several 400-gallon totes staged in the paint mixing room, which is located between the lithographing area and flammable liquids storage room "A." Facility personnel typically prepare coating mixtures within 55-gallon drums in this room, using other numerous raw materials. In addition, hazardous waste is accumulated in the 400-gallon totes staged in this room.

There was a reported spill incident in the paint mixing room in September 1995. According to facility personnel, an employee was dispensing a butyl cellosolve-containing coating material into a 55-gallon drum and forgot to shut off the dispensing valve. When the employee noticed material flowing out of the drum and went to shut off the valve, he slipped and injured himself. The release was reported to the Office of Chemical Emergency Preparedness and Prevention for USEPA Region 5 because an injury had occurred during the release. Approximately 32 pounds of material were discharged within the paint mixing room, none of which escaped to the environment. Since the incident occurred, Ball has replaced the dispensing valves with spring-loaded devices that must be manually held open at all times in order to dispense material. It does not appear, however, that any environmental impact occurred as a direct result of this release.

Ball maintains a second drum storage room on the south side of the plant in an area immediately north of the coil receiving/storage area. This room, known as flammable liquids storage room "B," is used to store a variety of liquids, including oils, solvents, and coolants. ENVIRON observed that this room was well maintained. There was adequate space for storage of the drums, and no evidence of leaks or spills. The room is constructed below floor level to provide its own secondary containment.

There is also a small flammable storage area in the vicinity of the can assembly punch presses. In addition to the two potential USTs noted above, there are also several drums of oils staged in this room. Although there was some evidence of drips on the floor, there was no evidence of a major discharge. As noted, however, there may be a drain in the concrete vault located in this room that reportedly discharges to soils beneath the building. It is possible that past releases in this room might have discharged via this vault.

Viscous, water-based ink pastes are used in the lithograph presses. Ball maintains a dedicated ink storage and mixing room in the northeast corner of the lithographing area for preparation of ink blends. Most inks on-site are maintained in five-gallon plastic pails. There was no evidence of discharges or releases in this area.

There is an inactive indoor rail siding along the eastern side of the building. This area reportedly is now used to ship product via truck. At the time of the site visit, ENVIRON observed several drums of solvent-containing rags staged in this area awaiting off-site laundering. The lids on some of these drums were not closed at the time of the site visit. Although there was little likelihood of discharge from these drums, ENVIRON recommends that they be sealed close after they have been filled.

Ball currently maintains a concrete storage pad located to the north of the plant. This pad does not have any secondary containment, although the pad appears to slope to the south. At present, empty drums and wooden pallets are staged on this pad. There was no visual evidence of discharges or releases from this pad at the time of the site visit.

Under Heekin's ownership, drums of hazardous waste were staged on a cement pad in an area to the east of the current empty drum storage pad. Due to minor releases that reportedly had occurred in the past, the pad and top layer of soil were removed and the area was resodded. Drums of hazardous waste are no longer stored outdoors. ENVIRON has requested information on the closure of this former drum storage pad, however, Ball personnel have been unable to locate any information in facility files.

Heekin also had staged a variety of scrap and other materials, including some drums of hazardous waste, along the paved areas to the north of the plant. These storage areas had been noted as solid waste management units in the PR/VSI. Evidence of this storage was noted in a review of the 1991 aerial photograph. Since 1991, much of the scrap material has been removed from the site, and no drums were staged on this paved area at the time of the site visit. There was not any evidence of gross contamination on the paved areas where these materials had been present, although there were some minor stains noted in some areas. It is unlikely that these stains would result in remedial actions being required by regulatory authorities. A discussion of potential soil and ground water contamination from historic on-site disposal locations is presented in Section J of this Chapter.

4. Spill Prevention Control and Countermeasures (SPCC) Plan

Facilities with the capacity to store oil or petroleum products in a single aboveground container larger than 660 gallons, in aboveground containers with a combined volume exceeding 1,320 gallons (i.e., the equivalent of twenty-four 55-gallon drums), or in underground containers with a combined volume exceeding 42,000 gallons are required to prepare an SPCC plan, as specified under 40 CFR §112.3, if a release from the facility could be reasonably expected to discharge oils to navigable waters. Based on the current storage of materials at the site, it appears that Ball does not meet the volume thresholds specified and would not be required to prepare an SPCC plan. Ball, however, has developed an Emergency Contingency Plan that contains many of the elements typically required in a Spill Prevention Control and Countermeasures Plan.

G. Hazardous and Nonhazardous Waste

1. Hazardous Waste Management

Ball generates substantial quantities of hazardous waste at this site. The majority of hazardous wastes, roughly 95 percent, are associated with spent solvent wastes from both coating and assembly operations. In 1995, Ball generated and disposed of more than 500,000 pounds of spent solvent wastes (up to 900 gallons of coating and lithography wastes per week and 300 gallons of side seam stripe waste per month). Other hazardous wastes generated include spent parts washer solvent, waste flammable liquids, waste corrosive liquids, and mercury-containing weld rolls (the mercury is sealed within the weld rolls). These wastes are managed off-site (see Section G.3). Solvent-containing rags from the coating and printing operations also are generated. These rags are sent to an industrial launderer for cleaning.

Because the facility generates greater than 1,000 kilograms per calendar month of non-acutely hazardous waste, Ball is classified as a large quantity generator (LQG) of hazardous waste under the Resource Conservation and Recovery Act (RCRA), as amended. As such, Ball must comply with the following requirements of RCRA: 1) obtain a USEPA generator identification number (OHD004253225); 2) store hazardous waste on-site for no more than 90 days; 3) prepare and use the Uniform Hazardous Waste Manifest, maintaining copies on-site for at least three years; 4) properly package, label and placard wastes; 5) establish programs such as preparedness and prevention, contingency plans, emergency procedures, and personnel training; 6) manage waste only at RCRA-permitted facilities; and 7) prepare and submit a biennial hazardous waste report. Based on ENVIRON's review, Ball appears to be in substantial compliance with these requirements, except as discussed in the following subsection.

2. RCRA Compliance Issues

In 1982, Heekin Can submitted a RCRA Part B permit application for the management of hazardous waste. This permit application was submitted because Heekin stored some hazardous wastes on-site in excess of 90 days and conducted on-site treatment of a chromium-containing aluminum waste generated as part of the two-piece can manufacturing process. Heekin was unable, however, to obtain a permit from OEPA and ultimately requested withdrawal of the permit application in February 1986. In August 1986, Heekin submitted a closure plan for the facility to OEPA. According to this plan, the use of chromium in the two-piece can treatment process had been discontinued in January 1986, resulting in the closure of the former chromium treatment system; neutralization of the new can cleaning/conversion coating process would, however, continue to use the treatment system infrastructure. To accomplish closure, therefore, Heekin proposed to wash and rinse the outside surface of all treatment tanks and the floor. This closure was undertaken and completed in 1987. In an October 1989 letter, OEPA indicated that closure of the can treatment process had been accomplished.

The facility is on the RCRA Corrective Actions (CORRACTS) list. The facility received a "medium" prioritization status. According to the Vista data base search, a RCRA Facility Assessment (RFA) was completed by A.T. Kearney in August 1989. With the exception of the cleanup of materials from two drums observed to be leaking at the time of the RFA, no significant further actions were recommended as a result of the RFA investigation. A RCRA Facility Investigation (RFI) determination was subsequently conducted and no RFI was imposed. A discussion of potential solid waste management units and areas of concern identified at the site in 1989 is presented in Section J.1 of this Chapter.

As noted in Section E, RCRA inspections on four different dates resulted in violations. Results of inspections conducted in July 1986 and June 1988 were not available for review. To the extent information was available, the details of the other two inspections are presented below. Given the period of time since these inspections were conducted, it is unlikely that any unresolved issues still remain today.

- September 16, 1988 - The facility was cited for several violations, including insufficient personnel training program; an out-of-date Contingency Plan; and failure to conduct weekly inspections of hazardous waste accumulation areas and maintain an inspection log.

- July 31, 1990. - The facility was cited for several violations, including storage of hazardous waste drums without appropriate labeling; exceedances of the 90-day hazardous waste storage limit; inadequate aisle spacing between containers; and improper management of wastes.

Ball conducts biennial internal environmental compliance audits. In the last audit, conducted over a one-week period in April 1995, Ball personnel noted that a tote of hazardous waste had not been labeled properly and that, on several occasions during the previous year, a waste disposal facility had not returned copies of the waste disposal manifest.

3. Nonhazardous Waste Management

Solid nonhazardous waste generated at the facility is primarily general refuse, scrap metal, mop water and waste oil. Facility trash is collected in a covered compactor located to the east of the rail loading dock. This compactor is hauled by Rumpke Sanitation to the Rumpke Landfill.

Scrap metal is discarded into rail cars staged on the north side of the plant. Because some lubricants are sprayed onto the metal during various fabrication processes and may remain on the scrap metal, they could be discharged to the pavement during precipitation events, ultimately discharging into the northern pond. The potential for release of oil could be minimized by constructing a roofed structure over the rail car siding, which would represent a Best Management Practice. The facility has a storm water discharge permit (see Section I of this Chapter) that requires reporting the release of oil in storm water discharges. Because there reportedly have been no such discharges, the current rail car siding configuration appears to comply with environmental permit conditions and regulatory requirements. The cost to construct a roof over the rail car area to minimize the potential for precipitation contacting the rail cars likely would exceed $25,000, and could exceed $50,000.

Mop water is generated from floor washing conducted at the site. During the floor washing process, trace amounts of oil and debris get mixed with the wash water. This wastewater is pumped into the mop water AST, typically from 55-gallon collection drums, and disposed off-site by Northern Hills, a local hauler.

4. Off-site Waste Management Facilities

Facility personnel provided a listing of off-site waste management facilities used by Ball Corporation, which is summarized in Table III-3. Given the long operating history at this facility, it is likely that other off-site disposal locations have been used in the past. There reportedly is no documentation pertaining to historic off-site waste disposal facilities that were used by Heekin Can. It is possible, therefore, that Ball could be subject to future liabilities associated with past activities conducted by Heekin Can.

A review of the CERCLIS data base conducted by ENVIRON for the off-site waste management facilities used by Ball provided the following information:

- Mercury Refining Inc. in Colonie, New York, is on the final National Priorities List (NPL) and the New York State Priorities List (SPL). Ball sends its sealed weld rolls to this site for reclamation of mercury. Regulatory actions pursuant to the NPL listing at the Mercury Refining site were primarily conducted in the early 1980s and the site was subsequently remediated (the site is currently a permitted operating facility). Ground water monitoring is underway to ensure the effectiveness of remedial actions taken and there is no further action planned under CERCLA. Pursuant to the SPL listing, Mercury Refining is undertaking additional RCRA remedial actions and assuming the cost for this cleanup. Thus, it is unlikely that Ball will incur a significant financial liability associated with investigation and remediation activities at the Mercury Refining site.

- In addition to Mercury Refining, nine other disposal facilities used by Ball have been the subject of regulatory investigations and are on the CERCLIS list. With the exception of three sites, 1) Laidlaw Environmental Services (also known as Triangle Resource Industries) in Greenbrier, Tennessee; 2) Safety-Kleen in New Castle, Kentucky; and 3) Coyne Textile Service in Huntington, West Virginia, the CERCLIS sites at which Ball has managed

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Mercury Refining, Inc. Colonie, New York	NYD048148175	Mercury in sealed weld rolls - can assembly	DS1/F - 8/82 PA1/F - 8/82 SI1/F - 12/82 SI2/S - 12/82 HR1/F - 12/82 NP1/F - 12/82 NF1/F - 9/83 CO1/SR - 3/85 RA1/SR - 1/86 RS1/F - 9/90 RS2/F - 2/93	On the NPL On the SPL	The NPL listing occurred in the early 1980s and this facility is currently operating. Company is conducting on-site remediation pursuant to SPL listing. Ground water monitoring is underway to ensure the effectiveness of past remedial actions taken and there is no further remedial action planned. Thus, it is unlikely that Ball will incur a significant financial liability at the Mercury Refining site.
Safety-Kleen Corporation Hebron, Ohio	OHD980587364	Parts washer solvent (petroleum naphtha)	DS1/F - 1/88 PA1/S - 1/89 NFRAP	Not on the NPL On the SPL	A number of activities conducted under RCRA Corrective Actions, including an RFI and Corrective Measures Study, both of which were approved by the State. In addition, stabilization measures have been completed. Although this facility is still on the SPL, it is unlikely to represent a significant future liability since Safety-Kleen is a large corporation with a history of taking responsibility at its sites.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Rumpke Sanitary Landfill Cincinnati, Ohio	OHD030938086	General refuse	DS1/F - 4/79 PA1/F - 6/87 SI1/F - 5/89 NFRAP	Not on the NPL On the SPL	Given its CERCLIS status and the nature of wastes disposed, there are unlikely to be any significant liabilities associated this site. ENVIRON is awaiting a response from OEPA on the SPL listing.
Systech Demopolis, Alabama	ALD981019045	Spent solvents Waste paint	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Heritage Environmental (aka ILWD) Indianapolis, Indiana	IND093219012	Waste flammable liquids Lab packs	DS1/F - 4/79 PA1/S - 5/83 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Lonestar Industrial/Systech Greencastle, Indiana	IND006419212	Spent solvents	DS1/F - 6/81 PA1/S - 12/85 PA2/F - 10/91 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Superior Special Services Port Washington, Wisconsin	WID988566543	Coating cleanup waste	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Environmental Enterprises Cincinnati, Ohio	OHD083377010	Waste caustic solution	DS1/F - 1/88 PA1/F - 1/89 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Laidlaw Environmental Svcs (aka Triangle Resource Ind) Greenbrier, Tennessee	TND000645770	Solid contaminated with spent solvent	DS1/F - 8/80 PA1/S - 12/83 SI1/S - 8/84	Not on the NPL Not on the SPL	Unlikely to be significant given the period of time since the last regulatory investigation and the fact that this site is not on the SPL or NPL.
Reclaimed Energy Connersville, Indiana	IND000780403	Flammable liquid Xylene PM acetate	DS1/F - 8/80 PA1/F - 6/83 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Safety-Kleen Corporation Sharonville, Ohio	OHD981187313	Parts washer solvent	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Safety-Kleen (aka McKesson Envirosystems) New Castle, Kentucky	KYD053348108	Historic hazardous waste disposal	DS1/F - 11/79 PA1/S - 8/84 SI1/S - 4/85	Not on the NPL Not on the SPL	Unlikely to be significant given the period of time since the last regulatory investigation and the fact that this site is not on the SPL or NPL.
Coyne Textile Service Huntington, West Virginia	WVD052574753	Solvent rag launderer	DS1/F - 2/94	Not on the NPL Not on the SPL	Listing apparently due to oil spill into local waterway. Because Coyne is in operation, this release is unlikely to result in a financial liability to Ball.
Browning-Ferris Industries Westchester, Ohio	Not determined	Medical waste	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments

Regulatory status involved a determination of whether a facility was on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list or the National Priorities List (NPL). The CERCLIS list provides an outline of historical remedial regulatory activity at a particular site. With the advent of Superfund legislation in 1980, many waste disposal or recycling/reclamation facilities have had site discoveries, site investigations, and preliminary assessments to determine the extent of potential environmental contamination or off-site releases, if any. Inclusion of a specific site on the CERCLIS list does not represent a determination of any party's liability, nor does it represent a finding that any response action or site remediation is necessary. Inclusion merely indicates that hazardous substances are, or were, suspected to be present at the site. For many sites, the CERCLIS list states that "no further remedial action is planned" (NFRAP) beyond the initial investigations conducted. If NFRAP is not noted, it does not necessarily indicate that further site investigations or remedial actions are planned or ongoing. In general, for listed facilities without a NFRAP designation, the longer the interval since the last investigatory activity, the less likely it is that further activities will be required.

In describing the regulatory status of disposal facilities used, the following abbreviations are used to identify the various types of investigatory actions that have occurred at a site:

DS - site discovery
SI - site inspection
PA - preliminary assessment
HR - hazard ranking system determination
SP - site inspection prioritization
CO - combined RI/FS
NP - National Priorities List proposed listing
NF - National Priorities List final listing
ND - National Priorities List listing deletion
RS - removal investigation at a National Priorities List site
RV - removal activity
RA - remedial action

In addition, a second listing of F, S, O or RP is shown to identify whether the particular investigation was a federal, state, other, or PRP-led investigation, respectively. Finally, the month and year that the investigation was completed is given. Depending on the state involved, the most recent updates to the CERCLIS list and NPL have occurred within the last twelve months.

wastes have been characterized as "No Further Remedial Action Planned" (NFRAP). The Laidlaw facility was last investigated in 1984 and the Safety-Kleen facility was last investigated in 1985. Given the length of time since the last investigation at these sites, it is unlikely that significant future liabilities will be incurred by Ball for disposal at these off-site locations. Coyne Textile has recently been investigated under CERCLIS, reportedly because of a leak of diesel and/or fuel oil into a tributary of the Ohio River. As such, Ball is unlikely to be held liable for investigation or remediation costs associated with this release.

- Three of the disposal facilities are on the State Priorities List (SPL). In addition to the Mercury Refining site (see above), Safety-Kleen in Hebron, Ohio, and the Rumpke Sanitary Landfill in Cincinnati, Ohio are listed.

For the Safety-Kleen facility, a number of activities have been conducted under the RCRA Corrective Actions program, including an RFI and Corrective Measures Study, both of which were approved by the State. In addition, certain stabilization measures have been implemented and completed. Although this facility is still on the SPL, it is unlikely to represent a significant future liability to Ball since Safety-Kleen is a large corporation with a history of taking responsibility at its sites.

The Rumpke Sanitary Landfill, an active disposal site, had past operational practices that violated Hamilton County Health Department standards. Based on a 1987 state-led preliminary assessment, a low priority for FIT activity was recommended. Given the low prioritization status, the fact that operations are ongoing, and the nature of wastes disposed by Ball at this location, it is unlikely that a significant future liability will be incurred by Ball.

Given the current federal status of these SPL facilities (i.e., NFRAP sites deferred to RCRA), ENVIRON believes that it is unlikely that Ball would incur significant financial liabilities associated with historic disposal of wastes at these sites.

Facility personnel reported that this former Heekin Can facility is not a potentially responsible party (PRP) at any Superfund sites, although other Heekin Can facilities acquired by Ball do have past liabilities associated with historic disposal locations. According to the data base search by Vista, Ball is not identified as a PRP in the SETS data base. If, in the future, any of the off-site waste management facilities used by Ball or Heekin Can, its predecessor at this site, becomes a state or federal Superfund site, subject to other federal or state enforcement proceedings, or the subject of third party lawsuits, Ball could be responsible for a portion of the investigation or remediation costs. The magnitude of such costs would depend on such factors as the volume of the waste disposed at these sites, and the ultimate outcome of regulatory investigations and remedial actions, if any, to be conducted, and the viability of other potentially responsible parties. Because of the considerable volume of hazardous waste disposed off-site, it is possible that such costs could be significant.

H. Air Emissions

According to a June 1995 diagram prepared by Ball, there are 55 roof stacks at the facility. The majority of these stacks (42) are associated with emissions from the coating and lithographing ovens. Ball currently has approximately thirty Permits to Operate (PTOs) that have been issued by OEPA. A summary of PTOs issued to Ball (all permits issued are in Heekin Can's name, even if they were issued after the acquisition of the facility by Ball) is presented in Table III-4. A review of PTOs indicates that a number of them expired in 1995 and 1996. According to facility personnel, Ball has submitted timely renewal applications for these expired permits, but OEPA discontinued issuing renewal of air permits as of January 1, 1996 in anticipation of issuing facility-wide permits under the Title V Operating Permit Program of the Clean Air Act Amendments (CAAA; see further discussion below). Ball reportedly has been told by OEPA that existing permit conditions will remain in force until the Title V operating permit is issued.

USEPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone, nitrogen dioxide, sulfur oxides, carbon monoxide, particulate matter and lead. States are required to meet these standards by regulating emissions of the criteria pollutants or, in the case of ozone, their reactive precursors (i.e., volatile organic compounds [VOCs] and nitrogen oxides [NOx]). Regions that do not meet NAAQS are designated as nonattainment areas. The primary criteria pollutants emitted by the Ball facility are VOCs, which result from both coating operations and side seam stripe application. Lesser amounts of VOCs are emitted during printing

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions
Three-piece overvarnish sheet coating - press line #1	K007	4/7/97	Incinerator [a]	Up to 2.8 pounds of VOCs emitted per gallon of coating, excluding water and exempt solvents; 4.5 pounds of VOCs per gallon of solids if a control device is employed.
Three-piece overvarnish sheet coating - press line #4	K010	4/7/97	None	
Three-piece overvarnish sheet coating - press line #2	K008	4/7/97	None [b]	Up to 2.8 pounds of VOCs emitted per gallon of coating, excluding water and exempt solvents; 4.5 pounds of VOCs per gallon of solids if a control device is employed. A capture and control efficiency of not less than 81% by weight and a control efficiency of no less than 90% by weight if non-compliant coatings are employed.
Three-piece overvarnish sheet coating - press line #3	K009	4/7/97	None [b]	
Basecoat roll coater - press line #5	K047	11/8/98	None	Up to 2.8 pounds of VOCs per gallon of coating, excluding water.
Basecoat roll coater - line #C-1	K040	3/4/96	Incinerator	Up to 2.8 pounds of VOCs per gallon of coating, excluding water. Incinerator must maintain an overall control efficiency of at least 80%.
Basecoat roll coater - line #C-2 [c]	K041	3/4/96	Incinerator	
Basecoat roll coater - line #C-3	K042	8/13/95	Incinerator	
Basecoat roll coater - line #C-4	K043	8/13/95	Incinerator	
Basecoat roll coater - line #C-5	K044	8/13/95	Incinerator	
Basecoat roll coater - line #C-6	K045	8/13/95	Incinerator	
Basecoat roll coater - line #C-8	K046	3/4/96	Incinerator	

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions
Punch press and end seal compound lines MD-3	K025	6/10/96	None	VOC emissions not to exceed 104.4 tpy. VOC content limited to not more than 4.4 pounds per gallon, minus water. Total usage limited to approximately 50,500 gallons per year.
Punch press and end seal compound lines MD-4	K026	6/10/96	None	
Side seam stripe applicator - line #1	K030	4/1/96	None	VOC content of coatings employed are not to exceed 5.5 pounds of VOCs per gallon of coating, excluding water.
Side seam stripe applicator - line #2	K028	3/11/96	None	
Side seam stripe applicator - line #3	K029	4/1/96	None	
Side seam stripe applicator - line #4	K031	4/1/96	None	
Side seam stripe applicator - line #8	K033	4/1/96	None	
End seal compound liner - line #15 [d]	K027	6/10/96	None	VOC emissions not to exceed 57.8 tpy. VOC content limited to not more than 4.4 pounds per gallon, minus water. Total usage limited to approximately 27,000 gallons per year.
End seal liner - sanitary can ends	K039	12/29/97	None	VOC emissions not to exceed 3.11 tpy. VOC content not to exceed 3.7 pounds per gallon excluding water.
Size 307 end seal liner	K048	12/29/97	None	End seal compound usage not to exceed 35 gallons per day, 12,767 gallons per year. VOC emissions not to exceed 130 pounds per day or 23.62 tpy. VOC content not to exceed 3.7 pounds per gallon, excluding water.

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions

[a] Although use of non-compliant coatings are not specified in the permit for this printing press line, it was reported to ENVIRON that this press has an exhaust port that connects to an incineration unit should solvent-based coatings be used.

[b] Although permit conditions allow for the use of non-compliant coatings, these presses are not directly connected to an emissions control device.

[c] This is a dual coating and lithography press.

[d] Ball maintains seven other permitted end seal compound liner lines (#'s 8 through 14, permit IDs K018 through K024). Copies of the specific permits were not provided to ENVIRON for review. Facility personnel indicated that the permit conditions for these coating lines are essentially identical to other end seal lines.

operations. Based on the Title V permit application (see below), Ball's maximum potential to emit is approximately 515 tons of VOCs per year.

Title I of the Clean Air Act Amendments (CAAA) of 1990, refined the definition of a major source in nonattainment areas for ozone. Hamilton County is considered a moderate nonattainment area for ozone. Major sources in a moderate ozone nonattainment area are defined as those facilities with the potential to emit 100 tons of VOCs or NOx per year. Because the facility has the potential to emit more than 100 tons per year (tpy) of VOCs, it is classified as a major source under Title I of the CAAA. Therefore, Ball is required to implement Reasonably Achievable Control Technology (RACT), as specified in the State Implementation Plan (SIP).

Pursuant to the permit renewal applications submitted for the facility's solvent-based coating lines, Ball was required by the Hamilton County Environmental Services Department to conduct capture and efficiency testing on these lines in March 1996. Results of this compliance testing indicated that Ball's overall line efficiency ranged from 73% to 76% for the five lines tested. Because the minimum allowable overall efficiency is 80% (the permit indicates 81%, Hamilton County indicated 80% in its Violation letter), Ball is in violation of its permit conditions. As a result, it appears that the natural gas-fired incinerators on the coating lines would be deemed to be out of compliance with Ohio RACT requirements. Facility personnel reported that a second round of capture efficiency testing is to be conducted the week of October 7, 1996. Should Ball fail to comply with its permit conditions in the current testing, it is likely that Ball would be required to improve the capture efficiency of the incinerator by installing additional exhaust capture hoods and duct work on each of the coating lines in order to meet both permit and RACT requirements. Because the extent of infrastructural upgrades that might be required and the ability of the existing incineration units to handle increased volumetric throughput is uncertain, the cost to upgrade the air handling systems, including the incinerators, could be as little as $250,000, but as much as $2.5 million.

Although current air permits specify allowable VOC content and emissions for the various sources (see Table III-4), a review of Ball's most recent semi-annual material usage report to OEPA suggests that the facility may not be in compliance with certain permit requirements for its coating lines. Based on the permit conditions for the coating lines, the VOC content per gallon of coating, less water, is limited to 2.8 pounds. The reported VOC content in coatings, less water, typically exceeds 4.0 pounds per gallon. It appears that Ball personnel have interpreted the permit conditions as pounds of VOCs **emitted** per gallon of coating, which is consistent with VOC mass emission limitations stated in other permits OEPA has issued to Ball. Ball has not been cited by OEPA recently for any violations of its permit conditions, but the facility had been cited by the

Southwestern Ohio Air Pollution Control Agency (SWOAPCA) in December 1983 for operating coating lines using non-compliant coatings (implementation of compliant coatings before 1986 was stipulated by SWOAPCA). Despite this, several of the coatings identified in 1983 are still used at the site today. No documentation was provided to ENVIRON indicating that SWOAPCA or OEPA has issued the facility a waiver from instituting the use of compliant coatings. As such, ENVIRON believes Ball is out of compliance with permit conditions and recommends that Ball confirm the specific language in its permit conditions to ensure that it will not be subject to future compliance violations.

USEPA has identified 189 hazardous air pollutants (HAPs) for regulation under Title III of the CAAA. Maximum Achievable Control Technology (MACT) emission standards are being developed for major sources of HAPs within 175 source categories. Within a source category, a major source of HAPs is identified as a facility with the potential to emit greater than 10 tpy of a single HAP or greater than 25 tpy of any combination of HAPs. Based upon information provided by facility personnel, Ball emits three primary HAPs: glycol ethers (21.5 tpy), xylenes (8.3 tpy),and methyl isobutyl ketone (4.8 tpy). Based on Toxic Release Inventory reporting (see Section L of this Chapter), the facility likely has actual HAP emissions in quantities greater than 10 tons per year only for glycol ethers. As such, Ball would be considered a major source under Title III, and would be required to comply with MACT requirements.

Under Title III, Ball likely will be subject to the metal can surface coating category on account of both the coating and side seam stripe application operations. The MACT standard for the metal can source category is due to be promulgated by November 2000. As a major source under Title III, it is likely that, unless a lower- or non-HAP substitute is developed, emissions control would be required subsequent to promulgation of the MACT standard, particularly for the side seam stripe application operations. The cost to install emission control equipment likely would be significant. At present, ENVIRON does not have sufficient information to evaluate potential MACT alternatives to develop a cost estimate. Compliance with the future MACT standard likely will not be required until November 2003 at the earliest.

Under Title V of the CAAA, major sources of air emissions are required to obtain operating permits from the State and pay permit fees. Because the facility is a major source under both Title I and Title III of the CAAA, it is required to apply for a facility-wide operating permit under Title V. The Title V operating permit application for the Ball facility was due by September 30, 1996. The facility was completing its application at the time of the site visit and submitted to OEPA on September 26, 1996 (a copy was provided to ENVIRON). Based on the current levels of emissions, the annual operating permit fee likely will be about $10,000.

I. Wastewater Discharges

The facility's wastewater discharges include sanitary wastewater and storm water runoff. The manufacturing processes do not routinely generate any process wastewater or noncontact cooling water. Oil/water wastes that might be generated are typically collected in 55-gallon drums and transferred to the mop water AST.

Historically, large volumes of process water were generated at the site from the chrome reduction system, part of the manufacture of two-piece cans. The effluent from this permitted hazardous waste treatment unit in the D&I area originally (reportedly beginning in 1974) was discharged to the off-site gravel pit pond located to the north of the plant. Although the sludge was considered a hazardous waste (F019 - wastewater treatment sludges from the chemical conversion coating of aluminum), analyses of the wastewater in the early 1980s indicated that it did not exhibit a hazardous characteristic. Chromium-based can treatment was discontinued in 1986 and was replaced by a zirconium/acid treatment system. This discharge was discontinued in July 1989 when the two-piece can operation was discontinued.

Sanitary wastewater is treated in an on-site package wastewater treatment plant. The plant contains an aerated activated sludge unit and a solids settling pit. Decanted effluent is discharged to a lined holding pond on the eastern side of the property. Wastewater from the holding pond is occasionally discharged on-site over a permitted six-acre spray field. Sludge from the settling pit is occasionally pumped out by Metropolitan Sewer, which hauls the waste to a local POTW for disposal.

Heekin Can applied for a Slow Rate Land Treatment System in late 1984 and was granted a permit to install by OEPA in February 1985. Per the permit conditions, Ball is required to monitor and report various chemical constituents and application rates on a semi-annual basis. The facility appears to be in compliance with reporting requirements.

Storm water generally discharges into grassy areas on-site. There is a storm sewer system associated with plant roof runoff to the northern pond. At the time of the site visit, there were no apparent adverse impacts associated with the storm water collection pond. Heekin Can applied for and received a National Pollutant Discharge Elimination System (NPDES) general storm water discharge permit from OEPA (OHG000001). Upon expiration of this permit, Ball applied for and was issued a renewed permit, which expires in October 1999. Ball reportedly has prepared a Storm Water Pollution Prevention Program in accordance with NPDES storm water permit regulations. ENVIRON was not provided a copy of this document.

J. On-site Soil and Ground Water Contamination

Facility personnel reported that there are no known areas of on-site soil or ground water contamination. Although the site presently is not the subject of investigation and there are no current sources of known contamination, historical practices conducted by previous site owners potentially could have resulted in on-site soil and/or ground water contamination. Other than the areas discussed below, however, ENVIRON did not identify any specific areas of apparent concern at the time of the site visit. Determination of historical contamination could only be confirmed through the collection and analysis of soil and ground water samples. Given the lack of regulatory scrutiny and the absence of suspect areas of contamination, sampling at the site does not appear to be warranted at this time.

1. RCRA Corrective Action

Based on operations conducted during Heekin's ownership, the facility was investigated pursuant to RCRA Section 3008(h) for a potential release of hazardous waste or constituents into the environment. In the first phase of the RCRA Corrective Action Program, a RCRA Facility Assessment (RFA), consisting of a PR/VSI, was conducted by A.T. Kearney (Kearney) at this facility on behalf of USEPA in 1989. Kearney identified twenty-three solid waste management units (SWMUs) and one area of concern (AOC) during its inspection. These areas included indoor waste management areas, outdoor drum and waste storage areas, the WWTP and wet well, and the wastewater holding pond and spray fields. A summary of the SWMUs and AOC and their status are presented in Table III-5.

On the basis of the PR/VSI, only one specific release was noted; two drums of product containers staged adjacent to the north side of the D&I portion of the building had slight leakages. These leaking drums were on an unbermed cement pad, and the leak was "flowing" toward the building. There was no direct evidence, based on the PR/VSI, that surficial soils had been impacted adversely.

Kearney identified a possible release to ground water associated with the operation of the on-site wastewater treatment plant (WWTP). Specifically, chromium was identified as the contaminant of potential concern. Historically, chromium was a constituent present in the two-piece can coating operation. Can coating sludge, which was treated in a designated aluminum scrap recovery process located in the D&I area at the facility, contained chromium until 1986, when chromium-based processes were eliminated. At the time of the PR/VSI, the supernatant from this two-piece line treatment process was

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 1	Vapor collection system	General vapor collection system on coating lines, lithographing units, and assembly lines. Appeared to be in good operating order at time of VSI.	Equipment associated with two-piece aluminum cans and three-piece steel cans no longer on-site. Facility currently conducting tests to determine if capture efficiency meets permit limits (see Section H).
SWMU 2	Volatile vapor incinerators (3)	Incinerator units associated with coating operations. History of documented volatile vapor releases to atmosphere. Appeared to be in good operating order at time of VSI.	Overall efficiency currently below permit limits. Testing of capture efficiency currently being tested (see Section H).
SWMU 3	Scraper coating buckets	Waste cleaning solvent collected in 5-gallon pails and transferred to satellite waste drums (SWMU 5). No documented releases.	No new issues identified.
SWMU 4	Waste coating buckets (2)	Waste coating materials collected in 5-gallon pails and transferred to satellite waste drums (SWMU 5). No documented releases.	No new issues identified.
SWMU 5	Satellite waste accumulation collection areas	Four waste accumulation areas: three-piece can, south of coiled sheet storage, punch press, and two-piece can. No documented releases, but spillage noted around base of one drum.	Two operational areas no longer exist (i.e., two-piece and three-piece can). Three satellite areas still present: paint mixing, punch press, and flammable room "B". No new issues identified.
SWMU 6	Satellite scrap metal collection areas	Barrels or bins located throughout production area. No documented releases.	No new issues identified.
SWMU 7	Scrap metal bailers	Two metal compactors for aluminum waste handling. No documented releases.	Area no longer present on-site.
SWMU 8	Scrap metal storage area	Twenty-foot square indoor area at north end of D&I area. No documented releases.	Area no longer present on-site.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 9	Safety-Kleen units (3)	Three units maintained by Safety-Kleen. No documented releases.	Unit in two-piece area no longer present. No new issues identified.
SWMU 10	#1 empty product drum storage area	50-foot by 70-foot area to west of boiler house on an unbermed cement pad. At time of VSI, hundreds of empty drums, which appeared to be closed, and wood pallets. No releases noted.	Area no longer used for storage.
SWMU 11	#1 drummed hazardous waste storage area	25-foot by 50-foot area to west of SWMU 11on an unbermed cement pad. At time of VSI, forty 55-gallon drums of hazardous waste. No releases noted.	Area no longer used for storage. No hazardous wastes stored outdoors.
SWMU 12	#2 empty product drum storage area	50-foot by 100-foot area to north of Plant 9 on an unbermed cement pad. At time of VSI, over one hundred empty, sealed drums. No releases noted.	Area still in use. Over one hundred empty drums staged at time of visit, but many removed by hauler during visit. No releases noted.
SWMU 13	#2 drummed hazardous waste storage area	30-foot by 50-foot area to east of SWMU 12 on an unbermed cement pad. At time of VSI, 20 to 30 55-gallon drums of hazardous waste. No releases noted.	Area no longer in use. Facility personnel reported that the area was remediated by pad removal and excavation of surficial soil layer. ENVIRON observed that area had been resodded.
SWMU 14	Scrap yard	60-foot by 30-foot area reportedly in vicinity of SWMUs 12 and 13. At time of VSI, three drums and a rusted 8,000-gallon tank. No releases noted.	Facility personnel did not identify any other storage areas by SWMUs 12 and 13. No evidence of such a storage area on 1991 photograph. No large tanks observed on-site.
SWMU 15	Former drummed chrome-sludge storage area	Unbermed cement pad to north of D&I area that was used for pallet storage at time of VSI. Drums of trivalent chromium sludge placed at this location from 1974 until 1986. Historic release controls not disclosed by facility personnel. No indications of release.	No evidence of this former storage area.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 16	Acid bath sump	Indoor stainless steel sump, associated with aluminum can acid bath spray line on two-piece can operations, located in an enclosed area with cement flooring. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 17	Acid waste storage tanks	Two 7,200-gallon fiberglass ASTs for temporary storage of acid bath sump wastes. Originally had been used for storage of chromium wastewaters. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 18	Neutralization bath	Six-stalled, open-topped stainless steel tank used for pH neutralization. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 19	Former chrome-waste storage tank	A 4,000-gallon storage tank next to neutralization bath used for chrome waste storage. Use was discontinued in 1986. No releases noted.	Equipment no longer on-site at time of site visit. Area is now used for warehousing.
SWMU 20	Biological treatment plant	At the time of VSI, facility treated 67,000 gallons per day of two-piece can waste treatment system and 30,000 gallons per day of sanitary wastes. Process wastewater only treated for two years. No releases noted.	Process wastewater discontinued one week after VSI. Only sanitary wastewater now being treated.
SWMU 21	Wet well	A 5,000-gallon concrete sump that stages effluent from the WWTP prior to discharge to the holding pond. No releases noted.	Still actively used as part of the facility's wastewater treatment system.
SWMU 22	Storage pond	One-half acre clay liner with limestone surface cover with a 500,000-gallon capacity. No releases observed.	Still actively used as part of the facility's wastewater treatment system.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 23	Land application treatment area	On-site spray field for discharge of WWTP effluent. At time of VSI, three ground water monitoring wells reported around the spray field. Water quality data reportedly indicate that releases may have migrated to the water table.	Facility personnel reported that monitoring wells are no longer present on-site. No evidence of stressed vegetation.
AOC A	Drummed product storage area	Drummed product containers were stored near SWMUs 10 and 11. Over fifty 55-gallon drums were stored in a 50-foot by 50-foot concrete unbermed pad. At time of VSI, two drums exhibited obvious leakage, which drained toward the building.	This area no longer used for material storage. No evidence of residual staining apparent from this reported leakage incident. Facility personnel had no specific recollection of the incident.

discharged to the WWTP, but apparently did not contain chromium (the WWTP became operational after chromium use was discontinued). Facility personnel reported that the sludge was transferred to two of the USTs located northwest of the building. The PR/VSI also indicated, however, that drums of this sludge had historically been staged on the pavement on the north side of the facility (SWMU 15) prior to disposal. Moreover, it is possible that some of this chrome-containing sludge may have been discharged to the gravel pit pond located to the north of the site in the 1970s. No sampling was conducted by Kearney to assess whether soil or ground water contamination had resulted.

Effluent from the WWTP goes to a clay-lined holding pond. Kearney reported that there had been three ground water monitoring wells associated with this system. While Ball monitors the effluent from the WWTP holding pond prior to on-site discharge via the spray fields, there are no longer ground water monitoring wells on the property (moreover, the abandoned ground water wells on-site are not in the vicinity of the spray field and reportedly supplied potable water to the plant before a connection to the city municipal water authority was made). Given the type of treatment process conducted, ENVIRON does not believe that the majority of the chromium present in the wastewater would have been in the more toxic valent state (i.e., chromium VI), but the less toxic, less soluble state (i.e., chromium III). Although wastewater sampling data from the early 1980s indicated that the total chromium concentration generally was less than 0.2 mg/L, the Maximum Contaminant Level for total chromium is 0.1 mg/L, which would exceed drinking water standards. Because chromium is no longer a constituent in the facility's wastewater, it is unlikely that future regulatory action will be required based on historical wastewater characteristics.

Based on the results of the PR/VSI, the primary further actions suggested by Kearney included: installing secondary containment around outdoor hazardous waste storage areas, sampling the contents and subsequent removal of an 8,000-gallon AST in the scrap yard which reportedly contained nonhazardous wastes; covering plastic collection pails on the coating lines to minimize fugitive solvent emissions; and comparing the quality of on-site ground water to the WWTP effluent concentrations. It does not appear that Heekin Can acted specifically upon these recommendations, but sought instead to eliminate the SWMUs and AOC. Secondary containment in the vicinity of the empty drum storage pad is still warranted.

Although a number of SWMUs had been identified by Kearney, many of these areas have been remediated or the potential sources of release identified have been discontinued. While a potential for soil or ground water contamination from historical operations and waste management practices is possible, ENVIRON did not observe any specific areas of contamination at the time of the site visit.

2. Areas of Past Remediation

During Heekin's ownership, three areas of contamination reportedly were remediated: the former UST area north of Plant 9 in 1989, beneath the gasoline pump pad near Plant 2 in 1991, and the former outdoor drum storage area in 1991. No other areas of contamination were reported to ENVIRON. Passive soil vapor extraction reportedly was used to vent soils in the vicinity of the former USTs near Plant 9. No documentation on this system or the adequacy of remediation of this area was available in facility files. The gasoline pump pad was the subject of a Corrective Action/Site Investigation, as discussed in Section F.1, and the issue is considered closed by OEPA. Facility personnel report that surface soils were removed from the former drum storage area. There was no documentation provided to confirm the adequacy of remediation activities that reportedly occurred in this area, or that the reported remediation activities had been conducted (ENVIRON did observe evidence of top soil placement in the area where the former drum storage area had been). In the absence of information for two of these areas, confirmatory samples may be warranted to verify that no residual contamination remains.

As noted, ENVIRON's review of the 1991 historical aerial photograph revealed a potential area of debris disposal in what was observed at the time of the site visit to be a generally inaccessible wooded area near the southeastern corner of the site. At the time of the site visit, there was no obvious visual evidence of past or current human activity (e.g., a trail) in or around these woods and facility personnel reported that there was no known environmental impairment in this portion of the site. Based on ENVIRON's review of the aerial photograph, there did not appear to be any disposal of drums in this area. This could only be confirmed by a more detailed survey within this wooded area.

K. Asbestos and Polychlorinated Biphenyls

Although a detailed asbestos survey was beyond ENVIRON's scope of work, a brief review of building materials was conducted for the possible presence of asbestos-containing materials (ACM) at the site. At the time of the site visit, ENVIRON observed some damaged insulation on pipes and vessels in the boiler house that may contain asbestos. Because the facility was constructed prior to 1980, any suspect ACM building materials must be presumed to contain asbestos (29 CFR 1910.1001).

Ball personnel conducted an internal asbestos survey in late 1985, collecting approximately 50 insulation, tile (both floor and ceiling) and mastic samples from various locations around the facility. Samples from the roof, approximately 75-80% of which reportedly has a urethane spray foam, and inside of curing ovens were not collected. On the basis of sampling results, sixteen areas of insulation (mostly pipes and elbow fittings) and floor tiles were identified as having ACM. Specifically, approximately 1,900 linear feet of pipe insulation, 1,000 square feet of pipe fittings, and 2,450 square feet of floor tile were delineated. With the exception of two areas of pipe insulation in the boiler house that comprise approximately 335 linear feet, areas with detected ACM were deemed by Ball to have a moderate to low potential for future damage and were in areas with little air flow. ENVIRON is in general agreement with this assessment. The cost to abate the two higher priority areas likely would not cost in excess of $6,000, depending upon the ease of access to the piping in question.

Unless ACM is damaged or friable, there is no need for repair or abatement. Until all ACM is removed, however, Ball should develop and implement an ACM Operations and Maintenance (O&M) program. The purpose of such a program is to avoid unnecessary disturbance or damage to remaining ACM and to establish procedures for employee awareness to achieve this goal. The cost to prepare an O&M plan for the site likely should not exceed $10,000.

According to facility personnel, there are no polychlorinated biphenyls (PCBs) present on-site in any electrical equipment (i.e., transformers and capacitors). ENVIRON did not specifically identify any equipment that might contain PCBs. ENVIRON did observe that at least one transformer had a "green" label indicating that the transformer's dielectric fluid was "non-PCB."

L. Emergency Planning and Community Right-to-Know

Based on the information provided by facility personnel, it appears that Ball is subject to some of the requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act (SARA). Specifically:

- The facility reportedly does not store extremely hazardous substances (EHS) in quantities that exceed their Threshold Planning Quantities (TPQs). Therefore, Ball does not appear to be subject to the emergency planning sections of EPCRA (Sections 301-303).

- There reportedly have been no releases into the environment of listed hazardous substances exceeding reportable quantity limits. Therefore, Ball has not been subject to the emergency notification requirements of EPCRA (Section 304).

- Facilities that are required to have Material Safety Data Sheets (MSDSs) for substances stored on-site in amounts greater that their TPQs are subject to the community right-to-know sections of EPCRA (Sections 311-312). Pursuant to Section 312, Ball has submitted a Tier Two form to the appropriate state and local emergency planning authorities since the 1989 reporting year. Ball has identified eleven compounds that require reporting, including n-butyl alcohol, xylenes, hexane, methyl isobutyl ketone (MIBK), ethylene glycol monobutyl ether, 1-monomethyl ether propylene glycol, and propane. Facility personnel indicated that the use of hexane-based compounds are being reduced, such that reporting of hexane could be eliminated in the future.

- The facility is subject to the toxic chemical release reporting requirements of EPCRA (Section 313) because hexane, glycol ethers, n-butyl alcohol, MIBK, and xylenes have been "otherwise used" in quantities exceeding the 10,000 pound per year reporting threshold. Ball has annually submitted a Toxic Chemical Release Inventory Reporting Form for these compounds in a timely fashion.

M. Occupational Safety and Health

Although a comprehensive review of occupational safety and health issues was beyond ENVIRON's scope of work, a brief review of current operations was conducted to determine whether any major areas of concern were evident. The facility's plans and documents related to occupational health and safety were reviewed, and are summarized below:

- The facility has a written hazard communication plan, which outlines procedures for promoting awareness and proper handling of hazardous chemicals at the facility per 29 CFR §1910.1200. A comprehensive compilation of MSDSs for coatings, inks, oils and other products used at the facility are maintained in the quality control laboratory. MSDS log books are available at several different satellite locations on-site that are accessible to all employees.

- The facility has a written lockout/tagout plan, which establishes operating procedures to prevent the unexpected energization or start up of electrical equipment during service or maintenance, per 29 CFR §1910.147.

- OSHA requires that respiratory protection be provided by employers when such equipment is necessary to protect the health of the workers, per 29 CFR §1910.134. The facility has no respiratory protection program and ENVIRON did not observe any operations at the site that would necessitate the use of respirators.

  Ball has conducted several industrial hygiene surveys at the site and conducted air monitoring in areas involving chemical usage. None of the chemicals monitored had airborne concentrations in excess of their respective PELs. Some interior air handling modifications recently have been made near the multi-die press in order to reduce potential exposure to chemicals used at the site.

- Facilities in which employees are exposed to noise in excess of 85 decibels are required to administer a hearing conservation program, per 29 CFR §1910.95. The facility has conducted a series of noise surveys, which have identified specific areas within the facility where hearing protection is required. Most operational areas have decibel levels ranging from the middle 80s to the lower 90s.

  Ball also conducts annual audiometric testing on its employees. Ball recommends that employees in areas with noise in excess of 85 decibels to wear hearing protection (OSHA mandates hearing protection when exposure exceeds 90 decibels when averaged over an eight-hour day, and recent NIOSH decisions on noise indicate that it wants to change the noise level requiring hearing protection to 85 dBA). Hearing protection is required in most operational areas of the plant (i.e., coating, printing and assembly).

- Facilities are required to develop a bloodborne pathogen exposure control plan if the type of work performed is likely to result in occupational exposure to blood or other potentially infectious materials, per 29 CFR §1910.1030. Ball has developed a corporate bloodborne pathogen exposure control plan that has been adopted by the packaging plant. Facility personnel were uncertain how the plan was being implemented at the plant. Ball does maintain a "red bag" system with biohazard clean-up equipment on-site. In addition, there are two first aid rooms on-site.

- If any employee is required to enter a confined space, the employer is required to prepare a confined space entry program, per 29 CFR §1910.146. The facility has identified an number of confined space areas at the site and has developed a formal confined entry program. Identified confined space entry areas were observed to be appropriately placarded.

- Facility personnel using powered industrial vehicles (e.g., forklifts) are required to receive training and licensing prior to vehicular use. Ball has developed a forklift training policy, which includes a written program and driving test.

- The facility maintains a master copy of OSHA 200 logs related to reportable occupational injuries and lost-time accidents in the human resource's office. Facility personnel reported that there have been fifteen lost time accidents through the first half on 1996, including one serious injury which resulted in the amputation of an individual's finger. Despite this, the facility has had only 46 lost days as a result of these accidents.

  There reportedly are still some outstanding worker compensation claims that were initiated during Heekin's ownership. Facility personnel did not provide any estimate on the magnitude of these claims or their current status.

APPENDIX A

Description of Environmental Data Bases Searched by Vista

Federal environmental data bases searched by Vista for entries located in the vicinity of the subject site are described below. The radius searched for a particular data base, provided in parenthesis following each data base description, is in accordance with ASTM guidance.

— National Priorities List (NPL): the United States Environmental Protection Agency's (USEPA's) list of uncontrolled or abandoned hazardous waste sites identified for priority remedial action under the Superfund program (one mile).

— Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS): USEPA's compilation of sites that have been investigated or are currently being investigated for a release or threatened release of hazardous substances pursuant to possible inclusion on the NPL (one-half mile).[8]

CERCLIS sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination found was not serious enough to require federal Superfund action or NPL consideration, are designated as "No Further Remedial Action Planned" (NFRAP) sites.

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[8]The CERCLIS list provides an outline of historical remedial regulatory activity at a particular site. With the advent of Superfund legislation in 1980, many waste disposal or recycling/reclamation facilities have had site discoveries, site investigations, and preliminary assessments to determine the extent of potential environmental contamination or off-site releases, if any. Inclusion of a specific site on the CERCLIS list does not represent a determination of any party's liability, nor does it represent a finding that any response action or site remediation is necessary. Inclusion merely indicates that hazardous substances are, or were, suspected to be present at the site. For most sites, the CERCLIS list states that "no further remedial action is planned" beyond the initial investigations conducted. If "no further action" is not noted, it does not necessarily indicate that further site investigations or remedial actions are planned or ongoing. In general, for listed facilities without a "no further action" listing, the longer the interval since the last investigatory activity, the less likely it is that further activities will be required.

— RCRA Facilities (RCRIS generators and RCRA TSDs): USEPA's compilation of reporting facilities that generate, transport, treat, store, or dispose of hazardous waste under the Resource Conservation and Recovery Act (RCRA) (one-eighth mile of generators and transporters; one mile for treatment, storage or disposal facilities).

— Emergency Response Notification System (ERNS): a national data base used to collect information on reported releases of oil or hazardous substances (one-eighth mile).

— RCRA Corrective Action Sites (CORRACTS): USEPA's compilation of RCRA facilities undergoing corrective action pursuant to RCRA Section 3008(h) for releases of hazardous wastes or constituents into the environment (one-mile).

— RCRA Violators (RCRA-Viols): USEPA's data base of RCRA facilities that have been cited for violations of RCRA (one-quarter mile).

— Toxic Release Inventory System (TRIS): USEPA's data base that establishes an inventory of releases of toxic chemicals from facilities required to complete a Form R under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (one-quarter mile).

In addition to the federal data bases, available state environmental data bases searched by Vista for entries located in the vicinity of each subject site are described below. The radius searched for a particular data base, provided in parenthesis following each data base description, is in accordance with ASTM guidance.

— State Priorities List (SPL): a generic name for data bases maintained by many states that contain an inventory of sites prioritized by states for cleanup of known or threatened releases of hazardous substances to the environment (one mile).

— State CERCLIS List (SCL): a state-equivalent data base to USEPA's CERCLIS list (one mile).

— State Underground Storage Tank/Aboveground Storage Tank (UST/AST) List: a data base maintained by state or local agencies of registered underground or aboveground storage tanks (one-quarter mile).

— State Leaking Underground Storage Tank (LUST) List: a data base maintained by state or local agencies of known or suspected leaking underground storage tanks (one-half mile).

— State SWLF: a data base maintained by state or local agencies of active and inactive solid waste landfills, incinerators, and transfer stations (one-half mile).

[5] RELEASE INFORMATION

DATE FIRST DETECTED: 6 / 23 / 89 TIME __:__ MULTIPLE SUSPECTED SOURCES __ YES __ NO

AC AL SUBSTANCE RELEASED: Cyclesolve 60

EST. QUANTITY: ______ EST. CONCENTRATION: ______ EST. DURATION: ______

MEDIA EFFECTED (Check all that apply):

__ PAVEMENT __ BASEMENT __ SOIL __ GROUND-WATER __ SURFACE WATER __ SEWERS

__ OTHER: ______

PROBABLE CAUSE: ______

LTF ELIGIBLE? __ YES ✓ NO If no, why?: Haz. substance

[6] UST INFORMATION

FACILITY REGISTRATION CURRENT? __ YES __ NO __ UNKNOWN (Attach USTR's for all facilities)

UST NO.	AGE	CAPACITY	-CONST.- MATERIAL	---PROTECTION--- INTERNAL	EXTERNAL	OVERFILL	-RELEASE- DETECTION	SUBSTANCE	STATUS
1		4000					See attached sheet.		
2		4000							
3		4000							
4		4000							
5		4000							

(Record any additional tanks on additional pages)

PROBABLE LOCATION OF RELEASE: TANK NO.__ PIPE BETWEEN ______ AND ______

O R POTENTIAL SOURCES OF RELEASE: ______

[7] SITE/HAZARD INFORMATION

IMPORTANT SITE OR SURROUNDING AREA CHARACTERISTICS: 200 feet to sewers; 1600 feet to L. Miami River; well in between tanks and river.

OTHER FIRE/WATER HAZARDS AT THE SITE: ______

KNOWN INJURIES OR PROPERTY DAMAGE: ______

PROXIMITY TO DRINKING WATER SOURCES: Production wells on the property

[8] INITIAL RESPONSE ACTIONS BY OWNER/OPERATOR — (Check all that apply)

__ Release confirmation/Investigation (COMPLETE INVESTIGATION/CONFIRMATION REPORT)
__ Initial corrective action procedures
__ Free product removal
__ Long term corrective action plan
__ Initial site investigation
__ Site assessment/Exposure assessment
__ Unknown/undetermined

[9] OTHER AGENCIES NOTIFIED PRIOR TO THIS REPORT — (As Reported)

AGENCY: ______ NAME: ______ DATE: __/__/__ TIME: __:__

AGENCY: ______ NAME: ______ DATE: __/__/__ TIME: __:__

[10] BUSTR ACTIONS TAKEN

I told Gordon Schaffer to contact OEPA Dayton Offices
2:15 I called Jim Leach, OEPA E.R. and reported sending this report to OEPA, Hicken

6/23/97
11:46

information from MSDS sheets

Tank 1 - Cyclesolve 160
- produced by Servi-Clean
- mix of various solvents
Acetone
MEK } MAJOR 30%
Toluene

Xylene, Ethyl Acetate, Methyl iso butyl ketone } minors

Tank 2 - Hi Sol 15

44%	1, 2, 3, 5	Tetramethylbenzene
15%	1, 4	Dialkyl benzene
10%	1, 3	Dialkyl benzene
8%	1, 2, 4	Trimethyl benzene
6%	1, 2, 3	Trimethyl benzene
6%	1, 2, 4, 5	Tetramethylbenzen
6%	1, 2	Dialkyl benzene
3%		Napthalene

Tank 3 - Butylcellusolve

100% Ethylene Glycol Mono Butyl Ether

Tank 4 - Ethylene Glycol Mon Ethyl Ether Acetate (100%)

Tank 5 - VM & P NAPTHA
>95% Alaphatic Petroleum Distillits

319446

SUSPECTED RELEASE REPORT

REPORT #|3|1|9|4|4|6|-|0|0|-|_|_|_|_| DATE: 6/28/89

[1] PERSON REPORTING THE RELEASE TIME: 11:30

NAME: Gordon Shaffer TITLE: Env. Scientist PHONE: (513) 651-3440

AGENCY/COMPANY: Dames & Moore RELATION TO SITE: Consultants

ADDRESS: 644 Linn St.; Suite 650 CITY: Cincinnati ST: Oh ZIP: 45205

REMARKS: Failed Petrotite test on VM&P Naptha UST

[2] SUSPECTED RELEASE LOCATION

FACILITY: Heekin Can, Inc. USTR ID#:

ADDRESS: 8300 Broadwell Rd. COUNTY: Hamilton

CITY: Cincinnati ST: Oh ZIP: 45244 PHONE: ( )

UST OWNER: Contact: Robert Chambers; Senior Project PHONE: ( )

REMARKS: 5 of 5 USTs in same tank pit failed petro-tite test. One of the tanks (VM&P Naptha) failed at 0.133 gph. Other 4 tanks are hazardous chemicals (see back side)

FIRE DEPT: Anderson Twp. CONTACT: Inspector Dale Beyer PHONE: (513) 388-2294

[3] CONDITIONS LEADING TO REPORT OF SUSPECTED RELEASE (*Check all that apply*)

___ Inventory control results indicate a release may have occurred.

_✓_ Testing, monitoring or sampling results indicate a release may have occurred.

___ Unusual operating conditions observed (e.g., sudden drop in tank volume).

___ Impacts noticed in area surrounding tank (e.g., vapors, well contaminated, run-off).

___ Soil contaminated, or soil exceeds 100 ppm total hydrocarbons using G.C. or O.V.A.

___ Spill or overfill of petroleum in excess of 25 gallons.

___ Spill or overfill of petroleum less than 25 gallons when containment is not possible.

___ Spill or overfill of petroleum below ground, or soaking into ground after spill.

___ Spill or overfill of petroleum to surface water when petroleum creates sheen on water.

OTHER CONDITIONS:

[4] SUSPECTED SUBSTANCE RELEASED

___ GASOLINE ___ DIESEL FUEL ___ KEROSENE ___ USED OIL ___ HYDRO LIFT

_✓_ OTHER PETRO ___ HAZ SUBSTANCE ___ PROBLEM FLAG ___ UNKNOWN

*******COMPLETE REVERSE SIDE*******

[11] REPORT DISPOSITION (*Indicate actions taken on reverse side*)

TAKEN BY: K. Gill EMERGENCY ACTION? ___ YES ___ NO BY: ___ FM ___ OEPA ( )

COORD: G.H. REPORT/ACTION APPROVED: [illegible] DATE: 6/30/89 TIME: 9:00 A

LOGGED BY: DATE: / / ENTERED BY: DATE: / /

CIRCLE STATUS: RPT SUS DIS CON ICA ICR PRIORITY: 1 2 3 4 CLASS: A B C D LTF NON-LTF

ICC SAS SAC CAS CAP NFA

DUPLICATE

— [5] RELEASE INFORMATION —

DATE FIRST DETECTED: 6/28/89 TIME —:— MULTIPLE SUSPECTED SOURCES __ YES ✓ NO

ACTUAL SUBSTANCE RELEASED: -unk-

EST. QUANTITY: -unk- EST. CONCENTRATION: -unk- EST. DURATION: -unk-

MEDIA EFFECTED (*Check all that apply*):

___ PAVEMENT ___ BASEMENT ___ SOIL ___ GROUND-WATER ___ SURFACE WATER ___ SEWERS

___ OTHER: -unk-

PROBABLE CAUSE: -unk-

LTF ELIGIBLE? ___ YES ___ NO *If no, why?*: ______

— [6] UST INFORMATION —

FACILITY REGISTRATION CURRENT? __ YES __ NO __ UNKNOWN (*Attach USTR's for all facilities*)

UST NO.	AGE	CAPACITY	-CONST.- MATERIAL	PROTECTION INTERNAL	PROTECTION EXTERNAL	PROTECTION OVERFILL	-RELEASE- DETECTION	SUBSTANCE	STATUS
1	?	?			Hi-sol 15 (methyl & alkyl benzene solvent)				
2	?	?			Cello-solve Acetate (100% 2, ethoxy ethyl Acetate)				
3	?	?			Butyl Cello-solve (99% diethylene glycol mono butyl ether)				
4	?	?			Cyclo-Solve 60 (90% acetone, M.E.K., Toluene, 0% xylene, methyl iso-butyl ethyl acetate)				
5	?	?			VM & P Naptha				

(*Record any additional tanks on additional pages*)

PROBABLE LOCATION OF RELEASE: TANK NO.__ PIPE BETWEEN ______ AND ______

OTHER POTENTIAL SOURCES OF RELEASE: ______

— [7] SITE/HAZARD INFORMATION —

IMPORTANT SITE OR SURROUNDING AREA CHARACTERISTICS: Little Miami River located 1100' North of site; test wells? located downgradient

OTHER FIRE/WATER HAZARDS AT THE SITE: from site. Not sure what test wells are for (per consultant)

KNOWN INJURIES OR PROPERTY DAMAGE: -None-

PROXIMITY TO DRINKING WATER SOURCES: ______

— [8] INITIAL RESPONSE ACTIONS BY OWNER/OPERATOR — (*Check all that apply*)

___ Release confirmation/Investigation (COMPLETE INVESTIGATION/CONFIRMATION REPORT)

___ Initial corrective action procedures ___ Initial site investigation

___ Free product removal ___ Site assessment/Exposure assessment

___ Long term corrective action plan ___ Unknown/undetermined

— [9] OTHER AGENCIES NOTIFIED PRIOR TO THIS REPORT — (*As Reported*)

AGENCY: OEPA NAME: ______ DATE: __/__/__ TIME: __:__

AGENCY: ______ NAME: ______ DATE: __/__/__ TIME: __:__

— [10] BUSTR ACTIONS TAKEN —

- Contact Tim Hicken and Haley Bowers @ OEPA (OER & OCA). OEPA will determine what level of follow-up they will do and get back to us. Need to determine whether OEPA or SFM will handle it over the long term

SITE LISTING UPDATE FORM

EXISTING INCIDENT #: |3|1|9|4|4|6|__|-|__|__|-|__|__|__|__| UPDATE.001 REV 8/89

FACILITY NAME: Heckin NEW FACILITY INFO? ____ YES X NO (Update on back)

[1] REASON FOR LISTING UPDATE

___ [1] Written report/results received from owner/operator.
___ [2] Verbal report/results received from owner/operator.
___ [3] Written report received from BUSTR contractor.
___ [4] Information collected from BUSTR field examination/inspection.
X [5] Change in site coordinator/contractor assignment.
___ [6] Change/delete existing incident number - explain change in remarks section [5].
___ [7] Create new incident number for additional suspected facility/location.
___ [8] Orders issued.
___ [9] Other:

[2] NEW SITE LISTING DATA

INCIDENT #: |__|__|__|__|__|__|__|__|-|__|__|__|-|__|__|__|__|
REPORT NUMBER FAC TRKG# SPRC

EMERGENCY RESPONSE: ___ YES ___ NO BY: ___ FM (____________) ___ OEPA ___ USEPA

STATUS: ___ RPT ___ SUS ___ DIS ___ CON ___ ICA ___ ICR ___ ICC ___ SAS ___ SAC ___ CAS ___ CAP ___ NFA

PRIORITY: ___ 1* ___ 2 ___ 3 ___ 4 ___ 5

CLASSIFICATION: ___ A ___ B ___ C ___ D LTF ELIGIBILITY: ___ YES (1) ___ NO (2)

SITE COORDINATOR: ORD CONTRACTOR: ____________ WORK ORDER: ____________

* [3] SITE SUMMARY (UPDATE FOR ALL PRIORITY 1 SITES)
(First sentence - why is it a 1? Second sentence - who is doing what at this time)

[4] NEW EXCEPTION REPORT DATA

___ [1] State plans to obligate over $100,000 at a site.
___ [2] State actually obligated over $100,000 at a site (cumulative expenses exceeded $100,000 this quarter).
___ [3] State plans to use innovative or experimental technology at the site.
___ [4] State plans to provide permanent alternative drinking water supply.
___ [5] State plans to permanently relocate residents.
___ [6] State reached/received cost recovery settlement; amount: ____________.

[5] SITE MANAGEMENT REMARKS
(BUSTR actions needed/taken, reports expected, etc.)

[6] FOLLOW-UP BUSTR ACTIONS/ASSIGNMENT
(For use by supervisor)

UPDATE SUBMITTED BY: Forbes DATE: 8/31/90

APPROVED: [signature] DATE: 8/31/90 ENTRY: St DATE: 8/31/90

Ohio Department of Commerce

George V. Voinovich, Governor

Nancy S. Chiles, Director

Division of State Fire Marshal • Bureau of Underground Storage Tank Regulations
6450 Poe Avenue, Suite 104 • Dayton, OH 45414-2646 • (513) 454-7500

June 10, 1991

Mr. E. R. Jackson
Heekin Can, Inc.
8200 Broadwell Road
Cincinnati, OH 45244

RE: Heekin Can, Inc.
8200 Broadwell Road
Cincinnati, OH
Hamilton County
Incident #319446-00

Dear Mr. Jackson:

On June 3, 1991, the State Fire Marshal (SFM) received your closure report entitled "Underground Storage Tank Closure Assessment Report". The SFM has reviewed the closure report and based upon the information provided it is evident that there is remnant soil and/or water contamination as a result of a release from the petroleum underground storage tank (UST) system(s) at this site.

As the UST owner/operator or a legal representative thereof, you are subject to the state and federal regulations governing the investigation and clean-up of releases from UST system(s). Specifically, you are responsible for the activities as specified under Ohio Administrative Code (OAC) §1301:7-7-36(C)(2)(3)(4) which require you to conduct Initial Corrective Actions and a Site Investigation and submit a report on these activities to the SFM on or before July 4, 1991.

If residual contamination remains following Initial Corrective Actions and the Site Investigation, the owner/operator may be required to perform a Site Assessment in accordance with OAC §1301:7-7-36 (E). The Site Assessment will define the vertical and horizontal extent of soil and groundwater contamination on site and off site. In addition, a Corrective Action Plan would then be required to be prepared by the owner/operator which describes in detail how the soil and groundwater will be cleaned up. Other activities not specifically described herein may be required by the State Fire Marshal.

Enclosed are appropriate statutes and rules related to petroleum UST suspected release investigations and corrective actions. This has been provided to assist underground storage tank owners/operators in conducting the corrective action activities required by the State Fire Marshal.

Mr. E. R. Jackson
Page #2
June 10, 1991

When soil and groundwater samples are to be collected and analyzed pursuant to OAC §1301:7-7-36 certain protocols are to be followed. These protocols include those described in the enclosed "State Fire Marshal Corrective Action Sampling Guidelines". At a minimum these guidelines must be followed in order for sample results to be considered valid.

To assist our office in expediting a review of your correspondence please reference the incident number (319446-00) and place it in the upper right hand corner of all your correspondence. Thank you for your cooperation, and if you have any questions regarding this matter, please call us at (513) 454-7500.

Sincerely,

Verne Ord

Verne Ord
Site Coordinator
Bureau of Underground
Storage Tank Regulations
Southwest Field Office

VO:cah

Enclosures

cc: File #319446-00
Mr. David Dreyer, Anderson Twp. Fire Dept.
Mr. McNeeley, Hamilton Co. Health Dept.

POSTED 6-11-91 GM

SITE LISTING UPDATE FORM

EXISTING INCIDENT #: 3 1 9 4 4 6 - 0 0 - _ _ _ _ UPDATE.001 REV 8/89

FACILITY NAME: Heekin Can, Inc. NEW FACILITY INFO? ___ YES X NO (Update on back)

[1] REASON FOR LISTING UPDATE

- ✓ [1] Written report/results received from owner/operator.
- ___ [2] Verbal report/results received from owner/operator.
- ___ [3] Written report received from BUSTR contractor.
- ___ [4] Information collected from BUSTR field examination/inspection.
- ___ [5] Change in site coordinator/contractor assignment.
- ___ [6] Change/delete existing incident number - explain change in remarks section [5].
- ___ [7] Create new incident number for additional suspected facility/location.
- ___ [8] Orders issued.
- ___ [9] Other:

[2] NEW SITE LISTING DATA

INCIDENT #: _ _ _ _ _ _ _ - _ _ - _ _ _ _
REPORT NUMBER FAC TRKG# SPRC

EMERGENCY RESPONSE: ___ YES ___ NO BY: ___ FM (__________) ___ OEPA ___ USEPA

STATUS: ___ RPT ___ SUS ___ DIS ___ CON ___ ICA X ICR ___ ICC ___ SAS ___ SAC ___ CAS ___ CAP ___ NFA

PRIORITY: ___ 1* ___ 2 ___ 3 ___ 4 ___ 5

CLASSIFICATION: ___ A ___ B ___ C ___ D LTF ELIGIBILITY: ___ YES (1) ___ NO (2)

SITE COORDINATOR: __________ CONTRACTOR: __________ WORK ORDER: __________

* [3] SITE SUMMARY (UPDATE FOR ALL PRIORITY 1 SITES)

(First sentence - why is it a 1? Second sentence - who is doing what at this time)

[4] NEW EXCEPTION REPORT DATA

- ___ [1] State plans to obligate over $100,000 at a site.
- ___ [2] State actually obligated over $100,000 at a site (cumulative expenses exceeded $100,000 this quarter).
- ___ [3] State plans to use innovative or experimental technology at the site.
- ___ [4] State plans to provide permanent alternative drinking water supply.
- ___ [5] State plans to permanently relocate residents.
- ___ [6] State reached/received cost recovery settlement; amount: __________.

[5] SITE MANAGEMENT REMARKS

(BUSTR actions needed/taken, reports expected, etc.)

High BTEX & TPH in soils around pump island pad.
Sent SI/SA letter.

[6] FOLLOW-UP BUSTR ACTIONS/ASSIGNMENT

(For use by supervisor)

UPDATE SUBMITTED BY: [signature] DATE: 6 4 91

APPROVED: LYJ DATE: 6 4 91 ENTRY: Stover DATE: JUN 13 1991

Heekin Can, Inc.
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244
513-388-2200

JUN 2 - 1991
S.W.F.O.
BUSTR

June 25, 1991

Mr. Verne Ord
Site Coordinator
Bureau of Underground
Storage Tank Regulations
Southwest Field Office
6450 Poe Avenue
Suite 104
Dayton, OH 45414-2646

Dear Mr. Ord:

RE: Incident #319446-00

We are in receipt of your June 10, 1991 letter requiring us to conduct Initial Corrective Actions and a Site Investigation. We are having discussions with our contractor and are preparing to initiate the investigation; however, we will require a 90-day extension for submittal of the report.

Very truly yours,

E. R. Jackson

E. R. Jackson
Senior Vice President, Research
(513) 388-2232

ERJ/nf

C: R. A. Chambers
J. A. Jurcenko

[illegible] COMMERCE - DIVISION OF STATE [illegible] MARSHAL
[illegible] OF UNDERGROUND STORAGE TANK REGULATIONS
[illegible] - P.O. BOX 525 - REYNOLDSBURG - OHIO - 43068-3395
(614) 752-8200

[illegible] STORAGE TANK FACILITY REGISTRATION SUMMARY
PRINTED: 03/20/91

USTR ID#: [illegible]

COUNTY: HAMILTON

OWNER

HEEKIN CAN INC
8200 BROADWELL RD
CINCINNATI OH 45244

HEEKIN CAN [illegible]
8200 [illegible]
CINCINNATI [illegible]244
FACILITY PHONE [illegible]

UST	AGE	CAPACITY	MATERIAL	PROTECTION INTERNAL	PROTECTION EXTERNAL	SUBSTANCE	UST STATUS
1	12	[illegible]	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE
2	7	10000	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE
3	[illegible]	8000	[illegible]	0 NONE	0 NONE	4 USED OIL	1 IN USE
4	7	[illegible]	[illegible]	0 NONE	0 NONE	4 USED OIL	1 IN USE
5	12	[illegible]	[illegible]	0 NONE	0 NONE	6 OTHER PET	1 IN USE
6	22	4000	[illegible]	0 NONE	0 NONE	7 HAZ SUBST	1 IN USE
7	23	[illegible]	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE
8	23	4000	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE
9	23	4000	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE
10	23	4000	[illegible]	0 NONE	0 NONE	9 UNDETER	1 IN USE

*** END OF FACILITY SUMMARY ***

TELEPHONE MEMORANDUM

REPORT #: | | | | | | | | | | | | | | | | | DATE: 3/18/91

TIME: 2/10

CALL TO [ ] FROM [✓]

NAME: Dave [illegible] TITLE: Fire Marshal PHONE (513) 231-6339

AGENCY/COMPANY: [illegible] Twp FD RELATION TO SITE Government Agency

ADDRESS: 7954 [illegible] Ave CITY: Cincinnati ST: OH ZIP: 45230

SUBJECT: Hockin Can tank removal

NOTES & SUMMARY

Dave returned my call of 3/15/91

I informed him of report made regarding this Facility

Dave will check with his usual contact at this site to

insure that his FD gets a copy of Hockins closure

report

BUSTR STAFF MEMBER: Smith CONTINUED ON BACK: ______ PAGES ATTACHED ______

SUSPECTED RELEASE REPORT

REPORT # 3L94491_|_|_|_|_|_|_|_| DATE: 3/15/91

—— [1] PERSON REPORTING THE RELEASE —— TIME: 10:28

NAME: Tom Wey TITLE: Dir - Env Rest. PHONE: (513) 825-7500

AGENCY/COMPANY: Environmental Quality Management RELATION TO SITE: c/c

ADDRESS: 1310 Kemper Meadows Dr CITY: Cincinnati ST: OH ZIP: 45240

REMARKS:

—— [2] SUSPECTED RELEASE LOCATION ——

MULTIPLE SUSPECTED SOURCES? ___ YES ✓ NO ___ UNDETERMINED COUNTY: Hamilton

USTR ID# 31100l

FACILITY: Heekin Can Inc

ADDRESS: 8200 Broadwell Rd

CITY: Cincinnati ST: OH ZIP: 45244 PHONE: (513)

UST OWNER: Heekin Can Inc (contact Robert Chambers address in box 2) PHONE: ( )

UST OPERATOR: PHONE: ( )

REMARKS: In Newtown. Clark Stacks on site for inspection. There are other tanks in a separate excavation, also being removed, but also no problems are associated with them at this time. Contact at ~~facility~~ said Reusch (corporate HQ 11310 Cornell Park Dr, Blue Ash OH 45242 - (513) 388-2203)

FIRE DEPT: Anderson Twp CONTACT: Dave Drayer PHONE: (513) 231-6339

—— [3] CONDITIONS LEADING TO REPORT OF SUSPECTED RELEASE (*Check all that apply*) ——

___ Inventory control results indicate a release may have occurred.

___ Testing, monitoring or sampling results indicate a release may have occurred.

___ Unusual operating conditions observed (e.g., sudden drop in tank volume).

___ Impacts noticed in area surrounding tank (e.g., vapors, well contaminated, run-off).

___ Spill or overfill of petroleum in excess of 25 gallons.

___ Soil/Groundwater contamination discovered during non-closure related investigation.

✓ Closure (or replacement) assessment results indicate that a release has occurred.

OTHER CONDITIONS: Soil staining around pump island for gasoline, piping good shape. (Also removed NON (7F UST ~100 gal) Some holes up to 1/4 in heating oil tank.) Tanks removed 3/13/91. No free product, no ground water encountered. Will be removing vegetable oil & lacquer tanks today.

*******COMPLETE REVERSE SIDE*******

—— [10] REPORT DISPOSITION (*Indicate actions taken on reverse side*) ——

TAKEN BY: Smith EMERGENCY ACTION? ___ YES ✓ NO BY: ___ FM ___ OEPA ( )

COORD: Tarver REPORT/ACTION APPROVED: [signature] DATE: 3/20/91

LOGGED BY: DS DATE: ___/___/___ ENTERED BY: ST DATE: ___/___/___

CIRCLE STATUS: RPT SUS DIS CON ICA ICR PRIORITY: 1 2 3 4 CLASS: A B C D LTF NON-LTF

ICC SAS SAC CAS CAP NFA

Duplicate 6

[4] RELEASE INFORMATION

DATE FIRST DETECTED: 3/ 13 / 91 TIME: 5:00 EST. QUANTITY: unknown

SUBSTANCE RELEASED/DETECTED: ✓ GASOLINE ___ DIESEL FUEL ___ KEROSINE ___ USED OIL

___ OTHER PETRO ___ HAZ SUBST ___ UNKNOWN EST. DURATION: unknown

MEDIA EFFECTED (*Check all that apply*): ✓ SOIL ___ PAVEMENT ___ BASEMENT ___ SEWERS

___ GROUNDWATER ___ SURFACE WATER ___ OTHER: ___

LTF ELIGIBLE? ✓ YES ___ NO *If no, why?*: ___

[5] UST INFORMATION

FACILITY REGISTRATION CURRENT? ✓ YES ___ NO ___ UNKNOWN (*Attach USTR's for all facilities*)

NUMBER OF TANKS: 2 RELEASE DETECTION METHOD: ___

AGE	CAPACITY	-CONST.- MATERIAL	SUBSTANCE STORED	STATUS	AGE	CAPACITY	-CONST.- MATERIAL	SUBSTANCE STORED	STATUS
30	4000	steel	gasoline	out					
unk	10000	steel	Fuel For heating	"					

PROBABLE LOCATION OF RELEASE: TANK NO. 1 PIPE BETWEEN ___ AND ___

PROBABLE CAUSE: ___

OTHER POTENTIAL SOURCES AT THIS LOCATION: ___

[6] SITE/HAZARD INFORMATION

IMPORTANT SITE OR SURROUNDING AREA CHARACTERISTICS: industrial / commercial, quarry to NW

PROXIMITY TO DRINKING WATER SOURCES: municipal water

OTHER FIRE/WATER/HEALTH HAZARDS AT THE SITE: not at this

[7] INITIAL RESPONSE ACTIONS BY OWNER/OPERATOR (*Check all that apply*)

___ Release confirmation/Investigation
___ Initial corrective action procedures
___ Free product removal
___ Long term corrective action plan
___ Initial site investigation
___ Site/Assessment/Exposure Assessment
___ Unknown/undetermined
___ None

[8] WERE ANY OTHER AGENCIES NOTIFIED PRIOR TO BUSTR? (*As Reported*)

AGENCY: ___ NAME: ___ DATE: __/__/__

[9] BUSTR ACTIONS TAKEN

:07 Left Message on answering machine For Dave Dryer (Anderson Twp FD).
/18: 8:20 Dr Erwin Bollinger (Hamilton Co HD) Informed him of situation.

CALLS TO: FD, LHD, LPW, ODH, OEPA/ER, OEPA/DPDW, OEPA/DGW, OTHER

1435

UNDERGROUND TANK PERMIT APPLICATION

ISTRUCTIONS: TYPE OR NEATLY PRINT ALL REQUESTED INFORMATION. ENCLOSE $50.00 APPLICATION FEE FOR ACH TANK LOCATION PERMIT. CHECK OR MONEY ORDER SHALL BE MADE PAYABLE TO: STATE FIRE MARSHAL. APPLICATION WILL NOT BE PROCESSED WITHOUT ACCOMPANYING FEE. SEND TO: BUREAU OF UNDERGROUND STORAGE TANK REGULATIONS, P.O. BOX 525, REYNOLDSBURG, OHIO 43068-3395.

TANK LOCATION:

ompany: HECKIN CAN INC.

ddress: 8200 Broadwell Rd (NEWTOWN)

ty: Cincinnati County HAMILTON

one: (513) 487-3200

ntact Person: ROBERT CHAMBERS

2. OWNER INFORMATION:

Name:

Address: SAME

City: Zip:

State:

Phone: ( )

LOCAL JURISDICTION:

reDepartment: NEWTOWN VOLUNTEER FIRE DEPT.

ddress: 3537 CHURCH ST.

ty: NEWTOWN, OHIO ZIP: 45244

one: (513) 561-2300

RECEIVED
JAN 22 1991
RELEASE PREVENTION
STATE FIRE MARSHAL

CONTRACTOR INFORMATION:

me: WRP & Associates

dress: 390 Ridgewood Ln

ty: LEBANON State OHIO Zip: 45036

ntact Person: William Parker Phone: (513) 932-0335

DESCRIPTION OF WORK TO BE COMPLETED:
REMOVE AND PROPERLY CLOSE 7 UST's (4) 8000 gal. (2) 10,000 gal (1) 1000 gal
products are lacquer, CIMFLO, WASTE OIL, FUEL, GASOLINE

** AT LEAST 30 DAYS SHOULD BE ALLOWED FOR PROCESSING OF THIS APPLICATION **

Sketch of facility showing all tanks and piping including existing tanks, piping, distance from lot lines, and distance from any buildings MUST be attached to application to be processed.

INSPECTION DATE WILL BE SET BY THE STATE FIRE MARSHAL, UPON PROCESSING OF THE COMPLETED APPLICATION

FOR OFFICE USE ONLY

FACILITY ID # ~~TCZ~~ 31-1061 yes '89

TE 1/28/91 CHECK NUMBER: 868 FEE: #50

UNTY: Hamilton INSPECTION DISTRICT Waldren

DATE COPIED & MAILED TO INSPECTOR 1/28/91

90

~~#3191400200~~

Property Name Heekin Can Inc.	Structure No.
Responsible Party Heekin Can Inc. Address cincinnati, Ohio	Telephone (513) 439-3200
~~Contact Name~~ Installer Mike Breeze	Date 3-11-91 / Time Arrived / Time Departed
Emergency Contacts Name Soil Sam. Thomas J. Wey	Telephone
General Property Use	Number of Specific Property Uses
Type of Construction / Percent of Combustible Construction	Method of Construction
Year of Construction	Structure Type
Structure Height	Number of Stories
Ground Floor Area	Total Floor Area
Property Management	Sound Value
Number of Exits / Exit Discharge Width	Interior Finish in Egress Routes
Protection of Stairways	Protection of Shafts
Protection of Floor Openings	Protection of Wall Openings
Electrical Service Quality	Heating Service Quality
Roof Covering	Automatic Alarm Capacity
Automatic Detection	Sprinkler Detection
Standpipe System	Required Fire Flow
Water Supply Type	Available Water Supply
Obstacles to Rescue and Fire Control	
Member Making Report clark Stacks	Date 3-11-91

Remarks

Permanent closure of 7 UST, only 3 of the tanks are regulated by BUSTR.

TAnk I- Stainless steel 8,000 gal. lacquer tank, no UL found. TAnk II

10,000 gal. stainless steel lacquer tank. no UL found. Both lacquer tanks

removed from same cavity. No apparent holes found in either tank. No water

present in cavity upon removal of tanks. visible soil discoloration.

(white substance all through soil around tanks.) Lacquer odor to soil

removed from cavity.

Tank III-1,000 gal. gasoline tank, no UL found, visible soil discoloration.

No water present in cavity upon removal of tank. No odor to soil removed from

cavity.

FIRE DEPARTMENT Anderson Twp. Fire Dept.

CHIEF

VIOLATIONS:

Add. to 1435

Strong odor to soil removed from under pump island. Soil samples taken approx. every 20 ft. along pipe run, also under pump island, along with samples taken from tank cavity.

addition. Also at the same site were 3 other tanks being removed, Tank 1 contained a substance called CIMFLO (vegetable oil) the other 2 tanks supposedly contained waste CIMFLO and water, there was approx. 500 gal. of waste removed from these tanks. The waste from these tanks had a very foul odor to it. When talking to employees from Heckin Can it was told to this inspector that solvents, waste oil, mop water, and any other liquid that was to be discarded was put into these tanks. With the odor that was being emitted from these tanks, this inspector suggested that one of the employees that was to enter the tank to clean it wear SCBA into the tank. As it was unknown what was put into these tanks also that waste vegetable oil could give off Methane gas. The employees that talked to this inspector did not wish to give there names in regards to this matter. It was also told to this inspector that a hazardous waste hauler from the state of Indiana removed the waste from these tanks.

CORRECTIONS:

STATE FIRE MARSHAL
RECEIVED
MAR 0 2 1992
S.W.F.O.
BUSTR

CORRECTIVE ACTION/SITE INVESTIGATION REPORT

Heekin Can, Inc.
Site Incident # 319446-00
8200 Broadwell Road
Cincinnati, Ohio 45244

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Pursuant to the requirements of OAC 1301:7-7-36(C)(2) (3) and (4) and as requested by Mr. Verne Ord of the Bureau of Underground Storage Tank Regulations (BUSTR), a summary of corrective actions undertaken and the results of a site investigation regarding the removal of a 1000 gallon gasoline underground storage tank (UST) from the Heekin Can, Inc. facility located at 8200 Broadwell Road, Anderson Township, Hamilton County, Ohio are described within this report.

Preparation of this information was required when, upon uncovering and removing the UST, a release was suspected. Suspected releases are required to be reported and confirmed or disproved. A BUSTR representative, Mr. Clark Stacks, was on site during the removal process. Thus, the reporting obligation was accomplished through discussions with Mr. Stacks at the site and his direct knowledge of the ongoing activities at the site. However, a report of the suspected release was also phoned in to both the BUSTR and Ohio EPA duty officers. Sampling and analysis confirmed that, although no apparent tank or pipe leak had occurred, spills or overfills in the gasoline dispensing area could have occurred. It is also possible that rainwater runoff from the large paved dock area could have washed gasoline and oil constituents into the pump pad area, the lowest drainage point. Once a release is confirmed per OAC 1301:7-7-28(K), corrective actions and a site investigation may become required. 1301:7-7-36(C)(1). Thus, a summary of the corrective actions and site investigations undertaken regarding the removal of a 1000 gallon underground gasoline storage tank (UST and its associated pump island and piping is presented within.)

LOCAL GEOLOGY AND HYDROGEOLOGY

The subsurface geologic features in the area of the site can be divided into two distinct realms; the Upper Ordovician bedrock of low porosity limestones and shales and the fluvial clay, silt, sand and gravel deposits of the Little Miami River floodplain. The fluvial deposits generally have moderate to high porosities and permeabilities. Maps generated by the Ohio Department of Natural Resources (ODNR) list the thickness of the fluvial deposits as being in excess of 100 feet in the area of the subject property. The presence of these fluvial sands and gravels in the area is evidenced by the number of old gravel quarries. Several old open and reclaimed quarries are present in the area.

The soils in the area of the property belong to the Urban land complex. This soil is found on terraces and outwash plains. Typically, the soil has a brown surface layer. Subsoil is known to be reddish brown. The substratum to a depth of 72 inches is yellow brown loan with gravely,loamy sand. Permeability is moderate to rapid and available water capacity is low. Runoff is slow.

Onsite subsurface soil conditions can be demonstrated from available water well boring logs. The boring log from Heekin Can's formerly used onsite production well indicates that bedrock consists of shale and is approximately 102 feet deep at the site. The upper 12 feet of unconsolidated material consists of gravel and boulders that overlie approximately 54 feet of sand and gravel or muddy gravel. A 5 foot thick layer of dense blue clay serves as a natural liner under the sand and gravel materials. Approximately 25 feet of sandy silt lies beneath the clay. Finally, approximately 6 feet of coarse sand and gravel, lies between the clay and bedrock.

Local well boring logs along broadwell Road near the Heekin Can facility demonstrate that sand and gravel is typically found to a depth of 60 to 70 feet after which the clay layer is encountered. Well logs from the area south of the Little Miami River indicates that the clay layer is extensive and that it varies in thickness from up to 73 feet at well #15 near the southeastern portion of the 1-mile vicinity, to 14 feet at well #4 near the Little Miami River, southwest of Heekin, to 5 feet at the formerly used production well on the Heekin Can property. The clay layer appears to pinch out along the southern edge of the Little Miami River Valley as evidenced by the logs of wells #6, #8, and #14. These data also indicate that the clay layer probably pinches out as it approaches the Little Miami River. The clay layer is so dense that it is likely to prevent any downward movement of groundwater acting as an aquiclude between the upper and lower aquifer that it separates.

The plentiful sand and gravel deposits have been quarried in the past at the now abandoned quarry that adjoins the northern and western Heekin Can property lines and is currently continuing by Dravo materials to the south, adjacent to the Rumpke landfill, and to the northwest along the Little Miami River.

Two types of aquifers are present in the area of the subject property and correspond to the two geologic intervals. The Upper Ordovician bedrock is a poor source of ground water with yields seldom exceeding 3 gallons per minute. The overlying fluvial deposits are a good source of ground water with yields of up to 500 gallons per minute.

CHRONOLOGY OF EVENTS

The UST system was properly evaluated, removed and closed throughout the site investigation, corrective action and closure activities. See Exhibit E for notifications and photo documentation. Heekin Can conscientiously decided to remove all of its tanks, including the subject 1000 gallon gasoline UST. Heekin Can and the BUSTR Inspector reported the existence of residual petroleum constituents found in soils beneath the pump pad for UST No. 6 to the appropriate regulatory authorities as described below. No free-product, product saturated soils, or water was encountered warranting immediate corrective action (i.e. product recovery, soil removal and disposal, etc.) during the UST removals. However, a conscientious response through the removal of all accessible possible contamination was nevertheless conducted and completed.

On March 15, 1991, the UST was uncovered and prepared for removal. Mr. Clark Stacks (BUSTR Inspector) and Mr. Dave Dryer (Anderson Township Fire Department) were onsite. UST No. 6 was removed and inspected. No signs of a real or apparent release was evident. Approximately 70 lineal feet of 1.5" diameter steel Vacuum product piping was removed from the UST excavation. The piping served a remote pump dispenser located on the loading dock.

Once the tank and its associated piping were removed, the gasoline dispensing pump and its concrete pad were removed. Odors and visibly contaminated soils were found under the pump pad. However, no free product or water was encountered in the excavation zone. Mr. Bob Chambers of Heekin Can, Inc. immediately reported a suspected release to both Mr. Craig Smith, BUSTR Duty Officer and Mr. Mike Dalton, Ohio EPA Duty Officer.

Soils in the excavation zone were dry well sorted sands and gravel (bank run). Spillage during filling operations at the pump pad area or rainwater runoff from the large dock drive area are believed to be the principal sources of residual petroleum constituents in the soils. Soil excavation in the pump pad area was conducted until infeasible due to the proximity of the building structure, foundation, and underground utilities, including fire protection mains, a water main, and potable water lines which were directly below the pad at a depth of about three feet. See Figures 1-3 for location and layout of this UST. By March 23, 1991, it became impossible to excavate any further, therefore, samples were collected and the excavation was backfilled.

SITE DESCRIPTION

Heekin Can, Inc. operates a manufacturing facility located on approximately 77 acres at 8200 Broadwell Road in Anderson Township, Hamilton County, Ohio. The plant site is bounded on the north and west by sand and gravel mining operations and on the south by Broadwell Road, Rumpke Landfill, a large sand and gravel mining operation, and several small residences. To the east, Norfolk and Western Railroad and Senco Products, Incorporated, Plant 2 are adjacent to Heekin Can, Inc. Thus, much of the land surrounding the Heekin Can facility is used for industrial or commercial purposes. Other uses, however, include woodland or brushland, agriculture, and recreational land and some small areas of residential development along Broadwell Road and approximately 3/4 of a mile to the Southwest of the facility along Round Bottom Road near its intersection with Broadwell Road, and along Wooster Pike on the north side of the Little Miami River, and near the intersection of Broadwell Road and Mt. Knight Road east of the Heekin Can property.

The Heekin Can, Inc. property is at an elevation of approximately 540 feet above mean sea level. The site is nearly flat, except for two old quarries adjacent to the railroad track on the eastern edge of the property. Access to the site is provided by Broadwell Road and by railway sidings. The plant ships and receives by rail on a semi-weekly basis and by truck on a daily basis.

The underground storage tank was located near the railway sidings along the north side of the plant in an area adjacent to the loading dock. The tank was located approximately 70 feet north of the loading dock area between the electrical substation nd fire protection water storage tank. The gasoline dispensing facility was located on a concrete pad on the dock. During the past decade, less than 25,000 gallons of gasoline was purchased, stored and used. The location of the tank and dispensing facility and general site plan are shown in Figure 3. The UST removal and closure was part of Heekin Can's aggressive ongoing UST closure and upgrade program.

Total resident population of the area within 1 mile of the Heekin Can facility has been estimated to be 537. This estimate was derived from available census data and housing counts. These data are summarized in Table 1. The population within 1 mile was estimated from the 1980 estimates of persons per household for Anderson Township in Hamilton County and Union Township in Clermont County and the total number of residenc s was obtained from 1988 topographic maps. The census data reported the estimated number of persons per household for Anderson Township and Union Township to be 3.22 an 3.06, respectively. Recent topographic map coverage reveals that approximately 34 residences are located in Anderson Township and 3 residences are located in Union Township which are within 1 mile of the property. The total estimated resident population within 1 mile of the tanks is therefore, 537.

A summary of local climatological data is presented in Table 2. Total average annual precipitation is 40.07 inches and is fairly evenly distributed throughout the year. However, on the average, October is historically the driest month which receives 2.38 inches while March is the wettest month, receiving 4.18 inches. The average daily mperature is 54.5°F, but the temperatures averages range from 30.6°F in January to

76°F in July. The monthly average mid-afternoon relative humidity is a fairly constant 56 percent.

The locations of reported subsurface sewers on the Heekin site are shown in Figure 4. Municipal sewers are not available to the Heekin property. The plant does not operate a process effluent discharge. Onsite stormwater is collected by a storm sewer system that diverts runoff to a surface water pond near the western plant boundary.

The locations and logs of reported water wells located within 1 mile of the UST excavation were obtained from the Ohio Department of Natural Resources, Division of Water. Figure 5 depicts the locations of these wells. The well numbers are keyed to the well logs that are presented in Exhibit A. The nearest existing potentially downgradient water well is Heekin Can's formerly used production well.

SITE INVESTIGATION AND CORRECTIVE ACTIONS

The excavation zone was inspected after the UST and pump pad were removed. The BUSTR Inspector, Mr. Clark Stacks, observed the excavation zone of the UST and pipe trench and directed the soil sampling for headspace screening for total organic vapors using OVA-FID be conducted. Multiple soil samples were collected from the walls and floors of the UST excavation for the field headspace screening. All sampling and analysis activities were conducted in strict accordance with BUSTR's requirements. The sampling locations for the UST excavation were discussed and approved by Mr. Clark Stacks. All soil samples from walls of the excavation zones were collected halfway up each wall (approximately 5 to 6 feet below ground level). Soil samples from the floors were collected near where the tank ends had been located. Soil samples collected from the pipe trench were collected at 20 foot intervals from the UST excavation to the pump pad and each sample point coincided with pipe joints. The soil sample from the beneath the pump pad was collected from a depth of 6 feet below ground level using a stainless steel split spoon sampler which was driven by hand.

Each soil sample was then screened for total organic vapors using a Century Model 128 OVA-FID. Total organic vapors in all soils sampled except for the sample from the pump pad area, were found to be equivalent to background readings or within the drift limits for the OVA-FID. The results of the soil vapor screening contained in Exhibit B were then used to select soil samples to be submitted to an offsite laboratory for quantitative analysis. The final UST excavation soil samples and the sample from the pump dispensing area were analyzed for total petroleum hydrocarbons (TPH) and for benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA methods 418.1 and 8020, respectively. The results of the soil analyses are summarized in Table 3. Raw analytical results for each sample are contained in Exhibit C. Figure 6 illustrates the soil sampling locations in each excavation zone and also presents the analytical results.

BTEX constituents in all soil samples from the UST and piping excavation zone were not detected. TPH constituents, however, ranged from 55 to 58 ppm in the excavation zones. There was no indication of a real or apparent release from the UST or piping observed (i.e., no free product, odors, visible product in soil, etc.). Once all possible contamination was removed from the pump dispenser excavation zone, some soil samples still indicated that minor contamination remained. These soils contained petroleum constituents up to 110 ppm BTEX and 190 ppm TPH. However, no benzene was detected. Rather, the least mobile of the BTEX constituents, Xylene, was most prevalent, which indicates that this is old contamination. The soils under the pump pad were not removed due to physical constraints. The proximity to the building structure and foundation and the presence of underground utilities rendered further excavation impossible and would have threatened the integrity of the building.

Site investigations of onsite groundwater and surface water quality have been conducted. A formerly used production well approximately 250 feet northwest of the pump pad on the Heekin property and a quarry pond adjacent to the northern side of the property were sampled and analyzed. Both of these sampling locations are believed to be generally downgradient of the tank location. A summary of the analytical results is presented in Table 4, and the laboratory report is presented in Exhibit D. The reported static water level was 50 feet below ground surface when the well wa installed in late 1951. This same depth was confirmed on July 7, 1989 when the well was sampled.

Water was collected from the well on July 7, 1989, by Dames & Moore and was delivered to Environmental Enterprises, Inc. (EEI) in Cincinnati on the same day. The sample was analyzed for volatile organic compounds of which none were detected. The surface water sample from the quarry was collected by Dames & Moore on July 20, 1989, and was delivered to EEI on the same day. Analyses were conducted for volatiles, semi-volatiles, RCRA metals, and for other materials. No specific products associated with gasoline (BTEX) were detected. Thus, there has been no impact on either groundwater or surface water due to activities associated with the gasoline UST.

Therefore, the low concentrations remaining in the soil, the lack of mobility, and utility service lines, its proximity to the building and absence from the production well and surface water samples indicated that it posed no risk to the public, Heekin employees or the environment. Thus, further action was not warranted and the excavation was backfilled and restored.

TABLE 1

POPULATION DATA SUMMARY

PARAMETER	ANDERSON TOWNSHIP	UNION TOWNSHIP
Total population[1]	36,460	30,940
Average number of persons per household[2]	3.22	3.06
Total estimated households within 1 mile of tanks[3]	164	3
Total estimated population within 1 mile of tanks[4]	528	9

1 U.S. Census Bureau, Ohio, 1986 Population Estimates and 1985 Pe Capita Income Estimates for Counties, Incorporated Places, and Minor Civil Divisions.

2 Census of Population and Housing, 1980 Summary Tape Files 1A and 3A, prepare by Ohio Data User's Center.

3 Obtained from USGS 77-½ minute topographic quadrangle map, Madeira, Ohio, 1961, photorevised 1988.

4 Total estimated population = (total households) x (persons per household).

TABLE 2

CLIMATOLOGICAL DATA SUMMARY FOR CINCINNATI, OHIO

Month	Daily Average Temperature (°F)	Monthly Average Precipitation (inches)	Daily Average Relative Humidity (percent)[1]
January	30.6	3.08	69
February	33.7	2.48	64
March	43.4	4.18	56
April	54.8	3.59	52
May	64.2	3.85	53
June	72.7	3.71	55
July	76.1	4.11	52
August	74.5	3.27	51
September	68.2	3.07	49
October	56.4	2.38	51
November	44.9	3.20	59
December	35.0	3.15	66
Total	54.5	40.07	56

[1] Readings obtained at 1:00 P.M.

Source: Soil Survey of Hamilton County, Ohio. United States Department of Agriculture, Soil Conservation Service and Ohio Department of Natural Resources, Division of Lands and Soil, August 1982.

Climates of the States, 1974. National Oceanic and Atmospheric Administration.

TABLE 4

WATER QUALITY DATA SUMMARY

PARAMETER	UNITS	UNUSED PRODUCTION WELL PW-1 7/7/89	GRAVEL PIT POND 7/20/89
Volatile Compounds			
Chloroform	mg/L	ND	0.001
Trichlorofluoromethane	mg/L	ND	0.018
Semi-Volatile Compounds	-	NT	ND

NT = not tested.
ND = not detected.

ATTACHMENT 4

SOIL VAPOR LOG

EQ

SOIL VAPOR LOG

PAGE 1 OF 1

BOREHOLE: TANK PIT FOR NOS 1,2,+3
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3/15/91
DATE SCREENED 3/15/91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
2-S. WALL	1.5	NO ODORS OR DISCOLORATION
2-E.S. WALL	1	
2-E.N. WALL	1	
2-N. WALL	1	
2-N. FLOOR	1.5	
2-S. FLOOR	1	
3-S. WALL	1.5	NO ODORS OR DISCOLORATION
3-S.W. WALL	1.5	
3-N.W. WALL	1	
3-N. WALL	1	
3-N. FLOOR	1.5	
3-S. FLOOR	1	
BACKGROUND	1-2	

* ALL READINGS APPEARED TO BE EQUAL TO BACKGROUND

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnati, Ohio 45240

SOIL VAPOR LOG

EQ

PAGE 1 OF 1

BOREHOLE: TANK PIT FOR Nos. 4+5
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-15-91
DATE SCREENED: 3-15-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
4/5 - N.W. WALL	1.5	NO ODORS OR DISCOLORATION
N.E. WALL	1	
E.N. WALL	1	
E.S. WALL	1	
S.E. WALL	1.5	
S.W. WALL	1	
W.S. WALL	1.5	
W.N. WALL	1	
N. FLOOR	1	
S. FLOOR	1	
BACKGROUND	1-2	
*ALL READINGS	APPEARS TO BE EQUAL	TO BACKGROUND

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

EQ

SOIL VAPOR LOG

PAGE 1 OF 1

BOREHOLE: Tank Pit For No. 6
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-13-91
DATE SCREENED: 3-13-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
#6 N. Wall	1	No odors or discoloration
S. Wall	1	
E. Wall	1	
W. Wall	1	
E. Floor	2	
W. Floor	1.5	
Pump Pad	1,000 + (near flame-out)	Heavy odor + staining
Pad + 20 ft.	1.5	No odors or discoloration
Pad + 40 ft.	2	
Pad + 60 ft. (@ elbow)	1.5	
Background	1 - 2	

* Walls + floor screened soils in excavation and all 1-2 ppm. Then selected above samples for headspace screen in lab.

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnati, Ohio 45240

EQ

SOIL VAPOR LOG

PAGE 1 OF 1

BOREHOLE: TANK PIT FOR NO. 7
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-14-91
DATE SCREENED: 3-14-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
7-N.W. WALL	1.5	NO ODORS OR DISCOLORATION
7-E.N. WALL	2	
7-E.S. WALL	2	
7-S.W. WALL	1.5	
7-W.N. WALL	2	
7-W.S. WALL	2	
7-W. FLOOR	1.5	
BACKGROUND	1-2	

EXCAVATION ZONE UNSAFE TO ENTER. COLLECTED SAMPLES FROM BUCKET OF TRACKHOE. SCREENED HEADSPACE IN LAB. COULD NOT REACH NORTHEAST WALL OR NORTH FLOOR. DISCUSSED SAMPLE APPROACH WITH BUSTR INSPECTOR AND VERBALLY APPROVED.

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

ATTACHMENT 5

RAW ANALYTICAL DATA

DATA CHEM
LABORATORIES

Mon, Mar 18, 1991

ANALYTICAL REPORT

Submitted To:	Tom Wey Environmental Quality Management, 1310 Kemper Meadow Drive Cincinnati, Ohio 45240
Submitted By:	James R. Baxter
Reference Data:	
Analysis of:	Benzene, Toluene, Ethylbenzene, Xylene
Method Reference:	EPA 8020
Sample Set ID:	91-C-0708
DataChem Lab No.:	91-06372 through 91-06379
Sampling Site:	Heekin Can

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R. Baxter
Analyst

Edward J. Slick
Group Leader

RESULTS

Client I.D.	Lab I.D.	(ppb) Benzene	Toluene	Ethyl benzene	Xylene
#3 North FLOOR ~~Wall~~	91-06372	NR	NR	NR	ND
#3 South Wall	91-06373	NR	NR	NR	ND
#3 West Wall	91-06374	NR	NR	NR	ND
#6 East Floor	91-06375	ND	ND	ND	ND
#6 West Wall	91-06376	ND	ND	ND	ND
#7 West-North Wall	91-06377	ND	ND	ND	ND
#7 East-South Wall	91-06378	ND	ND	ND	ND
#7 West Floor	91-06379	ND	ND	ND	ND
	Limit of Detection	2.	2.	2.	2.

ND = Not Detected
NR = Not Requested

James R. Baxter
James R. Baxter
Analyst

The above data is based upon retention time matching only. Any compound with a similar retention time will interfere.

DATA CHEM
LABORATORIES

Date: 3/18/91
DCL Set ID Number: 91-S-0709

ANALYTICAL REPORT

Submitted To:

Tom Wey
EQM
1310 Kemper Meadow Dr.
Cincinnati, OH 45240

Submitted By:

Scott M. Krummen

Reference Data:

Analysis of:	Total Petroleum Hydrocarbon
Method Reference:	EPA Method 418.1
Sample Type:	Soil
Number of Samples	5
DCL Sample Numbers:	91-06380
Sampling Site	Heekin Can

The above numbered sample was submitted to this laboratory for analysis. The sample was prepared by acidifing 20.0 grams of each sample with hyrochloric acid, sonicating the sample in 30ml of freon three times, and then filtering each sample to a final volume of 100ml of freon containing 3.0 grams of silica gel. They were then analyzed by infrared spectroscopy using a Perkin Elmer 1430.

The results are provided in the enclosed data table. If you have any questions, please call .

Scott M. Krummen
Analyst

Edward J. Slick
Edward J. Slick
Laboratory Supervisor

Date: 3/18/91
DCL Set ID No.: 91-S-0709

Data Table

Client Number	DCL Number	Analyte	Result(ppm)
#6 East Floor	91-06380	TPH	55.
#6 West ~~Floor~~ wall	91-06381	TPH	58.
#7 West-North Wall	91-06382	TPH	48.
#7 East-South Wall	91-06383	TPH	53.
#7 West Floor	91-06384	TPH	38.

Limit Of Detection(LOD): 10. ppm

Analyst [signature]

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☑ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY ______ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 3/14/91 Purchase Order No. ______

3. Company Name Enviro Quality Mgt (EQM)

Address 1310 Kemper Meadow Dr.

Cinci, OH 45240

Person to Contact Tom Wey

Telephone (513) 825-7500

Fax Telephone 513 825 7495

Billing Address (if different from above)

4. Sample Collection

Sampling Site Hebron Ctr

Industrial Process NA

Date of Collection 3/14/91

Time Collected AM + PM

Date of Shipment SAME

Chain of Custody No. ______

5. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#3 North Floor Wall	Soil	4 oz	XYLENES ONLY
	#3 South Wall			" "
	#3 West Wall			" "
	#6 East Floor			TPH + BTX
	#6 West Wall			" "
	#7 West Above Wall			TPH + BTX
	#7 East South Wall			" "
	#7 West Floor			" "

*Specify: Solid sorbent tube, e.g. Charcoal, Filter type, Impinger solution; Bulk Sample; Blood, Urine, Tissue, Soil, Water; Other

6. Q C REQUIREMENTS MUST BE COMPLETED - See General Services Terms and Conditions. QC samples billed at regular sample rate

☑ METHOD QC SAMPLES (Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments

Possible Contamination and or Chemical Hazards

7. Requested by [signature]

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-26?-9992

4388 Glendale-Milford Road / Cincinnati, OH 45242 800 458-1493 or 513-733-5336 / FAX: 513-73?-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

WHITE - LABORATORY COPY CANARY - CUSTOMER COPY

DATA CHEM
LABORATORIES

Mon, Mar 18, 1991

ANALYTICAL REPORT

Submitted To: Tom Wey
Environmental Quality Management,
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

Submitted By: James R. Baxter

Reference Data:
Analysis of: Benzene, Toluene, Ethylbenzene, Xylene
Method Reference: EPA 8020
Sample Set ID: 91-C-0726
DataChem Lab No.: 91-06479 through 91-06480
Sampling Site: Heekin Can

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R. Baxter
James R. Baxter
Analyst

Edward J. Slick
Edward J. Slick
Group Leader

RESULTS

Client I.D.	Lab I.D.	Benzene	(ppb) Toluene	Ethyl benzene	Xylene
#2 South Wall	91-06479	NR	NR	NR	ND
#2 North ~~Wall~~ Floor	91-06480	NR	NR	NR	27.
	Limit of Detection	2.	2.	2.	2.

ND = Not Detected
NR = Not Requested

James R. Baxter
James R. Baxter
Analyst

The above data is based upon retention time matching only.
Any compound with a similar retention time will interfere.

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status
☑ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY 3/19 noon
DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

Date 3/15/91 Purchase Order No. ______
Company Name Envir. Quality Mgt (EQM)
Address 1310 Kemper Meadow Dr.
Cin'ti, OH 45240
Person to Contact Tom Wey
Telephone (513) ~~48~~ 825-7500
Fax Telephone ( ) 825-7495
Billing Address (if different from above)
SAME

4. Sample Collection
Sampling Site Harkin Can
Industrial Process N/A
Date of Collection 3/15/91
Time Collected PM
Date of Shipment SAME
Chain of Custody No. ______

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#2 South Wall Soil			Xylenes only
	#2 North Floor Soil			" "

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

Q C REQUIREMENTS
MUST BE COMPLETED - See General Services Terms and Conditions. QC samples billed at regular sample rate

☑ METHOD QC SAMPLES
(Lab QC according to published methods)
☐ PROJECT PLAN QC SAMPLES
(Lab QC according to provided QA/QC Plan)
☐ NO QC SAMPLES REQUESTED
(May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments ______

Possible Contamination and or Chemical Hazards ______

7. Requested by [signature]

Received ST 3.15.91

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992
4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DATA CHEM
LABORATORIES

Wed, Mar 20, 1991

ANALYTICAL REPORT

Submitted To: Tom Wey
EQM
1300 Kemper Meadow Drive
Cincinnati, Ohio 45240

Submitted By: James R. Baxter

Reference Data:

Analysis of:	Benzene, Toluene, Ethylbenzene, Xylene
Method Reference:	EPA 8020
Sample Set ID:	91-C-0747
DataChem Lab No.:	91-06560 through 91-06561

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R. Baxter
James R. Baxter
Analyst

Edward J. Slick
Edward J. Slick
Group Leader

DATA CHEM
LABORATORIES

Date: 3/18/91
DCL Set ID Number: 91-S-0746

ANALYTICAL REPORT

Submitted To: Tom Wey
EQM
1310 Kemper Meadow Dr.
Cincinnati, OH 45240

Submitted By: Scott M. Krummen

Reference Data:

Analysis of:	Total Petroleum Hydrocarbon
Method Reference:	EPA Method 418.1
Sample Type:	Soil
Number of Samples	1
DCL Sample Numbers:	91-06559
Sampling Site	Heekin Can

The above numbered sample was submitted to this laboratory for analysis. The sample was prepared by acidifing 20.0 grams of each sample with hyrochloric acid, sonicating the sample in 30ml of freon three times, and then filtering each sample to a final volume of 100ml of freon containing 3.0 grams of silica gel. They were then analyzed by infrared spectroscopy using a Perkin Elmer 1430.

The results are provided in the enclosed data table. If you have any questions, please call .

Scott M. Krummen
Scott M. Krummen
Analyst

Edward J Slick
Edward J. Slick
Laboratory Supervisor

Date: 3/18/91
DCL Set ID No.: 91-S-0746

Data Table

Client Number	DCL Number	Analyte	Result(ppm)
#6 Pump Pad	91-06559	TPH	190.

Limit Of Detection(LOD): 10. ppm

Analyst Scott [signature]

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☑ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY ______ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 3/18/91 Purchase Order No. ______

3. Company Name Envir. Quality Mgt./EQM

Address 1310 Kemper Meadow Dr.

Cinti. OH 45240

Person to Contact Tom Wey

Telephone (513) 489-8407 or 825-7500

Fax Telephone (513) 825-7495

Billing Address (if different from above)

4. Sample Collection

Sampling Site Hocking Gas

Industrial Process NA

Date of Collection 3/18/91

Time Collected AM

Date of Shipment same

Chain of Custody No. ______

5. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#6 Pump Pad (6ft. depth)	Soil	4oz	BTEX + TPH
	#2 East Wall (Sand)	Soil	4oz	Xylenes only

*Specify Solid sorbent tube, e.g. Charcoal, Filter type, Impinger solution; Bulk Sample; Blood, Urine, Tissue, Soil, Water, Other

6. Q C REQUIREMENTS MUST BE COMPLETED - See General Services Terms and Conditions. QC samples billed at regular sample rate

☑ METHOD QC SAMPLES (Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

[signature] 3/18/91 13:10

Comments #6 Pump Pad has heavy contamination from gasoline

Possible Contamination and/or Chemical Hazards ______

Requested by [signature]

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992

4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION: WHITE - LABORATORY COPY CANARY - CUSTOMER COPY

SUSPECTED RELEASE REPORT

REPORT # 3 1 9 4 4 6 _ _ _ _ _ _ _ _ DATE: 12/12/90

TIME: 3 :00

[1] PERSON REPORTING THE RELEASE

NAME: Tom Wey TITLE: ______ PHONE: (513) 825-7500

AGENCY/COMPANY: Environmental Quality Mgmt. RELATION TO SITE: ______

ADDRESS: 1310 Kemper Meadow Dr. CITY: Cincinnati ST: OH ZIP: 45240

REMARKS: per Ord this is a duplicate SRR -st

[2] SUSPECTED RELEASE LOCATION

MULTIPLE SUSPECTED SOURCES? __ YES ✓ NO __ UNDETERMINED COUNTY: Hamilton

FACILITY ID#: 31-

FACILITY: Heekin Can Inc.

ADDRESS: 8200 Broadwell Rd.

CITY: Cincinnati ST: OH ZIP: 45244 PHONE: (513) 388-2200

UST OWNER: Heekin Can Inc. PHONE: ( ) ______

UST OPERATOR: " " " PHONE: ( ) ______

REMARKS: Tom called to get information regarding analytical results for lacquers. Lacquer used to coat insides of aluminum cans. Contains glycol ethers and alcohol. Referred him to OEPA - Tim Hickie or Harley Bowers.

FIRE DEPT: ______ CONTACT: ______ PHONE: ( ) ______

[3] CONDITIONS LEADING TO REPORT OF SUSPECTED RELEASE (*Check all that apply*)

___ Inventory control results indicate a release may have occurred.

___ Testing, monitoring or sampling results indicate a release may have occurred.

___ Unusual operating conditions observed (e.g., sudden drop in tank volume).

___ Impacts noticed in area surrounding tank (e.g., vapors, well contaminated, run-off)

___ Spill or overfill of petroleum in excess of 25 gallons

___ Soil/Groundwater contamination discovered during non-closure related investigation.

___ Closure (or replacement) assessment results indicate that a release has occurred.

OTHER CONDITIONS: They are submitting bids for tank removal. If they get job they will then contact our office for the permit to remove the waste oil + gasoline tanks.

*******COMPLETE REVERSE SIDE*******

[10] REPORT DISPOSITION (*Indicate actions taken on reverse side*)

TAKEN BY: M. Sullivan EMERGENCY ACTION? __ YES ✓ NO BY: __ FM __ OEPA (

COORD: Ord REPORT/ACTION APPROVED: ______ DATE: 12/20/90

LOGGED BY: DS DATE: __/__/__ ENTERED BY: St DATE: ______

CIRCLE STATUS: RPT SUS DIS CON ICA ICR PRIORITY: 1 2 3 4 CLASS: A B C D LTF NON-LTF

ICC SAS SAC CAS CAP NFA

duplicate

[4] RELEASE INFORMATION

DATE FIRST DETECTED: __/__/__ TIME: __ EST QUANTITY: __

SUBSTANCE RELEASED/DETECTED: __ GASOLINE __ DIESEL FUEL __ KEROSINE __ USED OIL

__ OTHER PETRO __ HAZ SUBST __ UNKNOWN EST DURATION: __

MEDIA EFFECTED (Check all that apply) __ SOIL __ PAVEMENT __ BASEMENT __ SEWERS

__ GROUNDWATER __ SURFACE WATER __ OTHER: __

LTF ELIGIBLE? __ YES ✓ NO If no, why? Unregulated substances

[5] UST INFORMATION

FACILITY REGISTRATION CURRENT? __ YES __ NO __ UNKNOWN (Attach USTR's for all facilities)

NUMBER OF TANKS: __ RELEASE DETECTION METHOD: __

AGE	CAPACITY	CONST MATERIAL	SUBSTANCE STORED	STATUS	AGE	CAPACITY	CONST MATERIAL	SUBSTANCE STORED	STATUS
7	8,000	steel	lacquer	in use	7	2 X 8,000	steel	waste oil	in use
↓	8,000	↓	soluable oil	↓	↓	4,000	↓	gasoline	↓
↓	10,000	↓	lacquer	↓	↓	10,000	↓	fuel oil (for heating purposes)	↓

PROBABLE LOCATION OF RELEASE: TANK NO __ PIPE BETWEEN __ AND __

PROBABLE CAUSE: __

OTHER POTENTIAL SOURCES AT THIS LOCATION: __

[6] SITE/HAZARD INFORMATION

IMPORTANT SITE OR SURROUNDING AREA CHARACTERISTICS: __

PROXIMITY TO DRINKING WATER SOURCES: __

OTHER FIRE/WATER/HEALTH HAZARDS AT THE SITE: __

[7] INITIAL RESPONSE ACTIONS BY OWNER/OPERATOR __ (Check all that apply)

- __ Release confirmation/Investigation
- __ Initial corrective action procedures
- __ Free product removal
- __ Long term corrective action plan
- __ Initial site investigation
- __ Site/Assessment/Exposure Assessment
- __ Unknown/undetermined
- __ None

[8] WERE ANY OTHER AGENCIES NOTIFIED PRIOR TO BUSTR? __ (As Reported)

AGENCY: __ NAME: __ DATE: __/__/__

[9] BUSTR ACTIONS TAKEN

2-12-90 @ 3:30 called OEPA - Tom Wey called him + they referred his question to Harley Bowers

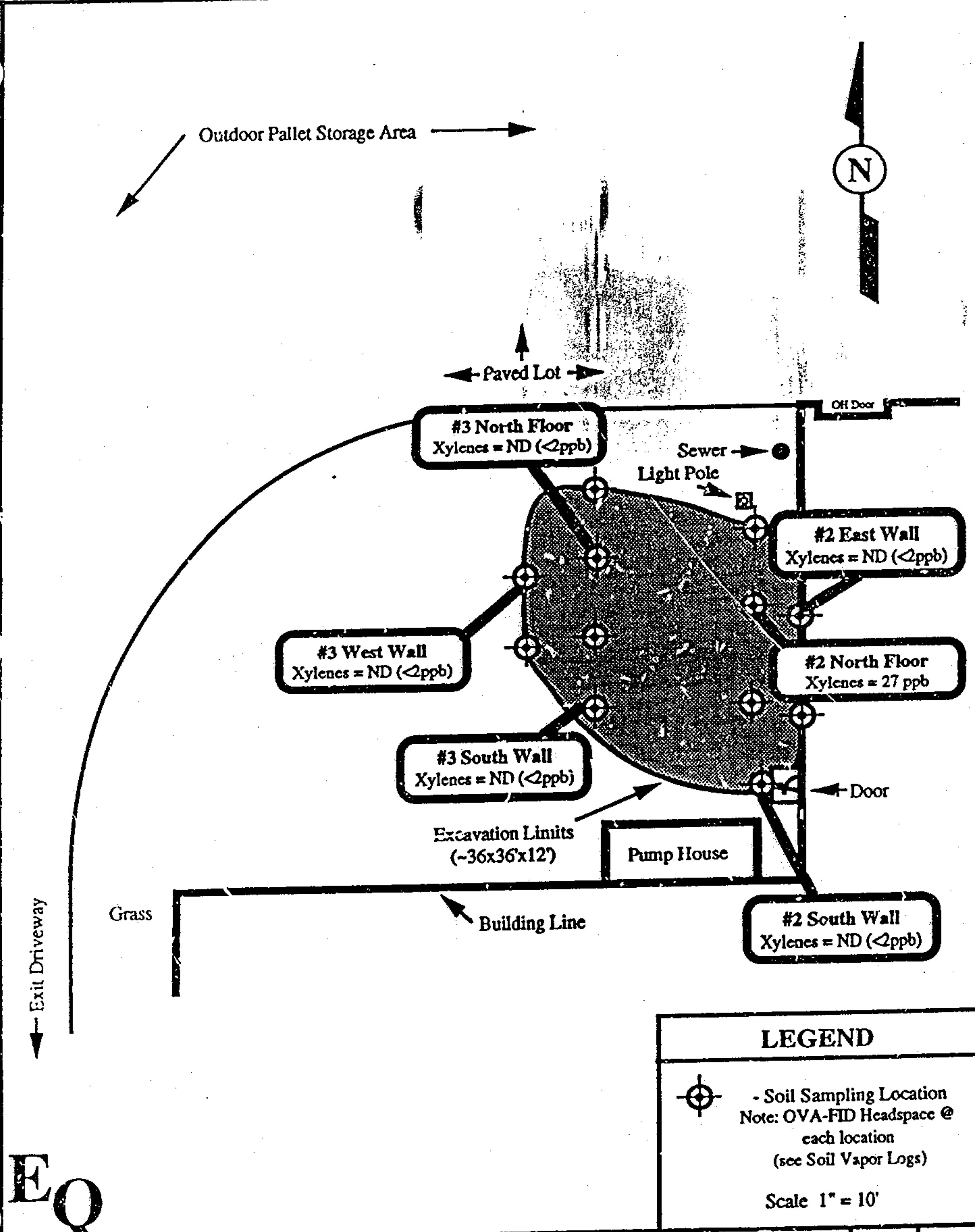
CALLS TO: FD, LHD, LPW, ODH, OEPA/ER, OEPA/DPDW, OEPA/DGW, OTHER

The results for all soil analyses are summarized in Table 3. Raw analytical results for each sample are contained in Attachment 5. Figures 6, 7, and 8 illustrate the soil sampling locations in each excavation zone and also presents the analytical results.

TABLE 3. SOIL ANALYSIS DATA SUMMARY

SAMPLE ID NOS.	ANALYTES				
	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total Petroleum Hydrocarbons (ppm)
#2 East Wall	NR	NR	NR	ND (<2)	NR
#2 South Wall	NR	NR	NR	ND (<2)	NR
#2 North Floor	NR	NR	NR	2.[illegible]	NR
#3 West Wall	NR	NR	NR	ND (<2)	NR
#3 South Wall	NR	NR	NR	ND (<2)	NR
#3 North Floor	NR	NR	NR	ND (<2)	NR
#6 West Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	58
#6 East Floor	ND (<2)	ND (<2)	ND (<2)	ND (<2)	55
#6 Pump Pad	<100	5,900	10,000	110,000	190
#7 West-North Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	48
#7 East-South Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	53
#7 West Floor	ND (<2)	ND (<2)	ND (<2)	ND (<2)	38

Notes: NR = Not Requested
ND = Not Detected (at quantification limit specified)



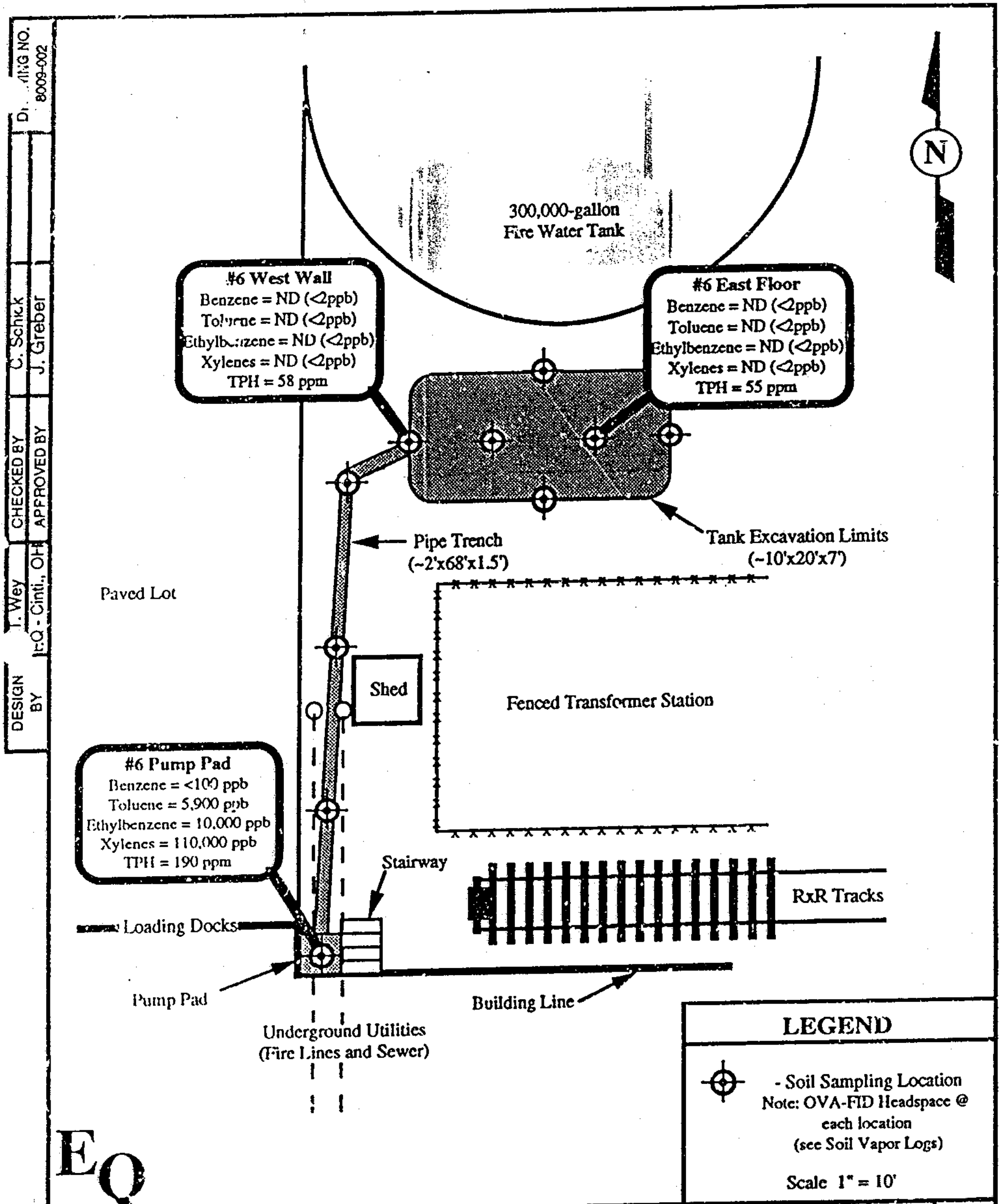
DRAWING NO.	001
C. Schick	J. Greber
CHECKED BY	APPROVED BY
T. Wey	Cinti., OH
DESIGN BY	

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 6. Tanks in D&I Area Soil Sampling Locations

REVISION	NO.	DATE

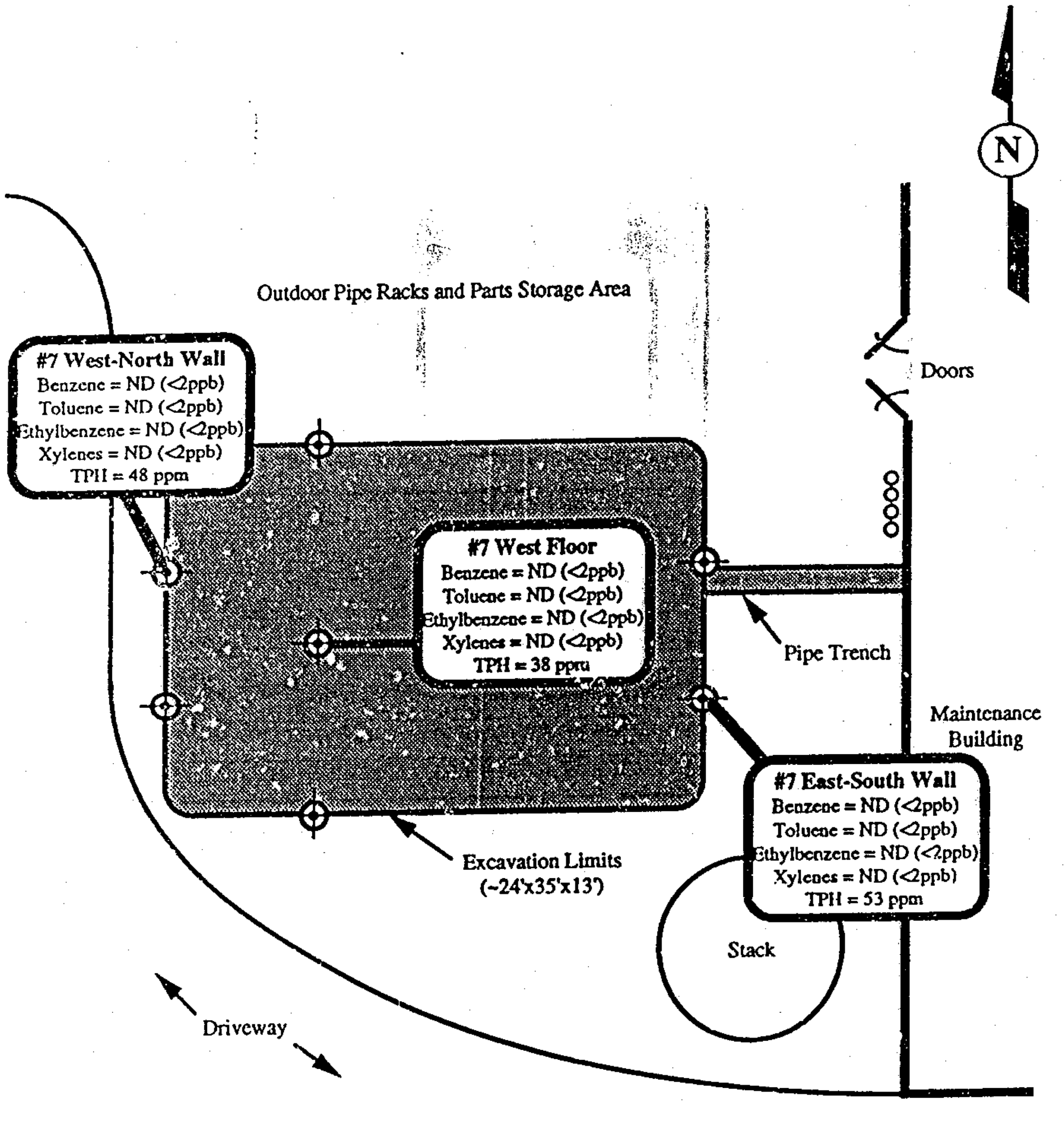


REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 7. Gasoline Tank Soil Sample Locations

REVISION	NO.	DATE



LEGEND

- Soil Sampling Location
Note: OVA-FID Headspace @ each location
(see Soil Vapor Logs)

Scale 1" = 10'

DESIGN BY | E. Wey | CHECKED BY C. Schick | APPROVED BY J. Greber | Cinti., OH | DRA NO. 80..-033

EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 8. Heating Oil Tank Soil Sample Locations

REVISION	NO.	DATE

4.0 SUMMARY OF FINDINGS AND CONCLUSIONS

All UST systems were properly removed and closed during this project. Heekin and the BUSTR Inspector reported the existence of residual petroleum constituents found in soils beneath the pump pad for UST No. 6 and the holes found near the top of UST No. 7 to OEPA and BUSTR. No free-product, product saturated soils, or water was encountered during the UST removals.

BTEX constituents in all soil samples from the UST No.6 excavation zone were not detected. TPH constituents ranged up to 58 ppm in the UST excavation zone. No indication of real or apparent releases from the the UST or piping was observed. Soils containing petroleum constituents (BTEX levels up to 110,000 ppb and TPH at 190 ppm) under the pump pad for UST No. 6 were not removed due to physical constraints (i.e., proximity to building structure and foundation, and presence of underground utilities). Spillage during fueling operations in the vicinity of the pump pad is believed to be the source of the residual petroleum constituents. Further action was not deemed appropriate and the excavation was backfilled and restored.

Xylenes were not detected in five of six soil samples collected from the excavation zone containing UST Nos. 2 and 3 ..One soil sample collected from the floor at the north end of UST No. 2 contained xylenes at 27 ppb. Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. The UST shells and piping all appeared tight and no indication of real or apparent releases were observed. Further action was not deemed appropriate and the excavation was backfilled and restored.

UST No. 7 had a hole in the top at one end but there were BTEX constituents were not detected in soil samples from the excavation zone. TPH constituents ranged from 38 to 53 ppm in soils from the excavation zone. Total organic vapor levels in all soils samples were equal to background soil levels. Further action was not deemed appropriate and the excavation was backfilled and restored.

ATTACHMENT 1

AMENDMENT TO NOTIFICATION OF UST REMOVAL/CLOSURE AND NOTIFICATION OF UST REGISTRATION

Heekin Can, Inc.
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244
513-388-2200

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 3
To Tom Wey	From R. Chambers
Co. EQM	Co. HCI
Dept.	Phone # 388-2294
Fax # 825-7495	Fax #

March 1, 1991

Release Prevention Manager
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
7510 East Main Street
Reynoldsburg, OH 43068-3395

RE: Amendment to Notification of UST Removal/Closure and Notification of UST Registration

Dear Release Prevention Manager:

This letter amends the letter you received from our UST removal oversite contractor, Environmental Quality Management, Inc. (EQM), dated January 16, 1991 and clarifies the status of USTs that are to be removed. We have found that some of the USTs that have been registered are not covered by the Ohio UST laws and regulations. The tanks do not contain petroleum products or a hazardous substance. We also found that one tank, the gasoline tank, had not been registered due to an oversight. I enclose an updated registration form that clears up the matter.

I also enclose a table that summarizes the USTs to be removed, the regulatory status of the USTs and the soil samples to be collected and analyzed.

Mr. Thomas Wey of EQM, Inc. will contact you regarding the scheduling of the UST removals. If you should have any questions or require additional information, please advise.

Very truly yours,

E. R. Jackson

E. R. Jackson
Senior Vice President, Research
(513) 388-2232

ERJ/nf

Enc.

BIC: [redacted]. A. Chambers
D. L. Reusch
P. J. Schworer-D&S
T. Wey - EQM

Table 1. Summary of UST's

Tank	Contents	Registered with BUSTR	Regulated by BUSTR	Soil Analyses*
1	CIMFLO (Vegetable oil)	Yes	No	None
2	Water Based lacquer	Yes	Yes	Xylene***
3	Water Based lacquer	Yes	Yes	Xylene
4	Waste CIMFLO and water	Yes	No	None
5	Waste CIMFLO and water	Yes	No	None
6	Gasoline	No**	Yes	TPH, BTEX
7	Fuel oil	Yes	No	None

* Visibly contaminated soils will be removed from all tank excavations and evaluated for disposal. The following soil analyses would be performed following that work.

** Amended registration form has been filed.

*** Xylene is the hazardous substance present in the paint product.

MAIL TO: State Fire Marshal, UTN, 8395 E. Main St., Reynoldsburg, Ohio 43068

Notification for Underground Storage Tanks

ID (state use only)

1. Name and address of the facility. (PRINT OR TYPE IN ALL SPACES)	2. Business mailing address of facility, if different from location address.	3. Owner of tank (name, business address, and phone number)	4. Contact person for the facility (Name and phone number)
Heekin Can, Inc. 8200 Broadwell Rd. Cincinnati, OH 45244		Heekin Can, Inc. 11310 Cornell Par, Dr. Blue Ash, OH 45242 (513) 489-3600	David L. Reusch (513) 388-2203

5. Type of owner (Mark "X" in appropriate box)

☒ Private ☐ Government

6. Remarks

This is a revised notification; Item 3 - Age is approximate

Complete the following section(s) to the best of your knowledge using the examples provided as guidance. Check appropriate boxes and fill in blanks where applicable. If you need more space, photocopy this page or use a continuation sheet. If you do not know the answer, enter "unknown."

(7H, 7I & 7J must be completed for tanks no longer in use.)

7. All tanks currently in use or that will be brought into use and all tanks no longer in use.

A. Tank No	B. Age (yrs.)	C. Total capacity (gal)	D. Material of construction: Steel	Fiberglass reinforced plastic	Other (specify)	E. Internal protection: Lined	Unlined	F. External protection: Coated	Wrapped	Cathodic protection	Other (specify)	G. Substance type: Gasoline	Diesel	Kerosene	Hazardous substance name	UN #	H. Date of last use: Month	Year	I. Estimated Quantity (gal)	J. X if tank is no longer in use
Example	5	10,000		X			X	X						X						
Example	8	8,000	X				X			X					Trichloroethylene	1710				
Example	26	8,000	X				X	X					X				6	75	120	X
1	17	8,000			stainless steel	unk					unk				Water based Lacquer					
2	12	10,000			stainless steel	unk					unk				Water based Lacquer					
3	30	1,000	x			unk					unk	x								
4																				
5																				
6																				
7																				

8. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

A. Name, SSN and Official Title of owner or owner's authorized representative (type or print)

B. Signature

C. Date signed

This information is required by Section 9002 of the Federal Resource Conservation and Recovery Act, as amended. (P.L.98-616)

ATTACHMENT 2

WRITTEN NOTIFICATION OF UST REMOVAL/CLOSURE ACTIVITIES

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive • Suite 100
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495

January 16, 1991

RELEASE PREVENTION MANAGER
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
7510 East Main Street
P.O. Box 525
Reynoldsburg, Ohio 43068-3395

Subject: Written Notification of UST Removal/Closure Activities
Heekin Can, Inc., 8200 Broadwell Road, Plant 2 (Newtown), Cincinnati, OH
Seven (7) Petroleum and Chemical UST Systems

Dear Release Prevention Manager:

Please consider this as the 30-day advance written notification of UST removal/closure activities at the subject facility. The following seven (7) UST systems are planned to be removed/closed:

- 1 8,000 gal steel Cimflo - Soluble Vegetable Oil
- 1 8,000 gal steel Lacquer Spray Liner
- 1 10,000 gal steel Lacquer Spray Liner
- 2 8,000 gal steel Waste Oil and Water
- 1 1,000 gal steel Gasoline
- 1 10,000 gal steel Fuel Oil

Environmental Quality Management, Inc. (EQ) will manage and coordinate this project and will provide for all sampling, analysis, and closure reporting. EQ has retained WRP Associates of Lebanon, Ohio, to obtain all permits, clean, remove, and dispose of the UST systems. WRP will provide the state certified UST installers (William R. Parker - ID 90-335 and/or Mike Breeze - ID 90-336) to supervise the UST removal/closure activities.

Please contact me at 513/825-7500 if you have any questions or require additional information.

Sincerely,
Environmental Quality Management, Inc.

T. J. Wey

Thomas J. Wey
Project Manager

cc: B. Chambers (Heekin Can)
P. Schworer (Dinsmore & Shohl)
J. Greber (EQ)

UNDERGROUND TANK PERMIT APPLICATION

INS~~UCTIONS: TYPE OR NEATLY PRINT ALL REQUESTED INFORMATION. ENCLOSE $50.00 APPLICATION FEE FOR EA. TANK LOCATION PERMIT. CHECK OR MONEY ORDER SHALL BE MADE PAYABLE TO: STATE FIRE MARSHAL. APPLICATION WILL NOT BE PROCESSED WITHOUT ACCOMPANYING FEE. SEND TO: BUREAU OF UNDERGROUND STORAGE TANK REGULATIONS, P.O. BOX 525, REYNOLDSBURG, OHIO 43068-3395.

.. TANK LOCATION:

Company: Heekin Can Inc.

Address: 6300 Broadwell Rd (Newtown)

City: Cincinnati County Hamilton

Phone: (513) 439-3600

Contact Person: Robert Chambers

2. OWNER INFORMATION:

Name:

Address: Same

City: Zip:

State:

Phone: ( )

. LOCAL JURISDICTION:

Fire Department: Newtown Volunteer Fire Dept. (Anderson Twp.) Dave Dreyer

Address: 3537 Church St.

City: Newtown, Ohio ZIP: 45244

Phone: (513) 561-2300

. CONTRACTOR INFORMATION:

Name: WRP & Associates

Address: 340 Ridgewood Ln

City: Lebanon State Ohio Zip: 45036

Contact Person: William Parker Phone: (513) 932-0335

. DESCRIPTION OF WORK TO BE COMPLETED:
Remove and properly close 7 UST's (4) 6000 gal. (2) 10,000 gal (1) 1000 gal

products are lacquer, Cimflo, waste oil, fuel, gasoline

** AT LEAST 30 DAYS SHOULD BE ALLOWED FOR PROCESSING OF THIS APPLICATION **

. Sketch of facility showing all tanks and piping including existing tanks, piping, distance from lot lines, and distance from any buildings MUST be attached to application to be processed.

. INSPECTION DATE WILL BE SET BY THE STATE FIRE MARSHAL, UPON PROCESSING OF THE COMPLETED APPLICATION

FOR OFFICE USE ONLY

FACILITY ID # 762

DATE: CHECK NUMBER: FEE:

COUNTY: INSPECTION DISTRICT

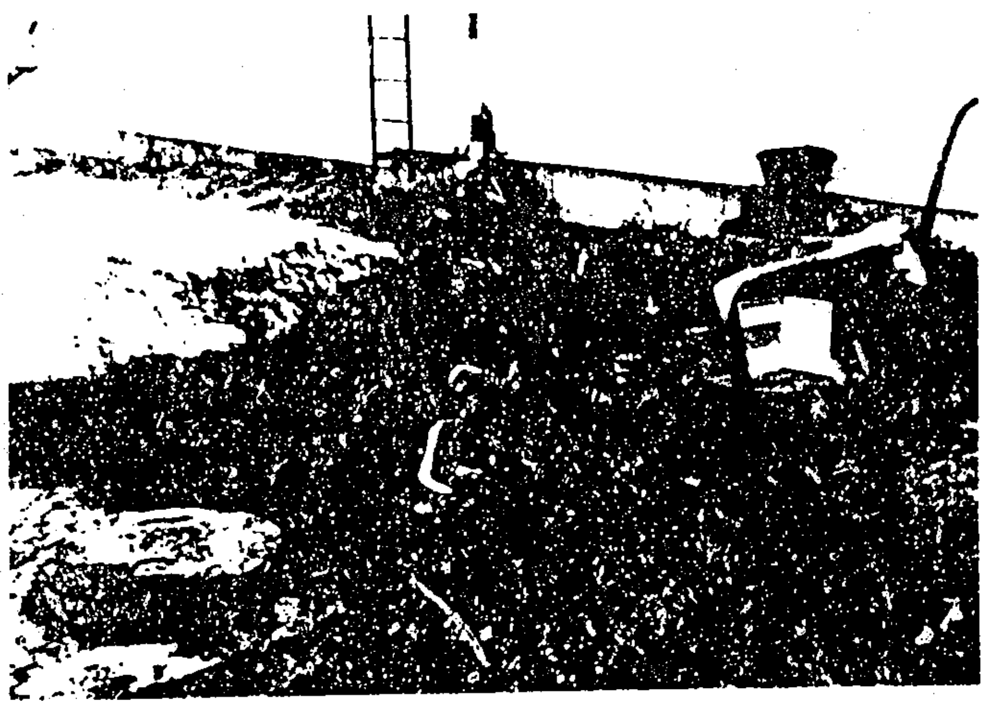
DATE COPIED & MAILED TO INSPECTOR

/90

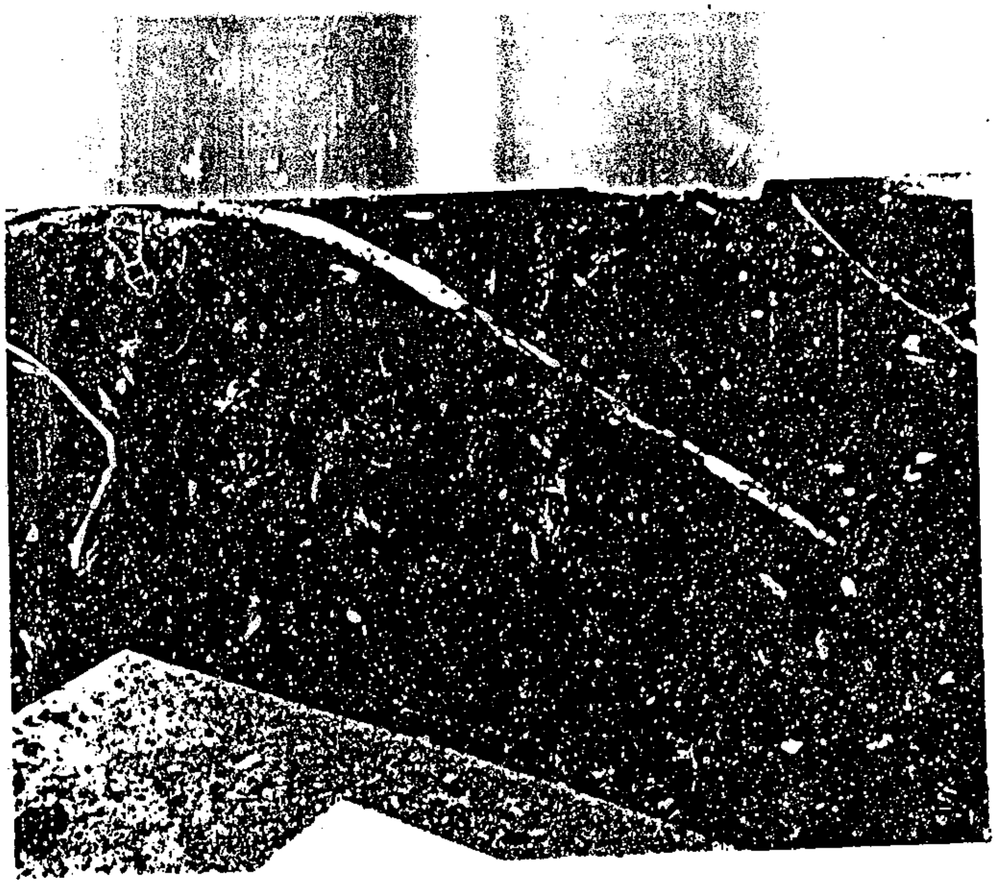
ATTACHMENT 3

PHOTOGRAPHS

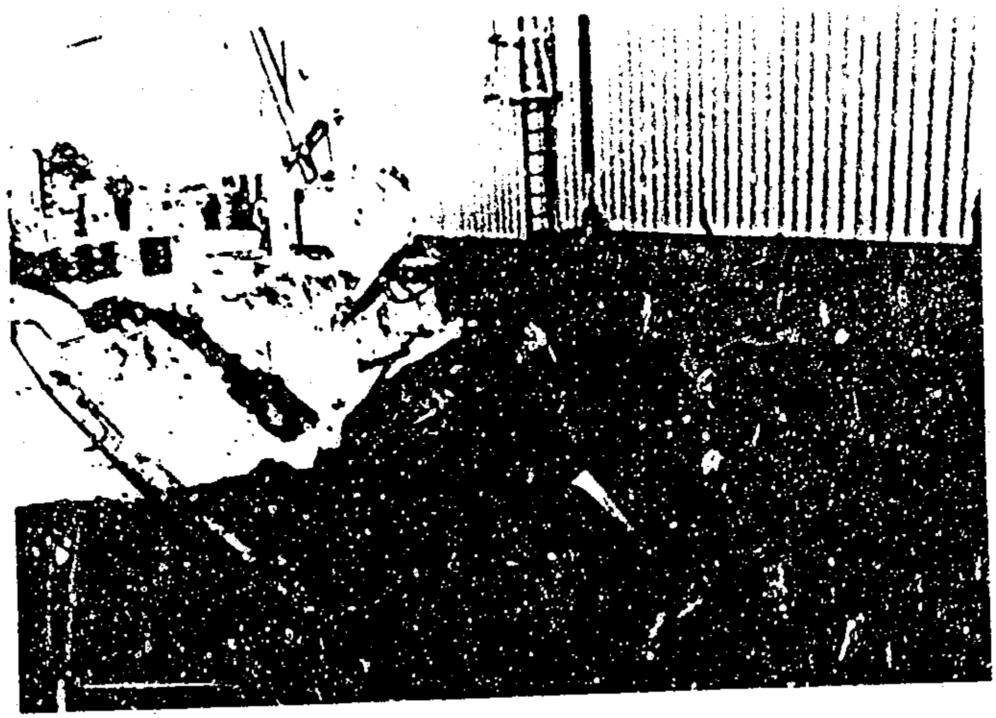
UST Nos. 1 & 2
Being uncovered



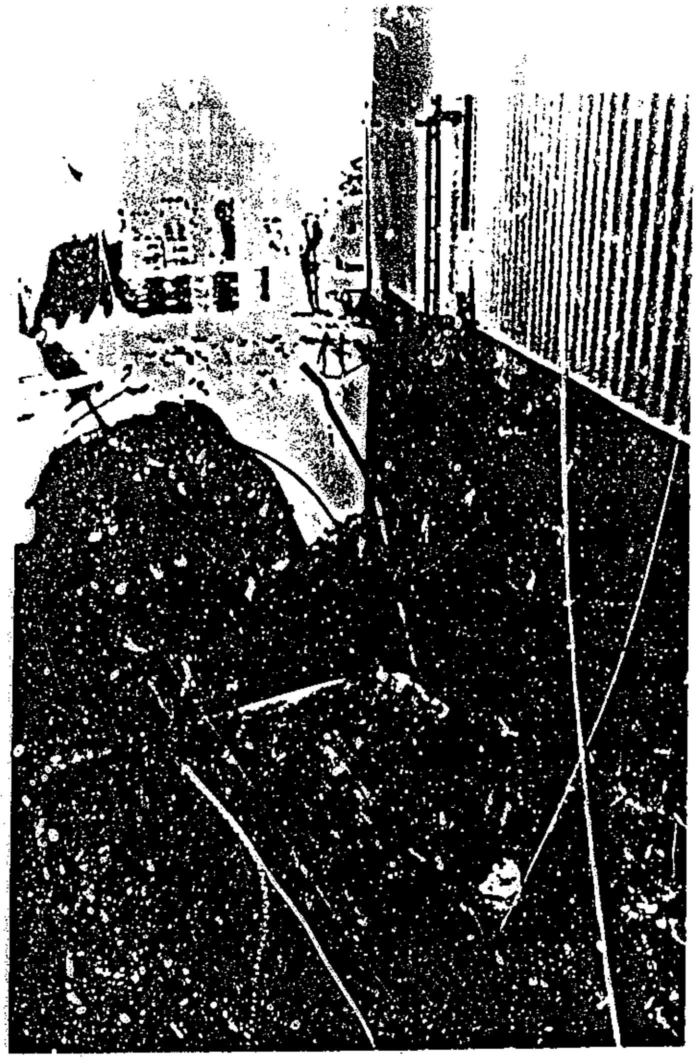
UST Nos. 1 & 2 Being uncovered



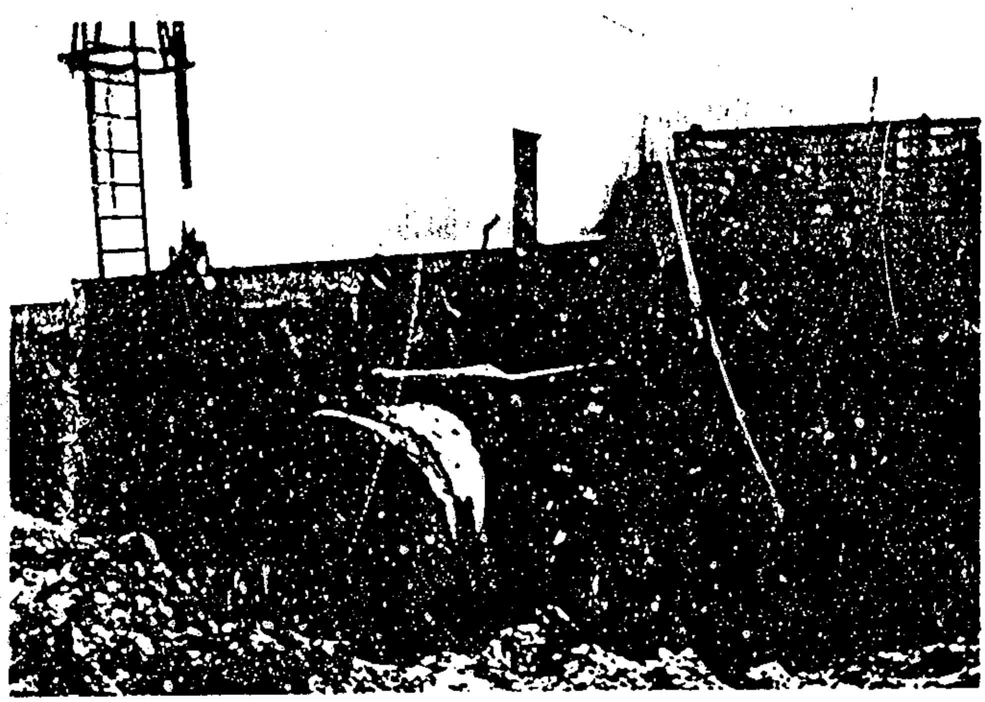
UST No. 1 Excavation after removal



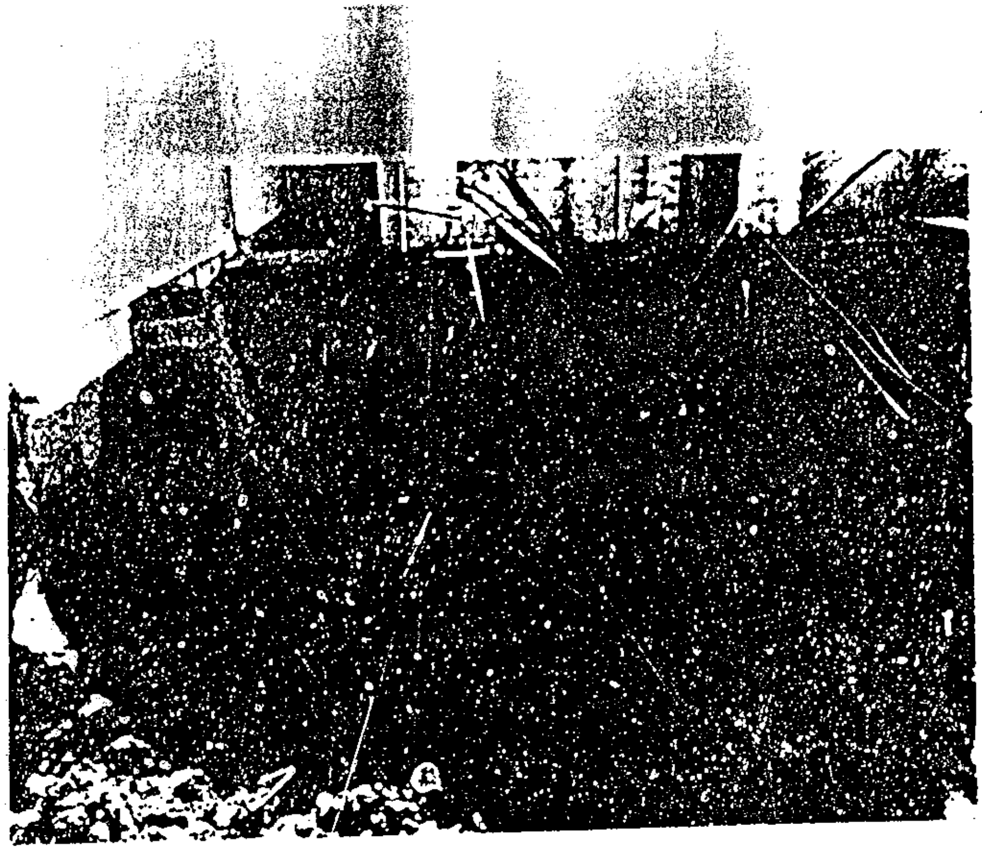
UST No. 2 Uncovered and against foundation and sewer manhole



UST No. 2
Being eased away from against building foundation and sewer manhole



UST No. 2 Clear of building foundation and sewer manhole

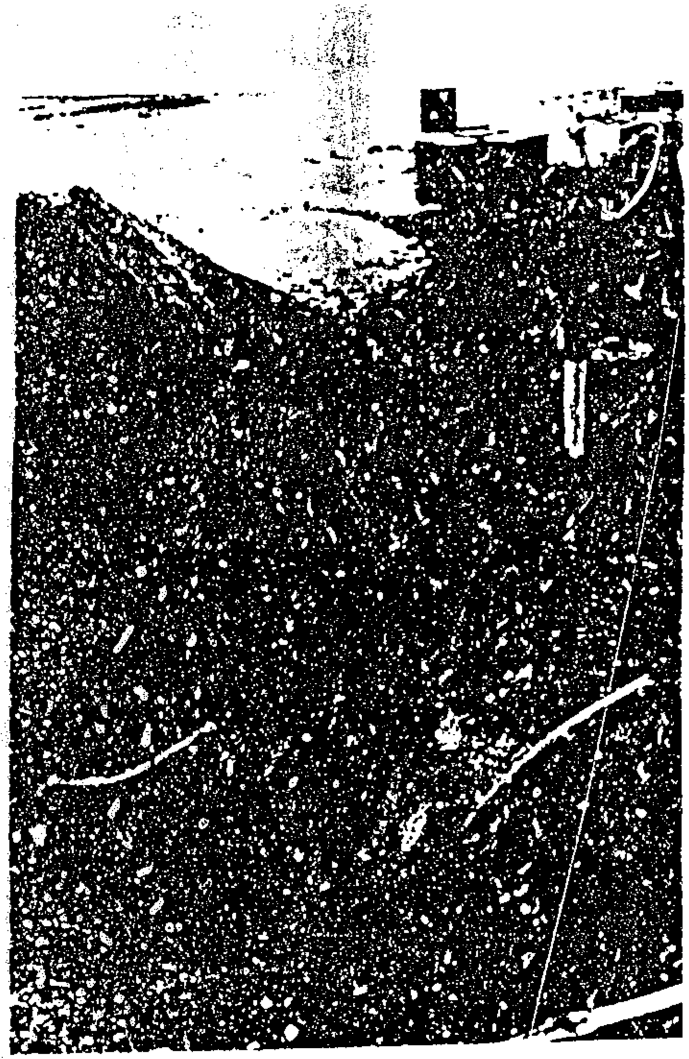


UST No. 2 Excavation after removal

UST No. 3 Being uncovered

UST No. 3
Being removed

UST No. 4
Uncovered



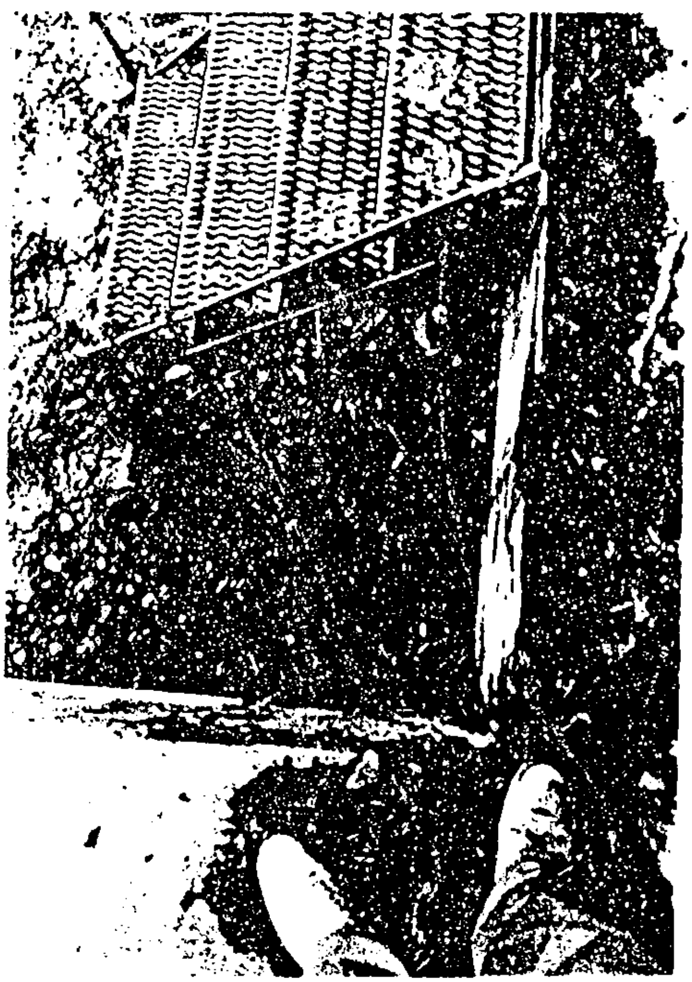
UST No. 5
Uncovered

UST Nos. 4 & 5
Excavation after
removal (View to SW)

UST No. 6
Pipe trench to
pump/dispenser on
loading dock

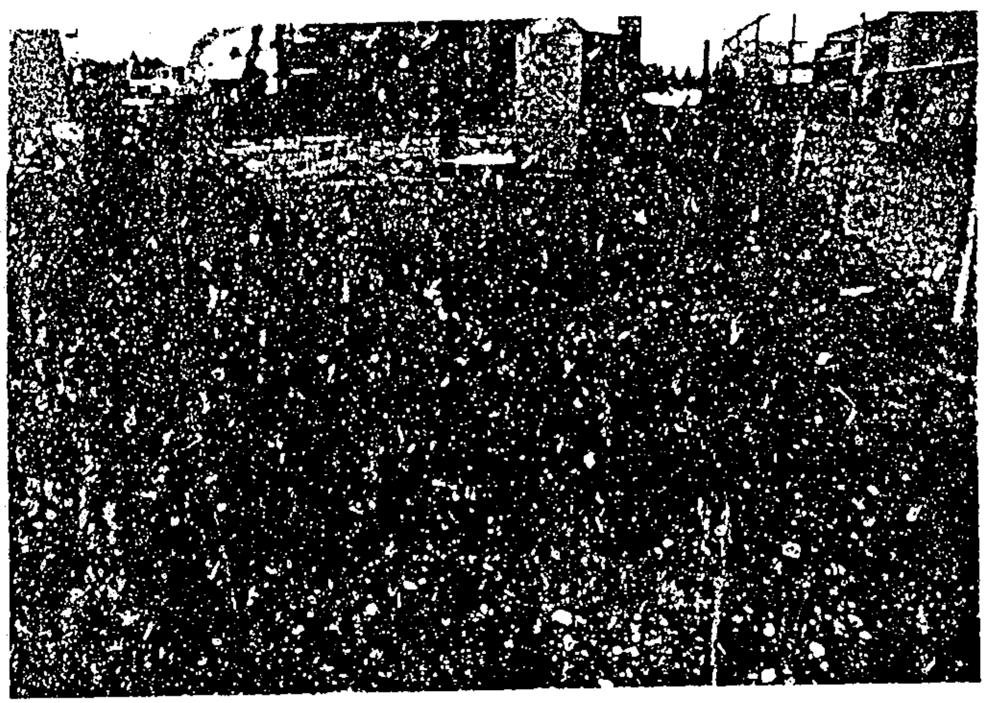
UST No 6
Being removed

UST No. 6
Pump dispenser and
pipe trench

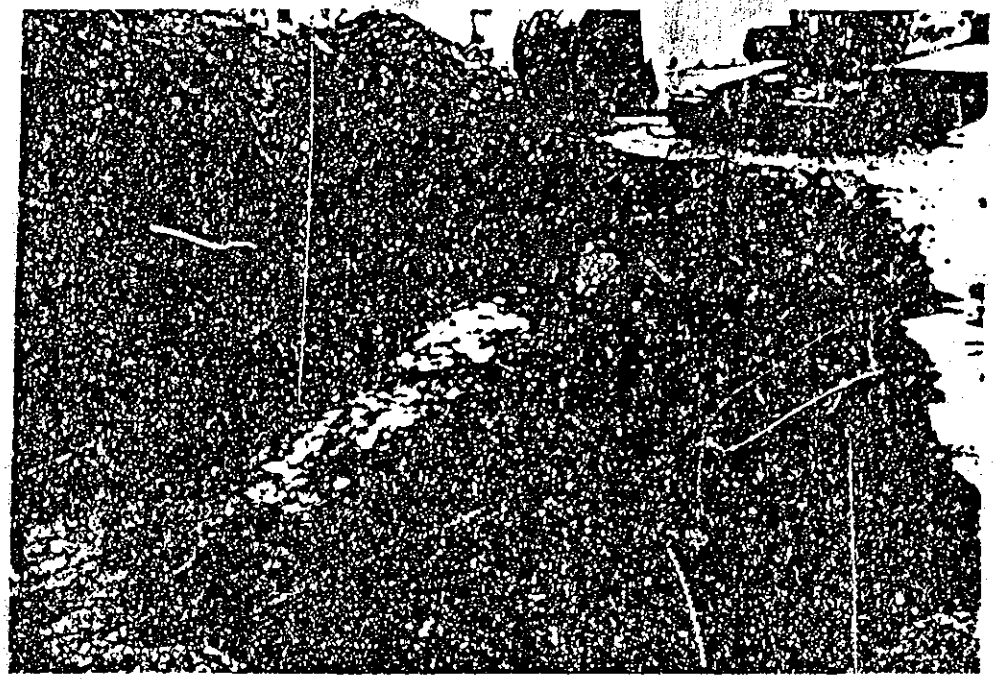


UST No. 6
Pump pad removed

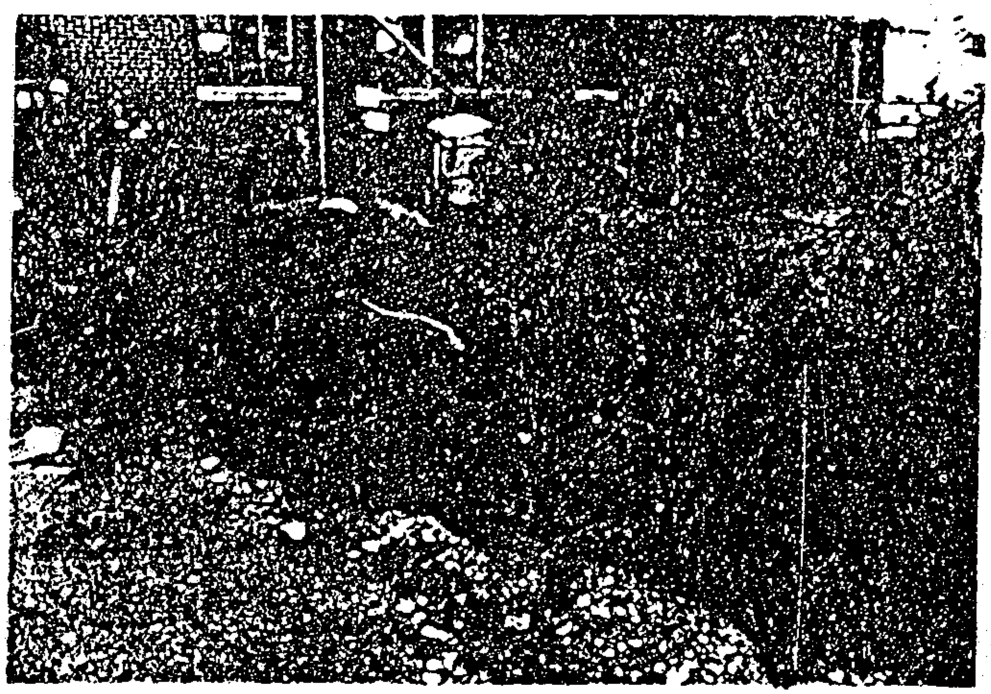
UST No. 6 Excavation after removal (View to W)



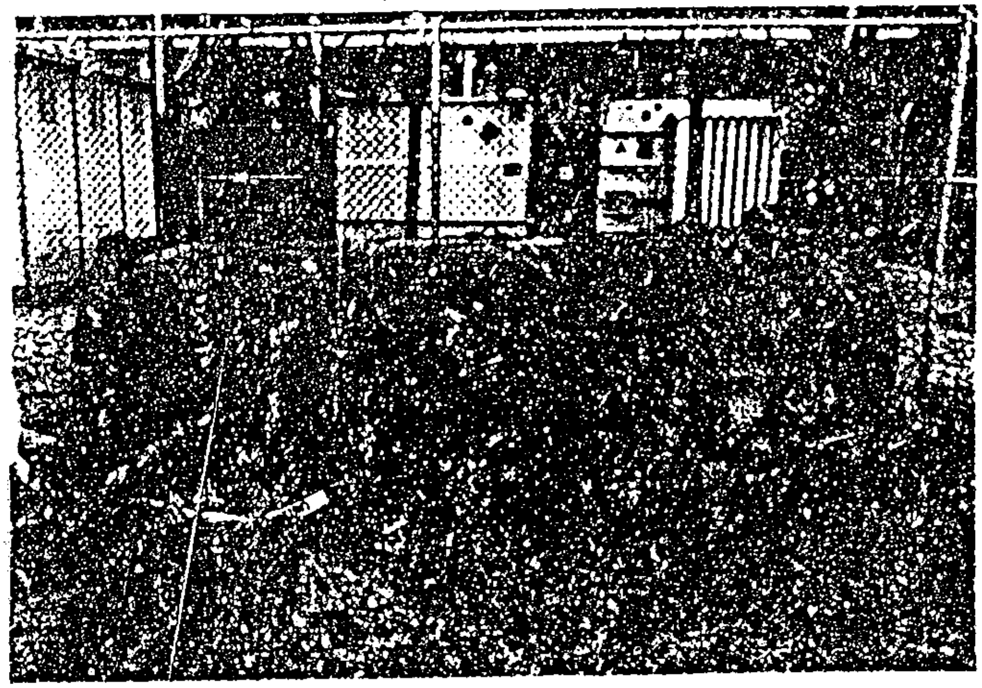
UST No. 6 Excavation after removal (View to E)



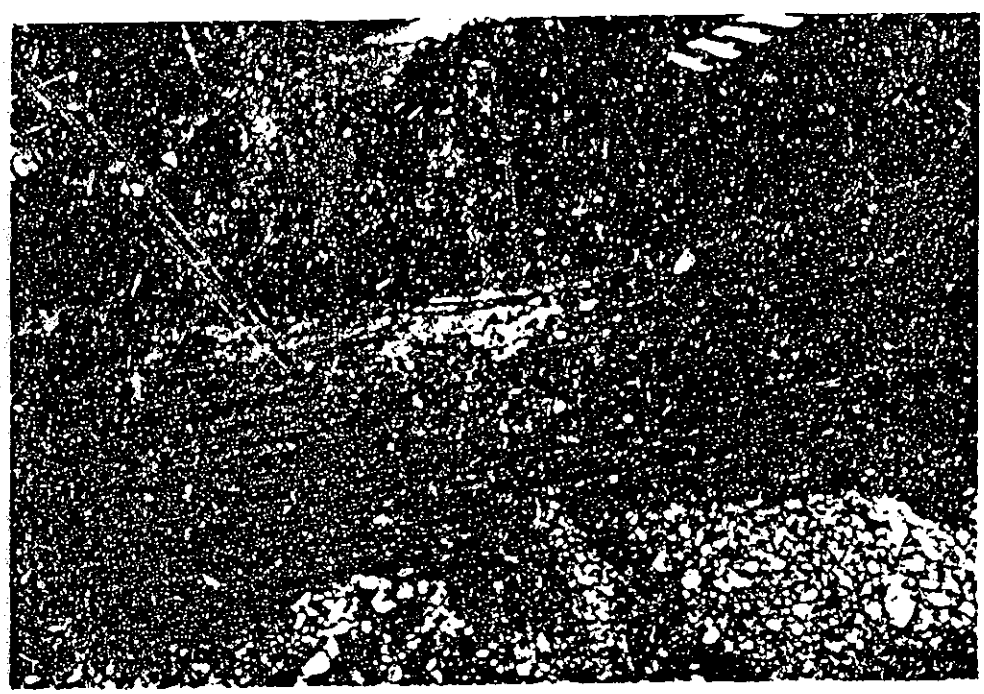
UST No. 7 Uncovered (View to W)



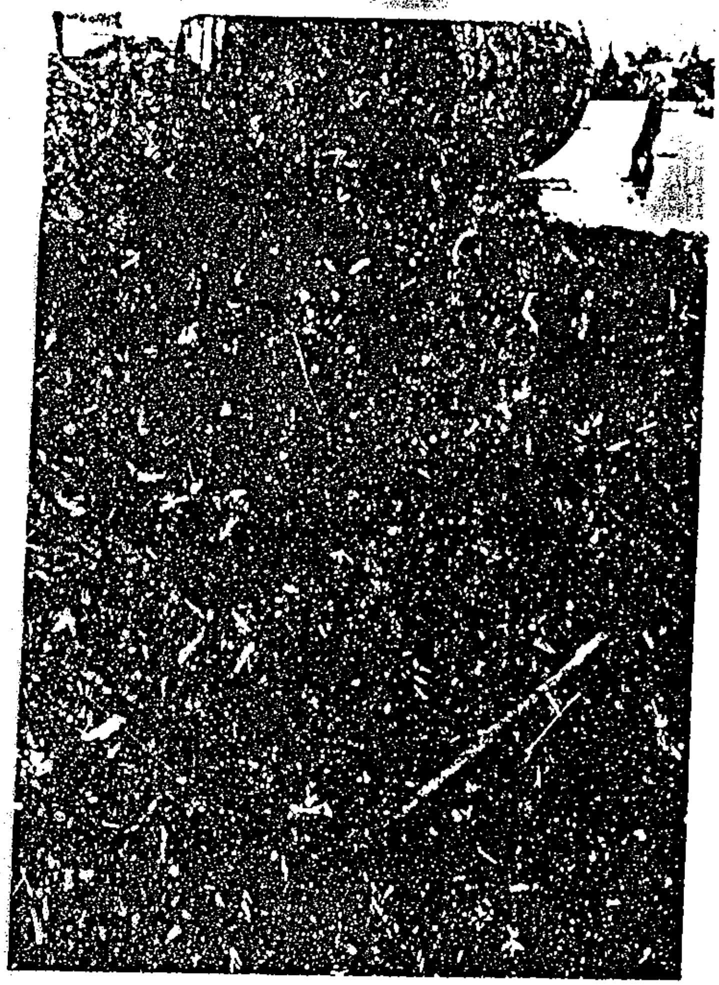
UST No. 7 Excavation during removal (View to E)



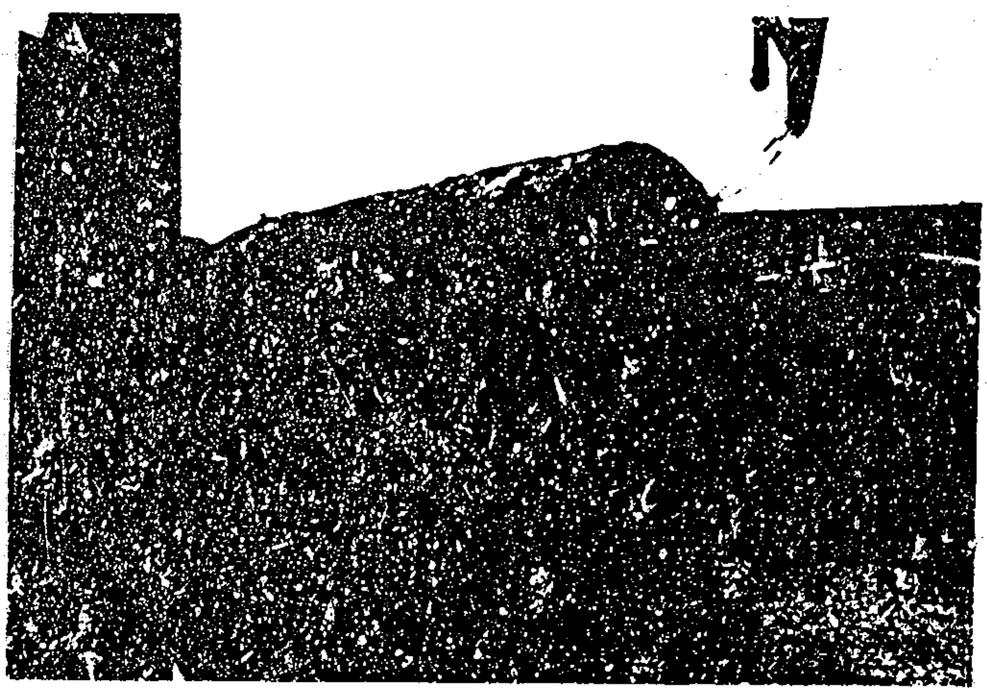
UST No. 6 Staged for final cleanout and inspection



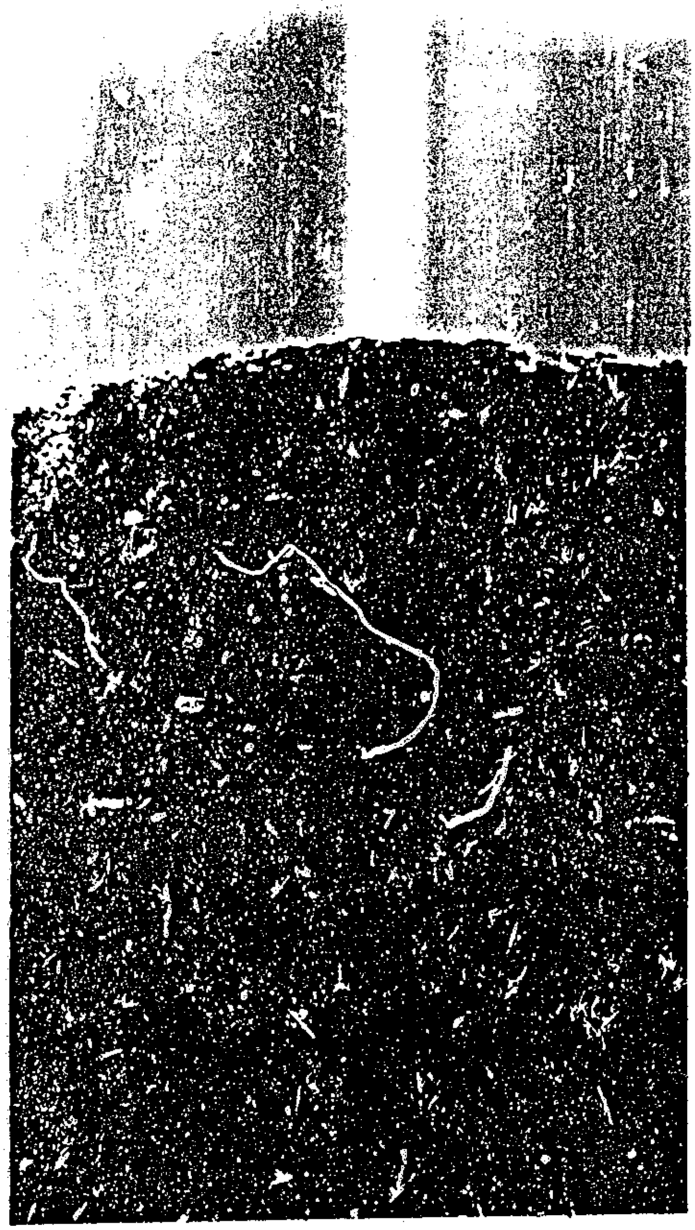
UST No. 7 Uncovered (View to SE)



UST No. 7
Excavation after
removal (View to W)



UST No. 7 Begin staged for final cleanout and inspection



UST No. 7 Hole in west end near top
(Arrow w/pencil below)

Heekin Can, Inc.
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244
513-388-2200

May 22, 1991

STATE FIRE MARSHAL
RECEIVED
JUN 07 1991
BUSTR

Release Prevention Manager
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
7501 E. Main Street
P.O. Box 525
Reynoldsburg, OH 43068-3395

Dear Sir or Madam:

Enclosed please find one copy of the report entitled "Underground Storage Tank Closure Assessment Report" prepared by Environmental Quality Management, Inc. This report summarizes the closure of both regulated and unregulated underground storage tanks at Heekin Can's Broadwell Road facility.

Heekin Can, Inc. will be conducting a "Site Assessment" for the No. 6 tank pump pad and remaining soil constituents. Please advise if you should have any questions.

STATE
RECEIVED
JUN - 4 1991
S.W.F.O.
BUSTR

Very truly yours,

E. R. Jackson

E. R. Jackson
Senior Vice President, Research
(513) 388-2232

ERJ/nf

C: Mr. David Dreyer

Enc.

#319446

UNDERGROUND STORAGE TANK
CLOSURE ASSESSMENT REPORT

Prepared for:

Heekin Can, Inc.
Cincinnati, Ohio

PN 8009

Prepared by:

Environmental Quality Management, Inc.
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

May 1991

TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

This report summarizes the removal and closure activities of all seven underground storage tanks (UST's) located at the Heekin Can, Inc., plant located in Newtown, Ohio. Section 1 of this report is a brief project introduction. Section 2 presents a description of the UST systems and a chronology of removal and closure activities. Section 3 addresses closure assessment sampling and analysis. Section 4 is a summary of findings and conclusions.

All UST systems were properly removed and closed during this project. Heekin and the BUSTR Inspector reported the existence of residual petroleum constituents found in soils beneath the pump pad for UST No. 6 and the holes found near the top of UST No. 7 to the appropriate regulatory authorities. No free-product, product saturated soils, or water was encountered during the UST removals warranting immediate corrective action (i.e., product recovery, soil removal and disposal, etc.).

BTEX constituents in all soil samples from the UST No.6 or UST No. 7 excavation zones were not detected. TPH constituents ranged from 38 to 58 ppm in the excavation zones. Other than holes in the UST No. 7 shell near the top at the west end, no indication of real or apparent releases from the the UST or piping was observed (i.e., no free product, odors, visible product in soil, etc.). Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. Soils containing petroleum constituents (BTEX levels up to 110,000 ppb and TPH at 190 ppm) under the pump pad for UST No. 6 were not removed due to physical constraints (i.e., proximity to building structure and foundation, and presence of underground utilities). Spillage during fueling operations in the vicinity of the pump pad is believed to be the source of the residual petroleum constituents. Further action was not deemed appropriate and the excavation was backfilled and restored.

Xylenes were not detected in five of six soil samples collected from the excavation zone containing UST Nos. 2 and 3 ..One soil sample collected from the floor at the north end of UST No. 2 contained xylenes at 27 ppb. Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. The UST shells and piping all appeared tight and no indication of real or apparent releases were observed. Further action was not deemed appropriate and the excavation was backfilled and restored.

1.0 INTRODUCTION

Environmental Quality Management, Inc. (EQ) was retained by Heekin Can, Inc. (Heekin) to remove and closed seven (7) underground storage tanks (UST's) at their plant located on Broadwell Road in Newtown, Ohio. Figure 1 illustrates the location of the Newtown plant.

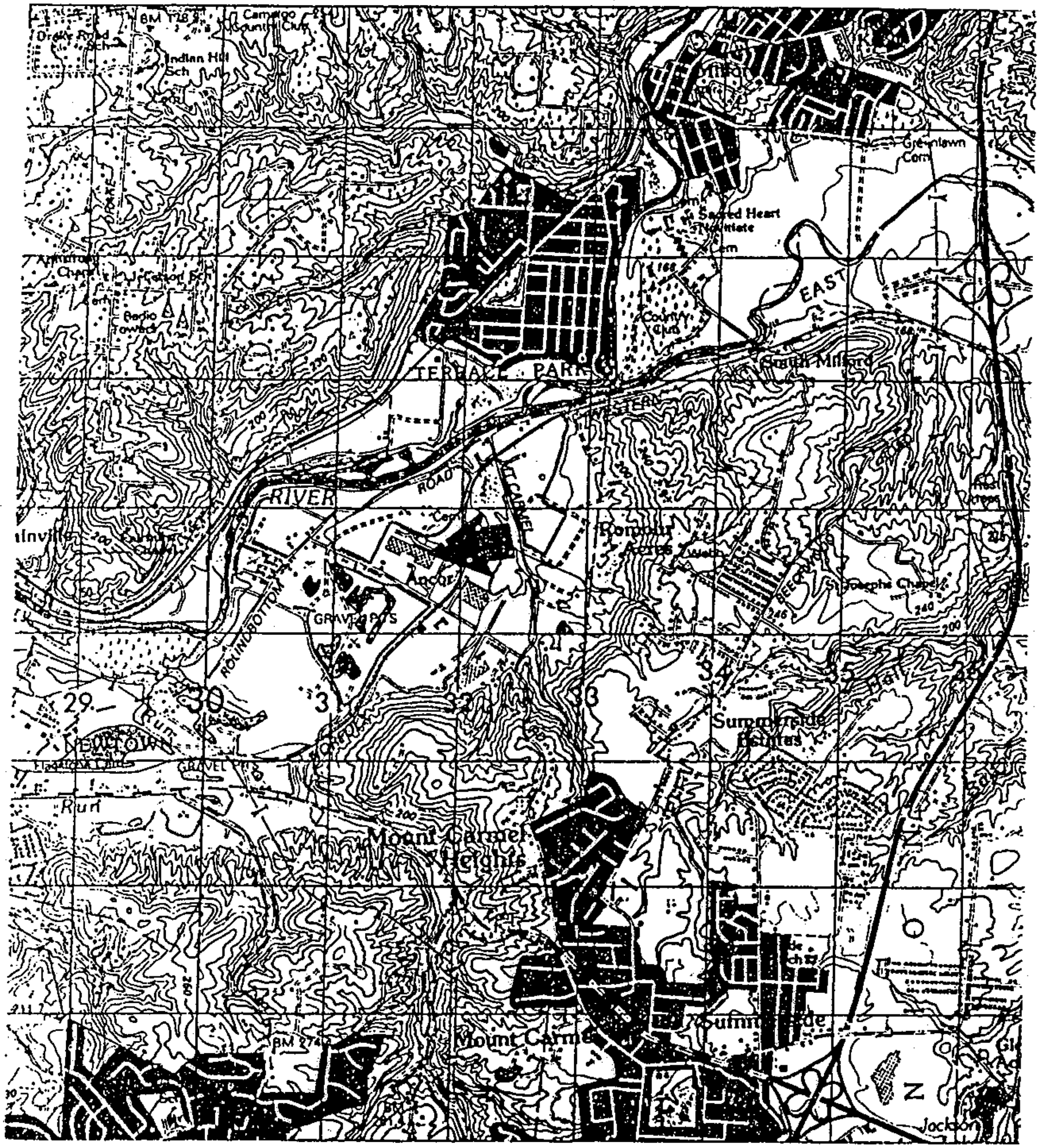
Heekin had determined that three of the seven UST's were subject to regulations pursuant to Ohio's Bureau of Underground Storage Tanks Regulations (BUSTR). One of the UST's contained No.2 fuel oil that was used for heating the maintenance building on the premises. The remaining three UST's were unregulated because they did not contain petroleum products, flammable or combustible materials, or hazardous substances. Additional information and justification is found in a letter from Heekin Can to BUSTR dated March 1, 1991, a copy provided herein as Attachment 1.

EQ subcontracted WRP Associates, Inc. (WRP) to obtain permits for the tank removal/closures, cleanout all tanks, drain and purge piping, package all tank residuals, unearth and remove the tanks, dispose of the piping and tank shells, and site restoration. EQ managed, coordinated, and documented all project activities, collected and analyzed environmental samples, where necessary, in accordance with state and federal regulations to meet closure assessment requirements, assisted with arrangements for proper disposal of tank residual wastes, and prepared this summary report.

Onsite removal/closure activities commenced on March 6, 1991 and was substantially complete by March 23, 1991 . The closure consisted of removing seven UST's from three separate excavation zones located behind the plant towards the northwest property boundaries. Figure 2 illustrates the locations of the UST's on the plant property. While it was determined that only three of the seven UST's were subject to BUSTR, all UST's were closed in accordance with American Petroleum Institute (API) 1604.

DRAWING NO.
0001

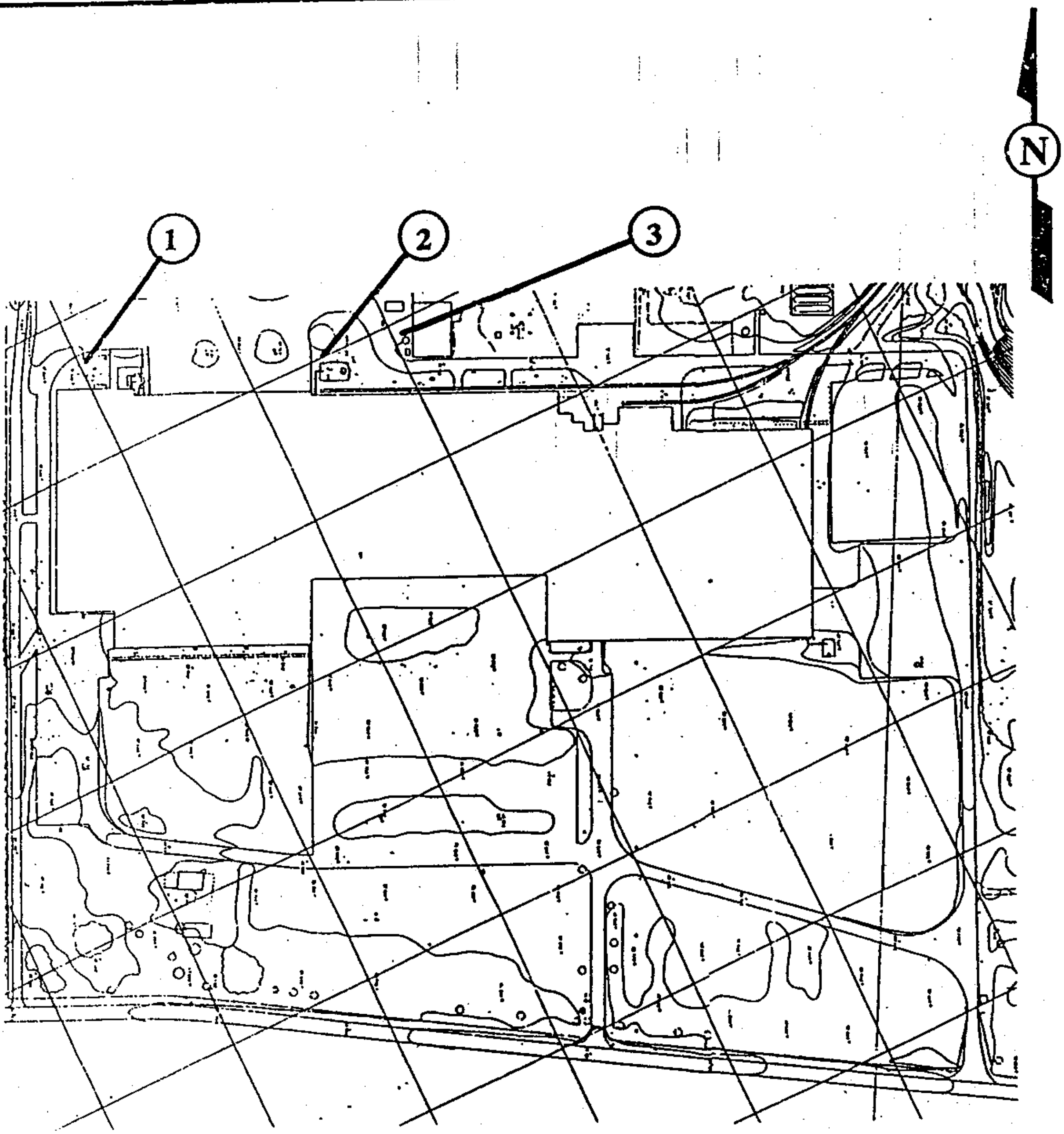
DESIGN BY	CHECKED BY	APPROVED BY
T. Wey	C. Schick	J. Greber
EQ - Cinti, OH		



EQ

BASE MAP SOURCE: USGS Sheet 4162 III, Series V752, Edition 1-DMA Cincinnati East, Ohio, 1979, Scale 1 : 50,000

REFERENCE:				
Heekin Can, Inc. Newtown, OH	FIGURE 1. Plant Location Map	REVISION	NO.	DATE



LEGEND

1. D&I Area (UST Nos. 1,2,3,4 & 5)
2. Gasoline (UST No. 6)
3. No.2 Heating Oil (UST No. 7)

No Scale

EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 2. Location of UST Systems

REVISION	NO.	DATE

DESIGN BY	CHECKED BY	APPROVED BY	DR/ 'G NO.
Wey, Cinti., OH	C. Schick	J. Greber	1

2.0 UST SYSTEMS and CHRONOLOGY OF REMOVAL and CLOSURE ACTIVITIES

This section provides a description of the UST systems and a chronology of critical project activities.

Table 1 provides information about the seven UST systems involved in this project including tank identification numbers (ID Nos.), tank capacities, materials of construction, BUSTR regulatory disposition, and the contents stored in each UST.

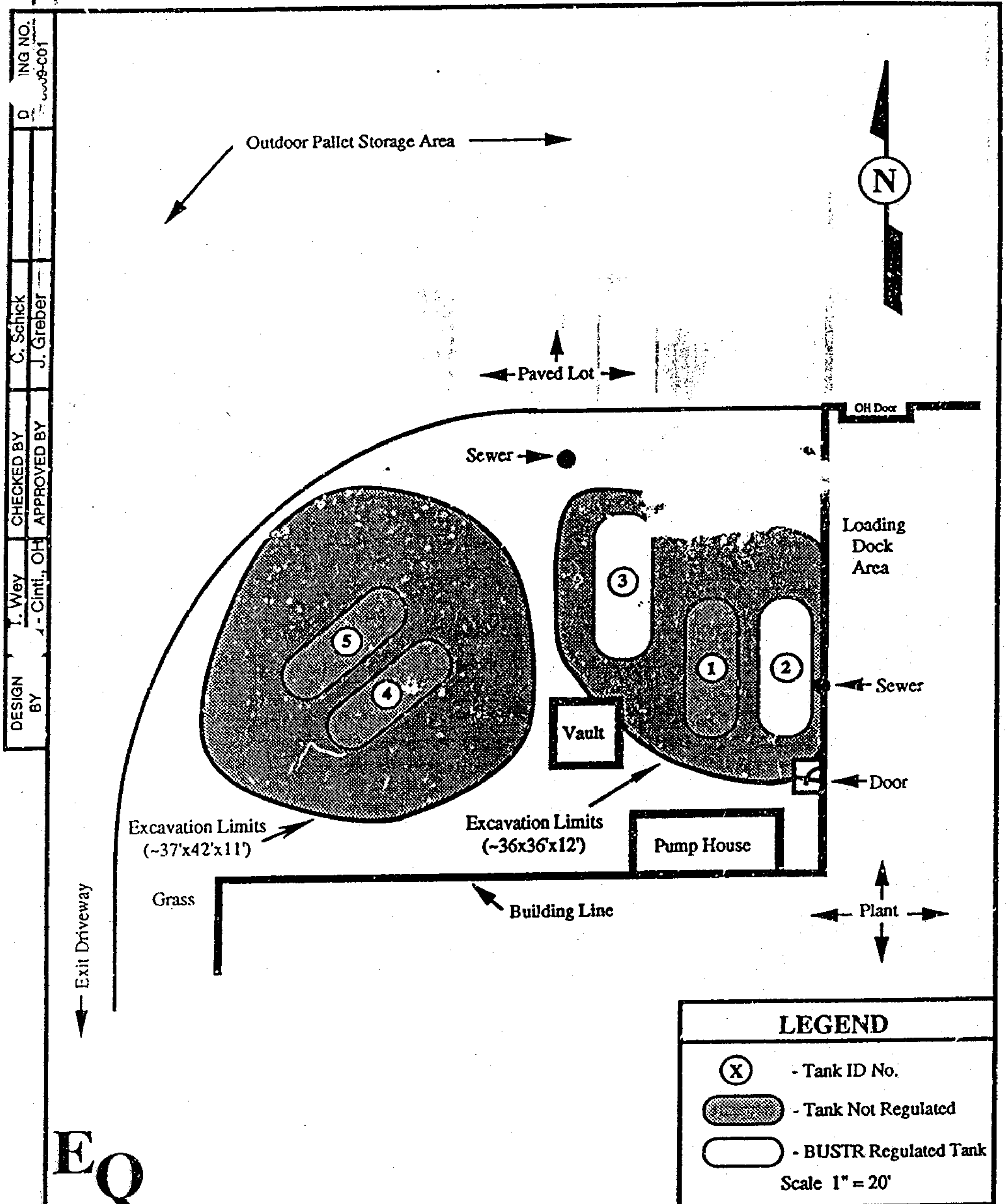
TABLE 1. UST Information and Specifications

UST ID Nos.	Capacity	Construction	BUSTR Regulated	Contents
1	8,000 gal	Carbon Steel	No	CIMFLO (vegetable oil)
2	8,000 gal	Stainless Steel	Yes	Laquer (water based)
3	10,000 gal	Stainless Steel	Yes	Laquer (water based)
4	8,000 gal	Carbon Steel	No	Waste CIMFLO and Water
5	8,000 gal	Carbon Steel	No	Waste CIMFLO and Water
6	1,000 gal	Carbon Steel	Yes	Gasoline (motor fuel)
7	10,000 gal	Carbon Steel	No	No.2 Fuel Oil (heating)

Figure Nos. 3, 4, and 5 illustrate the location and layout of the tanks in the three separate excavation zones. The remainder of this section is a chronology of critical or key project activities.

January 16, 1991 - EQ submits written notification of the planned UST removal/closure activities to State Fire Marshal. Shortly thereafter, WRP submits underground tank permit application to State Fire Marshal. Attachment 2 contains copies of the letter and permit application.

March 6, 1991 - Cleanout of UST Nos. 1,2,3,4, and 5 commences. All residuals pumped into 55-gallon steel drums. WRP coordinates with BUSTR Inspector, Mr. Clark Stacks, for start of UST removals. See photographs in Attachment 3.

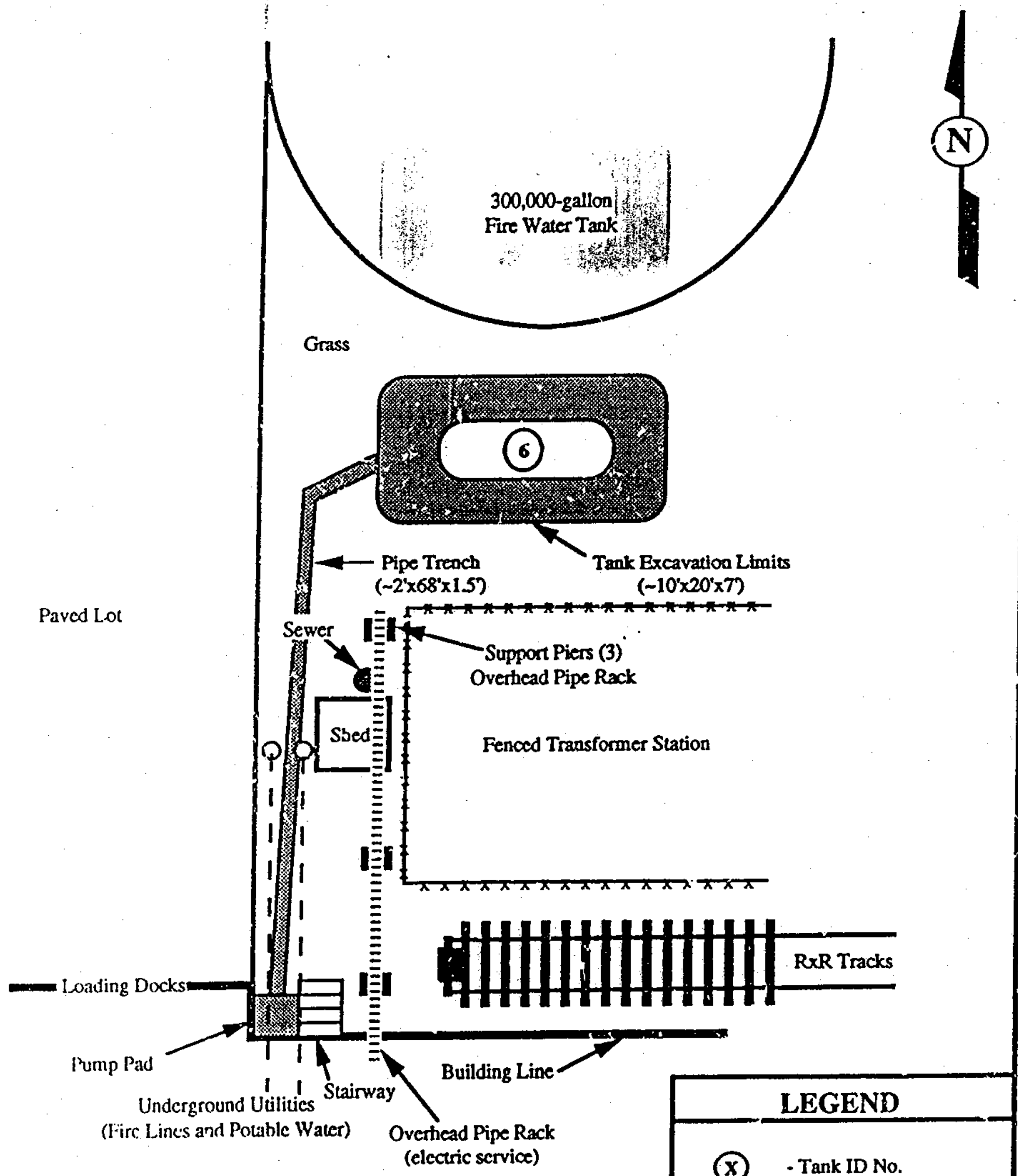


REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 3. Tank Layout and ID's in D&I Area

REVISION	NO.	DATE



LEGEND

(X) - Tank ID No.

(oval) - BUSTR Regulated Tank

Scale 1" = 10'

DRAWING NO. 8009-002

DESIGN BY: T. Wey, EQ - Cinti., OH

CHECKED BY: C. Schick

APPROVED BY: J. Greber

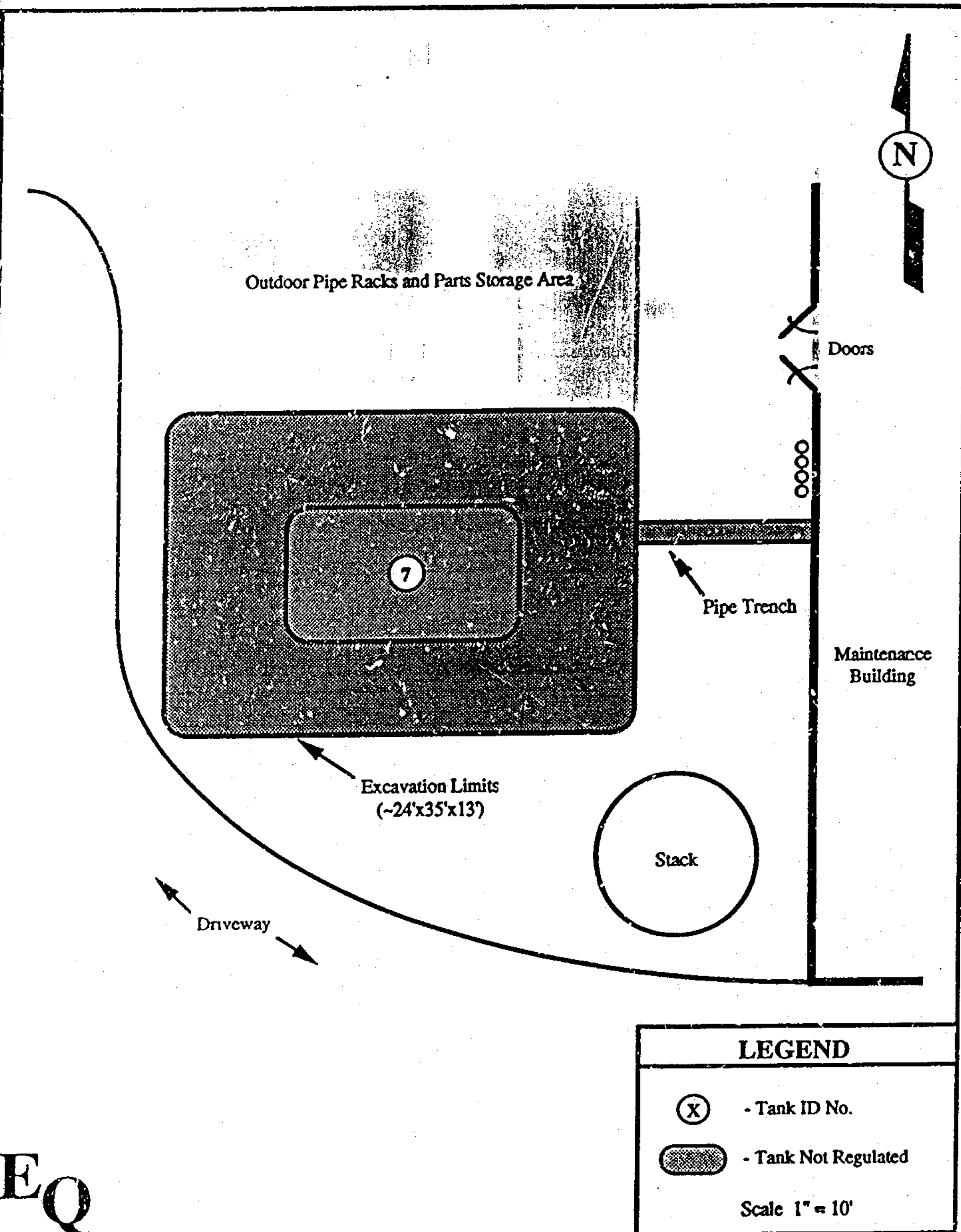
EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 4. Gasoline Tank ID and Layout

REVISION	NO.	DATE



DESIGN BY: T. Wey | CHECKED BY: C. Schick | APPROVED BY: J. Greber | Cinti., OH | DRAWING NO. ...03

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 5. Heating Oil Tank ID and Layout

REVISION	NO.	DATE

March 13, 14, & 15, 1991 - UST Nos. 1,2,4,5,6, and 7 uncovered and prepared for removal. Mr. Clark Stacks (BUSTR Inspector) and Mr. Dave Dryer (Anderson Township Fire Department) onsite.

- UST No. 1 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition with only minor pitting, scaling, and corrosion noted. Piping in good condition with tight fittings, minor pitting, and corrosion noted. No free product or water encountered in excavation zone. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No. 2 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition without pitting or corrosion due to stainless steel construction. No free product or water encountered in excavation zone. BUSTR Inspector (Mr. Bill Hoover filling in for Mr. Clark Stacks) onsite to observe removal of tank. Sampling locations previous agreed to between EQ and Mr. Stacks. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No.3 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition without pitting or corrosion due to stainless steel construction. No free product or water encountered in excavation zone. BUSTR Inspector observed excavation zone and directed soil sampling for headspace screening for total organic vapors using OVA-FID. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST Nos. 4 & 5 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition with only minor pitting, scaling, and corrosion noted. Piping in good condition with tight fittings, minor pitting, and corrosion noted. No free product or water encountered in excavation zone. Soil sampling for headspace screening for total organic vapors using OVA-FID conducted by EQ. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No. 6 removed, inspected, and no signs of real or apparent release. Vacuum product piping (~70 linear feet of 1.5" diameter steel pipe) removed from UST excavation to remote pump/dispenser located on loading dock. Strong odors and visibly contaminated soils found under pump pad. No free product or water encountered in excavation zone. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). BUSTR Inspector observed excavation zone (UST and pipe trench) and directed soil sampling for headspace screening for total organic vapors using OVA-FID. Spillage during filling operations at pump pad area believed to be principal source of residual petroleum constituents in soils. Soil removal in pump pad area not feasible due to proximity to building structure, foundation, and underground utilities (fire protection water main and potable water lines) directly below pad at depth of about three feet. See photographs in Attachment 3. See Figure 4 for location and layout of this UST.

• UST No. 7 removed, inspected, and holes (≤ 1/4" diameter) found in tank shell near top at west end. Piping joints and lines tight with minor pitting and corrosion noted. No free product or water encountered in excavation zone. No odors or visible contamination to soils in excavation noted. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). BUSTR Inspector observed excavation zone and agreed with soil sampling locations for subsequent headspace screening for total organic vapors using OVA-FID. See photographs in Attachment 3. See Figure 5 for location and layout of this UST.

All soils samples collected were screened by EQ for total organic vapors using OVA-FID. Results on soil vapor logs are contained in Attachment 4. The results of this vapor screening are discussed in Section 3 of this report.

Mssrs. Tom Wey (EQ) and Bob Chambers (Heekin) report apparent release from UST No. 6 and 7 to Ohio EPA Duty Officer, Mr. Mike Dalton, and BUSTR Duty Officer, Mr. Craig Smith, at ~1030 hour on March 15, 1991. BUSTR Inspector to include observations for UST Nos. 6 & 7 in his site report, will notify his office of apparent releases, and will advise Mr. Dryer (Anderson Township Fire Dept.) of apparent release from UST No. 7.

March 16 to 20, 1991 - Analytical results for soil samples received and reviewed by EQ and Heekin representatives. Decision made to begin backfilling and restoration activities.

March 21 to 23, 1991 - Excavations zones backfilled with excavated soils and clean fill from offsite source. Tanks remain onsite pending final cleanout and disposal. UST Nos. 6 & 7 to be cutup for scrap steel salvage. UST Nos 1,2,3, 4, and 5 to remain onsite for disposition by Heekin Can.

3.0 CLOSURE ASSESSMENT SAMPLING AND ANALYSIS

EQ inspected each excavation zone after the UST's were removed and then collected, from the regulated tank excavations, multiple soil samples from the walls and floors for field headspace screening as discussed later in this section. EQ conducted all sampling and analysis activities in strict accordance with BUSTR's requirements for UST closure assessments. The sampling locations for the regulated UST's (Nos. 2,3, and 6) and UST No. 7 (because holes were found in the tank sheil but note, no evidence of a release) were discussed and approved by BUSTR's Inspector, Mr. Clark Stacks. All soil samples from walls of the the excavation zones were collected halfway up each wall (approximately 5 to 6 feet below ground level). Soil samples from the floors were collected near the tank ends. Soil samples collected from the pipe trench for UST No. 6 were collected at 20 foot intervals from the pump pad to the UST excavation and each sample point coincided with pipe joints. The soil sample from the beneath the pump pad was collected from a depth of 6 feet below ground level using a stainless steel split spoon sampler driven by hand.

Each soil sample was then screened for total organic vapors using a Century Model 128 OVA-FID. The results of the soil vapor screening, as contained in Attachment 4, were then used to select soils samples to be submitted to an offsite laboratory for quantitative analysis. Total organic vapors in all soils sampled, except for the sample from the pump pad area, were found to be at or equal to background readings or within the drift limits for the OVA-FID.

Table 2 presents a summary of the analytes and analytical methods that were requested by EQ for soils selected for laboratory analysis to comply with the closure assessment requirements.

TABLE 2. Summary of Analytical Requirements

UST ID Nos.	Analytes	EPA Method
1	None †	NA
2	Xylenes ††	8020
3	Xylenes ††	8020
4	None †	NA
5	None †	NA
6	TPH & BTEX	418.1 & 8020
7	TPH & BTEX †††	418.1 & 8020

Footnotes:
† UST not regulated (see letter in Attachment 1).
†† Xylenes only hazardous constituent present in product (see letter in Attachment 1).
††† TPH & BTEX because hole found in tank shell.

RE: 6122 E 6129
Pg 1 of 3

Petroleum Underground Storage Tank Release Compensation Board

P.O. Box 2040, Columbus, Ohio 43216
Phone: (614) 752-8963 Fax: (614) 752-8397

F. William Englefield, III, Chairman
Richard C. Murray, Executive Director

Aug - 20, 1992

4929

HEEKIN CAN INC. RECEIVED AUG 24 1992 GENERAL ENGINEERING

HEEKIN CAN INC./ROBERT OHAMBE
11310 CORNELL PK DR
BLUE ASH , OH 45242

Dear UST owner/operator:

We sincerely appreciate your cooperation and assistance in helping us conclude that all USTs under your ownership have been removed and properly closed.

We are closing your file. Let us know if you require an application for Eligibility. You have one year from the reporting of a suspected or confirmed release to file an Application with the Board.

Let us know if we may assist you.

Sincerely,

Richard C. Murray,
Richard C. Murray,
Executive Director

THIS IS FOR
8200 BROADWELL
PLANTS 2 & 9
/RAC

8/24/92

c TLW
ERJ
SCM

KIRKLAND & ELLIS

Fax Transmittal

655 Fifteenth Street, N.W.
Washington, D.C. 20005-5793
Phone: (202) 879-5000
Fax: (202) 879-5200

Please notify us immediately if any pages are not received

To:	Dave Maglietta	***From:***	Walter H. Lohmann, Jr.
Company:	EMG Corp. Center	***Fax #:***	(202) 879-5200
Fax #:	(410) 785-6220	***Direct #:***	(202) 879-5923
Direct #:	(410) 785-6200	***Date:***	June 4, 1999
Pages:	50 pages including cover sheet		

Message: Enclosed please find documents gathered by Milton Can Company in response to questions previously posed by EMG with respect to the Milton Cincinnati facility property. The package consists of:

1. Payne Firm closure report and approval letter for 2 170 gallon vaulted tanks removed from beneath the facility floor in 1998 (8 pages);

2. Results of Heritage Environmental confirmatory sampling undertaken after 1995 drum pad remediation (2 pages);

3. Results of 1990-1995 soil and groundwater analyses and water level measurements for spray field (39 pages).

By way of further information, I am informed by Milton that pretreated wastewaters from the two-piece can production operation were probably discharged to an offsite surface water body in the vicinity of the offsite gravel pit, pursuant to state authorization, between roughly 1973 and 1985. Milton believes that chrome-containing compounds were probably used in plant processes only for the first two or three years of this period and that such wastewaters were always pretreated for metals removal prior to discharge. Milton's best sense based upon interviews with plant personnel is that sludges from such pretreatment were never disposed of into the north gravel pit. Commencing in roughly 1985, wastewater was discharged to the current spray field system with groundwater monitoring in place.

Please feel free to call with any questions.

ANDERSON TOWNSHIP

Fire and Rescue Department

Administration
6211 Salem Road
Anderson Township, Ohio 45230

Chief of Department
Dan Esslinger

Training Division
Assistant Chief Mark Ober

Operations Division
Assistant Chief Tom Riemar

Life Safety Division
Assistant Chief Craig A. Best

February 10, 1999

Milton Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244

Attn: Mr. Randy Stapp

Dear Randy,

I would like to confirm that I have received the report from the Payne Firm, Inc. in reference to Project No. 0654.06.03 (removal of Non-Bustr. Tanks).

The report has been accepted by the Anderson Township Fire-Rescue Department as mitigated by the Milton Can Company and "The Payne Firm, Inc.. A copy of this report will be kept in the tank removal files of the Life Safety Division (ATFR) for future reference.

Thank you for the updates and information that you provided during this process.

Sincerely,

Craig A. Best

Craig A. Best
Assistant Chief
Life Safety Division

Station 6
7954 Beechmont Avenue
Anderson Twp., Ohio 45255

Station 10
6211 Salem Road
Anderson Twp., Ohio 45230

Station 100
8330 Broadwell Road
Anderson Twp., Ohio 45244

Station 101
6880 Hunley Road
Anderson Twp., Ohio 45244

The Payne Firm, Inc.
Environmental Consultants

11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

February 5, 1999

Milton Can Company
8200 Broadwell Road
Cincinnati, Ohio 45244

Attention: Mr. Randall W. Stapp
Manager, Environmental and Safety

Reference: Process Tank Removal
Milton Can Company
Broadwell Road Facility
Project No. 0654.06.03

Dear Mr. Stapp:

This letter summarizes the removal activities of two underground process tanks conducted at the above-referenced facility. The Milton Can Company (Milton Can) retained The Payne Firm, Inc. (Payne Firm) to conduct the coordination, oversight, and reporting of the removal activities. The results of field observations recorded during the activities are provided below. The property location is shown in Figure 1.

BACKGROUND

Two flow-through process tanks of 170-gallon capacity each were used in the Compound Pump Room of the Milton Can facility from the late 1950s to the mid-1990s. The Compound Pump Room is concrete block construction covering approximately 400 square feet of area. The tanks were cylindrical in shape and staged in an upright position. Each tank could be accessed through an open top lid that could be locked down in the closed position if needed. Each tank also contained a mixing rod powered by an electric motor that was positioned on top of each tank.

The process tanks served as an introduction and mixing point for the bulk compounds used in the compound dispensing system. The compounds mixed included Darex Disp Solvent 4 and Darex SLC 9385E-57. The main constituents of these compounds were identified as heptane isomers with minor amounts of hexane isomers, alcohol, resins, fillers, pigments and other modifiers. This information was listed on the plant Material Safety Data Sheets.

The tanks were situated in a poured concrete vault with a concrete bottom. The dimensions of the vault were measured to be six feet long by four feet wide and seven feet deep. The tanks were situated in the vault on angle iron legs that extended to the bottom of the cavity and anchored to the floor. The top one-foot of each tank extended above the concrete floor. Gravel was poured around the tanks from the bottom of the vault to just below grade and then concrete was poured around the tanks level to the existing floor slab grade (Figure 2). Therefore, the tops of the tanks were situated such that the top one-foot of each tank was exposed above grade (approximately one foot above the concrete floor). The floor material adjacent to the north side of the tanks was constructed of wood. The wood floor was approximately one foot wide between the concrete vault and the Compound Pump Room wall.

The two process tanks are not regulated underground storage tanks under the Ohio State Fire Marshal's Bureau of Underground Storage Tank Regulations (BUSTR) because of the following:

Under BUSTR regulations, the process tanks were defined as ***flow-through process tanks***. This type of tank is not regulated by BUSTR, according to OAC 1302:7-9-02(B)(52)(f). According to OAC 1301:7-9-01(B)(16), a flow through process tank is: "A tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process, or for the storage of finished process or by-products from the production process."

Additionally, the Anderson Township Fire Department Inspector (AFI) was contacted prior to the removal activities. Milton Can was informed by the Anderson Township Fire Department that since the tanks were not regulated underground storage tanks under BUSTR due to their use as flow-through process tanks, no permit was needed to conduct the removal; however, a permit was provided for documentation purposes and they requested a report summarizing the removal activities be presented to them. A copy of the permit is attached with this letter. It is our understanding that Milton Can will receive a letter of acceptance from the Anderson Township Fire Department.

REMOVAL ACTIVITIES

All liquid compound was removed from the dispensing system and tanks prior to the removal activities. Residual compounds had remained at the bottom of the tanks that solidified into a semi-liquid and hardened form. The Payne Firm subcontracted Alpha Ram of Cincinnati, Ohio to conduct the removal activities. All personnel conducting the removal and oversight of the project have completed OSHA 40 hour Health and Safety Training Course with annual 8 hour refresher updates. A site specific Health & Safety Plan dated October 20, 1998 was prepared by the Payne Firm and reviewed by all contractors prior to conducting all on site activities.

Removal activities began on October 20, 1998. Mr. Chip Tokar, a representative of the Payne Firm was on site during all activities to conduct ambient air monitoring for oxygen content, lower explosive limit (LEL) and volatile organic vapors. The oxygen and LEL readings were recorded using an Industrial Scientific TMX 412 Multi-Gas meter calibrated each day prior to use. Organic vapor readings were collected using a Foxboro TVA-1000 total vapor analyzer. Readings for each parameter were recorded on approximately an hourly basis from the breathing air space when work was being conducted in the compound room. The specific action levels and other Health & Safety guidelines are presented in the Health & Safety Plan prepared by the Payne Firm for this specific project. Action levels for each parameter monitored were not exceeded during the project.

Alpha-Ram, Inc. (Alpha-Ram) of Cincinnati, began removal of the tanks by using an air hammer to remove the concrete floor on top of the vault and around the tanks. Once the concrete surface had been removed, it was observed that the gravel in the vault was pebble to cobble size which did not permit the collection of confirmatory samples. Some residual hardened compound in the gravel was noted along the north end of the tanks at the surface where no concrete cap was present. The affected gravel was easily recognized because it had been cemented together by the hardened compound. No liquid compound staining was observed at any time curing the removal activities. The gravel that was observed to be clean (no visual compound observed) was removed from the vault and staged on 4 mil plastic next to the vault. Any gravel observed to be affected by the compound was contained in a 55-gallon drum and staged for proper disposal by Milton Can.

Clean gravel was removed from around the tanks in the vault to a depth of three feet. The bottoms of the tanks were reached at this depth and it was noted that each tank was attached to four legs of angle-iron construction. It was anticipated that the legs were fastened to the concrete floor of the vault. In order to remove the tanks in a practical manner, each tank was cut from the angle-iron legs and removed from the vault on October 27, 1998. The tanks were staged outside of the Milton Can facility and will be cleaned and cut. The residual material in the tanks will be disposed of in a proper manner by Milton Can. The tanks will be taken off site by a scrap metal vendor.

After the tanks were removed, a limited amount of the hardened product was observed along the north wall of the vault. This material was removed from the vault and placed in 55-gallon drums. A total of three 55-gallon drums were filled with the hardened material and gravel matrix. The three drums were labeled and staged on site by Milton Can for proper disposal. Due to the nature of the backfill material (gravel) and the fact that no liquids were observed in the vault (only hardened compound) no closure samples could be collected for laboratory analysis. Therefore, the closure was completed based upon visual observation and removal of all the hardened compound from the vault. After removal of the residual hardened compound, gravel was cleared away from the bottom of the vault. A concrete floor was observed at a depth of seven feet below the ground surface. After confirming that no residual compound remained in the vault and that the bottom was constructed of concrete, the vault was backfilled with the clean gravel that had been previously removed from around the process tanks. It is our understanding that the intention of Milton Can is to fill the vault to grade with additional clean gravel and a load-bearing concrete floor will be installed over the concrete vault.

CLOSING

Two 170-gallon process tanks were removed from the compound mixing room at the Milton Can facility in Anderson Township, Ohio. Limited residual amounts of the hardened compound that were mixed with the gravel backfill material were observed along the north wall of the concrete vault to a depth of approximately four feet. No holes or cracks were observed in the tanks themselves. This residual contamination likely originated from an unknown amount of minor overfills that may have occurred over a period of thirty years. The compounds appeared to have entered the vault through the wood-constructed part of the floor located at the north end of the tanks. Since the compound material hardened when exposed to air, no liquids were observed to have migrated to the bottom of the vault. The vault that contained the tanks was constructed of concrete and was observed to have a concrete bottom. Therefore, it is unlikely that residual contamination from any spills or overfills of the compound has migrated into the subsurface. The residual contamination was removed from the north wall of the vault and placed in 55-gallon drums for proper disposal by Milton Can. No closure samples could be collected due to the nature of the backfill material and the lack of a sampling media (i.e., soil or groundwater). After visual confirmation determined the residual contamination had been removed, the vault was backfilled with clean gravel and prepared to be capped with concrete.

Mr. Randall W. Stapp
Milton Can Company
Project No. 0654.06.01
February 5, 1999
Page 4

We trust this letter report clearly summarized the closure activities associated with the two compound process tanks. Please contact the undersigned with any questions.

Sincerely,

The Payne Firm, Inc.

Chip Tokar

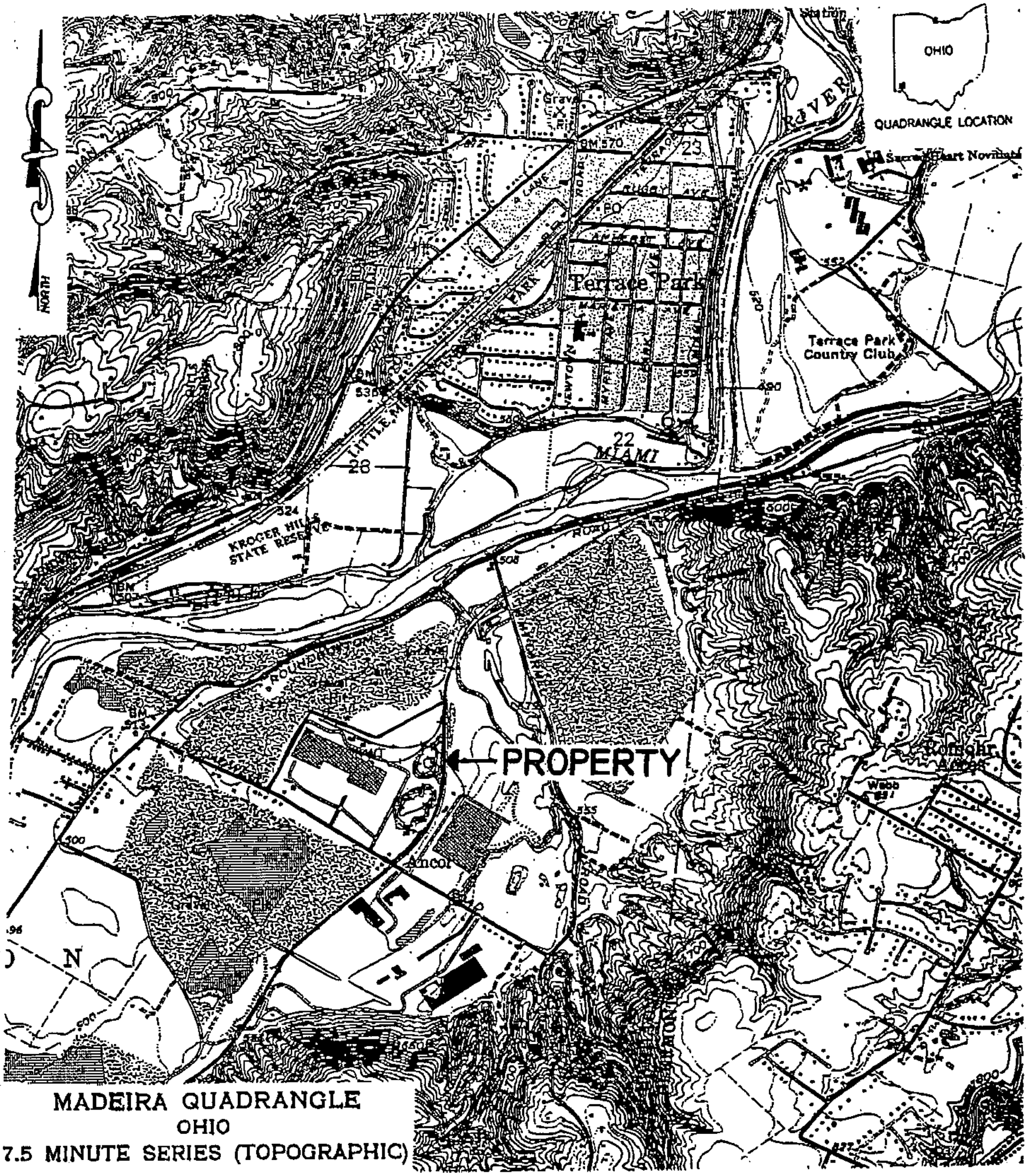
Frank "Chip" J. Tokar, Jr., C.P.G.
Geologist

Daniel Weed

Daniel D. Weed, C.P.G.
Project Manager

FJT:DDW:eml

Attachments: Figure 1
Figure 2
Removal of Combustible Substance Permit #98-048

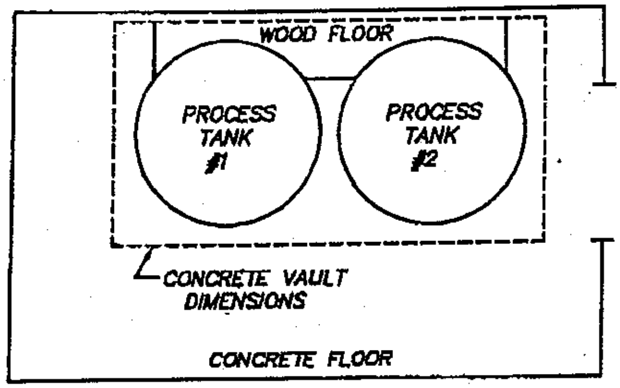


MADEIRA QUADRANGLE
OHIO
7.5 MINUTE SERIES (TOPOGRAPHIC)

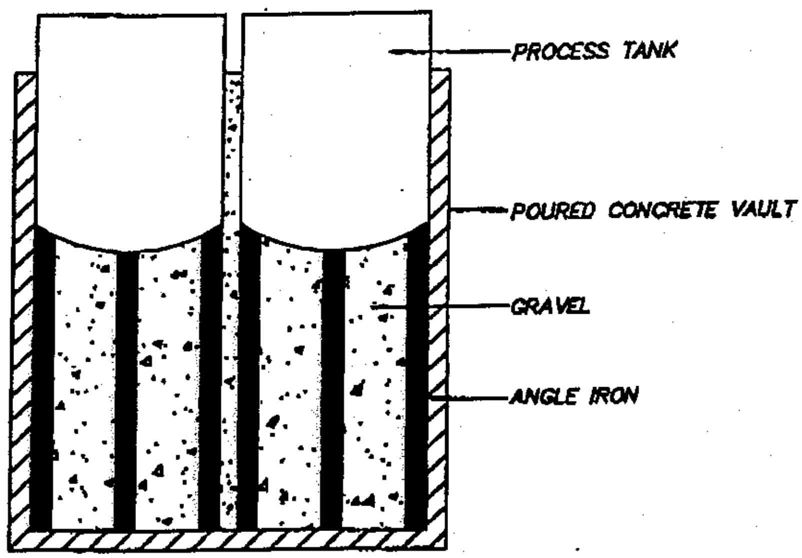
DRAWN BY	APPROVED BY	PROJECT NO.	DATE	FIGURE
MRD	CJT	0654.06	01/15/99	1

CLIENT	TITLE
MILTON CAN COMPANY	PROPERTY LOCATION

The Payne Firm, Inc.
Environmental Consultants
Cincinnati, Ohio 45242



COMPOUND PUMP ROOM
(PLAN VIEW)



CONCRETE VAULT
(CROSS SECTION)

FIGURE NOT TO SCALE

N BY MRD	APPROVED BY CJT	PROJECT NO. 0654.06	DATE 01/15/99	FIGURE 2

T MILTON CAN COMPANY

The Payne Firm, Inc.
Environmental Consultants
Cincinnati, Ohio 45242

TITLE
COMPOUND PUMP ROOM DETAIL

JUN-04-1999 14:21 MILTON CAN COMPANY

Anders Township Fire and Rescue partment

Life Safety Division
6211 Salem Rd.
Cincinnati, Ohio 45230
(513) 474-5562

ition Date	Date Issued	Expiration Date	Permit Number
10/16/98	10/17/98	11/3/98	98-048

it	Address	Phone Number
Milton Can Company	8200 Broadwell Road	388-2000

'E NAMED INDIVIDUAL / BUSINESS HEREBY MAKES APPLICATION TO CONDUCT THE FOLLOWING
: AT: Milton Can Company

IAPTER 32 OF THE SOUTHWEST F.S.C. UNIFIED FIRE CODE FOR:

Removal of Comb. Substance

DANCE WITH SECTION 107.0 (PERMITS) AND SECTION(S)
OUTHWEST OHIO FIRE SAFETY COUNCIL UNIFIED FIRE CODE: CL F-3201.2

y Fire Official	Date	Fee
Craig A. Best	October 17, 1998	$25.00

A THIS PERMIT MUST BE POSTED ON THE ABOVE MENTIONED PREMISIS

Rev 10/96

0654.0603

RECEIVED
JAN 2 9
The Payne Firm, Inc.

RECEIVED SEP 0 1 1995

DATA CHEM LABORATORIES

8/31/95

Submitted To: Tony Ashcraft
Heritage Environmental Services
2 Rowe Court
Hamilton, OH
45015

Reference Data:

Sample Location:	Ball Container Corporation
Sample Type:	Bulk
Client Sample No.:	1; 2; 3; 4
PO #:	T-277
Method Reference:	8260 TCLP
Sample Set ID#:	95-M-4084
DATACHEM Lab No.:	95-23424 through 95-23427
Analysis Date:	8-30-95

These samples were analyzed for TCLP volatile organic compounds according to EPA method 8260 with modifications(SW-846; third edition; September 1994; U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response).

Analysis was performed on a Hewlett-Packard GC/MS. Tuning of the system was performed by analyzing 50ng of bromofluorobenzene(BFB) and meeting the tuning criteria prescribed in the method. All SPCC and CCC quality control criteria for the initial calibration curve and continuing daily curve were met prior to sample analysis.

The results for the 8260 analysis are reported in µg/L for TCLP Leachate (PPB).

DataChem will maintain a complete record of your data on magnetic tape including total ion chromatograms, mass spectra and verification of compliance with EPA tuning and calibration for 1 year.

Dixie Yockey

Dixie Yockey

SALT LAKE CITY OFFICE
SALT LAKE CITY, UTAH 84123-2547
FAX 801 268-9992

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

BALTIMORE OFFICE
BALTIMORE, MARYLAND

RICHLAND OFFICE

Data Table (PPB)

Client #	1	2	3	4	%Recovery		
DCL #	95-23424	95-23425	95-23426	95-23427	95-23427MS	Blank	PQL
Vinyl Chloride	ND	ND	ND	ND	106	ND	10
1,1-Dichloroethylene	ND	ND	ND	ND	144	ND	10
Chloroform	ND	ND	ND	ND	130	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	118	ND	10
Methyl Ethyl Ketone	9 U	6 U	6 U	8 U	74	ND	10
Carbon Tetrachloride	ND	ND	ND	ND	129	ND	10
Trichloroethylene	ND	ND	ND	ND	104	ND	10
Benzene	ND	ND	ND	ND	115	ND	10
Tetrachloroethylene	ND	ND	ND	ND	107	ND	5
Chlorobenzene	ND	ND	ND	ND	95	ND	5
1,4-Dichlorobenzene	ND	ND	ND	ND	87	ND	5

ND indicates not detected in the sample. U indicates detected below the PQL. NS indicates compound not spiked.

Surrogate Recovery

Dibromofluoromethane	117	117	115	100	116	96	86-118
Toluene-D8	97	94	96	99	97	100	88-110
Bromofluorobenzene	99	91	94	98	87	105	86-115

Dixie Yockey

Dixie Yockey
Analyst

Mark Johnson

Reviewer

Heekin Can, Inc.
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244
513-388-2200

December 5, 1990

Mr. David Okerbloom
Ohio EPA
40 South Main St.
Dayton, OH 45402-2086

Dear Mr. Okerbloom:

Enclosed are the test results of the soil samples, the three ground water monitoring wells and the water levels in each well.

The water levels are referenced to the top of the inner casing. The elevations of the inner casings are as follows:

Well 1 - 547.2 ft.
Well 2 - 548.5 ft.
Well 3 - 562.5 ft.

Therefore, the ground water elevations are as follows:

Well 1 - 496.6 ft.
Well 2 - 495.9 ft.
Well 3 - 495.0 ft.

These results confirm that Well 1 is, in fact, the upgradient well.

If you have any questions or require additional information, please contact me.

Very truly yours,

D. L. Reusch
Environmental Affairs Coordinator
(513) 388-2203

DLR/nf

C: P. J. Schworer-D&S
R. A. Chambers

Enc.

Page 1
Received: 10/17/90

EEI

REPORT
10/30/90 12:53:33

Work Order # 90-10-158

REPORT TO HEEKIN CAN
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244

ATTEN DAVE REUSCH

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

PREPARED BY Environmental Enterprises
10147 Springfield Pike
Cincinnati, Ohio 45215

CERTIFIED BY

ATTEN Wayne Collier
PHONE (513) 772-2818

CONTACT DEBBE

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4095

WORK ID SOIL COMPS. & WELLS, SAMPLING
TAKEN EEI-T. ROBERTS & J. HATFIELD
TRANS DELIVERED
TYPE SOILS & LIQUIDS
P.O. # A30101
INVOICE under separate cover

SAMPLE IDENTIFICATION

01	WELL 1
02	WELL 2
03	WELL 3
04	SOIL 6" COMP
05	SOIL 36" COMP

TEST CODES and NAMES used on this report

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUM (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO3	NITRATE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PHOS	PHOSPHORUS
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

Received: 10/17/90

EEI

REPOF

Work Order # 90-10-168

Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG mg/l				<0.4 mg/kg	<0.4 mg/kg
AS mg/l				<1 mg/kg	<1 mg/kg
BA mg/l				34.1 mg/kg	20.3 mg/kg
CD mg/l				<0.4 mg/kg	<0.4 mg/kg
CLI %	44.2	46.0	32.9		
COD mg/l	36.0	63.8	36.0		
COND umhos/cm	776	761	606		
CR mg/l				6.99 mg/kg	5.35 mg/kg
F mg/l	<0.3	<0.3	0.448		
HARD mg/l CaCO3	366	320	602		
HG mg/l				#0.051 mg/kg	0.016 mg/kg
NO3 mg/l	3.35	1.69	0.720		
PB mg/l				6.58 mg/kg	4.14 mg/kg
PH s.u.				7.2	7.4
PHOS mg/l				30 mg/kg	54 mg/kg
PO4 mg/l	<0.15	0.164	<0.15		
SE mg/l				<1 mg/kg	<1 mg/kg
SO4 mg/l	59.4	67.9	66.0		
TKN mg/l				0.088 %	0.050 %

HEEKIN CAN

WATER LEVEL DETERMINATIONS:

WELL	TOP OF INNER CASING TO WATER SURFACE	TOTAL DEPTH OF WELL	DATE	TIME
1	50' 7"	61' 8"	10/16/90	12:47 PM
2	52' 7"	66'	10/16/90	12:15 PM
3	67' 6"	79' 8"	10/16/90	11:18 AM

SAMPLES TAKEN ON 10/17/90 WELL 1 @ 11:20 AM
WELL 2 @ 11:10 AM
WELL 3 @ 11:00 AM

CATION EXCHANGE CAPACITY RESULTS (CEC):

SOIL 6" COMP – CEC = 12
% HYDROGEN = 0
% POTASSIUM = 2
% CALCIUM = 86
% MAGNESIUM = 11
% SODIUM = 1

SOIL 36" COMP – CEC = 15
% HYDROGEN = 0
% POTASSIUM = 1
% CALCIUM = 88
% MAGNESIUM = 9
% SODIUM = 2

PORT-HEEKIN CAN
TO 8200 BROADWELL RD.
CINCINNATI, OHIO 45244

ATTEN DAVE REUSCH

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

PREPARED Environmental Enterprises
BY 1014)ringfield Pike
Cincinnati, Ohio 45215

CERTIFIED BY

ATTEN Wayne Collier
PHONE (513) 772-2818

CONTACT DEBBE

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.

OHIO EPA CERTIFICATION: CHEMICAL 4095

WORK ID SOIL COMPS. & WELLS, SAMPLING
TAKEN EEI-T. ROBERTS & J. HATFIELD
TRANS DELIVERED
TYPE SOILS & LIQUIDS
P.O. # A30101
INVOICE under separate cover

SAMPLE IDENTIFICATION

01	WELL 1
02	WELL 2
03	WELL 3
04	SOIL 6" COMP
05	SOIL 36" COMP

TEST CODES and NAMES used on this workorder

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUM (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO3	NITRATE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PHOS	PHOSPHORUS
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

T CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG				0.275	0.329
mg/l				mg/kg	mg/kg
AS				<0.05	<0.05
mg/l				mg/kg	mg/kg
BA				36.4	30.0
mg/l				mg/kg	mg/kg
CD				0.259	0.354
mg/l				mg/kg	mg/kg
CLI	41.7	40.4	19.4		
%	mg/l	mg/l	mg/l		
COD	26.4	35.2	70.4		
mg/l					
COND	731	760	540		
umhos/cm					
CR				0.32	0.59
mg/l				mg/kg	mg/kg
F	<0.3	<0.3	0.455		
mg/l					
HARD	360	420	650		
mg/l CaCO3				0.012	<0.01
HG				mg/kg	mg/kg
mg/l					
NO3	3.20	1.00	0.40		
mg/l				7.02	5.22
PB				mg/kg	mg/kg
mg/l				7.4	7.92
PH					
s.u.				37	44
PHOS				mg/kg	mg/kg
mg/l					
PO4	<0.15	<0.15	<0.15		
mg/l				<0.05	<0.05
SE				mg/kg	mg/kg
mg/l					
SO4	60.2	70.0	63.6		
mg/l				0.058	0.031
TKN				%	%
mg/l					

ΛIN CAN

WATER LEVEL DETERMINATION:

WELL	TOP OF INNER CASING TO WATER SURFACE	TOTAL DEPTH OF WELL	DATE	TIME
1	50' 3"	62'	1/15/91	2:06 PM
2	52' 7"	65' 7"	1/15/91	2:15 PM
3	66', 6"	80' 5"	1/15/91	2:30 PM

SAMPLES TAKEN ON 1/15/91 WELL 1 @ 2:06 PM
WELL 2 @ 2:15 PM
WELL 3 @ 2:30 PM

CATION EXCHANGE CAPACITY RESULTS (CEC):

*SOIL 6" COMP – CEC = 13
% HYDROGEN = 0%
% POTASSIUM = 2%
% CALCIUM = 88%
% MAGNESIUM = 9%
% SODIUM = 1%

*SOIL 36" COMP – CEC = 15%
% HYDROGEN = 0%
% POTASSIUM = 1%
% CALCIUM = 88%
% MAGNESIUM = 9%
% SODIUM = 1%

SAMPLES TAKEN ON 1/15/91 SOIL 6" COMP @ 10:30 AM–12:30 PM
SOIL 36" COMP @ 10:30 AM–12:30 PM

*8 SAMPLES TAKEN AT DIFFERENT LOCATIONS ALL AT 6" OR 36" DEPTHS AND THEN COMPOSITED ACCORDING TO DEPTHS.

REPORT HEEKIN CAN
3200 BROADWELL RD.
CINCINNATI, OHIO 45244

ATTEN DAVE REUSCH

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

PREPARED BY Environmental Enterprises
10147 Spr field Pike
Cincinnati, Ohio 45215

CERTIFIED BY

ATTEN Wayne Collier
PHONE (513) 772-2818

CONTACT DEBBE

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.

OHIO EPA CERTIFICATION: CHEMICAL 4095

WORK ID 7/25/91 WELLS & SOIL SAMPLING
TAKEN EEI-T. ROBERTS & J. HATFIELD
TRANS DELIVERED
TYPE LIQUIDS & SOILS
P.O. # A30101
INVOICE under separate cover

SAMPLE IDENTIFICATION

01	WELL 1
02	WELL 2
03	WELL 3
04	SOIL 6" COMP
05	SOIL 36" COMP

TEST CODES and NAMES used on this workorder

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUM (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO2	NITRITE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PHOS	PHOSPHORUS
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

TEST C' default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG mg/l				<0.4 mg/kg	<0.4 mg/kg
AS mg/l				0.990 mg/kg	1.95 mg/kg
BA mg/l				59.2 mg/kg	34.0 mg/kg
CD mg/l				<0.4 mg/kg	<0.4 mg/kg
CLI mg/l	43.7	112	130		
COD mg/l	88.0	12.0	436		
COND umhos/cm	730	719	566		
CR mg/l				10.7 mg/kg	7.63 mg/kg
F mg/l	<0.3	<0.3	<0.3		
HARD mg/l CaCO3	420	420	425		
HG mg/l				0.045 mg/kg	0.040 mg/kg
NO2 mg/l	0.011	0.011	0.034		
PB mg/l				12.4 mg/kg	8.78 mg/kg
PH s.u.				6.92	7.03
PHOS mg/l				33 mg/kg	39 mg/kg
PO4 mg/l	<0.15	<0.15	<0.15		
SE mg/l				<0.2 mg/kg	<0.2 mg/kg
SO4 mg/l	83.6	71.2	73.7		
TKN mg/l				751 mg/kg	409 mg/kg

MEEKIN C

WATER LEVEL DETERMINATION:

WELL	TOP OF INNER CASING TO WATER SURFACE	TOTAL DEPTH OF WELL	DATE	TIME
1	49'	62'	7/25/91	8:30 AM
2	52' 6"	65'	7/25/91	10:40 AM
3	66'	79' 6"	7/25/91	11:30 AM

SAMPLES TAKEN ON 7/25/91 WELL 1 @ 8:30 AM
WELL 2 @ 10:40 AM
WELL 3 @ 11:30 AM

CATION EXCHANGE CAPACITY RESULTS (CEC):

*SOIL 6" COMP - CEC = 20 meq/100 ml

*SOIL 36" COMP - CEC = 16 meq/100 ml

SAMPLES TAKEN ON 7/25/91 SOIL 6" COMP @ 7:00 AM - 11:00 AM
SOIL 36" COMP @ 7:00 AM - 11:00 AM

*8 SAMPLES TAKEN AT DIFFERENT LOCATIONS ALL AT 6" OR 36" DEPTHS AND THEN COMPOSITED ACCORDING TO DEPTHS.

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

04A	DIGS
05A	DIGS

Received: ~1/28/92 02/20/92 09:30:24

REPORT TO	HEEKIN CAN 8200 BROADWELL RD. CINCINNATI, OHIO 45244	PREPARED BY	Environmenta. cnterprises 10147 Springfield Pike Cincinnati, Ohio 45215
ATTEN	DAVE REUSCH	ATTEN	Wayne Collier
		PHONE	(513) 772-2818

CERTIFIED BY

CONTACT DEBBE

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.

OHIO EPA CERTIFICATION: CHEMICAL 4095

WORK ID 1/28/92 WELLS & SOIL SAMPLING
TAKEN EEI-T. ROBERTS/M. REDDINGTON
TRANS DELIVERED
TYPE LIQUIDS & SOILS
P.O. # A30101
INV. # 2112

Duplicate of report of 02/17/92.

SAMPLE IDENTIFICATION

01	WELL 1
02	WELL 2
03	WELL 3
04	SOIL 6" COMP
05	SOIL 36" COMP

TEST CODES and NAMES used on this workorder

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUM (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO3	NITRATE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PHOS	PHOSPHORUS
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

Received: '28/92

Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG mg/l				<0.4 mg/kg	<0.4 mg/kg
AS mg/l				8.48 mg/kg	6.20 mg/kg
BA mg/l				49.2 mg/kg	34.0 mg/kg
CD mg/l				0.409 mg/kg	<0.4 mg/kg
CLI mg/l	45.8	44.3	26.5		
COD mg/l	13.4	13.4	24.3		
COND umhos/cm	700	728	596		
CR mg/l				13.5 mg/kg	10.1 mg/kg
F mg/l	<0.3	<0.3	<0.3		
HARD mg/l CaCO3	330	314	404		
HG mg/l				0.016 mg/kg	0.025 mg/kg
NO3 mg/l	1.75				
PB mg/l				10.8 mg/kg	7.55 mg/kg
PH s.u.				7.49	7.52
PHOS mg/l				20.7	<5.00
PO4 mg/l	0.354	0.354	0.569		
SE mg/l				10.3 mg/kg	7.55 mg/kg
SO4 mg/l	72.1	63.5	46.7		
TKN mg/l				434	328

HEEKIN CAN

WATER LEVEL DETERMINATION:

WELL	TOP OF INNER CASING TO WATER SURFACE	TOTAL DEPTH OF WELL	DATE	TIME
1	51' 4"	61' 9"	1/28/92	11:38A,2:00P
2	53' 6"	64' 6"	1/28/92	12:20,1:40P
			1/29/92	12:35P
3	61' 6"	79' 6"	1/28/92	12:05,1:55P
			1/29/92	12:05P

SAMPLES TAKEN ON 1/28/92 WELL 1 @ 2:00 PM
1/29/92 WELL 2 @ 12:35 PM
1/29/92 WELL 3 @ 12:05 PM

CATION EXCHANGE CAPACITY RESULTS (CEC):

*SOIL 6" COMP - CEC = 11.40 meq/100 ml

*SOIL 36" COMP - CEC = 17.09 meq/100 ml

SAMPLES TAKEN ON 1/28/92 SOIL 6" COMP @ 11:30 AM
SOIL 36" COMP @ 11:30 AM

*8 SAMPLES TAKEN AT DIFFERENT LOCATIONS ALL AT 6" OR 36" DEPTHS AND THEN COMPOSITED ACCORDING TO DEPTHS.

REPORT HEEKIN CAN
TO 8200 BROADWELL RD.
CINCINNATI, OHIO 45244

ATTEN DAVE REUSCH

PREPARED Environmental Enterprises
BY 10163 Cincinnati-Dayton Rd.
Cincinnati, Ohio 45241

ATTEN Wayne Collier
PHONE (513) 772-2818

CERTIFIED BY

CONTACT DEBBE

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.

OHIO EPA CERTIFICATION: CHEMICAL 4095

WORK ID 7/23/92 WELLS & SOIL SAMPLING
TAKEN EEI-T. ROBERTS/M. REDDINGTON
TRANS DELIVERED
TYPE LIQUIDS & SOILS
P.O. # A30101
INVOICE under separate cover

SAMPLE IDENTIFICATION

01	WELL 1
02	WELL 2
03	WELL 3
04	SOIL 6" COMP
05	SOIL 36" COMP

TEST CODES and NAMES used on this workorder

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUN (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO3	NITRATE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PHOS	PHOSPHORUS
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

Received: /23/92

MEEKIN CAN

WATER LEVEL DETERMINATION:

WELL	TOP OF INNER CASING TO WATER SURFACE	TOTAL DEPTH OF WELL	DATE	TIME
1	10' 6"	66'	7/23/92	10:30A,1:14P
2	11'	65'	7/23/92	10:50A,1:30P
3	11' 6"	79' 6"	7/23/92	11:15A,1:42P

SAMPLES TAKEN ON 7/23/92 WELL 1 @ 1:14 PM
7/23/92 WELL 2 @ 1:30 PM
7/23/92 WELL 3 @ 1:42 PM

CATION EXCHANGE CAPACITY RESULTS (CEC):

*SOIL 6" COMP - CEC = 22 meq/100 ml

*SOIL 36" COMP - CEC = 20 meq/100 ml

SAMPLES TAKEN ON 7/23/92 SOIL 6" COMP @ 10:00 AM - 1:30 PM
SOIL 36" COMP @ 10:00 AM - 1:30 PM

*8 SAMPLES TAKEN AT DIFFERENT LOCATIONS ALL AT 6" OR 36" DEPTHS AND THEN COMPOSITED ACCORDING TO DEPTHS.

Receive 07/23/92

ECI

Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG mg/l				<0.4 mg/kg	<0.4 mg/kg
AS mg/l				6.88 mg/kg	5.20 mg/kg
BA mg/l				59.8 mg/kg	67.6 mg/kg
CD mg/l				0.643 mg/kg	0.500 mg/kg
CLI mg/l	28.8	20.5	15.8		
COD mg/l	88.6	15.8	85.6		
COND umhos/cm	663	709	560		
CR mg/l				14.9 mg/kg	17.2 mg/kg
F mg/l	<0.3	<0.3	0.317		
HARD mg/l CaCO3	286	272	290		
HG mg/l				0.054 mg/kg	0.096 mg/kg
NO3 mg/l	2.1	1.15	0.42		
PB mg/l				12.7 mg/kg	13.4 mg/kg
PH s.u.				7.32	7.07
PHOS mg/l				192	97.8
PO4 mg/l	0.300	<0.15	<0.15		
SE mg/l				<1 mg/kg	<1 mg/kg
SO4 mg/l	80.6	52.0	26.3		
TKN mg/l				76.7	49.8

Page 1 EEI REPORT

Received: 01/19/93 01/29/93 09:36:

REPORT HEEKIN CAN
TO 8200 BROADWELL RD.
CINCINNATI, OHIO 45244

PREPARED Environmental Enterprises
BY 10163 Cincinnati-Dayton Rd.
Cincinnati, Ohio 45241

CERTIFIED BY

ATTEN DAVE REUSCH

ATTEN Wayne Collier
PHONE (513) 772-2818

CONTACT DEBBE

CLIENT HEEK01 SAMPLES 5
COMPANY HEEKIN CAN
FACILITY

Enclosed are the results of specified samples submitted for analysis. If you have any questions please use "LAB #" for faster identification.

OHIO EPA CERTIFICATION: CHEMICAL 4095

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TAKEN EEI-T. ROBERTS/M. REDDINGTON
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TEST CODES and NAMES used on this workorder

AG	SILVER (FLAME/ICP)
AS	ARSENIC (ICP)
BA	BARIUM (FLAME/ICP)
CD	CADMIUM (FLAME/ICP)
CLI	CHLORIDE
COD	CHEMCIAL OXYGEN DEMAND
COND	CONDUCTIVITY
CR	CHROMIUM (FLAME/ICP)
F	FLUORIDE
HARD	HARDNESS
HG	MERCURY COLD VAPOR
NO3	NITRATE
PB	LEAD (FLAME/ICP)
PH	PH (CORROSIVITY)
PO4	PHOSPHATE, TOTAL
SE	SELENIUM (ICP)
SO4	SULFATE
TKN	NITROGEN, TKN

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG mg/l				<0.4 mg/kg	<0.4 mg/kg
AS mg/l				<5 mg/kg	<5 mg/kg
BA mg/l				93.5 mg/kg	85.7 mg/kg
CD mg/l				0.512 mg/kg	0.588 mg/kg
CLI mg/l	31.3	29.9	22.3		
COD mg/l	20.0	68.0	40.0		
COND umhos/cm	727	667	695		
CR mg/l				19.7 mg/kg	21.3 mg/kg
F mg/l	0.435	0.335	0.409		
HARD mg/l CaCO3	1,150	960	3,500		
HG mg/l				0.188 mg/kg	0.155 mg/kg
NO3 mg/l	1.50	0.850	0.150		
PB mg/l				17.4 mg/kg	16.6 mg/kg
PH s.u.				7.31	7.30
PO4 mg/l	0.773	0.730	0.386	334 mg/kg	200 mg/kg
SE mg/l				<1 mg/kg	<1 mg/kg
SO4 mg/l	65.1	58.5	59.1		
TKN mg/l				440 mg/kg	728 mg/kg

Milton Can Company

A BWAY Company

8200 Broadwell Road
Cincinnati, Ohio 45244
Phone (513) 388-2220
FAX (513) 388-2350

January 30, 1998

Certified Mail - Return Receipt Requested

Ohio EPA
Central Office
Industrial Wastewater Group
1800 Watermark Drive
Columbus, Ohio 43215

RE: 05-1299 Slow Rate Land Treatment System, Anderson Township, Hamilton County, for October - December, 1997.

Dear Sirs,

In accordance with our referenced permit special condition, the following is the semi-annual testing report as required.

COD	18.8 mg/L	TSS	21.0 mg/L
TDS	381 mg/L	pH	7.1
Fluoride	1.3 mg/L	Sulfate	101 mg/L
Total Chromium	BRL		

Also in accordance with our referenced permit special condition, the following is the quarterly report as required. The average daily amount (in gallons) of wastewater applied to the spray fields is as follows:

October	838
November	818
December	649

If you have any questions regarding this submittal, please call me at (513) 388-2386.

Sincerely,

Randall Stapp

Randall Stapp
Manager of Environmental, Safety and Workers' Compensation

cc: L. Parker - Atlanta
G. Kostyszyn - Cincinnati

EMG

8.5. Certifications

8.5.1 Certifications/Qualifications

8.5.2 Sampling/Testing Certifications

EMG

Staff Resume

David V. Maglietta, L.P.G.
Program Supervisor

As a Program Supervisor for EMG and experienced environmental risk assessor, Mr. Maglietta supervises environmental assessments and accompanying risk assessment reports for EMG's midwest region. These environmental assessments include on-site property evaluations, comprehensive reviews of regulatory data, and public records to identify environmental concerns. Mr. Maglietta has received extensive formal training and with his seasoned background, professional certifications, and twelve years of industry experience, he provides diversified environmental services for a wide variety of EMG clients.

Areas of Expertise:

- Phase I, Phase II, and Phase III Property Environmental Assessments. Compliance with OSHA, EPA, and AHERA regulations
- Soil Gas Survey and Remediation of Contaminated Soil
- Industrial hygiene services for survey, evaluation, and control of hazardous materials including asbestos, lead, and radon
- Laboratory analysis utilizing Phase Contrast and Polarized Light Microscopy

Professional Experience:

- Conducted environmental property assessments for mortgage bankers, property management groups, and other private clients
- Supervision and evaluation of hazardous materials in construction materials, soil and water for public and private housing authorities
- Extensive experience in performing and managing Federal and State environmental property assessments
- On-site manager for numerous asbestos abatement projects and building inspector for asbestos-containing materials (ACM)

Education/Certificates/Memberships:

- B.S. in Geology, at Augustana College, Rock Island, Illinois
- Licensed Professional Geologist, Illinois #196-000719
- OSHA 40-hour Hazardous Waste Operations (29 CFR 1910.120)
- Microscopical Identification of Asbestos, NIOSH 7400
- Certified EPA Asbestos Inspector/Management Planner

Printed: April 14, 1999

EMG

Staff Resume

Gregory P. Shingler
Project Manager

As an experienced environmental risk assessor, Mr. Shingler performs environmental assessments and accompanying risk assessment reports for EMG's Ohio or Midwest region. These environmental assessments include on-site property evaluations, comprehensive reviews of regulatory data, and public records to identify environmental concerns. Mr. Shingler has received extensive formal training and with his seasoned background, professional certifications, and over 5 years of industry experience; provides diversified environmental services for a wide variety of EMG clients.

Areas of Expertise:

- Phase I and Phase II Property Environmental Assessments
- Compliance with OSHA, EPA, and AHERA regulations
- UST management, removal, closure, upgrade, and remediation projects
- Magnetometer surveys

Professional Experience:

- Conducted environmental property assessments for mortgage bankers, property management groups, and other private clients
- Supervision and evaluation of hazardous materials in construction materials, soil and water for public and private housing authorities
- Extensive experience in performing and managing Federal and State environmental property assessments

Education/Certificates/Memberships:

- B.S. in Geology at Kent State University
- OSHA 40-Hour Health and Safety Training (29 CFR 1910.120)
- Certified EPA/AHERA Asbestos Inspector

Printed: March 10, 1999

CERTIFICATE OF TRAINING

This Certifies That

Greg Shingler — 289-64-3747

Trainee Name - Typed or Printed in Ink — Soc. Sec. Number

has completed the Refresher Course for

ASBESTOS BUILDING INSPECTOR/MANAGEMENT PLANNER TRAINING

This course meets requisite training for asbestos reaccreditation under TSCA Title II

on July 30, 1998

Expires on July 30, 1999

This course was presented by
AFFILIATED ENVIRONMENTAL SERVICES, INC.
(419) 627-1976
3606 Venice Road, Sandusky, Ohio 44870

AES-BI/MP-R-192

Certificate # — Instructor's signature

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

SCHNEIDER LABORATORIES, INC.
RICHMOND, VA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

March 31, 2000
Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 101150-0

8.6. Scope of Work

EXHIBIT "A"

PHASE I ENVIRONMENTAL SITE ASSESSMENT AND REPORT SCOPE OF WORK

I. OVERVIEW & GENERAL PROVISIONS

A. INTRODUCTION. The Environmental Consultant's ("Consultant") general duties under the Basic Ordering Agreement for Phase I Environmental Site Assessment and Report or Agreement for Phase I Environmental Site Assessment and Report (the "Agreement") to which this Phase I Environmental Site Assessment And Report Scope of Work ("Scope of Work") is attached are to provide environmental hazard substance investigation and analysis to Client with respect to each Property listed on the Agreement or Task Orders subsequently issued by Client, and to provide the results and conclusions of the investigation to Client in a comprehensive, confidential report, as specified herein (the "Report"). Consultant shall perform the services in accordance with the Agreement, and the terms, conditions and obligations of the Agreement are to be read and interpreted in accordance with this Scope of Work.

B. PURPOSE OF ASSESSMENT. The purposes of this Phase I Environmental Site Assessment ("ESA") are: To identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E-1527, hereinafter defined) affecting the Property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the Property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the Property under any applicable environmental law; 4) may affect the value of the Property, and; 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing, 2) evaluate the Property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the Property, and or; 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the Property.

C. DEFINITIONS. Unless specifically defined herein, all capitalized terms in this Scope of Work shall have the same meaning as defined in the Agreement and the American Society for Testing and Materials Standard E-1527-97, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (hereinafter "ASTM Standard E-1527"), and as amended. In the event of a conflict, the definition contained in the Agreement shall prevail.

1. The term "Hazardous Substance" shall mean any substance defined as a hazardous substance pursuant to CERCLA 42 USC § 9601(14), as interpreted by EPA regulations and the courts: "(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a Hazardous Substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

2. The term "Petroleum Products" means: Those substances included within the meaning of the petroleum exclusion to CERCLA, 42 USC § 9601(14), as interpreted by the courts and EPA, including, without limitation: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a Hazardous Substance under Subparagraphs (A) through (F) of 42 USC § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures

of natural gas and such synthetic gas). (The word "fraction" refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to *Standard Definitions of Petroleum Statistics.*)

D. INFORMATION PACKAGE. The Consultant will be furnished with the following information:

1. An Agreement or Task Order which includes a Property Information Sheet which provides to Consultant: the Property's name; common address; legal description and lot, block and subdivision where applicable and known; the Client's Loan Number or Asset Number for the Property; Client's contact person and telephone number, and the Property's on-site contact name and telephone number, if any.

2. The Consultant may receive copies of prior environmental site assessments, environmental screening checklists of the Property, and environmental database reports, if any are in Client's possession. If none have been provided to Consultant, it may assume none are in Client's possession. Consultant shall be entitled to rely upon the foregoing items in the performance of the services, provided that such is consistent with information developed by the Consultant during performance of the services. In the event the provided information is refuted by or is substantially inconsistent with information developed by Consultant, Consultant shall rely upon that information which, in the professional judgement and opinion of Consultant, is most trustworthy and reliable under the circumstances.

E. SUPPLEMENTATION OF ESA REPORT. If the Consultant receives any information about the Property within ninety (90) days after its submission of the final Report, Consultant shall immediately notify the Client of the substance of such information and its impact on the Property and shall mail or deliver to the Client all written information so received within five (5) business days from the Consultant's receipt of such information.

II. ENVIRONMENTAL SITE ASSESSMENT PROCEDURES AND METHODS

This Scope of Work is intended to exceed, and therefore by implication, meet all minimum requirements set forth in ASTM Standard E-1527. Accordingly, this Scope of Work is comprised of four general substantive components: 1) Assimilation of General Property Information; 2) Records Review; 3) Site Reconnaissance, and; 4) Interviews. Pursuant to the designated assessment procedures set forth in Section II of this Scope of Work, all four components of ASTM Standard E-1527 will be discussed in detail in the Report in the exact format specified in Section III of this Scope of Work. **If any investigation requirement contained herein cannot be met, the Consultant must indicate such fact and state in Sections 1.4 and 6.3 of the Report Format the reason the requirement was not met and the estimated date upon which the requirement can be met.**

A. GENERAL PROPERTY INFORMATION AND DESCRIPTION.

1. Identify Property by legal description (including lot, block and subdivision), street address, municipality, county, state and zip code;

2. Indicate type of property (office, retail, multifamily, warehouse, nursing home, congregate care, hotel/motel, industrial, undeveloped land, etc.), Property size (acres/square feet), number of building structures on Property, building size (square feet/number of units), number of stories in building, building age, and the number of subterranean floors present.

3. Identify year Property buildings were constructed and substantially remodeled or rehabilitated, if applicable, and discuss construction type.

4. Identify current use(s) of the Property.

5. Indicate names of owner(s), operator(s), manager(s), and all non-residential tenants/occupants pursuant to the guidelines set forth in Section II,C,1,m of this Scope of Work, and the nature of their business/operations, occupancy status ; and

6. Prior Environmental Site Assessments. Summarize findings, conclusions and recommendations contained in any environmental site assessments, environmental checklists or other environmental studies provided to Consultant. If available, copies of this information shall be provided by Consultant.

B. RECORDS REVIEW.

Review and interpret federal, state and local public records, as prescribed below, to assess the Property and areas surrounding the Property to identify Recognized Environmental Conditions.

1. <u>General Public Records Review</u>. The Consultant's review should include, but not be limited to, the following public records:

a. Physical Setting Sources.

(1). Topography. Report on regional and vicinity topography including significant physiographic features, such as ridges, streams and valleys within one (1) mile of the Property. Include in the Appendix to the Report a color United States Geologic Survey ("USGS") topographic map (7.5 minute, 1:24,000 scale) with the Property's boundaries delineated on the map. Report on the range of Property elevations, overall Property topography or slope.

(2). Soils. Identify soil types and general characteristics, such as drainage, permeability.

(3). Geology. Examine geologic data to determine the physiographic province within which the Property is located and the characteristics (<u>e.g.</u>, rock types, impermeable layers, bedrock characteristics) of local geologic formations. Identify depth to bedrock.

(4). Hydrology. Examine hydrologic data to determine approximate depth to shallow groundwater and direction of flow.

b. Historical Use Information.

(1). Identify all prior uses of the Property since 1940 at approximately five-year (5-year) intervals, including the nature of businesses or operations which were on the Property. A reasonable attempt should be made to identify uses of the Property prior to 1940, back until a time when the Property was not yet developed, intervals to be determined by the Consultant, based upon available records sources. At a minimum, the following record sources shall be obtained and reviewed to determine historic use of Property.

(a). Recorded Land Title Records. Consultant shall review publicly recorded records of fee ownership, land contracts, liens and other encumbrances currently affecting or filed of record against the Property, particularly noting any recorded document evidencing Recognized Environmental Conditions.

(b). Chain of Record Title. Consultant shall obtain and review a minimum fifty-year (50-year) chain of record title search for the Property, noting any past or present owners/grantees indicating a potential Recognized Environmental Condition affecting the Property <u>only</u> in one or both of the two following circumstances: 1) Consultant is expressly directed to obtain such chain of record title by Client in the Agreement, Task Order or Exhibit A-1 of this Scope of Work, or; 2) Consultant recommends such chain of record title be obtained because, in their best professional judgement, other sources of historical information hereunder do not provide adequate data or representation of the historical uses of the Property, or state law requires such record chain of title be obtained to qualify for any innocent purchaser or secured lender exemptions from state environmental law liability. In either of these two circumstances, Consultant shall immediately notify Client of Consultant's opinion and recommendation that Client obtain such chain of record title. Despite Consultant's obligation hereunder to make such recommendation, Consultant shall not obtain such chain of record title until expressly authorized to do so by Client.

(c). Aerial Photographs. Obtain and review aerial photographs of the Property, and surrounding and adjacent areas. The Consultant should obtain the oldest valuable photographs, dating back to 1940 if possible, or to the time in which the Property was originally developed. In the Report, provide at least three original-quality aerial photographs with a minimum 10 to 15-year interval between photographs, if possible. At a minimum, the frequency of aerials shall represent periods with evidence of Property activity or Property development. All aerial photographs shall have the Property boundaries clearly outlined, and be labeled with a north arrow, scale, and date of the photograph.

(d). Fire Insurance Maps. Obtain and review Fire Insurance Maps for potential Recognized Environmental Conditions affecting the Property, and to help assess present and historical uses on the Property and at adjacent/nearby properties. Include in the Appendix to the Report copies of such maps obtained and reviewed. Property boundaries shall be clearly defined. Each map shall be labeled with the date and a north arrow.

(e). City Directories. Obtain and review historical city directories for potential Recognized Environmental Conditions affecting the Property, and to help assess present and historical uses on the Property and adjacent/nearby properties. Include in the Appendix to the Report copies of relevant pages of such city directories obtained and reviewed. The Property shall be identified and all pages should be dated. If copies of the documents are not permitted, notes taken during the directory review shall be included in the Appendix to the Report along with an explanation as to why copies were not obtained.

(f). Maps and Other Data. Obtain and review other documents and maps such as Property Tax Files, Field Cards, Assessor's Maps, Building Department Records, Zoning/Land Use Records, Local Historical Records, Fire Marshal Records, Business License Records, and other maps to help assess past and present historical uses on the Property and adjacent/nearby properties. Include in the Appendix to the Report any map or document which indicates a potential for Recognized Environmental Conditions.

c. Properties and Areas Surrounding the Property. Describe present and prior land uses on surrounding properties containing potential Recognized Environmental Conditions that may adversely impact the Property (for example, those involving the manufacture, generation, use, storage and/or disposal of Hazardous Substances or Petroleum Products). The area surrounding the Property that will be researched will be at a search distance and time period determined by the Consultant in its professional judgement. At a minimum, Consultant shall include a review of all adjacent and/or contiguous properties and attempt to determine current and past uses, tenants, and occupants for such properties. Factors to consider in making a determination of search distance and time period for previous uses of the properties in the surrounding area include: the extent to which information is reasonably ascertainable; the extent to which information is useful, accurate and complete in light of the review of the government agency records; hydrogeologic/geologic conditions of the Property that may indicate a high probability of Hazardous Substance or Petroleum Product migration to the Property; how recently local development has taken place; information obtained from interviews; and the extent to which history and/or uses of properties in the area surrounding the Property are generally researched, pursuant to local standards for good commercial or customary practice in environmental site assessments in real estate transactions.

If any observation or information indicates a reasonable possibility that Hazardous Substances or Petroleum Products that are located upon adjacent or nearby properties within one-quarter (1/4) mile radius of the Property may migrate to the Property, topographic observations shall be analyzed in connection with geologic, and hydrogeologic information obtained pursuant to Records Reviewed and Interviews to determine whether Hazardous Substances or Petroleum Products are likely to migrate to or from the Property through groundwater or soil. Additionally, Consultant shall provide the common street address for each off-site property so discussed in the Report. All assumptions used in Consultant's analysis should be presented in the Report.

2. Environmental Records Review.

a. Environmental Database Search. The Consultant will obtain and review a commercially-available mapped, environmental government database report ("Database Report") for the Property from a nationally recognized vendor, which shall include, at a minimum, a search of the following databases at the prescribed search distances (the current ASTM E 1527 standard shall take precedence in the event the below search distances differ from such current ASTM E 1527 standard) and the results of such search depicted on the map:

Database Searched	Search Distance
Federal NPL Site List	1.0 mile/1.6 kilometer
Federal CERCLIS List	0.5 mile/0.8 kilometer
Federal RCRA CORRACTS TSD Facilities List	1.0 mile/1.6 kilometer
Federal RCRA Non-CORRACTS TSD Facilities List	0.5 mile/0.8 kilometer
Federal RCRA Generators List	Property and Adjoining properties
Federal ERNS List	Property
State Lists of Hazardous Waste Sites	
Identified for Investigation or Remediation	
State NPL-equivalent	1.0 mile/1.6 kilometer
State CERCLIS-equivalent	0.5 mile/0.8 kilometer
State Landfill and/or Solid Waste Disposal Site Lists	0.5 mile/0.8 kilometer
State Leaking UST Lists	0.5 mile/0.8 kilometer
State Registered UST Lists	Property and Adjoining properties
Other State or Federal databases as recommended	As recommended by Consultant

Consultant shall determine if any of the unmappable/non-geocoded/"orphan" sites listed in the Database Report are located within the prescribed search radii, and Consultant shall ensure that all such sites listed in the Database Report are mapped or otherwise discussed in the analysis of the Database Report. The results of the Database Search on areas surrounding the Property shall be additionally discussed in the section of the Report detailing Surrounding Properties.

b. Environmental Regulatory Agency Records Review. Obtain and review information from applicable governmental agencies in a timely manner regarding environmental violations, spills, releases, or incidents and/or status of enforcement actions at the Property and at nearby properties within one-quarter (1/4) mile radius of the Property. This regulatory records review shall be performed for all on-site environmental violations, spills, releases, and incidents, and all off-site active environmental violations, spills, releases, and incidents. This regulatory records review shall also be performed for any on-site or off-site environmental violations, spills, releases, and incidents which Consultant identifies as Recognized Environmental Conditions. Information to be obtained through these inquiries should, at a minimum, include information sufficient to enable Consultant to express an opinion, with justification, as to the likelihood or probability that identified Recognized Environmental Conditions originating upon or under nearby properties may impact the Property.

C. PROPERTY RECONNAISSANCE.

1. General Property Characteristics. Consultant shall perform Site Reconnaissance of the interior and exterior of the Property and a visual inspection of the exterior of adjacent properties and areas (Consultant shall attempt to avoid inspecting the Property on an inclement weather day), specifically noting the following conditions:

a. General Property Information. Observe and determine and/or confirm information specified in Section II.A. of this Scope of Work.

b. Observe for additional indications of current and past uses of the Property.

c. Observe for additional indications of current and past uses of adjoining Properties and surrounding areas.

d. Topographic Conditions. Observe topographic conditions and features of Property and areas surrounding the Property.

e. Potable Water Supply. Determine the source of potable water for the Property. If the source is other than a public water supply system, indicate whether a public supply system is available for the Property's use.

f. Sewage Discharge & Disposal. Identify current and historical methods of sewage discharge or disposal (sanitary sewer, septic system, cesspool, etc.). If other than a municipal system, identify the system age and whether such system appears to be in compliance with applicable state or local laws and regulations. Additionally, indicate whether a municipal system is available to the subject site, and if there are any local or state regulatory issues affecting the same.

g. Wastewater Discharge. Identify any wastewater generated at the Property and discuss the disposal and treatment of such wastewater. Identify whether the discharge is in substantive compliance with applicable regulatory requirements.

h. Solid Waste Disposal. Describe method of solid waste disposal.

i. Surface Water Drainage. Describe any observed evidence of discharge of surface or waste water into any drain, ditch, stream on or adjacent to the Property.

j. Drains. Note all drains located in the interior or exterior of the Property and determine point of discharge if possible. Note if any staining or discoloration of the drains is observed and if any odors are associated with the drains.

k. Method of Heating/Cooling. Identify the current and historical methods of heating and cooling the buildings located upon the Property, including the fuel source (fuel oil, natural gas, electric, etc.).

l. Wells and Cisterns. Describe any wells or cisterns located or observed upon the Property, including groundwater monitoring wells, and indicate the status of any such structures (active, inactive, abandoned, etc.). Also, determine depth, construction, regulatory requirements and compliance for all wells (including any abandonment requirements for inactive and/or abandoned wells).

m. Current Occupants. Identify all current non-residential occupants of Property. Except for Multifamily residential properties, if the Property has five or fewer occupants, a reasonable attempt shall be made to inspect all Occupant spaces and conduct interviews with all Occupants. If there are five or more current Occupants, a reasonable attempt shall be made to inspect the space of and interview the Major Occupants and all those other Occupants whose operations indicate or are likely to pose Recognized Environmental Conditions in connection with the Property. The Report shall identify the Occupants interviewed and the duration of their Occupancy. For Multifamily residential properties, a representative number of individual units (approximately 10% of all units unless in the professional judgement of Consultant inspection of less than 10% of the individual units will provide an adequate representation), plus all common areas, shall be inspected.

n. Additional General Property Observations. Note any additional relevant general Property characteristics observed which are not included in the above.

o. Site Drawing. Prepare a site drawing at not less than 1:600 scale depicting the Property, the improvements on the Property, locations of all environmentally sensitive areas observed during Site Reconnaissance or otherwise identified during the performance of this ESA (such as LUSTs, USTs, wells, drains, discarded debris or drums, etc.) and all areas of known or potential Recognized Environmental Conditions. The drawing need not be drawn to scale or based upon a survey, but must be sufficiently accurate to inform Client of the general locations of the listed areas or items. Include on the site drawing (or an additional site area drawing) all adjacent properties, and all nearby properties anticipated to contain Recognized Environmental Conditions potentially impacting the Property. This drawing shall be professional quality (hand-drawings are not acceptable), preferably drawn via CADD system.

p. Color Photographs. As part of the site reconnaissance of the Property and surrounding areas, take at least one (1), twenty-four (24) exposure roll of color photographs of all relevant aspects of the Property, including but not limited to photographs of the improvements, interiors and exteriors of the improvements, all environmental hazards, potential environmental hazards or special resources noted on the Property and surrounding areas. Provide as many relevant photographs as possible in the Report. For each photograph, provide a brief written summary of subject (including the facing of the outdoor photographs) and relevance of photograph.

2.. <u>Investigation for Specific Environmental Hazards.</u>

a. Hazardous Substances and Petroleum Products Used In The Ordinary Course of Occupants' Business. Visually examine all interior and exterior areas of the Property and review appropriate on-site records for any Hazardous Substances or Petroleum Products currently or previously located on or at the Property. Provide determination as to whether storage of any hazardous substance or Petroleum Products is substantially within federal, State or local regulations. Specifically discuss:

(1) Any containers or drums observed on the Property labeled as containing Hazardous Substances or Petroleum products and identify the approximate quantities involved, types of containers and condition of containers, any containment devices, storage conditions, and evidence of leaking. For any Hazardous Substances or Petroleum Products observed, identify the locations and approximate quantities involved, types of containers and storage conditions, and provide any existing Property EPA Identification (ID) numbers, Material Safety Data Sheets, permits, manifests, contracts and/or methods used to dispose of Hazardous Substances, solid wastes, residual or waste materials and sanitary and process waste waters.

(2) Any containers or drums observed on the Property not labeled but suspected as containing or having once contained Hazardous Substances or Petroleum Products. For any suspected Hazardous Substances or Petroleum Products observed, identify the locations and approximate

quantities involved, types of containers, condition of containers, any containment devices, storage conditions, and evidence of leakage.

(3) Disposal locations of waste Hazardous Substances and waste Petroleum Products. Include brief comments on whether such disposal and treatment methods seem appropriate and appear to meet applicable standards.

b. Hazardous Substances and Petroleum Products: Evidence of Releases. Observe all areas of the Property for visual evidence of releases, spills, dumping, significant air emissions or other illegal or improper disposition of Hazardous Substances or Petroleum Products, including but not limited to evidence of stained or corroded floors or paved surfaces, sumps or drains in storage areas, stained soil, stained or stressed vegetation, etc. Also observe all operations and/or equipment which generates or controls air emissions. Discuss all such areas in the Report and include reference to such areas in the Site Drawing.

c. Polychlorinated Biphenyls. Identify electrical or hydraulic equipment known or suspected to contain Polychlorinated Biphenyls ("PCBs") based on observation and review of facility records of the Property. For electrical equipment located upon the Property, determine the ownership and the year of manufacture (or age) of the equipment, identify any evidence of past or current leakage, and whether the equipment is marked as "Non-PCB Containing". If the equipment is utility-owned and there is evidence of past or current leakage, Consultant shall contact the utility to determine PCB content of the equipment unless the equipment has been verified to have been manufactured in or after 1980 or is clearly marked "Non-PCB Containing". If the equipment is not utility-owned and such equipment either cannot be verified to have been manufactured in or after 1980 or the transformer is not clearly marked "Non-PCB Containing", attempt to determine whether or not the transformer contains PCBs. If the equipment is not utility-owned and is not clearly marked "Non-PCB Containing", and evidence of past or current leakage is present, recommend appropriate actions, including testing for PCB content. For other equipment observed which is likely to contain PCBs, attempt to identify the type of equipment, age or manufacture date, condition and any evidence of past or current leakage. Fluorescent light ballasts likely to contain PCBs do not need to be identified or discussed.

d. Asbestos-Containing Materials. For <u>all building types constructed prior to 1981</u>, the Consultant will perform a limited asbestos-containing material ("ACM") inspection ("ACM Inspection") to identify the location, quantities, and condition of all obvious and accessible suspect ACM and presumed ACM ("PACM"), and estimate repair, replacement and maintenance costs of all such ACM and PACM. A representative number of individual units (approximately 10% of all units or areas unless in the professional judgement of Consultant inspection of less than 10% of the individual units or areas will provide an adequate representation), plus a representative number of common areas (hereinafter collectively the "Representative Areas"), shall be inspected and sampled according to the protocol specified below. The ACM Inspection and Report shall be performed by or under the direct supervision of an AHERA or state-equivalent certified inspector.

(1). The ACM Inspection should include the following: (a) a general review of building construction drawings/specifications and/or renovation plans and specifications, if readily available, to assist in identification and documentation of ACMs; (b) an inspection of all reasonably accessible and observable representative building areas; (c) documentation of the location of all friable and non-friable suspect ACM and PACM; (d) assessment of the condition of all suspect ACM and PACM; and (e) collection of bulk samples of only <u>suspect friable surfacing materials, suspect friable thermal insulation materials, and any other suspect friable and/or damaged materials</u> observed, using appropriate sampling protocols and submittal to a qualified analytical laboratory for asbestos content analysis by US EPA PLM methodology. No more than twenty (20) individual samples plus one (1) quality control sample may be obtained for analysis without the prior written authorization of Client. However, if in the professional judgement of the Consultant additional samples are recommended, Consultant shall immediately attempt to obtain Client's consent to collect and analyze such additional samples while still on site, or Consultant may collect additional samples and request Client's consent to analyze such additional samples prior to laboratory analysis. Where possible within the confines of this ACM testing protocol, Consultant shall attempt to obtain at least three (3) samples of each homogeneous, friable, thermal system insulation and surfacing material ACM observed. Note, ceiling tile is to be defined as a surfacing material for the purposes of this survey.

(2). The Consultant shall prepare and present a written compilation of data in tabular form (substantially similar to the ACM sample table presented in Section IV of this SOW) in the text section of the Report which provides the following information: 1) exact locations of all suspect ACM observed and/or sampled; 2) type of observed suspect ACM (ceiling tile, floor tile, pipe wrap, etc.) observed and/or sampled; 3) friability of the suspect ACM observed and/or sampled; 4) condition of the suspect ACM observed and/or sampled as defined by guidelines under the Asbestos Hazard Emergency Response Act ("AHERA") as implemented by 40 C.F.R. Part 763, Subparts E and F; 5) potential for disturbance of the suspect ACM observed and/or sampled; 6) amount of homogenous material observed and/or sampled assumed to exist on or in the Property; 7) recommendations to be considered with respect to all confirmed ACM or PACM, and; 8) cost estimates for each recommendation requiring action.

The ranges of recommendations to be considered by the Consultant for confirmed, suspect ACM, or PACM shall at a minimum include removal, repair, encapsulation, enclosure, or the implementation of an Operations and Maintenance ("O&M") Plan for maintenance in place and shall be consistent with the OSHA "Occupational Exposure to Asbestos" Final Rule, 29 CFR Parts 1910 and 1926, et al. All recommendations shall include the Consultant's cost estimate for such recommendation. The Consultant shall recommend the least costly response action that protects the health and safety of the building occupants for each homogeneous area consistent with the hazard assessment criteria in AHERA and in accordance with the OSHA Final Rule referenced above.

e. Radon. For all residential or multifamily residential Properties located in areas of EPA-determined high concentration of radon gas (areas where 15% or more of buildings surveyed revealed radon concentrations above 4 pCi/L) or within a state or local jurisdiction requiring radon testing, Consultant shall perform a radon gas test which meets EPA or applicable state requirements. Consultants shall perform one radon gas test for each building (up to a total of three tests; if more than three buildings are located upon the property, Consultant shall select three representative buildings within which to perform the radon testing). The test(s) shall be performed in the habitable area most susceptible to radon gas accumulation (generally the lowest habitable area of the building). If radon is detected in concentrations greater than that allowed by federal, state or local statutes or regulations, the Consultant shall so state in the Report and provide recommendations, with cost estimates for remedial actions.

f. Lead-Based Paint. For all residential or multifamily residential properties, schools, churches or day care facilities constructed prior to 1980, Consultant shall perform lead-based paint ("LBP") sampling and analysis by crushed swab/ampule methodology ("Swab Test") with confirmatory paint chip analysis for positive Swab Tests according to the specific testing methodology specified below.

(1). LBP Testing Methodology. Chemical crushed swab or ampule test kits capable of detecting the presence of lead greater than 0.5% by weight shall be used. Consultant must insure that the Swab Tests are performed in strict conformance with the manufacturer's instructions (e.g., that all painted surfaces to be tested are appropriately scored through all layers of paint). All positive Swab Tests shall be confirmed by laboratory analysis of paint chip samples collected from that area. Notwithstanding the foregoing, in the event that a different testing methodology is required under applicable state or local law or regulation, Consultant shall contact Client with recommendations consistent with such applicable state or local laws or regulations prior to conducting the Site reconnaissance/lead-based paint sampling.

(2). Number of Units to be Sampled. Consultant shall analyze a Representative Number (approximately 10% of all units or areas unless in the professional judgement of Consultant inspection of less than 10% of the individual units or areas will provide an adequate representation) of randomly selected living units and common areas of the Property. Consultant may test less than the number of units and common areas specified above if, in the professional judgement of Consultant, inspection of less units and common areas will provide an adequate general representation of the levels of LBP at the property.

(3). Building Components to be Sampled. In those units and common areas selected for testing, a representative portion of the painted or lacquered surfaces of building components likely to contain LBP shall be tested, with emphasis on those surfaces subject to friction (e.g., window sills and door jams) and surfaces that are reasonably accessible to children under the age of seven (7). Representative building component surfaces in individual living units include, but are not necessarily limited to, woodwork/molding, doors, door jams and trim, window sills and sashes, cabinets, walls, ceilings, counter tops, stair railings, floors, radiators, balcony railings, and baseboards. Representative building component surfaces in common areas include, but are not necessarily limited to, stair treads, stair risers, entry doors, entry door casings, window ledges, newel posts, garage doors and porch trims.

(4.) Number of Samples. From among the units and common areas selected for testing, the Consultant shall attempt to perform three (3) Swab Tests for each homogeneous building component identified to likely contain LBP. For example, regardless of the number of units and common areas that are inspected, the Consultant shall perform only three Swab Tests on walls inside units, three Swab Tests on common area baseboards, etc. Thus, this testing methodology will result in three Swab Tests for each homogeneous building component identified in the Property chosen from among those units and common areas inspected. Notwithstanding the above, no more that 75 Swab Tests and 10 chip samples shall be collected and analyzed for the entire Property without the prior written authorization of Client. However, if in the professional judgement of the Consultant additional Swab Tests or paint chip samples are recommended, Consultant shall immediately attempt to obtain Client's consent to perform a greater number of Swab Tests or collect a greater number of paint chip samples while still on site. The Consultant shall randomly select units and common areas to be tested, however completion of all the required Swab Tests on the different homogeneous areas at the Property shall result in some Swab Tests being performed in all of the Representative Number of randomly selected living units and common areas of the Property. The Consultant shall use reasonable efforts to minimize destruction or defacement of building components.

(5). Results, Conclusions, and Recommendations. Accurate records and notes shall be kept by the testing personnel of the number of units, unit numbers, sample ID, sample location, type of substrate, condition of paint, accessibility to children, and quantity for all tests performed. Results shall be provided in tabular format (substantially similar to the sample table presented in Section IV of this SOW) in the text section of the Report which includes the information specified above. Based upon the test kit and other relevant information, the Consultant shall indicate whether the Property is in compliance with applicable state or local laws, regulations, and ordinances regarding LBP inspection, abatement, and notification requirements. If local ordinances apply, the Consultant shall include a copy of the relevant provisions of such ordinances in the Report. Consultant shall provide cost estimates for any further actions recommended.

Additionally, the LBP survey results shall contain Consultant's recommended corrective actions (removal and replacement, encapsulation, enclosure, manage in place, etc.) for each unit or common area in which LBP was identified above applicable regulatory levels and cost estimates for Consultant's recommended corrective action. Estimated LBP corrective action costs shall be calculated based upon requirements specified in the state or local regulations for the jurisdiction in which the Property is located, if applicable. The average value of the cost estimates calculated for the units which were tested shall be used as a representative corrective estimate for units which were not selected for testing. The average estimated cost per unit shall be assigned to the untested units to calculate an estimated corrective cost for the entire structure. All field inspection sheets, custody forms, and laboratory reports must be included in the Report.

g. Lead in Drinking Water. Determine the potable water source for the Property. If the potable water source is a public utility, Consultant shall contact the utility to confirm that such utility is in compliance with current EPA requirements for lead concentrations in drinking water.

<u>For all residential or multifamily residential properties, schools, churches or day care facilities not served by a municipal water system</u>, Consultant shall collect one static (unpurged) and one dynamic (purged at least 3 minutes prior to sampling) drinking water sample from the Property for analysis (in accordance with EPA Method 239.2, as amended) to determine the lead content of the Property's potable drinking water. Consultant shall indicate whether such lead content exceeds EPA or other applicable state or local standards for drinking water. Prior to collecting water samples, Consultant shall ensure that an appropriate number of water taps be flushed and sealed to ensure the static water samples are collected from taps idle for at least 6 hours but no more than 48 hours.

h. Landfills. Identify whether the Property is located on or within a one-half mile (0.5 mi)/0.8 kilometer (0.8 km) radius of a known licensed or unlicensed landfill, or a federal or state-permitted hazardous waste/disposal site. Indicate whether it is an open or closed landfill.

i. Pits, Sumps, Surface Impoundments, Catchbasins and Pools of Liquid. Identify the location, condition and contents of all pits, sumps, surface impoundments, catchbasins and pools of liquid observed on the Property. Note the current disposition of each in the Report and indicate their locations on the Site Map of the Property.

j. On-Site Aboveground and Underground Storage Tanks. Identify confirmed and possible, current and past Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs) located on or under the Property. Note any vent pipes, fill pipes, concrete pads, saw cuts in paved areas, or other customary apparatus or indications of storage tanks. For each existing tank system, attempt to determine or identify year installed, size or capacity, material of construction (tanks and associated piping), age of material stored, corrosion protection method (tank and piping), leak detection method, presence or absence of overfill protection, containment facilities, and any evidence of more than deminimis leakage, spillage or staining. State whether the tank is empty or contains product. If not empty, identify the type of product and estimate quantity so contained. Indicate whether registration/permitting of the tank is required by federal, state or local requirements and when the tank has been registered with the appropriate regulatory agency. Identify whether the tanks meet current regulatory requirements and whether the tanks meet the December 1998 UST standards. Obtain copies of leak test reports and inventory reports, if available, and include them in the Report. Also, identify where the facility maintains such inventory records. If tanks have been removed or abandoned in place, also include available information describing the removal or abandonment procedure, and soil analytical data, as well as date of removal or abandonment. If possible, determine through interviews or reviews of regulatory records, the date when any removed or abandoned tanks were last operated, the name of the last owner and operator, and when they were removed or otherwise abandoned or made inoperable. Include locations of existing and former USTs and ASTs in the Site Drawing. A table (substantially similar to the sample table presented in Section IV of this SOW) shall be provided in the text section of the Report summarizing all present and former on-site tanks.

k. Radiological Hazards. Identify the use, storage, generation or disposal of any radiological substance or equipment not considered a Hazardous Substance. Indicate whether such use, storage, generation or disposal of the radiological substance appears to be within applicable federal or state statute and/or regulation.

l. Additional Hazard Observations. Note additional relevant observations indicating a Recognized Environmental Condition not discussed above.

3. <u>Special Resources</u>. Consultant shall review and note the existence of any special resource known or suspected to be present on the Property <u>only to the extent</u> that such condition may affect current operations and/or future development of the Property. Special Resources to consider include: Historic property designation, wetlands, floodplains, endangered species and coastal development zones.

D. INTERVIEWS. Consultant shall conduct appropriate interviews with persons familiar with the Property, surrounding properties and the general areas.

1. <u>Property</u>. Interview individuals associated and/or familiar with the Property to determine the present and historical land use activities at the Property. Such individuals may include, but are not limited to, present and former Property owners, employees, key on-site managers, and occupants. Identify possible Hazardous Substances used or released, waste streams and prior use and ownership of the Property and facilities. Maintain names, addresses and telephone numbers of all persons interviewed and include notes of such conversations in the Appendix to the Report.

2. Surrounding Area.

a. Interview persons at the immediate Property to determine the historical land use activities in the area surrounding the Property and to identify operations previously and currently conducted on properties in the vicinity of the Property.

b. Interview adjoining or hydrologically upgradient property owners (or other persons, such as occupants or key property managers having knowledge of the Property in question) within a surrounding area that may affect the Property (up to one mile) to obtain information about historic land use activities and conditions and to determine whether any Recognized Environmental Conditions are known to have affected the Property in the past. The Consultant shall include the names and telephone numbers of the key persons interviewed.

3. Regulatory Agency Officials. Conduct inquiries by telephone, in writing or through visits with applicable municipal, county and state environmental regulatory agencies for information on existing and suspected Recognized Environmental Conditions which were not available from the environmental database search and regulatory file review.

4. ADDITIONAL SERVICES: Consultant shall perform such additional services as defined on Exhibit "A-1 ", if any, attached to this Scope of Work or Task Order.

III. **REPORT FORMAT.** The Report shall discuss each component enumerated in Section II, "Environmental Site Assessment Procedures and Methods" of this Scope of Work in exactly the format stated below. For each component enumerated in Section II and summarized below, if the item is inapplicable or response information does not exist, the Report shall nevertheless enumerate that item and so state its inapplicability.

NOTE: The section content descriptions provided in this following report format are intended to be general descriptions only of the components required in Section II of the Scope of Work and not an exhaustive list of all required subcomponents. Ensure that all components required in Section II of the Scope of Work are discussed in the report.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Performed on:
Loan or Asset #: _______
[Property Name]
[Address]
[City, State, Zip Code]
Contract #: _______
Task Order #: _____ (if applicable)

Prepared for:

[Client]
[Client Address]
[Client City, State, Zip]

Prepared by:

[Consultant's Name]
[Address]
[City, State, Zip Code]
[Phone Number]
[Fax Number]
[Email Address]

[Report Date (a different date shall be used for each version of the report issued)]

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1. INTRODUCTION.

1.1 Executive Summary.

[Describe the key findings and conclusions of the Report, significant potential liabilities emanating from environmental hazards or special resources identified, recommendations and cost estimates].

1.2 Purpose.

[State the purpose of the investigation substantially in the same manner as provided in Section I,B of this Scope of Work].

1.3. Scope of Work.

[Include a brief discussion of the assumptions used in conducting the ESA in determining its scope, including any limitations or qualifications on the findings, conclusions or recommendations of the Report. Identify whether this report meets the current ASTM E 1527 standard.]

1.4 Investigation Requirements Not Satisfied.

[Include a summary of all requirements of the Scope of Work which were not met and provide an explanation as to why the particular requirement could not be met and an estimate of when the requirement will be met. For all outstanding/pending information requests, also provide a professional opinion as to the likelihood that the outstanding information, when received, would change the conclusions and recommendation based on the currently available information.]

2.0 PROPERTY INFORMATION.

2.1 Property Name and Address.

[Identify Property name, address, city, state and zip code];

2.2 Loan Number or Asset Number. (Use either "Asset Number" or "Loan Number")

[Identify Client's Loan Number or Asset number].

3.0 PROPERTY DESCRIPTION.

[This section shall include general information about the Property].

3.1. Property Location and Description.

3.1.1 Legal Description

[Identify legal description];

3.1.2 Property Description

[Identify the Property type, size of Property, number of stories, square footage of buildings. Describe the Property improvements and year improvement(s) were constructed and remodeled];

3.1.3 Current Uses of Property

[Identify current use(s) of Property];

3.1.4 Owners & Occupants of Property

[Identify the current owner(s) of the Property, and identify the current non-residential tenants/occupants and their use of the Property];

3.1.5 Summary of Prior ESAs. and Environmental Checklists

[Discuss and summarize the findings, conclusions and recommendations of prior ESAs, environmental checklists or special resource studies provided to Consultant by Client].

4.0 RECORDS REVIEW.

[Include an evaluation of all general public and government environmental records reviewed under Section II, B, and a summary of the results of all verbal and written inquiries of federal, state or local regulatory authorities, including:]

4.1 General Public Records.

[This section shall include information about the site obtained from general public records obtained and reviewed.]

4.1.1 **Physical Setting Sources**

4.1.1.1 Topography

[Discuss Site elevation range, slope, and any significant features];

4.1.1.2 Soils

[Discuss Site soils];

4.1.1.3 Geology

[Discuss Site geology, including estimated depth to bedrock];

4.1.1.4 Hydrology

[Discuss Site hydrology including depth to shallow groundwater and groundwater flow direction; be sure to identify the source/basis of this information].

4.1.2 Historical Use Information

4.1.2.1 Prior Uses of Property

[Provide a detailed discussion and chronology of the history of the Property and its uses (this section should be compiled from all available information reviewed)];

4.1.2.2 Recorded Land Title Records

[Discuss the results of your review of recorded land title records. Identify whether any environmentally-related liens, easements, deed restrictions, etc. were identified.];

4.1.2.3 Chain of Title Search

[Discuss the findings of your chain of title search];

4.1.2.4 Aerial Photographs

[Discuss the findings of your review of historical aerial photographs];

4.1.2.5 Fire Insurance Maps

[Discuss the findings of your review of historical fire insurance maps];

4.1.2.6 City Directories

[Discuss the findings of your review of historical city directories (provide a tabular report of findings where possible)];

4.1.2.7 Other Maps and Data

[Discuss the findings of your review of other maps and data].

4.1.3 Properties and Areas Surrounding the Property.

4.1.3.1 Current Uses of Adjacent Properties

[Discuss the adjacent properties and their uses];

4.1.3.2 Past Uses of Adjacent Properties

[Discuss the past uses and occupants of all adjacent properties based on the findings from all sources of information reviewed];

4.1.3.3 Current Uses of Surrounding Areas;

[Discuss the current uses of the surrounding areas];

4.1.3.4 Past Uses of Surrounding Areas

[Discuss the past uses of the surrounding areas (this section should be compiled from all available information reviewed)];

4.2 Environmental Records Reviews and Interviews

4.2.1 Mapped Database Records Search

[Discuss the results of your mapped database records search. Be sure to provide conclusions as to the risk posed to the Property by the sites identified in this search. Also, for each site with documented environmental problems, please identify the name of the site, actual distance from the Property, and hydraulic gradient of the site relative to the subject Property. Include a table summarizing the findings which shall identify, for each database, all sites found to be at the Site, adjacent to the Site, one-eighth mile, one-quarter mile, one-half mile and one mile from the subject Site.];

4.2.2 Regulatory Agency Records Reviewed

[Summarize and discuss the findings of your review of the regulatory records/files reviewed];

4.2.3. Discuss interviews with regulatory agency officials

[Summarize and discuss the findings of your interviews with regulatory officials].

5.0 PROPERTY RECONNAISSANCE AND INVESTIGATION.

[Identify the inspector, date of the property reconnaissance, weather conditions, and person(s) accompanying the inspector.]

5.1 General Property Characteristics.

[Include an evaluation of the following characteristics of the Property as more explicitly set forth in Section II,C,1:]

5.1.1 Solid Waste Disposal
[Discuss Property's solid waste disposal practices];
5.1.2 Sewage Discharge & Disposal
[Discuss Property's current and historical sewage discharge and disposal practices];
5.1.3 Surface Water Drainage
[Discuss Property's surface water drainage];
5.1.4 Heating and Cooling
[Discuss Property's current and historical heating and cooling sources];
5.1.5 Wells and Cisterns
[Identify all wells and cisterns located at the Property. For all wells, identify type, use, status (active or abandoned), depth, regulatory requirements (registration and closure)];
5.1.6 Wastewater
[Discuss any Site wastewater generation, treatment and disposal.]
5.1.7 Additional Property Observations
[Discuss any other significant Property observations not discussed elsewhere in the Report].

5.2: Environmental Hazards.

[Include an evaluation of the following environmental hazards of the Property as more explicitly set forth in Section II,C,2:]

5.2.1 Hazardous Substances and Petroleum Products Used or Stored at Property
[Identify and discuss hazardous substances and petroleum products used at the Property];
5.2.2 Labeled Containers and Drums
[Identify and discuss all labeled containers and drums at the Site; be sure to identify the quantities of each material];
5.2.3 Unlabeled Containers and Drums
[Identify and discuss all unlabeled containers and drums at the Site; be sure to identify the quantities of each material];
5.2.4 Disposal Locations of Regulated/Hazardous Wastes
[Discuss the disposal practices of hazardous substances/wastes and petroleum products/wastes used/generated at the Property];
5.2.5 Evidence of Releases
[Discuss any evidence of releases of hazardous substances and petroleum products];
5.2.6 Polychlorinated Biphenyls (PCBs)
[Identify and discuss any potentially PCB-containing equipment at the Property];
5.2.7 Asbestos-Containing Materials (ACM)
[Discuss the findings of your ACM survey; be sure to include the ACM Inspection Results Table in this section];
5.2.8 Radon
[For residential properties or as required, discuss the radon potential of the Property and radon testing results (if testing performed)];
5.2.9 Lead-based Paint
[Discuss the findings of your LBP screening; be sure to include the Lead-based Paint Testing Results Table in this section];
5.2.10 Lead in Drinking Water
[Identify the potable drinking water supplier to the Property, whether the supplier is in compliance with EPA's lead in drinking water standard, and drinking water testing results (if testing performed)];

5.2.11 Landfills
[Identify and discuss any landfills located within one-half mile of the Site and its potential to impact the Property];
5.2.12 Pits, Sumps, Drywells and Catchbasins
[Identify and discuss all pits, sumps, drywells and catchbasins at the Property];
5.2.13 On-site Aboveground and Underground Storage Tanks
[Identify and discuss all historical and current on-site tanks; be sure to include the on-site Tank Information Table in this section];
5.2.14 Radiological Hazards
[Identify and discuss any radiological hazards];
5.2.15 Additional Hazard Observations
[Discuss and additional hazard observations not previously noted].

5.3 Special Resources.
[Include an evaluation of the special resources on the Property as set forth in Section II,C,3.]

5.4 Interviews.
[Identify persons interviewed and discuss significant interview findings:]

5.4.1 Property;
5.4.2 Surrounding Area;
5.4.3 Regulatory Officials.

5.5 Additional Services
[Include a description of any Additional Services performed (if any, and such that there is not an appropriate report section to discuss such additional services) and the Consultant's results, conclusions and recommendations from such Additional Services.]

6.0 SUMMARY AND RECOMMENDATIONS.

6.1 Findings and Conclusions

6.1.1 On-Site Environmental Concerns

[Based on the results of the assessment, identify whether there are any significant and material environmental hazards and recognized environmental conditions (as defined by the ASTM E 1527) associated with the Property including whether the Property contains or could contain any contamination above federal, state or local regulatory levels; actual or potential significant sources of liability; and actual or potential significant noncompliance issues with environmental laws, regulations or standards, including any potential impact on the future use of the Property. Discuss the findings and conclusions, focusing on on-site areas where there are potential or suspected environmental concerns, actual or potential sources of liability and non-compliance issues. All findings and conclusions must be supported by, and referenced to, the preceding content of the ESA. When applicable, the Consultant's findings shall include a statement of the exceeded threshold for each hazard, as defined by federal, state or local law, and a statement regarding the development potential of special resource areas.]

6.1.2 Off-Site Environmental Concerns

[Based on the results of the assessment, identify whether there are any significant and material environmental hazards and recognized environmental conditions (as defined by the ASTM E 1527) associated with adjacent and nearby properties which may impact the subject Property. Discuss the findings and conclusions, focusing on off-site areas where there are potential or suspected environmental concerns. All findings and conclusions must be supported by, and referenced to, the preceding content of the ESA. When applicable, the Consultant's findings shall include a statement of the exceeded threshold for each hazard, as defined by federal, state or local law, and a statement regarding the development potential of special resource areas.]

6.2 Recommendations

6.2.1 Recommendations for Further Investigation

[Include recommendations for further investigations, testing or analysis, if necessary, to evaluate whether contamination or special resource concerns exist on the Property. The recommended further investigations shall be supported by the Report's findings and the professional opinions of the Consultant regarding the potential for environmental contamination, hazards or special resource value concerns on the Property. **The Consultant must present cost estimates for the recommended further investigations or response action(s) and the length of time required to complete the recommended further investigations or response action(s).**]

6.2.2 Recommendations for Regulatory Reporting

[Include recommendations for regulatory reporting which may be required by results of this investigation, including: Name of the agency, contact individual, telephone number, facsimile number (if available), street and mailing address; Law or regulation which requires such reporting; Time periods during which such reports must be made; and copy of reporting forms.]

6.2.3 Recommendations for Any Other Actions

[Include recommendations on any other actions necessary to comply with any federal, state or local law, ordinance, regulation or permit requirements or restrictions which may be applicable to the Property in connection with identified environmental hazards or special resources (such as Operations and Maintenance Plans). **The Consultant must present cost estimates for the recommended action(s) and the length of time required to complete the recommended response action(s).**]

6.3 Investigation Requirements Not Satisfied

[Discuss any investigation requirement that was not satisfied, or information on any resource that was not available and the reasons why the requirement was not satisfied or the information on any resource that was not available. For all outstanding/pending information requests, also provide a professional opinion as to the likelihood that the outstanding information, when received, would change the conclusions and recommendation based on the currently available information.]

7.0 CONSULTANT INFORMATION.

7.1 Project Personnel

[Include the names and titles of <u>all</u> persons who substantively worked on the ESA. Indicate which of these persons was the project manager for the study and Report].

7.2 Report Certification

[Include a statement by a licensed engineer or certified environmental professional with a degree in geology, chemistry, or industrial hygiene that the ESA was performed under his or her direct supervision, that he or she has reviewed and approved the Report, and that the methods and procedures employed in the development of the Report conform to minimum industry standards. <u>Include a signature block for this person to sign.</u>]

7.3 Certification/Licensing

[Include a statement that the Consultant and all subcontractors are properly licensed and/or certified to do the work described herein where required.]

7.4 Report Reliance

[Include a statement identifying the parties who may rely on this report. If applicable, see Agreement or Task Order for required report reliance language.]

8.0 APPENDICES

[This Section shall include, but not be limited to, the following separately numbered documents and attachments:]

8.1. Property Background Attachments:

8.1.1. Photographs

[All copies of the Report must have color original or original-quality prints of photographs. At minimum, a photo of each side of the Property, each adjacent property and all potentially environmentally-related issues/items shall be provided];

8.1.2 Site Drawing

[Site Drawing shall include the Site, all adjacent properties and north arrow; see Section II, C, 1, o for details];

8.1.3 Area Map

[Include map which shows major streets or roads (copy of street map with Site identified is acceptable) with north arrow];

8.1.4 Aerial Photographs

[All copies of the Report must have original, original-quality or legible copies with Property boundaries delineated and a north arrow];

8.1.5 Topographical Map

[Include a color copy of the USGS map with Property boundaries delineated];

8.1.6 Fire Insurance Maps

[Include copies of all fire insurance maps reviewed with Property boundaries delineated];

8.1.7 City Directories

[Include copies of representative city directories reviewed with the Property listing (or where the Property listing would appear if it was listed) highlighted. The year of each directory shall also in denoted.];

8.1.8 Other Maps and Data

[Include copies of other maps and other data described in Section II,B,1,b,(1),(f)];

8.1.9 Title Search Records

[Include copies of the abstract of title or other written title search materials].

8.2 Governmental Agency Records Attachments

8.2.1 General Public Records

[Attach general public records obtained and reviewed pursuant to Section II,B,1];

8.2.2 Mapped Database Report

[Attach Mapped Database Report];

8.2.3 Regulatory Compliance Records

[Attach regulatory compliance records obtained and reviewed pursuant to Section II,B,2. Include list of agencies contacted for records search and name of persons contacted. Attach records of conversations via telephone or visits, as well as copies of written inquiries and responses];

8.2.4 Regulatory Violations

[Attach violation notices from federal, state or local regulatory authorities] and;

8.2.5 Regulatory Agency Correspondence

[Attach correspondence with federal, state or local agencies concerning the existence of hazardous substances or hazardous wastes].

8.3 Interview Records Attachments

8.3.1 Records of Communication

[Attach the records of communications (ROCs) for all persons interviewed at or in the vicinity of the Property; the ROCs should include the date of the conversation and identity of individuals present during the conversation, the relationship of each person to the Property, and the results of the interview (including all issues discussed and responses received)].

8.4 Property Reconnaissance and Investigation

8.4.1 Reporting/Notification Forms

[Attach reporting or completed notification/registration forms submitted to State or local regulatory authorities];

8.4.2 Permits

[Attach copies of permit applications or permits provided];

8.4.3 Asbestos Survey Results
[Attach results of all documentation such as laboratory test results, chain of custody forms, copies of previous asbestos testing results, etc.];

8.4.4 Lead-Based Paint Survey Results
[Attach results of all documentation such as laboratory test results, chain of custody forms, field notes, copies of previous lead-based paint testing results, etc.];

8.4.5 Radon Survey Results
[Attach results of all documentation such as laboratory test results, chain of custody forms, field notes, copies of previous radon testing results, etc.];

8.4.6 Lead in Drinking Water Survey Results
[Attach results of all documentation such as laboratory test results, chain of custody forms, field notes, copies of previous lead testing results, etc.];

8.4.7 UST Tests
[Attach results of any available leak tests for USTs, as well as inventory information];

8.4.8 Corrective Action Plans
[Attach copies of existing corrective action plans, communication or public interaction plans];

8.4.9 Reference Documents
[Attach copies of reference documents such as soil or water studies];

8.4.10 Other Information
[Attach copies of any other appropriate information or documentation including copies of prior ESAs and checklists].

8.5 Certifications.

8.5.1 Certification/Qualifications
[Attach copies of current certifications of all required licenses and certifications required of the Consultant and referenced above in Report Section 7; also attach copies of resumé's of personnel conducting this ESA];

8.5.2 Sampling/Testing Certifications
[Attach current certifications of asbestos inspector, asbestos management planner, and current National Voluntary Laboratory Accreditation Program (NVLAP) certificates from the analytical laboratories, and any certifications required to perform any other testing or procedure set forth in this Scope of Work].

8.6 Scope of Work
[Attach a copy of this Scope of Work].

IV. TABLES. The following contains sample tables to be included in the appropriate sections of the Report. The tables provided in the Report minimally must contain the information as presented in the following sample tables.

SAMPLE TABLE

ASBESTOS INSPECTION RESULTS

PROPERTY NAME:
PROPERTY ADDRESS:

Sample Number	Location	Type of Material	Asbestos Content (Presumed or lab result)	Friability	Condition of Material	Potential for Disturbance	Estimated Quantity	Recommendation	Cost Estimate

EXAMPLE TABLE

LEAD-BASED PAINT TESTING RESULTS

Sample ID	Sample Location	Type of Substrate	Condition of Paint	Accessibility to Children	Approximate Quantity	Test Result

SAMPLE TABLE

ON-SITE TANK INFORMATION

	Tank ID Number				
	1	2	3	4	5
Type of Tank (UST/AST)					
Year Tank Installed					
Tank Size/Capacity					
Tank and Associated Piping Construction Material					
Tank Status (Active, Inactive, Removed, or Abandoned)					
Corrosion Protection Method (Tank and Piping)					
Leak Detection Method					
Overfill Protection Method					
Containment Structure					
Evidence of Leakage, Spillage, or Staining					
Does Tank Contain Product?					
Type of Product					
Quantity of Product					
Registration/Closure Status					

August 18, 1999

Mr. Allan Yee, P. ENG.
Manager, Environmental Affairs
Ball Packaging Products Canada, Inc.
391 Victoria Avenue North, Suite 200
Hamilton, Ontario, Canada L8L 5G7

Regarding: Milton Can Facility Well Search and Abandonment Activities
8200 Broadwell Road
Cincinnati, Hamilton County, Ohio
CEC Project No. 990435

Dear Mr. Yee:

Civil & Environmental Consultants, Inc. (CEC) is pleased to provide Ball Packaging Products Canada, Inc. (Ball) with this report documenting the results of the well abandonment activities conducted for the 8-inch well located at the Milton Can facility (subject property). CEC teamed with David E. Estes Engineering (Estes) to conduct environmental services at the subject property. This work was conducted in general accordance with our Proposal/Project No. 990435 dated April 19, 1999 and is detailed in the following narrative.

WELL SEARCH AND ABANDONMENT

Estes obtained a "Well Log and Drilling Report" for Production Well No. 2, installed in 1954 (Attachment I). The log shows the well to be 16 inches in diameter and approximately 80.5 feet deep. A sketch on the log shows the well to be located west of the Milton Can facility boiler house. Estes performed the following tasks to locate this well:

- A field reconnaissance was conducted on the area west of the boiler house to search for Production Well No. 2. Manhole covers were pulled to confirm that they were not associated with the well.

- Mr. Tom Reed, an employee of Milton Can was interviewed concerning the location of the well. Mr. Reed has worked at the facility for approximately 25 years. Mr. Reed believed that the well was possibly abandoned at an earlier date. Mr. Reed also stated that the location of former Production Well No. 2 is likely covered with asphalt.

- Estes surveyed the area of the suspected location of former Production Well No. 2 with a magnetic locater. The magnetic locater encountered significant interference from miscellaneous metal material in the shallow subsurface making detection of a possible steel well casing extremely difficult. None of these areas surveyed confirmed the presence of the well.

Estes observed several older concrete-capped abandoned production wells on the property. Apparently past plant practice was to abandon production wells when they were no longer used to obtain water. It appears likely that Production Well No. 2 was abandoned when it was no longer needed.

Estes field personnel supervised G.J. Thelen & Associates, Inc. (Thelen) as they abandoned and sealed Production Well No. 1. Production Well No. 1 is 8 inches in diameter and located in a brick shed approximately 150 feet east of the subject property boiler house. The Milton Can facility no longer uses the well. Production Well No. 1 was abandoned and sealed generally following procedures outlined in the "State of Ohio Technical Guidance for Sealing Unused Wells" (1996) and recommendations by Ms. Kathy Sprowls with the Ohio Department of Natural Resources (ODNR). The procedures used are as follows:

- The static water level and total depth of the well were measured on Thursday, June 17, 1999. The static water level was 52.95 ft, and the total depth of the well was greater than 101.8 feet. Attachment I consists of an ODNR well log for the former 16-inch facility production well obtained from Milton Can's environmental consultant. An ODNR well log for the 8-inch well was not available through the same consultant. However, the 16-inch well log shows the relative locations of both wells and the soil lithologies logged for the 16-inch well may be inferred to 80.5 feet for the 8-inch well.

CEC and Estes are currently making an inquiry to ODNR to determine if the 8-inch well log exists in their files. If this well log is located, it will be provided as a supplement to this report subsequent to receipt by CEC.

- The well was sealed on Monday, June 21, 1999. Washed pea gravel was placed in the well to 50 ft below ground surface (bgs). Seventy-five gallons of neat cement (Portland Cement with 5% Bentonite) were used to seal the well to approximately 1.5 feet bgs. The neat cement was placed in the well using a tremie pipe thus cementing the well from the bottom to the top. The remaining 1.5 feet was sealed with a concrete cap on Tuesday, June 22, 1999.

- A Water Well Sealing Report was completed as required by ODNR (see Attachment II). A copy of this report was submitted to ODNR and the Hamilton County Health Department on August 10, 1999.

CLOSING

CEC appreciates the opportunity to work with Ball on this project. We hope that our services have been responsive to your needs and that they match your intended level of effort for this project. Please do not hesitate to contact us at the letterhead telephone number should you have any questions regarding this report or if we may be of further assistance to you.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Paul M. Stevens

Paul M. Stevens, REM, CPG
Principal Geologist

C. M. McCulloch

Charles M. McCulloch, CPG, REM
Principal Geologist

ESTES ENGINEERING, INC.

Benjamin Iden

Ben Iden, P.G.
Director of Environmental Services

ATTACHMENT I

WELL LOG AND DRILLING REPORT

State of Ohio
OHIO WATER RESOURCES BOARD
Department of Public Works
553 E. Broad St., Columbus 15, Ohio

No 51746

x 1,485,000
y 420,000 S

County Hamilton Township Anderson Section of Township or Lot Number Military Survey #1575 & 1769

Owner The Baldwin Piano Co. Address 1801 Gilbert Avenue, Cincinnati, O

Location of property Broadwell Rd. & N. & W R. R., Newtown, Ohio

CONSTRUCTION DETAILS

Casing diameter 16" Length of casing 66'3"

Type of screen Cook RB Length of screen 8Ft.

Type of pump Turbine

Capacity of pump 125 GPM

Depth of pump setting 66'10"

PUMPING TEST

Pumping rate 125 G.P.M. Duration of test ______ hrs

Drawdown ______ ft. Date ______

Developed capacity 125

Static level of completed well 54'5" ft.

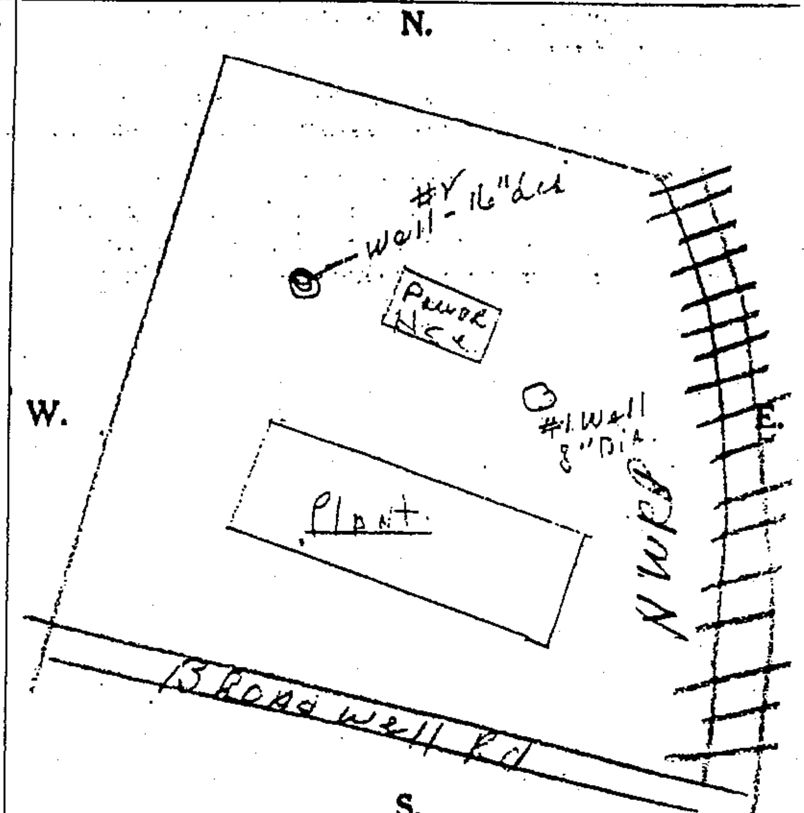
Pump installed by Jos. Koehne Sons.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay & Gravel	0 Feet	2 Ft.
Sand	2	3
Dry Gravel	3	55
Sand & Gravel	55	60
Coarse Sand	60	66
Blue Clay & Gravel	66	69
Blue Clay	69	80'6"

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Jos. Koehne Sons. Date July 12, 1954

Address 1826 Sherman Avenue, Signed Clare R Hatchens

5

ATTACHMENT II

DNR 7810.96

WATER WELL SEALING REPORT
OHIO DEPARTMENT OF NATURAL RESOURCES

Division of Water
1939 Fountain Square Drive
Columbus, Ohio 43224-9971
Voice: (614) 265-6739 Fax: (614) 447-9503

0106137

LOCATION

County HAMILTON Township ANDERSON Circle One or Both Section/Lot Number

Owner/Builder MILTON CAN COMPANY
Circle One or Both

Address of Well Location 8200 (Number) BROADWELL ROAD (Street Name)

City CINCINNATI Zip Code +4 45244-1608

Property Location Description: 0.75 miles W (n, e, s, w) of BROADWELL ROAD & MT. CARMEL ROAD (nearest intersection)

on the N (n, e, s, w) side of BROADWELL ROAD (road name)

Location of Well in State Plane coordinates, if available N ☐ S ☐ X ____ +/- ____ ft. or m Y ____ +/- ____ ft. or m

Elevation of Well ____ +/- ____ ft. or m Datum Plain: ☐ NAD27 ☐ NAD83

Source of Coordinates: ☐ GPS ☐ Survey ☐ Other

ORIGINAL WELL ODNR Well Log Number 51746 Copy attached? Yes or No (circle one)

MEASURED CONSTRUCTION DETAILS Date of measurements 6/18/99

Depth of Well >101.8" Static Water Level 52.95'
Size of Casing 8" Length of casing >101.8'
Well Condition GOOD

SEALING PROCEDURE
Method of Placement TREMIE PIPE

Placement:			Sealing Material	Volume
From 101.8'	To 50.0'		WASHED PEA GRAVEL	17.7 ft^3
From 50.0'	To 1.5'		NEAT CEMENT	75 gallons
From	To			

Was Casing Removed? Yes or No (circle one)

Condition of Casing GOOD
Perforations: From ____ To ____
From ____ To ____

Date Sealing Performed 6/21/99
Reason(s) for Sealing WELL NO LONGER BEING USED

CONTRACTOR
Name THELEN & ASSOCIATES ODH Registration # N/A
Address 516 ENTERPRISE DRIVE
City/State/Zip COVINGTON, KY 41017

Signature Shane Jordan
I hereby certify the information given is accurate and correct to the best of my knowledge.

Completion of this form is required by section 1521.05 (B) (9), Ohio Revised Code - file within 30 days after completion of sealing.
ORIGINAL COPY TO - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224

September 10, 1999

Mr. Allan Yee, P. ENG.
Manager, Environmental Affairs
Ball Packaging Products Canada, Inc.
391 Victoria Avenue North, Suite 200
Hamilton, Ontario, Canada L8L 5G7

Regarding: Air Compressor Discharge Analysis and Dye Testing
Milton Can Facility
8200 Broadwell Road
Cincinnati, Hamilton County, Ohio
CEC Project No. 990435

Dear Mr. Yee:

Civil & Environmental Consultants, Inc. (CEC) is pleased to provide Ball Packaging Products Canada, Inc. (Ball) with this report documenting the results of the dye testing on the air compressor drain line. This line leads from the air compressor area of the facility boiler house to the Northern Gravel Pit Pond. Oil and grease analysis for the compressor discharge (blowdown) was conducted at the Milton Can facility (subject property) as part of this investigation. CEC teamed with David E. Estes Engineering (Estes) to conduct environmental services at the subject property. This work was conducted in general accordance with our Proposal/Project No. 990435 dated April 19, 1999.

CEC appreciates the opportunity to work with Ball on this project. We hope that our services have been responsive to your needs and that they match your intended level of effort for this project. Please do not hesitate to contact us at the letterhead telephone number should you have any questions regarding this report or if we may be of further assistance to you.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Paul M. Stevens
Paul M. Stevens, REM, CPG
Principal Geologist

Charles M. McCulloch, CPG, REM
Principal Geologist

ESTES ENGINEERING, INC.

Benjamin Iden PMS
Ben Iden, P.G.
Director of Environmental Services

Civil & Environmental Consultants, Inc.

Cincinnati 9912 Carver Road
Cincinnati, Ohio 45242
Phone 513/985-0226
Fax 513/985-0228
Toll Free 800/759-5614
E-mail cecstaff@eos.net

Pittsburgh Phone 412/429-2324 / Toll Free 800/365-2324
Columbus Phone 614/540-6633 / Toll Free 888/598-6808
Indianapolis Phone 317/484-4280 / Toll Free 877/746-0749
Nashville Phone 615/371-0055 / Toll Free 800/763-2326

Corporate Web Site http://www.cecinc.com

AIR COMPRESSOR DISCHARGE ANALYSIS AND DYE TESTING

Civil & Environmental Consultants, Inc. (CEC) and David E. Estes Engineering, Inc. (Estes) conducted dye testing (dye tracing) on the drain in the compressor area of the boiler house to determine where the discharge from the compressor terminates (Figure 1). Field activities for this task were performed by Estes personnel on June 19 and 21, 1999. The drain was dye-traced using the following procedures:

- Approximately 30 biodegradable dye tablets were placed in the compressor room drain.
- A potable water hose was placed in the drain and turned on.
- Stormwater manholes and sanitary sewer manholes were opened and observed for the presence of fluorescent green dye. Effluent samples were removed from the manholes with a plastic bailer for closer visual examination.

Estes did not observe dye in any of the manholes on June 19, 1999. Estes re-examined the manholes on June 21, 1999. There appeared to be a faint trace of the dye in stormwater manhole No. 2 (Figure 1). Estes repeated the process listed above and increased the flow of water into the drain. The dye was clearly evident in effluent samples collected from manhole No. 2 after approximately 20 minutes of flushing. The dye was likely not evident in this manhole on June 19th because insufficient quantities of water were discharged to the drain to fill the dry stormwater pipe.

Estes also noted dye in stormwater manhole Nos. 3 and 4 within one-hour of the beginning of the June 21st test. Estes did not observe any dye in the water contained in the Northern Gravel Pit Pond where the stormwater line terminates. This was likely due to the pipe headwall being submerged and the volume of the pond. Estes did note some sheen on the water surface not associated with the dye.

Estes collected an upgradient water sample from stormwater manhole No. 1. Dye was not evident in this sample.

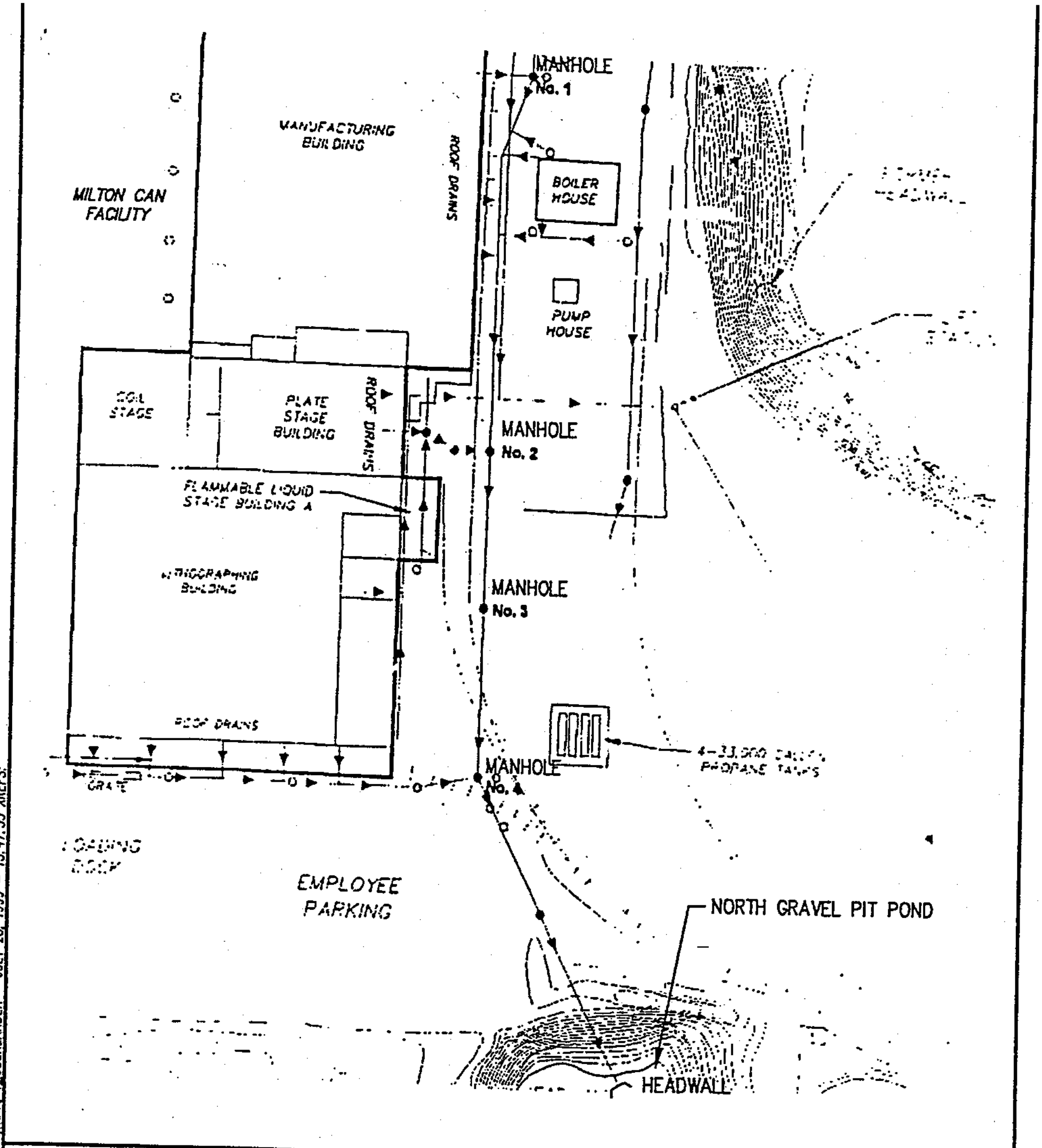
Estes collected a sample of the compressor blowdown for oil and grease analysis on June 21, July 29, and August 12, 1999. These samples were collected in a pre-preserved glass jar and placed on ice for shipment to Specialized Assays, Inc. (Specialized Assays) in Nashville, Tennessee for laboratory analysis. The June, July, and August 1999 samples were reported by Specialized Assays to contain 5,930 mg/l, 40.6 mg/l, and 89.9 mg/l of oil and grease, respectively (Attachment I). CEC and Estes were unable to obtain an effluent sample at the suspected drain line termination point on the Northern Gravel Pit Pond due to its submergence beneath the pond surface. It is assumed that at some time during the year, the pipe headwall is exposed above the water line, which should allow for sampling at that time.

CONCLUSIONS AND RECOMMENDATIONS

Dye testing of the drain line leading from the compressor blowdown in the Milton Can facility boiler house via observations at Manhole Nos. 2, 3, and 4, indicated that this line has a suspected discharge point at the headwall at the west end of the Northern Gravel Pit Pond. Dye was not observed in the pond in the vicinity of the headwall due to submergence and dilution of effluent. The elevated oil and grease values obtained for the compressor blowdown samples do not appear to be compliant with Milton Can's current National Pollutant Discharge Elimination System (NPDES) General Permit No. OHG000001. The effective date for this permit was May 31, 1995. The permit expires October 31, 1999. Non-stormwater sources, such as the compressor blowdown, do not appear to be authorized by this permit.

Based upon the analytical results for the June, July, and August 1999 oil and grease samples, CEC recommends that Ball consider modifying the compressor blowdown drain pipe system. A possible option for the compressor blowdown is presented below:

- Make possible modifications to the current compressor system that may eliminate oil and grease in the discharge to the floor drain in the boiler house or reroute the discharge to the line adjacent to the boiler house (to the east) leading to the facility wastewater treatment plant located in the northeastern portion of the property.



P:\PROJECTS\990435\DWG\2-fig1.dwg T_OBERLANDER - JULY 28, 1999 - 13:47:33 XREFS:

Civil & Environmental Consultants, Inc.
Cincinnati, OH
(513) 985-0226 • (800) 759-5614
Pittsburgh, PA • Columbus, OH • Indianapolis, IN • Nashville, TN

Site Layout Map
BALL CORPORATION
Milton Can Facility – Air Compressor Discharge Analysis and Dye Testing
8200 Broadwell Road
Cincinnati, Hamilton County, Ohio

DWN. BY: TMO	SCALE:	DATE:	PROJECT NO:	FIGURE NO:
CHKD. BY: PMS	NONE	JULY 1999	990435	1

ATTACHMENT I

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A92099
Sample ID: COMPRESSOR BLOWDOWN 1 OF 1
Sample Type: Water
Site ID:

Project: 900-139
Project Name: MILTON CAN
Sampler: BI/ESTES

Date Collected: 6/21/99
Time Collected:
Date Received: 6/23/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
MISCELLANEOUS CHEMISTRY										
Oil & Grease	5930	mg/l	0.8	0.8	1	6/28/99	15:28	L.Philpott	413.1	3726

ND = Not detected at the report limit.

Report Approved By: [signature] Report Date: 6/29/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

COPY 1

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Oil & Grease	mg/l	20.0	18.3	92	70 - 130	3726

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

CHAIN OF CUSTODY

Project Number: 900-139			Sampler: BI/ESTES					Analysis Requested
Project Name: MILTON CAN			SAE Quote:					
Lab No.	Field Number	Date	Time	Matrix	Grab	Comp.	Bottles	OIL & GREASE
92099	COMPRESSOR BLOWDOWN 1 OF 1	6/21/99			X		1	X
~~92100~~	COMPRESSOR BLOWDOWN EXTRA SAMPLE	6/21/99			X		1	X

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
Shane Jordan	6/22/99 0915						
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by: [illegible signature]	6/23 09[illegible]

Cooler Temperature When Received: 4°c	SPECIAL INSTRUCTIONS: 4°
Laboratory Project Number: 148496	
Cooler Seals Intact?	
Fed-x Air Bill Number:	

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A114071
Sample ID: COMPRESSOR BLOWDOWN #2
Sample Type: Water
Site ID:

Project:
Project Name: MILTON CAN
Sampler: BENIDEN/ESTES

Date Collected: 7/29/99
Time Collected:
Date Received: 7/30/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
MISCELLANEOUS CHEMISTRY										
Oil & Grease	40.6	mg/l	0.8	0.8	1	8/ 4/99	15:08	L.Philpott	413.1	6860

ND = Not detected at the report limit.

Report Approved By: Report Date: 8/ 6/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Oil & Grease	mg/l	20.0	18.3	92	70 - 130	6860

COPY 1

RECEIVED AUG 11 1999

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

CIVIL & ENVIRONMENTAL CONSULT. :-6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

CHAIN OF CUSTODY

Project Number:

Sampler: BENIDEN/ESTES

Project Name: MILTON CAN

SAE Quote:

Analysis Requested: OIL & GREASE

Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles	OIL & GREASE							
114071	COMPRESSOR BLOWDOWN#2	7/29/99		WATER	✓			✓							

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
[signature]	7/29/99						
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
						[signature]	7/30/99

Cooler Temperature When Recevied: 4°c	SPECIAL INSTRUCTIONS:
Laboratory Project Number: 153872	
Cooler Seals Intact?	
Fed-X Air Bill Number:	

COPY 1

From: SPECIALIZED ASSAYS ENVIRONMENTAL
2960 Foster Creighton Drive
Nashville, Tennessee 37204

To: BEN IDEN
CIVIL & ENVIRONMENTAL CONSULT.

To follow are laboratory reports relating to your project 990435.

Please forward these reports to NANCY FORSTER.

If there are problems with the transmission of this data, please call Specialized Assays client services department.

SPECIALIZED ASSAYS ENVIRONMENTAL
2960 Foster Creighton Drive
Nashville, Tennessee 37204

ANALYTICAL REPORT

** Original report and a copy of the chain of custody will follow by mail.

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A122275

Sample ID: COMPRESSOR BLOWDOWN #3

Date Collected: 8/12/99

Project: 990435

Time Collected: 14:30

Project Name: MILTON CAN

Date Received: 8/13/99

Sampler: BEN IDEN

Time Received: 9:00

State Certification:

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
MISCELLANEOUS CHEMISTRY										
Oil & Grease	89.9	mg/l	0.8	0.8	1	8/19/99	15:07	L.Philpott	413.1	8059

ND - Not detected at the report limit.

Report Approved By: ______________________

Report Date: 8/23/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Oil & Grease	mg/l	20.0	19.3	96	70 - 130	8059

Vorys, Sater, Seymour and Pease LLP
Suite 2100 • Atrium Two • 221 East Fourth Street • Cincinnati, Ohio 45201-0236 • Telephone (513) 723-4000 • Facsimile (513) 723-4056

Arthur I. Vorys
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Lowry F. Sater
1867-1935
Augustus T. Seymour
1873-1926
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1873-1924

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Suite 310
Alexandria, Virginia 22314
Telephone (703) 837-6999
Facsimile (703) 549-4492

Mark A. Norman
Direct Dial (513) 723-4006
Facsimile (513) 852-7881
E-Mail - manorman@vssp.com

December 13, 2001

Leon J. Parker
BWAY Corporation
Director, Engineering & Technology
8200 Broadwell Road
Cincinnati, OH 45244

Dear Leon:

Please find enclosed a copy of the investigative study performed by Civil & Environmental Consultants, on behalf of Ball, in 1999. This document contains a few hand-written comments, made by persons other than myself (possibly legal counsel). Thus, please do not circulate this document outside of BWAY. Please call me if you have any questions.

Sincerely,

Mark A. Norman

MAN/mt

Enclosure

BALL PACKAGING PRODUCTS CANADA, INC.

MILTON CAN FACILITY
SOUTHERN GRAVEL PIT INVESTIGATION REPORT
8200 BROADWELL ROAD
CINCINNATI, HAMILTON COUNTY, OHIO

Prepared by:
Civil & Environmental Consultants, Inc.
Project No. 990435

July 23, 1999

→ originals
1996

Civil & Environmental Consultants, Inc.

Pittsburgh *Cincinnati* *Columbus* *Indianapolis* *Nashville*

Corporate Web Site http://www.cecinc.com

Pittsburgh

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A CEC Company
215 Centerview Drive, Suite 100
Brentwood, Tennessee 37027-5246
Phone 615/371-0055
Fax 615/371-0086
Toll Free 800/763-2326
E-mail ideas@ideassoc.com

August 19, 1999

Mr. Allan Yee, P. ENG.
Manager, Environmental Affairs
Ball Packaging Products Canada, Inc.
391 Victoria Avenue North, Suite 200
Hamilton, Ontario, Canada L8L 5G7

Regarding: Milton Can Facility Southern Gravel Pit Investigation Report Page Replacement and Milton Can Facility Well Search and Abandonment Activities Report
8200 Broadwell Road
Cincinnati, Hamilton County, Ohio
CEC Project No. 990435

Dear Mr. Yee:

Pursuant to our telephone conversation on August 10 and 18, 1999, I am submitting three copies of the enclosed revised text pages and tables for the report titled "Milton Can Facility Southern Gravel Pit Investigation Report". These pages have been prepared such that they are ready for insertion in the reports previously sent to you. Additionally, I am submitting three copies of the revised report titled "Milton Can Facility Well Search and Abandonment Activities".

CEC appreciates the opportunity to work with Ball on this project. We hope that our services have been responsive to your needs and that they match your intended level of effort for this project. Please do not hesitate to contact us at the letterhead telephone number should you have any questions regarding this report or if we may be of further assistance to you.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Paul M. Stevens

Paul M. Stevens, REM, CPG
Principal Geologist

Civil & Environmental Consultants, Inc.

nnati 9912 Carver Road
Cincinnati, Ohio 45242
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Nashville Phone 615/371-0055 / Toll Free 800/763-2326

Corporate Web Site http://www.cecinc.com

BALL PACKAGING PRODUCTS CANADA, INC.

MILTON CAN FACILITY
SOUTHERN GRAVEL PIT INVESTIGATION REPORT
8200 BROADWELL ROAD
CINCINNATI, HAMILTON COUNTY, OHIO

Prepared by:
Civil & Environmental Consultants, Inc.
Project No. 990435

July 23, 1999

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 FIELD ACTIVITIES

Civil & Environmental Consultants, Inc. (CEC) and David E. Estes Engineering, Inc. (Estes) conducted field activities at the Milton Can facility located at 8200 Broadwell Road, Cincinnati, Hamilton County, Ohio, on June 16, 17, 18, and 21, 1999. These activities consisted of excavating backhoe test pits, surface water sampling, and sediment sampling at the Southern Gravel Pit located on the subject property. The procedures followed performing these tasks are outlined in the following sections.

2.0 FIELD METHODOLOGY

2.1 Backhoe Test Pits

CEC and Estes excavated nine test pits in the Southern Gravel Pit to characterize the fill material (Figure 1). Test pit logs are presented in Appendix I of this report. The test pits were excavated and sampled in the following manner:

- Test pits were excavated with a backhoe to a terminal depth of approximately 5 feet into natural material, when possible.
- Grab samples were collected from natural materials for laboratory and headspace analysis at the following depth intervals:

  0 to 1 foot,
  1 to 2 feet,
  2 to 4 feet

- Samples were collected from the bottom of the pit when no natural materials were encountered (test pit terminated in fill).
- Samples were removed from the backhoe bucket with clean disposable latex gloves.

- Samples for VOC analysis were immediately placed in 2 oz. pre-cleaned glass jars and placed on ice. Samples for SVOC analysis, TCLP RCRA metals analysis, and herbicides/pesticides were placed in 16 oz. pre-cleaned glass jars and placed on ice. Samples for headspace analysis were placed in one-gallon, plastic, positive-seal bags and allowed to warm to ambient temperature.

- Headspace analysis was performed using an HNU photoionization detector (PID) with an 11.7 eV probe. The PID was calibrated to benzene, prior to performing the headspace readings, using 100 ppm isobutylene calibration gas. The PID was zeroed and then set to read from 0 to 200 ppm. The gas line was connected from the isobutylene cylinder and the PID span adjusted so the analog meter read 74 ppm.

- Headspace readings were collected after the samples had warmed to ambient temperature (estimated at 70(to 80(Fahrenheit). The seal on the plastic bags was broken just enough to allow the insertion of the probe tip. The headspace reading was obtained by directly reading the analog meter.

- All test pits were backfilled with spoil material from the pits subsequent to logging and sampling.

2.2 Surface Water Sampling

No water was in Pond No. 1 at the time of the sampling activities (Figure 1). Surface water samples were collected from Pond No. 2 prior to sediment sampling. CEC followed the procedures listed below to collect the sediment samples:

- Clean, disposable tubing connected to a peristaltic pump was placed halfway to the bottom of the pond near the ponds edge and set for a low flow rate.

- CEC filled the HCL pre-preserved, 40 ml, amber, glass containers for VOCs first, followed by the 1-liter amber glass containers for SVOCs.

- A 0.45 micron Veraspor (disposable barrel filter was connected to the end of the tubing prior to filling a nitric pre-preserved, 250 ml, plastic container for dissolved metals.

- CEC collected water pH, temperature, and conductivity readings subsequent to filling the above bottles.

2.3 Sediment Sampling

CEC collected composite sediment samples from the two ponds for TCLP RCRA metals, SVOCs, and pesticides/herbicides. These sediment samples were collected in the following manner:

- Five grab sediment samples were collected with a clean stainless steel spoon from the top 3 to 6 inches of sediment close to the edge of the ponds (Figure 1).
- The grab samples were composited in a clean stainless steel bowl, thoroughly mixed, placed in a pre-cleaned, 16 oz., glass container, and placed on ice.

Due to the large amount of organic matter suspended above the sediment, it was not possible to collect a sample from the sediment covered with water in Pond No. 2. CEC and Milton Can's representative agreed and collected the grab samples for Pond No. 2 from the top 3 to 6 inches of sediment between the waters edge and the ordinary high water mark.

A grab sample for VOCs was collected from the southeast edge of Pond No. 1 close to the east fill area (Figure 1). A grab sample for VOCs was collected from the southeast edge of Pond No. 2 close to some off-spec can waste noted at the edge of the pond (Figure 1). The grab samples were placed in pre-cleaned, 2 oz., glass jars, and placed on ice.

3.0 TEST PIT EXCAVATIONS AND FINDINGS

The Southern Gravel Pit was investigated by excavating a series of backhoe test pits at selected locations within the previously defined east, southeast, and western areas of the gravel pit (Figure 1).

3.1 The Western Area

Prior information obtained by CEC and Estes indicated that as much as 40 feet of fill covers the western portion of the southern gravel pit. This area is adjacent to where the access road enters the gravel pit. Test Pit Nos. 7 and 9 were excavated in the western area.

- Test Pit No. 7 was excavated on the slope leading up to the road that enters the gravel pit.
- Test Pit No. 9 was excavated along the access road leading into the gravel pit on the upslope side of the road.

Well graded sand with gravel was noted in both test pits. This material appears to have been redeposited. Only limited fill material was evident in these test pits. Furthermore, there was little surficial evidence that extensive dumping had occurred in this area. CEC, Estes, and Milton Can's representative decided not to sample this area.

3.2 The Southeast Area

Prior information obtained by CEC and Estes indicated that 0 to 10 feet of fill covered the southeast area. This area slopes up to a second access road leading to the gravel pit. Test Pit Nos. 3, 4, 5, and 8 were excavated in the southeast area.

- Test Pit No. 3 was excavated near the top of the slope leading out of the gravel pit.
- Test Pit No. 4 was excavated in the middle of the slope adjacent to a depressional area.
- Test Pit No. 5 was excavated at the bottom of the slope in the southeast area.
- Test Pit No. 8 was excavated along the west side of the slope immediately east of Test Pit No. 7.

Natural materials were not encountered in Test Pit Nos. 3, 4, and 8. The terminal depth of these test pits ranged from 8 to 14 feet bgs. Fill materials included such items as concrete, wood debris, plastic, paper, automotive parts, can waste, rusted 55-gallon drums, and a refrigerator. This fill material was mixed with sand and gravel. CEC and Milton Can's representative decided to sample the fill material in Test Pit Nos. 3 and 8, since natural materials were not encountered. Fill material samples were collected from the bottom of the test pits.

Brown well graded sand with gravel was encountered in Test Pit No. 5. Samples for laboratory analysis were collected from the 0 to 1 foot, 1 to 2 feet, and 2 to 4 feet natural material intervals.

3.3 The East Area

Prior information obtained by CEC and Estes indicated that 0 to 10 feet of fill covered the east area. Contained in this area are many old, rusted 55-gallon drums. CEC understands these drums formerly may have contained waste solvent. The drums may have been punctured, rolled down into the gravel pit, and ignited by the local fire department as part of training exercises at some time prior to 1993. Test Pit Nos. 1, 2, and 6 were excavated in the east area.

- Test Pits No. 1 and No. 2 were excavated in the east area in close proximity to where the drums were rolled down the hillside.
- Test Pit No. 6 was excavated at the bottom of a slope consisting of off-spec can debris.

The materials encountered in Test Pit Nos. 1 and 2 were very similar. Brown well-graded sand with gravel was encountered in both of these pits. CEC and Milton Can's representative believed that submitting samples from both test pits would be redundant. Therefore, samples for laboratory analysis were only submitted from Test Pit No.1 from the 0 to 1 foot, 1 to 2 feet, and 2 to 4 feet natural material intervals.

Natural material was not encountered in Test Pit No. 6 until approximately 5 feet bgs. The fill material consisted of old, off-spec, pull tab and aerosol cans. What appeared to be solder was also noted in the fill. The natural material consisted of brown, well-graded sand with gravel. Samples for laboratory analysis were submitted from the 0 to 1 foot, 1 to 2 feet, and 2 to 4 feet natural material intervals.

4.0 ANALYTICAL LABORATORY RESULTS

Analytical laboratory results for the test pit samples are presented in Appendix II, summarized in Table 1, and discussed below.

4.1 Volatile Organic Compounds

A total of twelve samples collected from five test pits were submitted for laboratory analysis for volatile organic compounds (VOCs) using USEPA Method 8260 (Table 1 and Appendix II). Low levels of tetrachloroethene or perchloroethene (PCE) were detected in the three samples of natural material collected from Test Pit No. 6 and in the one fill material sample collected from Test Pit No. 8. Concentrations of PCE ranged from 0.0023 to 0.0056 mg/kg.

4.2 Semi-Volatile Organic Compounds

A total of eight samples collected from five test pits were submitted for laboratory analysis for semi-volatile organic compounds (SVOCs) using USEPA Method 8270 (Table 1 and Appendix II). SVOCs were detected in the samples collected from fill material in Test Pit Nos. 3 and 8 at 9 feet bgs and 14 feet bgs, respectively, and in the 0 to 1 ft natural material sample interval from Test Pit No. 5.

The SVOCs detected in Test Pit No. 3 included anthracene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (g,h,i) perylene, benzo (a) pyrene, chrysene, fluoranthene, indeno (1, 2, 3-cd) pyrene, phenanthrene, and pyrene. The same SVOCs were detected in Test Pit No. 8 except for benzo (g,h,i) perylene and indeno (1,2,3-cd) pyrene. The highest concentration of any chemical detected in the test pits was 4.29 mg/kg for fluoranthene.

A concentration of 0.363 mg/kg phenanthrene was detected in the 0 to 1-foot interval of natural material collected from Test Pit No. 5.

All of the above test pits with detectable concentrations of SVOCs are located in the southeast area.

4.3 Toxicity Characteristic Leaching Procedure Metals

A total of five samples collected from five test pits were submitted for laboratory analysis for toxicity characteristic leaching procedure (TCLP) RCRA metals using USEPA Method 6010/7471 (Table 1 and Appendix II). Lead was detected at a concentration of 4.75 mg/kg in the sample of fill material collected from Test Pit No. 3. No other TCLP RCRA metals were detected in the other four samples analyzed.

4.4 Pesticides/Herbicides

CEC and Milton Can's representative decided to collect the sample for pesticides/herbicides from the southeast area instead of the originally planned western area. A sample for pesticides/herbicides was analyzed from the fill material collected from Test Pit No. 8 at a depth of 14 feet bgs. Pesticides/herbicides were not detected in this sample.

4.5 Pond Water and Sediment Analytical Laboratory Results

Surface water from Pond No. 2 was sampled and analyzed for VOCs, SVOCs, and dissolved RCRA metals. Carbon disulfide was the only VOC detected and is believed to be a laboratory contaminant. The concentration detected was 0.0101 mg/l. No SVOCs were detected. The only dissolved metal detected was barium. The barium concentration detected was 0.055 mg/l. why?

Sediment from Pond Nos. 1 and 2 was sampled and analyzed for VOCs, SVOCs, TCLP RCRA metals and pesticides/herbicides. No VOCs, SVOCs, TCLP metals, or pesticides/herbicides were detected in the sediment samples collected from either pond.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Test Pit Soil Sampling and Analysis

PCE concentrations were detected in three natural soil samples from Test Pit No. 6 and one fill material sample from Test Pit No. 8 (Table 1). These values are several orders of magnitude below the State of Ohio Voluntary Action Program (VAP) Generic Direct Contact Soil Standard for Industrial Land Use (industrial standard) for PCE (Table 1).

A single SVOC concentration for phenanthrene was detected in one natural soil sample from Test No. 5 (Table 1). SVOC concentrations for anthracene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (g,h,i) perylene, benzo (a) pyrene, chrysene, fluoranthene, indeno (1, 2, 3-cd) pyrene, phenanthrene, and pyrene were detected for the Test Pit No. 3 fill sample. The same SVOCs were detected in Test Pit No. 8 fill material sample except for benzo (g,h,i) perylene and indeno (1,2,3-cd) pyrene. All detected values were below the corresponding VAP industrial standards for the above-stated SVOCs (Table 1).

A TCLP lead concentration of 4.75 mg/l was detected in a fill material sample collected from Test Pit No. 8 (Table 1). The VAP industrial standards do not provide a TCLP value for lead (only total lead). However, the detected TCLP lead value is below the published USEPA TCLP Regulatory Level for lead (Table 1). limit

No pesticides/herbicides were detected above their method detection limits (MDLs) for the fill material sample collected from Test Pit No. 8. This was the only test pit sampled for pesticides/herbicides. why?

Results of soil sampling and analyses for the above-discussed natural soils and fill materials indicates that the detected VOC, SVOCs and TCLP RCRA metals are below the applicable published regulatory standards or levels (Table 1). Therefore, CEC concludes that no further subsurface investigation within the Southern Gravel Pit project area is warranted.

5.2 Pond Water Sampling and Analysis

Carbon disulfide was the only VOC detected in the surface water sample from Pond No. 2 and is believed to be a laboratory contaminant. The Ohio VAP does not provide standards for regulated constituents in surface water or groundwater and therefore defaults to the USEPA Drinking Water Regulations and Health Advisory (DWRHA) Maximum Contaminant Level (MCL) tables. These tables show no MCL for carbon disulfide. No SVOCs were detected. Barium was the only dissolved metal detected in the Pond No. 2 surface water sample. The detected value for barium is two orders of magnitude below the DWRHA MCL (Table 2).

Sediment samples collected from Pond Nos. 1 and 2 detected no VOCs, SVOCs, TCLP metals, or pesticides/herbicides (Table 2).

Results of the surface water sampling and analyses for the above-discussed surface water sample indicates that the detected VOC and RCRA metal are below the published regulatory standards or levels (Table 2). Results of the above-discussed pond sediment sampling and analyses indicated no VOCs, SVOCs, or TCLP metals (Table 2). Therefore, CEC concludes that no further pond water or sediment investigation in the Southern Gravel Pit project area is warranted.

TABLE 1
TEST PIT ANALYTICAL LABORATORY RESULTS AND HEADSPACE READINGS

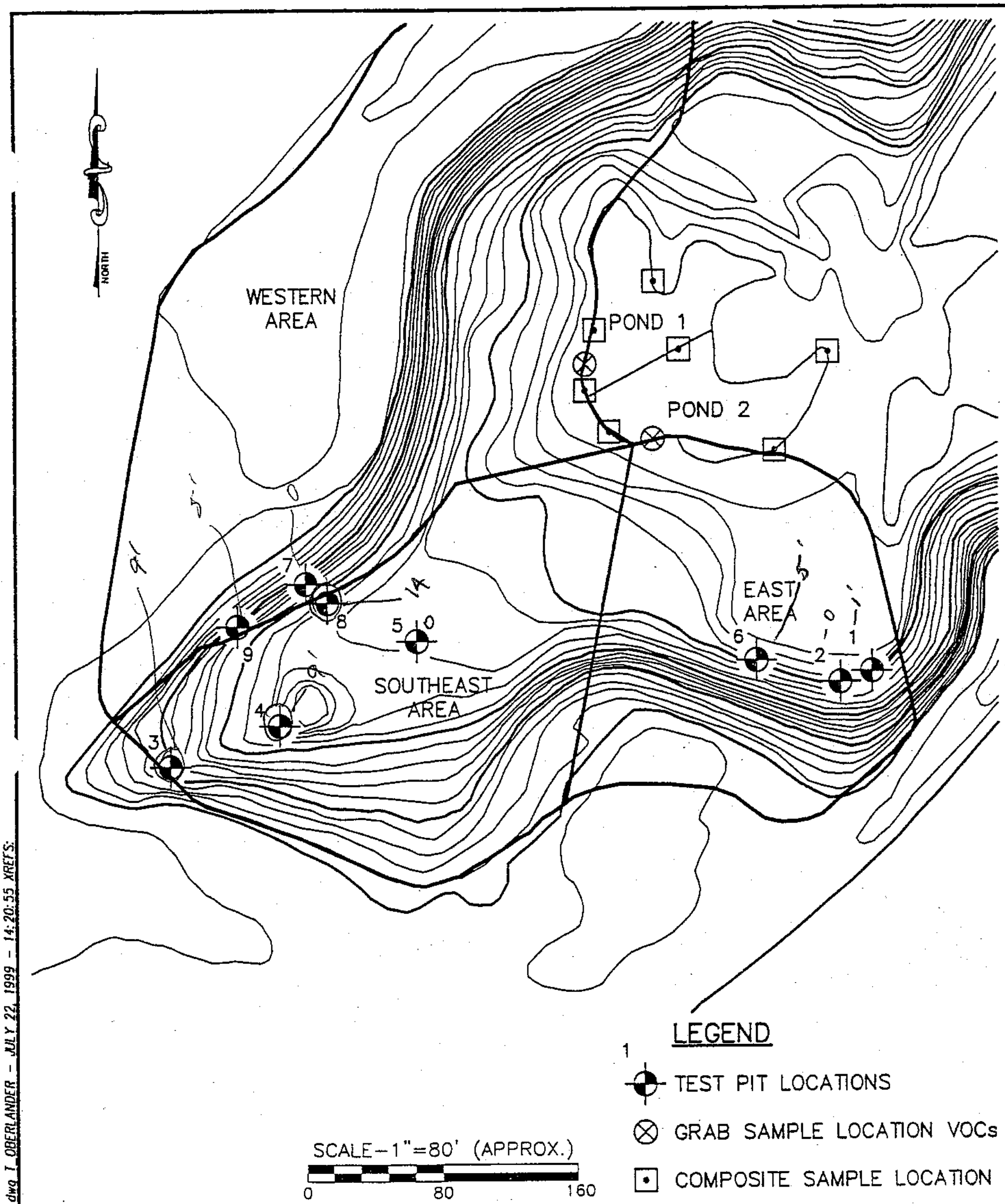
TEST PIT NUMBER	TP-1				TP-3	TP-5			TP-6			TP-8	Ohio VAP Generic Direct Contact Soil Standards (mg/kg) Industrial Land Use Category 3/26/99	Regulatory Level Maximum Limit (mg/L)
DEPTH	0-1'	1-2'	2-4'	5.5'	9'	0-1'	1-2'	2-4'	0-1'	1-2'	2-4'	14'		
HEADSPACE READING (ppm)	ND	ND	ND	ND	ND	0.5	ND	ND	1.0	2.5	3.0	ND		
COMPOUND														
SVOCs (mg/kg)														
Anthracene	ND	ND	ND	ND	0.33	ND	--	--	ND	--	--	0.33	89,000	NA
Benzo (a) Anthracene	ND	ND	ND	ND	1.75	ND	--	--	ND	--	--	0.759	31	NA
Benzo (b) fluoranthene	ND	ND	ND	ND	2.61	ND	--	--	ND	--	--	0.726	31	NA
Benzo (k) fluoranthene	ND	ND	ND	ND	1.62	ND	--	--	ND	--	--	0.805	310	NA
Benzo (g,h,i) perylene	ND	ND	ND	ND	0.46	ND	--	--	ND	--	--	ND	9,100	NA
Benzo (a) pyrene	ND	ND	ND	ND	1.82	ND	--	--	ND	--	--	0.693	3.1	NA
Chrysene	ND	ND	ND	ND	1.95	ND	--	--	ND	--	--	0.924	3,100	NA
Fluoranthene	ND	ND	ND	ND	4.29	ND	--	--	ND	--	--	1.52	12,000	NA
Indeno (1, 2, 3-cd) Pyrene	ND	ND	ND	ND	0.46	ND	--	--	ND	--	--	ND	31	NA
Phenanthrene	ND	ND	ND	ND	1.42	0.363	--	--	ND	--	--	1.39	91,000	NA
Pyrene	ND	ND	ND	ND	3.96	ND	--	--	ND	--	--	1.91	8,900	NA
VOCs (mg/kg)														
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.0023	0.0049	0.0047	0.0056	370	NA
TCLP RCRA METALS (mg/l)														
Lead	ND	--	--	--	4.75	ND	--	--	ND	--	--	ND	2,800 (total)	5
PESTICIDES/HERBICIDES (mg/kg)														
Insecticides/Herbicides	--	--	--	--	--	--	--	--	--	--	--	ND		NA

"--" = Not analyzed
ND = None detected
NA = Not Applicable
Note: Other VOCs, SVOCs, and metals not listed in the table were not detected for the sample using the method specified
* USEPA TCLP Regulatory Level: A waste is hazardous if the TCLP leachate of the sample contains concentrations above the maximum limit.

TABLE 2
POND SEDIMENT AND WATER
ANALYTICAL LABORATORY RESULTS

POND SAMPLE	POND 1 SEDIMENT	POND 2 SEDIMENT	POND 2W WATER	Ohio VAP NA for Groundwater	Drinking Water Standards and Health Advisories Maximum Contaminant Level (mg/L)
COMPOUND					
SVOCs (mg/kg)					
SVOCs	ND	ND	ND	NA	NA
VOCs (mg/kg)					
Carbon Disulfide	ND	ND	0.0101	NA	NA
DISSOLVED RCRA METALS (mg/l)					
Barium	–	–	0.055	NA	2
TCLP RCRA METALS (mg/l)					
TCLP RCRA Metals (mg/l)	ND	ND	–	NA	NA
PESTICIDES/HERBICIDES (mg/kg)					
Pesticides/Herbicides (mg/kg)	ND	ND	–	NA	NA

"–" = Not analyzed
ND = None detected
NA = Not Applicable
Note: Other VOCs and metals not listed in the table were not detected for the sample using the method specified.



CEC

Civil & Environmental Consultants, Inc.
Cincinnati, OH
(513) 985-0226 • (800) 759-5614
Pittsburgh, PA • Columbus, OH • Indianapolis, IN • Nashville, TN

Site Layout Map
BALL CORPORATION
Milton Can Property
Southern Gravel Pit Investigation
8200 Broadwell Road
Cincinnati, Hamilton County, Ohio

DWN. BY: TMO	SCALE:	DATE:	PROJECT NO.:	FIGURE NO.:
CHKD. BY: PMS	APPR.1"=80'	JULY 1999	990435	1

P:\PROJE...90435\DWG\1-fig1.dwg T. OBERLANDER - JULY 22, 1999 - 14:20:55 XREFS:

TABLE 1
TEST PIT ANALYTICAL LABORATORY RESULTS AND HEADSPACE READINGS

TEST PIT NUMBER	TP-1				TP-3	TP-5			TP-6			TP-8
DEPTH	0-1'	1-2'	2-4'	5.5'	9'	0-1'	1-2'	2-4'	0-1'	1-2'	2-4'	14'
HEADSPACE READING (ppm)	ND	ND	ND	ND	ND	0.5	ND	ND	1.0	2.5	3.0	ND
COMPOUND												
SVOCs (mg/kg)												
Anthracene	ND	ND	ND	ND	0.33	ND	--	--	ND	--	--	0.33
Benzo (a) Anthracene	ND	ND	ND	ND	1.75	ND	--	--	ND	--	--	0.759
Benzo (b) fluoranthene	ND	ND	ND	ND	2.61	ND	--	--	ND	--	--	0.726
Benzo (k) fluoranthene	ND	ND	ND	ND	1.62	ND	--	--	ND	--	--	0.805
Benzo (g,h,i) perylene	ND	ND	ND	ND	0.46	ND	--	--	ND	--	--	ND
Benzo (a) pyrene	ND	ND	ND	ND	1.82	ND	--	--	ND	--	--	0.693
Chrysene	ND	ND	ND	ND	1.95	ND	--	--	ND	--	--	0.924
Fluoranthene	ND	ND	ND	ND	4.29	ND	--	--	ND	--	--	1.52
Indeno (1, 2, 3-cd) Pyrene	ND	ND	ND	ND	0.46	ND	--	--	ND	--	--	ND
Phenanthrene	ND	ND	ND	ND	1.42	0.363	--	--	ND	--	--	1.39
Pyrene	ND	ND	ND	ND	3.96	ND	--	--	ND	--	--	1.91
VOCs (mg/kg)												
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.0023	0.0049	0.0047	0.0056
TCLP RCRA METALS (mg/l)												
Lead	ND	--	--	--	4.75	ND	--	--	ND	--	--	ND
PESTICIDES/HERBICIDES (mg/kg)												
Insecticides/Herbicides	--	--	--	--	--	--	--	--	--	--	--	ND

"--"=Not analyzed
ND=None detected

Note: Other VOCs, SVOCs, and metals not listed in the table were not detected for the sample using the method specified

TABLE 2
POND SEDIMENT AND WATER
ANALYTICAL LABORATORY RESULTS

POND SAMPLE	POND 1 SEDIMENT	POND 2 SEDIMENT	POND 2W WATER
COMPOUND			
SVOCs (mg/kg)			
SVOCs	ND	ND	ND
VOCs (mg/kg)			
Carbon Disulfide	ND	ND	0.0101
DISSOLVED RCRA METALS (mg/l)			
Barium	–	–	0.055
TCLP RCRA METALS (mg/l)			
TCLP RCRA Metals (mg/l)	ND	ND	–
PESTICIDES/HERBICIDES (mg/kg)			
Pesticides/Herbicides (mg/kg)	ND	ND	–

"–"=Not analyzed
ND=None detected

Note: Other VOCs and metals not listed in the table were not detected for the sample using the method specified.

APPENDIX I

TEST PIT LOGS

TEST PIT LOG

PROJECT NAME: MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION: BROADWELL RD., CINCINNATI, OH
CONTRACTOR: AST, INC.

TEST PIT NO. TP-1
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION
0–1				ND		Dark brown top soil
1				ND		Medium brown SILT with sand and gravel (ML)
1–2						Light brown fine poorly-graded SAND (SP)
2–4				ND		Brown well-graded SAND with gravel (SW)
4–5.5				ND		
5.5						Water at 5.5' below ground surface No sheen observed on water Terminated at 5.5'

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME: MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION: BROADWELL RD., CINCINNATI, OH
CONTRACTOR: AST, INC.

TEST PIT NO. TP-2
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE: JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION
0–1				ND		Dark brown top soil
1–2				ND		Light brown well-graded fine SAND (SW) Pieces of coal evident at 2.0'
2–5.5				ND		Brown well-graded SAND with gravel (SW)
5.5						Terminated at 5.5'

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION BROADWELL RD., CINCINNATI, OH
CONTRACTOR AST, INC.

TEST PIT NO. TP-3
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION			
0						FILL with brown sand and gravel (FILL)			
3						Corroded can waste beginning at 3.0'			
4						5-gallon plastic bucket, PVC pipe, concrete, wood debris, lumber, can waste at 4.0'			
5						Asphalt chunks			
9				ND		Terminated at 9.0' Natural material not encountered			

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION BROADWELL RD., CINCINNATI, OH
CONTRACTOR AST, INC.

TEST PIT NO. TP-4
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION
0						Brown sand and gravel with some asphalt in the fill (FILL)
3						Paper and plastic waste, bricks, car wheel
5						Black to red sand and gravel, burnt wood, bricks, no odor
8				ND		Transmission at 8.0'
						Terminated at 8.0' Natural material not encountered

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION BROADWELL RD., CINCINNATI, OH
CONTRACTOR AST, INC.

TEST PIT NO. TP-5
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION			
0–1				0.5		Brown well-graded SAND with gravel (SW)			
1–2				ND					
2–4				ND					
4						Terminated at 4.0'			

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME: MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION: BROADWELL RD., CINCINNATI, OH
CONTRACTOR: AST, INC.

TEST PIT NO. TP-6
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 16, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION
0–5						Old, off-spec pull tab cans and aerosol cans (FILL)
5–6				1.0		Brown well-graded SAND with gravel (SW)
6–7				2.5		Brown well-graded medium SAND (SW)
7–9				3.0		
9						Terminated at 9.0'

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME MILTON CAN FACILITY
ENVIRONMENTAL INVESTIGATION
LOCATION BROADWELL RD., CINCINNATI, OH
CONTRACTOR AST, INC.

TEST PIT NO. TP-7
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 17, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION			
0–5						Brown well-graded SAND with gravel possibly mixed and thrown over the bank from the haul road. Material appears redeposited (FILL)			
5						Terminated at 5.0' No samples collected			

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

TEST PIT LOG

PROJECT NAME: MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION: BROADWELL RD., CINCINNATI, OH
CONTRACTOR: AST, INC.

TEST PIT NO. TP-8
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE: JUNE 17, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION			
0–14				ND		Concrete, wood, and metallic debris with sand and gravel (FILL) Bumper, refrigerator, 55-gallon drum top			
14						Terminated at 14.0' Natural materials not encountered			

TEST PIT LOG

PROJECT NAME MILTON CAN FACILITY ENVIRONMENTAL INVESTIGATION
LOCATION BROADWELL RD., CINCINNATI, OH
CONTRACTOR AST, INC.

TEST PIT NO. TP-9
SHEET NO. 1 of 1
PROJECT NO. 990435
DATE JUNE 17, 1999

SURFACE ELEV. N/A
COORDINATES N/A

DEPTH (ft)	SAMPLE #	% RECOVERY	BLOWS	HEADSPACE (ppm)	SYMBOL LOG	DESCRIPTION			
0–5.5						Well-graded SAND with gravel and asphalt (FILL)			
5.5						Terminated at 5.5' No samples collected			

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

APPENDIX II

ANALYTICAL LABORATORY RESULTS

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

/IL & ENVIRONMENTAL CONSULT. 6771
..NCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90458
Sample ID: TP-1 0-1'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Acenaphthylene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Anthracene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Benzo(a)anthracene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Benzo(a)pyrene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Benzo(b)fluoranthene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Benzo(k)fluoranthene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Butylbenzylpthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Carbazole	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Chrysene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Dibenzofuran	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	6/28/99	11:39	M.Goodrich	8270B	1794
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Diethylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270B	1794
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270B	1794
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270B	1794

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90458
Sample ID: TP-1 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Fluoranthene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Fluorene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Hexachloroethane	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Isophorone	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
2-Methylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Naphthalene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
3-Nitroaniline	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
4-Nitroaniline	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
Nitrobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
Phenanthrene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Phenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Pyrene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
Bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	6/28/99	11:39	M.Goodrich	8270C	1794
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	6/28/99	11:39	M.Goodrich	8270C	1794
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90458
Sample ID: TP-1 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:56	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90458
Sample ID: TP-1 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:56	K.Hill	8260A	8489

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	83.	48. - 160.
surr-Toluene d8	92.	79. - 119.
surr-4-Bromofluorobenzene	88.	69. - 135.
surr-Dibromofluoromethane	86.	63. - 135.
surr-Nitrobenzene-d5	45.	20. - 118.
surr-2-Fluorobiphenyl	50.	18. - 110.

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90458
Sample ID: TP-1 0-1'

Surrogate	% Recovery	Target Range
surr-Terphenyl d14	64.	27. - 128.
surr-Phenol d5	42.	10. - 111.
surr-2-Fluorophenol	47.	10. - 107.
surr-2,4,6-Tribromophenol	62.	14. - 110.

Report Approved By: [signature] Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

VIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90451
Sample ID: TP-1 1-2'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B.I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90451
Sample ID: TP-1 1-2'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	12:40	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	12:40	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	78.	48. - 160.
surr-Toluene d8	90.	79. - 119.
surr-4-Bromofluorobenzene	90.	69. - 135.
surr-Dibromofluoromethane	85.	63. - 135.

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90451
Sample ID: TP-1 1-2'

Report Approved By: ______________________ Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

'IL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90452
Sample ID: TP-1 2-4'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A70452
Sample ID: TP-1 2-4'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:17	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:17	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	75.	48. - 160.
surr-Toluene d8	98.	79. - 117.
surr-4-Bromofluorobenzene	88.	69. - 135.
surr-Dibromofluoromethane	84.	63. - 135.

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90452
Sample ID: TP-1 2-4'

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

VIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90453
Sample ID: TP-1 5.5'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90453
Sample ID: TP-1 5.5'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	13:54	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	13:54	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	81.	48. - 160.
surr-Toluene d8	91.	79. - 119.
surr-4-Bromofluorobenzene	88.	69. - 135.
surr-Dibromofluoromethane	86.	63. - 135.

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90453
Sample ID: TP-1 5.5'

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

VIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90459
Sample ID: TP-3 9'
Sample Type: Soil
Site ID:

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Acenaphthylene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Anthracene	0.330	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Benzo(a)anthracene	1.75	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Benzo(a)pyrene	1.82	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Benzo(b)fluoranthene	2.61	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Benzo(g,h,i)perylene	0.462	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Benzo(k)fluoranthene	1.62	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Carbazole	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Chrysene	1.95	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Dibenzofuran	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	6/28/99	12:17	M.Goodrich	8270C	1794
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Diethylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	6/28/99	12:17	M.Goodrich	8270C	1794
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	6/28/99	12:17	M.Goodrich	8270C	1794
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	6/28/99	12:17	M.Goodrich	8270C	1794

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90459
Sample ID: TP-3 9'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	17:33	K.Hill	8260A	8489

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	4.75	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	97	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	83.	48. - 160.
surr-Toluene d8	90.	79. - 119.
surr-4-Bromofluorobenzene	86.	69. - 135.
surr-Dibromofluoromethane	90.	63. - 135.
surr-Nitrobenzene-d5	62.	20. - 110.
surr-2-Fluorobiphenyl	66.	18. - 110.

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90459
Sample ID: TP-3 9'

Surrogate	% Recovery	Target Range
surr-Terphenyl d14	78.	27. - 128.
surr-Phenol d5	68.	10. - 111.
surr-2-Fluorophenol	59.	10. - 107.
surr-2,4,6-Tribromophenol	81.	14. - 110.

Report Approved By: [signature] Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90460
Sample ID: TP-5 0-1'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Acenaphthylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Benzo(a)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Benzo(a)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Benzo(b)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Benzo(k)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Carbazole	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Chrysene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Dibenzofuran	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Diethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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ANALYTICAL REPORT

Laboratory Number: 99-A90460
Sample ID: TP-5 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Fluorene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Hexachloroethane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Isophorone	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Naphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
3-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Nitrobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Phenanthrene	0.363	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Phenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
Bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:48	M.Goodrich	8270C	6575
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90460
Sample ID: TP-5 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:10	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90460
Sample ID: TP-5 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:10	K.Hill	8260A	8437

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	86.	48. - 160.
surr-Toluene d8	92.	79. - 117.
surr-4-Bromofluorobenzene	90.	69. - 135.
surr-Dibromofluoromethane	87.	63. - 135.
surr-Nitrobenzene-d5	72.	20. - 110.
surr-2-Fluorobiphenyl	62.	18. - 110.

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90460
Sample ID: TP-5 0-1'

Surrogate	% Recovery	Target Range
surr-Terphenyl d14	93.	27. - 128.
surr-Phenol d5	89.	10. - 111.
surr-2-Fluorophenol	81.	10. - 107.
surr-2,4,6-Tribromophenol	113. *	14. - 118.

Report Approved By: Russell Morgan   Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90454
Sample ID: TP-5 1-2'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	3489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	3489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	3489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	3489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90454
Sample ID: TP-5 1-2'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	14:30	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
trachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
oluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	14:30	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	81.	48. - 168.
surr-Toluene d8	91.	79. - 119.
surr-4-Bromofluorobenzene	87.	69. - 135.
surr-Dibromofluoromethane	86.	63. - 135.

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90454
Sample ID: TP-5 1-2'

Report Approved By: ______________________ Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90455
Sample ID: TP-5 2-4'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90455
Sample ID: TP-5 2-4'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:07	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:07	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	82.	48. - 160.
surr-Toluene d8	91.	79. - 119.
surr-4-Bromofluorobenzene	89.	69. - 135.
surr-Dibromofluoromethane	88.	63. - 135.

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ANALYTICAL REPORT

Laboratory Number: 99-A90455
Sample ID: TP-5 2-4'

Report Approved By: Russell Morgan   Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90461
Sample ID: TP-6 0-1'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Acenaphthylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Benzo(a)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Benzo(a)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Benzo(b)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Benzo(k)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Carbazole	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Chrysene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Dibenzofuran	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Diethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90461
Sample ID: TP-6 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Fluorene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Hexachloroethane	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Isophorone	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Naphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Nitrobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Phenanthrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Phenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
Bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:29	M.Goodrich	8270B	6575
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489

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2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90461
Sample ID: TP-6 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	18:46	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Tetrachloroethene	0.0023	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90461
Sample ID: TP-6 0-1'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	18:46	K.Hill	8260A	8489

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	90.	40. - 160.
surr-Toluene d8	89.	79. - 119.
surr-4-Bromofluorobenzene	85.	69. - 135.
surr-Dibromofluoromethane	91.	63. - 135.
surr-Nitrobenzene-d5	78.	20. - 110.
surr-2-Fluorobiphenyl	77.	18. - 110.

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90461
Sample ID: TP-6 0-1'

Surrogate	% Recovery	Target Range
surr-Terphenyl d14	83.	27. - 128.
surr-Phenol d5	85.	10. - 111.
surr-2-Fluorophenol	83.	10. - 107.
surr-2,4,6-Tribromophenol	78.	14. - 118.

Report Approved By: [signature] Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90456
Sample ID: TP-6 1-2'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90456
Sample ID: TP-6 1-2'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	15:43	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Tetrachloroethene	0.0049	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	15:43	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	86.	48. - 160.
surr-Toluene d8	91.	79. - 119.
surr-4-Bromofluorobenzene	89.	69. - 135.
surr-Dibromofluoromethane	88.	63. - 135.

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ANALYTICAL REPORT

Laboratory Number: 99-A90456
Sample ID: TP-6 1-2'

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90457
Sample ID: TP-6 2-4'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B.I.

Date Collected: 6/16/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
t-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489

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ANALYTICAL REPORT

Laboratory Number: 99-A90457
Sample ID: TP-6 2-4'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	16:20	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Tetrachloroethene	0.0047	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	16:20	K.Hill	8260A	8489

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	82.	48. - 160.
surr-Toluene d8	92.	79. - 119.
surr-4-Bromofluorobenzene	89.	69. - 135.
surr-Dibromofluoromethane	88.	69. - 135.

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ANALYTICAL REPORT

Laboratory Number: 99-A90457
Sample ID: TP-6 2-4'

Report Approved By: Russell Morgan   Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90462
Sample ID: TP-8 14'
Sample Type: Soil
Site ID:

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/17/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Acenaphthylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Anthracene	0.330	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Benzo(a)anthracene	0.759	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Benzo(a)pyrene	0.693	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Benzo(b)fluoranthene	0.726	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Benzo(k)fluoranthene	0.825	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Carbazole	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Chrysene	0.924	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Dibenzofuran	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Diethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575

SPECIALIZED ASSAYS, INC.

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ANALYTICAL REPORT

Laboratory Number: 99-A90462
Sample ID: TP-8 14'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Fluoranthene	1.52	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Fluorene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Hexachloroethane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Isophorone	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Naphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
[illegible]-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
[illegible]-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Nitrobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Phenanthrene	1.39	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Phenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Pyrene	1.91	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
Bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:16	M.Goodrich	8270C	6575
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
[illegible]-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Carbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489

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ANALYTICAL REPORT

Laboratory Number: 99-A90462
Sample ID: TP-8 14'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	19:23	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Tetrachloroethene	0.0056	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489

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ANALYTICAL REPORT

Laboratory Number: 99-A90462
Sample ID: TP-8 14'

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	19:23	K.Hill	8260A	8489
PESTICIDE/PCB's/HERBICIDES										
2,4-D	ND	mg/kg	0.1667	0.1667	1	7/ 1/99	4:36	M. Jones	8151A	6267
2,4,5-T	ND	mg/kg	0.017	0.017	1	7/ 1/99	4:36	M. Jones	8151A	6267
2,4,5-TP (Silvex)	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	4:36	M. Jones	8151A	6267
Dalapon	ND	mg/kg	0.3333	0.3330	1	7/ 1/99	4:36	M. Jones	8151A	6267
2,4-DB	ND	mg/kg	0.167	0.167	1	7/ 1/99	4:36	M. Jones	8151A	6267
Dicamba	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	4:36	M. Jones	8151A	6267
Dichloroprop	ND	mg/kg	0.167	0.167	1	7/ 1/99	4:36	M. Jones	8151A	6267
Dinoseb	ND	mg/kg	0.0833	0.0830	1	7/ 1/99	4:36	M. Jones	8151A	6267
MCPA	ND	mg/kg	16.7	16.7	1	7/ 1/99	4:36	M. Jones	8151A	6267
MCPP	ND	mg/kg	16.7	16.7	1	7/ 1/99	4:36	M. Jones	8151A	6267
Pentachlorophenol	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	4:36	M. Jones	8151A	6267
4-Nitrophenol	ND	mg/kg	0.0167	0.0010	1	7/ 1/99	4:36	M. Jones	8151A	6267
Aldrin	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
a-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
b-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
d-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
g-BHC, Lindane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
4,4'-DDD	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
4,4'-DDE	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
4,4'DDT	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Dieldrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Endosulfan I	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
Endosulfan II	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Endosulfan sulfate	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Endrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Endrin aldehyde	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Endrin Ketone	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:08	M. Jones	8081A	797
Heptachlor	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
Heptachlor epoxide	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
Methoxychlor	ND	mg/kg	0.01665	0.01665	1	6/24/99	7:08	M. Jones	8081A	797
Toxaphene	ND	mg/kg	0.1665	0.1665	1	6/24/99	7:08	M. Jones	8081A	797
alpha-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797
gamma-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:08	M. Jones	8081A	797

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ANALYTICAL REPORT

Laboratory Number: 99-A90462
Sample ID: TP-8 14'

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550
OC Pest	30.0 gm	10.0 ml	6/22/99	M. Cauthen	3550
Herbicides	30. gm	10.0 ml	6/29/99	Fitzwater	8151

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	87.	48. - 160.
surr-Toluene d8	92.	79. - 119.
surr-4-Bromofluorobenzene	73.	69. - 135.
surr-Dibromofluoromethane	91.	63. - 135.
surr-Nitrobenzene-d5	74.	20. - 110.
surr-2-Fluorobiphenyl	82.	18. - 110.
surr-Terphenyl d14	106.	27. - 128.
surr-Phenol d5	92.	18. - 111.
surr-2-Fluorophenol	87.	10. - 107.
surr-2,4,6-Tribromophenol	81.	14. - 110.
pest surr-TCMX	70.	18. - 138.
pest surr-DCB	84.	15. - 150.
surr-DCPAA	90.	20. - 130.

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ANALYTICAL REPORT

Laboratory Number: 99-A90462
Sample ID: TP-8 14'

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
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ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Lab Number: 99-A90463
Sample ID: POND-1
Sample Type: Soil
Site ID:

Date Collected: 6/17/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Acenaphthylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Benzo(a)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Benzo(a)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Benzo(b)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Benzo(k)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Carbazole	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Chrysene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Dibenzofuran	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Diethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90463
Sample ID: POND-1

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Fluorene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Hexachloroethane	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Isophorone	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Naphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
3-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
trobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Phenanthrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Phenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
Pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	15:55	M.Goodrich	8270C	6575
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
arbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90463
Sample ID: POND-1

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:00	K.Hill	8260A	8489
Napthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90463
Sample ID: POND-1

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:00	K.Hill	8260A	8489
PESTICIDE/PCB's/HERBICIDES										
2,4-D	ND	mg/kg	0.1667	0.1667	1	7/ 1/99	5:04	M.Jones	8151A	6267
2,4,5-T	ND	mg/kg	0.017	0.017	1	7/ 1/99	5:04	M.Jones	8151A	6267
2,4,5-TP (Silvex)	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:04	M.Jones	8151A	6267
Dalapon	ND	mg/kg	0.3333	0.3330	1	7/ 1/99	5:04	M.Jones	8151A	6267
2,4-DB	ND	mg/kg	0.167	0.167	1	7/ 1/99	5:04	M.Jones	8151A	6267
Dicamba	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:04	M.Jones	8151A	6267
chloroprop	ND	mg/kg	0.167	0.167	1	7/ 1/99	5:04	M.Jones	8151A	6267
noseb	ND	mg/kg	0.0833	0.0830	1	7/ 1/99	5:04	M.Jones	8151A	6267
MCPA	ND	mg/kg	16.7	16.7	1	7/ 1/99	5:04	M.Jones	8151A	6267
MCPP	ND	mg/kg	16.7	16.7	1	7/ 1/99	5:04	M.Jones	8151A	6267
Pentachlorophenol	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:04	M.Jones	8151A	6267
4-Nitrophenol	ND	mg/kg	0.0167	0.0010	1	7/ 1/99	5:04	M.Jones	8151A	6267
Aldrin	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
a-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
b-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
d-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
g-BHC, Lindane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
4,4'-DDD	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
4,4'-DDE	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
4,4'DDT	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Dieldrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Endosulfan I	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
Endosulfan II	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Endosulfan sulfate	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Endrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Endrin aldehyde	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Endrin Ketone	ND	mg/kg	0.00333	0.00333	1	6/24/99	7:38	M.Jones	8081A	797
Heptachlor	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
Heptachlor epoxide	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
Methoxychlor	ND	mg/kg	0.01665	0.01665	1	6/24/99	7:38	M.Jones	8081A	797
Toxaphene	ND	mg/kg	0.1665	0.1665	1	6/24/99	7:38	M.Jones	8081A	797
pha-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797
ma-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	7:38	M.Jones	8081A	797

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90463
Sample ID: POND-1

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	83	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99	M. Cauthen	3550
GC Pest	30.0 gm	10.0 ml	6/22/99	M. Cauthen	3550
Herbicides	30. gm	10.0 ml	6/29/99	Fitzwater	8151

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	92.	40. - 160.
surr-Toluene d8	88.	79. - 119.
surr-4-Bromofluorobenzene	80.	69. - 135.
surr-Dibromofluoromethane	90.	63. - 135.
surr-Nitrobenzene-d5	79.	20. - 110.
surr-2-Fluorobiphenyl	87.	18. - 110.
surr-Terphenyl d14	117.	27. - 128.
surr-Phenol d5	103.	10. - 111.
surr-2-Fluorophenol	94.	10. - 107.
surr-2,4,6-Tribromophenol	94.	14. - 110.
pest surr-TCMX	64.	10. - 138.
pest surr-DCB	64.	15. - 130.
surr-DCPAA	78.	20. - 130.

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90463
Sample ID: POND-1

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90464
Sample ID: POND-2
Sample Type: Soil
Site ID:

Date Collected: 6/17/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Project: 990435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Acenaphthylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Benzo(a)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Benzo(a)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Benzo(b)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Benzo(g,h,i)perylene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Benzo(k)fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
4-Bromophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Butylbenzylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Carbazole	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
4-Chloro-3-methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
4-Chloroaniline	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
bis(2-Chloroethoxy)methane	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
bis(2-Chloroethyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
bis(2-Chloroisopropyl)ether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2-Chloronaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2-Chlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
4-Chlorophenylphenylether	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Chrysene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Dibenzofuran	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Dibenz(a,h)anthracene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
1,2-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
1,3-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
1,4-Dichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
3,3'-Dichlorobenzidine	ND	mg/kg	0.660	0.660	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2,4-Dichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Diethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2,4-Dimethylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Dimethylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
Di-n-butylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
4,6-Dinitro-2-methylphenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2,4-Dinitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2,4-dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575
2,6-Dinitrotoluene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270B	6575

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ANALYTICAL REPORT

Laboratory Number: 99-A90464
Sample ID: POND-2

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Di-n-octylphthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Fluoranthene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Fluorene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Hexachlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Hexachlorobutadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Hexachlorocyclopentadiene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Hexachloroethane	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Isophorone	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2-Methylnaphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
m,p-Methylphenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Naphthalene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
3-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
-Nitroaniline	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
itrobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2-Nitrophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
4-Nitrophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
N-nitrosodi-n-propylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
N-nitrosodiphenylamine	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Pentachlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Phenanthrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Phenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
Pyrene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
bis(2-ethylhexyl)phthalate	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
1,2,4-Trichlorobenzene	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2,4,5-Trichlorophenol	ND	mg/kg	0.825	0.825	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
2,4,6-Trichlorophenol	ND	mg/kg	0.330	0.330	1	7/ 1/99	16:35	M.Goodrich	8270C	6575
VOLATILE ORGANICS										
Acetone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
Benzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Bromobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Bromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Bromoform	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Bromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
2-Butanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
n-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
sec-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
-Butylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
arbon disulfide	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Carbon tetrachloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Chlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90464
Sample ID: POND-2

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Chloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
2-Chloroethylvinylether	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Chloroform	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Chloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
2-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
4-Chlorotoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
Dibromochloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2-Dibromoethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Dibromomethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,3-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,4-Dichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Dichlorodifluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2-Dichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
cis-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
trans-1,2-Dichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,3-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
2,2-Dichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
cis-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
trans-1,3-Dichloropropene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Ethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Hexachlorobutadiene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
2-Hexanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
Isopropylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
4-Isopropyltoluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
4-Methyl-2-pentanone	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
Methylene chloride	ND	mg/kg	0.0100	0.0100	1	6/21/99	20:36	K.Hill	8260A	8489
Naphthalene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
n-Propylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Styrene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1,1,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Tetrachloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Toluene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2,3-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2,4-Trichlorobenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1,1-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,1,2-Trichloroethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Trichloroethene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90464
Sample ID: POND-2

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,2,4-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
1,3,5-Trimethylbenzene	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Vinyl chloride	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Xylenes	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Bromodichloromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
Trichlorofluoromethane	ND	mg/kg	0.0020	0.0020	1	6/21/99	20:36	K.Hill	8260A	8489
PESTICIDE/PCB's/HERBICIDES										
2,4-D	ND	mg/kg	0.1667	0.1667	1	7/ 1/99	5:32	M.Jones	8151A	6267
2,4,5-T	ND	mg/kg	0.017	0.017	1	7/ 1/99	5:32	M.Jones	8151A	6267
2,4,5-TP (Silvex)	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:32	M.Jones	8151A	6267
Dalapon	ND	mg/kg	0.3333	0.3330	1	7/ 1/99	5:32	M.Jones	8151A	6267
2,4-DB	ND	mg/kg	0.167	0.167	1	7/ 1/99	5:32	M.Jones	8151A	6267
Dicamba	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:32	M.Jones	8151A	6267
ichloroprop	ND	mg/kg	0.167	0.167	1	7/ 1/99	5:32	M.Jones	8151A	6267
inoseb	ND	mg/kg	0.0833	0.0830	1	7/ 1/99	5:32	M.Jones	8151A	6267
MCPA	ND	mg/kg	16.7	16.7	1	7/ 1/99	5:32	M.Jones	8151A	6267
MCPP	ND	mg/kg	16.7	16.7	1	7/ 1/99	5:32	M.Jones	8151A	6267
Pentachlorophenol	ND	mg/kg	0.0167	0.0167	1	7/ 1/99	5:32	M.Jones	8151A	6267
4-Nitrophenol	ND	mg/kg	0.0167	0.0010	1	7/ 1/99	5:32	M.Jones	8151A	6267
Aldrin	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
a-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
b-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
d-BHC	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
g-BHC, Lindane	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
4,4'-DDD	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
4,4'-DDE	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
4,4'DDT	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Dieldrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Endosulfan I	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
Endosulfan II	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Endosulfan sulfate	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Endrin	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Endrin aldehyde	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Endrin Ketone	ND	mg/kg	0.00333	0.00333	1	6/24/99	8:08	M.Jones	8081A	797
Heptachlor	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
Heptachlor epoxide	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
Methoxychlor	ND	mg/kg	0.01665	0.01665	1	6/24/99	8:08	M.Jones	8081A	797
Toxaphene	ND	mg/kg	0.1665	0.1665	1	6/24/99	8:08	M.Jones	8081A	797
lpha-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797
amma-Chlordane	ND	mg/kg	0.00166	0.00166	1	6/24/99	8:08	M.Jones	8081A	797

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90464
Sample ID: POND-2

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method
Arsenic	< 0.10	mg/l	5.0	99	6/26/99	6010B
Barium	< 1.00	mg/l	100	99	6/26/99	6010B
Cadmium	< 0.100	mg/l	1.0	87	6/26/99	6010B
Chromium	< 0.50	mg/l	5.0	91	6/26/99	6010B
Lead	< 0.50	mg/l	5.0	93	6/26/99	6010B
Mercury	< 0.010	mg/l	0.20	82	6/24/99	7470A
Selenium	< 0.100	mg/l	1.0	104	6/26/99	6010B
Silver	< 0.10	mg/l	5.0	99	6/26/99	6010B
TCLP Extraction	Completed				6/22/99	1311

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	30.0 gm	1.0 ml	6/22/99.	M. Cauthen	3550
GC Pest	30.0 gm	10.0 ml	6/22/99	M. Cauthen	3550
Herbicides	30. gm	10.0 ml	6/29/99	Fitzwater	8151

Surrogate	% Recovery	Target Range
surr-1,2-Dichloroethane, d4	84.	48. - 160.
surr-Toluene d8	88.	79. - 117.
surr-4-Bromofluorobenzene	76.	69. - 135.
surr-Dibromofluoromethane	70.	63. - 135.
surr-Nitrobenzene-d5	74.	20. - 110.
surr-2-Fluorobiphenyl	82.	18. - 110.
surr-Terphenyl d14	117.	27. - 128.
surr-Phenol d5	98.	10. - 111.
surr-2-Fluorophenol	90.	10. - 107.
surr-2,4,6-Tribromophenol	90.	14. - 110.
pest surr-TCMX	70.	10. - 138.
pest surr-DCB	64.	15. - 130.
surr-DCPAA	76.	20. - 130.

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90464
Sample ID: POND-2

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

C..IL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

Lab Number: 99-A90450
Sample ID: POND 2W
Sample Type: Ground water
Site ID:

Project: 900435
Project Name: MILTON CAN FACILITY
Sampler: B. I.

Date Collected: 6/17/99
Time Collected:
Date Received: 6/18/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
EXTRACTABLE ORGANICS										
Acenaphthene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Acenaphthylene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Anthracene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Benzo(a)anthracene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Benzo(a)pyrene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Benzo(b)fluoranthene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Benzo(g,h,i)perylene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Benzo(k)fluoranthene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Bromophenyl-phenylether	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Butylbenzylphthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Carbazole	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
4-Chloro-3-methylphenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
4-Chloroaniline	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Bis(2-chloroethoxy)methane	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Bis(2-chloroethyl)ether	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Bis(2-chloroisopropyl)ether	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Chloronaphthalene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Chlorophenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
4-Chlorophenyl-phenylether	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Chrysene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Dibenzofuran	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Dibenz(a,h)anthracene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
1,2-Dichlorobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
1,3-Dichlorobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
1,4-Dichlorobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
3,3'-Dichlorobenzidine	ND	mg/l	0.0200	0.0200	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4-Dichlorophenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Diethylphthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4-Dimethylphenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Dimethylphthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Di-n-butylphthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
4,6-Dinitro-2-methylphenol	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4-Dinitrophenol	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4-dinitrotoluene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,6-Dinitrotoluene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Di-n-octylphthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Fluoranthene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865

COPY 1

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90450
Sample ID: POND 2W

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Fluorene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Hexachlorobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Hexachlorobutadiene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Hexachlorocyclopentadiene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Hexachloroethane	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Isophorone	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Methylnaphthalene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Methylphenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
3 and 4-Methylphenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Naphthalene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Nitroaniline	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
3-Nitroaniline	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
4-Nitroaniline	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
Nitrobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2-Nitrophenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
4-Nitrophenol	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
N-Nitroso-Di-n-Propylamine	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
N-Nitrosodiphenylamine	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Pentachlorophenol	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
Phenanthrene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Phenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
Pyrene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
bis(2-ethylhexyl)phthalate	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
1,2,4-Trichlorobenzene	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4,5-Trichlorophenol	ND	mg/l	0.0250	0.0250	1	6/30/99	1:43	M.Goodrich	8270C	2865
2,4,6-Trichlorophenol	ND	mg/l	0.0100	0.0100	1	6/30/99	1:43	M.Goodrich	8270C	2865
VOLATILE ORGANICS										
Acetone	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Hollinan	8260B	9301
Benzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Bromobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Bromochloromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Bromoform	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Bromomethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
2-Butanone	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Hollinan	8260B	9301
n-Butylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
sec-Butylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
t-Butylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Carbon disulfide	0.0101	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Carbon tetrachloride	ND	mg/l	0.00200	0.00200	1	6/25/99	16:21	J Hollinan	8260B	9301
Chlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Chloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
2-Chloroethylvinylether	ND	mg/l	0.0050	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Chloroform	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301
Chloromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Hollinan	8260B	9301

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90450
Sample ID: POND 2W

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chlorotoluene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
4-Chlorotoluene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2-Dibromo-3-chloropropane	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Holliman	8260B	9301
Dibromochloromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2-Dibromoethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Dibromomethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2-Dichlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,3-Dichlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,4-Dichlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Dichlorodifluoromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1-Dichloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2-Dichloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1-Dichloroethene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
cis-1,2-Dichloroethene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
trans-1,2-Dichloroethene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2-Dichloropropane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,3-Dichloropropane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
2,2-Dichloropropane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1-Dichloropropene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
cis-1,3-Dichloropropene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
trans-1,3-Dichloropropene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Ethylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Hexachlorobutadiene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
2-Hexanone	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Holliman	8260B	9301
Isopropylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
4-Isopropyltoluene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
4-Methyl-2-pentanone	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Holliman	8260B	9301
Methylene chloride	ND	mg/l	0.0100	0.0100	1	6/25/99	16:21	J Holliman	8260B	9301
Naphthalene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
n-Propylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Styrene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1,1,2-Tetrachloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1,2,2-Tetrachloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Tetrachloroethene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Toluene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2,3-Trichlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2,4-Trichlorobenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1,1-Trichloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,1,2-Trichloroethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Trichloroethene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2,3-Trichloropropane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,2,4-Trimethylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
1,3,5-Trimethylbenzene	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Vinyl chloride	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Xylenes	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
Bromodichloromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90450
Sample ID: POND 2W

Analyte	Result	Units	Report Limit	Rush Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Trichlorofluoromethane	ND	mg/l	0.0020	0.0020	1	6/25/99	16:21	J Holliman	8260B	9301
METALS										
Arsenic, Dissolved	ND	mg/l	0.005	0.005	1	6/26/99	9:28	R. Kelley	6010B	863
Barium, Dissolved	0.0550	mg/l	0.0100	0.0100	1	6/26/99	9:28	R. Kelley	6010B	863
Cadmium, Dissolved	ND	mg/l	0.0010	0.0010	1	6/26/99	9:28	R. Kelley	6010B	863
Chromium, Dissolved	ND	mg/l	0.0050	0.0050	1	6/26/99	9:28	R. Kelley	6010B	863
Lead, Dissolved	ND	mg/l	0.0030	0.0030	1	6/26/99	9:28	R. Kelley	6010B	863
Mercury, Dissolved	ND	mg/l	0.00020	0.00020	1	6/22/99	6:38	R. Kelley	7470	7942
Selenium, Dissolved	ND	mg/l	0.0050	0.0050	1	6/26/99	9:28	R. Kelley	6010B	863
Silver, Dissolved	ND	mg/l	0.0050	0.0050	1	6/26/99	9:28	R. Kelley	6010B	863

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	950. ml	1.0 ml	6/21/99	M. Cauthen	3510

Surrogate	% Recovery	Target Range
VOA Surr, 1,2-DCA, d4	97.	60. - 138.
VOA Surr, Toluene d8	95.	80. - 123.
VOA Surr, 4-BFB	87.	73. - 122.
VOA Surr, DBFM	92.	74. - 133.
surr-Nitrobenzene-d5	60.	15. - 105.
surr-2-Fluorobiphenyl	64.	17. - 110.
surr-Terphenyl d14	44.	10. - 116.
surr-Phenol d5	25.	10. - 100.
surr-2-Fluorophenol	37.	9. - 100.
surr-2,4,6-Tribromophenol	74.	15. - 134.

COPY

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

CIVIL & ENVIRONMENTAL CONSULT. 6771
NANCY FORSTER
9912 CARVER ROAD
CINCINATTI, OH 45242

CHAIN OF CUSTODY

Project Number: 900435
Sampler: BI/ESTES ENG
Project Name: MILTON CAN FACILITY
SAE Quote:

Analysis Required

Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles	VOCS 8260	SVOCS 8270	TCLP METALS	PESTICIDES HERBICIDES
90460	TP-5 0-1'	6/16/99		SOIL	X		2	✓	✓	✓	
454	TP-5 1-2'	↓		↓	↓		↓	✓			
455	TP-5 2-4'							✓			
461	TP-6 0-1'							✓	✓	✓	
456	TP-6 ~~1-2'~~							✓			
457	TP-6 2-4'	↓						✓			
90462	TP-8 14'	6/17/99		↓	↓		↓	✓	✓	✓	✓

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
[signature]	6/17/99 19:00	J Jacobs	6/18/99 900				
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T

Cooler Temperature When Received: 4°C

Laboratory Project Number: 148114

Cooler Seals Intact?

Air Bill Number:

SPECIAL INSTRUCTIONS: SEE PAGE 1

SPECIALIZED ASSAYS, INC.
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CHAIN OF CUSTODY

Project Number: 990435
Project Name: MILTON CAN FACILITY
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SAE Quote:

Analysis Requested

Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles	VOCs 8260	SVOCs 8270	TCLP METALS	PESTICIDE/ HERBICIDE
90458	TP-1 0-1'	11/16/99		SOIL	X		2	✓	✓	✓	
451	TP-1 1-2'							✓			
452	TP-1 2-4'							✓			
90453	TP-1 5.5'							✓			
	TP-2 0-1'										
	TP-2 1-2'										
	TP-2 2-4'										
90459	TP-3 9'							✓	✓	✓	
	TP-4 8'										

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
Ben Iden	6/17/99 19:00	J Jacobs	6/18/99 900				
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T

Cooler Temperature When Received: 4°C
Laboratory Project Number: 148114
Cooler Seals Intact?
Fed-X Air Bill Number:

SPECIAL INSTRUCTIONS: TCLP METALS-METHOD 6010/7471
PESTICIDES-METHOD 8081
HERBICIDES - METHOD 8151
ARCHIVE UNMARKED SAMPLES FOR POSSIBLE ANALYSIS.
CONTACT BEN IDEN @ (606) 342-6100 w/ COC QUESTION

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A90450
Sample ID: POND 2W

Report Approved By: Russell Morgan Report Date: 7/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

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NOV 1 8 1996

THE PAYNE FIRM, INC.

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PARTNERSHIPS INCLUDING PROFESSIONAL CORPORATIONS

655 Fifteenth Street, N.W.
Washington, D.C. 20005

202 879-5000

Christopher A. Cole
To Call Writer Direct:
202 879-5240

Facsimile:
202 879-5200

November 15, 1996

VIA FEDERAL EXPRESS **PRIVILEGED & CONFIDENTIAL**

John L. Payne, P.E.
The Payne Firm, Inc.
11231 Cornell Park Drive
Cincinnati, Ohio 45242

Re: Milton Can Company -- Former Ball Corporation Facility

Dear John:

As we discussed this morning, I am enclosing a copy of ENVIRON International Corporation's draft Environmental Assessment of Ball Corporation's Metal Food Container Facility, Cincinnati, Ohio, dated October 8, 1996. As it is a draft report, I ask that you please maintain its confidentiality and refrain from distributing or copying beyond those with an immediate need to know its contents. I also ask that you return it to me upon request.

I will let you know as soon as I can as to whether the initial site visit can proceed on Thursday or Friday of next week.

We look forward to your proposal.

Yours truly,

Chris Cole

Christopher A. Cole

Enclosure

CONTENTS

D R A F T

PRIVILEGED AND CONFIDENTIAL
PREPARED AT THE REQUEST OF COUNSEL

ENVIRONMENTAL ASSESSMENT OF BALL CORPORATION'S METAL FOOD CONTAINER FACILITY CINCINNATI, OHIO

Prepared for

Kirkland & Ellis
Washington, D.C.

On behalf of

BWAY Corporation

Prepared by

ENVIRON International Corporation
Arlington, Virginia

October 8, 1996

I. INTRODUCTION

ENVIRON International Corporation (ENVIRON), a division of APBI Environmental Sciences Group, Inc., was retained by Kirkland & Ellis on behalf of BWAY Corporation to conduct a Phase I environmental assessment of Ball Corporation's (Ball) Metal Food Container facility located near Cincinnati, Ohio. The purpose of ENVIRON's review was to identify any on-site and off-site environmental issues that could result in potentially significant liabilities or compliance costs, as well as other noteworthy issues. In addition, occupational safety and health issues were briefly reviewed to determine whether any major areas of concern are present. In the context of this report, the term "potentially significant" is generally used to describe potential areas of concern that could reasonably result in liabilities or compliance costs in excess of $25,000. The term "noteworthy" is generally used to describe areas of concern that could, but are not likely to, result in liabilities or compliance costs in excess of $25,000. ENVIRON's conclusions about the relative significance of the identified areas of concern are based primarily on our professional judgment and are meant to provide guidance in areas of uncertainty.

This assessment was conducted in accordance with the Scope of Work agreed upon between ENVIRON and Kirkland & Ellis, consistent with the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process Standard E1527-94, issued by the American Society for Testing and Materials (ASTM), and generally included the following components:

- A site visit to the subject facility by Gordon Cobb of ENVIRON on September 23, 1996.
- Interviews during the site visit with Kent Bickell, Manager of Environmental Services; Jerry Dinser, Manager of Plant Engineering; and Dixie Rorem, Environmental Engineer.
- A review of documents made available by Ball personnel at the time of and subsequent to the site visit.

- A review of regulatory agency documents obtained by Kirkland & Ellis and provided to ENVIRON. These included a 1989 Preliminary Review/Visual Site Inspection (PR/VSI) conducted by A.T. Kearney, a 1987 Preliminary Assessment conducted by the Ohio Environmental Protection Agency (OEPA), and various RCRA inspections and compliance correspondence from USEPA and OEPA during the 1980s.

- A search of federal and state environmental data bases prepared by Vista Environmental Information, Inc. (Vista), initiated the week of September 16, 1996. Data bases were searched by Vista for entries located in the vicinity of each subject facility, and are consistent with ASTM standards. Because the environmental data bases themselves are sometimes not updated by the specific regulatory agencies for periods of up to one year (depending on the data base and the state), the data base search conducted herein will not necessarily list any facility or site for which an environmental investigation/listing has been initiated subsequent to the last update. The Vista data base searches contained a number of unmapped sites. Although ENVIRON briefly reviewed the list of unmapped sites for any properties observed during the site visit to be nearby or adjacent to the subject site, it was beyond the scope of this assessment to locate each of the unmapped sites.

  Federal and state data bases searched by Vista for entries located in the vicinity of each subject site are described in Appendix A. The radius searched for a particular data base is in accordance with ASTM guidance. In addition to searches of federal and state data bases for entries located in the vicinity of the subject facility, Vista also compiled information on the subject facility, including records of existing or potential contamination, records of hazardous materials or environmental permits, and records of environmental noncompliance.

- A review of the CERCLIS list, National Priorities List, and the State Priorities List for past and current off-site disposal facilities used by Ball.

- A review of United States Geologic Survey (USGS) 7.5 minute topographic map for the Madeira, Ohio quadrangle (a 1961 map, photorevised in 1988). Historical topographic maps from 1898, 1912, 1953, 1961, and 1970, 1974 and 1982 photorevisions of the 1961 map.

- A search for historical Sanborn Fire Insurance maps and County Planning maps for the subject site. Vista confirmed that neither Sanborn maps, nor County Planning maps exist for this site.

- A review of the National Wetland Inventory (NWI) map from the United States Department of the Interior's Fish and Wildlife Service for the subject site.

- A review of Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) for the subject site.

- A review of historical aerial photographs of the subject site and surrounding location for the years 1949, 1970 and 1991.

No environmental samples were collected as part of this review, nor were chain-of-title documents provided for ENVIRON's review. ENVIRON did not independently verify all of the written or oral information provided. Consequently, this report is accurate and complete only to the extent that information provided to ENVIRON was itself accurate and complete.

II. SUMMARY OF CONCLUSIONS

ENVIRON International Corporation (ENVIRON), a division of APBI Environmental Sciences Group, Inc., was retained by Kirkland & Ellis on behalf of BWAY Corporation to conduct a Phase I environmental assessment of Ball Corporation's (Ball) Metal Food Container facility located near Cincinnati, Ohio. The purpose of ENVIRON's review was to identify any on-site and off-site concerns or area of environmental or regulatory noncompliance. ENVIRON's conclusions are based primarily on our professional judgment and are meant to provide guidance in areas of uncertainty.

ENVIRON identified two potentially significant issues during its review of this facility, as discussed below.

1. Air Emissions Issues

ENVIRON identified several issues associated with air emissions and emission sources at the Ball facility. A summary of those issues is discussed below:

- Pursuant to the permit renewal applications submitted for the facility's solvent-based coating lines, Ball was required by the Hamilton County Environmental Services Department to conduct capture and efficiency testing on these lines by March 1996. Results of this compliance testing indicated that Ball's overall line efficiency ranged from 73% to 76% for the five lines tested. Because the minimum allowable overall efficiency is 80% (Ball's permits indicate 81%, Hamilton County indicated 80% in its Violation letter), Ball is in violation of its permit conditions. Facility personnel reported that a second round of capture efficiency testing is to be conducted the week of October 7, 1996. Should Ball fail to comply with its permit conditions in the October testing, it is likely that Ball would be required to improve the capture efficiency of the incineration system by installing additional exhaust capture hoods and duct work on each of the coating lines in order to meet permit requirements. Because the extent of infrastructural upgrades that might be required and the ability of the existing incineration units to handle increased volumetric throughput is uncertain, the cost to upgrade the air handling systems, including the incinerators, could be as little as $250,000, but as much as $2.5 million.

- Ball's air permits specify allowable VOC content and emissions. A review of Ball's most recent semi-annual material usage report to Ohio EPA (OEPA) suggests that the facility may not be in compliance with certain permit requirements for its coating lines. Permit conditions for the coating lines limit the VOC content per gallon of coating, less water, to 2.8 pounds. The reported VOC content in coatings, less water, typically exceeds 4.0 pounds per gallon. It appears that Ball personnel have interpreted the permit conditions as pounds of VOCs **emitted** per gallon of coating, which is consistent with VOC mass emission limitations stated in permits OEPA has issued to Ball for sources other than coating lines. Ball has not been cited by OEPA recently for any violations of its permit conditions, but the facility had been cited by the Southwestern Ohio Air Pollution Control Agency (SWOAPCA) in December 1983 for operating coating lines using non-compliant coatings. Implementation of compliant coating usage before 1986 was stipulated by SWOAPCA. Despite this, several of the coatings identified in 1983 are still used today. No documentation was provided to ENVIRON indicating that SWOAPCA or OEPA has issued the facility a waiver from instituting the use of compliant coatings. As such, ENVIRON believes Ball is out of compliance with permit conditions and recommends that Ball confirm the specific language in its permit conditions to ensure that it will not be subject to future compliance violations.

- Ball has emissions of hazardous air pollutants (HAPs) that appear to exceed major source thresholds under Title III of the Clean Air Act Amendments (CAAA). As a consequence, Ball likely will be subject to the metal can surface coating category on account of both the coating and side seam stripe application operations. The Maximum Achievable Control Technology (MACT) standard for the metal can source category is due to be promulgated by November 2000. As a major source under Title III, it is likely that, unless a lower- or non-HAP substitute is developed, emission controls would be required subsequent to promulgation of the MACT standard, particularly for the side seam stripe application operations. The cost to install emission control equipment likely would be significant. At present, ENVIRON does not have sufficient information to evaluate potential MACT alternatives to develop a cost estimate. Compliance with the future MACT standard likely will not be required until November 2003 at the earliest.

- A review of Ball's air permits indicated that a number of them expired in 1995 and 1996. According to facility personnel, Ball has submitted timely renewal applications for these expired permits, but OEPA discontinued issuing renewal of air permits as of January 1, 1996 in anticipation of issuing facility-wide permits under the Title V Operating Permit Program of the CAAA. Ball reportedly has been told by OEPA that existing permit conditions will remain in force until the Title V operating permit is issued. Ball submitted a Title V operating permit application to OEPA in a timely fashion (i.e., September 26, 1996).

2. Rail Car Siding

Scrap metal is discarded into rail cars staged on the north side of the plant. Because some lubricants are sprayed onto the metal during various fabrication processes and may remain on the scrap metal, they could be discharged to the pavement during precipitation events, ultimately discharging into an on-site pond. The potential for release of oil could be minimized by constructing a roofed structure over the rail car siding, which would represent a Best Management Practice. The facility has a storm water discharge permit that requires reporting the release of oil in storm water discharges. Because there reportedly have been no such discharges, the current rail car siding configuration appears to comply with environmental permit conditions and regulatory requirements. The cost to construct a roof over the rail car area to minimize the potential for precipitation contacting the rail cars likely would exceed $25,000, and could exceed $50,000.

Although not potentially significant, ENVIRON identified nine noteworthy issues, as discussed below.

1. Environmental Data Base Search Results

The facility has been the subject of regulatory scrutiny, primarily for historic operations conducted at the site prior to Ball's acquisition of Heekin Can. Based on ENVIRON's review of regulatory correspondence, it appears that the facility is in substantial compliance with environmental regulations and is not currently the subject of regulatory investigation, compliance orders, or site remediation. A brief summary of past regulatory activity is presented below:

- The facility is on USEPA's CERCLIS list. Subsequent to a November 1992 site inspection, the facility was deferred to RCRA.

- The facility is on OEPA's Unregulated Sites Master Sites List (the state-equivalent CERCLIS list). Based on information provided by OEPA, the site underwent a RCRA corrective action.

- The facility is on the RCRA CORRACTS list. A RCRA Facility Assessment (a Preliminary Review/Visual Site Inspection or PR/VSI) was conducted by A.T. Kearney in 1989. A RCRA Facility Investigation (RFI) determination was conducted and no RFI was imposed. No subsequent RCRA Corrective Action studies or investigations have been undertaken at this site.

- The facility received four RCRA violations in the middle to late 1980s. No penalties were assessed as a result of these violations. In 1992, the facility came under a RCRA compliance order, reportedly for a failure to develop and submit a waste minimization program. A $25,000 penalty was assessed against Heekin Can, but no record of payment was provided to ENVIRON. Facility personnel indicated that a waste minimization program is now in place.

2. Asbestos-containing Materials

Ball personnel conducted an internal asbestos survey in late 1985, collecting approximately 50 insulation, tile (both floor and ceiling) and mastic samples from various locations around the facility. Samples from the roof, approximately 75-80% of which reportedly has a urethane spray foam, and inside of curing ovens were not collected. On the basis of sampling results, sixteen areas of insulation (mostly pipes and elbow fittings) and floor tiles were identified as having asbestos-containing materials (ACM). Specifically, approximately 1,900 linear feet of pipe insulation, 1,000 square feet of pipe fittings, and 2,450 square feet of floor tile were delineated. With the exception of two areas of pipe insulation in the boiler house that comprise approximately 335 linear feet, areas with detected ACM were deemed by Ball to have a moderate to low potential for future damage and were in areas with little air flow. ENVIRON is in general agreement with this assessment. The cost to abate the two higher priority areas likely would not cost in excess of $6,000, depending upon the ease of access to the piping in question.

Unless ACM is damaged or friable, there is no need for repair or abatement. Until all ACM is removed, however, Ball should develop and implement an ACM Operations and Maintenance (O&M) program. The purpose of such a program is to avoid unnecessary disturbance or damage to remaining ACM and to establish procedures for employee awareness to achieve this goal. The cost to prepare an O&M plan for the site likely should not exceed $10,000.

3. Former Underground Storage Tanks

Historically, there were at least twelve outdoor underground storage tanks on the north side of the building. All twelve tanks were removed or closed in place between 1989 and 1991. During the closure of the five tanks north of the lithography building in 1989, each was observed to be leaking. This triggered suspected release requirements and local and state authorities were notified. Following closure in place, a passive soil vapor extraction system reportedly was installed, however, no information on this remediation system was located in facility files.

?

In 1991, the remaining seven tanks were excavated, none of which were observed to be leaking. Residual petroleum constituents were detected in soils beneath a gasoline pump pad associated with one tank. Heekin Can was required to conduct a Corrective Actions/Site Investigation, which involved removal of impacted soils, to the extent possible. The State Fire Marshal indicated in a March 1992 letter that no further corrective actions would be required.

Based on actions taken and lack of regulatory scrutiny since 1992, it is unlikely that further site investigation or remediation for these tanks will be required.

4. Historic Site Disposal

Between 1974 and 1986, the facility reportedly disposed of chromium-containing wastewater and some sludge to a gravel pit pond located to the north of the site. Regulatory officials were aware of this disposal and requested that Heekin Can investigate alternative disposal options. The facility was never cited for improper disposal activities, was not required to conduct surface water monitoring, and was not required to investigate or remediate this pond. Given that the facility removed the chromium source and discontinued the disposal activity ten years ago, it is unlikely that there will be future scrutiny imposed by regulatory officials.

The facility disposes of sanitary wastewater on-site via a permitted spray field. The spray field was constructed, in part, to handle chromium-containing wastewater from a former two-piece can operation. Prior to or shortly after completion of the wastewater treatment system, the facility discontinued using chromium in its two-piece can coating process. Although on-site chromium contamination was suspected during the 1989 PR/VSI, no sampling was ever conducted. Although Ball monitors its wastewater effluent prior to on-site discharge, there is no longer a chromium component. Future regulatory scrutiny does not appear to be likely.

5. Indoor Tanks and Vault

There are two approximately 170-gallon end compound tanks located within a flammable storage room by the punch press area. The tops of these tanks and associated piping are located above floor level, but the lower portions are within a below-grade concrete vault. The walls of this vault are concrete, but the floor of the vault reportedly has either a gravel cover over bare soil or a floor drain that discharges directly to soil. If the tanks, which apparently were installed in 1958, are considered to be underground storage tanks, they would be in violation of release detection requirements. Moreover, if they are deemed to be underground storage tanks, they have not been registered with OEPA. As a best management practice, ENVIRON recommends that, at a minimum, the floor of this vault be sealed to minimize the potential for leaks or discharges to contact soils beneath the building. Alternatively, Ball might consider raising these tanks above grade and eliminating the concrete vault. The cost to effect either of these changes likely would not cost in excess of $15,000.

Not likely

not possible

BUSTR

6. Historic Remediation Activities

During Heekin's ownership, three areas of contamination reportedly were remediated: a former underground storage tank area north of the lithography area in 1989, beneath a gasoline pump pad north of the assembly building in 1991, and a former outdoor hazardous waste drum storage area in 1991. No other areas of contamination were reported to ENVIRON. Passive soil vapor extraction reportedly was used to vent soils in the vicinity of the former underground storage tanks near the lithographing building. No documentation on this system or the adequacy of remediation of this area was available in facility files. The gasoline pump pad was the subject of a Corrective Action/Site BUSTR Investigation, as noted above, and the issue is considered closed by OEPA. Facility personnel report that surface soils were removed from a former hazardous waste drum storage area. There was no documentation provided to confirm the adequacy of remediation activities that reportedly occurred in this area, or that the reported remediation activities had been conducted (ENVIRON did observe evidence of top soil placement in the area where the former drum storage area had been). In the absence of information for two of these areas, confirmatory samples may be warranted to verify that no residual contamination remains.

7. **Off-site Disposal Facilities**

At present, Ball generates in excess of 500,000 pounds of hazardous waste per year. A review of the CERCLIS data base for the off-site waste management facilities known to have been used by Ball or its corporate predecessors was conducted. One facility, Mercury Refining Inc. is on the National Priorities List. Three facilities are on State Priorities Lists (Mercury Refining, Safety-Kleen in Hebron, Ohio, and the Rumpke Sanitary Landfill). The Mercury Refining site has undergone remediation and is an actively operating facility. Similarly, both Safety-Kleen and Rumple Landfill also are active facilities. Despite the past regulatory scrutiny at these facilities, ENVIRON believes that is unlikely that Ball would incur significant financial liabilities associated with disposal of wastes at these locations.

Ten facilities, including the three noted above, are on the CERCLIS list. Six of the sites, including the Safety-Kleen site in Hebron and the Rumpke Landfill, have been classified as "No Further Remedial Action Planned." Two of the sites have not been the subject of regulatory scrutiny in more than ten years. Mercury Refining has undergone site remediation. The tenth site, Coyne Textile Service, an industrial launderer, had a site discovery in 1994 due to an oil release to a local waterway. Since Coyne Textile is an active facility, it is likely that this oil release will not be managed under CERCLA. Despite the past regulatory scrutiny at these facilities, ENVIRON believes that is unlikely that Ball would incur significant financial liabilities associated with disposal of wastes at these locations.

8. Debris in On-site Woods

ENVIRON's review of historical aerial photographs from 1970 and 1991 revealed a potential area of debris disposal in what was observed at the time of the site visit to be a generally inaccessible wooded area near the southeastern corner of the site. At the time of the site visit, there was no obvious visual evidence of past or current human activity (e.g., a trail) in or around these woods and facility personnel reported that there was no known environmental impairment in this portion of the site. Based on ENVIRON's review of the aerial photograph, there did not appear to be any disposal of drums in this area. This could only be confirmed by a more detailed survey within this wooded area.

9. Site History

Based on information reviewed, the facility may have been used for the manufacture of munitions during World War I and World War II. A review of a 1949 aerial photograph, however, indicates that the subject site was cultivated farmland with no apparent industrial development. Other documentation suggested that the property was developed in 1952 by Baldwin Piano Company for the manufacture of pianos. Heekin Can acquired the property around 1959, and metal cans have been manufactured at this site since that time. Based on ENVIRON's review of contradictory information sources, it appears that the subject site was not developed for industrial use prior to 1950, although nearby properties had been developed earlier and could have been the location of munitions manufacturing.

So what?

III. FACILITY REVIEW

A. Introduction

Ball Corporation (Ball) operates a sheet metal coating and aerosol can fabricating facility in Anderson Township, Ohio.

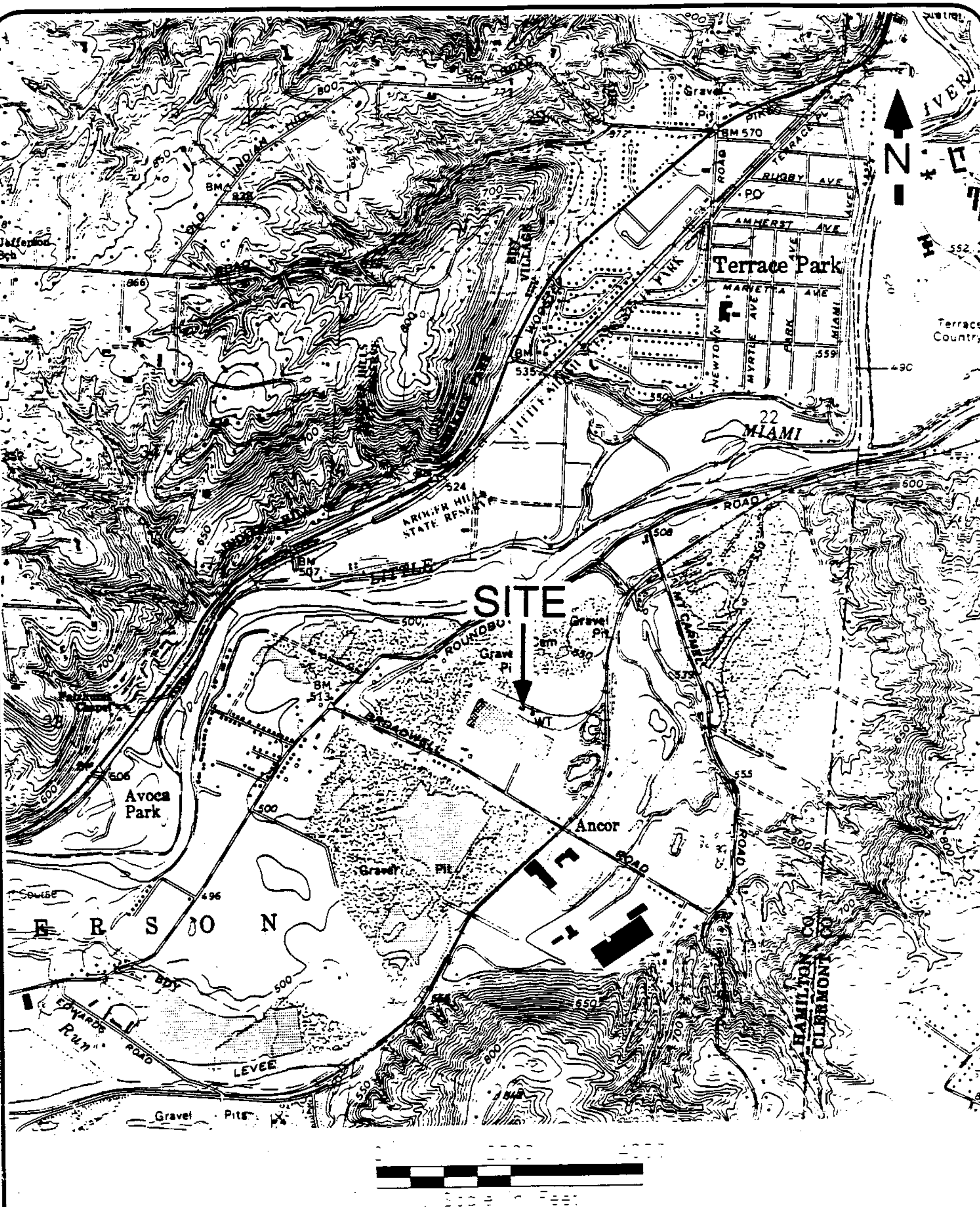
B. Site Setting

Ball's Cincinnati Operation is located at 8200 Broadwell Road in Anderson Township, Hamilton County, Ohio. This facility is located within a generally rural, residential/industrial area inside the greater Cincinnati beltway, approximately ten miles northeast of downtown Cincinnati (Figure III-1). Approximately 375 individuals are employed in the coating and inking of steel sheet and in the fabrication of aerosol cans. All operations are conducted within a single, approximately 475,000 square foot building situated on an approximately 77-acre site. The majority of floor space is devoted to manufacturing and warehouse operations, with the remainder consisting of office space, a graphic arts/plate making operation, a cafeteria, and locker rooms.

The area immediately surrounding the building is paved, with two large parking areas located on the south side of the facility. An active rail spur serves the loading docks on the north side of the building. An undeveloped grassy area exists on the south side of the building, and a wooded area is present along the southeastern border. A small package wastewater treatment plant and associated spray fields are located northeast of the building. A small cemetery plot and storage barn are located along the southwestern property boundary. A small pond is located in a wooded area along the eastern property boundary. A lined wastewater holding pond also is located on the eastern side of the site.

The site is located in a residential/industrial area typified by sand and gravel mining operations. Former or current sand and gravel mining operations are located to the north, south and southwest of the site. A fire station is located on what was formerly the southeastern corner of the site. Senco, a fastener systems manufacturing firm, is located to the east-southeast, across a railroad right-of-way. The closest residential area is located across Broadwell Road to the southwest. ENVIRON did not specifically identify any areas of environmental concern associated with neighboring properties that might impact the Ball site.

Although the detection of noise and odors is dependent on the weather conditions and ongoing operations at the time of the site visit, ENVIRON did not note strong odors or excessive



SOURCE: USGS 7.5 MINUTE (TOPOGRAPHIC); MADEIRA, OHIO QUADRANGLE

ENVIRON	SITE LOCATION MAP BALL CORPORATION CINCINNATI, OHIO	Figure II-1

noise emanating from the facility. According to facility personnel, no complaints have been received from neighboring facilities or residents regarding noise or odors during Ball's occupancy. In addition, the facility reportedly has not received any recent correspondence from regulatory agencies regarding noise or odors. Historically, the facility had received some complaints from neighbors regarding solvent odors.

Based on ENVIRON's review of the site and the USGS topographic map for Madeira, Ohio, the facility appears to lie in a river valley at an elevation of approximately 530 feet above mean sea level (msl). A range of hills with elevations of more than 800 feet msl run from northeast to southwest approximately one-half mile east from the site. The land generally slopes to the north-northwest, toward the Little Miami River, the nearest natural body of water, which is located approximately one-quarter mile north of the site. A similar range of hills exists beyond the Little Miami River. The Little Miami River ultimately discharges into the Ohio River several miles southwest of the site.

Due to historic gravel pit operations, there are a number of large ponds on adjacent properties that have been formed after mining operations have ceased. Two smaller gravel pits remain on-site, the northern pond, which is associated with facility storm water run-off management, and the southern "pond," which facility personnel reported is generally dry except during precipitation events. It appears that the site is located at least twenty-five feet above the grade of the ponds nearest the site, such that it would not be subject to flooding. Based on maps provided by facility personnel, the site is not located within the 500-year flood plain, although nearby low-lying areas off-site are within the 100- and 500-year flood plains. ENVIRON reviewed a flood insurance rate map from FEMA for Hamilton County which confirmed that the facility is not located within a flood plain area.

Based upon an inspection of the site, there appears to be some aquatic vegetation typical of wetlands areas that is associated with the on-site ponds on the eastern portion of the property. A review of the National Wetlands Inventory map confirms that there are limited wetlands areas identified with these two ponds. The wastewater holding pond is identified as being excavated palustrine unconsolidated bottom that is intermittently exposed.[1] The eastern edge of the other on-site pond (the northern pond) is identified as being an excavated palustrine emergent area that is seasonally flooded. There are also palustrine and lacustrine wetlands areas associated with the gravel pits and mining operations occurring on neighboring properties. Given that wetlands on-

[1]Facility personnel reported that a plastic liner was installed on this pond at the time of its construction in 1987. The PR/VSI indicated that a compacted clay liner had been installed.

site appear to have been created by man-made activities, it is unlikely that there would be any compliance issues of concern related to wetlands areas management.

According to facility personnel, potable water services at the site are supplied by Anderson Township's municipal water department. Facility personnel were not aware of the source of the township's water supply, but speculated that it either would come from the Ohio River or the Teas River, an underground glacial formation that reportedly could supply water to Cincinnati. The PR/VSI report indicated that the Ohio River, which is located approximately seven miles southwest of the site, was the source of Cincinnati's municipal water supply.

There are currently no ground water supply or injection wells on the site. Historically, there had been at least five ground water wells located on the site, which reportedly had supplied potable water at the site. These wells reportedly were abandoned in the late 1980s and early 1990s, and there was no visual evidence of these former wells in the approximate vicinities where they reportedly had been located. According to a 1992 Corrective Action/Site Investigation associated with remediation of an underground storage tank (see Section F.1 of this Chapter), several local residences near the southwest corner of the site apparently had active ground water wells at that time. Ground water is associated with fluvial deposits of thickness up to 100 feet in the vicinity of the site. The static ground water depth in a former on-site well reportedly was 50 feet below ground surface. No specific information on ground water flow direction in the vicinity of the site was provided. Typically, ground water flow follows local topography, which slopes to the north-northwest toward the Little Miami River. Based on the extensive gravel mining operations in the area, local shallow ground water flow patterns likely have been altered.

Ball operates its own wastewater treatment facility on-site. The facility's wastewater treatment system consists of a small package treatment system, which includes both an activated sludge basin and solids settling basin. Treated water is discharged to a lined wastewater holding pond prior to on-site discharge via a six-acre spray field located adjacent to the package plant on the northeast side of the facility. Facility personnel were unaware of historic septic field use at the site. It is likely that a septic field existed for the farm property that was on-site prior to industrial development.

Electrical service is provided by Cinergy (formerly Cincinnati Energy). Natural gas, which is used for both building heat and manufacturing equipment (primarily curing ovens and off-gas incinerators) also is provided by Cinergy. A boiler house is present to the north of the main plant building. Propane cylinders are maintained on-site for the facility's forklifts. Ball also maintains four 30,000-gallon liquid propane tanks to the northeast of the building as a back-up fuel source for natural gas. A propane vaporization station is located to the west of the boiler house.

C. Site History

Based on ENVIRON's review of various information sources (anecdotal recollections by current facility personnel, historic documents, aerial photographs, historical topographic maps, etc.), there is considerable uncertainty or conflict concerning historic site development activities. This section presents this divergent information, but notes where discrepancies between information sources exist.

According to the PR/VSI report, the property was owned by the American Nitrogen Corporation (Ancor) in the early 1900s. Ancor reportedly used this site during World War I to manufacture munitions. Alternatively, according to facility personnel, the site and surrounding area may have been developed in the middle 1940s by Ancor for manufacture and storage of military munitions. The central core of the current building (now known as Plant 2), where aerosol can assembly currently takes place, apparently has been referred to as the Ancor building. It is reported that torpedoes or bombs may have been manufactured in this building, but manufactured munitions reportedly were stored within concrete bunkers located on what is now Senco's property to the east of the site. There was no visual evidence (e.g., concrete footers or bunkers) of historical munitions storage areas on-site.

The PR/VSI report states that Baldwin Piano purchased the property sometime after World War I, constructed the original plant building sometime prior to 1950, and manufactured bomb fuses during World War II. An underground storage tank closure report prepared by Dames & Moore (D&M) in 1989 reported that Baldwin Piano had built a manufacturing plant at the subject site in the 1940s. Facility personnel reported, however, that the Ancor facility had been sold to Baldwin Piano Company in the early to middle 1950s. An aerial photograph taken in 1949 shows that the site contained farm-related structures and the subject site contained agricultural fields. No structures of an apparent industrial nature were present on-site, nor was there any evidence of historic building foundations. Moreover, an undated site drawing provided by facility personnel indicates that the Plant 2 structure (i.e., the original on-site building) was constructed in 1952.

Site drawings from 1956 confirmed that Baldwin Piano had conducted operations at this site. Facility personnel reported that Baldwin Piano manufactured pianos at this location for only a few years before the property was sold to Heekin Can in 1959. There is no visual evidence, based on the current site configuration, that either munitions or piano manufacturing took place at this site.[2] No information on any manufacturing processes conducted by Ancor or Baldwin were available for review from Ball personnel. Based on the types of operations that might have been conducted, use of degreasing and cleaning solvents, varnishes and wood stains would have been expected. The historic environmental management practices of Ancor or Baldwin is unknown.

Heekin Can historically had a metal can manufacturing in downtown Cincinnati since the 1890s. Upon acquisition of the present site in 1957 according to the PR/VSI (1959 according to current facility personnel), manufacturing operations from Heekin's downtown facility were transferred to the present location. According to the PR/VSI, three-piece steel can manufacture began in 1958. Facility personnel reported that two-piece aluminum can production was initiated in the middle 1960s (1973 according to the PR/VSI) and discontinued in 1989. Three-piece cans were manufactured at the site until the late 1980s (aerosol cans are still manufactured today).

According to the PR/VSI, Heekin Can sold the facility to Diamond International Corporation sometime in the 1970s (ENVIRON saw documentation indicating Diamond International's ownership of the business). Diamond International sold the plant to Wesray Packaging, Inc. in late 1982 or early 1983. The company's stock reportedly went public in 1985, with Wesray no longer holding any interest. Heekin Can, Inc. operated at this site until March 1993, when its operations in the Cincinnati area were acquired by Ball. Prior to Ball's acquisition, the can manufacturing operations apparently were known as Heekin Can, despite the various changes in business ownership.

Numerous building additions have been constructed since the Plant 2 building was erected in 1952. A summary of building additions and their dates of construction are summarized in Table III-1. Building additions are shown in Figure III-2.

As discussed in detail in Section D below, the facility presently coats and inks steel sheet material and assembles aerosol cans at the site. Heekin also had manufactured two-piece cans, using a D&I (drawn and ironed) process. When this operation was discontinued in July 1989, the D&I operational area was converted into warehouse space.

[2]Facility personnel reported that a below-grade passageway beneath the floor in the assembly area may have existed as a water-filled, open-top concrete trench during Ancor's tenure, and was used to "float" torpedoes or bombs across the plant in order to minimize the potential for detonation. Baldwin reportedly covered the top of the trench. The resulting passageway reportedly might have been used as an underground conveyor system for wood scrap and sawdust during Baldwin's ownership. There is no specific information available to confirm these prior past uses. At the time of the site visit, ENVIRON observed that this passageway is now generally empty, except for limited storage of some spare equipment.

TABLE III-1
Summary of Building Additions - Ball Corporation Facility

Building Addition	Date Constructed	Square Footage
Manufacturing Building (Plant 2)	1952	121,095
Boiler House [a]	1952	4,620
Warehouse	1958	73,084
Plate Storage Building	1960-1961	24,000
Flammable Liquid Storage "B"	[b]	2,400
Pallet Storage	[b]	2,400
Lithographing Building (Plant 9)	1963	106,800
Flammable Liquid Storage "A"	[c]	3,680
Truck and Railroad Shipping Building	[c]	11,748
D & I Building	1965	18,120
Coil Storage	1966	14,384
D & I Coil Storage	1968	3,584
Warehouse Addition	1968	34,496
D & I Addition	1979	43,560
D & I Office	1979	4,400

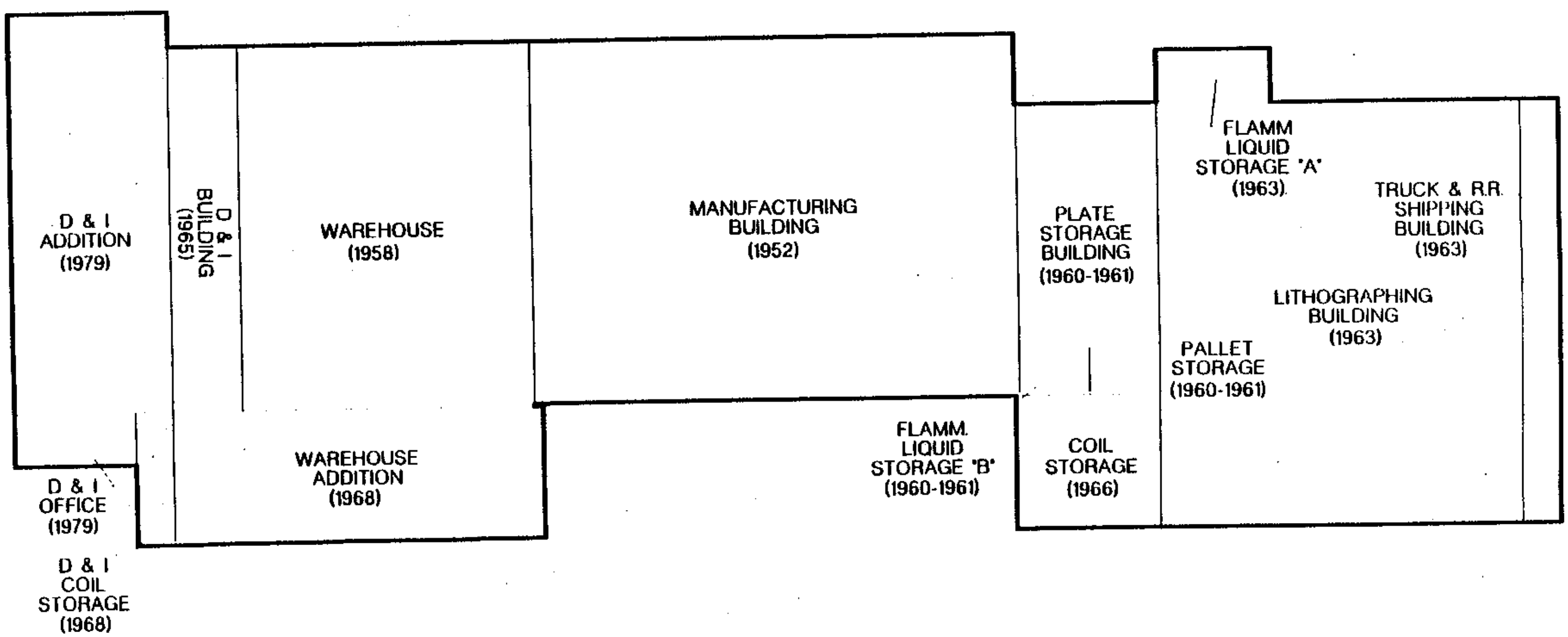
[a] The boiler house is a separate structure located to the north of the manufacturing building.

[b] No date of construction was given, but it is likely that these rooms, which are adjacent to the plate storage building, were constructed around the same time.

[c] No date of construction was given, but it is likely that these rooms, which are adjacent to the lithographing building, were constructed around the same time.

Note: This list does not include an aluminum recovery room constructed to the north of the D & I building, as no information on its size or date of construction was available.

ENVIRON reviewed historical topographic maps for the general vicinity area. Specifically, maps for the years 1898, 1912, 1953, 1961, and photorevised versions of the 1961 map from 1970, 1974 and 1982 were made available for review. A discussion of relevant findings is presented below.



NOTE: Not to Scale
Dates of construction in parentheses

ENVIRON

SITE PLAN
BALL CORPORATION FACILITY
CINCINNATI, OHIO

Figure
III-2

- In 1898, Broadwell Road, which is the southern property boundary, and the railroad right-of-way (the Cincinnati, Portsmouth and Virginia Railroad), which forms the eastern property boundary, are present. There is no evidence that the site itself has been developed. Specific physical site conditions (e.g., woodlands versus grasslands versus agricultural fields) cannot always be discerned from topographic maps.[3]

- In 1912, the site appears to be the location of Lafayette School. It is not clear to what extent the property has been developed, although two or three structures may be present on-site. The railroad right-of-way is shown as being operated by the Norfolk and Western Railroad.

- In 1953, the main building (likely Plant 2) and the boiler house are present on-site. Two rail spurs serve the northern side of the facility. There is evidence of two on-site ponds or depressions on the east side of the plant, but no indication that these are associated with gravel pit operations.[4] It should be noted that the intersection of Broadwell Road with the railroad right-of-way, which is near the southeastern corner of the site, is identified as "Ancor." There are also references to gravel pit operations to the south and east of the site.

- There appears to have been an addition on the western side of the on-site building by 1961. A water tower also has been constructed on-site. Gravel pit operations and a small cemetery are identified to the north of the site. The gravel pit operations to the south appear to have expanded.

- By 1970, there have been two additions to the main building, on the southwestern and the eastern (i.e., what is now the lithographing building) sides. It also appears

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[3]It should be noted that the scale of the 1898 and 1912 maps is 1:62,500 versus 1:24,000 for the more recent maps.

[4]Facility personnel reported that the southern pond was dry (this "pond" was not readily accessible due to dense trees and undergrowth at the time of the site visit). The northern pond, which is predominantly surrounded by woods, is presently associated with the facility's storm water runoff management system.

that the storage barn has been constructed on-site. Gravel pit operations on the property to the north of the site appear to be extending along the northwestern boundary of the plant.

- The current Senco building has been constructed by 1974. There is no evidence prior to its construction that any munitions-related structures or site modifications, other than some gravel pit operations, were present at the Senco site. There are no apparent modifications to the site during this time.

- By 1982, there appears to have been another small addition constructed on the west side of the building. Gravel pit operations to the northwest of the property extend south to Broadwell Road.

- The most recent map (1988) generally shows that the site and surrounding area are consistent with observations made at the time of the site visit.

Based on its review of historical topographic maps, ENVIRON did not identify any obvious areas of potentially significant environmental impact or risk.

ENVIRON also ordered historical aerial photographs that were intended to cover, to the extent available, periods of manufacturing use at the site, and obtained photographs for the years 1949, 1970 and 1991. A discussion of relevant findings is presented below.

- The 1949 photograph shows the site to have been undeveloped for industrial purposes. A farmhouse and related structures are present along Broadwell Road. Cultivated fields are present to the north of the farm buildings. There is evidence of apparent gravel mining operations on the eastern border of the site, adjacent to the railroad tracks. There is no clear visual evidence of any munitions-related facilities in the immediate vicinity of the site, although several industries on nearby properties have been constructed.

- By 1970, most of the subject site has been constructed. What appears to be a water storage tower is present to the east of the boiler house (at the time of the site visit, only the concrete footers for this tower still remained). Limited outdoor storage to the north of the building is evident. A hazardous waste drum storage area is active to the north of the lithographing building in 1970 (due to the scale of the photograph, it cannot be determined if this pad has a concrete or asphalt base, or the number of drums present). The wastewater holding pond is present in an area that had been associated with gravel mining in 1949. An area of apparent debris disposal is located in the wooded area on the east side of the property that reportedly had been the site of gravel mining operations in the past.[5] Due to the scale and clarity of the photograph and the size of the debris, ENVIRON cannot specifically ascertain what materials have been disposed. It does not appear that drums have been discarded in this area, but this could only be confirmed by a more detailed survey within this wooded area. Extensive gravel mining operations are evident on the property to the north of the site. Portions of the property to the west are still being cultivated.

- The 1991 photograph shows the site and surrounding area much as it exists today. Outdoor material storage on the north side of the facility is more substantial in 1991 than ENVIRON observed during the site visit. A variety of scrap materials, drums, pallets, and other objects not readily identified are present along the paved access road that traverses the northern portion of the property (a description of waste management areas is presented in Section J.1 of this Chapter). The drum storage area to the north of the lithographing building is still active in 1991. The water storage tank noted in the 1970 photograph is no longer present. Soils outside the northwest corner of the building appear to be disturbed, which apparently reflects the removal of underground storage tanks in that area, as discussed in Section F.1 of this Chapter. There are five large tanks staged adjacent to this disturbed soil area that would be indicative of this removal. The area of apparent debris disposal is still evident in the wooded area on the east side of the property (clarity of this photograph, although at a higher scale than the 1970 photograph, still precludes a specific determination of drum disposal in this area).

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[5]Due to this area being heavily wooded with considerable undergrowth at the time of the site visit, it was not readily apparent that there might presently be an area of existing debris, nor were any representations concerning the existence of any debris made by facility personnel. ENVIRON did not observe any conditions that warranted further investigation of this wooded area at the time of the site visit.

A fire station has been built in the southeast corner of the property, adjacent to the intersection of Broadwell Road and the railroad right-of-way.

Although outdoor storage areas were present that would not be considered a Best Management Practice today, there is no clear evidence of gross contamination based on ENVIRON's review of these historical aerial photographs.

D. Description of Operations

Ball conducts sheet metal coating and inking operations, as well as the fabrication of aerosol cans. Operations are basically divided into three main areas: coating/lithography, assembly, and warehousing.

Prior to the coating operation, coiled steel sheet is punched in two punch press units. The punched steel sheet "blanks" are loaded onto one of six coating lines. The blanks are individually fed into the coater, where a thin enamel film is applied to the surface of the steel sheet at a prescribed thickness. The coatings employed are solvent-based, with glycol ethers, xylenes, isopropyl alcohol, methyl ethyl ketone, and methyl isobutyl ketone as the most common solvents used. After passing the coater application rolls, exhaust hoods capture fugitive emissions emanating from the uncured coating, directing them to an incinerator unit via an exhaust duct (a discussion of air emissions is presented in Section H of this Chapter). The coated sheet then passes through a gas-fired curing oven to cure the enamel film to a hard surface. Solvents emitted during the oven curing process also are routed to an incinerator (there are three incinerator units, each of which is dedicated to two coating lines). After curing, the coated sheet is stacked for transfer to the lithographing machines or the can assembly area. Facility personnel reported that several hundred different coating blends are employed at the site annually.

The lithographic operation is similar in scope to the coating units, with the exception that a multi-colored decorative design, rather than a single "prime" coat, is applied to the metal surface. Water-based ink pastes, which are custom-blended in an on-site mixing laboratory, are used in the five printing presses. After application of the inks, the printed sheets pass through gas-fired curing ovens. Because solvents are not used in the lithographic process, there are no emission controls for this process (one of the printing presses can be operated as a seventh coating line and has exhaust ducting that allows the transfer of emissions to an incinerator unit). After curing, the printed sheets are transferred to the assembly operation.

Ball has the capability to produce printing plates for use in the printing presses. Ball maintains three automatic vertical developer systems.

In the assembly operation, two basic processes are conducted to produce aerosol cans: end formation and body blank welding. Body blanks are stamped from coated or printed sheet metal. The blank is then rolled into a cylinder and passed through a welding roll. The welding roll conducts an electrical current, using a copper wire "catalyst," and applies pressure to weld along the side seam of the can. The welded can body is transferred over liquid side stripe spray nozzles, which apply a side seam stripe to the interior and exterior of the welded can body.

In the end formation process, coated sheets are punched into either can ends (disks) or heads (domes). The outer edge of the disk or dome is curled, which forms a small channel into which an end seal compound is applied. After compound lining, the ends are packaged into paper sleeves and kept in the warehouse for at least twenty-four hours while they cure. The welded can body and the end pieces are then attached, forming a hermetic seal when the ends are double seamed onto the can body.

E. Records Review

ENVIRON reviewed the results of the environmental data base searches performed by Vista. A description of the data bases and the radial areas over which they were searched is provided in Appendix A. The subject site was identified on seven data bases, as noted below:

- USEPA's CERCLIS list. During the period of Heekin Can's ownership, the facility had a federally-led site discovery in October 1986. A state-led preliminary assessment was conducted in October 1987, concluding that the site represented a "lower priority." A federally-led site inspection in November 1992 resulted in the facility being deferred to RCRA Subtitle C.

- OEPA's Unregulated Sites Master Sites List (i.e., the state-equivalent CERCLIS list). Heekin Can is noted on the SCL. This listing appears to be related to the facility's CERCLIS status. Based on information provided by OEPA, the site underwent a RCRA corrective action.

- The CORRACTS list. This facility received a "medium" prioritization status (the timing of this determination was not provided) and a RCRA Facility Assessment (RFA) has been completed (the PR/VSI by A.T. Kearney in 1989). A RCRA Facility Investigation (RFI) determination was conducted and no RFI was imposed. No subsequent RCRA Corrective Action studies or investigations have been undertaken at this site.

- The RCRA Violators list. The facility received four RCRA violations between 1986 and 1990. The specific violations cited are not identified in the data base. With the exception of the 1990 violation, the facility has achieved compliance with the alleged violations (compliance with the 1990 violation is listed as "not reported"). No penalties have been assessed as a result of these four violations.

  In 1992, the facility came under a RCRA 3008(A) compliance order. According to facility personnel, this compliance order was issued for a failure to develop and submit a waste minimization program. A $25,000 penalty was assessed against Heekin Can at the time the compliance order was issued, but no record of payment of this fine was provided to ENVIRON. Facility personnel reported that a waste minimization program has since been developed to comply with the compliance order.

- The Ohio Division of State Fire Marshal's List of Petroleum UST Release Incidents. Heekin Can reported leakage from a regulated active tank. The data base indicates "no action taken/no further remedial action." The period and extent of release was not provided in the data base. A discussion of underground storage tanks is presented in Section F.1 of this Chapter.

- The Toxic Release Inventory (TRI) data base. The facility reported airborne release of xylenes, unreported compounds (presumed to be VOCs), and methyl isobutyl ketone. The specific reporting year for this listing is not given in the data base. A discussion of TRI reporting is presented in Section L of this Chapter.

- The RCRIS list of hazardous waste generators. The facility is identified as a large quantity generator of hazardous waste (i.e., a generator of at least 1,000 kilograms of nonacutely hazardous waste). A discussion of hazardous waste generator status is presented in Section G.1 of this Chapter.

In general, it appears that the regulatory data base listings involve activities conducted prior to Ball's acquisition of the property. Several of the manufacturing processes that led to these listings are no longer conducted at the site. Environmental management systems appear to have been upgraded substantially since the 1980s. It appears unlikely at the present time, therefore, that future regulatory activities will result from these historical data base listings.

No NPL sites were identified within one mile of the site. Other than Ball, no facilities within one mile of the site are identified on either OEPA's Unregulated Sites Master Sites List or USEPA's CORRACTS list. Similarly, no facilities within one-half mile of the site, other than Ball, are identified on the CERCLIS list. No facilities in the vicinity of the site have reported spill events under ERNS. Finally, there are no RCRA-permitted treatment, storage and disposal facilities within one mile of the site.

No facilities within one-quarter mile of the site have registered underground or aboveground storage tanks. In addition to Ball, one other facility within one-half mile of the site has a reported leaking underground storage tank; Interpave Corporation, which is located approximately one-half mile southeast of the site. The data base indicates that the tank was closed and "no action taken/no further action." No information pertaining to the leak reporting date, the materials released, and remedial actions taken was provided in the data base. Although Interpave likely is upgradient of the site, based on local topography, there is no specific information to indicate that this leaking tank has impacted the subject site adversely.

Except for Ball, no other facilities within one-quarter mile of the site are on either the Toxic Release Inventory data base or the RCRA Violators list. Similarly, except for Ball, there are no RCRA-registered hazardous waste generators within one-eighth mile of the site.

Based on the information provided in the data bases and obtained from Ball personnel, there are no known areas of environmental concern associated with neighboring facilities.

F. Chemical and Chemical Waste Storage

1. Underground Storage Tanks

Based on ENVIRON's review, it appears that there were at least twelve outdoor underground storage tanks (USTs) at this location during the period of Heekin's ownership. Five of these USTs had been located between the two rail spurs located immediately to the north of the lithographing building (Plant 9). Five USTs were located outside the northwestern corner of the building. One UST was located to the south of the fire water tank. The final UST was located on the west side of the boiler house building. A summary of these USTs is presented in Table III-2. Facility personnel reported that all USTs were removed prior to Ball's acquisition of the site. At the time of the site visit, ENVIRON did not observe any evidence of active USTs (e.g., fill pipes, vent pipes).

Heekin Can contracted with The H.C. Nutting Company (HCN) in 1988 to locate the five USTs north of Plant 9 and to investigate potential solvent contamination from these USTs. HCN collected four soil samples, all of which were collected in the vicinity of only one UST (the westernmost UST, which contained HiSol 15, a petroleum-based solvent). Using gas chromatography, butyl cellosolve and HiSol 15 were detected in soil samples collected around this UST, but concentrations could not be quantified due to an extended retention time for naphthalene, one of the constituents detected.

According to a 1989 UST closure report prepared by D&M for the Plant 9 USTs, two of these tanks reportedly had experienced collapsed vent lines, prompting Heekin to remove all five tanks from service and to close them. Subsequent testing revealed that all five tanks and thirteen of fifteen lines (i.e., the fill, suction, and vent lines for each tank) were leaking. Discovery of leakage in the first tank tested triggered suspected release notification requirements, and D&M notified local and state authorities regarding these tanks. This reported leak triggered Heekin Can's listing on the leaking underground storage tank data base. D&M closed all five tanks in place by excavating soil to the tops of each tank, opening an access hole, pressure washing the interior, and filling with clean pea gravel. A ground water sample was collected by D&M from a former supply well located near the tanks, but the results were not provided in the D&M report. Facility personnel reported that no known well sampling data is present in on-site files.

Facility personnel indicated that, following closure activities, a passive soil vapor extraction system was installed in the vicinity of the five Plant 9 USTs. Facility personnel reported that there was no information on the operation of this system in facility files. ENVIRON did review, however, an approval of closure letter issued by OEPA for these USTs in August 1992, which stated that the issue was closed. A discussion of soil and ground water contamination and remediation issues are discussed in Section J of this Chapter.

TABLE III-2
Former Underground Storage Tanks - Ball Corporation Facility

Tank ID [a]	Volume	Contents	Location
89-1	4,000	HiSol 15	North of Plant 9
89-2	4,000	Cellosolve acetate	North of Plant 9
89-3	4,000	Butyl cellosolve	North of Plant 9
89-4	4,000	Reclaimed mix	North of Plant 9
89-5	4,000	VM&P naphtha	North of Plant 9
91-1	8,000	Cimflo (soluble vegetable oil)	Northwest of D & I building
91-2	8,000	Water-based lacquer	Northwest of D & I building
91-3	10,000	Water-based lacquer	Northwest of D & I building
91-4	8,000	Waste Cimflo/water	Northwest of D & I building
91-5	8,000	Waste Cimflo/water	Northwest of D & I building
91-6	1,000	Gasoline	South of fire water tank
91-7	10,000	#2 fuel oil	West of boiler house

[a] Tank ID values have been ascribed by ENVIRON due to the same tank ID numbers being used by different contractors for removal of different tanks. The prefix (i.e., 89 or 91) refers to the year the UST was taken out of service.

In 1991, Heekin retained Environmental Quality Management, Inc. (EQM) of Cincinnati, Ohio to conduct closure activities for the seven other USTs located at the site. All seven tanks were excavated and disposed off-site (the 1991 aerial photograph clearly indicated that tanks 91-1 through 91-5, which had been located outside the northwest corner of the property, had been removed). According to EQM's report, none of the seven tanks were observed to be leaking upon removal. Residual petroleum constituents were detected in soils beneath the gasoline pump pad for the gasoline UST (tank 91-6, Table III-2) and adjacent to holes found at the top of the heating oil UST (tank 91-7). Soils beneath the gasoline pump pad containing elevated petroleum constituents (total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylenes (BTEX)) were not removed due to physical constraints. Outside of the holes on tank 91-7, no indication of releases was observed. Thus, further action was not deemed appropriate in either case and the excavated areas were backfilled and returned to grade. EQM prepared a closure report in May 1991.

Upon review of the May 1991 closure report, the State Fire Marshal responded that Heekin was subject to the state and federal regulations governing the investigation and clean-up of releases from UST systems. Specifically, Heekin was required to conduct Initial Corrective Actions and a Site Investigation (CA/SI) for the gasoline pump pad area, pursuant to OAC §1301:7-7-36(C). In response, Heekin completed a CA/SI in February 1992. Heekin reportedly attempted to remove contamination to the extent possible through soil excavation, but the building foundation and underground utilities interfered with complete remediation. Up to 100 ppm of xylene and 200 ppm of total petroleum hydrocarbons were present in a limited area beneath the former gasoline dispensing pump. Ground water samples were collected from a former production well believed to be downgradient (250 feet northwest)[6] of the remediated area, but no organic compound or metal contamination was detected. A surface water sample from a gravel pit pond to the north of the site also was sampled, with no specific evidence of contamination (low levels of trichlorofluoromethane and chloroform were detected at concentrations of 18 μg/L and 1 μg/L, respectively). Based on a review of the CA/SI, the State Fire Marshal indicated in a March 1992 letter that no further corrective actions would be required by the Ohio Bureau of Underground Storage Tanks.

There are two approximately 170-gallon end compound tanks located within a small flammable storage room by the can assembly punch press area. There is some controversy among facility personnel as to whether these tanks would meet the definition of an UST. The tops of these tanks and associated piping are located above floor level, but the lower portions are within a below-grade concrete vault. The walls of this vault are concrete, but the floor of the vault reportedly has either a gravel cover over bare soil or a floor drain that discharges directly to soil. If the tanks, which apparently were installed in 1958, are considered to be USTs, they would be in violation of release detection requirements. Moreover, if these tanks are USTs, they have not been registered with OEPA. As a best management practice, ENVIRON recommends that, at a minimum, the floor of this vault be sealed to minimize the potential for leaks or discharges to contact soils beneath the building. Alternatively, Ball might consider raising these tanks above grade and eliminating the concrete vault. The cost to effect either of these changes likely would not cost in excess of $15,000.

[6]As noted, no specific ground water flow data are available for the subject site.

2. Aboveground Storage Tanks

There are several aboveground storage tanks (ASTs) located at the site. ENVIRON observed seven outdoor ASTs, all of which are north of the building. There is a 300,000-gallon tank for fire suppression water storage, a 2,500-gallon tank for mop water[7] located beneath a roofed structure to the east of the railroad loading dock, four 30,000-gallon propane storage tanks, and one 500-gallon tank containing anti-freeze that is associated with the propane vaporization equipment (used when there is a natural gas curtailment and propane is used as the back-up fuel source). With the exception of the propane vaporizer, none of the tanks had secondary containment. Given the contents in some of these tanks (e.g., water and propane), there is a limited concern for environmental release. Ball should consider, however, installing a berm around the mop water AST.

There are a number of indoor ASTs associated with the storage of coating materials. These tanks are located in flammable liquids storage room "A" (the lithographing plant drum room); most of them have been built over top of the racks of 55-gallon drums. Facility personnel did not have any information on the number and size of these ASTs, although there appeared to be approximately eight tanks ranging in size from 1,000 to 5,000 gallons. The storage room appears to have sufficient secondary containment to contain a catastrophic release from any of these ASTs.

3. Drum and Other Storage Areas

Ball maintains four drum storage areas within the plant. The primary storage area is flammable liquids storage room "A," which is located on the north side of the plant, near the paint mixing room at the northwest corner of the lithographing area. ENVIRON observed in excess of 400 55-gallon drums of various coating compounds stored horizontally on a series of racks four tiers high. As noted previously, ASTs are located above the racks of drums. Despite the large number of drums, the room appeared to be well organized and there was limited evidence of spills or releases. The room itself is constructed below grade to provide secondary containment. Facility personnel indicated that there have been discussions with Ball's insurance carrier concerning several low-level vents around the perimeter of the room. Ball has expressed a desire to maintain these vents as a potential water escape route should the room flood as a result of any fire

[7]Mop water can be characterized as various wash water and oil/water mixtures generated at the site.

suppression activities that might occur. Ball's insurer reportedly has expressed concern that the vents would allow for outdoor discharge of materials released from the drums. Given the relatively large surface area (approximately 2,400 square feet) and containment depth in the room (approximately one foot), it appears that there is sufficient capacity to contain a substantial release, independent of fire suppression activities.

ENVIRON observed approximately 100 55-gallon drums and several 400-gallon totes staged in the paint mixing room, which is located between the lithographing area and flammable liquids storage room "A." Facility personnel typically prepare coating mixtures within 55-gallon drums in this room, using other numerous raw materials. In addition, hazardous waste is accumulated in the 400-gallon totes staged in this room.

There was a reported spill incident in the paint mixing room in September 1995. According to facility personnel, an employee was dispensing a butyl cellosolve-containing coating material into a 55-gallon drum and forgot to shut off the dispensing valve. When the employee noticed material flowing out of the drum and went to shut off the valve, he slipped and injured himself. The release was reported to the Office of Chemical Emergency Preparedness and Prevention for USEPA Region 5 because an injury had occurred during the release. Approximately 32 pounds of material were discharged within the paint mixing room, none of which escaped to the environment. Since the incident occurred, Ball has replaced the dispensing valves with spring-loaded devices that must be manually held open at all times in order to dispense material. It does not appear, however, that any environmental impact occurred as a direct result of this release.

Ball maintains a second drum storage room on the south side of the plant in an area immediately north of the coil receiving/storage area. This room, known as flammable liquids storage room "B," is used to store a variety of liquids, including oils, solvents, and coolants. ENVIRON observed that this room was well maintained. There was adequate space for storage of the drums, and no evidence of leaks or spills. The room is constructed below floor level to provide its own secondary containment.

There is also a small flammable storage area in the vicinity of the can assembly punch presses. In addition to the two potential USTs noted above, there are also several drums of oils staged in this room. Although there was some evidence of drips on the floor, there was no evidence of a major discharge. As noted, however, there may be a drain in the concrete vault located in this room that reportedly discharges to soils beneath the building. It is possible that past releases in this room might have discharged via this vault.

Viscous, water-based ink pastes are used in the lithograph presses. Ball maintains a dedicated ink storage and mixing room in the northeast corner of the lithographing area for preparation of ink blends. Most inks on-site are maintained in five-gallon plastic pails. There was no evidence of discharges or releases in this area.

There is an inactive indoor rail siding along the eastern side of the building. This area reportedly is now used to ship product via truck. At the time of the site visit, ENVIRON observed several drums of solvent-containing rags staged in this area awaiting off-site laundering. The lids on some of these drums were not closed at the time of the site visit. Although there was little likelihood of discharge from these drums, ENVIRON recommends that they be sealed close after they have been filled.

Ball currently maintains a concrete storage pad located to the north of the plant. This pad does not have any secondary containment, although the pad appears to slope to the south. At present, empty drums and wooden pallets are staged on this pad. There was no visual evidence of discharges or releases from this pad at the time of the site visit.

Under Heekin's ownership, drums of hazardous waste were staged on a cement pad in an area to the east of the current empty drum storage pad. Due to minor releases that reportedly had occurred in the past, the pad and top layer of soil were removed and the area was resodded. Drums of hazardous waste are no longer stored outdoors. ENVIRON has requested information on the closure of this former drum storage pad, however, Ball personnel have been unable to locate any information in facility files.

Heekin also had staged a variety of scrap and other materials, including some drums of hazardous waste, along the paved areas to the north of the plant. These storage areas had been noted as solid waste management units in the PR/VSI. Evidence of this storage was noted in a review of the 1991 aerial photograph. Since 1991, much of the scrap material has been removed from the site, and no drums were staged on this paved area at the time of the site visit. There was not any evidence of gross contamination on the paved areas where these materials had been present, although there were some minor stains noted in some areas. It is unlikely that these stains would result in remedial actions being required by regulatory authorities. A discussion of potential soil and ground water contamination from historic on-site disposal locations is presented in Section J of this Chapter.

4. Spill Prevention Control and Countermeasures (SPCC) Plan

Facilities with the capacity to store oil or petroleum products in a single aboveground container larger than 660 gallons, in aboveground containers with a combined volume exceeding 1,320 gallons (i.e., the equivalent of twenty-four 55-gallon drums), or in underground containers with a combined volume exceeding 42,000 gallons are required to prepare an SPCC plan, as specified under 40 CFR §112.3, if a release from the facility could be reasonably expected to discharge oils to navigable waters. Based on the current storage of materials at the site, it appears that Ball does not meet the volume thresholds specified and would not be required to prepare an SPCC plan. Ball, however, has developed an Emergency Contingency Plan that contains many of the elements typically required in a Spill Prevention Control and Countermeasures Plan.

G. Hazardous and Nonhazardous Waste

1. Hazardous Waste Management

Ball generates substantial quantities of hazardous waste at this site. The majority of hazardous wastes, roughly 95 percent, are associated with spent solvent wastes from both coating and assembly operations. In 1995, Ball generated and disposed of more than 500,000 pounds of spent solvent wastes (up to 900 gallons of coating and lithography wastes per week and 300 gallons of side seam stripe waste per month). Other hazardous wastes generated include spent parts washer solvent, waste flammable liquids, waste corrosive liquids, and mercury-containing weld rolls (the mercury is sealed within the weld rolls). These wastes are managed off-site (see Section G.3). Solvent-containing rags from the coating and printing operations also are generated. These rags are sent to an industrial launderer for cleaning.

Because the facility generates greater than 1,000 kilograms per calendar month of non-acutely hazardous waste, Ball is classified as a large quantity generator (LQG) of hazardous waste under the Resource Conservation and Recovery Act (RCRA), as amended. As such, Ball must comply with the following requirements of RCRA: 1) obtain a USEPA generator identification number (OHD004253225); 2) store hazardous waste on-site for no more than 90 days; 3) prepare and use the Uniform Hazardous Waste Manifest, maintaining copies on-site for at least three years; 4) properly package, label and placard wastes; 5) establish programs such as preparedness and prevention, contingency plans, emergency procedures, and personnel training; 6) manage waste only at RCRA-permitted facilities; and 7) prepare and submit a biennial hazardous waste report. Based on ENVIRON's review, Ball appears to be in substantial compliance with these requirements, except as discussed in the following subsection.

2. RCRA Compliance Issues

In 1982, Heekin Can submitted a RCRA Part B permit application for the management of hazardous waste. This permit application was submitted because Heekin stored some hazardous wastes on-site in excess of 90 days and conducted on-site treatment of a chromium-containing aluminum waste generated as part of the two-piece can manufacturing process. Heekin was unable, however, to obtain a permit from OEPA and ultimately requested withdrawal of the permit application in February 1986. In August 1986, Heekin submitted a closure plan for the facility to OEPA. According to this plan, the use of chromium in the two-piece can treatment process had been discontinued in January 1986, resulting in the closure of the former chromium treatment system; neutralization of the new can cleaning/conversion coating process would, however, continue to use the treatment system infrastructure. To accomplish closure, therefore, Heekin proposed to wash and rinse the outside surface of all treatment tanks and the floor. This closure was undertaken and completed in 1987. In an October 1989 letter, OEPA indicated that closure of the can treatment process had been accomplished.

The facility is on the RCRA Corrective Actions (CORRACTS) list. The facility received a "medium" prioritization status. According to the Vista data base search, a RCRA Facility Assessment (RFA) was completed by A.T. Kearney in August 1989. With the exception of the cleanup of materials from two drums observed to be leaking at the time of the RFA, no significant further actions were recommended as a result of the RFA investigation. A RCRA Facility Investigation (RFI) determination was subsequently conducted and no RFI was imposed. A discussion of potential solid waste management units and areas of concern identified at the site in 1989 is presented in Section J.1 of this Chapter.

As noted in Section E, RCRA inspections on four different dates resulted in violations. Results of inspections conducted in July 1986 and June 1988 were not available for review. To the extent information was available, the details of the other two inspections are presented below. Given the period of time since these inspections were conducted, it is unlikely that any unresolved issues still remain today.

- September 16, 1988 - The facility was cited for several violations, including insufficient personnel training program; an out-of-date Contingency Plan; and failure to conduct weekly inspections of hazardous waste accumulation areas and maintain an inspection log.

- July 31, 1990. - The facility was cited for several violations, including storage of hazardous waste drums without appropriate labeling; exceedances of the 90-day hazardous waste storage limit; inadequate aisle spacing between containers; and improper management of wastes.

Ball conducts biennial internal environmental compliance audits. In the last audit, conducted over a one-week period in April 1995, Ball personnel noted that a tote of hazardous waste had not been labeled properly and that, on several occasions during the previous year, a waste disposal facility had not returned copies of the waste disposal manifest.

3. Nonhazardous Waste Management

Solid nonhazardous waste generated at the facility is primarily general refuse, scrap metal, mop water and waste oil. Facility trash is collected in a covered compactor located to the east of the rail loading dock. This compactor is hauled by Rumpke Sanitation to the Rumpke Landfill.

Scrap metal is discarded into rail cars staged on the north side of the plant. Because some lubricants are sprayed onto the metal during various fabrication processes and may remain on the scrap metal, they could be discharged to the pavement during precipitation events, ultimately discharging into the northern pond. The potential for release of oil could be minimized by constructing a roofed structure over the rail car siding, which would represent a Best Management Practice. The facility has a storm water discharge permit (see Section I of this Chapter) that requires reporting the release of oil in storm water discharges. Because there reportedly have been no such discharges, the current rail car siding configuration appears to comply with environmental permit conditions and regulatory requirements. The cost to construct a roof over the rail car area to minimize the potential for precipitation contacting the rail cars likely would exceed \$25,000, and could exceed \$50,000.

Mop water is generated from floor washing conducted at the site. During the floor washing process, trace amounts of oil and debris get mixed with the wash water. This wastewater is pumped into the mop water AST, typically from 55-gallon collection drums, and disposed off-site by Northern Hills, a local hauler.

4. Off-site Waste Management Facilities

Facility personnel provided a listing of off-site waste management facilities used by Ball Corporation, which is summarized in Table III-3. Given the long operating history at this facility, it is likely that other off-site disposal locations have been used in the past. There reportedly is no documentation pertaining to historic off-site waste disposal facilities that were used by Heekin Can. It is possible, therefore, that Ball could be subject to future liabilities associated with past activities conducted by Heekin Can.

A review of the CERCLIS data base conducted by ENVIRON for the off-site waste management facilities used by Ball provided the following information:

- Mercury Refining Inc. in Colonie, New York, is on the final National Priorities List (NPL) and the New York State Priorities List (SPL). Ball sends its sealed weld rolls to this site for reclamation of mercury. Regulatory actions pursuant to the NPL listing at the Mercury Refining site were primarily conducted in the early 1980s and the site was subsequently remediated (the site is currently a permitted operating facility). Ground water monitoring is underway to ensure the effectiveness of remedial actions taken and there is no further action planned under CERCLA. Pursuant to the SPL listing, Mercury Refining is undertaking additional RCRA remedial actions and assuming the cost for this cleanup. Thus, it is unlikely that Ball will incur a significant financial liability associated with investigation and remediation activities at the Mercury Refining site.

- In addition to Mercury Refining, nine other disposal facilities used by Ball have been the subject of regulatory investigations and are on the CERCLIS list. With the exception of three sites, 1) Laidlaw Environmental Services (also known as Triangle Resource Industries) in Greenbrier, Tennessee; 2) Safety-Kleen in New Castle, Kentucky; and 3) Coyne Textile Service in Huntington, West Virginia, the CERCLIS sites at which Ball has managed

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Mercury Refining, Inc. Colonie, New York	NYD048148175	Mercury in sealed weld rolls - can assembly	DS1/F - 8/82 PA1/F - 8/82 SI1/F - 12/82 SI2/S - 12/82 HR1/F - 12/82 NP1/F - 12/82 NF1/F - 9/83 CO1/SR - 3/85 RA1/SR - 1/86 RS1/F - 9/90 RS2/F - 2/93	On the NPL On the SPL	The NPL listing occurred in the early 1980s and this facility is currently operating. Company is conducting on-site remediation pursuant to SPL listing. Ground water monitoring is underway to ensure the effectiveness of past remedial actions taken and there is no further remedial action planned. Thus, it is unlikely that Ball will incur a significant financial liability at the Mercury Refining site.
Safety-Kleen Corporation Hebron, Ohio	OHD980587364	Parts washer solvent (petroleum naphtha)	DS1/F - 1/88 PA1/S - 1/89 NFRAP	Not on the NPL On the SPL	A number of activities conducted under RCRA Corrective Actions, including an RFI and Corrective Measures Study, both of which were approved by the State. In addition, stabilization measures have been completed. Although this facility is still on the SPL, it is unlikely to represent a significant future liability since Safety-Kleen is a large corporation with a history of taking responsibility at its sites.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Rumpke Sanitary Landfill Cincinnati, Ohio	OHD030938086	General refuse	DS1/F - 4/79 PA1/F - 6/87 SI1/F - 5/89 NFRAP	Not on the NPL On the SPL	Given its CERCLIS status and the nature of wastes disposed, there are unlikely to be any significant liabilities associated this site. ENVIRON is awaiting a response from OEPA on the SPL listing.
Systech Demopolis, Alabama	ALD981019045	Spent solvents Waste paint	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Heritage Environmental (aka ILWD) Indianapolis, Indiana	IND093219012	Waste flammable liquids Lab packs	DS1/F - 4/79 PA1/S - 5/83 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Lonestar Industrial/Systech Greencastle, Indiana	IND006419212	Spent solvents	DS1/F - 6/81 PA1/S - 12/85 PA2/F - 10/91 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Superior Special Services Port Washington, Wisconsin	WID988566543	Coating cleanup waste	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Environmental Enterprises Cincinnati, Ohio	OHD083377010	Waste caustic solution	DS1/F - 1/88 PA1/F - 1/89 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments
Laidlaw Environmental Svcs (aka Triangle Resource Ind) Greenbrier, Tennessee	TND000645770	Solid contaminated with spent solvent	DS1/F - 8/80 PA1/S - 12/83 SI1/S - 8/84	Not on the NPL Not on the SPL	Unlikely to be significant given the period of time since the last regulatory investigation and the fact that this site is not on the SPL or NPL.
Reclaimed Energy Connersville, Indiana	IND000780403	Flammable liquid Xylene PM acetate	DS1/F - 8/80 PA1/F - 6/83 NFRAP	Not on the NPL Not on the SPL	Unlikely to be significant because this facility has been classified as NFRAP and it is not listed on the SPL or NPL.
Safety-Kleen Corporation Sharonville, Ohio	OHD981187313	Parts washer solvent	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.
Safety-Kleen (aka McKesson Envirosystems) New Castle, Kentucky	KYD053348108	Historic hazardous waste disposal	DS1/F - 11/79 PA1/S - 8/84 SI1/S - 4/85	Not on the NPL Not on the SPL	Unlikely to be significant given the period of time since the last regulatory investigation and the fact that this site is not on the SPL or NPL.
Coyne Textile Service Huntington, West Virginia	WVD052574753	Solvent rag launderer	DS1/F - 2/94	Not on the NPL Not on the SPL	Listing apparently due to oil spill into local waterway. Because Coyne is in operation, this release is unlikely to result in a financial liability to Ball.
Browning-Ferris Industries Westchester, Ohio	Not determined	Medical waste	Not a CERCLIS site	Not on the NPL Not on the SPL	Unlikely to be significant because this facility is not listed on CERCLIS, NPL or SPL.

TABLE III-3
Off-site Waste Management Facilities Used by Ball Corporation

Location	USEPA ID #	Waste Disposed	CERCLIS Status	NPL/SPL Status	Comments

[a] Regulatory status involved a determination of whether a facility was on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list or the National Priorities List (NPL). The CERCLIS list provides an outline of historical remedial regulatory activity at a particular site. With the advent of Superfund legislation in 1980, many waste disposal or recycling/reclamation facilities have had site discoveries, site investigations, and preliminary assessments to determine the extent of potential environmental contamination or off-site releases, if any. Inclusion of a specific site on the CERCLIS list does not represent a determination of any party's liability, nor does it represent a finding that any response action or site remediation is necessary. Inclusion merely indicates that hazardous substances are, or were, suspected to be present at the site. For many sites, the CERCLIS list states that "no further remedial action is planned" (NFRAP) beyond the initial investigations conducted. If NFRAP is not noted, it does not necessarily indicate that further site investigations or remedial actions are planned or ongoing. In general, for listed facilities without a NFRAP designation, the longer the interval since the last investigatory activity, the less likely it is that further activities will be required.

In describing the regulatory status of disposal facilities used, the following abbreviations are used to identify the various types of investigatory actions that have occurred at a site:

- DS - site discovery
- SI - site inspection
- PA - preliminary assessment
- HR - hazard ranking system determination
- SP - site inspection prioritization
- CO - combined RI/FS
- NP - National Priorities List proposed listing
- NF - National Priorities List final listing
- ND - National Priorities List listing deletion
- RS - removal investigation at a National Priorities List site
- RV - removal activity
- RA - remedial action

In addition, a second listing of F, S, O or RP is shown to identify whether the particular investigation was a federal, state, other, or PRP-led investigation, respectively. Finally, the month and year that the investigation was completed is given. Depending on the state involved, the most recent updates to the CERCLIS list and NPL have occurred within the last twelve months.

wastes have been characterized as "No Further Remedial Action Planned" (NFRAP). The Laidlaw facility was last investigated in 1984 and the Safety-Kleen facility was last investigated in 1985. Given the length of time since the last investigation at these sites, it is unlikely that significant future liabilities will be incurred by Ball for disposal at these off-site locations. Coyne Textile has recently been investigated under CERCLIS, reportedly because of a leak of diesel and/or fuel oil into a tributary of the Ohio River. As such, Ball is unlikely to be held liable for investigation or remediation costs associated with this release.

- Three of the disposal facilities are on the State Priorities List (SPL). In addition to the Mercury Refining site (see above), Safety-Kleen in Hebron, Ohio, and the Rumpke Sanitary Landfill in Cincinnati, Ohio are listed.

For the Safety-Kleen facility, a number of activities have been conducted under the RCRA Corrective Actions program, including an RFI and Corrective Measures Study, both of which were approved by the State. In addition, certain stabilization measures have been implemented and completed. Although this facility is still on the SPL, it is unlikely to represent a significant future liability to Ball since Safety-Kleen is a large corporation with a history of taking responsibility at its sites.

The Rumpke Sanitary Landfill, an active disposal site, had past operational practices that violated Hamilton County Health Department standards. Based on a 1987 state-led preliminary assessment, a low priority for FIT activity was recommended. Given the low prioritization status, the fact that operations are ongoing, and the nature of wastes disposed by Ball at this location, it is unlikely that a significant future liability will be incurred by Ball.

Given the current federal status of these SPL facilities (i.e., NFRAP sites deferred to RCRA), ENVIRON believes that it is unlikely that Ball would incur significant financial liabilities associated with historic disposal of wastes at these sites.

Facility personnel reported that this former Heekin Can facility is not a potentially responsible party (PRP) at any Superfund sites, although other Heekin Can facilities acquired by Ball do have past liabilities associated with historic disposal locations. According to the data base search by Vista, Ball is not identified as a PRP in the SETS data base. If, in the future, any of the off-site waste management facilities used by Ball or Heekin Can, its predecessor at this site, becomes a state or federal Superfund site, subject to other federal or state enforcement proceedings, or the subject of third party lawsuits, Ball could be responsible for a portion of the investigation or remediation costs. The magnitude of such costs would depend on such factors as the volume of the waste disposed at these sites, and the ultimate outcome of regulatory investigations and remedial actions, if any, to be conducted, and the viability of other potentially responsible parties. Because of the considerable volume of hazardous waste disposed off-site, it is possible that such costs could be significant.

H. Air Emissions

According to a June 1995 diagram prepared by Ball, there are 55 roof stacks at the facility. The majority of these stacks (42) are associated with emissions from the coating and lithographing ovens. Ball currently has approximately thirty Permits to Operate (PTOs) that have been issued by OEPA. A summary of PTOs issued to Ball (all permits issued are in Heekin Can's name, even if they were issued after the acquisition of the facility by Ball) is presented in Table III-4. A review of PTOs indicates that a number of them expired in 1995 and 1996. According to facility personnel, Ball has submitted timely renewal applications for these expired permits, but OEPA discontinued issuing renewal of air permits as of January 1, 1996 in anticipation of issuing facility-wide permits under the Title V Operating Permit Program of the Clean Air Act Amendments (CAAA; see further discussion below). Ball reportedly has been told by OEPA that existing permit conditions will remain in force until the Title V operating permit is issued.

USEPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone, nitrogen dioxide, sulfur oxides, carbon monoxide, particulate matter and lead. States are required to meet these standards by regulating emissions of the criteria pollutants or, in the case of ozone, their reactive precursors (i.e., volatile organic compounds [VOCs] and nitrogen oxides [NOx]). Regions that do not meet NAAQS are designated as nonattainment areas. The primary criteria pollutants emitted by the Ball facility are VOCs, which result from both coating operations and side seam stripe application. Lesser amounts of VOCs are emitted during printing

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions
Three-piece overvarnish sheet coating - press line #1	K007	4/7/97	Incinerator [a]	Up to 2.8 pounds of VOCs emitted per gallon of coating, excluding water and exempt solvents; 4.5 pounds of VOCs per gallon of solids if a control device is employed.
Three-piece overvarnish sheet coating - press line #4	K010	4/7/97	None	
Three-piece overvarnish sheet coating - press line #2	K008	4/7/97	None [b]	Up to 2.8 pounds of VOCs emitted per gallon of coating, excluding water and exempt solvents; 4.5 pounds of VOCs per gallon of solids if a control device is employed. A capture and control efficiency of not less than 81% by weight and a control efficiency of no less than 90% by weight if non-compliant coatings are employed.
Three-piece overvarnish sheet coating - press line #3	K009	4/7/97	None [b]	
Basecoat roll coater - press line #5	K047	11/8/98	None	Up to 2.8 pounds of VOCs per gallon of coating, excluding water.
Basecoat roll coater - line #C-1	K040	3/4/96	Incinerator	Up to 2.8 pounds of VOCs per gallon of coating, excluding water. Incinerator must maintain an overall control efficiency of at least 80%.
Basecoat roll coater - line #C-2 [c]	K041	3/4/96	Incinerator	
Basecoat roll coater - line #C-3	K042	8/13/95	Incinerator	
Basecoat roll coater - line #C-4	K043	8/13/95	Incinerator	
Basecoat roll coater - line #C-5	K044	8/13/95	Incinerator	
Basecoat roll coater - line #C-6	K045	8/13/95	Incinerator	
Basecoat roll coater - line #C-8	K046	3/4/96	Incinerator	

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions
Punch press and end seal compound lines MD-3	K025	6/10/96	None	VOC emissions not to exceed 104.4 tpy. VOC content limited to not more than 4.4 pounds per gallon, minus water. Total usage limited to approximately 50,500 gallons per year.
Punch press and end seal compound lines MD-4	K026	6/10/96	None	
Side seam stripe applicator - line #1	K030	4/1/96	None	VOC content of coatings employed are not to exceed 5.5 pounds of VOCs per gallon of coating, excluding water.
Side seam stripe applicator - line #2	K028	3/11/96	None	
Side seam stripe applicator - line #3	K029	4/1/96	None	
Side seam stripe applicator - line #4	K031	4/1/96	None	
Side seam stripe applicator - line #8	K033	4/1/96	None	
End seal compound liner - line #15 [d]	K027	6/10/96	None	VOC emissions not to exceed 57.8 tpy. VOC content limited to not more than 4.4 pounds per gallon, minus water. Total usage limited to approximately 27,000 gallons per year.
End seal liner - sanitary can ends	K039	12/29/97	None	VOC emissions not to exceed 3.11 tpy. VOC content not to exceed 3.7 pounds per gallon excluding water.
Size 307 end seal liner	K048	12/29/97	None	End seal compound usage not to exceed 35 gallons per day, 12,767 gallons per year. VOC emissions not to exceed 130 pounds per day or 23.62 tpy. VOC content not to exceed 3.7 pounds per gallon, excluding water.

TABLE III-4
Permitted Air Emission Sources at the Ball Corporation Facility

Source Description	OEPA ID	Permit Expiration Date	Emission Control Device	Synopsis of Special Permit Conditions

[a] Although use of non-compliant coatings are not specified in the permit for this printing press line, it was reported to ENVIRON that this press has an exhaust port that connects to an incineration unit should solvent-based coatings be used.

[b] Although permit conditions allow for the use of non-compliant coatings, these presses are not directly connected to an emissions control device.

[c] This is a dual coating and lithography press.

[d] Ball maintains seven other permitted end seal compound liner lines (#'s 8 through 14, permit IDs K018 through K024). Copies of the specific permits were not provided to ENVIRON for review. Facility personnel indicated that the permit conditions for these coating lines are essentially identical to other end seal lines.

operations. Based on the Title V permit application (see below), Ball's maximum potential to emit is approximately 515 tons of VOCs per year.

Title I of the Clean Air Act Amendments (CAAA) of 1990, refined the definition of a major source in nonattainment areas for ozone. Hamilton County is considered a moderate nonattainment area for ozone. Major sources in a moderate ozone nonattainment area are defined as those facilities with the potential to emit 100 tons of VOCs or NOx per year. Because the facility has the potential to emit more than 100 tons per year (tpy) of VOCs, it is classified as a major source under Title I of the CAAA. Therefore, Ball is required to implement Reasonably Achievable Control Technology (RACT), as specified in the State Implementation Plan (SIP).

Pursuant to the permit renewal applications submitted for the facility's solvent-based coating lines, Ball was required by the Hamilton County Environmental Services Department to conduct capture and efficiency testing on these lines in March 1996. Results of this compliance testing indicated that Ball's overall line efficiency ranged from 73% to 76% for the five lines tested. Because the minimum allowable overall efficiency is 80% (the permit indicates 81%, Hamilton County indicated 80% in its Violation letter), Ball is in violation of its permit conditions. As a result, it appears that the natural gas-fired incinerators on the coating lines would be deemed to be out of compliance with Ohio RACT requirements. Facility personnel reported that a second round of capture efficiency testing is to be conducted the week of October 7, 1996. Should Ball fail to comply with its permit conditions in the current testing, it is likely that Ball would be required to improve the capture efficiency of the incinerator by installing additional exhaust capture hoods and duct work on each of the coating lines in order to meet both permit and RACT requirements. Because the extent of infrastructural upgrades that might be required and the ability of the existing incineration units to handle increased volumetric throughput is uncertain, the cost to upgrade the air handling systems, including the incinerators, could be as little as $250,000, but as much as $2.5 million.

Although current air permits specify allowable VOC content and emissions for the various sources (see Table III-4), a review of Ball's most recent semi-annual material usage report to OEPA suggests that the facility may not be in compliance with certain permit requirements for its coating lines. Based on the permit conditions for the coating lines, the VOC content per gallon of coating, less water, is limited to 2.8 pounds. The reported VOC content in coatings, less water, typically exceeds 4.0 pounds per gallon. It appears that Ball personnel have interpreted the permit conditions as pounds of VOCs **emitted** per gallon of coating, which is consistent with VOC mass emission limitations stated in other permits OEPA has issued to Ball. Ball has not been cited by OEPA recently for any violations of its permit conditions, but the facility had been cited by the

Southwestern Ohio Air Pollution Control Agency (SWOAPCA) in December 1983 for operating coating lines using non-compliant coatings (implementation of compliant coatings before 1986 was stipulated by SWOAPCA). Despite this, several of the coatings identified in 1983 are still used at the site today. No documentation was provided to ENVIRON indicating that SWOAPCA or OEPA has issued the facility a waiver from instituting the use of compliant coatings. As such, ENVIRON believes Ball is out of compliance with permit conditions and recommends that Ball confirm the specific language in its permit conditions to ensure that it will not be subject to future compliance violations.

USEPA has identified 189 hazardous air pollutants (HAPs) for regulation under Title III of the CAAA. Maximum Achievable Control Technology (MACT) emission standards are being developed for major sources of HAPs within 175 source categories. Within a source category, a major source of HAPs is identified as a facility with the potential to emit greater than 10 tpy of a single HAP or greater than 25 tpy of any combination of HAPs. Based upon information provided by facility personnel, Ball emits three primary HAPs: glycol ethers (21.5 tpy), xylenes (8.3 tpy),and methyl isobutyl ketone (4.8 tpy). Based on Toxic Release Inventory reporting (see Section L of this Chapter), the facility likely has actual HAP emissions in quantities greater than 10 tons per year only for glycol ethers. As such, Ball would be considered a major source under Title III, and would be required to comply with MACT requirements.

Under Title III, Ball likely will be subject to the metal can surface coating category on account of both the coating and side seam stripe application operations. The MACT standard for the metal can source category is due to be promulgated by November 2000. As a major source under Title III, it is likely that, unless a lower- or non-HAP substitute is developed, emissions control would be required subsequent to promulgation of the MACT standard, particularly for the side seam stripe application operations. The cost to install emission control equipment likely would be significant. At present, ENVIRON does not have sufficient information to evaluate potential MACT alternatives to develop a cost estimate. Compliance with the future MACT standard likely will not be required until November 2003 at the earliest.

Under Title V of the CAAA, major sources of air emissions are required to obtain operating permits from the State and pay permit fees. Because the facility is a major source under both Title I and Title III of the CAAA, it is required to apply for a facility-wide operating permit under Title V. The Title V operating permit application for the Ball facility was due by September 30, 1996. The facility was completing its application at the time of the site visit and submitted to OEPA on September 26, 1996 (a copy was provided to ENVIRON). Based on the current levels of emissions, the annual operating permit fee likely will be about $10,000.

I. Wastewater Discharges

The facility's wastewater discharges include sanitary wastewater and storm water runoff. The manufacturing processes do not routinely generate any process wastewater or noncontact cooling water. Oil/water wastes that might be generated are typically collected in 55-gallon drums and transferred to the mop water AST.

Historically, large volumes of process water were generated at the site from the chrome reduction system, part of the manufacture of two-piece cans. The effluent from this permitted hazardous waste treatment unit in the D&I area originally (reportedly beginning in 1974) was discharged to the off-site gravel pit pond located to the north of the plant. Although the sludge was considered a hazardous waste (F019 - wastewater treatment sludges from the chemical conversion coating of aluminum), analyses of the wastewater in the early 1980s indicated that it did not exhibit a hazardous characteristic. Chromium-based can treatment was discontinued in 1986 and was replaced by a zirconium/acid treatment system. This discharge was discontinued in July 1989 when the two-piece can operation was discontinued.

Sanitary wastewater is treated in an on-site package wastewater treatment plant. The plant contains an aerated activated sludge unit and a solids settling pit. Decanted effluent is discharged to a lined holding pond on the eastern side of the property. Wastewater from the holding pond is occasionally discharged on-site over a permitted six-acre spray field. Sludge from the settling pit is occasionally pumped out by Metropolitan Sewer, which hauls the waste to a local POTW for disposal.

Heekin Can applied for a Slow Rate Land Treatment System in late 1984 and was granted a permit to install by OEPA in February 1985. Per the permit conditions, Ball is required to monitor and report various chemical constituents and application rates on a semi-annual basis. The facility appears to be in compliance with reporting requirements.

Storm water generally discharges into grassy areas on-site. There is a storm sewer system associated with plant roof runoff to the northern pond. At the time of the site visit, there were no apparent adverse impacts associated with the storm water collection pond. Heekin Can applied for and received a National Pollutant Discharge Elimination System (NPDES) general storm water discharge permit from OEPA (OHG000001). Upon expiration of this permit, Ball applied for and was issued a renewed permit, which expires in October 1999. Ball reportedly has prepared a Storm Water Pollution Prevention Program in accordance with NPDES storm water permit regulations. ENVIRON was not provided a copy of this document.

J. On-site Soil and Ground Water Contamination

Facility personnel reported that there are no known areas of on-site soil or ground water contamination. Although the site presently is not the subject of investigation and there are no current sources of known contamination, historical practices conducted by previous site owners potentially could have resulted in on-site soil and/or ground water contamination. Other than the areas discussed below, however, ENVIRON did not identify any specific areas of apparent concern at the time of the site visit. Determination of historical contamination could only be confirmed through the collection and analysis of soil and ground water samples. Given the lack of regulatory scrutiny and the absence of suspect areas of contamination, sampling at the site does not appear to be warranted at this time.

1. RCRA Corrective Action

Based on operations conducted during Heekin's ownership, the facility was investigated pursuant to RCRA Section 3008(h) for a potential release of hazardous waste or constituents into the environment. In the first phase of the RCRA Corrective Action Program, a RCRA Facility Assessment (RFA), consisting of a PR/VSI, was conducted by A.T. Kearney (Kearney) at this facility on behalf of USEPA in 1989. Kearney identified twenty-three solid waste management units (SWMUs) and one area of concern (AOC) during its inspection. These areas included indoor waste management areas, outdoor drum and waste storage areas, the WWTP and wet well, and the wastewater holding pond and spray fields. A summary of the SWMUs and AOC and their status are presented in Table III-5.

On the basis of the PR/VSI, only one specific release was noted; two drums of product containers staged adjacent to the north side of the D&I portion of the building had slight leakages. These leaking drums were on an unbermed cement pad, and the leak was "flowing" toward the building. There was no direct evidence, based on the PR/VSI, that surficial soils had been impacted adversely.

Kearney identified a possible release to ground water associated with the operation of the on-site wastewater treatment plant (WWTP). Specifically, chromium was identified as the contaminant of potential concern. Historically, chromium was a constituent present in the two-piece can coating operation. Can coating sludge, which was treated in a designated aluminum scrap recovery process located in the D&I area at the facility, contained chromium until 1986, when chromium-based processes were eliminated. At the time of the PR/VSI, the supernatant from this two-piece line treatment process was

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 1	Vapor collection system	General vapor collection system on coating lines, lithographing units, and assembly lines. Appeared to be in good operating order at time of VSI.	Equipment associated with two-piece aluminum cans and three-piece steel cans no longer on-site. Facility currently conducting tests to determine if capture efficiency meets permit limits (see Section H).
SWMU 2	Volatile vapor incinerators (3)	Incinerator units associated with coating operations. History of documented volatile vapor releases to atmosphere. Appeared to be in good operating order at time of VSI.	Overall efficiency currently below permit limits. Testing of capture efficiency currently being tested (see Section H).
SWMU 3	Scraper coating buckets	Waste cleaning solvent collected in 5-gallon pails and transferred to satellite waste drums (SWMU 5). No documented releases.	No new issues identified.
SWMU 4	Waste coating buckets (2)	Waste coating materials collected in 5-gallon pails and transferred to satellite waste drums (SWMU 5). No documented releases.	No new issues identified.
SWMU 5	Satellite waste accumulation collection areas	Four waste accumulation areas: three-piece can, south of coiled sheet storage, punch press, and two-piece can. No documented releases, but spillage noted around base of one drum.	Two operational areas no longer exist (i.e., two-piece and three-piece can). Three satellite areas still present: paint mixing, punch press, and flammable room "B". No new issues identified.
SWMU 6	Satellite scrap metal collection areas	Barrels or bins located throughout production area. No documented releases.	No new issues identified.
SWMU 7	Scrap metal bailers	Two metal compactors for aluminum waste handling. No documented releases.	Area no longer present on-site.
SWMU 8	Scrap metal storage area	Twenty-foot square indoor area at north end of D&I area. No documented releases.	Area no longer present on-site.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 9	Safety-Kleen units (3)	Three units maintained by Safety-Kleen. No documented releases.	Unit in two-piece area no longer present. No new issues identified.
SWMU 10	#1 empty product drum storage area	50-foot by 70-foot area to west of boiler house on an unbermed cement pad. At time of VSI, hundreds of empty drums, which appeared to be closed, and wood pallets. No releases noted.	Area no longer used for storage.
SWMU 11	#1 drummed hazardous waste storage area	25-foot by 50-foot area to west of SWMU 11on an unbermed cement pad. At time of VSI, forty 55-gallon drums of hazardous waste. No releases noted.	Area no longer used for storage. No hazardous wastes stored outdoors.
SWMU 12	#2 empty product drum storage area	50-foot by 100-foot area to north of Plant 9 on an unbermed cement pad. At time of VSI, over one hundred empty, sealed drums. No releases noted.	Area still in use. Over one hundred empty drums staged at time of visit, but many removed by hauler during visit. No releases noted.
SWMU 13	#2 drummed hazardous waste storage area	30-foot by 50-foot area to east of SWMU 12 on an unbermed cement pad. At time of VSI, 20 to 30 55-gallon drums of hazardous waste. No releases noted.	Area no longer in use. Facility personnel reported that the area was remediated by pad removal and excavation of surficial soil layer. ENVIRON observed that area had been resodded.
SWMU 14	Scrap yard	60-foot by 30-foot area reportedly in vicinity of SWMUs 12 and 13. At time of VSI, three drums and a rusted 8,000-gallon tank. No releases noted.	Facility personnel did not identify any other storage areas by SWMUs 12 and 13. No evidence of such a storage area on 1991 photograph. No large tanks observed on-site.
SWMU 15	Former drummed chrome-sludge storage area	Unbermed cement pad to north of D&I area that was used for pallet storage at time of VSI. Drums of trivalent chromium sludge placed at this location from 1974 until 1986. Historic release controls not disclosed by facility personnel. No indications of release.	No evidence of this former storage area.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 16	Acid bath sump	Indoor stainless steel sump, associated with aluminum can acid bath spray line on two-piece can operations, located in an enclosed area with cement flooring. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 17	Acid waste storage tanks	Two 7,200-gallon fiberglass ASTs for temporary storage of acid bath sump wastes. Originally had been used for storage of chromium wastewaters. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 18	Neutralization bath	Six-stalled, open-topped stainless steel tank used for pH neutralization. No releases noted.	Operation discontinued one week after VSI. Equipment no longer exists. Area is now used for warehousing.
SWMU 19	Former chrome-waste storage tank	A 4,000-gallon storage tank next to neutralization bath used for chrome waste storage. Use was discontinued in 1986. No releases noted.	Equipment no longer on-site at time of site visit. Area is now used for warehousing.
SWMU 20	Biological treatment plant	At the time of VSI, facility treated 67,000 gallons per day of two-piece can waste treatment system and 30,000 gallons per day of sanitary wastes. Process wastewater only treated for two years. No releases noted.	Process wastewater discontinued one week after VSI. Only sanitary wastewater now being treated.
SWMU 21	Wet well	A 5,000-gallon concrete sump that stages effluent from the WWTP prior to discharge to the holding pond. No releases noted.	Still actively used as part of the facility's wastewater treatment system.
SWMU 22	Storage pond	One-half acre clay liner with limestone surface cover with a 500,000-gallon capacity. No releases observed.	Still actively used as part of the facility's wastewater treatment system.

TABLE III-5
List of Solid Waste Management Units and Areas of Concern - Ball Corporation Facility

SWMU/AOC	Description	1989 Status/Issues Identified	1996 Status/Issues Identified
SWMU 23	Land application treatment area	On-site spray field for discharge of WWTP effluent. At time of VSI, three ground water monitoring wells reported around the spray field. Water quality data reportedly indicate that releases may have migrated to the water table.	Facility personnel reported that monitoring wells are no longer present on-site. No evidence of stressed vegetation.
AOC A	Drummed product storage area	Drummed product containers were stored near SWMUs 10 and 11. Over fifty 55-gallon drums were stored in a 50-foot by 50-foot concrete unbermed pad. At time of VSI, two drums exhibited obvious leakage, which drained toward the building.	This area no longer used for material storage. No evidence of residual staining apparent from this reported leakage incident. Facility personnel had no specific recollection of the incident.

discharged to the WWTP, but apparently did not contain chromium (the WWTP became operational after chromium use was discontinued). Facility personnel reported that the sludge was transferred to two of the USTs located northwest of the building. The PR/VSI also indicated, however, that drums of this sludge had historically been staged on the pavement on the north side of the facility (SWMU 15) prior to disposal. Moreover, it is possible that some of this chrome-containing sludge may have been discharged to the gravel pit pond located to the north of the site in the 1970s. No sampling was conducted by Kearney to assess whether soil or ground water contamination had resulted.

Effluent from the WWTP goes to a clay-lined holding pond. Kearney reported that there had been three ground water monitoring wells associated with this system. While Ball monitors the effluent from the WWTP holding pond prior to on-site discharge via the spray fields, there are no longer ground water monitoring wells on the property (moreover, the abandoned ground water wells on-site are not in the vicinity of the spray field and reportedly supplied potable water to the plant before a connection to the city municipal water authority was made). Given the type of treatment process conducted, ENVIRON does not believe that the majority of the chromium present in the wastewater would have been in the more toxic valent state (i.e., chromium VI), but the less toxic, less soluble state (i.e., chromium III). Although wastewater sampling data from the early 1980s indicated that the total chromium concentration generally was less than 0.2 mg/L, the Maximum Contaminant Level for total chromium is 0.1 mg/L, which would exceed drinking water standards. Because chromium is no longer a constituent in the facility's wastewater, it is unlikely that future regulatory action will be required based on historical wastewater characteristics.

Based on the results of the PR/VSI, the primary further actions suggested by Kearney included: installing secondary containment around outdoor hazardous waste storage areas, sampling the contents and subsequent removal of an 8,000-gallon AST in the scrap yard which reportedly contained nonhazardous wastes; covering plastic collection pails on the coating lines to minimize fugitive solvent emissions; and comparing the quality of on-site ground water to the WWTP effluent concentrations. It does not appear that Heekin Can acted specifically upon these recommendations, but sought instead to eliminate the SWMUs and AOC. Secondary containment in the vicinity of the empty drum storage pad is still warranted.

Although a number of SWMUs had been identified by Kearney, many of these areas have been remediated or the potential sources of release identified have been discontinued. While a potential for soil or ground water contamination from historical operations and waste management practices is possible, ENVIRON did not observe any specific areas of contamination at the time of the site visit.

2. Areas of Past Remediation

During Heekin's ownership, three areas of contamination reportedly were remediated: the former UST area north of Plant 9 in 1989, beneath the gasoline pump pad near Plant 2 in 1991, and the former outdoor drum storage area in 1991. No other areas of contamination were reported to ENVIRON. Passive soil vapor extraction reportedly was used to vent soils in the vicinity of the former USTs near Plant 9. No documentation on this system or the adequacy of remediation of this area was available in facility files. The gasoline pump pad was the subject of a Corrective Action/Site Investigation, as discussed in Section F.1, and the issue is considered closed by OEPA. Facility personnel report that surface soils were removed from the former drum storage area. There was no documentation provided to confirm the adequacy of remediation activities that reportedly occurred in this area, or that the reported remediation activities had been conducted (ENVIRON did observe evidence of top soil placement in the area where the former drum storage area had been). In the absence of information for two of these areas, confirmatory samples may be warranted to verify that no residual contamination remains.

As noted, ENVIRON's review of the 1991 historical aerial photograph revealed a potential area of debris disposal in what was observed at the time of the site visit to be a generally inaccessible wooded area near the southeastern corner of the site. At the time of the site visit, there was no obvious visual evidence of past or current human activity (e.g., a trail) in or around these woods and facility personnel reported that there was no known environmental impairment in this portion of the site. Based on ENVIRON's review of the aerial photograph, there did not appear to be any disposal of drums in this area. This could only be confirmed by a more detailed survey within this wooded area.

K. Asbestos and Polychlorinated Biphenyls

Although a detailed asbestos survey was beyond ENVIRON's scope of work, a brief review of building materials was conducted for the possible presence of asbestos-containing materials (ACM) at the site. At the time of the site visit, ENVIRON observed some damaged insulation on pipes and vessels in the boiler house that may contain asbestos. Because the facility was constructed prior to 1980, any suspect ACM building materials must be presumed to contain asbestos (29 CFR 1910.1001).

Ball personnel conducted an internal asbestos survey in late 1985, collecting approximately 50 insulation, tile (both floor and ceiling) and mastic samples from various locations around the facility. Samples from the roof, approximately 75-80% of which reportedly has a urethane spray foam, and inside of curing ovens were not collected. On the basis of sampling results, sixteen areas of insulation (mostly pipes and elbow fittings) and floor tiles were identified as having ACM. Specifically, approximately 1,900 linear feet of pipe insulation, 1,000 square feet of pipe fittings, and 2,450 square feet of floor tile were delineated. With the exception of two areas of pipe insulation in the boiler house that comprise approximately 335 linear feet, areas with detected ACM were deemed by Ball to have a moderate to low potential for future damage and were in areas with little air flow. ENVIRON is in general agreement with this assessment. The cost to abate the two higher priority areas likely would not cost in excess of $6,000, depending upon the ease of access to the piping in question.

Unless ACM is damaged or friable, there is no need for repair or abatement. Until all ACM is removed, however, Ball should develop and implement an ACM Operations and Maintenance (O&M) program. The purpose of such a program is to avoid unnecessary disturbance or damage to remaining ACM and to establish procedures for employee awareness to achieve this goal. The cost to prepare an O&M plan for the site likely should not exceed $10,000.

According to facility personnel, there are no polychlorinated biphenyls (PCBs) present on-site in any electrical equipment (i.e., transformers and capacitors). ENVIRON did not specifically identify any equipment that might contain PCBs. ENVIRON did observe that at least one transformer had a "green" label indicating that the transformer's dielectric fluid was "non-PCB."

L. Emergency Planning and Community Right-to-Know

Based on the information provided by facility personnel, it appears that Ball is subject to some of the requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act (SARA). Specifically:

- The facility reportedly does not store extremely hazardous substances (EHS) in quantities that exceed their Threshold Planning Quantities (TPQs). Therefore, Ball does not appear to be subject to the emergency planning sections of EPCRA (Sections 301-303).

- There reportedly have been no releases into the environment of listed hazardous substances exceeding reportable quantity limits. Therefore, Ball has not been subject to the emergency notification requirements of EPCRA (Section 304).

- Facilities that are required to have Material Safety Data Sheets (MSDSs) for substances stored on-site in amounts greater that their TPQs are subject to the community right-to-know sections of EPCRA (Sections 311-312). Pursuant to Section 312, Ball has submitted a Tier Two form to the appropriate state and local emergency planning authorities since the 1989 reporting year. Ball has identified eleven compounds that require reporting, including n-butyl alcohol, xylenes, hexane, methyl isobutyl ketone (MIBK), ethylene glycol monobutyl ether, 1-monomethyl ether propylene glycol, and propane. Facility personnel indicated that the use of hexane-based compounds are being reduced, such that reporting of hexane could be eliminated in the future.

- The facility is subject to the toxic chemical release reporting requirements of EPCRA (Section 313) because hexane, glycol ethers, n-butyl alcohol, MIBK, and xylenes have been "otherwise used" in quantities exceeding the 10,000 pound per year reporting threshold. Ball has annually submitted a Toxic Chemical Release Inventory Reporting Form for these compounds in a timely fashion.

M. Occupational Safety and Health

Although a comprehensive review of occupational safety and health issues was beyond ENVIRON's scope of work, a brief review of current operations was conducted to determine whether any major areas of concern were evident. The facility's plans and documents related to occupational health and safety were reviewed, and are summarized below:

- The facility has a written hazard communication plan, which outlines procedures for promoting awareness and proper handling of hazardous chemicals at the facility per 29 CFR §1910.1200. A comprehensive compilation of MSDSs for coatings, inks, oils and other products used at the facility are maintained in the quality control laboratory. MSDS log books are available at several different satellite locations on-site that are accessible to all employees.

- The facility has a written lockout/tagout plan, which establishes operating procedures to prevent the unexpected energization or start up of electrical equipment during service or maintenance, per 29 CFR §1910.147.

- OSHA requires that respiratory protection be provided by employers when such equipment is necessary to protect the health of the workers, per 29 CFR §1910.134. The facility has no respiratory protection program and ENVIRON did not observe any operations at the site that would necessitate the use of respirators.

  Ball has conducted several industrial hygiene surveys at the site and conducted air monitoring in areas involving chemical usage. None of the chemicals monitored had airborne concentrations in excess of their respective PELs. Some interior air handling modifications recently have been made near the multi-die press in order to reduce potential exposure to chemicals used at the site.

- Facilities in which employees are exposed to noise in excess of 85 decibels are required to administer a hearing conservation program, per 29 CFR §1910.95. The facility has conducted a series of noise surveys, which have identified specific areas within the facility where hearing protection is required. Most operational areas have decibel levels ranging from the middle 80s to the lower 90s.

  Ball also conducts annual audiometric testing on its employees. Ball recommends that employees in areas with noise in excess of 85 decibels to wear hearing protection (OSHA mandates hearing protection when exposure exceeds 90 decibels when averaged over an eight-hour day, and recent NIOSH decisions on noise indicate that it wants to change the noise level requiring hearing protection to 85 dBA). Hearing protection is required in most operational areas of the plant (i.e., coating, printing and assembly).

- Facilities are required to develop a bloodborne pathogen exposure control plan if the type of work performed is likely to result in occupational exposure to blood or other potentially infectious materials, per 29 CFR §1910.1030. Ball has developed a corporate bloodborne pathogen exposure control plan that has been adopted by the packaging plant. Facility personnel were uncertain how the plan was being implemented at the plant. Ball does maintain a "red bag" system with biohazard clean-up equipment on-site. In addition, there are two first aid rooms on-site.

- If any employee is required to enter a confined space, the employer is required to prepare a confined space entry program, per 29 CFR §1910.146. The facility has identified an number of confined space areas at the site and has developed a formal confined entry program. Identified confined space entry areas were observed to be appropriately placarded.

- Facility personnel using powered industrial vehicles (e.g., forklifts) are required to receive training and licensing prior to vehicular use. Ball has developed a forklift training policy, which includes a written program and driving test.

- The facility maintains a master copy of OSHA 200 logs related to reportable occupational injuries and lost-time accidents in the human resource's office. Facility personnel reported that there have been fifteen lost time accidents through the first half on 1996, including one serious injury which resulted in the amputation of an individual's finger. Despite this, the facility has had only 46 lost days as a result of these accidents.

  There reportedly are still some outstanding worker compensation claims that were initiated during Heekin's ownership. Facility personnel did not provide any estimate on the magnitude of these claims or their current status.

APPENDIX A

Description of Environmental Data Bases Searched by Vista

Federal environmental data bases searched by Vista for entries located in the vicinity of the subject site are described below. The radius searched for a particular data base, provided in parenthesis following each data base description, is in accordance with ASTM guidance.

— National Priorities List (NPL): the United States Environmental Protection Agency's (USEPA's) list of uncontrolled or abandoned hazardous waste sites identified for priority remedial action under the Superfund program (one mile).

— Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS): USEPA's compilation of sites that have been investigated or are currently being investigated for a release or threatened release of hazardous substances pursuant to possible inclusion on the NPL (one-half mile).[8]

  CERCLIS sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination found was not serious enough to require federal Superfund action or NPL consideration, are designated as "No Further Remedial Action Planned" (NFRAP) sites.

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[8]The CERCLIS list provides an outline of historical remedial regulatory activity at a particular site. With the advent of Superfund legislation in 1980, many waste disposal or recycling/reclamation facilities have had site discoveries, site investigations, and preliminary assessments to determine the extent of potential environmental contamination or off-site releases, if any. Inclusion of a specific site on the CERCLIS list does not represent a determination of any party's liability, nor does it represent a finding that any response action or site remediation is necessary. Inclusion merely indicates that hazardous substances are, or were, suspected to be present at the site. For most sites, the CERCLIS list states that "no further remedial action is planned" beyond the initial investigations conducted. If "no further action" is not noted, it does not necessarily indicate that further site investigations or remedial actions are planned or ongoing. In general, for listed facilities without a "no further action" listing, the longer the interval since the last investigatory activity, the less likely it is that further activities will be required.

— RCRA Facilities (RCRIS generators and RCRA TSDs): USEPA's compilation of reporting facilities that generate, transport, treat, store, or dispose of hazardous waste under the Resource Conservation and Recovery Act (RCRA) (one-eighth mile of generators and transporters; one mile for treatment, storage or disposal facilities).

— Emergency Response Notification System (ERNS): a national data base used to collect information on reported releases of oil or hazardous substances (one-eighth mile).

— RCRA Corrective Action Sites (CORRACTS): USEPA's compilation of RCRA facilities undergoing corrective action pursuant to RCRA Section 3008(h) for releases of hazardous wastes or constituents into the environment (one-mile).

— RCRA Violators (RCRA-Viols): USEPA's data base of RCRA facilities that have been cited for violations of RCRA (one-quarter mile).

— Toxic Release Inventory System (TRIS): USEPA's data base that establishes an inventory of releases of toxic chemicals from facilities required to complete a Form R under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (one-quarter mile).

In addition to the federal data bases, available state environmental data bases searched by Vista for entries located in the vicinity of each subject site are described below. The radius searched for a particular data base, provided in parenthesis following each data base description, is in accordance with ASTM guidance.

— State Priorities List (SPL): a generic name for data bases maintained by many states that contain an inventory of sites prioritized by states for cleanup of known or threatened releases of hazardous substances to the environment (one mile).

— State CERCLIS List (SCL): a state-equivalent data base to USEPA's CERCLIS list (one mile).

— State Underground Storage Tank/Aboveground Storage Tank (UST/AST) List: a data base maintained by state or local agencies of registered underground or aboveground storage tanks (one-quarter mile).

— State Leaking Underground Storage Tank (LUST) List: a data base maintained by state or local agencies of known or suspected leaking underground storage tanks (one-half mile).

— State SWLF: a data base maintained by state or local agencies of active and inactive solid waste landfills, incinerators, and transfer stations (one-half mile).

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DATA CHEM
LABORATORIES

8/31/95

Submitted To: Tony Ashcraft
Heritage Environmental Services
2 Rowe Court
Hamilton, OH
45015

Reference Data:

Sample Location:	Ball Container Corporation
Sample Type:	Bulk
Client Sample No.:	1; 2; 3; 4
PO #:	T-277
Method Reference:	8260 TCLP
Sample Set ID#:	95-M-4084
DATACHEM Lab No.:	95-23424 through 95-23427
Analysis Date:	8-30-95

These samples were analyzed for TCLP volatile organic compounds according to EPA method 8260 with modifications(SW-846; third edition; September 1994; U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response).

Analysis was performed on a Hewlett-Packard GC/MS. Tuning of the system was performed by analyzing 50ng of bromofluorobenzene(BFB) and meeting the tuning criteria prescribed in the method. All SPCC and CCC quality control criteria for the initial calibration curve and continuing daily curve were met prior to sample analysis.

The results for the 8260 analysis are reported in μg/L for TCLP Leachate (PPB).

DataChem will maintain a complete record of your data on magnetic tape including total ion chromatograms, mass spectra and verification of compliance with EPA tuning and calibration for 1 year.

Dixie Yockey

Dixie Yockey

95-M-4084

Data Table (PPB)

Client #	1	2	3	4	%Recovery		
DCL #	95-23424	95-23425	95-23426	95-23427	95-23427MS	Blank	PQL
Vinyl Chloride	ND	ND	ND	ND	106	ND	10
1,1-Dichloroethylene	ND	ND	ND	ND	144	ND	10
Chloroform	ND	ND	ND	ND	130	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	118	ND	10
Methyl Ethyl Ketone	**9 U**	**6 U**	**6 U**	**8 U**	74	ND	10
Carbon Tetrachloride	ND	ND	ND	ND	129	ND	10
Trichloroethylene	ND	ND	ND	ND	104	ND	10
Benzene	ND	ND	ND	ND	115	ND	10
Tetrachloroethylene	ND	ND	ND	ND	107	ND	10
Chlorobenzene	ND	ND	ND	ND	107	ND	5
1,4-Dichlorobenzene	ND	ND	ND	ND	87	ND	5

ND indicates not detected in the sample. U indicates detected below the PQL. NS indicates compound not spiked.

Surrogate Recovery

Dibromofluoromethane	117	117	115	100	116	96	86-118
Toluene-D8	97	94	96	99	97	100	88-110
Bromofluorobenzene	99	91	94	98	87	105	86-115

Dixie Yockey

Dixie Yockey
Analyst

Mark Johnson

Reviewer

HERITAGE ENVIRONMENTAL SERVICES, INC.

HERITAGE

P.O. Box 33042
6521 River Road
Cincinnati, Ohio 45233
Phone: 513/467-9920
888/303-6943
FAX: 513/467-3625
Internet: http://www.heritage-enviro.com

FAX COVER LETTER

DATE: 7/23

TO: Tom Reed

FAX NUMBER: 388-2357

FROM: Greg Melia

NUMBER OF PAGES (INCLUDING COVER SHEET): 3

MESSAGE:

Tom, here is the analysis you requested. there were 4 sample points. All were not detected except for # MEK which hit well below the TCLP regulatory levels. Call if you have questions.

Greg

Field Services Daily Job Summary

HERITAGE®

HERITAGE ENVIRONMENTAL SERVICES, INC.

Date 5/22/97 P.O. # Job # 120489

Customer MILTON CAN CO.

Contact TOM REED Telephone No. 513) 388-2265

Location 8200 BROADWELL CINCINNATI, OH

Work Description

Deliver 88 DRUMS TO QUEEN CITY BARREL + Then GO PICK UP Another LOAD + Return to QUEEN CITY DELIVER 88 + RETURN TO MILTON CAN TO LOAD Another 88 DRUMS + Return to QUEEN CITY (2DAY'S 440 DMS) Product/Waste Class: RCRA EMPTY DRUM

Labor

Employee Name	Job Class	Empl ID #	Start	Finish	Hours	Per Diem	Prot Lvl	EXP TIME
MIKE HODGES	DRIVER	15158	645A	400p	ST 8 OT 1.25	—	D	—
					ST OT			
					ST OT			
					ST OT			
					ST OT			
					ST OT			
					ST OT			
					ST OT			

Equipment

Unit Description	Equipment ID # or Rental #	Hrs	Mileage
13+ BOX TRUCK	6205		

Materials/Supplies

Description	Quantity	ID #
PVC GLOVES		

Subcontractors

Vendor	PO #	Description	Quantity	Cost

Cust. Acceptance Authorization Tom Reed Date 5/22/97 Heritage Representative M Hodges Date 5-22-97

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

Field Services Daily Job Summary

HERITAGE®

HERITAGE ENVIRONMENTAL SERVICES, INC.

Date 5/21/97 P.O. # ______ Job # 120489

Customer MILTON CAN CO.

Contact TOM REED Telephone No. (   )

Location 8200 BROADVIEW CINN, OH

Work Description

ARRIVE O/S 7:15 AM LOAD 1ST LOAD OF 88 DRUMS AND TAKE to QUEEN CITY BARREL RETURN FOR NEXT LOAD + DELIVERED + RETURN + LOAD 3RD TO DELIVER 5/22/97 8:00 AM

Product/Waste Class:

Labor

Employee Name	Job Class	Empl ID #	Start	Finish	Hours	Per Diem	Prot Lvl	EXP TIME
MIKE HODGES	DRIVER	15158	0600	430p	ST 8 / OT 2.5			
					ST / OT			
					ST / OT			
					ST / OT			
					ST / OT			
					ST / OT			
					ST / OT			
					ST / OT			

Equipment

Unit Description	Equipment ID # or Rental #	Hrs	Mileage
13' BOX TRUCK	6205		114

Materials/Supplies

Description	Quantity	ID #
PVC GLOVES	2pr	

Subcontractors

Vendor	PO #	Description	Quantity	Cost

Cust. Acceptance Authorization Tom Reed Date 5/21/97 Heritage Representative M. Hodges Date 5/21/97

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

HERITAGE ENVIRONMENTAL SERVICES, INC.

P.O. Box 33042
6521 River Road
Cincinnati, Ohio 45233
Phone: 513/467-9920
888/303-6943
FAX: 513/467-3625
Internet: http://www.heritage-enviro.com

FACSIMILE
ACCEPTANCE/ACKNOWLEDGEMENT

Milton Can (Purchaser) authorizes Heritage to proceed to perform the work at the 8200 Broadwell Road site and agrees to pay the costs according to Proposal No. 970088. Heritage's Terms and Conditions will apply to this project.

By Tom Reed **Date** 5-20-97**, 1996**
Purchaser's Authorized Representative

Purchase Order No. Tom Reed **Bill to Address:** Milton Can
8200 Broadwell Rd.
Cinti, OH. 45244

HERITAGE ENVIRONMENTAL SERVICES, INC.

2 Rowe Court
Hamilton, OH 45015
Phone: 513/860-3320
Fax: 513/ 860-3375

November 7, 1994

Mr. Tom Reed
Ball Container Corporation
8200 Broadwell
Cincinnati, OH 45244

RE: Removal, testing, and disposal of asphalt and concrete.
PROPOSAL No. 943588

Dear Tom:

Heritage is pleased to submit this proposal for the removal , stockpiling, testing, transportation, and disposal of the asphalt, gravel, and concrete that you showed Greg Melia and I at your facility.

SCOPE OF WORK

1. Upon receipt of your approval and purchase order, labor and equipment will be dispatched to your facility on the appointed day and time.

2. Remove concrete and/or asphalt from an area approximately 40' wide by 120' long using a backhoe. The material will be stockpiled on plastic sheeting.

3. Remove paint contaminated area of street and stockpile.

4. Take soil samples from four locations under and around pad. The samples will be taken at a depth of six inches.

5. Test the soil samples for TCLP solvents.

6. If soil tests negative for solvents and meets non-hazardous landfill criteria, transport and dispose of material at a construction debris landfill.

7. If the soil tests positive, or does not meet non-hazardous landfill requirements, additional costs will be quoted.

8. Backfill the cleared space with fill dirt.

HEALTH AND SAFETY OVERVIEW

Heritage has a corporate safety program with written policies which require each division to write and implement procedures tailored to the special requirements of each of its fixed facility and field operations. Each facility has a safety and hygiene program with written procedures for the management of safety in its day-to-day operations.

The standard safety prograaam for Heritage is actually a comprehensive collection of specific procedures and general practices which detail exactly how tasks are to be performed in the field and how crews are to be informed, trained and monitored. All Heritage personnel are properly trained in safe entry of confined spaces, the proper uses of respirators, and the handling of flammable, combustible and hazardous materials.

PROPOSAL

1. Labor, equipment, and materials to complete the Scope of Work outlined will be quoted at the rates listed below:

   Equipment Operator - $32.00 per hour, portal to portal.
   Pick up truck - $40.00 per day
   Backhoe - $465.00 per day
   Backhoe delivery - $120.00 per delivery
   Misc. supplies (poly sheeting, sm. tools, etc.) - $75.00 per day

   Estimate two 10 hour days to dig and stockpile material, and two 10 hour days to load trucks and backfill area. Total of four 10 hour days.

2. Transportation and disposal at a non-hazardous construction debris landfill of approximately 70 yards of material:

   Dump truck with driver: $55.00 per hour
   Disposal - $85.00 per load estimated price.

   Estimate 6 to 8 loads of material.

   Fill dirt will be $6.00 per ton. Estimate 80 to 90 yards of dirt to backfill.

3. Sample analysis costs are as follows:

   TCLP solvent analysis - $425.00 each, estimate 4 samples.

ASSUMPTIONS

1. Payment is due in 30 days from invoice date. Any invoice over 30 days will have a 1.5% interest rate per month assessed. Heritage's Terms and Conditions will apply to this project.

2. This proposal is proprietary and confidential and the exclusive property of Heritage and shall not be copied or disseminated without prior written consent. Heritage assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the party to whom it is addressed.

3. We assure that all requirements of regulatory agencies at the local, state, and federal levels will be met.

4. If the project is stopped or slowed for any reason beyond Heritage's control, the lost time will be considered standby time and there will be an additional charge to this estimate.

5. The weather is favorable to complete this project.

6. All waste generated will remain on site until disposal approval is received.

7. Heritage will have free access to the work areas.

Thank you for allowing Heritage the opportunity to submit this proposal. If you have any questions, or need more information, please contact me at (513)860-3320.

Sincerely,

Frederick. P. Walnut
Program Manager

The standard safety program for heritage is actually a comprehensive collection of specific procedures and general practices which detail exactly how tasks are to be performed in the field and how crews are to be informed, trained, and monitored. All Heritage personnel are properly trained in safe entry of confined spaces, the proper use of respirators, and the handling of flammable, combustible and hazardous materials.

PROPOSAL

1. Labor, equipment, and materials to complete the Scope of Work outlined will be quoted at the following rates:

a. 16 Foot Box Truck	$350.00 per day
b. Truck Driver	$32.00 per hour

*All time will be invoiced from portal to portal

ASSUMPTIONS

1. All Heritage personnel have received training under OSHA CFR 1910.120. Additional training in new regulations has also been completed.

2. The client will supply a nearby water source and other utilities for Heritage's use.

3. Payment is due in 30 days from invoice date. Any invoice over 30 days will have a 1.5 % interest rate per month assessed. Heritage's Terms and Conditions will apply to this project.

4. This proposal is proprietary and confidential and the exclusive property of Heritage and shall not be copied or disseminated without prior written consent. Heritage assumes no responsibility for the reliance hereon or use hereof by anyone other than the party to whom it is addressed.

5. If the project is stopped or slowed for any reason beyond Heritage's control, the lost time will be considered standby time and there will be an additional charge to this estimate.

6. Heritage bases this quote on the assumption that Milton Can will be invoiced directly from Queen City barrel for the disposal of the drums.

7. Milton Can will be responsible for any damage inflicted on the Heritage vehicle crossing the strike picket line.

Shipper No. 0002

This Shipping Order must be legibly filled in, in Ink, in Indelible Pencil, or in Carbon, and retained by the Agent.

Carrier No.

Heritage TRANSPORT INC
(Name of carrier) (SCAC)

Date 5-21-97

Page 1 of 1

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO:
Consignee Queen City Barrel Co.
Street
City CINCINNATI State OH Zip Code

FROM:
Shipper MILTON CAN CO
Street 8200 BROADWELL
City CINCINNATI State OH Zip Code

24 hr. Emergency Contact Tel. No.

Vehicle Number

Route

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
88		NON HAZARDOUS NON REGULATED RCRA EMPTY DRUMS	LBS	3200		

PLACARDS TENDERED: YES ☐ NO ☐

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES: $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked. Check box if charges are to be collect ☐

Note — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

$ ______ per ______

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

______ Signature

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

______ (Signature of Consignor)

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER MILTON CAN CO.
PER R. Roush 5-21-97

CARRIER HERITAGE TRANSPORT
PER M. L. Dodge
DATE 5-21-97

2

STYLE F60 LABELMASTER, An American Labelmark Co., Chicago, IL 60646 800/621-5808

Permanent post-office address of shipper.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK · PRINTED WITH SOY INK

This Shipping Order must be legibly filled in, in Ink, in Indelible Pencil, or in Carbon, and retained by the Agent.

Shipper No. ______

Carrier No. ______

Page 1 of 1 Heritage Transp (Name of carrier) (SCAC) Date ______

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO: Consignee QUEEN CITY BARREL

Street

City CINN State OHIO Zip Code

FROM: Shipper MILTON CAN

Street BROADWELL RD

City CINN State OH Zip Code

24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
88		NON HAZARDOUS NON REGULATED	LBS	3200		
		RCRA Empty DRUMS				

PLACARDS TENDERED: YES ☐ NO ☐

REMIT C.O.D. TO: ADDRESS

Note — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

$ ______ per ______

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

______ Signature

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

______ (Signature of Consignor)

TOTAL CHARGES: $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked. Check box if charges are to be collect ☐

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER [signature] 5-21-97

PER

CARRIER Heritage TRANSPORT INC

PER [signature]

DATE 5-21-97

2

Permanent post-office address of shipper.

STYLE F60 LABELMASTER, An American Labelmark Co., Chicago, IL 60646 800/621-5808

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

This Shipping Order must be legibly filled in, in Ink, in Indelible Pencil, or in Carbon, and retained by the Agent.

Shipper No. 0003

Carrier No.

Page 1 of 1 H. T. I (Name of carrier) (SCAC)

Date

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO: Consignee QUEEN CITY BARREL
Street
City CINN State OH Zip Code

FROM: Shipper MILTON CAN CO.
Street 8200 BROADWELL
City CINCINNATI State OH Zip Code
24 hr. Emergency Contact Tel. No.

Route

Vehicle Number

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
88		RCRA EMPTY 55GAL DRUMS	LBS	3200		

PLACARDS TENDERED: YES ☐ NO ☐

REMIT C.O.D. TO: ADDRESS

Note — Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

$ ________ per ________

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

________ Signature

COD Amt: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ $

TOTAL CHARGES: $

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked
Check box if charges are to be collect ☐

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER MILTON CAN CO
PER Tom Reel

CARRIER H.T.I
PER M L Noleh
DATE 5-21-97

2

Permanent post-office address of shipper.

STYLE F60 LABELMASTER, An American Labelmark Co., Chicago, IL 60646 800/621-5808

PRINTED ON RECYCLED PAPER USING SOYBEAN INK

PRINTED WITH SOY INK

Memorandum

To: Brian Hemderson

Date: November 28 ,1994

From: Tom Reed

RE: Removal and Disposal of contaminated asphalt in front of plant.

We had a discussion on possibily removing and disposing of contaminated asphalt in front of the plant,(old drum storage area). Attached is a quote from Heritage Environmental Services for , removal,stockpiling, testing, transporatation and disposal of asphalt at our facility.

Please advise to future direction of this project.

NOTE: I estimate cost approx. $6000.00 - $6500.00

Tom Reed

Field Services Daily Job Summary

HERITAGE®

HERITAGE ENVIRONMENTAL SERVICES, INC.

Date OCT 16, 1995 P.O. # 2205944 Job # 120087

Customer Ball Container

Contact Tom Reed Telephone No. ( ) 388-2265

Location 8200 Broadwell Newtown Ohio

Work Description

Pick up Sod - Lay Sod to Complete Job

Trucks and Trailer Blocked in

Product/Waste Class:

Labor

Job Site

Employee Name	Job Class	Empl ID #	Start	Finish	Hours	Per Diem	Prot Lvl
Rick Henderson	TEC	12584	7:00	2:00	ST 6.5 / OT	—	D
Ricky Smith	TEC	11351	7:30		ST / OT	—	D
Paul Price	TEC		7:30		ST / OT	—	D
					ST / OT		
					ST / OT		
					ST / OT		
					ST / OT		
					ST / OT		

Equipment

Unit Description	Equipment ID # or Rental #	Hrs	Mileage
Cube Van	6200		130
Trailer			130

Materials/Supplies

Description	Quantity
Shovel	1
Rake	1
Hoe	1

Subcontractors

Vendor	PO #	Description	Quantity

Cust. Acceptance Authorization Tom Reed Date 10/16/95 Heritage Representative R. Henderson Date

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

Field Services Daily Job Summary

HERITAGE

HERITAGE REMEDIATION/ENGINEERING, INC.

Date 9 - 95 P.O. # Job #

Customer BALL CONTAINER

Contact Tom Reed Telephone No. ( ) 388 2865

Location Broadwell

Work Description

Left at Shop 7:30 AM Pick up scaffolding from Rental haul to Job Site BACK fill Dirt scraped some Black top Returned Scaffold Back to Rental Drove Back Shop

Product/Waste Class:

Labor

Employee Name	Job Class	Empl ID #	Start	Finish	Hours	Per Diem	Prof Lvl	EXP TIME
Ricky Smith	OPRATOR	11351	7:30 AM	5:00 PM	ST / OT	—	10	

Equipment

Unit Description	Equipment ID # or Rental	Hrs	Mileage
Back Hoe	JCB 214	6	40
Pickup Truck		2	40
Truck Bucket		1	

Materials/Supplies

Description	Quantity	ID #

Subcontractors

Vendor	PO #	Description	Quantity	Cost

Acceptance Authorization Tom Reed Date 9/4/95 Heritage Representative Ricky Smith Date 9/ /95

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

Field Services Daily Job Summary

HERITAGE
HERITAGE REMEDIATION/ENGINEERING, INC.

Date 9 12 95 P.O.# ____ Job # 12.0-4

Customer BALL CONTAINER

Contact Tom Reed Telephone No. ( ) 388 2265

Location Broadway

Work Description

Removal of Dirt and Coverock, Load into Truck for Desposal

Product/Waste Class:

Labor

Employee Name	Job Class	Empl ID #:	Start	Finish	Hours	Per Diem	Prot Lvl	EXP TIME
Ricky Smith	Operator	11351	7:00	5:00	ST 8 OT 2	—	D	10
					ST OT			
					ST OT			
					ST OT			
					ST OT			
no lunch					ST OT			
					ST OT			
					ST OT			

Equipment

Unit Description	Equipment ID # or Rental #	Hrs	Mileage
BackHoe	JCB	10	30
Pick up Truck		2	

Materials/Supplies

Description	Quantity	ID #

Subcontractors

Vendor	PO #	Description	Quantity	Cost

Acceptance Authorization [signature] Date 9/12/95 Heritage Representative Ricky Smith Date 9-12-95

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

HERITAGE ®

HERITAGE ENVIRONMENTAL SERVICES, INC.

Field Services Daily Job Summary

Date 9-11-95 P.O. # ______ Job # 120044

Customer BALL container

Contact Tom Reed Telephone No. ( ) 388-2265

Location Broadwell

Work Description

Remove old Black put in Pill Busted up concreck walk way

Product/Waste Class:

Labor

Employee Name	Job Class	Empl ID #	Start	Finish	Hours	Per Diem	Prot Lvl
Ricky Smith	oPERAtor	11351	7 00	6 00	ST 8	—	D
					OT 3		
					ST		
					OT		
					ST		
					OT		
1/2 Lunch					ST		
					OT		
					ST		
					OT		
					ST		
					OT		
					ST		
					OT		
					ST		
					OT		

Equipment

Unit Description	Equipment ID # or Rental #	Hrs	Mileage
BAck HolE	JCB 214	9	30

Materials/Supplies

Description	Quantity

Subcontractors

Vendor	PO #	Description	Quantity

Tom Reed

Cust. Acceptance Authorization ______ Date 9/11/95 Heritage Representative Ricky Smith Date 9-11-95

ORIG-JOB FILE/COPY 1-ACCOUNTING/COPY 2-CUSTOMER

675.10.B

2

OhioEPA
State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
FAX (614) 644-2329

George V. Voinovich
Governor

Donald R. Schregardus
Director

RECEIVED
OCT 23 1992
HEEKIN CAN, INC.
RESEARCH DEPT.

October 21, 1992

Re: Director's Final Findings & Orders
Heekin Can, Inc.
Cincinnati, Ohio
U.S. EPA ID No.: OHD004253225

<u>CERTIFIED MAIL</u>

Heekin Can, Inc.
Attn: Mr. E. Roger Jackson
Senior Vice President, Research
8200 Broadwell Road
Cincinnati, Ohio 45244

Dear Mr. Jackson:

Transmitted herewith are Final Findings & Orders of the Director concerning the matter indicated.

Very truly yours,

Thomas E. Crepeau

Thomas E. Crepeau, Manager
Data Management Section
Division of Hazardous Waste Management

TEC/dhs

cc: Mark Navarre, Legal
Mike Savage, Asst. Chief, DHWM
Pamela Allen, Manager, CM&ES, DHWM
Tony Sasson, PPS, DHWM
Don Marshall, SWDO, DHWM
Edith Long, Finance

fandocvrltr(18)

Issue Date October 21, 1992

Effective Date October 21, 1992

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:

HEEKIN CAN, INC.
8200 Broadwell Road
Cincinnati, Ohio 45244

Respondent

Director's Final Findings and Orders

OHIO E.P.A.
OCT 21 92
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PREAMBLE

It is hereby agreed by and among parties hereto as follows:

I. JURISDICTION

These "Director's Final Findings and Orders" ("Orders") are issued to Heekin Can, Inc. ("Respondent") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") under sections 3734.13 and 3745.01 of the Ohio Revised Code ("ORC").

II. PARTIES

These Orders shall apply to and be binding upon the Respondent, its officers, directors, agents, employees, assigns, and successors in interest. No change in ownership relating to the Facility will in any way alter the Respondent's responsibilities under these Orders. The Respondent's obligations under these Orders may only be altered by the written approval of the Director of the Ohio EPA.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Findings and Orders shall have the same meaning as used in Chapter 3734. of the ORC and the regulations promulgated therunder.

IV. FINDINGS OF FACT

The Director of the Ohio EPA has determined the following findings of fact:

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date OCT 21 1992

1. The Respondent owns and operates a manufacturing facility which is located at 8200 Broadwell Road, Cincinnati, Ohio ("Facility"). The Respondent, a Delaware corporation, was licensed to do business in the State of Ohio on August 31, 1982.

2. The Respondent is a "person" as defined in section 3734.01(G) of the ORC and rule 3745-50-10(A)(83) of the Ohio Administrative Code ("OAC").

3. At the Facility, the Respondent generates "hazardous waste" as that term is defined by section 3734.01(J) of the ORC and rules 3745-50-10(A)(42) and 3745-51-03 of the OAC. These hazardous wastes are identified as characteristic hazardous wastes (D001 and D002) and as listed hazardous wastes (F003 and F005), as set forth in Chapter 3745-51 of the OAC.

4. On August 5, 1980, the Respondent notified the United States Environmental Protection Agency ("USEPA") of its hazardous waste activity at the Facility and was issued USEPA Identification Number OHD004253225.

5. Rule 3745-52-34 of the OAC provides that a hazardous waste generator may accumulate hazardous waste on-site without a hazardous waste facility installation and operation permit ("Permit") provided that: the waste is placed in containers and the generator complies with the container use and management requirements of rules 3745-66-70 through 3745-66-74, 3745-66-76 and 3745-66-77 of the OAC; the date upon which each period of accumulation begins is clearly marked on each container ; each container is labeled or marked clearly with the words "Hazardous Waste"; and the generator complies with the requirements for owners and operators of hazardous waste facilities concerning "Preparedness and Prevention" and "Contingency Plan and Emergency Procedures" set forth in Chapter 3745-65 of the OAC and with the personnel training requirements set forth in rule 3745-65-16 of the OAC.

6. On February 20, 1987, Ohio EPA inspected the Facility and determined that, during a two month period in 1986, the Respondent had failed to document weekly inspections of areas where hazardous wastes were stored at the Facility, in violation of OAC rule 3745-66-74. By letter dated March 3, 1987, Ohio EPA informed the Respondent of the violation discovered during the February 20, 1987 inspection of the Facility and requested that the Respondent submit documentation demonstrating abatement of the violation within thirty (30) days. Heekin Can subsequently abated this violation, as documented in Ohio EPA's letter, dated August 28, 1987.

7. On June 16, 1988, Ohio EPA visited the Facility to certify that the hazardous waste treatment unit once operated at the Facility had been closed in accordance with the approved closure plan and closure performance standards. While at the Facility, Ohio EPA discovered several drums of hazardous waste in storage without accumulation start date labels, in violation of OAC Rule 3745-52-34. By letter dated June 20, 1988, Ohio EPA informed the Respondent of the violation discovered during the June 16, 1988 visit, and requested that the Respondent submit a written description of the measures taken by Heekin Can to prevent a reoccurrence of this violation. Heekin Can subsequently abated this violation, as documented in Ohio EPA's letter, dated October 12, 1988.

8. On September 16, 1988, Ohio EPA conducted an inspection of the Facility and determined that the Respondent:

   (a) failed to establish and maintain a personnel training program for all positions involved in the handling of hazardous waste at the Facility, and failed to properly document the implementation of such personnel training program, in violation of OAC rule 3745-65-16;

   (b) failed to revise the Contingency Plan for the Facility in response to changes in operations at the Facility, in violation of OAC rule 3745-65-54; and

   (c) failed to document weekly inspections, for a period of at least two months, of areas where hazardous wastes were stored at the Facility, in violation of OAC rule 3745-66-74.

9. By a letter dated September 19, 1988, Ohio EPA notified the Respondent of the violations discovered during the September 16, 1988, inspection of the Facility and requested that the Respondent submit documentation demonstrating abatement of the violations within thirty (30) days. Heekin Can subsequently abated these violations, as documented in Ohio EPA's letter, dated October 12, 1988.

10. On July 31, 1990, Ohio EPA conducted an inspection of the Facility and determined that the Respondent:

   (a) failed to label nineteen (19) containers of hazardous waste that were being stored at the Facility, in violation of OAC rule 3745-52-34;

   (b) failed to maintain adequate aisle space between containers of hazardous waste in storage, in violation of OAC rule 3745-65-35;

   (c) failed to keep containers of hazardous waste in a satellite accumulation area closed at all times during storage, in violation of OAC rule 3745-66-73;

(d) failed to document weekly inspections of areas where hazardous wastes were stored at the Facility, in violation 3745-66-74; and

(e) stored three (3) containers of hazardous waste generated at the Facility from at least October 1, 1989 until July 12, 1990, in violation of section 3734.02(F) of the ORC. The Respondent did not possess a hazardous waste facility installation and operation permit for greater than ninety (90) day storage of hazardous waste and no extension of time to store hazardous waste for greater than ninety (90) days had been granted by the Director of Ohio EPA.

11. By a letter dated August 6, 1990, Ohio EPA notified the Respondent of the violations discovered during the July 31, 1990 inspection of the Facility and requested that the Respondent submit documentation demonstrating abatement of the violations within thirty (30) days. Respondent alleges that it did not receive the letter dated August 6, 1990.

12. By a letter dated September 4, 1990, Respondent submitted documentation to show that weekly inspections of hazardous waste areas at the Facility had resumed as required by OAC rule 3745-66-74.

13. On October 12, 1990, Ohio EPA conducted a follow-up inspection of the Facility and determined that the Respondent:

(a) failed to document weekly inspections of areas where hazardous wastes are stored at the Facility, in violation of OAC rule 3745-66-74;

(b) failed to label one (1) container of hazardous waste in a satellite accumulation area, in violation of OAC rule 3745-52-34;

(c) failed to revise the Contingency Plan, which was submitted to Ohio EPA on August 30, 1990, in response to changes in operations at the Facility, in violation of OAC rule 3745-65-54;

(d) removed the three (3) containers of hazardous waste which had been stored for greater than ninety (90) days at the Facility as cited in Finding 10(e) of these Orders; and

(e) abated all other violations cited in Ohio EPA's August 6, 1990 letter to the Respondent.

14. By a letter dated October 17, 1990, Ohio EPA notified the Respondent of the results of its October 12, 1990 inspection of the Facility. Respondent alleges that it did not receive the letter dated October 17, 1990.

15. On October 17, 1991, the Respondent provided documentation to Ohio EPA to show abatement of the violations listed in Finding Nos. 13(a) and 13(c). Ohio EPA reviewed the documents and determined that the Respondent has abated these two violations. However, the revised contingency plan remained deficient in that it did not include the following: home addresses of all emergency coordinators; a designation of the primary emergency coordinator; a list of the emergency coordinators in the order in which they will assume responsibility as alternates during an emergency; and a brief outline of the capabilities of each piece of emergency equipment, in violation of OAC rules 3745-65-52 (D) and (E). The Ohio EPA determined that the Respondent had failed to submit revisions to the contingency plan to all local emergency authorities, in violation of OAC rule 3745-65-53.

16. By letter dated October 28, 1991, the Ohio EPA notified the Respondent of the violations that remained outstanding as noted in Finding 15.

17. By letter dated November 5, 1991, the Ohio EPA notified the Respondent that the Contingency Plan submitted on October 31, 1991 abated the violations of OAC rules 3745-65-52(D) and (E).

18. By letter dated November 19, 1991, Respondent provided documentation to the Ohio EPA to show abatement of the contingency plan distribution violation outlined in Finding No. 15.

19. By letter dated November 29, 1991, Ohio EPA notified Respondent that it had abated the contingency plan distribution violation.

20. By letter dated January 23, 1992, Respondent stated that it advised Ohio EPA during an October 17, 1991 meeting that it had abated the container labeling violation outlined in Finding No. 13(b). Currently, Ohio EPA has not determined whether this violation has been abated.

IV. ORDERS

The Respondent shall achieve compliance with Chapter 3734. of the ORC and the regulations promulgated thereunder according to the following compliance schedule:

1. The Respondent shall immediately comply and maintain compliance with the container labeling and marking requirements of OAC rule 3745-52-34.

2. Within thirty (30) days from the effective date of these Orders, the Respondent shall begin a comprehensive waste minimization assessment program by initiating the **Planning and Organization Phase** of the Waste Minimization Assessment Procedure as described in the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988. Further guidance may be obtained from the industry-specific "Guide to Pollution Prevention" prepared by U.S. EPA: The Fabricated Metal Products Industry, EPA/625/7-90/006.

3. Within sixty (60) days from the effective date of these Orders, the Respondent shall document compliance with Order No. 2 of these Orders by submitting the completed Worksheet 2 from Appendix A of the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988, and shall initiate the **Assessment Phase** of the Waste Minimization Assessment Procedure as described in the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988.

4. Within one hundred twenty (120) days from the effective date of these Orders, the Respondent shall document compliance with Order No. 3 by submitting an Assessment Report of the selected options and the completed Worksheets 3 through 13 from Appendix A of the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988; the Respondent shall also implement the **Feasibility Analysis Phase** of the Waste Minimization Assessment Procedure as described in the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988.

5. Within one hundred eighty (180) days from the effective date of these Orders, the Respondent shall document compliance with Order No. 4 of these Orders by submitting a Feasibility Analysis Report including the recommended options and the completed Worksheets 14 through 17 from Appendix A of the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988; the Respondent shall also implement the **Recommended Waste Minimization Projects** for the Facility determined by using the Waste Minimization Assessment Procedure described in the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988.

6. Within two hundred forty (240) days from the effective date of these Orders, the Respondent shall document compliance with Order No. 5 by submitting a Final Report and the completed Worksheets 18 and 19 from Appendix A of the Waste Minimization Opportunity Assessment Manual, EPA/625/7-88/003, dated July 1988.

7. Within thirty (30) days after the effective date of these Orders, the Respondent shall pay to Ohio EPA the amount of $25,000 in settlement of Ohio EPA's claims for civil penalties which could be assessed pursuant to Chapter 3734. of the ORC. Payment shall be made by tendering a certified check in the stated amount to counsel for the Director of Ohio EPA made payable to "Treasurer, State of Ohio".

8. The Respondent shall immediately comply and maintain full compliance with Chapter 3734. of the ORC and the regulations promulgated thereunder unless otherwise stated in these Orders.

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By: Mary Cavin Date OCT 21 1992

V. TERMINATION AND SATISFACTION

These Orders shall terminate when the Respondent demonstrates in writing and certifies to the satisfaction of the Ohio EPA that all obligations under these Orders have been performed and the Ohio EPA approves in writing this certification. The approval of this certification shall not be unreasonably withheld by the Ohio EPA.

This certification shall be signed by a responsible official of the Respondent. The certification shall make the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete."

For purposes of these Orders, a responsible official is a corporate officer who is in charge of a principal business function of the Respondent.

VI. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release of any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a signatory to these Orders, for any liability arising out of or relating to the operation of the Respondent's hazardous waste facility.

VII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. Nothing in these Orders shall be construed as waiving or compromising in any way the applicability and enforcement of any other statutes or regulations applicable to the Respondent's operation of its hazardous waste facility. The Ohio EPA reserves all rights and privileges except as specified herein.

VIII. NOTICE

All documents demonstrating compliance with these Orders and other documents required under these Orders to be submitted to the Ohio EPA shall be addressed to:

Ohio Environmental Protection Agency
Southwest District Office (SWDO)
Division of Hazardous Waste Management
40 South Main Street
Dayton, Ohio 45402
Attn: RCRA Group Leader

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and

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date OCT. 2 1 1992

Ohio Environmental Protection Agency
Division of Hazardous Waste Management
1800 WaterMark Drive
P. O. Box 1049
Columbus, Ohio 43266-0149
Attn: Manager, Compliance Monitoring and Enforcement Section

or to such persons and addresses as may hereafter be otherwise specified in writing.

IX. RESERVATION OF RIGHTS

Nothing contained herein shall be construed to prevent the Ohio EPA from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including penalties against the Respondent for noncompliance with these Orders. Nothing contained herein shall be construed to prevent the Ohio EPA from exercising its lawful authority to require the Respondent to perform additional activities pursuant to Chapter 3734. of the Ohio Revised Code or any other applicable law in the future. Nothing herein shall restrict the right of the Respondent to raise any administrative, legal or equitable claim or defense with respect to such further actions which the Ohio EPA may seek to require of the Respondent. Nothing in these Orders shall be construed to limit the authority of the Ohio EPA to seek relief for violations not addressed in these Orders.

IT IS SO ORDERED:

Donald R. Schregardus
Director

OHIO E.P.A.
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X. SIGNATORIES

Each signatory to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such signatory to this document.

XI. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, and in lieu of further enforcement action by the Ohio EPA for only the matters addressed in these Orders, the Respondent agrees that these Orders are lawful and reasonable, that the schedules provided for compliance herein are reasonable and that the Respondent agrees to comply with these Orders. Compliance with these Orders shall be a full accord and satisfaction for the Respondent's liability for the violations cited herein.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date OCT 21 1992

The Respondent hereby waives the right to appeal the issuance, terms and service of these Orders and it hereby waives any and all rights it might have to seek administrative orjudicial review of these Orders either in law or equity.

Notwithstanding the preceding, the Ohio EPA and the Respondent agree that in the event that these Orders are appealed by any other party to the Environmental Board of Review, or any court, the Respondent retains the right to intervene and participate in such appeal. In such event, the Respondent shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated, or modified.

IT IS SO AGREED:

Heekin Can, Inc.

By: E. Roger Jackson   May 1, 1992
Date

Title: Senior Vice President, Research

Ohio Environmental Protection Agency

Donald R. Schregardus
Director

October 21, 1992
Date

OHIO E.P.A.

OCT 21 92

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I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin   Date OCT 21 1992

202
579
5200

Ohio Department of Commerce

George V. Voinovich, Governor
Division of State Fire Marshal • Bureau of Underground Storage Tank Regulations
6450 Poe Avenue, Suite 104 • Dayton, OH 45414-2646 • (513) 454-7500
Mary E. Oakes, Director

RECEIVED
APR 02 1992
HEEKIN CAN, INC.
RESEARCH

March 27, 1992

Mr. E. Roger Jackson
Heekin Can, Inc.
Cincinnati, OH 45244

RE: Heekin Can Inc.
8200 Broadwell Road
Cincinnati, OH
Hamilton County
Incident #319446-00

Dear Mr. Jackson:

The State Fire Marshal, Bureau of Underground Storage Tank Regulations, (SFM, BUSTR) has received all required information regarding corrective actions of an underground storage tank (UST) release at the aforementioned location. Upon review of the analytical results and required reports, at this time BUSTR is not requiring further corrective actions of any contamination resulting from petroleum UST activity at the facility.

Due to information potentially not discovered or revealed, nothing in this letter should be interpreted as a guarantee or warrantee that no problems exist at the aforementioned location. In addition, this letter does not release the responsible party from future responsibility and liability under sections 3737.88 through 3737.89 of the Ohio Revised Code and other state laws and regulations or under the Federal Clean Water Act, Resource Conservation and Recovery Act, or Comprehensive Environmental Response, Compensation, and Liability Act for remedying conditions resulting from any release of contaminants to the environment.

If you have any questions about this determination, you can write to us at Southwest Field Office or telephone us at (513) 454-7500.

Sincerely,

Verne Ord

Verne Ord
Site Coordinator
Bureau of Underground
Storage Tank Regulations
Southwest Field Office

VO:cah

cc: File #319446-00
Dave Dreyer, Anderson Twp. Fire Dept.
Dr. Erwin Bollinger, Hamilton Co. Health Dept.

UNDERGROUND STORAGE TANK
CLOSURE ASSESSMENT REPORT

Prepared for:

Heekin Can, Inc.
Cincinnati, Ohio

PN 8009

Prepared by:

Environmental Quality Management, Inc.
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

May 1991

TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

This report summarizes the removal and closure activities of all seven underground storage tanks (UST's) located at the Heekin Can, Inc., plant located in Newtown, Ohio. Section 1 of this report is a brief project introduction. Section 2 presents a description of the UST systems and a chronology of removal and closure activities. Section 3 addresses closure assessment sampling and analysis. Section 4 is a summary of findings and conclusions.

All UST systems were properly removed and closed during this project. Heekin and the BUSTR Inspector reported the existence of residual petroleum constituents found in soils beneath the pump pad for UST No. 6 (GAS) and the holes found near the top of UST No. 7 (FUEL OIL (HEATING)) to the appropriate regulatory authorities. No free-product, product saturated soils, or water was encountered during the UST removals warranting immediate corrective action (i.e., product recovery, soil removal and disposal, etc.).

PL-L TANKS

BTEX constituents in all soil samples from the UST No.6 or UST No. 7 excavation zones were not detected. TPH constituents ranged from 38 to 58 ppm in the excavation zones. Other than holes in the UST No. 7 shell near the top at the west end, no indication of real or apparent releases from the the UST or piping was observed (i.e., no free product, odors, visible product in soil, etc.). Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. Soils containing petroleum constituents (BTEX levels up to 110,000 ppb and TPH at 190 ppm) under the pump pad for UST No. 6 were not removed due to physical constraints (i.e., proximity to building structure and foundation, and presence of underground utilities). Spillage during fueling operations in the vicinity of the pump pad is believed to be the source of the residual petroleum constituents. Further action was not deemed appropriate and the excavation was backfilled and restored.

SEE FILE-V

DAT TANKS

Xylenes were not detected in five of six soil samples collected from the excavation zone containing UST Nos. 2 and 3 ..One soil sample collected from the floor at the north end of UST No. 2 contained xylenes at 27 ppb. Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. The UST shells and piping all appeared tight and no indication of real or apparent releases were observed. Further action was not deemed appropriate and the excavation was backfilled and restored.

1.0 INTRODUCTION

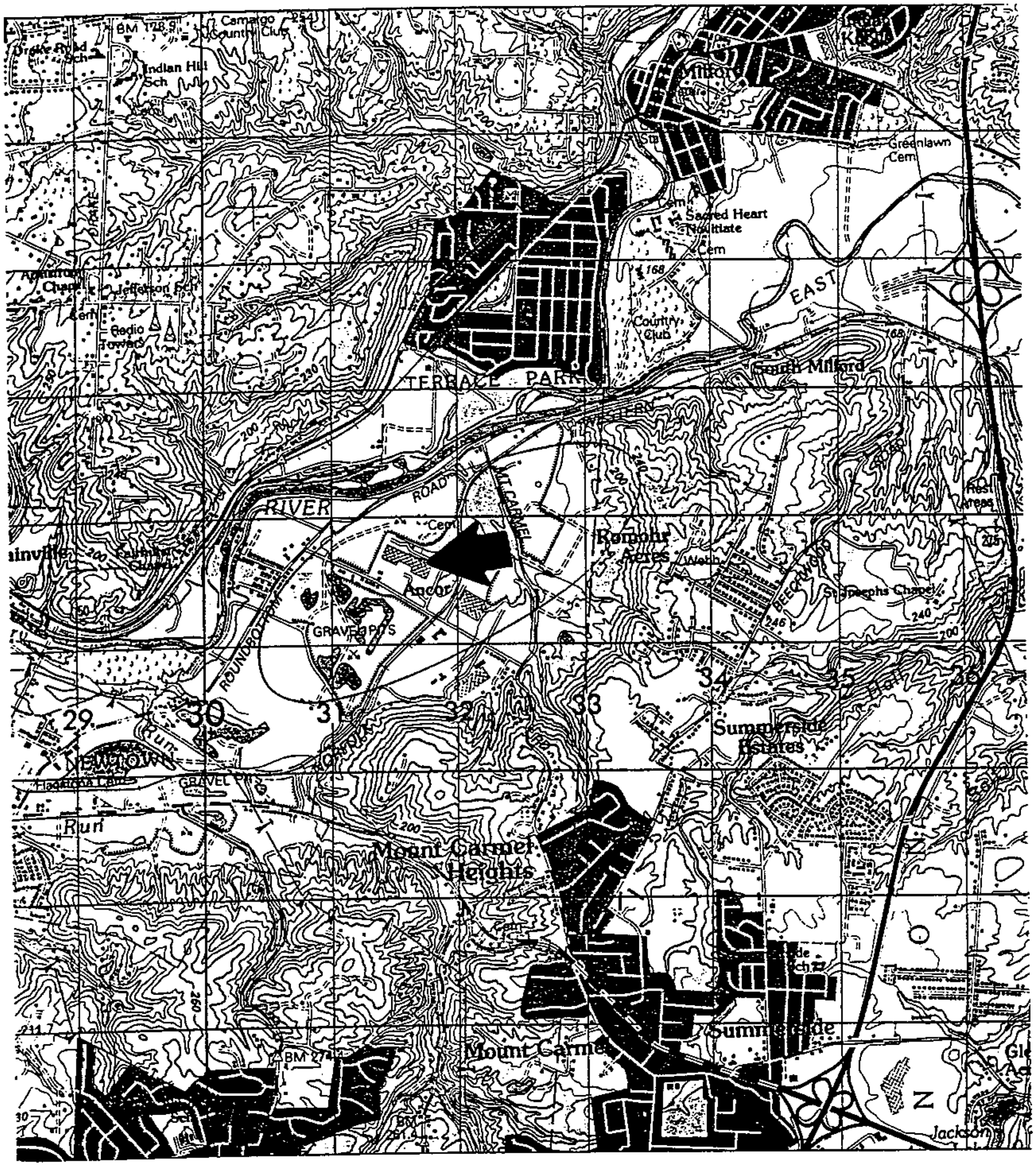
Environmental Quality Management, Inc. (EQ) was retained by Heekin Can, Inc. (Heekin) to remove and closed seven (7) underground storage tanks (UST's) at their plant located on Broadwell Road in Newtown, Ohio. Figure 1 illustrates the location of the Newtown plant.

Heckin had determined that three of the seven UST's were subject to regulations pursuant to Ohio's Bureau of Underground Storage Tanks Regulations (BUSTR). One of the UST's contained No.2 fuel oil that was used for heating the maintenance building on the premises. The remaining three UST's were unregulated because they did not contain petroleum products, flammable or combustible materials, or hazardous substances. Additional information and justification is found in a letter from Heekin Can to BUSTR dated March 1, 1991, a copy provided herein as Attachment 1.

EQ subcontracted WRP Associates, Inc. (WRP) to obtain permits for the tank removal/closures, cleanout all tanks, drain and purge piping, package all tank residuals, unearth and remove the tanks, dispose of the piping and tank shells, and site restoration. EQ managed, coordinated, and documented all project activities, collected and analyzed environmental samples, where necessary, in accordance with state and federal regulations to meet closure assessment requirements, assisted with arrangements for proper disposal of tank residual wastes, and prepared this summary report.

Onsite removal/closure activities commenced on March 6, 1991 and was substantially complete by March 23, 1991 . The closure consisted of removing seven UST's from three separate excavation zones located behind the plant towards the northwest property boundaries. Figure 2 illustrates the locations of the UST's on the plant property. While it was determined that only three of the seven UST's were subject to BUSTR, all UST's were closed in accordance with American Petroleum Institute (API) 1604.

DRAWING NO.	0001
DESIGN	T. Wey
CHECKED BY	C. Schick
BY	EQ - Cinti., OH
APPROVED BY	J. Greber



EQ

BASE MAP SOURCE: USGS Sheet 4162 III, Series V752,
Edition 1-DMA Cincinnati East, Ohio, 1979, Scale 1 : 50,000

REFERENCE:				
Heekin Can, Inc. Newtown, OH	FIGURE 1. Plant Location Map	REVISION	NO.	DATE

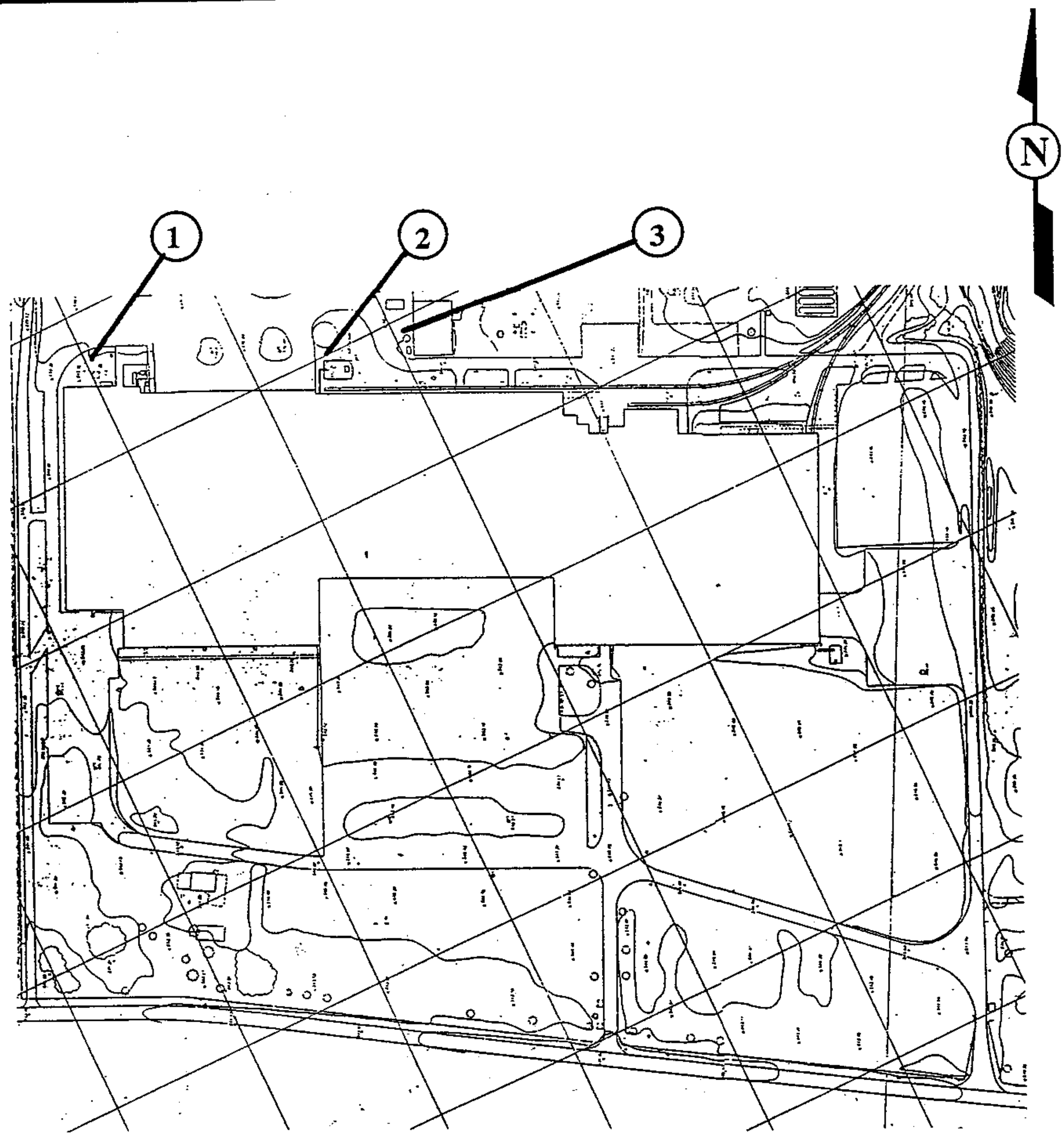
DRAWING NO. 0001

DESIGN BY: T. Wey

CHECKED BY: C. Schick

APPROVED BY: J. Greber

EQ - Cinti., OH



LEGEND

(1) D&I Area (UST Nos. 1,2,3,4 & 5)

(2) Gasoline (UST No. 6)

(3) No.2 Heating Oil (UST No. 7)

No Scale

EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 2. Location of UST Systems

REVISION	NO.	DATE

2.0 UST SYSTEMS and CHRONOLOGY OF REMOVAL and CLOSURE ACTIVITIES

This section provides a description of the UST systems and a chronology of critical project activities.

Table 1 provides information about the seven UST systems involved in this project including tank identification numbers (ID Nos.), tank capacities, materials of construction, BUSTR regulatory disposition, and the contents stored in each UST.

TABLE 1. UST Information and Specifications

UST ID Nos.	Capacity	Construction	BUSTR Regulated	Contents
1	8,000 gal	Carbon Steel	No	CIMFLO (vegetable oil)
2	8,000 gal	Stainless Steel	Yes	Laquer (water based)
3	10,000 gal	Stainless Steel	Yes	Laquer (water based)
4	8,000 gal	Carbon Steel	No	Waste CIMFLO and Water
5	8,000 gal	Carbon Steel	No	Waste CIMFLO and Water
6	1,000 gal	Carbon Steel	Yes	Gasoline (motor fuel)
7	10,000 gal	Carbon Steel	No	No.2 Fuel Oil (heating)

Figure Nos. 3, 4, and 5 illustrate the location and layout of the tanks in the three separate excavation zones. The remainder of this section is a chronology of critical or key project activities.

January 16, 1991 - EQ submits written notification of the planned UST removal/closure activities to State Fire Marshal. Shortly thereafter, WRP submits underground tank permit application to State Fire Marshal. Attachment 2 contains copies of the letter and permit application.

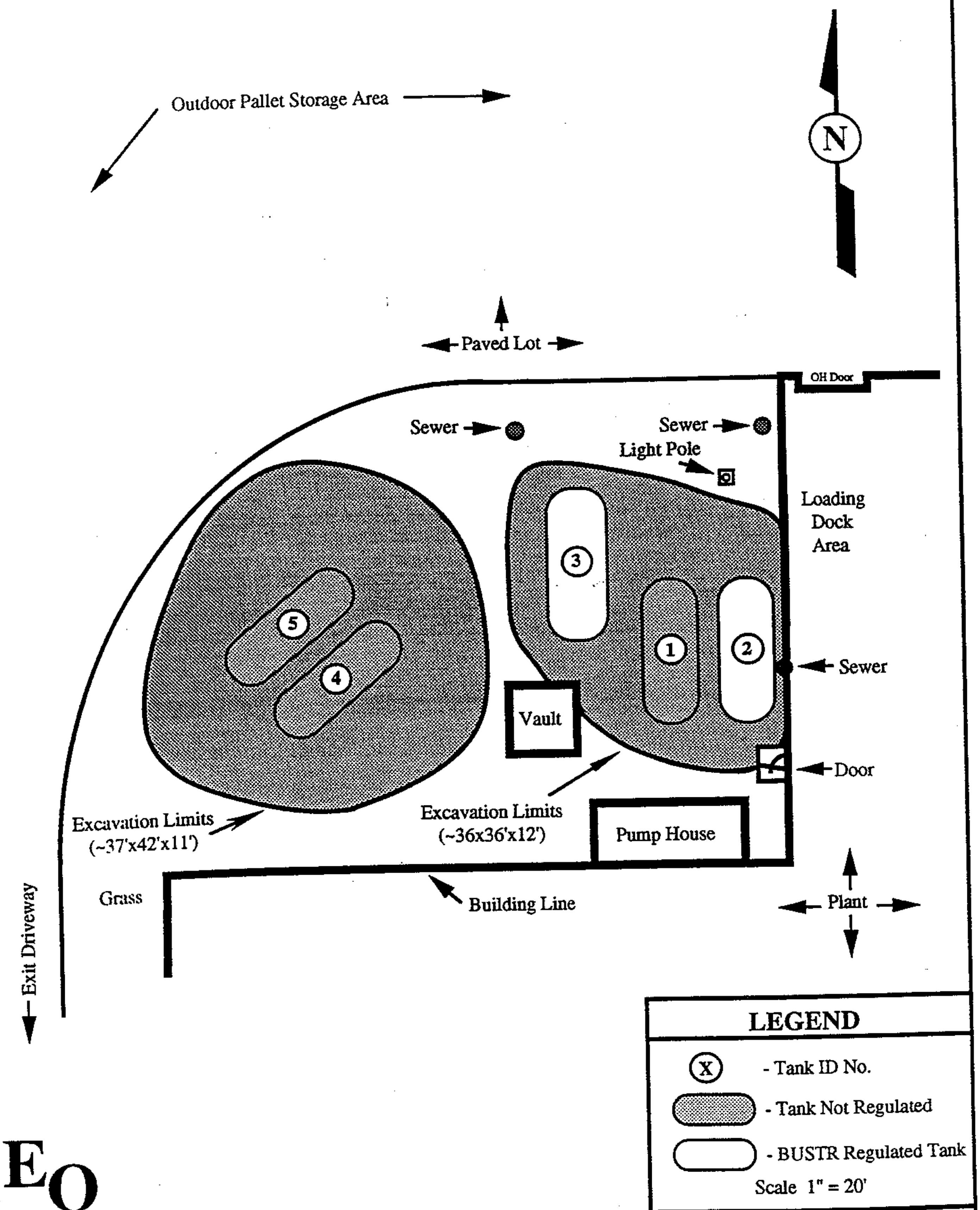
March 6, 1991 - Cleanout of UST Nos. 1,2,3,4, and 5 commences. All residuals pumped into 55-gallon steel drums. WRP coordinates with BUSTR Inspector, Mr. Clark Stacks, for start of UST removals. See photographs in Attachment 3.

DRAWING NO. 8009-001

DESIGN BY T. Wey EQ - Cintl., OH

CHECKED BY C. Schick

APPROVED BY J. Greber



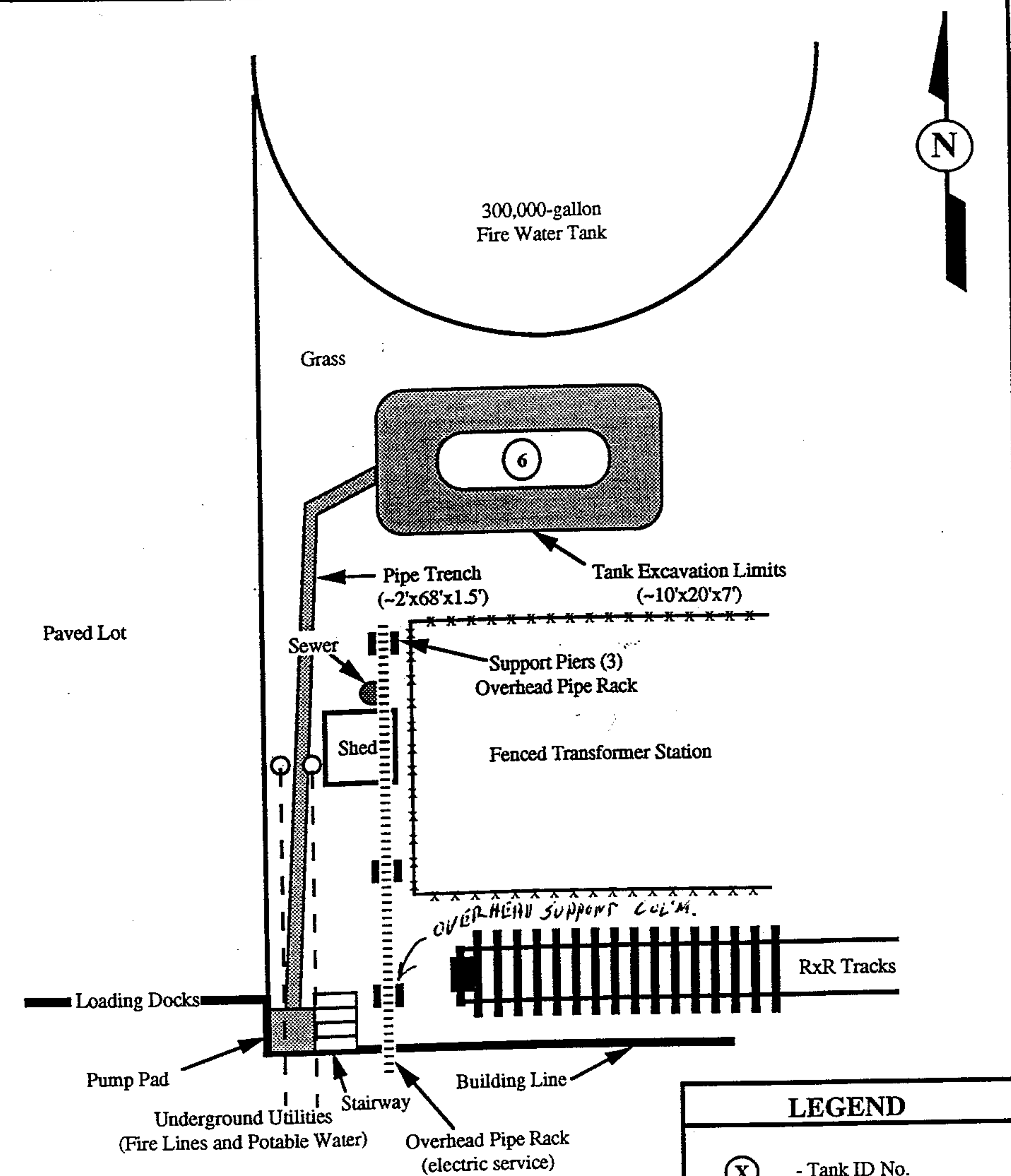
EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 3. Tank Layout and ID's in D&I Area

REVISION	NO.	DATE



LEGEND

X - Tank ID No.

- BUSTR Regulated Tank

Scale 1" = 10'

DRAWING NO.	8009-002
CHECKED BY	C. Schick
APPROVED BY	J. Greber
DESIGN BY	T. Way
	EQ - Cinti., OH

EQ

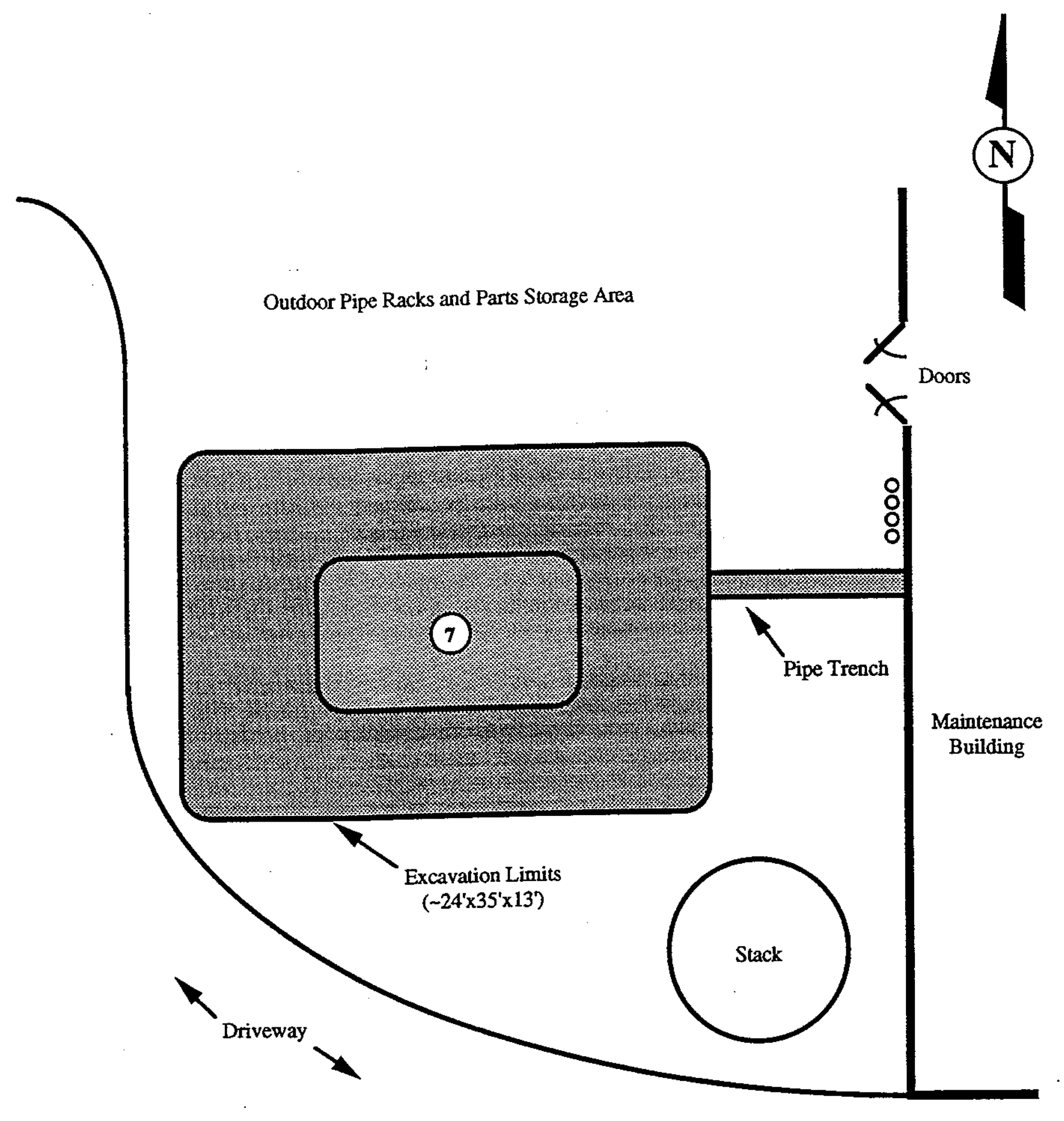
REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 4. Gasoline Tank ID and Layout

REVISION	NO.	DATE

DESIGN BY: T. Wey
EQ - Cintl., OH
CHECKED BY: C. Schick
APPROVED BY: J. Greber
DRAWING NO. 8009-003



LEGEND

X - Tank ID No.

- Tank Not Regulated

Scale 1" = 10'

EQ

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 5. Heating Oil Tank ID and Layout

REVISION	NO.	DATE

March 13, 14, & 15, 1991 - UST Nos. 1,2,4,5,6, and 7 uncovered and prepared for removal. Mr. Clark Stacks (BUSTR Inspector) and Mr. Dave Dryer (Anderson Township Fire Department) onsite.

- UST No. 1 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition with only minor pitting, scaling, and corrosion noted. Piping in good condition with tight fittings, minor pitting, and corrosion noted. No free product or water encountered in excavation zone. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No. 2 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition without pitting or corrosion due to stainless steel construction. No free product or water encountered in excavation zone. BUSTR Inspector (Mr. Bill Hoover filling in for Mr. Clark Stacks) onsite to observe removal of tank. Sampling locations previous agreed to between EQ and Mr. Stacks. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No.3 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition without pitting or corrosion due to stainless steel construction. No free product or water encountered in excavation zone. BUSTR Inspector observed excavation zone and directed soil sampling for headspace screening for total organic vapors using OVA-FID. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST Nos. 4 & 5 removed, inspected, and no signs of real or apparent releases. Tank shell in good condition with only minor pitting, scaling, and corrosion noted. Piping in good condition with tight fittings, minor pitting, and corrosion noted. No free product or water encountered in excavation zone. Soil sampling for headspace screening for total organic vapors using OVA-FID conducted by EQ. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). See photographs in Attachment 3. See Figure 3 for location and layout of this UST.

- UST No. 6 removed, inspected, and no signs of real or apparent release. Vacuum product piping (~70 linear feet of 1.5" diameter steel pipe) removed from UST excavation to remote pump/dispenser located on loading dock. Strong odors and visibly contaminated soils found under pump pad. No free product or water encountered in excavation zone. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). BUSTR Inspector observed excavation zone (UST and pipe trench) and directed soil sampling for headspace screening for total organic vapors using OVA-FID. Spillage during filling operations at pump pad area believed to be principal source of residual petroleum constituents in soils. Soil removal in pump pad area not feasible due to proximity to building structure, foundation, and underground utilities (fire protection water main and potable water lines) directly below pad at depth of about three feet. See photographs in Attachment 3. See Figure 4 for location and layout of this UST.

• UST No. 7 removed, inspected, and holes (≤ 1/4" diameter) found in tank shell near top at west end. Piping joints and lines tight with minor pitting and corrosion noted. No free product or water encountered in excavation zone. No odors or visible contamination to soils in excavation noted. Soils in excavation zone noted as dry well sorted sands and gravel (bank run). BUSTR Inspector observed excavation zone and agreed with soil sampling locations for subsequent headspace screening for total organic vapors using OVA-FID. See photographs in Attachment 3. See Figure 5 for location and layout of this UST.

All soils samples collected were screened by EQ for total organic vapors using OVA-FID. Results on soil vapor logs are contained in Attachment 4. The results of this vapor screening are discussed in Section 3 of this report.

Mssrs. Tom Wey (EQ) and Bob Chambers (Heekin) report apparent release from UST No. 6 and 7 to Ohio EPA Duty Officer, Mr. Mike Dalton, and BUSTR Duty Officer, Mr. Craig Smith, at ~1030 hour on March 15, 1991. BUSTR Inspector to include observations for UST Nos. 6 & 7 in his site report, will notify his office of apparent releases, and will advise Mr. Dryer (Anderson Township Fire Dept.) of apparent release from UST No. 7.

March 16 to 20, 1991 - Analytical results for soil samples received and reviewed by EQ and Heekin representatives. Decision made to begin backfilling and restoration activities.

March 21 to 23, 1991 - Excavations zones backfilled with excavated soils and clean fill from offsite source. Tanks remain onsite pending final cleanout and disposal. UST Nos. 6 & 7 to be cutup for scrap steel salvage. UST Nos 1,2,3, 4, and 5 to remain onsite for disposition by Heekin Can.

3.0 CLOSURE ASSESSMENT SAMPLING AND ANALYSIS

EQ inspected each excavation zone after the UST's were removed and then collected, from the regulated tank excavations, multiple soil samples from the walls and floors for field headspace screening as discussed later in this section. EQ conducted all sampling and analysis activities in strict accordance with BUSTR's requirements for UST closure assessments. The sampling locations for the regulated UST's (Nos. 2,3, and 6) and UST No. 7 (because holes were found in the tank shell but note, no evidence of a release) were discussed and approved by BUSTR's Inspector, Mr. Clark Stacks. All soil samples from walls of the the excavation zones were collected halfway up each wall (approximately 5 to 6 feet below ground level). Soil samples from the floors were collected near the tank ends. Soil samples collected from the pipe trench for UST No. 6 were collected at 20 foot intervals from the pump pad to the UST excavation and each sample point coincided with pipe joints. The soil sample from the beneath the pump pad was collected from a depth of 6 feet below ground level using a stainless steel split spoon sampler driven by hand.

Each soil sample was then screened for total organic vapors using a Century Model 128 OVA-FID. The results of the soil vapor screening, as contained in Attachment 4, were then used to select soils samples to be submitted to an offsite laboratory for quantitative analysis. Total organic vapors in all soils sampled, except for the sample from the pump pad area, were found to be at or equal to background readings or within the drift limits for the OVA-FID.

Table 2 presents a summary of the analytes and analytical methods that were requested by EQ for soils selected for laboratory analysis to comply with the closure assessment requirements.

TABLE 2. Summary of Analytical Requirements

UST ID Nos.	Analytes	EPA Method
1	None †	NA
2	Xylenes ††	8020
3	Xylenes ††	8020
4	None †	NA
5	None †	NA
6	TPH & BTEX	418.1 & 8020
7	TPH & BTEX †††	418.1 & 8020

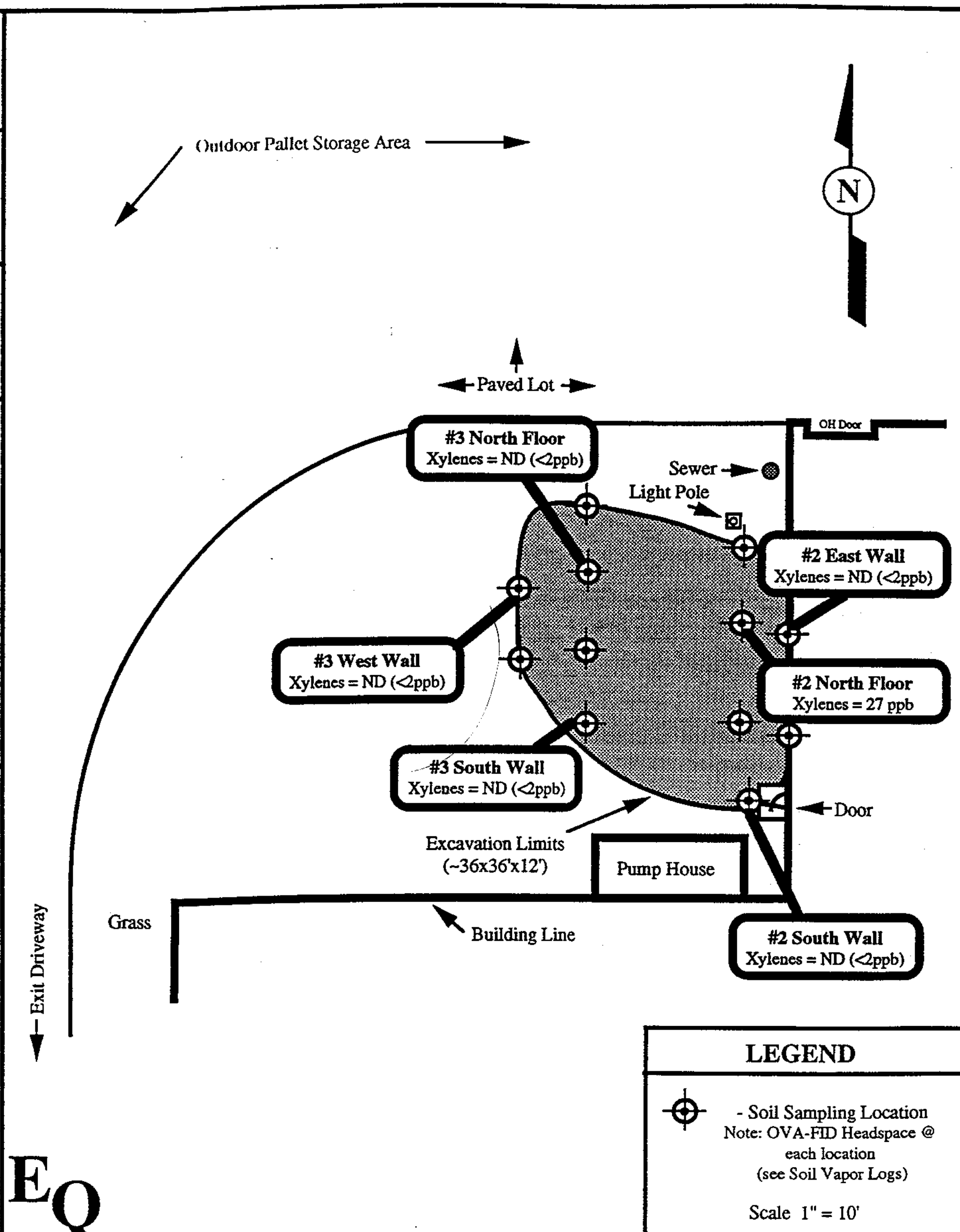
Footnotes:
† UST not regulated (see letter in Attachment 1).
†† Xylenes only hazardous constituent present in product (see letter in Attachment 1).
††† TPH & BTEX because hole found in tank shell.

The results for all soil analyses are summarized in Table 3. Raw analytical results for each sample are contained in Attachment 5. Figures 6, 7, and 8 illustrate the soil sampling locations in each excavation zone and also presents the analytical results.

TABLE 3. SOIL ANALYSIS DATA SUMMARY

SAMPLE ID NOS.	ANALYTES				
	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total Petroleum Hydrocarbons (ppm)
#2 East Wall	NR	NR	NR	ND (<2)	NR
#2 South Wall	NR	NR	NR	ND (<2)	NR
#2 North Floor	NR	NR	NR	27 oK	NR
#3 West Wall	NR	NR	NR	ND (<2)	NR
#3 South Wall	NR	NR	NR	ND (<2)	NR
#3 North Floor	NR	NR	NR	ND (<2)	NR
#6 West Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	58
#6 East Floor	ND (<2)	ND (<2)	ND (<2)	ND (<2)	55
#6 Pump Pad	<100	5,900	10,000	110,000	190
#7 West-North Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	48
#7 East-South Wall	ND (<2)	ND (<2)	ND (<2)	ND (<2)	53
#7 West Floor	ND (<2)	ND (<2)	ND (<2)	ND (<2)	38

Notes: NR = Not Requested
ND = Not Detected (at quantification limit specified)



DRAWING NO. 8009-001

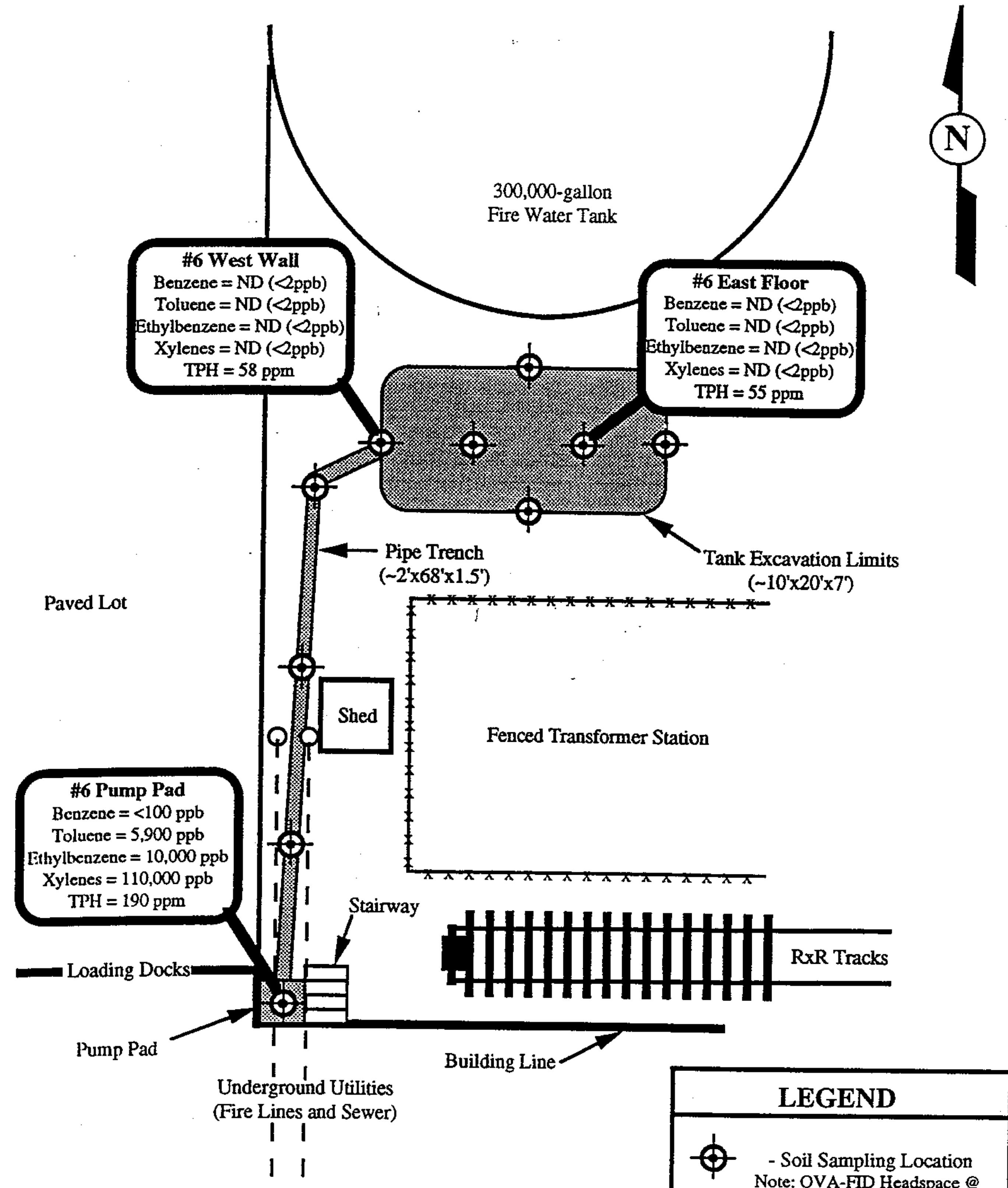
DESIGN BY	CHECKED BY	APPROVED BY
T. Wey, EQ - Cinti., OH	C. Schick	J. Greber

REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 6. Tanks in D&I Area
Soil Sampling Locations

REVISION	NO.	DATE



LEGEND

- Soil Sampling Location
Note: OVA-FID Headspace @ each location (see Soil Vapor Logs)

Scale 1" = 10'

EQ

DRAWING NO.	8009-002
DESIGN BY	T. Wey, EQ - Cinti., OH
CHECKED BY	C. Schick
APPROVED BY	J. Greber

REFERENCE:

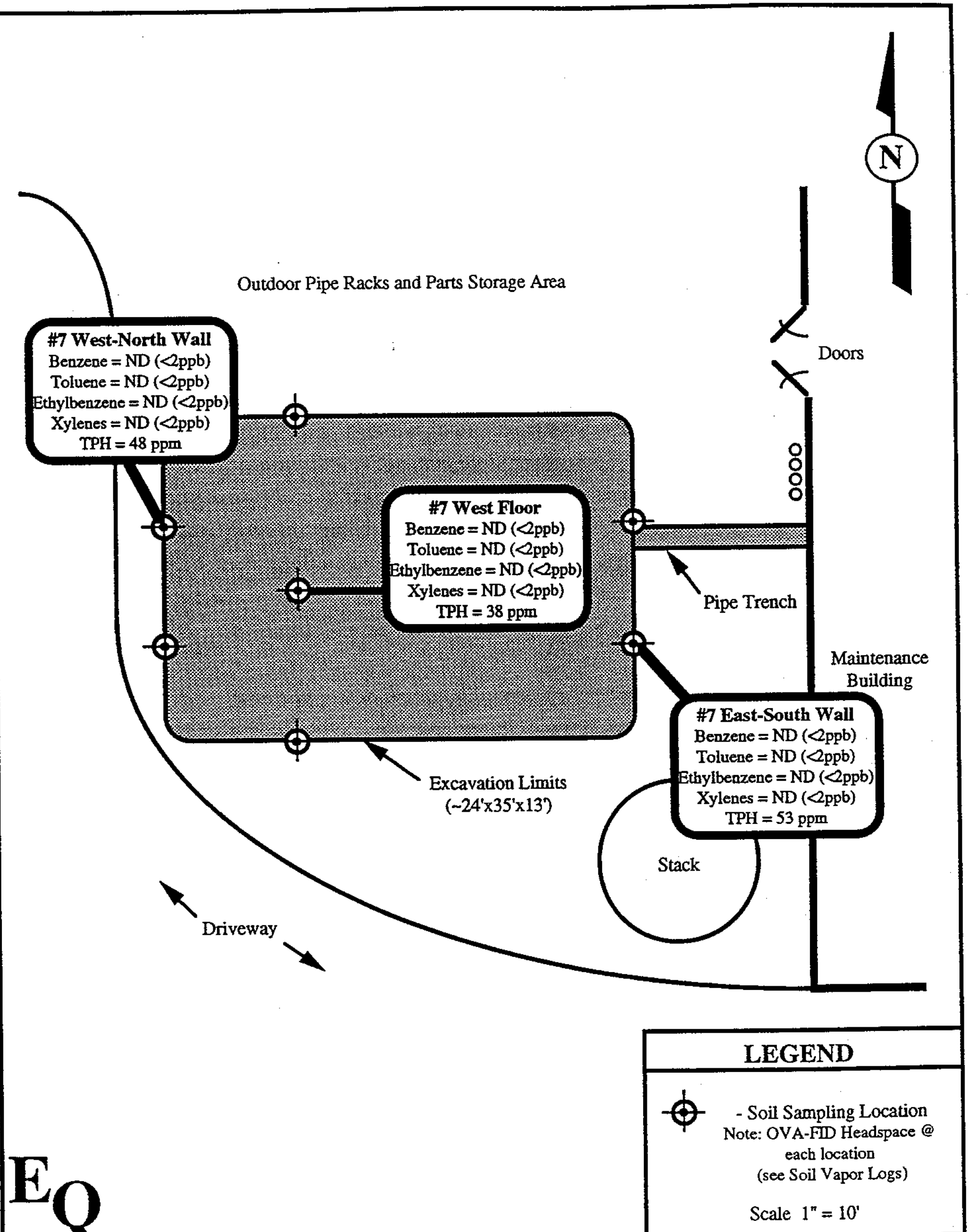
Heekin Can, Inc.
Newtown, OH

FIGURE 7. Gasoline Tank Soil Sample Locations

REVISION	NO.	DATE

DRAWING NO. 8009-003

DESIGN BY: T. Wey, EQ - Cinti., OH
CHECKED BY: C. Schick
APPROVED BY: J. Greber



REFERENCE:

Heekin Can, Inc.
Newtown, OH

FIGURE 8. Heating Oil Tank Soil Sample Locations

REVISION	NO.	DATE

4.0 SUMMARY OF FINDINGS AND CONCLUSIONS

All UST systems were properly removed and closed during this project. Heekin and the BUSTR Inspector reported the existence of residual petroleum constituents found in soils beneath the pump pad for UST No. 6 and the holes found near the top of UST No. 7 to OEPA and BUSTR. No free-product, product saturated soils, or water was encountered during the UST removals.

BTEX constituents in all soil samples from the UST No.6 excavation zone were not detected. TPH constituents ranged up to 58 ppm in the UST excavation zone. No indication of real or apparent releases from the the UST or piping was observed. Soils containing petroleum constituents (BTEX levels up to 110,000 ppb and TPH at 190 ppm) under the pump pad for UST No. 6 were not removed due to physical constraints (i.e., proximity to building structure and foundation, and presence of underground utilities). Spillage during fueling operations in the vicinity of the pump pad is believed to be the source of the residual petroleum constituents. Further action was not deemed appropriate and the excavation was backfilled and restored.

Xylenes were not detected in five of six soil samples collected from the excavation zone containing UST Nos. 2 and 3 ..One soil sample collected from the floor at the north end of UST No. 2 contained xylenes at 27 ppb. Total organic vapor levels in all soils samples from this excavation zone were equal to background levels. The UST shells and piping all appeared tight and no indication of real or apparent releases were observed. Further action was not deemed appropriate and the excavation was backfilled and restored.

UST No. 7 HEATING OIL had a hole in the top at one end but there were BTEX constituents were not detected in soil samples from the excavation zone. TPH constituents ranged from 38 to 53 ppm in soils from the excavation zone. Total organic vapor levels in all soils samples were equal to background soil levels. Further action was not deemed appropriate and the excavation was backfilled and restored.

ATTACHMENT 1

AMENDMENT TO NOTIFICATION OF UST REMOVAL/CLOSURE AND NOTIFICATION OF UST REGISTRATION

Heekin Can, Inc.
8200 BROADWELL ROAD
CINCINNATI, OHIO 45244
513-388-2200

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 3

To TOM WEY	From R. CHAMBERS
Co. EQM	Co. HCI
Dept.	Phone # 388-2294
Fax # 825-7495	Fax #

March 1, 1991

Release Prevention Manager
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
7510 East Main Street
Reynoldsburg, OH 43068-3395

RE: Amendment to Notification of UST Removal/Closure and Notification of UST Registration

Dear Release Prevention Manager:

This letter amends the letter you received from our UST removal oversite contractor, Environmental Quality Management, Inc. (EQM), dated January 16, 1991 and clarifies the status of USTs that are to be removed. We have found that some of the USTs that have been registered are not covered by the Ohio UST laws and regulations. The tanks do not contain petroleum products or a hazardous substance. We also found that one tank, the gasoline tank, had not been registered due to an oversight. I enclose an updated registration form that clears up the matter.

I also enclose a table that summarizes the USTs to be removed, the regulatory status of the USTs and the soil samples to be collected and analyzed.

Mr. Thomas Wey of EQM, Inc. will contact you regarding the scheduling of the UST removals. If you should have any questions or require additional information, please advise.

Very truly yours,

E. R. Jackson

E. R. Jackson
Senior Vice President, Research
(513) 388-2232

ERJ/nf

Enc.

BIC: [redacted] A. Chambers
D. L. Reusch
P. J. Schworer-D&S
T. WEY - EQM

Table 1. Summary of UST's

Tank	Contents	Registered with BUSTR	Regulated by BUSTR	Soil Analyses*
1	CIMFLO (Vegetable oil)	Yes	No	None
2	Water Based lacquer	Yes	Yes	Xylene***
3	Water Based lacquer	Yes	Yes	Xylene
4	Waste CIMFLO and water	Yes	No	None
5	Waste CIMFLO and water	Yes	No	None
6	Gasoline	No**	Yes	TPH, BTEX
7	Fuel oil	Yes	No	None

* Visibly contaminated soils will be removed from all tank excavations and evaluated for disposal. The following soil analyses would be performed following that work.

** Amended registration form has been filed.

*** Xylene is the hazardous substance present in the paint product.

MAIL TO: State Fire Marshal, UTN, 8895 E. Main St., Reynoldsburg, Ohio 43068

Notification for Underground Storage Tanks

Ohio Department of Commerce
State Fire Marshal
COM 5120
ID (state use only)

1. Name and address of the facility. (PRINT OR TYPE IN ALL SPACES)

Heekin Can, Inc.
8200 Broadwell Rd.
Cincinnati, OH 45244

2. Business mailing address of facility, if different from location address.

3. Owner of tank *(name, business address, and phone number)*

Heekin Can, Inc.
11310 Cornell Par, Dr.
Blue Ash, OH 45242
(513) 489-3600

4. Contact person for the facility *(Name and phone number)*

David L. Reusch
(513) 388-2203

5. Type of owner *(Mark "X" in appropriate box)*

☒ Private ☐ Government

6. Remarks

This is a revised notification; Item 3 - Age is approximate

Complete the following section(s) to the best of your knowledge using the examples provided as guidance. Check appropriate boxes and fill in blanks where applicable. If you need more space, photocopy this page or use a continuation sheet. If you do not know the answer, enter "unknown."

(7H, 7I & 7J must be completed for tanks no longer in use.)

7. All tanks currently in use or that will be brought into use and all tanks no longer in use.

A. Tank No	B. Age (yrs.)	C. Total capacity (gal)	D. Material of construction: Steel	Fiberglass reinforced plastic	Other (specify)	E. Internal protection: Lined	Unlined	F. External protection: Coated	Wrapped	Cathodic protection	Other (specify)	G. Substance - type: Gasoline	Diesel	Kerosene	Hazardous substance name	UN #	H. Date of last use: Month	Year	I. Estimated Quantity (gal)	J. X if tank is no longer in use
Example	5	10,000		X			X	X						X						
Example	8	8,000	X				X			X					Trichloroethylene	1710				
Example	26	8,000	X				X	X					X				6	75	120	X
1	17	8,000			stainless steel	unk					unk				Water based Lacquer					
2	12	10,000			stainless steel	unk					unk				Water based Lacquer					
3	30	1,000	x			unk					unk	X								
4																				
5																				
6																				
7																				

8. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

A. Name, SSN and Official Title of owner or owner's authorized representative (type or print)

B. Signature

C. Date signed

This information is required by Section 9002 of the Federal Resource Conservation and Recovery Act, as amended. (P.L.98-616)

ATTACHMENT 2

WRITTEN NOTIFICATION OF UST REMOVAL/CLOSURE ACTIVITIES

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive • Suite 100
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495

January 16, 1991

RELEASE PREVENTION MANAGER
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
7510 East Main Street
P.O. Box 525
Reynoldsburg, Ohio 43068-3395

Subject: Written Notification of UST Removal/Closure Activities
Heekin Can, Inc., 8200 Broadwell Road, Plant 2 (Newtown), Cincinnati, OH
Seven (7) Petroleum and Chemical UST Systems

Dear Release Prevention Manager:

Please consider this as the 30-day advance written notification of UST removal/closure activities at the subject facility. The following seven (7) UST systems are planned to be removed/closed:

•	1	8,000 gal	steel	Cimflo - Soluble Vegetable Oil
•	1	8,000 gal	steel	Lacquer Spray Liner
•	1	10,000 gal	steel	Lacquer Spray Liner
•	2	8,000 gal	steel	Waste Oil and Water
•	1	1,000 gal	steel	Gasoline
•	1	10,000 gal	steel	Fuel Oil

Environmental Quality Management, Inc. (EQ) will manage and coordinate this project and will provide for all sampling, analysis, and closure reporting. EQ has retained WRP Associates of Lebanon, Ohio, to obtain all permits, clean, remove, and dispose of the UST systems. WRP will provide the state certified UST installers (William R. Parker - ID 90-335 and/or Mike Breeze - ID 90-336) to supervise the UST removal/closure activities.

Please contact me at 513/825-7500 if you have any questions or require additional information.

Sincerely,
Environmental Quality Management, Inc.

Thomas J. Wey
Project Manager

cc: B. Chambers (Heekin Can)
P. Schworer (Dinsmore & Shohl)
J. Greber (EQ)

UNDERGROUND TANK PERMIT APPLICATION

NSTRUCTIONS: TYPE OR NEATLY PRINT ALL REQUESTED INFORMATION. ENCLOSE $50.00 APPLICATION FEE FOR ACH TANK LOCATION PERMIT. CHECK OR MONEY ORDER SHALL BE MADE PAYABLE TO: STATE FIRE MARSHAL. PPLICATION WILL NOT BE PROCESSED WITHOUT ACCOMPANYING FEE. SEND TO: BUREAU OF UNDERGROUND STORAGE ANK REGULATIONS, P.O. BOX 525, REYNOLDSBURG, OHIO 43068-3395.

. TANK LOCATION:

ompany: Heekin Can Inc.

ddress: 8200 Broadwell Rd (Newtown)

ity: Cincinnati County Hamilton

hone: (513) 489-3200

Contact Person: Robert Chambers

2. OWNER INFORMATION:

Name:

Address: Same

City: Zip:

State:

Phone: ( )

3. LOCAL JURISDICTION:

Fire Department: Newtown Volunteer Fire Dept. (Anderson Twp.) Dave Dreyer

Address: 3537 Church St.

City: Newtown, Ohio. ZIP: 45244

Phone: (513) 561-2300

4. CONTRACTOR INFORMATION:

Name: WRP & Associates

Address: 390 Ridgewood Ln

City: Lebanon State Ohio Zip: 45036

Contact Person: William Parker Phone: (513) 932-0335

5. DESCRIPTION OF WORK TO BE COMPLETED:
Remove and properly close 7 UST's (4) 8000 gal. (2) 10,000 gal (1) 1000 gal
products are lacquer, cimflo, waste oil, fuel, gasoline

** AT LEAST 30 DAYS SHOULD BE ALLOWED FOR PROCESSING OF THIS APPLICATION **

6. Sketch of facility showing all tanks and piping including existing tanks, piping, distance from lot lines, and distance from any buildings MUST be attached to application to be processed.

7. INSPECTION DATE WILL BE SET BY THE STATE FIRE MARSHAL, UPON PROCESSING OF THE COMPLETED APPLICATION

FOR OFFICE USE ONLY

FACILITY ID # 762

DATE: CHECK NUMBER: FEE:

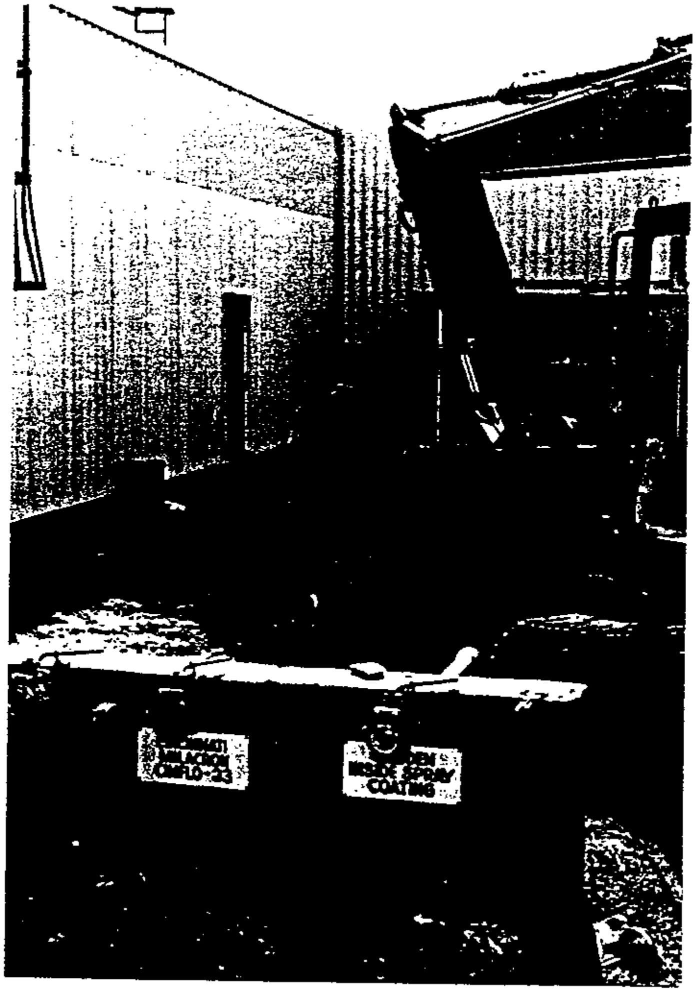
COUNTY: INSPECTION DISTRICT

DATE COPIED & MAILED TO INSPECTOR

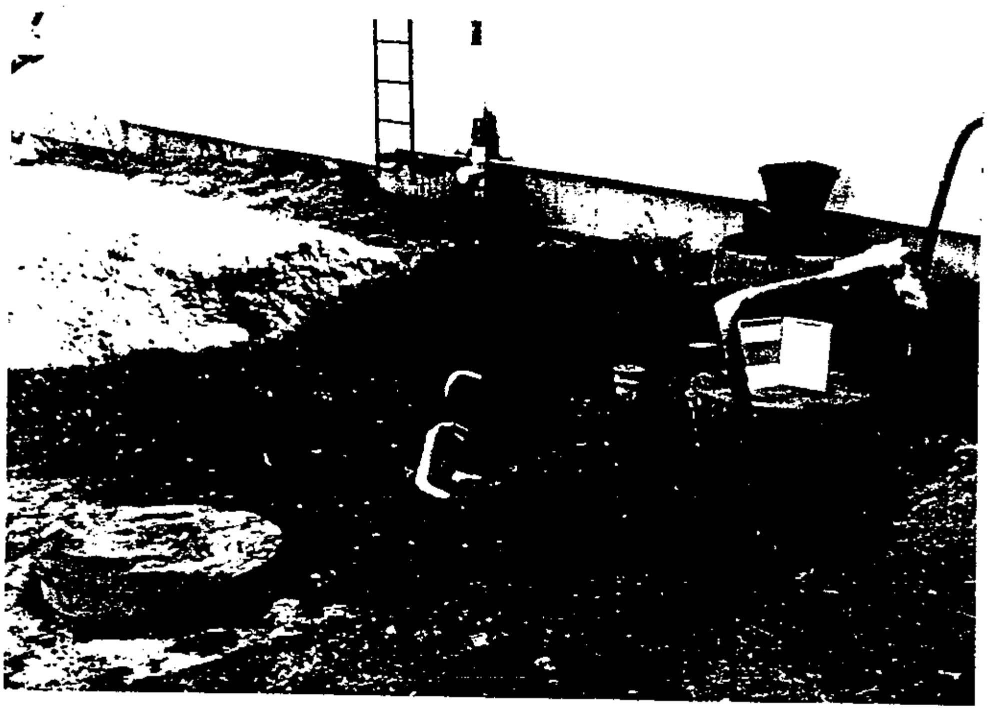
6/90

ATTACHMENT 3

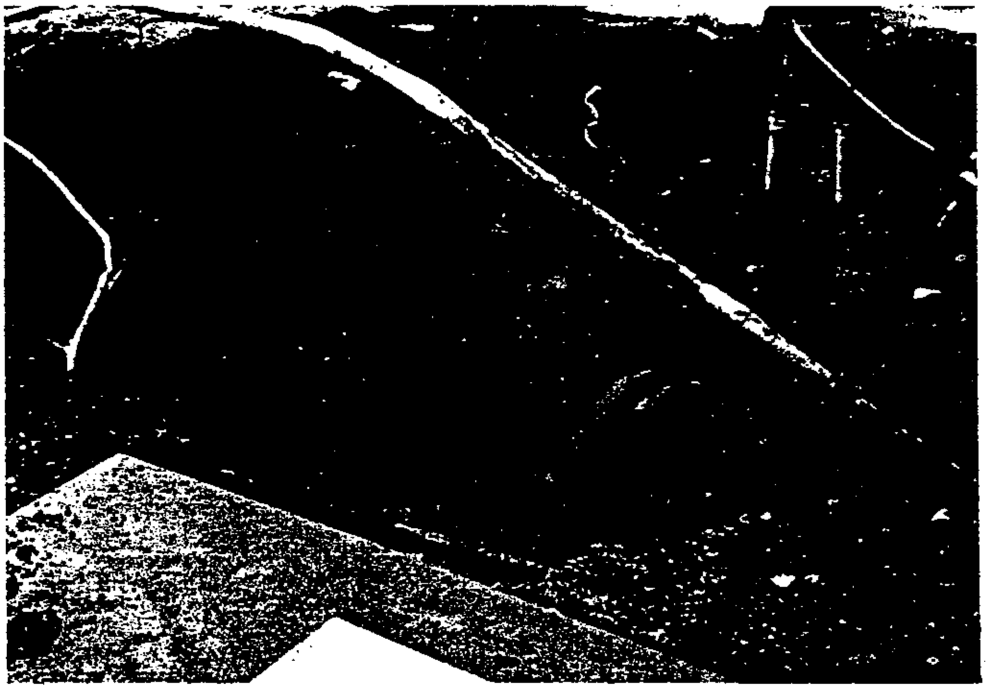
PHOTOGRAPHS



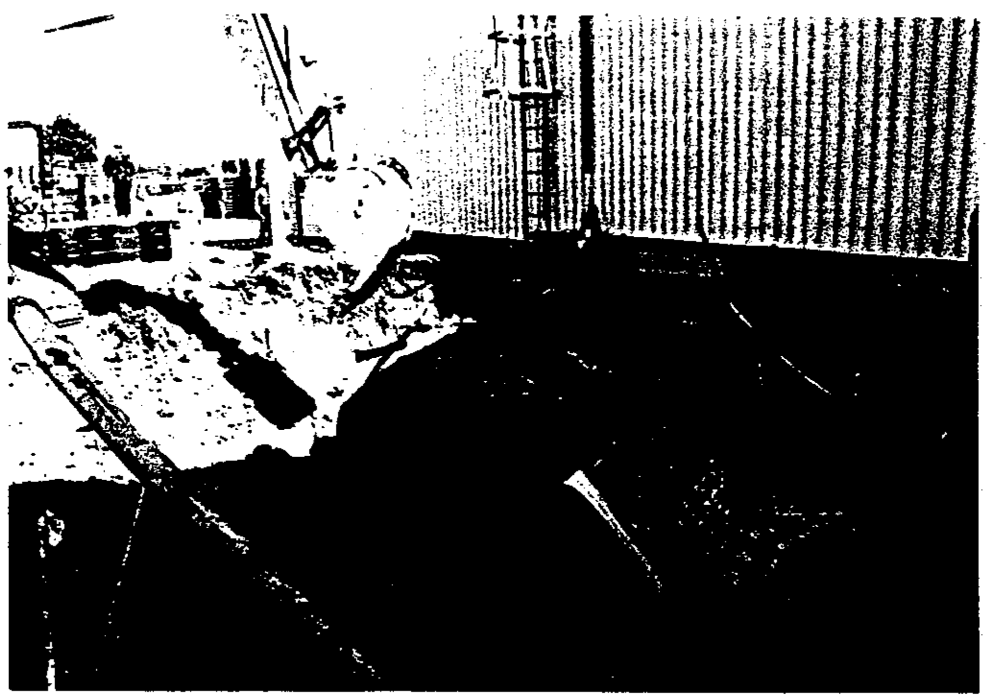
UST Nos. 1 & 2
Being uncovered



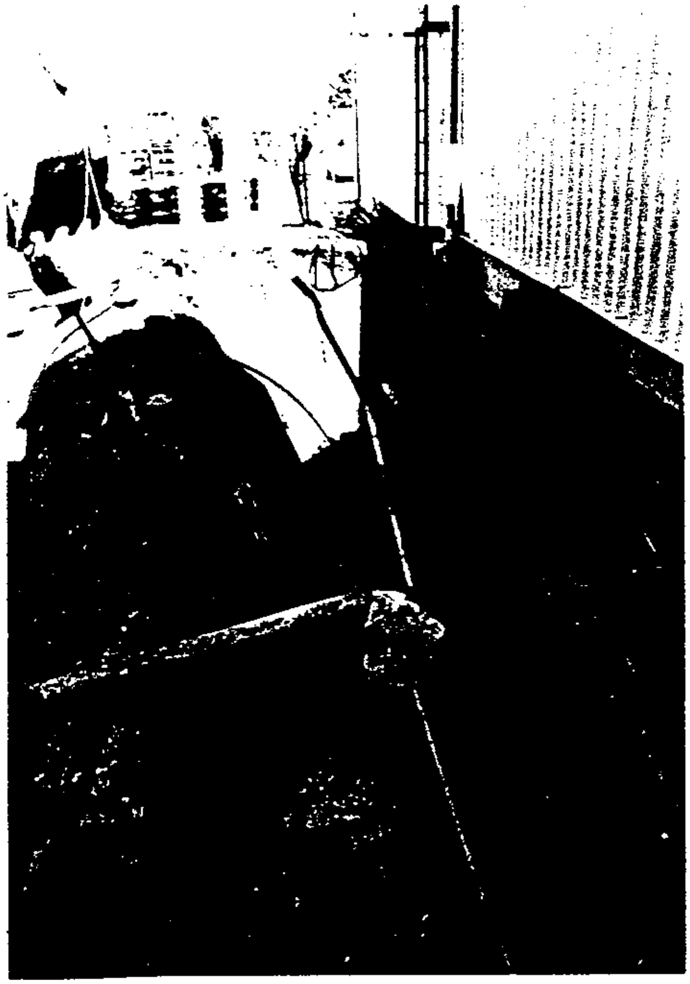
UST Nos. 1 & 2 Being uncovered



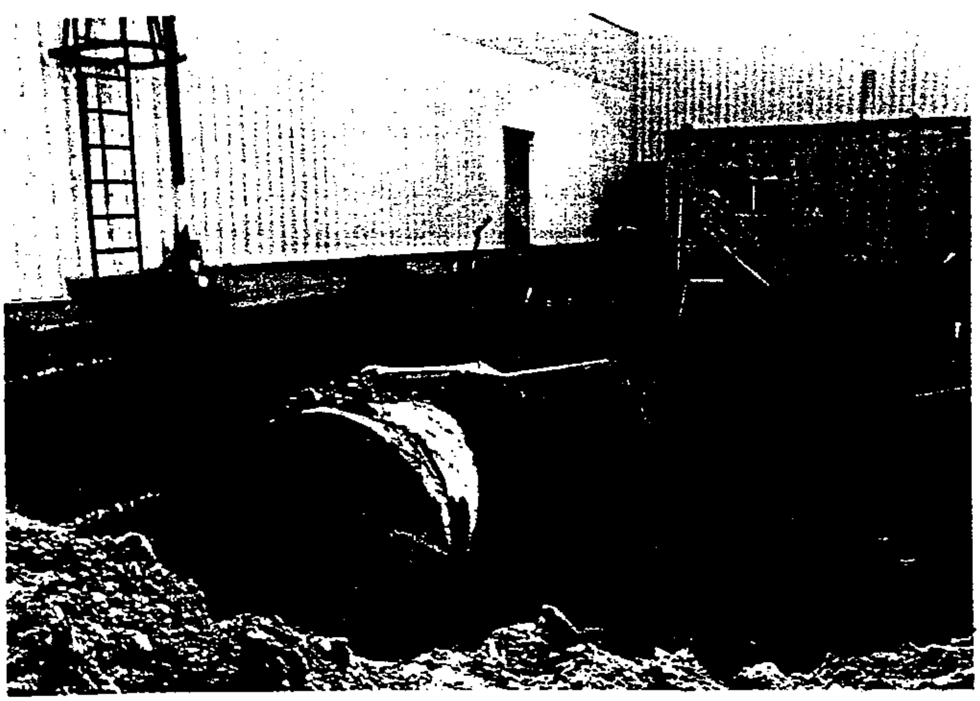
UST No. 1 Excavation after removal



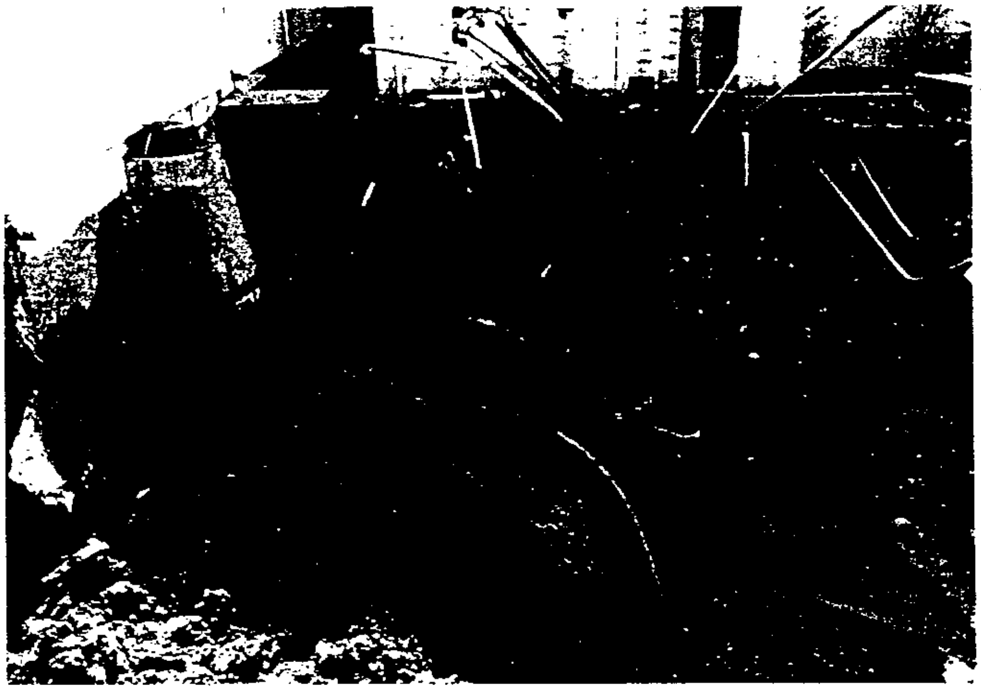
UST No. 2 Uncovered and against foundation and sewer manhole



UST No. 2
Being eased away from against building foundation and sewer manhole



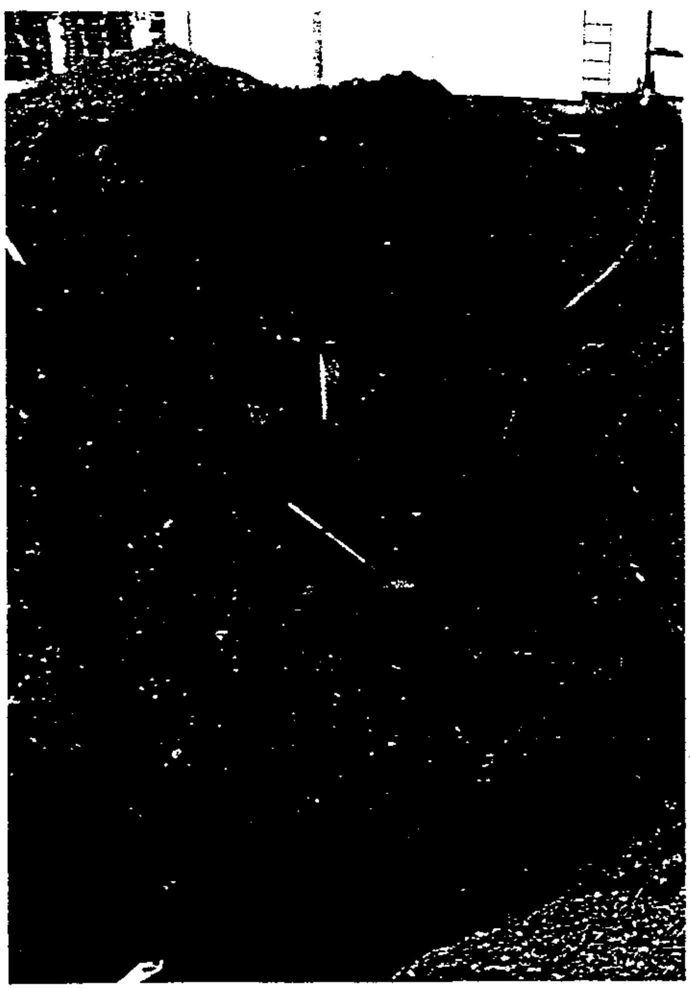
UST No. 2 Clear of building foundation and sewer manhole



UST No. 2 Excavation after removal

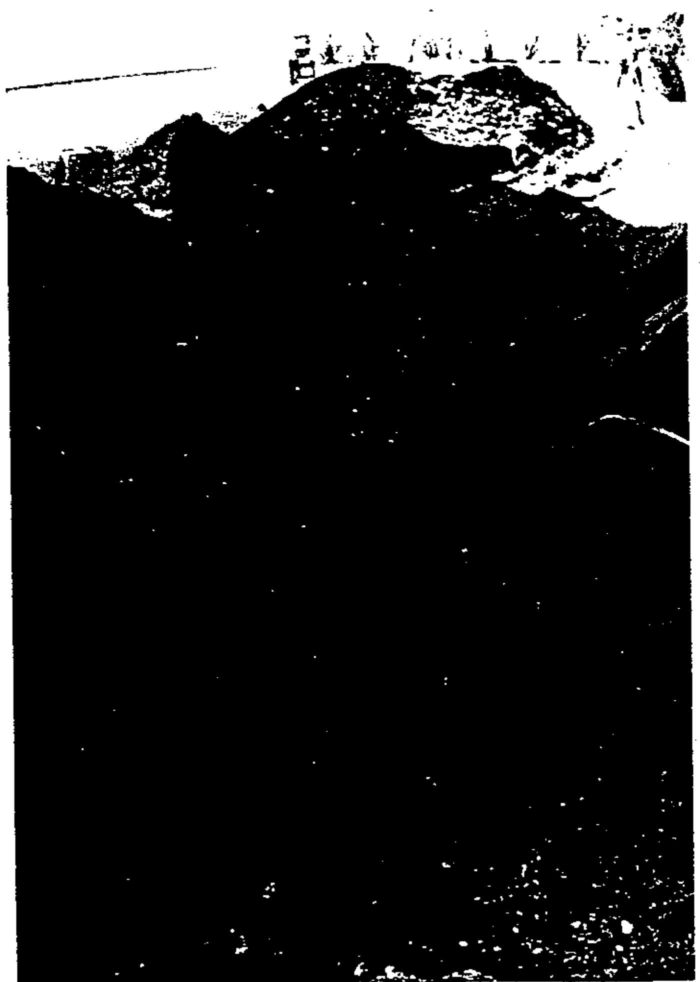
UST No. 3 Being uncovered

UST No. 3
Being removed



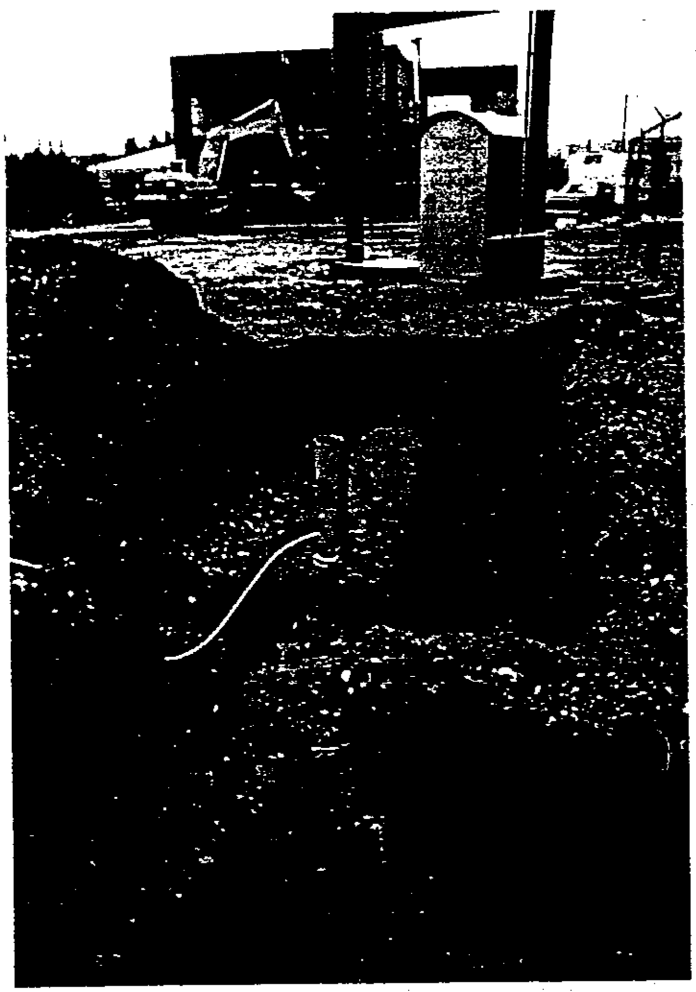
UST No. 4
Uncovered

UST No. 5
Uncovered



UST Nos. 4 & 5
Excavation after
removal (View to SW)

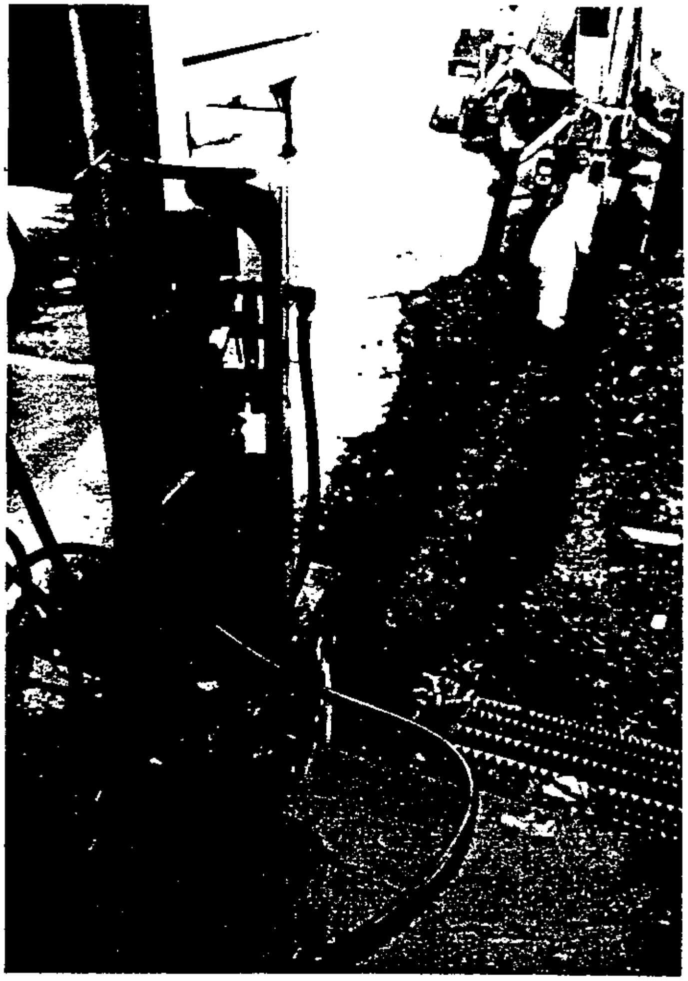
UST Nos. 4 & 5 Excavation after removal (View to NE)



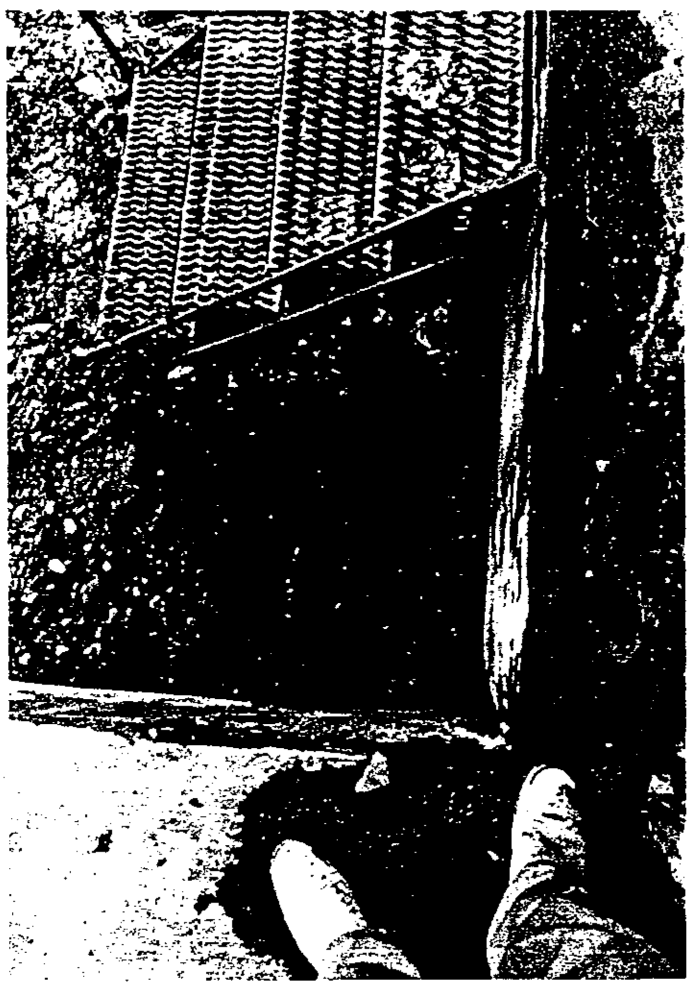
UST No. 6
Uncovered
(View to NE)

UST No. 6
Pipe trench to
pump/dispenser on
loading dock

UST No. 6
Being removed



UST No. 6
Pump dispenser and
pipe trench



UST No. 6
Pump pad removed

UST No. 6 Excavation after removal (View to W)

UST No. 6 Excavation after removal (View to E)

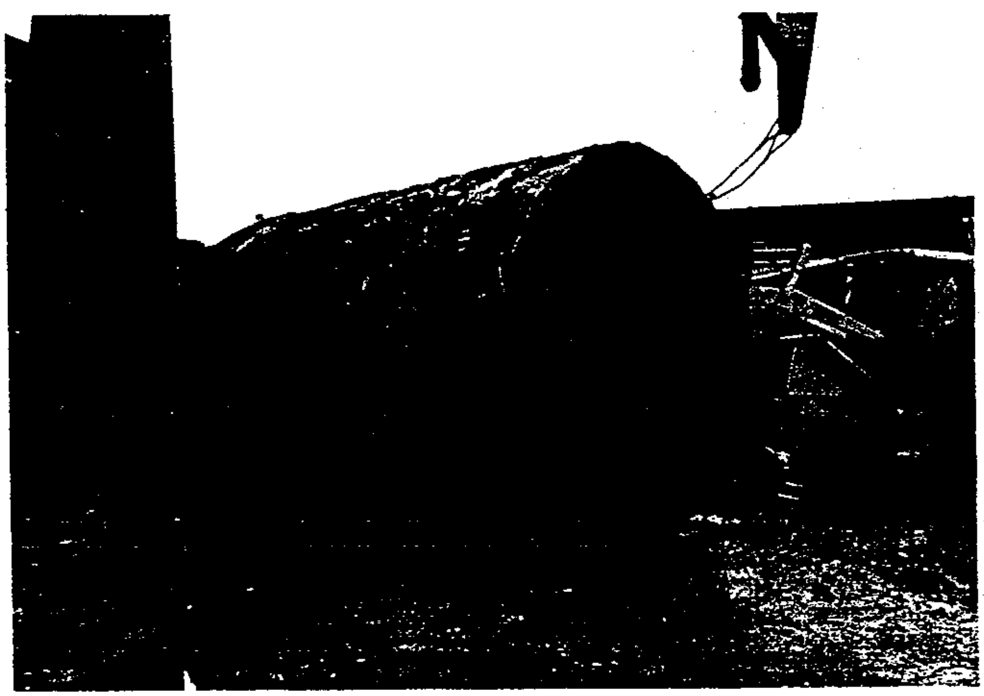
UST No. 6 Staged for final cleanout and inspection

UST No. 7 Uncovered (View to SE)

UST No. 7 Uncovered (View to W)

UST No. 7 Excavation during removal (View to E)

UST No. 7
Excavation after
removal (View to W)



UST No. 7 Begin staged for final cleanout and inspection

UST No. 7 Hole in west end near top
(Arrow w/pencil below)

ATTACHMENT 4

SOIL VAPOR LOG

EQ

SOIL VAPOR LOG

PAGE 1 OF 1

BOREHOLE: TANK PIT FOR NOS 1,2,+3
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3/15/91
DATE SCREENED 3/15/91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
2-S. WALL	1.5	NO ODORS OR DISCOLORATION
2-E.S. WALL	1	
2-E.N. WALL	1	
2-N. WALL	1	
2-N. FLOOR	1.5	
2-S. FLOOR	1	
3-S. WALL	1.5	NO ODORS OR DISCOLORATION
3-S.W. WALL	1.5	
3-N.W. WALL	1	
3-N. WALL	1	
3-N. FLOOR	1.5	
3-S. FLOOR	1	
BACKGROUND	1-2	
* ALL READINGS APPEARED TO BE EQUAL TO BACKGROUND		

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

EQ

SOIL VAPOR LOG

PAGE 1 OF 1

BOREHOLE: TANK PIT FOR NOS. 4+5
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-15-91
DATE SCREENED 3-15-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
4/5 - N.W. WALL	1.5	NO ODORS OR DISCOLORATION
N.E. WALL	1	
E.N. WALL	1	
E.S. WALL	1	
S.E. WALL	1.5	
S.W. WALL	1	
W.S. WALL	1.5	
W.N. WALL	1	
N. FLOOR	1	
S. FLOOR	1	
BACKGROUND	1-2	
*ALL READINGS	APPEARED TO BE EQUAL	TO BACKGROUND

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

SOIL VAPOR LOG

BOREHOLE: TANK PIT FOR NO. 6
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-13-91
DATE SCREENED: 3-13-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
#6 N. WALL	1	NO ODORS OR DISCOLORATION
S. WALL	1	
E. WALL	1	
W. WALL	1	
E. FLOOR	2	
W. FLOOR	1.5	
PUMP PAD	1,000 + (NEAR FLAME-OUT)	HEAVY ODOR + STAINING
PAD + 20 ft.	1.5	NO ODORS OR DISCOLORATION
PAD + 40 ft.	2	
PAD + 60 ft. (@ ELBOW)	1.5	
BACKGROUND	1 - 2	

\# WALLS + FLOOR SCREENED SOILS IN EXCAVATION AND ALL 1-2 PPM. THEN SELECTED ABOVE SAMPLES FOR HEADSPACE SCREEN IN LAB.

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

EQ

SOIL VAPOR LOG

BOREHOLE: TANK PIT FOR NO. 7
SITE NAME: Heekin Can - Newtown, OH
PROJECT NO: 8009
PROJECT TITLE: UST Removal/Closure Project

DATE SAMPLED: 3-14-91
DATE SCREENED: 3-14-91
INSTRUMENT USED: OVA/FID
CALIBRATION GAS: Zero Air and 49 ppm CH4
SCREENED BY: T. Wey

DEPTH INTERVAL OR SAMPLE INTERVAL	VAPOR SCREENING RESULTS UNITS: TOV (ppm)	COMMENTS
7-N.W. WALL	1.5	NO ODORS OR DISCOLORATION
7-E.N. WALL	2	↓
7-E.S. WALL	2	
7-S.W. WALL	1.5	
7-W.N. WALL	2	
7-W.S. WALL	2	
7-W. FLOOR	1.5	
BACKGROUND	1-2	

EXCAVATION ZONE UNSAFE TO ENTER. COLLECTED SAMPLES FROM BUCKET OF TRACKHOE. SCREENED HEADSPACE IN LAB. COULD NOT REACH NORTHEAST WALL OR NORTH FLOOR. DISCUSSED SAMPLE APPROACH WITH BUSTR INSPECTOR AND VERBALLY APPROVED.

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive Suite 100
Cincinnnati, Ohio 45240

ATTACHMENT 5

RAW ANALYTICAL DATA

DATA CHEM
LABORATORIES

Mon, Mar 18, 1991

ANALYTICAL REPORT

Submitted To:

Tom Wey
Environmental Quality Management,
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

Submitted By:

James R. Baxter

Reference Data:

Analysis of:	Benzene, Toluene, Ethylbenzene, Xylene
Method Reference:	EPA 8020
Sample Set ID:	91-C-0708
DataChem Lab No.:	91-06372 through 91-06379
Sampling Site:	Heekin Can

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R Baxter
James R. Baxter
Analyst

Edward J Slick
Edward J. Slick
Group Leader

RESULTS

Client I.D.	Lab I.D.	(ppb) Benzene	Toluene	Ethyl benzene	Xylene
#3 North ~~Wall~~ Floor	91-06372	NR	NR	NR	ND
#3 South Wall	91-06373	NR	NR	NR	ND
#3 West Wall	91-06374	NR	NR	NR	ND
#6 East Floor	91-06375	ND	ND	ND	ND
#6 West Wall	91-06376	ND	ND	ND	ND
#7 West-North Wall	91-06377	ND	ND	ND	ND
#7 East-South Wall	91-06378	ND	ND	ND	ND
#7 West Floor	91-06379	ND	ND	ND	ND
	Limit of Detection	2.	2.	2.	2.

ND = Not Detected
NR = Not Requested

James R. Baxter
James R. Baxter
Analyst

The above data is based upon retention time matching only. Any compound with a similar retention time will interfere.

DATA CHEM
LABORATORIES

Date: 3/18/91
DCL Set ID Number: 91-S-0709

ANALYTICAL REPORT

Submitted To:
Tom Wey
EQM
1310 Kemper Meadow Dr.
Cincinnati, OH 45240

Submitted By: Scott M. Krummen

Reference Data:

Analysis of:	Total Petroleum Hydrocarbon
Method Reference:	EPA Method 418.1
Sample Type:	Soil
Number of Samples	5
DCL Sample Numbers:	91-06380
Sampling Site	Heekin Can

The above numbered sample was submitted to this laboratory for analysis. The sample was prepared by acidifing 20.0 grams of each sample with hyrochloric acid, sonicating the sample in 30ml of freon three times, and then filtering each sample to a final volume of 100ml of freon containing 3.0 grams of silica gel. They were then analyzed by infrared spectroscopy using a Perkin Elmer 1430.

The results are provided in the enclosed data table. If you have any questions, please call .

Scott M. Krummen
Scott M. Krummen
Analyst

Edward J. Slick
Edward J. Slick
Laboratory Supervisor

Date: 3/18/91
DCL Set ID No.: 91-S-0709

Data Table

Client Number	DCL Number	Analyte	Result(ppm)
#6 East Floor	91-06380	TPH	55.
#6 West ~~Floor~~ Wall	91-06381	TPH	58.
#7 West-North Wall	91-06382	TPH	48.
#7 East-South Wall	91-06383	TPH	53.
#7 West Floor	91-06384	TPH	38.

Limit Of Detection(LOD): 10. ppm

Analyst

ANALYTICAL REQUEST FORM

DATA CHEM LABORATORIES

1. ☐ REGULAR Status

☑ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY ______ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 3/14/91 Purchase Order No. ______
3. Company Name Envir. Quality Mgt (EQM)

Address 1310 Kemper Meadow Dr.

Cinti. OH 45240

Person to Contact Tom Wey

Telephone (513) 825-7500

Fax Telephone (513) 825-7495

Billing Address (if different from above)

4. Sample Collection

Sampling Site Hedwin Can

Industrial Process NA

Date of Collection 3/14/91

Time Collected AM + PM

Date of Shipment SAME

Chain of Custody No. ______

5. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#3 North Floor Wall	Soil	4 oz	Xylenes Only
	#3 South Wall			" "
	#3 West Wall			" "
	#6 East Floor			TPH + BTEX
	#6 West Wall			" "
	#7 West-North Wall			TPH + BTEX
	#7 East-South Wall			" "
	#7 West Floor			" "

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. **Q C REQUIREMENTS**
MUST BE COMPLETED - See General Services Terms and Conditions: QC samples billed at regular sample rate

☑ METHOD QC SAMPLES (Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments ______

Possible Contamination and/or Chemical Hazards ______

7. Requested by [signature]

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801- 266-7700 / FAX: 801-268-9992
4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

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DATA CHEM
LABORATORIES

Mon, Mar 18, 1991

ANALYTICAL REPORT

Submitted To: Tom Wey
Environmental Quality Management,
1310 Kemper Meadow Drive
Cincinnati, Ohio 45240

Submitted By: James R. Baxter

Reference Data:

Analysis of:	Benzene, Toluene, Ethylbenzene, Xylene
Method Reference:	EPA 8020
Sample Set ID:	91-C-0726
DataChem Lab No.:	91-06479 through 91-06480
Sampling Site:	Heekin Can

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R. Baxter
James R. Baxter
Analyst

Edward J. Slick
Edward J. Slick
Group Leader

RESULTS

Client I.D.	Lab I.D.	Benzene	(ppb) Toluene	Ethyl benzene	Xylene
#2 South Wall	91-06479	NR	NR	NR	ND
#2 North ~~Wall~~ Floor	91-06480	NR	NR	NR	27.
Limit of Detection		2.	2.	2.	2.

ND = Not Detected
NR = Not Requested

James R. Baxter
Analyst

The above data is based upon retention time matching only. Any compound with a similar retention time will interfere.

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☑ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY 3/19 NOON
DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 3/15/91 Purchase Order No. ____

3. Company Name Envir. Quality Mgt (EQM

Address 1310 Kemper Meadow Dr.

Cinti, OH 45240

Person to Contact Tom Wey

Telephone (513) ~~48~~ 825-7500

Fax Telephone ( ) 825-7495

Billing Address (if different from above)

SAME

4. Sample Collection

Sampling Site Hagan Can

Industrial Process NA

Date of Collection 3/15/91

Time Collected PM

Date of Shipment SAME

Chain of Custody No. ____

5. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#2 South Wall Soil			Xylenes only
	#2 North Floor Soil			" "

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. **Q C REQUIREMENTS**
MUST BE COMPLETED - See General Services Terms and Conditions: QC samples billed at regular sample rate

☑ METHOD QC SAMPLES
(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES
(Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED
(May not conform to Agency requirements)

☐ OTHER (as specified below)

Comments ____

Possible Contamination and/or Chemical Hazards ____

7. Requested by T. Wey

Received ST 3-15-91

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992
4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

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DATA CHEM LABORATORIES

Wed, Mar 20, 1991

ANALYTICAL REPORT

Submitted To: Tom Wey
EQM
1300 Kemper Meadow Drive
Cincinnati, Ohio 45240

Submitted By: James R. Baxter

Reference Data:

Analysis of:	Benzene, Toluene, Ethylbenzene, Xylene
Method Reference:	EPA 8020
Sample Set ID:	91-C-0747
DataChem Lab No.:	91-06560 through 91-06561

The soil samples were analyzed using EPA Method 8020. The analysis was performed on a Tracor Model 9000 gas chromatograph equipped with a photoionization(PID) detector. A 75 meter by 0.53mm DB-624 macro capillary column thermally programmed from 35°C to 150°C was used to separate the analytes.

The results are given on the enclosed tables.

James R. Baxter
James R. Baxter
Analyst

Edward J. Slick
Edward J. Slick
Group Leader

RESULTS

(ppb)

Client I.D.	Lab I.D.	Benzene	Toluene	Ethyl benzene	Xylene
#6 Pump Pad	91-06560	<100.	5,900.	10,000.	110,000.
#2 East Wall	91-06561	NR	NR	NR	ND
Limit of Detection		2.	2.	2.	2.

ND = Not Detected
NR = Not Requested

James R. Baxter

James R. Baxter
Analyst

The above data is based upon retention time matching only.
Any compound with a similar retention time will interfere.

DATA CHEM
LABORATORIES

Date: 3/18/91
DCL Set ID Number: 91-S-0746

ANALYTICAL REPORT

Submitted To: Tom Wey
EQM
1310 Kemper Meadow Dr.
Cincinnati, OH 45240

Submitted By: Scott M. Krummen

Reference Data:

Analysis of:	Total Petroleum Hydrocarbon
Method Reference:	EPA Method 418.1
Sample Type:	Soil
Number of Samples	1
DCL Sample Numbers:	91-06559
Sampling Site	Heekin Can

The above numbered sample was submitted to this laboratory for analysis. The sample was prepared by acidifing 20.0 grams of each sample with hyrochloric acid, sonicating the sample in 30ml of freon three times, and then filtering each sample to a final volume of 100ml of freon containing 3.0 grams of silica gel. They were then analyzed by infrared spectroscopy using a Perkin Elmer 1430.

The results are provided in the enclosed data table. If you have any questions, please call.

Scott M. Krummen
Scott M. Krummen
Analyst

Edward J. Slick
Edward J. Slick
Laboratory Supervisor

Date: 3/18/91
DCL Set ID No.: 91-S-0746

Data Table

Client Number	DCL Number	Analyte	Result(ppm)
#6 Pump Pad	91-06559	TPH	190.

Limit Of Detection(LOD): 10. ppm

Analyst Scott [illegible]

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☑ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY ______________ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 3/18/91 Purchase Order No. ______

3. Company Name ENVIR. QUALITY MGT-/EQM

Address 1310 KEMPER MEADOW DRC

CINTI., OH 45240

Person to Contact TOM WEY

Telephone (513) 489-8407 OR 825-7500

Fax Telephone (513) 825-7495

Billing Address (if different from above)

4. **Sample Collection**

Sampling Site HEEKIN CAN

Industrial Process NA

Date of Collection 3/18/91

Time Collected AM

Date of Shipment SAME

Chain of Custody No. ______

5. **REQUEST FOR ANALYSES**

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
	#6 PUMP PAD (GA. DIRT)	SOIL	4OZ	BTEX + TPH
	#2 EAST WALL (SIDE)	SOIL	4OZ	XYLENES ONLY

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. **Q C REQUIREMENTS**
MUST BE COMPLETED - See General Services Terms and Conditions: QC samples billed at regular sample rate

☑ METHOD QC SAMPLES (Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

[signature] 3/18/91 13:10

Comments #6 PUMP PAD HAS HEAVY CONTAMINATION FROM GASOLINE

Possible Contamination and/or Chemical Hazards ______

7. Requested by [signature]

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992

4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

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DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
644 LINN STREET, SUITE 501, CINCINNATI, OHIO 45203 (513) 651-3440

September 22, 1989

cc
T.L. WILKENING
E.R. JACKSON
D. REUSCH

Ohio Environmental Protection Agency
Office of Emergency Response
1800 Watermark Drive
Columbus, OH 43266-0149

Attention: Mr. Ken Schultz

Gentlemen:

Re: Heekin Can, Inc.
Cincinnati, Ohio
Initial Site Characterization Report
Underground Tank Closure

On behalf of Heekin Can, Inc., Dames & Moore transmits the attached initial site characterization report of underground tank closure in accordance with 40 CFR 280.63(b).

Any questions regarding the report should be directed to Mr. Gordon Shaffer of Dames & Moore at (513) 651-3440.

Very truly yours,

DAMES & MOORE

Gordon W. Shaffer
Project Manager

Fred W. Erdmann, P.E., C.P.G.
Associate

GWS/FWE:E52
16190-003-017

cc: R. Chambers, Heekin Can, Inc.
D. Dreyer, Anderson Township Fire Department
P. Schworer, Dinsmore & Shohl
M. Profitt, Ohio EPA, Southwest District Office

CONTENTS

TABLES
(Follow text)

FIGURES
(follow tables)

APPENDICES
(Follow figures)

1.0 INTRODUCTION

This report presents the results of the initial site characterization (in accordance with 40 CFR 280.63) associated with the in-place closure of five underground storage tanks at Heekin Can, Inc. (Heekin) Plant 9 located near Newtown, Ohio. A previous report (Draft Twenty-Day Report, Underground Storage Tank Closure, Plant 9 for Heekin Can, Inc.) was submitted on July 14, 1989 and summarized the initial response and abatement measures through July 13, 1989. This report also summarizes the closure activities that have been completed since July 13, 1989.

The plant is located on approximately 77 acres at 8200 Broadwell Road, Anderson Township, Hamilton County, Ohio (Figure 1). The property was used by the Baldwin Piano Company, who had built a manufacturing plant at this location in the 1940s. Since 1959, the facility has produced two-piece aluminum cans and three-piece steel cans.

The tanks are being closed under permit number 012-89 issued by the Anderson Township Fire Department, Bureau of Fire and Life Safety (a copy of the permit is presented in Appendix A). The tanks contained the following raw products at the time of closure:

Tank Number	Product
1	HiSol-15
2	Cellosolve acetate
3	Butyl cellosolve
4	Reclaimed mix (Cyclesolve 60)
5	VM&P naphtha

Two of the tanks experienced collapsed vent lines and Heekin then elected to close all five of the tanks. Each tank had a capacity of approximately 4,000 gallons and was constructed of steel.

SITE DESCRIPTION

The plant property is at an elevation of approximately 540 feet above mean sea level. The site is nearly flat, except for two old gravel pits adjacent to the railroad track on the eastern edge of the property. Access to the site is provided by Broadwell Road and by railway sidings. The plant ships and receives by rail on a semi-weekly basis and by truck on a daily basis.

The plant site is bounded on the north and west by sand and gravel mining operations; on the south by Broadwell Road, Rumpke Landfill, a large sand and gravel mining operation, and several small residences; and on the east by the Norfolk and Western Railroad and Senco Products, Incorporated, Plant 2. A small community near the intersection of Broadwell Road and Round Bottom Road is about 3/4 of a mile southwest of the main plant building.

The five underground storage tanks are located between two railway sidings along the north side of the plant in an area approximately 75 feet long by 15 feet wide. The locations of the tanks and a general site plan are shown on Figure 2. An outside storage area for empty drums and drummed wastes is located approximately 100 feet northeast of the underground tanks. The building immediately adjacent to the tanks is used to store various products, including raw solvents. Some of the products are received by truck at a loading dock that is adjacent to the tanks. Site plans that depict the tanks and their relation to other features at the plant site are presented on Drawing 1 in Appendix A.

SUMMARY OF CLOSURE ACTIVITIES AND INITIAL ABATEMENT MEASURES

Site activities to date (September 22, 1989) have included seven tasks that are listed as follows:

- Task 1 Excavating and disposing of overlying asphalt pavement and soil
- Task 2 Removing any remaining product in the tanks
- Task 3 Conducting a precision leak test on each tank and piping system
- Task 4 Removing piping
- Task 5 Pressure washing and rinsing the tanks
- Task 6 Filling the tanks with pea gravel
- Task 7 Collecting ground water samples
- Task 8 Backfilling excavation and installing new asphalt pavement
- Task 9 Decontaminating equipment

Tasks 1 through 7 were completed by July 13, 1989 and are detailed in the July 14, 1989 report referenced above. Tasks 8 and 9 have been completed since then.

TASK 8

The excavation was backfilled with clean, compacted bankrun sand and gravel and was then resurfaced with approximately 5-1/2 inches of asphalt. All equipment that had contacted contaminated soil or liquid product was decontaminated prior to leaving the site. A high-pressure/low-volume water sprayer was used to remove visible soil or product from the equipment.

TASK 9

All decontamination rinsates were contained and transported for permitted offsite disposal at LWD, Inc. in Calvert City, Kentucky.

The results of the initial site characterization are presented in the following sections.

2.0 NATURE AND ESTIMATED QUANTITY OF RELEASE

The nature of the release can be evaluated from the results of tank system leak tests, visual inspection of the tanks, and the analytical results of soil samples obtained from immediately beneath each tank. Three soil samples were obtained from beneath each tank. Access to the soil was provided by holes drilled through the bottom of each tank near each end and center. A more detailed description of the sampling event is provided in the July 14, 1989 report. Each of the soil samples was chemically analyzed for the products that had been stored in the tanks. All soil samples were analyzed for the following products or product constituents:

Reclaimed mix (Cyclesolve 60)
- -Acetone
- -MEK (methyl ethyl ketone)
- -Xylene
- -MIK or MIBK (methyl isobutyl ketone)
- -Ethyl acetate

Butyl Cellosolve (ethylene glycol monobutyl ether acetate)
Cellosolve acetate (ethylene glycol monobutyl ethers)
VM&P naphtha (naphtha)
HiSol-15

-Diethylbenzene

-Durene (1,2,4,5-tetramethyl benzene)

The samples from tanks 1, 2, and 3 were also analyzed for toluene. Toluene was inadvertently not analyzed in samples from tanks 4 and 5. The results of the soil analyses are summarized on Table 1, and a copy of the laboratory report is presented in Appendix A.

A review of the results indicates that there are no detectable products in the soil immediately beneath tanks 2 and 3. Acetone was detected at concentrations ranging from non-detectable to 5 mg/kg beneath tank 4, and 4 mg/kg beneath tank 5. Xylene was identified at trace concentrations ranging from non-detectable to 0.7 mg/kg beneath tank 4. The highest concentrations of products were exhibited by the soil from beneath the west end of tank 1, and are listed as follows:

HiSol-15	2,900 mg/kg
Butyl cellosolve	1,030 mg/kg
Diethyl benzene	183 mg/kg
Durene	198 mg/kg

The appearance of HiSol-15 and its constituents (diethyl benzene and durene) beneath tank 1 is expected, as tank 1 contained HiSol-15 and it failed the leak test. The reported presence of acetone and xylene beneath tanks 4 and 5, although at much lower concentrations, is also to be expected because these two chemicals are constituents of the Cyclesolve 60 that was stored in tank 4, and because tank 4 failed the leak test.

The presence of Butyl cellosolve at only the west end of tank 1 is anomalous because it is absent beneath all of the other tanks, including tank 3 which stored this product. The data also suggest that lateral movement of liquid or vapor phase product is limited as detectable concentrations of products were identified at only four of the 15 separate sampling locations.

The quantity of product releases cannot be accurately quantified at this time, but product inventory usage is consistent with plant production and no significant discrepancies have been identified. The limited appearance of only trace to low concentrations of acetone and xylene suggests that only a relatively small volume of Cyclesolve 60 was released. The relatively high concentration of HiSol-15 suggests that a larger volume of this product may have been released. At a concentration of 2,900 mg/kg HiSol-15, one cubic yard of soil (at 3,000 lbs/cubic yard) will contain approximately 8.7 lbs of HiSol-15.

3.0 SURROUNDING POPULATIONS

Total resident population of the area within 1 mile of the tank location has been estimated to be 537. This estimate was derived from available census data and housing counts. These data are summarized on Table 2. Population within 1 mile was estimated from the 1980 estimates of persons per household for Anderson Township in Hamilton County and Union Township in Clermont County, and the total number of residences was obtained from 1988 topographic map coverage. The census data report the estimated number of persons per household for Anderson Township and Union Township to 3.22 and 3.06, respectively. Recent topographic map coverage reveals approximately 104 houses in Hamilton County within 1 mile of the tanks, and approximately three houses in Clermont County within 1 mile of the tanks. The total estimated resident population within 1 mile of the tanks is therefore 537.

4.0 WATER QUALITY

Preliminary evaluations of onsite ground water and near-site surface water quality have been conducted by sampling and analyzing water from an unused production well approximately 250 feet northwest of the tank pit on the Heekin site and a gravel pit pond adjacent to the northern side of the site. Both of these sampling locations are believed to be generally downgradient of the tank locations. A summary of the analytical results is presented on Table 3, and the laboratory report is presented in Appendix A. There were no detectable organic compounds that are known constituents of the stored products, nor were any specific tank products identified. The production well sampling event is described in the July 14, 1989, report. Water was collected from the well on July 7, 1989, by Dames & Moore and was delivered to Environmental Laboratories, Inc. (EEI) in Cincinnati on the same day. The sample was analyzed for volatile organic compounds and none were detected. The surface water sample from the gravel pit was collected by Dames & Moore on July 20, 1989, and was delivered to EEI on the same day. Analyses were conducted for volatiles, semivolatiles, RCRA metals, and specific products stored in the tanks. The analyses of the gravel pit water identified chloroform (0.001 mg/L), trichlorofluoromethane (0.018 mg/L), barium (0.30 mg/L), and mercury (0.002 mg/L). No specific tank products were detected.

The analyses indicate that none of the tested parameters exceed the current U.S. EPA maximum contaminant levels (MCLs) for drinking water in either the unused well or the gravel pit pond. There is no apparent impact to ground water or surface water at either sampling location that is associated with known product constituents.

The Rumpke landfill, south of and adjacent to the Heekin plant property, is a major potential source of local ground water pollution, and its potential impacts (if any) on the Heekin plant site have not been investigated.

5.0 LOCATIONS OF SUBSURFACE SEWERS

The locations of reported subsurface sewers on the Heekin site are shown on Figure 3. Municipal sewers are not available at the Heekin site; therefore, Heekin treats its own sanitary effluent and discharges it via a spray field located in the northeastern corner of the plant property (Figure 3). The plant no longer has a process effluent discharge. Onsite stormwater is collected by a storm sewer system that diverts runoff to a surface water pond near the western plant boundary (Figure 3). Stormwater is allowed to percolate into the ground water from the pond.

6.0 LOCATIONS OF WATER WELLS

The locations and logs of reported water wells located within 1 mile of the tank pit were obtained from the Ohio Department of Natural Resources, Division of Water. Figure 4 depicts the locations of these wells. The well numbers are keyed to the well logs that are presented in Appendix B. The nearest potentially downgradient water well is Heekin's unused production well that was sampled and analyzed as described in Section 4.0 above.

7.0 SUBSURFACE SOIL CONDITIONS

Local and onsite subsurface soil conditions have been interpreted from the available water well boring logs. The log from Heekin's unused onsite production well indicates that bedrock consists of shale and is approximately 102 feet deep at the site. The upper 12 feet of unconsolidated material consists of gravel and boulders that overlie approximately 54 feet of sand and gravel or muddy gravel. A 5-foot-thick layer of blue clay underlies the gravelly material. Approximately 25 feet of sandy silt underlies the clay, and approximately 6 feet of coarse sand and gravel, in turn, overlie the bedrock. The reported static water level was 50 feet below ground surface when the well was installed in late June or early July of 1951. The depth to water was also approximately 50 feet on July 7, 1989.

Sand and gravel deposits have been quarried in the past at the now abandoned quarry that adjoins the northern and western Heekin property lines. Quarrying is currently underway by Dravo Materials to the south, adjacent to the Rumpke landfill, and to the northwest along the Little Miami River.

Well boring logs from locations along Broadwell Road near the plant site indicate that sand and gravel is typically found to a depth of 60 to 70 feet at which depth a clay layer is encountered. Well logs from the area south of the Little Miami River indicate the presence of an extensive clay layer that varies in thickness from up to 73 feet at well 15 near the southeastern portion of the 1-mile vicinity; to 14 feet at well 4 near the Little Miami River, southwest of Heekin; to 5 feet at the unused production well on the Heekin site. The clay layer appears to pinch out along the southern edge of the Little Miami River Valley as evidenced by the logs of wells 6, 8, and 14. These data also indicate that the clay layer probably pinches out as it approaches the Little Miami River. Where the clay layer is present, it is likely to retard the downward movement of ground water and act as an aquaclude between the aquifer units it separates.

8.0 CLIMATOLOGICAL CONDITIONS

A summary of local climatological data is presented on Table 4. Total average annual precipitation is 40.07 inches and is fairly evenly distributed throughout the year; however, October is historically the driest month receiving 2.38 inches. March is the wettest month, receiving 4.18 inches. The average daily temperature is 54.5°F and ranges from 30.6°F in January to 76°F in July. The monthly average mid-afternoon relative humidity is fairly constant with an annual average of 56 percent.

9.0 LAND USE

Land use within 1 mile of the tanks is depicted on Figure 5. Land use was interpreted from 1986 aerial photography and 1988 USGS topographic map coverage. Much of the land surrounding the Heekin plant site is used for industrial or commercial purposes. Other major uses include wooded or brushland, agriculture, and recreational or park land. Small areas of residential development exist along Broadwell Road near the southwest corner of the Heekin site, along Round Bottom Road near its intersection with Broadwell Road, along Wooster Pike on the north side of the Little Miami River, and near the intersection of Broadwell Road and Mt. Carmel Tobasco Road east of the Heekin site. The Rumpke landfill is located immediately south of Heekin's plant.

10.0 RESULTS OF SITE CHECK

The results of the site check that was conducted in accordance with 40 CFR 280.62(a)(5) did not identify any liquid product beneath the tanks; therefore, no free product (as defined in 40 CFR 280.12) has been identified, and no free product removal has been implemented. However, it did indicate the presence of stored product or product constituents at limited locations in the excavation zone. Concentrations of HiSol-15 (up to 2,900 mg/kg) were identified directly beneath the west end of tank 1, and much lower concentrations of acetone and xylene were exhibited by soils directly under tanks 4 and 5.

TABLE 1

SUMMARY OF ANALYTICAL RESULTS OF SOIL SAMPLES FROM BENEATH TANKS
(All Units mg/kg)

Chemical	Tank 1			Tank 2			Tank 3			Tank 4			Tank 5		
	W	C	E	W	C	E	W	C	E	W	C	E	W	C	E
HiSol-15	2,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl cellosolve	1,030	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl benzene	183	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Durene	198	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5	ND	4	ND	ND
Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	0.2	ND	ND	ND	ND

Only detected chemicals are shown.
W - West end of tank
C = Center of tank
E = East end of tank
ND = Not detected
Samples analyzed by Environamental Laboratories, Inc.

TABLE 2

POPULATION DATA SUMMARY

Parameter	Anderson Township	Union Township
Total population[1]	36,460	30,940
Average number of persons per household[2]	3.22	3.06
Total estimated households within 1 mile of tanks[3]	164	3
Total estimated population within 1 mile of tanks[4]	528	9

1 U.S. Census Bureau, Ohio, 1986 Population Estimates and 1985 Per Capita Income Estimates for Counties, Incorporated Places, and Minor Civil Divisions.

2 ______, Census of Population and Housing, 1980 Summary Tape Files 1A and 3A, prepared by Ohio Data User's Center.

3 Obtained from USGS 77-1/2 minute topographic quadrangle map, Madeira, Ohio, 1961, photorevised 1988.

4 Total estimated population = (total households) x (persons per household).

TABLE 3

WATER QUALITY DATA SUMMARY

Parameter	Units	Unused Production Well PW-1 7/7/89	Gravel Pit Pond 7/20/89
Volatile Compounds			
Chloroform	mg/L	ND	0.001
Trichlorofluoromethane	mg/L	ND	0.018
Semi-Volatile Compounds	-	NT	ND
Metals			
Barium	mg/L	NT	0.30
Mercury	mg/L	NT	0.002
Butyl Cellosolve	mg/L	NT	ND
Cellosolve	mg/L	NT	ND
HiSol-15	mg/L	NT	ND
Durene	mg/L	NT	ND
Diethyl Benzene	mg/L	NT	ND

NT = not tested.
ND = not detected.

TABLE 4

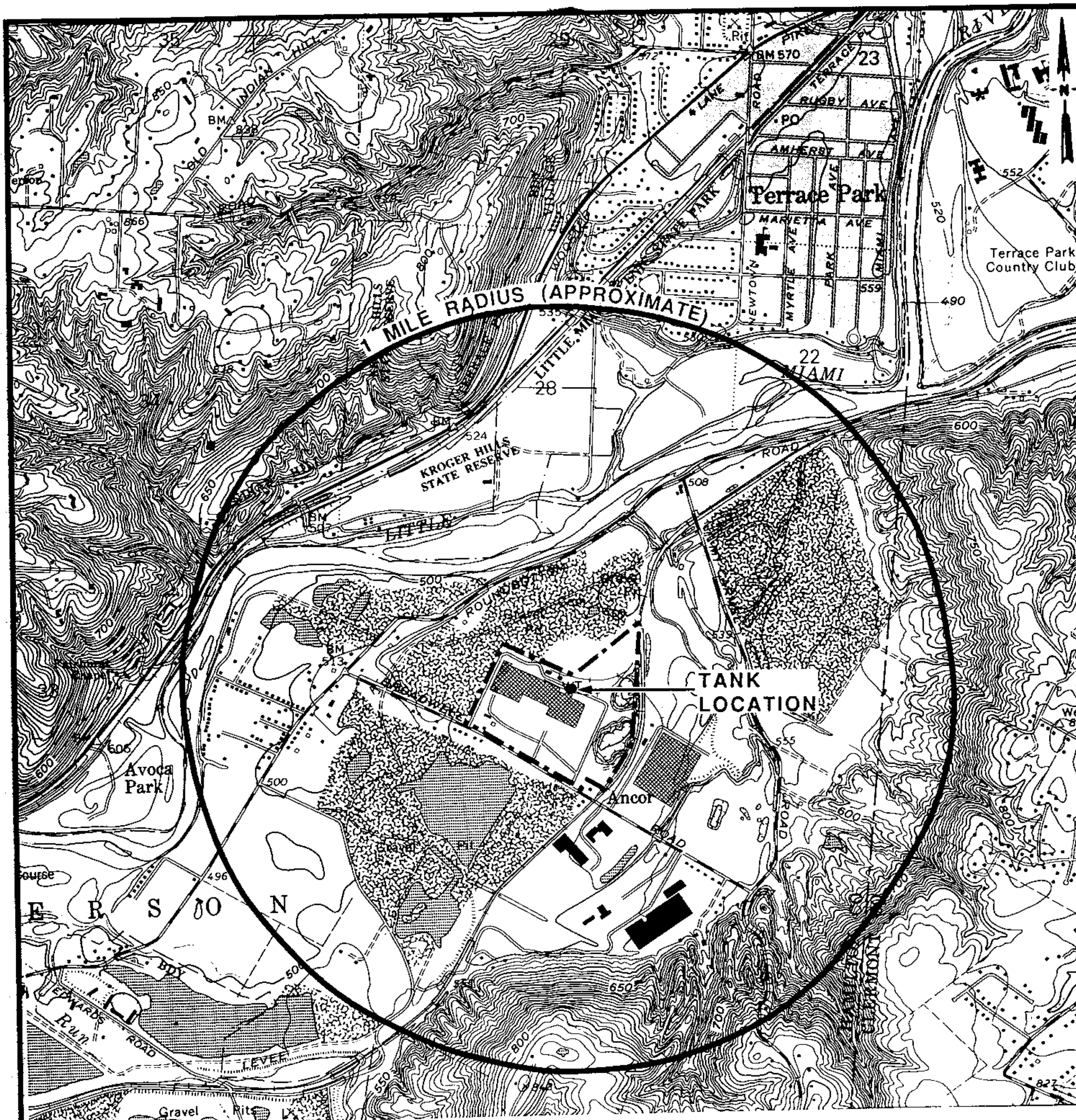
CLIMATOLOGICAL DATA SUMMARY FOR CINCINNATI, OHIO

Month	Daily Average Temperature (°F)	Monthly Average Precipitation (inches)	Daily Average Relative Humidity (percent)[1]
January	30.6	3.08	69
February	33.7	2.48	64
March	43.4	4.18	56
April	54.8	3.59	52
May	64.2	3.85	53
June	72.7	3.71	55
July	76.1	4.11	52
August	74.5	3.27	51
September	68.2	3.07	49
October	56.4	2.38	51
November	44.9	3.20	59
December	35.0	3.15	66
Total	54.5	40.07	56

[1] Readings obtained at 1:00 P.M.

Source: Soil Survey of Hamilton County, Ohio. United States Department of Agriculture, Soil Conservation Service and Ohio Department of Natural Resources, Division of Lands and Soil, August 1982.

Climates of the States, 1974. National Oceanic and Atmospheric Administration.



LEGEND:

—·—·— **PROPERTY BOUNDARY**

0 2000 4000

SCALE IN FEET

Quadrangle Location

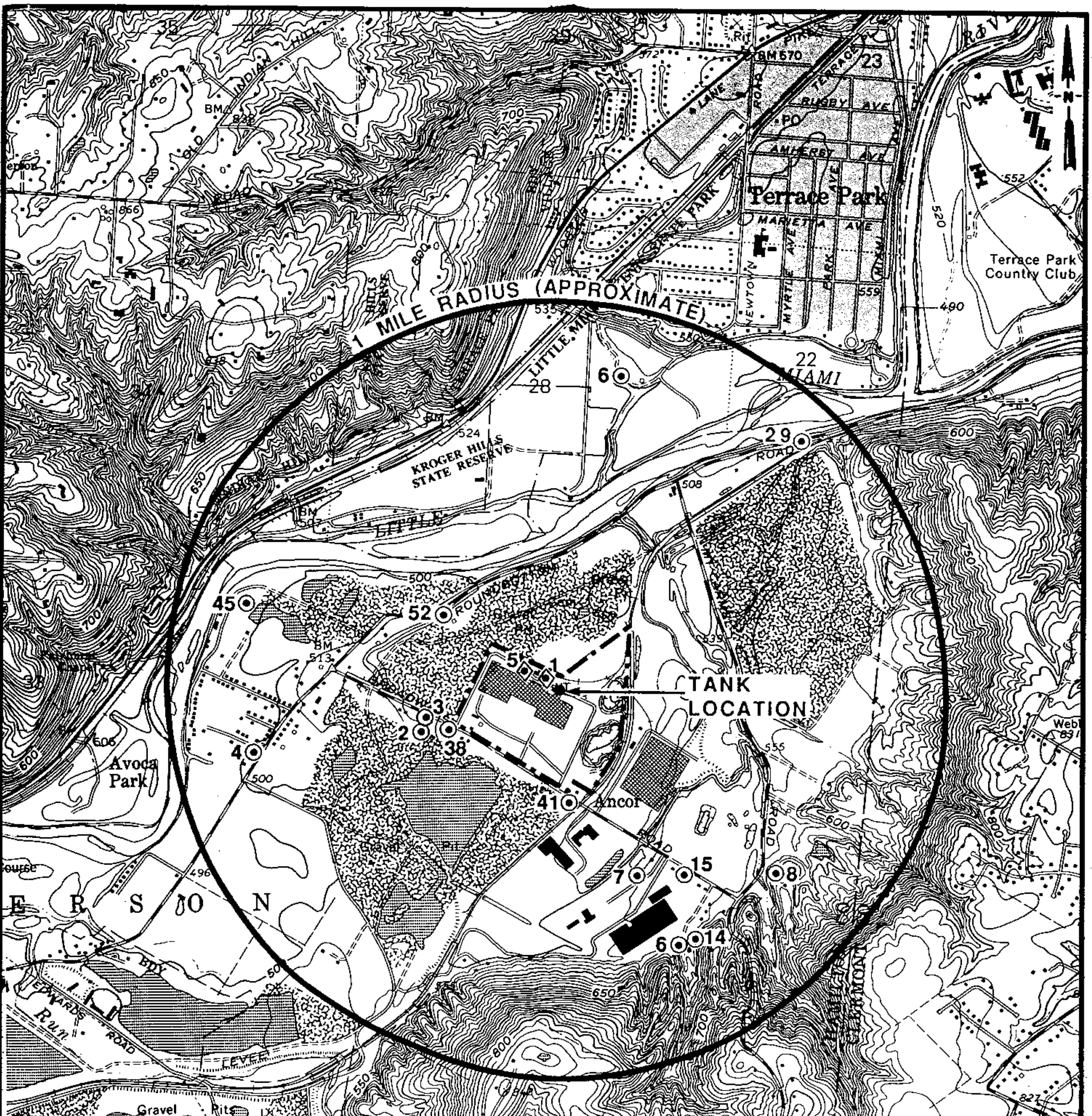
BASE MAP SOURCE: USGS 7 1/2 minute topographic quadrangle map, Madeira, Ohio, 1961, photorevised 1988.

Heekin Can, Inc.

Cincinnati, Ohio

FIGURE 1
SITE VICINITY

Dames & Moore JOB NO. 16190-003-17



LEGEND:

PROPERTY BOUNDARY

REPORTED WATER WELL LOCATION

WELL KNOWN TO BE INACTIVE OR ABANDONED

0 2000 4000

SCALE IN FEET

SOURCE: Ohio Department Of Natural Resources, Division Of Water, and Heekin Can, Inc.

BASE MAP SOURCE: USGS 7 1/2 minute topographic quadrangle map, Madeira, Ohio, 1961, photorevised 1988.

OHIO

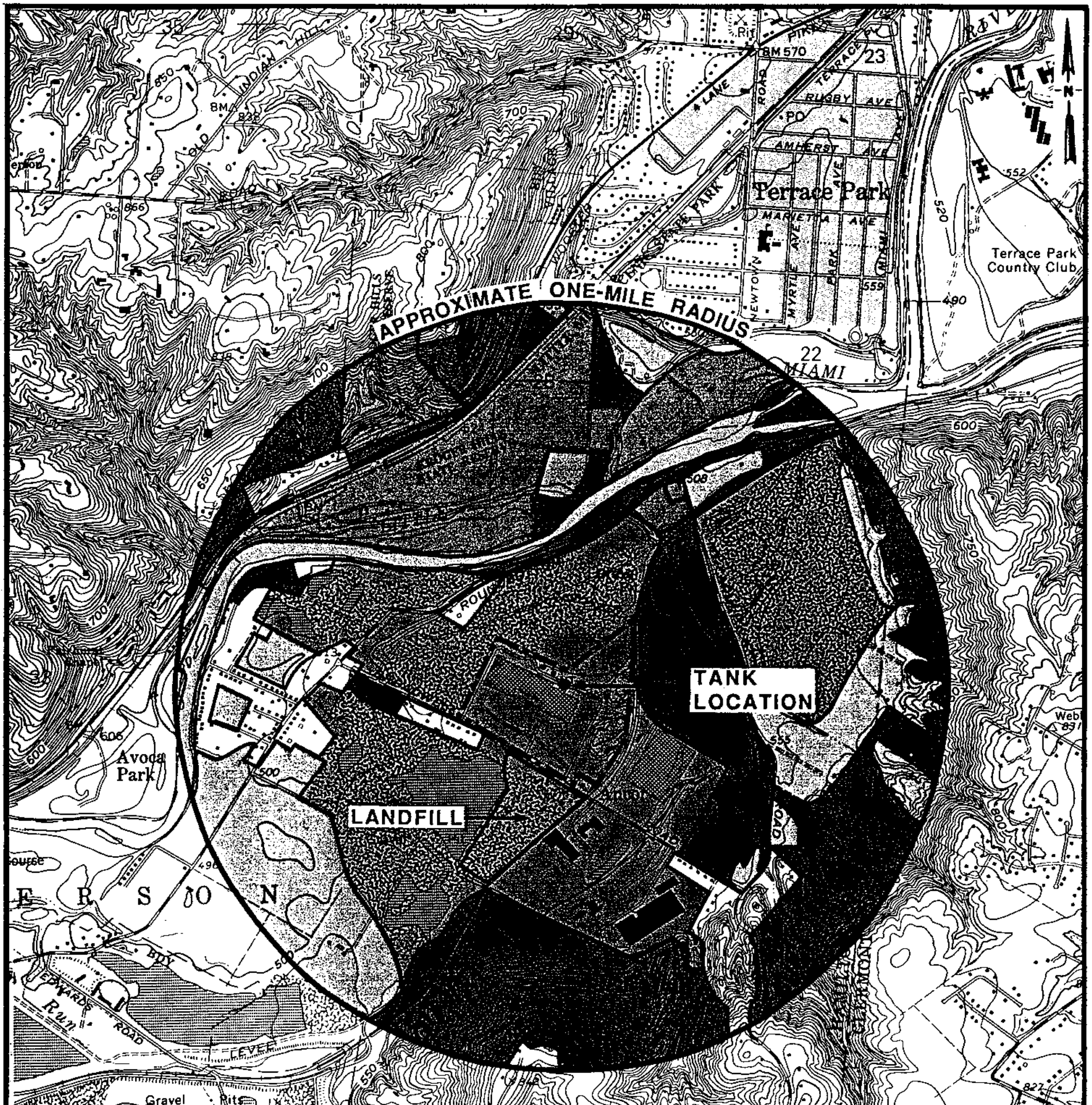
Quadrangle Location

Heekin Can, Inc.

Cincinnati, Ohio

FIGURE 4
REPORTED WATER WELLS

Dames & Moore JOB NO. 16190-003-17



LEGEND:

- PROPERTY BOUNDARY
- WOODED/BRUSH
- AGRICULTURAL
- INDUSTRIAL/COMMERCIAL
- RIVER
- RECREATIONAL/PARK
- RESIDENTIAL

BASE MAP SOURCE: USGS 7 1/2 minute topographic quadrangle map, Madeira, Ohio, 1961, photorevised 1988.

Quadrangle Location

0 2000 4000

SCALE IN FEET

Heekin Can, Inc.

Cincinnati, Ohio

FIGURE 5
LAND USE

Dames & Moore JOB NO. 16190-003-17

WORKING COPY

cc
L.R. JACKSON
D. REUSCH
D. SITLER
G. HOWELL
TLW

The H.C. Nutting Company

Geotechnical & Testing Engineers

REPORT OF
PRELIMINARY INVESTIGATION
UNDERGROUND STORAGE TANK COMPLEX
NORTH OF PLANT NO. 9

FOR

HEEKIN CAN COMPANY
NEWTOWN, OHIO

1988

INVESTIGATION BY
GEO-ENVIRONMENTAL GROUP
THE H. C. NUTTING COMPANY
CINCINNATI, OHIO

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A preliminary investigation was conducted at the Heekin Can underground storage tank facility located north of Plant 9 at 5200 Broadwell Road in Newtown, Ohio. The purpose of the investigation was to evaluate possible contamination of the soil by the solvents stored in the referenced underground storage tanks. The investigation was conducted in two phases, a surface geophysical survey, and a Soil Vapor Contamination Assessment.

Surface geophysical methods were used to locate the underground storage tanks and associated filler and vent pipes. This survey was performed using a White's TM600S metal detector, and a Schonstedt Mac 51-B magnetic and cable locator. Using the data generated by these methods, the corrected locations of the underground storage tanks were plotted on the site plan (Drawing No. L-690-007) provided by Mr. Robert Chambers of Heekin Can.

The Soil Vapor Contamination Assessment was performed to sample and analyze vapors extracted from the soil surrounding the underground storage tanks. A Photovac 10S50 gas chromatograph was calibrated from liquid solvents provided by Heekin Can. Vapor standards were prepared from HiSol 15, Butyl Cellosolve and Cellosolve Acetate.

Four locations around tank #1 were probed to depths of 3 and 5.5-feet. Samples of the vapor at each of these depths were collected and analyzed in the gas chromatograph for the referenced solvents. Contamination of the gas chromatograph by Naphthalene, a component of HiSol 15, kept recurring. The time required to purge the gas chromatograph of this contamination between tests was on the order of 90 minutes. Due to these lengthy purge times, it was agreed by Mr. Chambers and Mr. David Reusch to terminate this phase of the investigation after the analysis of 4 probe locations.

Based on the analysis of vapors from the four sampling locations, soil contamination by HiSol 15 and Butyl Cellosolve appears to exist. It is recommended soil samples be obtained from at least three borings by standard split spoon sampling methods. These samples will then be sent to our contract laboratory for solvent analysis.

Purpose

Pursuant to the request of Mr. Robert A. Chambers, Senior, Project Engineer for Heekin Can, an investigation was conducted by the Geo-Environmental Group of The H. C. Nutting Company (HCN). The purpose of the investigation was to evaluate possible contamination of the soil by solvents contained in the underground storage tanks north of Plant 9 at the Heekin Can Company at 8200 Broadwell Road, Newtown, Ohio. The investigation was conducted in two phases. The first phase involved the use of surface geophysical methods to accurately locate the underground storage tanks. The second phase involved extracting soil vapors using vapor sampling equipment, and analyzing these vapors for the suspected contaminants using gas chromatography.

Surface Geophysical Methods

Accurate locations of the underground storage tanks necessitated the use of surface geophysical methods. Mr. Chambers provided HCN with an existing site plan (Drawing No. L-690-007) showing the reported location of the underground storage tanks. In order to more accurately establish the actual location of these tanks, personnel from the Geo-Environmental Group of HCN used two different pieces of geophysical equipment. The first piece was a White's TM600S metal locator. This was used to locate the outline of the buried underground storage tanks. In addition to the metal detector, a Schonstedt MAC 51-8 magnetic and cable locator was used which transmits a radio frequency signal to a remote receiver. This equipment aided in locating the vent and filler pipes which lead to the underground storage tanks.

Based on the data produced by these geophysical methods, a new site plan was prepared showing the corrected location of the underground storage tanks with reference to the existing building (see Figure 1, Revised UST Locations). In preparing the site plan using corrected locations, it was observed the separation between Tank Nos. 2 and 3 was too small to be detected.

Soil Vapor Contamination Assessment

To properly evaluate soil contamination, the gas chromatograph was calibrated to the suspected contaminants. Representative samples of the four solvents were provided by Mr. Chambers. The solvents were identified as HiSol 15, Cellosolve Acetate, Butyl Cellosolve and VM&P Naphtha, the solvents stored in the underground storage tanks. According to HCN Procedure #CP-101, four vapor standards were prepared from these liquid solvents. Required information concerning physical chemistry parameters of these solvents was provided by Mr. David Reusch of Heekin Can Company, representatives of Ashland Chemical Company and the Materials Safety Data Sheet received from Mr. Chambers.

Each vapor standard was then injected into the Photovac 10S50 gas chromatograph. The resulting chromatograms were then compared in order to identify reference peaks associated with each solvent. VM&P Naphtha produced no useable reference peaks, therefore, no quantitative standard for this solvent was developed. During this phase of calibration, HiSol 15 produced a peak which persisted through several subsequent analyses of blank air samples.

After reference peaks for each solvent were identified and programmed into the gas chromatograph, a composite standard was prepared to verify the ability of the gas chromatograph to resolve each solvent in the presence of the other two solvents. The standard prepared was composed of 100 part per million (ppm) each of Cellusolve Acetate, Butyl Cellusolve and HiSol 15. The gas chromatograph was calibrated based on these values.

Sampling sites were located based on the revised data obtained during the geophysical survey previously described. The soil was probed at four locations indicated on Figure 2, SVCA Sample Locations. The sites were sampled according to the methods presented in Appendix. A.

Analysis of the results of the gas chromatography was complicated due to the peak produced by one of the compounds of HiSol 15. Information supplied by Mr. Reusch indicated HiSol 15 contained Naphthalene at a concentration of 5%. A discussion with Mr. Steve Kane, Applications Engineer for Photovac Inc., revealed the column used in our gas chromatograph produces a retention time for Naphthalene which is 132 times greater than the retention time of benzene. At the temperature at which the gas chromatograph was operating, benzene had a retention time of approximately 43 seconds. This produced a retention time for naphthalene of approximately 90 minutes. While analyzing a blank sample after completion of hole 2, approximately 90 minutes after injecting the sample from hole 1, a peak of HiSol 15 showed up, indicating a concentration of 1200 ppm. This peak persisted through several subsequent analyses of blank samples and it was 90 minutes before the background level was low enough to analyze samples from hole No. 4.

Analysis of vapors from hole 1 at a depth of 3-feet indicated Butyl Cellosolve at a concentration of approximately 400 ppm and no HiSol 15 above background levels. Vapors from hole 2 produced no peaks greater than background at either the 3 or 5.5-foot depths. Analysis of vapors from hole No. 4 produced no peaks above background. Analysis of samples from hole No. 6 performed less than an hour after hole No. 4, produced a HiSol 15 peak. The peak indicated a concentration of approximately 200 ppm. This peak persisted for the next 30 minutes until the machine was shut down terminating the day's activities.

Upon returning to the site the following day, the gas chromatograph was still too contaminated to perform accurate analyses. The SVCA was terminated at this point.

Closing Remarks

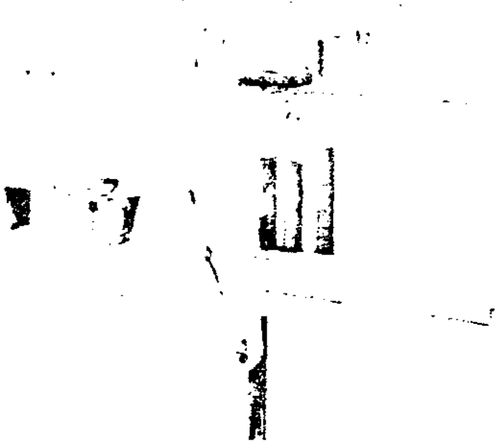
Information obtained by use of surface geophysical methods indicated slightly different locations for the underground storage tanks than was indicated on Heekin Can Drawing No. L-690-007. These corrected locations have been plotted on Figure 1. The separation between tank Nos. 2 and 3 and between tank Nos. 4 and 5 were too small to be detected.

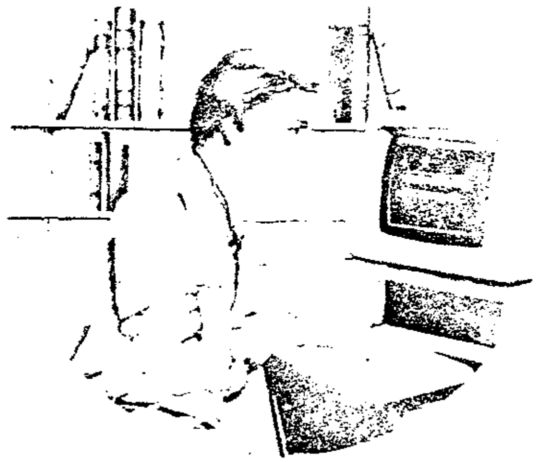
The Soil Vapor Contamination Assessment was conducted at the four locations shown on Figure 2. Based on the investigation conducted, contamination of the soil by HiSol 15 appears to exist. Additionally, analysis of hole 1 appears to indicate contamination from Butyl Cellosolve. Unexpected technical limitations due to the presence of Naphthalene in HiSol 15 rendered this method of evaluation economically unsuitable for continued investigation.

In order to determine the exact nature and degree of contamination, we recommend a minimum of three test borings for sample collection. Samples should be collected by standard split-spoon sampling methods. The samples should be sent to a contract laboratory for solvent analysis.

We have provided a technical proposal to Mr. Chambers detailing a proposed scope of services.

Appendix





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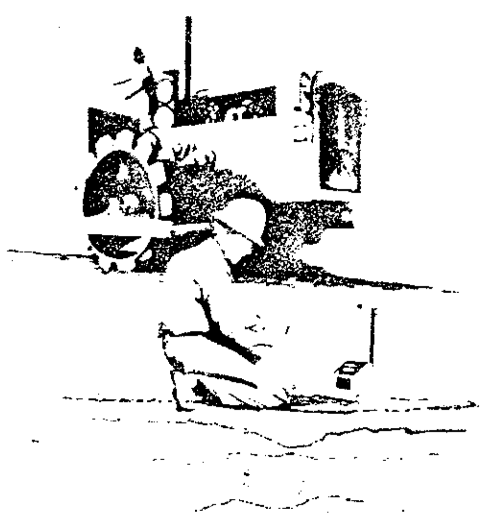
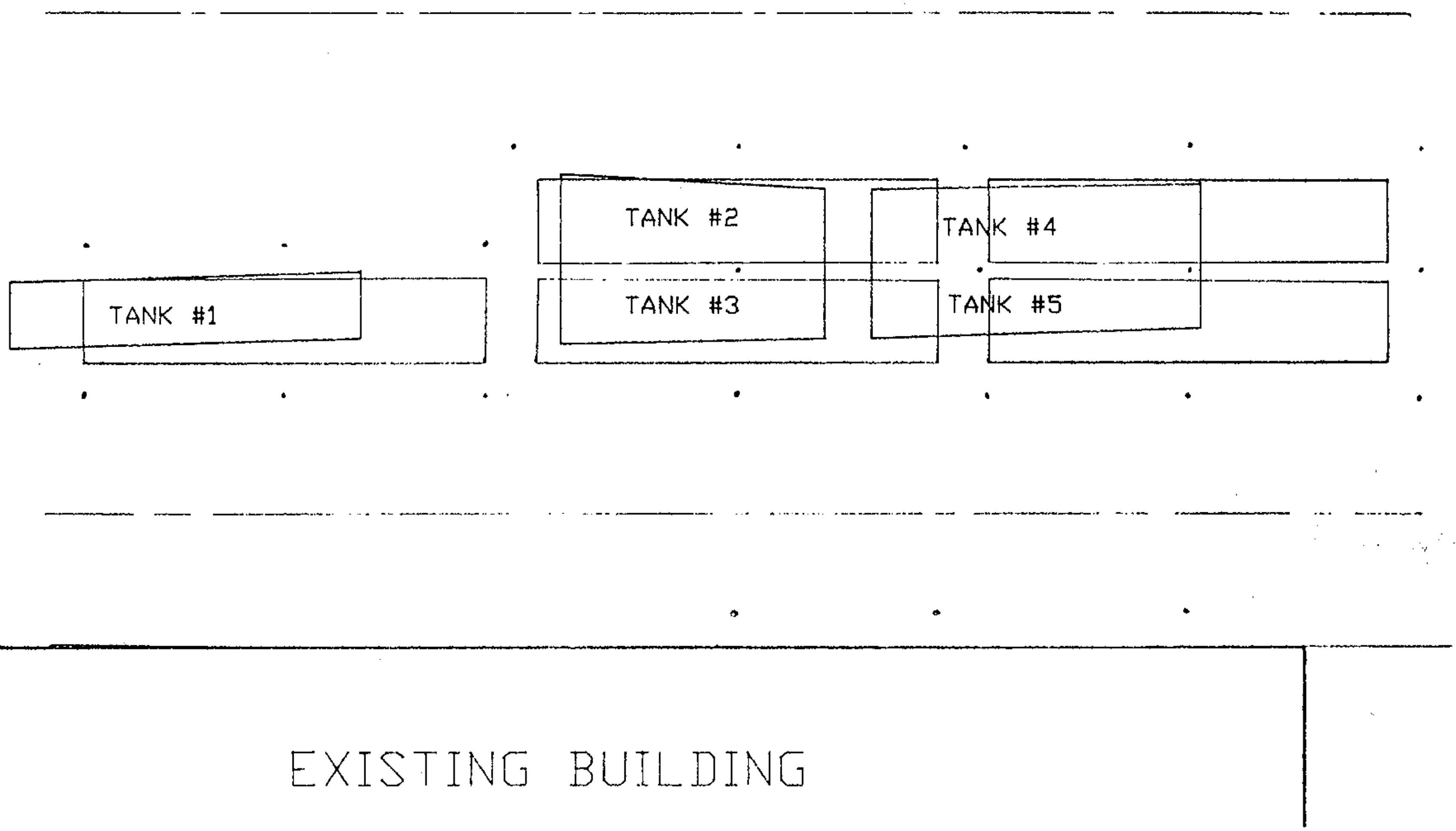
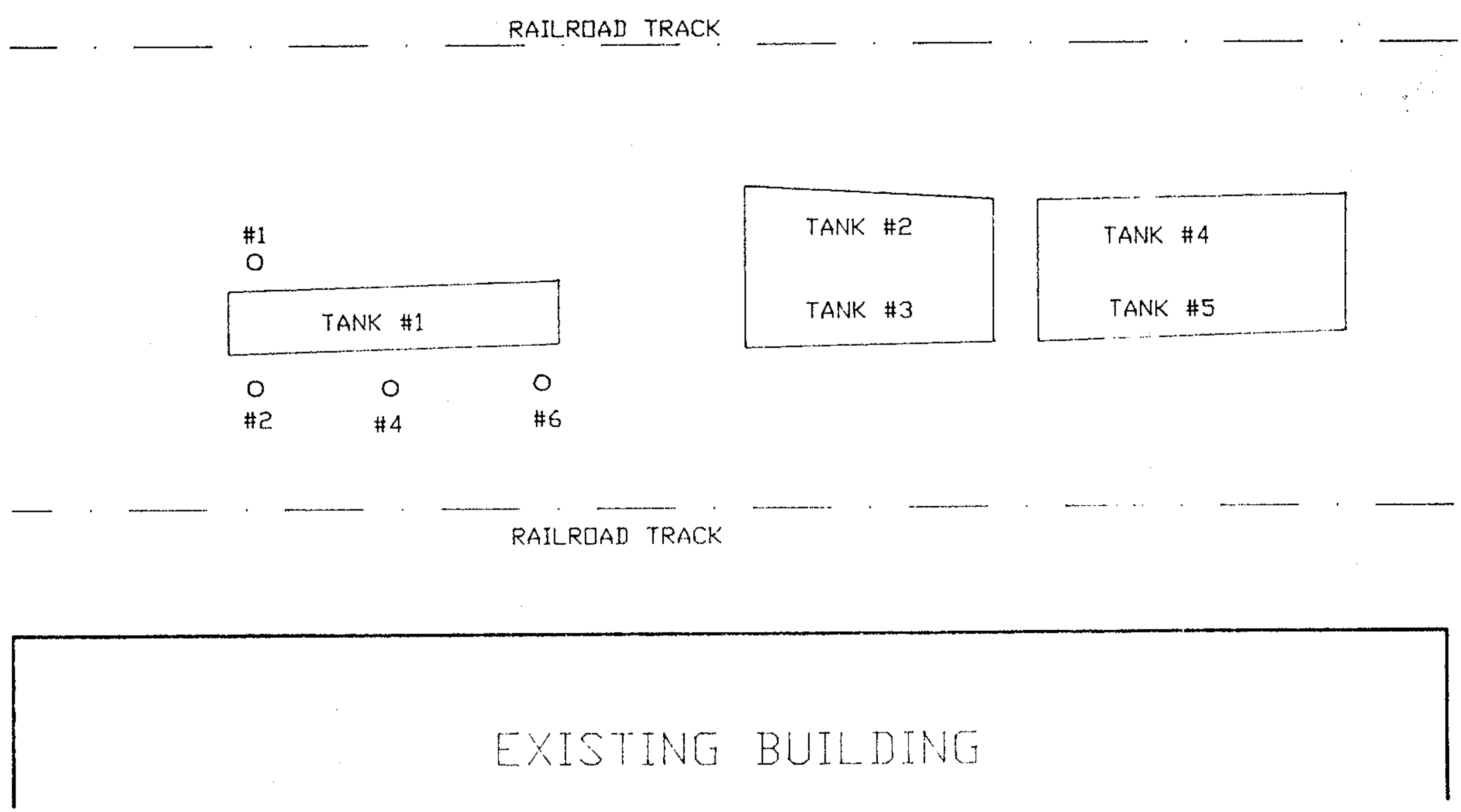




00517.018	THE H.C. NUTTING CO. GEOTECHNICAL, GEO-ENVIRONMENTAL, & TESTING ENGINEERS	REVISED UST LOCATIONS	Fig. 1



00517.018	THE H.C. NUTTING CO. GEOTECHNICAL, GEO-ENVIRONMENTAL, & TESTING ENGINEERS	SVCA SAMPLE LOCATIONS	Fig. 2

THE H.C. NUTTING COMPANY

GEO–ENVIRONMENTAL GROUP

TABLE I

SUMMARY OF HYDROCARBON TESTING

ject Name : Heekin Can, Inc.

Work Order No.: 00517.018

Sample ocation		Field Readings		Laboratory Testing			Notes
le	Depth (ft)	Readings %LEL or ppm	Petrochemical Odor	Sample Head–Space Analysis (ppm)	Gas Chromatograph Hydrocarbon Content (ppm)	Gas Chromatograph Hydrocarbon Type	
L	3				450	B/C	Butyl Cellosolve
2	3				ND		
2	5.5				ND		
4	3				ND		
4	5.5				17	H	HiSol-15
5	3				207	H	
5	5.5				206	H	

APPENDIX A

SOIL VAPOR CONTAMINATION ASSESSMENT

Sampling sites were first located for optimum characterization of the suspected contamination.

The selected sites were first drilled to a depth of 18-inches with a rotary hammer. A stainless steel vapor sampling point attached to a hollow stainless steel rod is inserted into this hole and driven to a depth of 3-feet. A vacuum pump attached to the hollow rod is used to extract vapors from the soil at this depth. A sample of this vapor was collected in a 100 ul syringe and injected into a Photovac 10S50 gas chromatograph.

The sampling point was then driven to a depth of 5.5-feet and the sampling procedure is repeated. The sampling equipment was then removed from the hole and cleaned with a phosphate-free detergent and distilled water, prior to sampling another location.

Analysis of the collected samples was performed on-site using a portable gas chromatograph. The gas chromatograph consists of a column filled with packing material through which the injected soil vapor passes. The soil gas vapor, containing several compounds, was sorted as it passed through the column. Gas molecules of the same size and shape exit the column as a group. Each group of molecules within the soil gas sample exits the column at different times based on their size and shape of molecules in the group.

As a group of gas molecules emerges from the column, they enter a photoionization chamber where the gas molecules are ionized by ultra-violet radiation. These ionized molecules are subjected to a potential, producing a discreet pulse of electrical current relative to the number of ions present. These pulses of electric current are recorded as "peaks" on the chromatogram produced by the chart recorder of the gas chromatograph. A sample of contaminated vapor may produce many peaks when injected into the gas chromatograph. The retention time and the amount of electrical current associated with these peaks are compared to reference standards to identify the vapor components qualitatively and quantitatively.

Reference standards were either prepared from liquid solvents according to HCN Procedure No. CP-101, or were purchased with certificates of analysis, from a chemical company which supplies specialty gases.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:
5HS-13

13 MAR 1987

Phil Schworer
Dinsmore and Shol
2100 Fountain Square Plaza
511 Walnut Street
Cincinnati, Ohio 45202-3172

RE: Closure Plan
Heekin Can, Incorporated
OHD 004253225

Dear Mr. Schworer:

The United States Environmental Protection Agency (U.S. EPA) received a copy of the above-referenced facility's closure plan on June 26, 1986. This plan was previously submitted to the Ohio Environmental Protection Agency (OEPA) on May 14, 1986. The plan concerned the closure of a hazardous waste treatment unit located at the facility.

The OEPA approved the plan conditionally in a letter dated October 22, 1986. The U.S. EPA concurs with the OEPA's review and approval with the conditions stipulated.

If you have any further questions, please contact Ms. Rebecca Strom of my staff, at (312) 886-6194.

Sincerely,

James Mayka, Acting Chief
Technical Programs Section

cc: Dan Fisher, OEPA
Paul Pardi, OEPA-SWDO

OhioEPA

State of Ohio Environmental Protection Agency

.O. Box 1049, 361 E. Broad Street
Columbus, Ohio 43266-1049
614) 466-8565

Richard F. Celeste
Governor

CERTIFIED MAIL

October 22, 1986

Re: CLOSURE PLAN, HEEKIN CAN, INC.
OHD004253225/05-31-0664

Mr. David P. Kamp
Dinsmore and Shohl
2100 Fountain Square Plaza
511 Walnut Street
Cincinnati, Ohio 45202-3172

Mr. Kamp:

On May 14, 1986, the Heekin Can Company submitted to Ohio EPA a closure plan for the hazardous waste treatment unit located at 8200 Broadwell Road, Cincinnati, Ohio. Revisions to the closure plan were received on June 25, 1986, and August 14, 1986. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that Heekin Can's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan of Heekin Can Company in accordance with OAC Rule 3745-66-12. No comments were received by Ohio EPA in this matter.

Based upon review of the company's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at Heekin Can Company meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

The closure plan submitted to Ohio EPA by Heekin Can Company is hereby approved.

Please be advised that approval of this closure plan does not release Heekin Can Company from any responsibilities as required under the Hazardous and Solid Waste Amendments of 1984 regarding corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the unit.

Due to the fact that the Ohio EPA is not currently authorized to conduct the federal hazardous waste program in Ohio, your closure plan also must be reviewed and approved by USEPA. Federal RCRA closure regulations (40 CFR 265.112) require that you submit a closure plan to George Hamper, Chief, Waste Management Division, Technical Programs Section, Ohio Unit, USEPA, Region V, 5HW-13, 230 South Dearborn Street, Chicago, Illinois 60604. Approval by both agencies is necessary prior to commencement of activities required by the approved closure plan.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Shadle Date 10-22-86

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

OCT 22 1986

Mr. Kamp
Page Two
October 22, 1986

You are notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Enforcement Section of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 250 East Town Street, Room 101, Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and a registered professional engineer that the facility has been closed in accordance with the approved closure plan. These certifications should be submitted to: Ohio Environmental Protection Agency, Division of Solid and Hazardous Waste Management, Attn: James Flautt, Program Planning and Management Section, P.O. Box 1049, Columbus, Ohio 43266-1049.

Warren W. Tyler

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL
OCT 22 1986

DF/ara

cc: James Flautt, DSHWM
George Hamper, USEPA, Region V
Rebecca Strom, USEPA, Region V
Paul Pardi, SWDO, Ohio EPA

1370U

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Shaller Date 10-22-86

CLOSURE PLAN
FOR
HEEKIN CAN, INC.
CINCINNATI, OHIO

Submitted to

Ohio Environmental Protection Agency
Southwest District Office
7 E. Fourth Street
Dayton, Ohio 45402

Prepared by

Heekin Can, Inc.
8200 Broadwell Road
Cincinnati, Ohio 45244

May, 1986

Revised
June, 1986
August, 1986
September, 1986

TABLE OF CONTENTS

1.0 INTRODUCTION

Heekin Can manufactures aluminum beverage cans at its "Ancor" facility located near Cincinnati, Ohio. As a part of the manufacturing process, the aluminum cans were exposed to an acidic solution for cleaning and chemical conversion of the aluminum. In this "conversion coating" process the surface of the aluminum converts to a metal/phosphate/aluminum complex. Following acid treatment the cans are rinsed with water.

Prior to January, 1986 Heekin Can used Alodine 401 WB as the principal reagent in the can cleaning/conversion operation. Alodine 401 WB contained 35-45 percent phosphoric acid, 10-15 percent chromic acid, and 1-2 percent hydrofluoric acid. This reagent provided a chromium/phosphate/aluminum complex. As of January, 1986, Heekin Can replaced Alodine 401 WB with Alodine 404. Alodine 404 contained 2-4 percent nitric acid, <1 percent phosphoric acid, 0.5 - 2.5 percent hydrofluoric acid and <0.1 percent fluoboric acid. Alodine 404 did not contain chromic acid. This new conversion process formed a zirconium/phosphate/ aluminum complex. A material safety data sheet (MSDS) for Alodine 404 was submitted to the agency on February 4, 1986. In mid-1986, Heekin Can stopped using Alodine 404. The process no longer imparts a "conversion coating" to the surface of the aluminum cans. The cans are now only cleaned by being washed in Coral ACC2, Clene 30F and Clene 100. These compounds are a mixture of sulfuric acid, hydrofluoric acid, nitric acid, detergent and surfactants.

Wastewater from the can cleaning operation is treated prior to discharge. When Alodine 401 WB was used, the treatment process commenced with the addition of sulfur dioxide. The sulfur dioxide reacted with the hexavalent chromium to form trivalent chromium. Finally, lime was added to neutralize the acidic pH and to precipitate the trivalent chromium. Since chromic acid is no longer used as a reagent, sulfur dioxide will no longer be added to the influent. Lime or liquid caustic will continue to be added only to neutralize the acidic pH. With this change in the treatment process, the facility is an elementary neutralization unit, therefore, satisfying the exemption to the permit requirement set forth in Ohio Administrative Code §3745-50-45(B)(5).

The remainder of this Closure Plan follows the requirements of a closure plan as articulated in the Federal regulations. 40 C.F.R. §264.111 through 264.115 and §264.197 (1985). Section 2.0 presents the closure procedure. Section 3.0 discusses the treatment capacity of the neutralization system. Section 4.0 presents the equipment decontamination procedure. Section 5.0 details the closure plan and schedule. Finally, Section 6.0 contains a map of the Broadwell Road facility.

2.0 Closure Procedure

As discussed in Section 1.0, Heekin Can initially replaced Alodine 401 WB, (which contained chromic acid), with Alodine 404, (which did not contain chromic acid), as the reagent in the aluminum can cleaning/conversion coating process. This reagent change resulted in the closure of Heekin Can's chromium treatment activity. However, Heekin Can will continue to use the waste treatment system to neutralize acidic wastewater.

3.0 Treatment Capacity

The Heekin Can waste treatment system is capable of treating approximately 67,000 gallons per day. As discussed previously, the composition of the acids used in the process have changed thereby changing the composition of the wastewater influent. The waste treatment system will no longer treat chromium containing wastewater. However, the treatment system will continue to be used to neutralize acidic wastewater.

4.0 Decontamination Procedure

As previously discussed the Heekin Can waste treatment system will continue to operate. However, the chemical reaction/precipitation of chromium will no longer take place since the wastewater influent will not contain chromium. Any chromium in the sludge was processed through as a result of continuous operation after the reagent change. The sludge that was generated by the treatment system was a listed hazardous waste, F019 and was handled as such. Following closure, no sludge will be generated since the process will merely neutralize acidic wastewater.

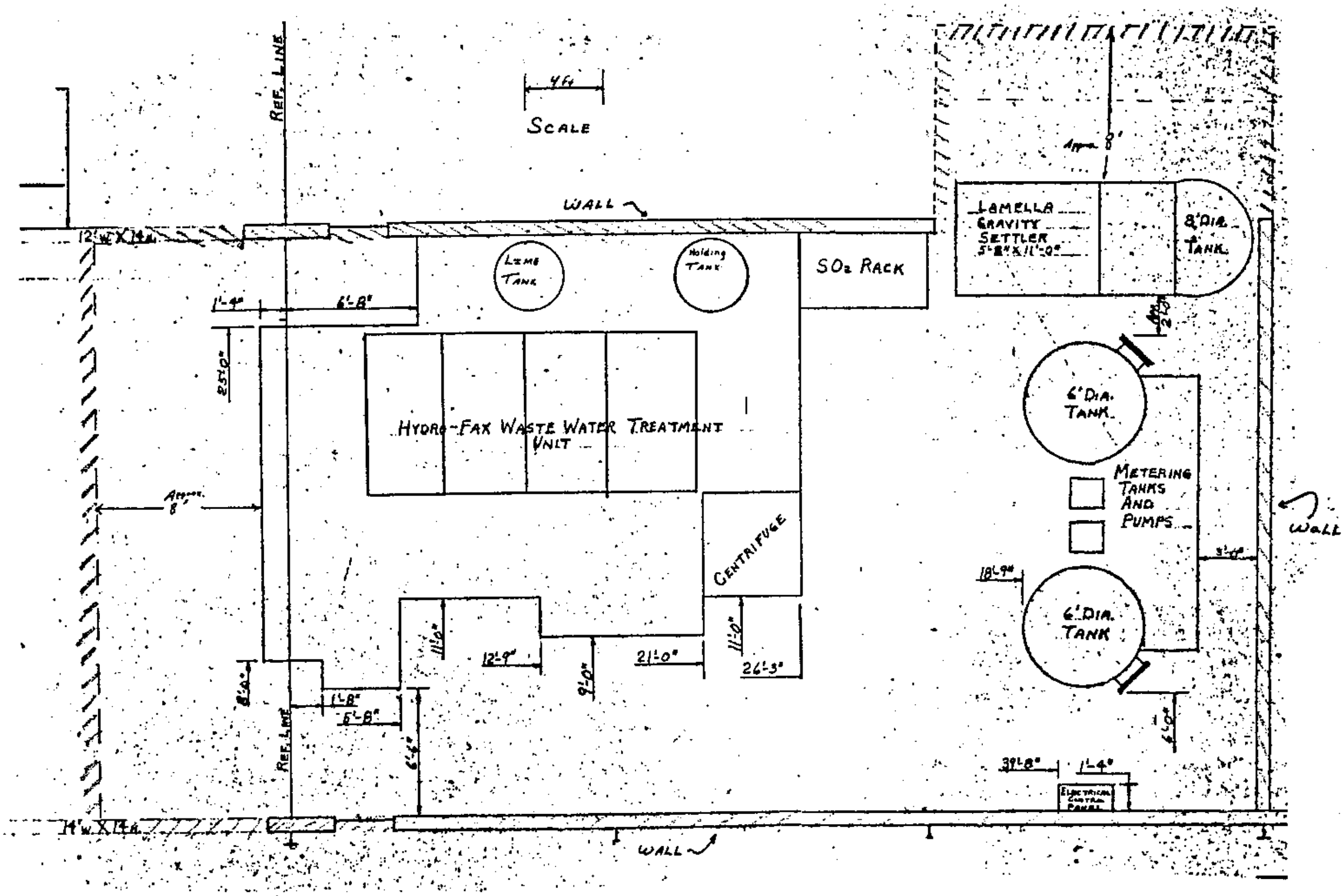
Heekin Can proposes to wash and rinse; the outside surfaces of all tanks, the floor in the immediate area of the tanks and the equipment related to the treatment system. The area to be washed and rinsed will be defined by the walls located in the process area and a distance of approximately eight feet where the process is not bounded by a wall. The following page contains an engineering drawing of the process area. BY*PAS F1500 will be the detergent of choice. An aliquot of the rinsate from the final rinse will be collected and analyzed in accordance with the procedures described in Appendix A.

The wash and rinse process will be repeated if the rinsate aliquot exhibits a chromium concentration above that found in the blank rinsate aliquot. The blank rinsate aliquot will be unused rinse water.

Figure 4-1 Sketch of Waste Water Treatment Unit

and Associated Equipment

(Hash marks delineate boundary of area to be washed and rinsed).



5.0 Closure Plan And Schedule

PLAN

The Alodine 401 WB reagent was totally replaced on January 20, 1986. The system has continued to operate using non-chromium containing reagents.

The total volume of the waste treatment system is 4,244 gallons. At a flow rate of 67,000 gallons per day, there are 12.8 volume exchanges per day.

Two composite samples of wastewater influent and effluent were collected on February 16 and 17, 1986. The sampling and analysis followed procedures described in Appendix A of this plan. Scientific Control Labs has reported the following results.

Total Chromium (mg/l)

Sample date	Influent	Effluent
2/16	<0.1	<0.1
2/17	1.5	<0.1

We believe that the 2/17 influent result is an outlier attributable to contamination of the sample following collection. As previously stated chromium had not been used in the system for approximately one month prior to the sample dates. The influent sample collected on 2/16 did not show a detectable amount of chromium.

Finally, the influent samples show that the wastewater is not EP toxic. The EP toxic level for chromium is 5.0 mg/l. O.A.C. §3745-51-24(B) Table 1, 40 C.F.R. §261.24(b) Table 1.

Heekin Can proposes to collect and analyze two additional sets of samples (2 influent and 2 effluent). The samples will be collected and analyzed in accordance with the procedures described in Appendix A.

SCHEDULE

Heekin Can will proceed with the washdown of the system within two weeks after receipt of final approval by Ohio EPA. The composite samples and rinsate aliquot will then be collected and analyzed. Analytical results will be reported to Ohio EPA within 30 days of sample collection.

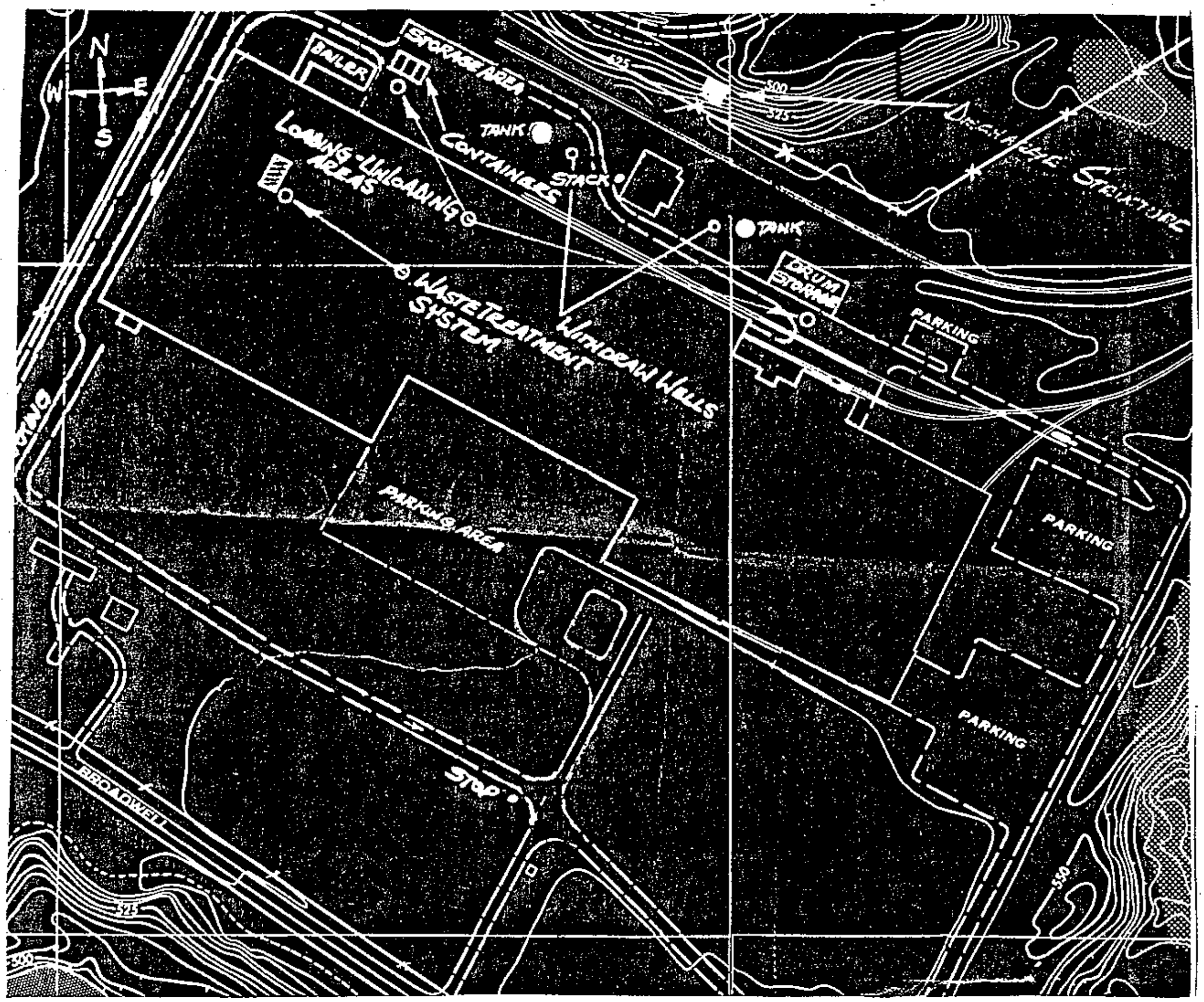
Total cost of the washdown, sample collection and analysis is estimated to be less than $1,000.

CERTIFICATION

Heekin Can and an independent registered professional engineer will certify that the terms of this Closure Plan were followed during the closure process. The certifications will be in the form of letter reports.

6.0 Facility Map

The following is a map of Heekin Can's Broadwell Road facility showing the location of the wastewater treatment unit.



Appendix A

WASTEWATER SAMPLING AND ANALYTICAL PROCEDURE

SAMPLING

For each 24-hour composite sample, a 4-ounce wastewater sample was collected on an hourly basis. A flow totalizer was employed so as to assess the relative flowrate during each hour. For each composite sample, the twenty-four 4-ounce samples were combined such that the volume contribution from each sample to the total composite volume was the same relative percentage as the corresponding hourly flow was to the total 24-hour flow. The following equation illustrates the procedure.

$$\text{Volume contribution to composite from 4th hour sample} = \frac{\text{Flow during 4th hr.}}{\text{Total flow in 24 hr.}} \times \text{Volume of 4th hr. sample (i.e. 4 ounces)}$$

The composite samples were preserved by adding 5 ml of concentrated nitric acid for each liter of sample.

ANALYSIS

An aliquot of each composite sample was analyzed for total chromium by Method 303A from "Standard Methods," 16th Edition.

CONCEPTUAL DESIGN
OF A
LAND TREATMENT SYSTEM
FOR
HEEKIN CAN, INC.

FINAL 7-18-84

July 13, 1984

Project No. 40130P

Environmental Resources Management - North Central, Inc.
835 Sterling Avenue
Palatine, IL 60067

TABLE OF CONTENTS
HEEKIN CAN

LIST OF FIGURES

LIST OF TABLES

SECTION 1

Introduction

1.1 Background

The Heekin Can plant is located in Hamilton County, Ohio, southeast of Cincinnati. The plant manufactures two piece aluminum cans and three piece steel cans. The plant is located on a buried valley, which drains into the Little Miami River. The location of the plant is shown in Figure 1.

At present, Heekin Can has two wastewater sources. One is from the washing of two piece aluminum cans and the other consists of sanitary sewage. Pretreated effluents from these sources currently flow to the sand and gravel pit north of Heekin's property where they are released into percolation ponds.

In September, 1983, Environmental Resources Management-North Central, Inc., (ERM) was retained by Heekin Can to evaluate alternative locations for land treatment of the process and sanitary streams. Preliminary findings by ERM were that many portions of the 77 acre Heekin Can property appeared suitable for land treatment by spray irrigation. A meeting was held at the OEPA Southwestern District Office in October, 1983, to present alternatives and preliminary recommendations. Tom Winston of OEPA responded on January 3, 1984, noting six areas of concern with respect to land treatment at Heekin Can. These concerns were addressed by ERM in a presentation made to OEPA on April 25, 1984. Winston, in a letter dated April 27, 1984, indicated concurrence with the concepts presented at that meeting and explained the principal concerns which would be raised in the agency's review of a land treatment system design:

> "Foremost is our admittedly conservative approach to groundwater pollution. Due to the variables and time spans involved in groundwater quality, we must view the assimilative capacity of groundwater as essentially zero. As a result we would expect all treatment to occur prior to contact with the groundwater. Similarly, we must also consider the treatment capability of the sand and gravel deposits to also be zero. A proposal that operates within these two considerations will probably address most of our concerns."

As a result of this concurrence, Heekin Can initiated this project to design a land treatment system for the two piece aluminum can and sanitary effluents.

1.2 Objectives

The specific objectives of this project were:

- Characterize, through field investigation: soils, geology and hydrogeology of several portions of the Heekin Can property.
- Determine the suitability of the site to effectively treat the 45 gpm of pretreated two piece can effluent and the 21 gpm of pretreated sanitary waste.
- If the site is suitable for land treatment, develop a conceptual design for the type of system best suited to physical limitations of the site, project objectives and discharges limitations.
- Project potential impacts of the recommended land treatment system on groundwater.
- Prepare and present a conceptual design report to Heekin Can and OEPA before proceeding to detailed design.

1.3 Project Approach

The following methodology was used to evaluate the Heekin Can property for its suitability for land treatment. First, available property maps, USGS topographical maps, SCS soils maps and other geological reports were collected and reviewed. During the week of May 7, 1984, Glenn Taylor and Frank Blaha of ERM conducted an on-site investigation. Twenty-one hand auger borings were dug to a maximum depth of four feet in order to physically characterize the soils on the site. A total of fourteen soil samples were taken from nine locations. Eight of the samples were used for chemical analysis, and the remaining six were composited into three samples for analysis of physical properties. Ten test pits were dug by backhoe for inspection of the soil horizons and for collection of soil samples.

Using the information developed from reference materials, field investigations, and laboratory testing, a conceptual land treatment system design was prepared. This design includes the selection of the appropriate hydraulic loading rate, the amount of land required, and the recommended type of application and monitoring systems. Construction and operating cost estimates were prepared, and the anticipated impact of the recommended system on groundwater was projected.

SECTION 2

Site Evaluation

2.1 Site Location

The areas investigated for land treatment are on the Heekin Can plant site, which consists of approximately 77 acres. The Heekin Can property is bounded by Broadwell Road, the Norfolk and Western Railroad, and property owned by the Dravo Company. The location of the Heekin Can property is shown in Figure 1.

2.2 Vegetation and Land Use

The site has been occupied since 1959 by Heekin Can. The principal structure on the site is the manufacturing facility. Several small buildings for storage are located adjacent to the manufacturing building. The manufacturing building and the associated parking lots occupy approximately 40% of the total site area.

Most of the site is covered by various types of grasses which are healthy and growing well. The northern and northeastern portions of the site are moderately forested with secondary growth.

2.3 Topography and Drainage

The site is located on the alluvial plain of the Little Miami River, the slopes are mild to flat, with the exception of several borrow pits that have been excavated down to an elavation of 510 feet. Otherwise, the maximum and minimum relief is 560 feet and 550 feet, respectively. With the exception of the borrow pits there are no signs of recent disruption of the soil on the site. Surface drainage is generally to the north or northwest across the site.

2.4 Climate

The Cincinnati area is generally temperate. The average temperature ranges from 36° in January to a high of 79° in July. Freezing temperatures occur an average of 98 days per year with the majority of those days in December, January, and February. The average annual precipitation is 40 inches per year and precipitation is fairly evenly divided over the year. The climatological information is summarized in Table 1.

Potential or expected evapotranspiration*, which is the water loss that would occur at the site if it was fully vegetated and had adequate soil moisture at all times (conditions that generally occur on land treatment sites), was determined for the study site through use of Class A Pan Evaporation data. Approximately 76% of the total evapotranspiration for the area is expected to occur between May and October.

2.5 Soils

2.5.1 General

In order to evaluate a potential site for land treatment, the agronomic and engineering characteristics relevant to the physical, chemical, and biological nature of the soils on the site must be determined. As discussed in the Project Approach section (Section 1.3), several literature sources were reviewed to characterize on-site soils. Field testing included twenty-one shallow hand auger borings (about four feet deep) to physically characterize and describe the soil profiles. In addition, ten test pits were dug by backhoe to a depth of up to 12 feet for further inspection and sampling of the soil horizons. A total of 14 samples were taken at 9 locations for chemical and physical analysis. Each of the data sources are discussed in more detail below.

2.5.2 SCS Data

Soils in the study area have been mapped by the USDA Soil Conservation Service (SCS) and are shown on Figure 2. The SCS mapping reveals that only Eldean-Urban land complex soil is present at the land treatment sites. Provided below is a summary of this soil type, taken from the SCS Soil Survey.

The Eldean-Urban land complex soil is a member of the Eldean soil series and consists of intricately mixed areas of Eldean soil and areas of Urban land. These soils are deep, nearly level, and well drained. Typically the surface layer is brown and about 7 inches thick. The subsoil is about 29 inches thick and varies from yellowish brown to yellow. The substratum is a yellowish brown, loose, gravelly loam sand to a depth of about 60 inches. The permeability of these soils varies between .2 and 6 inches per hour. Water capacity is low to moderate and runoff is slow.

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* Evapotranspiration is a combination of evaporation from open bodies of water, eevaporation from soil surfaces, and transpiration from the soil by plants.

Root zone penetration is moderately deep. The Eldean soil series is suited to grasses, flowers, vegetables, trees, and shrubs. The soil tends to be dry during the summer months. The soil types are described, by horizon, in Table 2.

2.5.3 Field Investigations

During the week of May 7, ten backhoe test pits were excavated at various locations to describe the profile up to depths of 12 feet. The backhoe test pit locations are shown on Figure 3. Field descriptions based on visual observations were made of the texture, structure, consistency, moisture, and color for each soil horizon. Logs of each backhoe test pit are shown in Appendix A. All of the test pits show three soil horizons. The surface or the A horizon is generally .25 to 1.0 deep. The texture ranges from loam to sandy loam and sandy silt. The surface soil was generally dark brown in color with a fine granular structure and abundant root penetration.

The subsoil or B horizon is beneath the surface soil and generally extends from two to four feet below the ground surface. This horizon is generally present in two units of approximately equal thickness. The upper unit is generally a medium brown sandy silt with a well defined structure with abundant root penetration. The lower unit is generally yellowish brown to dark gray consisting of sandy silt with a less well defined structure.

The C horizon below the root zone was gray to yellowish brown and generally consisted of coarse sand and in some cases sand and gravel. Based on boring logs from wells in the vicinity, it appears the C horizon extends to and beyond the water table.

2.5.4 Hand Auger Borings

Some of the 14 samples taken at 9 locations were from hand augers, manually operated diggers that take disturbed samples approximately six inches long by three inches in diameter. These samples were taken one after another until the sample hole was approximately four feet deep. The purpose of the hand auger borings were to describe the characteristics of the soil. While not as accurate as the backhoe excavation, since the entire profile cannot be viewed at once, and depths have to be estimated to some degree, hand augering does provide, nevertheless, valuable information on the suitability of soils for land treatment. The profiles for the hand auger borings are presented in Appendix A along with the test pit logs. Figure 3 also shows the approximate location of each boring and pit.

In summary, the hand auger borings and backhoe test pits confirm the SCS classifications of the soil series. The locations of the sample points for physical and chemical analysis are shown in Figure 3.

2.5.5 Test Results

Results of the soil physical analyses are presented in Table 3. Six of the samples were composited into three for determination of moisture content, permeability, and porosity. The physical test data are provided in Appendix B. Two samples from hand auger borings No. 1 and No. 2 represent the permeability of the subsoil or the B horizon. The third sample from test pits No. 2 and No. 6 represents the permeability of the deeper portion of the B horizon. The excellent permeability values confirm the field observations of no surface ponding following a heavy rainfall.

Results of the soil chemical analyses are summarized in Table 4. The testing report from Agro-Services, International, is provided in Appendix C. In all, eight samples were analyzed. In general the cation exchange capacities are in the good to very good range which indicates that metal immobilization by soil adsorption should be very good. (The values provided are active cation exchange capacity with the portion already utilized in the soils subtracted.) The pH is near neutral over most of the site, and is generally at the level needed for metal immobilization. This information was used in the study to calculate the absorption capacity of the site for various waste constituents.

2.6 Geology

The geology and hydrogeology of the site was described in an April, 1983, report by Burgess and Niple, Limited. Their report is attached as Appendix D and is summarized below.

The buried valley, over which Heekin Can's plant is located, is a remnant of an earlier drainage system and is covered by more recent alluvial deposits of the Little Miami River. The average thickness of the unconsolidated glacial materials is approximately 100 feet or down to approximately elevation 440. In the vicinity of Heekin Can the glacial material consists of approximately 70 feet of sand and gravel underlain by approximately 30 feet of clay. Underlying the unconsolidated deposits is the bedrock unit, typically the Kope formation of Ordovician age. The consolidated bedrock has very little effect on the hydrology of the area.

A geologic site map and cross sections are shown in Figure 4, based on information from boring logs for wells located in the vicinity of Heekin Can.

2.7 Groundwater Conditions

The saturated sand and gravel in the buried valley is generally a productive aquifer with a yield of between two and five mgd per mile. Wells in the area are typically able to develop between 200 and 500 gpm. The general direction of groundwater flow is toward the Little Miami River which receives flow from the groundwater during low flow periods. As shown in Figure 4, the groundwater level has been measured between elevations 480 and 490 feet. The ground water flux immediately below the proposed treatment site, based on aquifer thickness and flow rates given in Appendix D, is 30 gal/ft^2/day. This results in a total of 1,196,700 gallons of groundwater flowing beneath the proposed treatment site daily. Additional information on the number and location of wells in the vicinity of the plant are provided in the Burgess and Niple report in (Appendix D).

2.8 Groundwater Quality

The Burgess and Niple report includes groundwater quality data from wells in the Little Miami River valley aquifer system. Table 5 summarizes information on groundwater quality which, in light of the State's concerns, serves as a benchmark for measuring the impact of the proposed land treatment system. Water quality analyses have been obtained from wells surrounding Heekin Can property. These results are also summarized in Table 5 and indicate that there is no adverse impact, at the present time, on groundwater quality due to the existing Heekin Can application in the gravel pits. They do, however, indicate a potential impact on well 11 from the upgradient landfill (See Appendix D).

SECTION 3

Wastewater Characterization

3.1 Wastewater Sources

The wastewaters to be land applied are from two sources: process and sanitary. The process waste is principally from the can washers on the D & I two-piece aluminum lines. Both the process waste and the sanitary waste will continue to be pretreated prior to land application.

Figure 5 shows the process schematic diagrams for each of the pretreatment units. As the Figure shows, average flow rate for the process flow is 46.5 gpm and for the sanitary waste, it is 21 gpm.

3.2 Waste Characteristics

Table 6 shows the wastewater characterization data for the pretreated process wastewater and the expected quality of the raw and pretreated sanitary wastewater. The process wastewater characteristics are based on composited samples taken by Heekin Can in 1983 (3), USEPA in 1984 (1), and Heekin Can in 1981 (1) for a total of five samples. Table 6 also shows the characteristics of the combined wastewater to be land applied. The combined wastewater characteristics are used herein as the basis for determination of the required land area. From Table 6 it can be seen that the significant waste characteristics are hydraulic (flow), organics (BOD, COD), phosphorus, oil and grease, aluminum, fluoride, calcium, magnesium, sodium, and sulfate. Each of these constituents are analyzed in Section 4 to determine the required land area for land treatment of the combined wastewater.

3.3 Treatability

The nature of the process and sanitary wastewaters are such that the combined wastewater is completely amenable to biological treatment processes. Most (81 of 88) can manufacturing facilities in the U.S. discharge to POTW's. In the Development Document for the Can Manufacturing Subcategory of the Coil Coating Category, USEPA recognized the compatible nature of the wastewater following suitable pretreatment (EPA, 1984). Therefore, as the combined wastewater is completely amenable to biological treatment, it will also be amenable to treatment by land application.

In the land treatment system, the applied water is renovated by combination of physical, chemical and biological treatment processes. The organics are removed principally through aerobic biological decomposition by the soil microorganisms. Suspended matter is removed by precipitation and filtration. The organic solids then undergo biological oxidation while the fixed solids become part of the soil complex. Metals are removed in the soil by precipitation, adsorption, and fixation. Phosphorus is removed by adsorption and plant uptake. Nitrogen, if present, is removed by both nitrification, denitrification, as well as by plant uptake.

The combined wastewater is, in almost all respects, of similar or better quality than primary treated sanitary wastewater, which is widely considered to be ideal for land application. The organic content is moderately high, and care must be taken not to overload the assimilative capacity of the microorganisms for effective biological degradation. In addition, other parameters of the waste must be carefully considered to determine the waste consitutent requiring the largest land area for treatment.

If the land treatment system is properly designed and operated, none of the combined wastewater characteristics will interfere with its ability to provide effective treatment. These characteristics and the land area requirement calculations are discussed in detail in Section 4 of this report.

SECTION 4

RECOMMENDED SITE UTILIZATION

4.1 Site Suitability

4.1.1 Buffer Zones

The objectives of buffer zones around land treatment sites are to control public access, to protect public health, and to improve the beauty of the site. There are not universally accepted criteria for determining the size of buffer zones around lane treatment sites. The buffer zones at operating sites range from zero for remote sites to 200 feet or more for systems near populated areas. The EPA Process Design Manual for Land Treatment of Municipal Wastewater recommends that a 50 foot (15 meter) buffer zone be managed as a multi-storied forest canopy in order to meet all buffer zone objectives. The multi-stored effect is achieved by maintaining mature trees on the inside edge of the buffer zone next to the application area and filling in beneath the canopy and out to the outside edge of the buffer zone with trees that grow to a moderate height and have a full, dense canopy.

It is recommended that the proposed land treatment area, in the rear of the manufacturing plant, have a 50 foot buffer zone on all sides. The other suitable areas for land treatment, should they be used, will also have a 50 foot buffer zone, except for the areas immediately in front of the manufacturing plant which will have a 100 foot buffer zone. The buffer zones will be forested, with good under story development. The buffer zone vegetation should be planted as early as possible in the construction phase so that the buffer zone will be established and growing when land treatment operations are started. These buffer zones should provide an adequate visual and wind screen around all of the land treatment areas. It should be noted that Heekin Can has a chain link fence completely enclosing the manufacturing plant and all possible land treatment areas.

4.1.2 Suitable Slopes

The EPA Process Design Manual for Land Treatment of Wastewater recommends that up to 20% slopes can be spray irrigated as long as the soil has been completely covered with vegetation before waste application. All areas at the Heekin Can land treatment site are not removed from consideration due to soil requirement for buffer zone requirements are within the 20% maximum slope. Therefore, slope restrictions do not apply to the proposed site.

4.1.3 Irrigable Land Area Summary

The proposed site and other areas with suitable soils, slopes, and depth to groundwater appropriate for operation of the land treatment system are summarized in Figure 6. The total irrigable area comprises 11.0 acres.

4.2 Land Treatment Processes

There are three principle land treatment processes. These are slow rate, rapid infiltration, and overland flow. Each of these processes is suited to specific site conditions and project objectives.

Slow rate, as the name implies, consists of the application of wastewater at low hydraulic rates to the site. The application rates are designed to be equal to or less than the combined infiltration and evapotranspiration rates of the treatment site. Slow rate systems are zero discharge systems with nos surface runoff. The systems are applicable to a relatively wide range of soil conditions and crops. They are, however, potentially more susceptible to the influences of rainfall and cold weather than the other two common land treatment processes.

The rapid infiltration is most suitable for moderately high to highly permeable soils. Wastewater is applied to the site at high application rates and allowed to percolate through the soil profile. Depending on the subsurface conditions, the percolate will eventually mix with ground water or move vertically down through the profile until reaching a restrictive barrier, such as clay or bedrock, at which point it may move laterally and eventually surface in a receiving stream. With the greater hydraulic loading rates, the suitable types of vegetation are more limited than in slow rates systems. Vegetation plays a very limited role in rapid infiltration systems.

The overland flow process, like rapid infiltration, is very site specific. Whereas rapid infiltration is applicable to very permeable soils, overland flow is developed for relatively impermeable soils, such as clays and silts. To use these soils effectively, the site is regraded into a network of terraces to which wastewater is applied over the top portion of each terrace and allowed to flow in a thin sheet down the surface. Since the soil permeability is quite low, there is only limited infiltration of the wastewater into the soil profile. A significant portion of the applied wastewater ultimately reaches a collection channel and leaves the site in the form of a point source surface discharge.

Regardless of the land treatment process used, the wastewater is subjected to the same treatment mechanisms. To be effective, however, the treatment process selected must be suitable for the natural conditions of the available land treatment site. It is rarely cost effective to attempt to change the site conditions to match the treatment process. Rather, the treatment process should be chosen to match the site conditions.

The soils on the site range from clayey silts to sandy silt with moderate permeabilities. This places the site into neither the rapid filtration nor the overland flow category. The soils and the site are, however, well suited for use in a slow rate irrigation system. Nothing in either the soils, geology, or groundwater characteristics were found which would prevent the site from being successfully used for a slow rate irrigation system. In addition, a slow rate system will not have a point discharge. Therefore, the slow rate spray irrigation process is felt to be the land treatment process best suited for the site.

4.3 Loading Rate Determination

The following outlines the procedures to establish the wastewater loading rates for the slow rate system. First, a hydrologic water balance is calculated for the site, using the measured soil infiltration and percolation rates, the historic precipitation rates, and the estimated monthly evapotranspiration rates. This establishes the allowable hydraulic loading rate. Second, the loading rates for specific chemical and organic constituents is calculated based on soil characteristics determined during the site evaluation phase of the study. The land requirements for these constituents are then calculated and the largest requirement is the land area needed for the slow rate system.

4.4 Hydrologic Budget

A characterization of soil water movement is necessary in the evaluation of the site's acceptable hydraulic loading rate. This loading rate is best determined by developing a monthly hydrologic budget. During land treatment by slow rate application, all applied wastewater must infiltrate the soil surface; thus the only pathways by which water may leave the site are evapotranspiration into the atmosphere and percolation of water through the soil profile.

The hydrologic budget for a land treatment system over a long period of time is formulated as:

$$P + S_p = E_t + S$$

P = Precipitation

S_p = Wastewater Loading Rate

E_t = Evapotranspiration

S = Deep Soil Percolation

The soil profile characteristics and climatic data were used to calculate the hydraulic loading capacity of the site. The following assumptions were used to calculate the hydrologic budget:

- The Greater Cincinnati Airport, where long term monthly climatic statistical data are available, is sufficiently close to the site and similar in elevation, physiographic setting, and latitude to be typical of conditions at the site.

- The ten year annual return period precipitation amount was used as the precipitation input.

- Class A pan evaporation, reduced by a pan coefficient of 0.7, was used as a good approximation of actual evapotranspiration (Brown, 1983).

- A design percolation rate of 10% of the estimated permeability of the upper soil horizons was used. Experiences over a wide range of conditions have shown that monthly unsaturated percolation rates are typically tent o fifteen percent of the mean saturated hydraulic conductivity for the most limiting horizon, if that horizon is within two feet of the soil surface (Overcash, 1979).

- The system would operate year round with permanent grass or forest vegetation in place.

The hydrologic water balance for a slow rate irrigation system on the site is shown in Table 7. The month demonstrating the lowest allowable hydraulic loading rate is used for design purposes, and the weekly loading rate for that month becomes the design loading rate. As shown in Table 7, the limiting month was March with an allowable loading rate 139.3 inches (124,3000 gallons per acre per day). Based on an average of 4.3 weeks per month, this is equivalent to a weekly loading rate of 32 inches of wastewater per week. At this hydraulic rate, at least 0.8 acres of land treatment area are required.

The calculated loading rate can be considered a conservative estimate of the hydraulic loading capacity of the site. due to the use of once in ten year annual precipitation averages, this site will be able to accept higher loading rates during almost all other time periods. The use of this design will avoid the need to provide raw wastewater storage for most days when precipitation occurs, as the system will be able to operate effectively even during rainfall. (See Section 5.4). Furthermore, this conservative design approach provides significant capacity for accepting variations in wastewater volume and quality.

Calculation of the hydraulic loading rate assumes application of water alone. It also is necessary to estimate the capability of the site to treat the constituents within the wastewater.

4.5 Loading Rate Determination for Treatable Constituents

Since Heekin Can will not irrigate direct food chain crops, the uptake of waste constituents into the crops has been analyzed with respect to vegetation management only.

4.5.1 Organic Loading

Organics, both COD and BOC, are assimilated under aerobic conditions in the soil-vegetation system by the diffusion of oxygen from the atmosphere. The assimilative capacity is determined by the supply of oxygen necessary to meet the waste oxygen demand in the soil plus the oxygen requirements of the vegetation (Overcash and Pal, 1979). The oxygen supply rate for soil is represented by the following equation:

$$M = 2\ (C_a - C_s)\ (D_{sT/3.14})^{1/2}$$

where

$M = O_2$ diffused into the soil, g/m^2.

T = time in which diffusion takes place, days

$C_a = O_2$ in the air, mg/1.

$C_s = O_2$ in the soil atmosphere, mg/1.

D_s = effective soil diffusion coefficient; m^2 day

D_s is calculated as $(0.6\ S\ D_o)$ where
S = air filled soil pore volume at field capacity water tension

$D_o = O_2$ diffusivity, m^2/day

The air filled soil pore volume at field capacity will be no less than 20% of the total soil volume (Hillel, 1971). D_o, based on overall soil porosity, is typically 1.6 m^2/day (Overcash and Pal, 1979).

The number of days per week (t) over which the effective porosity will be maintained is 7 days; C_a is 300 mg/1; and C_s is 140 mg/1. Substituting into the equation:

$$M = 2\ (300-140)\ ((.6 \times .200 \times 1.6 \times 7)/3.14)^{1/2}$$

$$M = (320)\ (.654)$$

$$M = 209.3\ g/m^2/wk = 2{,}093\ kg/ha/wk$$

The total weekly potential oxygen diffusion based on the above measured and assumed values is 2,093 kg O_2/ha/wk. Vegetation such as grasses normally require no more than 1,00 kg O_2/ha/wk. Thus, there is a surplus of 1,093 kg/ha/wk of diffused oxygen in the soil.

The oxygen requirements of a wastewater can be approximated from its COD and nitrogen content (Overcash and Pal, 1979). The oxygen requirement of this wastewater is 968.6 kg-o_2/wk. THerefore, a land area of 2.2 acres is necessary to maintain aerobic soil conditions while land treating the wastewater.

4.5.2 Solids Loading

High loading rates of total solids can result in decreased infiltration and aeration of the soil due to soil pore clogging. The total solids concentration is 1,792 mg/1 (Table 6), of which less than 20mg/1 is suspended solids. The volatile solids will be biologically degraded by soil bacteria. The non-volatile solids will be subject to precipitation and fixation. Solids will not be a problem as long as aerobic conditions are maintained through suitable loadings of organics to the soil as discussed in Section 4.5.1.

4.5.3 Nitrogen

Nitrogen is of interest in slow rate irrigation systems because of the potential discharge of nitrate nitrogen into the ground water beneath the land treatment site. In a slow rate spray irrigation system, the nitrogen contained in the applied water is removed chiefly by crop uptake. A large percentage of the nitrogen not removed by crop uptake is converted, by nitrification, to the nitrate nitrogen form. Nitrate is relatively stable and leaches down through the soil profile.

The concentration of nitrogen in Heekin Can's wastewater is 6.3 mg/l, which will result in a maximum of 845 kilograms of applied nitrogen utilization averages 500 kg/ha yr.; (Overcash and Pal, 1979). Therefore, a land area of 1.7 hectares, or 4.2 acres, is required for complete removal of all nitrogen from the wastewater. Other assimilatory mechanisms, e.g., volatilization, adsorption to soil particles, microbial uptake, and immobilization on soil humus also act to prevent nitrogen migration out of the treatment zone.

4.5.4 Phosphorus

Soils have a substantial capacity for phosphorus assimilation. Phosphorus can be assimilated in a plant-soil system by vegetation uptake and fixation in the soil. Phosphorus is an essential nutrient for microbial metabolism. Insoluble forms of phosphorus are immobilized by the hydroxides of aluminum, hydroxides of iron, and by clay minerals.

Phosphorus is present in the wastewater to be land treated at an average concentration of 4.3 mg/l. (300 kg of P/ha/yr). This concentration of phosphorus will result in loading rates comparable to those used in agricultural soils managed for crops (Brown 1983). Up to 95 kg of P/ha/yr will be taken up into the harvestable portion of plants and removed from the land treatment site (Brown, 1983). The remaining phosphorus in the wastewater will be either adsorbed to soil particles, or immobilized as part of the soil humus. No phosphorus will migrate out of the treatment zone.

4.6 Fate of Conservative Constituents

4.6.1 Chloride

The soil/plant system has only a small uptake capacity for the chloride anion; thus, most of the chloride will percolate to the ground water. The drinking water standard for chloride is 250 mg/l and the concentration in the wastewater is 151 mg/l (Table 6). Assuming no treatment, the concentration of the percolate will be equal to the wastewater concentration. This will cause a probable increase in ground water chloride concentration of 6.7 mg/l at the site boundary (See Section 2.7 for calculation of groundwater flow). From Table 5, the groundwater concentration averages 40 mg/l with a range of 20-90 mg/l. The projected increase, therefore, is well within the normal variation for the groundwater.

4.6.2 Sulfate

The sulfate anion is present in the wastewater at 819 mg/l and will take a number of assimilatory pathways in the land treatment system. These pathways include:

- Precipitation of insoluble salts.
- Uptake into crops.
- Immobilization with soil organic matter.
- Adsorption to soil particles.

A discussion of each of these pathways follows:

- Precipitation

  The major cations with which sulfate forms insoluble salts are barium, calcium, and lead (Overcash and Pal, 1979). Calcium is present in Heekin Can's wastewater at significant concentrations (345 mg/l) and the solubility product of 2.57×10^{-5} will be exceeded (Snoeyink and Jenkins, 1980).

  Therefore, calcium sulfate will precipitate in the treatment zone, reducing sulfate concentrations from 819 mg/l to an expected value of 483 mg/l.

- Crop Uptake

  The crop uptake of sulfur from sulfate will be approximately 36 kg of S/ha/yr., or 108 kg of SO_4/ha/yr., (Overcash and Pal, 1979). This assimilatory pathway will account for 210 of SO_4/yr sulfate per year at Heekin Can's treatment site. This will reduce wastewater sulfate concentration by 1.6 mg/l of sulfate on a yearly basis as the wastewater passes through the treatment zone.

- Immobilization with Soil Organics

  The ratio of carbon to sulfur found in soil organic matter (humus) is approximately 300 (Overcash and Pal, 1979). If the C:S ratio of the wastewater is greater than 300, then sulfur is limiting and all the sulfur present will be found to soil humus. If the C:S ratio is less than 300, then sulfur is present in excess and only a portion of the sulfur will bind to soil humus. The C:S ration of the wastewater, after calcium sulfate precipitation, is approximately 0.96, and therefore only a fraction of the sulfur present will be removed. This mechanism accounts for removal of approximately 1.5 mg/l of sulfate from the wastewater as it passes through the treatment zone.

- Adsorption to Soil Particles

  Sulfate adsorption to soils can be quantified through use of the Freundlich isotherm (Overcash and Pal, 1979). This pathway will account for wastewater sulfate reduction of 27.8 mg/l as it passes through the treatment zone.

The sulfate concentration remaining in the water leaving the treatment zone will be 452.1 mg/l. Assuming all of the sulfate will reach the ground water without further reduction (a conservative assumption), the ground water sulfate concentration would increase by approximately 20.2 mg/l, giving a total average ground water sulfate concentration of 90.2 mg/l at the site boundary. This sulfate concentration is well below the drinking water standard of 250 mg/l, and well within the reported range of 15-200 mg/l for the ground water. It is more likely that the soil below the treatment zone will reduce the sulfate concentration to less than 250 mg/l before ground water contact.

4.6.3 Fluoride

Fluoride present in the wastewater will be immobilized in the treatment zone through precipitation with calcium and uptake into plants. Precipitation of the CaF_2 will take place in the soil if the soil pH is $\geq$ 6.5 (Overcash and Pal, 1979). Fluroide will be taken up into the foliage of plants (Overcash and Pal, 1979), giving plant tissue concentrations of fluoride up to 2,450 ppm without adverse impact (Brown, 1983). Also, concentrations of fluoride in irrigation waters $\leq$ 100 mg/l have been found to be harmless to plants. (Brown, 1983; Overcash and Pal, 1979).

The fluoride concentration in Heekin Can's combined wastewater discharge is approximately 19 mg/l, well below the 100 mg/l maximum recommended for use as a long-term irrigation water concentration. The native soil pH is generally above 6.5 and will slowly increase due to the Ph 7.5-8 wastewater application. Therefore, precipitation of CaF_2 will occur. After precipitation of CaF_2, the concentration of the remaining fluoride (in the wastewater) will be 2.05 mg/l. This will cause a .093 mg/l increase in the ground water fluoride concentration to .393 mg/l. This fluroide concentration is well below the drinking water standards of 1.4-2.4 mg/l and well within the reported ground water range of .18-1 mg/l (Table 5).

4.5.4 Sodium

The importance of sodium is due to its effect on soil structure. The sodium ions, when adsorbed to soil colloids, cause swelling of clayey particles and decreased hydraulic permeabilities. In severe cases of sodium saturation, soils can become virtually impervious to water and air, and vegetation suffers severely. If the applied wastewater is relatively balanced between sodium and the cations of calcium and magnesium, these salt) will prevent sodium from becoming a problem.

The calculation of a sodium adsorption ratio (SAR) is a way to classify irrigation waters with respect to the soil. Water having a low sodium hazard is one with a SAR less than 10. Water with an SAR between 10 and 18 has a moderate sodium hazard. Such water may crease a sodium hazard in fine textured soils with high cation exchange capacities, especially under low leaching conditions. Irrigation water with an SAR of 18 to 26 has a high sodium hazard, while an SAR over 26 constitutes a very high hazard. The SAR is calculated by using the concentrations (in meq/l) of calcium, magnesium, and sodium in the irrigation water in the following equation:

$$SAR = (NA^{+})/[Ca^{++} + Mg^{++})/2]^{.5}$$

From Table 6, the combined wastewater is expected to contain the following:

Calcium (after precipitation of CaF_2 and $CaSO_4$): 169.9 mg/l = 8.5 meq/l

Magnesium: 13.1 mg/l = 1.1 meq/l

Sodium: 53.7 mg/l - 2.3 meq/l

Subsituting into the SAR equation yields,

$$SAR = (2.3)/[8.5 + 1.1)/2]^{.5}$$

$$SAR = 1.05$$

Based on the above calculation, it can be seen that sodium will not be a problem. Nevertheless, since sodium build-up can be a serious problem it will be important to monitor both the applied wastewater and the soils on the land treatment site for sodium levels after the system is in operation. IF in time, an increasing trend is noticed, corrective actions can be taken well before serious problems occur. Operations methods are discussed in Section 5.

4.7 Summary of Land Area Requirements

The generation rates of waste constituents and the site soils determine the areas necessary to treat wastewater. The treatable constituent levels, the associated land areas required, and the resultant waste application rates are shown in Table 8.

Table 8 shows that the nitrogen loading to the soil requires the most land area, 4.2 acres, for land treatment of the wastewater. The resultant application rate over those 4.2 acres would be 0.85 inches of wastewater per day. In order to reduce storage requirements for the wastewater, 4.5 acre area is proposed as the land treatment site. This land area is nearly twice as large as necessary to rate the organic load of the wastewater. Use of a 4.5 acre land treatment site results in an application rate of .80 inches per day over the site.

SECTION 5

SYSTEM MANAGEMENT AND MONITORING

5.1 Preapplication Treatment

The process wastewater, following pretreatment, has a high organic load as measured by BOD and COD. The total solids loading is moderate, but most of that loading is as dissolved solids. The suspended solids are very low in concentration and will not create any problems in the piping and application system. The sanitary waste, following pretreatment in the existing package plant, constitutes a balanced hydraulic and organic load and will be low in dissolved solids, nutrients, and suspended solids. The loading rates in this report were based on the flow weighted combination of pretreated process wastewater and pretreated sanitary sewage.

The combined waste characterization presented in Table 6 represents the average quality of waste that will be land applied. As discussed in this section, appropriate monitoring practices will be instituted to prevent the land application of insufficiently pretreated waste.

5.2 Distribution System

In Section 4, it was shown that the slow rate land treatment process is most appropriate for the combined wastewater. Although there are a variety of methods that can be used to apply the combined waste to the treatment site, such as ridge and furrow and/or border strip irrigation, these application methods are not well suited to moderate to high strength organic wastes. Their major limitation is that as the waste enters an application plot, the organic loading rate is very high at the actual point of entry before the waste is distributed over the field. This can create small, localized overloading conditions and periodic odors.

Therefore, with moderate to high strength wastes, the major objective of the distribution system is to provide a uniform pattern over the entire treatment site. This can best be achieved with the use of a spray irrigation system. A center pivot system represents an economical spray technique. This consists of a single pipe which feeds agricultural sprinklers mounted between moving towers which rotate in concentric circles around the center pivot. This, however, like border strip irrigation, can cause high loading rates at the local application point which can cause short term ponding and periodic odors. Also, the circular application results in poor utilization of the available land.

The system which lends itself best to both the wastewater characteristics and site configuration in this case is a fixed spray irrigation system consisting of underground PVC pipe feeding individual sprinklers spaced on an overlapping grid pattern. The combined wastewater will be supplied by a pumping system capable of generating 50 to 60 psi pressure at the sprinkler heads.

The fixed spray system will have a slightly higher construction cost and will require slightly more energy to operate than other distribution alternatives. The advantages of spray irrigation include:

1. Uniform distribution.

2. Fast, efficient biological degradation of moderate to high strength organic wastes.

3. Maximum utilization of soil profile and area.

4. Ease of monitoring, inspection, and maintenance.

5.3 Vegetation Management

Numerous crops can be considered for use in a slow rate spray irrigation system. In selecting a crop, a decision must be made regarding the primary objective of the system. If treatment of the wastewater is the primary objective, a crop should be selected that will meet that objective with a minimal land requirement. If crop production is the primary objective, the wastewater can be used for crop irrigation purposes. However, many crops have specific moisture requirements and harvest schedules which will interfere with treatment of the wastewater. This will often require additional land area and/or storage.

Since treatment is the primary objective of this system, a cover crop will be selected which is compatible with both the natural conditions of the locale, as well as artificial conditions imposed on a land application site by wastewater application. A grass cover crop generally provides a satisfactory type of vegetation and minimal interference with application scheduling. The grass can be cut and/or harvested by drying individual areas of the site for short periods of time before cutting. Routine plowing of the soil and replanting is not necessary if agricultural row crops are not used.

Section 4 of this report includes a discussion of nutrient uptake and leaching. Due to the amounts of nutrients in the combined wastewater, grass cuttings should be removed from the site. In other words, crop uptake is a significant factor in nutrient (nitrogen) loading determination. Therefore, several options exist: (1) the grass could be cut and the hay hauled off-site for cattle feeding; (2) the grass could be cut and hay removed and stockpiled on the site. The grass will be cut at least four times each year to maintain the cover crop in good growing condition. The hay will be removed at least every other cutting in order to keep a mat from building up on the site.

Forest cover is another recommended vegetation. Forests offer a number of advantages. Requirements for vegetation management are minimal once the trees reach adequate size for crown closure. Until that time, it is necessary to cut the grass between the row of trees at least four times per year. Also, forest sites provide the greatest erosion protection of possible vegetation systems. The layers of newly deposited leaf or needle fall, along with layers of decomposing organic matter, reduce the impact of water droplets on the soil and serve as a favorable environment for bacteria which are useful in wastewater renovation. The opportunity for aerosol control is greater under forest vegetation than agricultural crops. A stand of trees acts as a windbreak and causes wind currents to decrease in velocity and change direction while in the stand. This results in decreased movement of small water droplets from the application area. The forest vegetation also makes irrigation less noticeable since the sprinklers are under the tree crown.

The proposed land treatment site at Heekin Can will contain a mixture of forest vegetation and a grass cover crop. The present trees are suitable in that they are native to the area and are generally spaced appropriately for irrigation. As part of the installation of the land treatment system, the trees will be cleared to a spacing of at least eight feet with a clear space of at least ten feet around each sprinkler. The grass cover currently on the site will be maintained until the trees start to shade it out. The smaller brush currently existing on the site will be grubbed out and any bare areas replanted with the selected grass cover crop.

The soils on the site are neutral in pH with the pH ranging from 4.7 to 7.6 (Table 4). In order to maximize metal adsorption by the soil, the pH should be maintained at 6.0 or higher. For those areas that are slightly below this desirable value, the calcium levels in the combined wastewater will be adequate to maintain the neutral or slightly alkaline pH levels of the soil. As discussed later in this section, the monitoring program will be sufficient to insure that the soil pH is maintained at an appropriate level.

5.4 Storage Requirements

Curtailment of irrigation is necessary during periods of extreme wet weather, when the design precipitation has been equalled or exceeded, when precipitation has resulted in the soil being too wet for irrigation, or when precipitation intensities exceed specified levels during irrigation. Another condition that leads to a need for storage is periodic equipment failure. If irrigation stops, the excess wastewater must be stored for later irrigation. In order to reduce the amount of wastewater storage, two alternatives are available: store the excess wastewater for later irrigation, or apply the stored wastewater to a contingency area. Because of the suitability of the soil on the Heekin Can property, the use of a contingency area for storage reduction is more appropriate for this system.

The amount of storage needed depends upon the precipitation probability, the monthly hydrogeologic budget, and the hydraulic loading. In terms of precipitation, the following conditions may require some degree of storage or application to the contingency area:

1. The rate of wastewater generation is greater than the monthly design loading; the monthly precipitation exceeds the design precipitation; and the sum of precipitation, evapotransporation, and wastewater application exceeds the allowable soil percolation.

2. Antecedent precipitation is high and the residual soil moisture levels are too high for wastewater renovation.

3. The sum of precipitation and wastewater application is too high and the possibility of erosion or inadequate renovation is likely.

Because the wastewater will be applied in rotation to several areas, the site has a reserve hydraulic capacity. It can be seen in Table 7 that March is the month with the smallest reserve hydraulic capacity. Therefore, if precipitation exceeds monthly expected precipitation by this reserve amount, then wastewater storage or contingency application would be required. Based on the reserve capacity available and the probability and return frequency of precipitation events, it is believed that one day of storage (24-hours) is sufficient to account for the worst event that is likely to take place within the anticipated lifetime of the land treatment system. This is shown in Figure 7, which plots excess hydraulic capacity and rainfall frequency/intensity/ duration curves. On the average, 1 day of storage will be required every 15 years due to 16 & 24 hour rainfall events. Shorter duration events do not require storage within the design life.

Another storage need related to precipitation is the likelihood of high precipitation immediately preceding the scheduled irrigation of the wastewater. One of the objectives of land treatment system design is to avoid hydraulic overloading which would allow insufficient time for renovation of the wastewater. In the case of high antecedent precipitation, a delay in irrigation could conceivably occur. However, as the 24-hour rainfall, expected once in 25 years, is only slightly greater than the reserve hydraulic capacity (See Figure 7), it would appear that one day storage will be more than sufficient to account for the worst expected antecedent precipitation condition.

Storage could be needed during periods where the ground is frozen to the extent that precolation is decreased to less than 10% of saturated permeability. The Fluker Equation (Fluker 1958) was used to calculate soil temperature profiles as a function of depth and time.

Table 9 shows the results of this analysis. It can be seen that soil freezing will not occur under average conditions. Even with the worst case in the 34 year record, soil freezing is unlikely to occur due to the heat and salinity present in the wastewater. Therefore, no storage is required for freezing soil conditions.

Excessive precipitation during the actual irrigation period is another situation where storage might be necessary. Again, from Figure 7, one day storage should be more than ample to cover this contingency for short duration rainfall events.

By proper irrigation and harvest scheduling, and manipulation of storage levels, no storage requirements should be necessary for the vegetation harvesting operations. The irrigation system will be divided into two major areas and four subareas. Therefore, any one subarea can be removed from the irrigation rotation for a period of drying and harvesting without affecting the volume of combined wastewater that can be applied.

Another potential storage requirement is system maintenance and equipment breakdown. We have recommended that the system be subdivided into eight operational cells. This minimizes storage requirements and results in only one section of the irrigation system in operation at any time. A supply of spare parts will be maintained by Heekin Can for repairs and maintenance of pumps and sprinklers. A two-day storage for extraordinary repair and maintenance of pretreatment or irrigation equipment has been provided.

Another function of storage is flow equalization for any period of plant operating days when the irrigation system is not in use. Because of the highly predictable and regular nature of the wastewater characteristics, the plant and the irrigation system will be operated on a seven days per week basis. Therefore, no storage is needed for non-irrigating days.

In summary, the storage requirements are as follows:

1. Excess monthly precipitation -- one day's flow.

2. High antecedent precipitation -- one day's flow.

3. Excess precipitation during irrigation -- one day's flow.

4. System maintenance and breakdown -- two days' flow.

Therefore, a total of five days flow storage, or 485,000 gal, has been recommended.

5.5 Monitoring

The performance of the land treatment system will be monitored in several ways. First, a flow meter will be installed on the discharge side of the spray irrigation pumps. A sample valve for sampling the combined wastewater flow will also be provided. This will allow the quantity and quality of the combined wastewater being pumped to the land treatment system to be readily monitored.

The soils on the land treatment site will be monitored annually to detect changes in chemical characteristics. This will be done by collecting two composite samples: one from the top six inches of soil and the other at the depth of about 36 inches. These samples will be analyzed for nutrients, pH, exchangeable cations, and heavy metals. The analysis will allow the operator to circumvent any potential problems and keep the renovation capacity of the soil at its maximum level. Vegetation samples will be taken and analyzed only if the crop is used for animal feed.

The ground water beneath the site will be sampled and analyzed on a regular basis. The frequency in sampling and the parameters recommended to be analyzed are shown in Table 10. As the table shows, we recommend that total dissolved solids, specific conductance, TOC, and pH should be monitored on a quarterly basis.

5.6 Treatment Performance

Based on the combined wastewater characteristics (Table 6), the recommended land treatment system is expected to provide an exceptionally high level of treatment and to have no measurable impact on the ground water beneath the site. For certain parameters, the percolate from the land treatment system may actually be of better quality than the ground water itself.

The land treatment system will have certain other attributes which cannot be matched by conventional treatment systems. It will be capable of treating wide variations in combined wastewater volume and quality for short periods of time with no impact on treatment performance. A highly skilled operator is not needed to operate the system, and the land treatment system will not generate any sludges or residuals.

SECTION 6

CONCEPT DESIGN

6.1 Objectives

The detailed site investigation showed that 11.0 acres of Heekin Can's property are suitable for land treatment operations. However, only 4.5 acres will be used to treat the design flow of 97,000 gallons per day of combined process and sanitary wastewater generated by Heekin Can. The objective of this concept design section is to provide the background and basis for detailed design of the land treatment system.

Specifically, this section provides a description of how the spray irrigation system will operate, and a description of the various components of the system and recommendations for specific sizes and types of equipment to be used.

6.2 Design Basis

The design flow rate is 97,000 gallons per day of combined process waste (67,000 gallons per day) and sanitary waste (30,000 gallons per day). Based on composite sampling of the process wastewater and literature data for the sanitary wastewater, the combined waste will average 385 mg/l COD and 20 mg/l total suspended solids.

The design hydraulic loading rate for the spray irrigation system is 0.8 inches per day. This rate was determined during the detailed site suitability investigation and is discussed in Section 4 of this report. The silty loam subsoil on the proposed land treatment site and the organic reaeration capacity were the major factors in arriving at the design hydraulic loading rate.

6.3 General Description of the Operation

Pretreated process wastewater will flow by gravity from the existing pretreatment facilities at the northwest corner of the manufacturing building to a concrete wet well located in the vicinity of the existing sanitary package plant approximately 1,500 feet away. The sanitary waste will continue to be pumped to the existing package plant and the effluent will flow by gravity to the same wet well as the pretreated process wastewater. In the event (for reasons discussed in Section 3), the waste cannot be land applied, the wet well will be pumped into the five-day storage reservoir. Otherwise, the on-site pumping system will draw water from the wet well and distribute it to a 4.5 acre spray irrigation site via an underground PVC force main which will branch into smaller PVC lateral lines. Sprinkler riser assemblies will extend from the underground lateral lines to no more than four feet above grade and will terminate with impact-type agricultural sprinklers. The sprinklers will be spaced at regular intervals along each lateral line to provide relatively uniform application of combined wastewater onto the site. In the 4.5 acre system, it is estimated there will be eight lateral lines branching off the force main. At the point where each lateral line joins the force main, an automatic valve will be installed on the lateral line, 8 in all. The automatic valves will be four-inch, air-operated, diaphragm valves. Air will be supplied to each valve via 1/4 inch instrument grade control tubing which will originate at the on-site pumping station and will be buried along the route of the force main, eventually connecting into the automatic valves. The valves will be normally open requiring air pressure to close. Air will be supplied by an air compressor equipped with an air dryer located at the pumping station. Alternatively, air will be supplied from the manufacturing building.

Although the spray irrigation system will be capable of accepting flow 24 hours a day, the entire system will not operate at the same time. All of the combined wastewater volume generated by the two pretreatment facilities at any time will be applied to only a portion of the spray irrigation system. This will be accomplished by automatically opening one or more lateral line valves while keeping the others closed. After one set of lateral lines (or a single line) has operated for a predetermined number of hours, a second set of lateral lines (or a single line) will automatically turn on and the first set will be shut off. This sequence will continue until all the lateral lines have eventually been operated and will then repeat.

The control system will be capable of operating any desired grouping of lateral lines for any desired length of time, automatically shutting the group off when the preset time has elapsed and starting a second grouping. If the flow of combined wastewater from the two pretreatment plants decreases to the point where the liquid level control system and the wet well signals the pump to stop during a cycle, the pump will turn off. When pumping resumes, the cycle will resume at the same point it left off and not reset to the original position.

An on-site storage reservoir of approximately half a million gallons capacity will be provided. During rainfall over a specified amount, the spray irrigation system will not be operated and all flow from the two pretreatment plants will be stored in the reservoir. Wastewater flow diagrams and process control schematics are shown on Figure 8. Figure 9 shows a proposed site layout plan for the various components of the system.

6.4 Pumping System

The pumping station for the spray irrigation system can be located at any convenient location on the land application site. Choosing the exact location will be part of the detailed design report. However, the attached layout plan (Figure 9) shows a reasonable location in the vicinity of the sanitary package plant.

During normal operations, all pretreated wastewaters will flow by gravity to a wet well on the land application site. Piping will be provided so that flow can be pumped either to the reservoir or to the land application site. The size of the wet well will be sufficient to hold at least 5,000 gallons between the normal operating limits. Reinforced concrete is the recommended material for the wet well as neither the process or sanitary wastes indicate the need for a chemical resistant lining. The wet well will have a high level overflow to allow excess combined wastewater to flow into the storage reservoir, plus a low level return line from the reservoir back to the wet well for draining and/or allowing the wet well and reservoir to be hydraulically connected, maintaining equal levels in each.

6.5 Storage Reservoir

A storage reservoir will be provided for holding combined wastewater on days when it cannot be applied to the site. The calculations in Section 5 show a storage reservoir of approximately half a million gallons will be required. The reservoir will be located adjacent to the pumping system wet well so that the two may be hydraulically connected. (See Figure 9).

Because the combined wastewaters are low to medium strength (BOD = 385 mg/l), and the duration of storage will be five days or less, aeration of the liquid in the storage reservoir will not be required. In the unlikely event that odors are generated, a diffused aeration system can be readily retrofitted. A reasonable location for the storage reservoir is shown in the attached site layout plan-(Figure

9). This location is recommended because it will cause minimum interference with irrigation areas. However, further on-site borings and soil testing will be required to determine whether on-site soils are satisfactory for the reservoir liner or whether off-site materials or a synthetic liner will be required. Alternatively, a combination of tankage and storage reservoir could be used.

6.6 Pumps

With an average flow rate of 97,000 gallons per day, two pumps each with a capacity equal to the average flow rate or approximately 70 gpm will be required. The second pump will provide standby capacity in the event of a pump failure and reserve capacity at times when combined wastewater flow exceeds the design rate. Each pump will be identical and rated at a nominal 70 gpm. This will also allow operating both pumps to provide application over less than a one day period, when it is desirable, and using the reservoir to collect flow over the other portion of the day.

The spray irrigation system will need a pressure of at least 60 psi at the sprinklers to operate properly. Therefore, the pumping system will be capable of producing sufficient head to overcome the elevation differences and the friction losses in the piping system. Non-clog, vertical enclosed-shaft, centrifugal pumps have been found to be very effective for this type of application. They can be conveniently mounted on top of the wet well for ease of access and maintenance. Although these pumps have several advantages, their selection over horizontal centrifugal pumps located in a dry well or submersible pumps will be determined in the detailed design.

The combined wastewater does not contain sufficient solids to damage or plug the piping distribution system. However, to avoid extraneous materials from blocking or damaging spray irrigation pumps, piping system, or sprinkler nozzles, the stored combined wastewater from the storage reservoir will be screened by manual rack having minimum 2 inch spacing prior to reentering the wet well.

6.7 Flow Measurement and Sampling

The combined flow volume will be monitored continuously by means of an inline magnetic flow meter on the discharge pipeline from the spray irrigation pumps. This is the most critical point for flow measurement since it will measure the daily volume of flow actually applied.

Several alternatives are available for sampling the combined wastewater prior to application. One alternative is to locate a compositing sampler near the wet well so that it can sample either the incoming combined waste or the combined waste in the wet well. The sampling location will be established so that flow is well mixed at the point of sampling. A second alternative is to install a solenoid sampling valve on the discharge pipeline from the spray irrigation pumps. On sampling days, individual samples can be collected at regular intervals and composited. Regardless of the technique, an automatic sampler will be equipped with a refrigerated compartment for sample preservation and storage.

6.8 Piping

The combined waste will be pumped from the irrigation pumps to land treatment via a six inch PVC force main. The lateral lines branching from the force main will also be PVC pipe ranging from six to two and a half inches depending on the length and subsequent pressure loss on the lateral lines. The PVC pipelines will have a 160 psi pressure rating. The lateral lines and sprinklers will be spaced to provide uniform application over the land treatment site. The end of each lateral line will be equipped with a manually operated valve used to periodically flush each line through the end, thereby avoiding solids buildup and subsequent pipeline and/or sprinkler blockage.

This surface application system layout is recommended mainly because it will provide optimum conditions for aerobic biological oxidation of the organics in the combined wastewater.

6.9 Control System

The following components will be needed for the control system:

1) An easily adjustable water level sensing switch for the wet well, such as a float switch with mercoid switches,

2) A programmable controller with suitable accessories, such as a Texas Instrument Model TI-1032-1,

3) A control panel with two banks of four solenoid valves. Each solenoid valve will be connected to the instrument air supply from an air compressor and dryer. The power side of each solenoid valve

will be connected to control tubes (1/4 inch OD, instrument grade polyethylene tubing, pressure rated at 200 psi) which leads to the automatic valves in the spray irrigation system,

4) An air compressor and air dryer to supply air to the automatic control valves in the spray irrigation system. An air compressor capable of providing five cfm at 100 psi gauge pressure will be required. Alternatively, the supply will be drawn from the manufacturing building,

5) A weather tight, shaded and ventilated building or elevated cabinet for housing the controller and control panel.

The spray irrigation system controls will operate in the following manner. When the combined wastewater flow to the wet well is equal to the capacity of a single pump, the following control sequence will occur:

1. When the water rises in the wet well, a switch set to the preset selected level is activated. The activation of this switch is a signal to the controller to initiate start-up sequence.

2. The controller activates a solenoid valve in the lead bank.

3. The solenoid valve will bleed air from the air control valve causing the air control valve to open. As an example, assume each sprinkler head will have a capacity of approximately 10 gpm. With one pump running at about 70 gpm, 7 sprinklers will have to operate to accommodate the flow volume. Therefore, each automatic valve in the field will control 7 sprinklers. Only one automatic valve will have to be open at any one time to satisfy a single pump's output of 70 gpm. If for any reason the second pump is activated, a second automatic valve with its associated 7 sprinklers will open.

4. The controller will activate a timer to provide a short delay prior to activating the pump. This is desirable to avoid having the pump operate against a closed system.

5. Once the timer has terminated, (15 to 60 seconds) the controller activates the lead pump starting circuit.

6. The controller activates the second timer. This timer controls the length of time that the automatic valves programmed for the first time cycle are expected to operate.

7. When the timer reaches the end of the program time period, the controller closes the automatic valve.

8. The controller will then activate the second solenoid valve in the lead bank, causing the second automatic valve to open by bleeding off pressurized air. The controller will function so that as the first valve is being closed, the second valve will open so that there will continue to be an outlet for the wastewater flow.

9. The controller will activate the timer which will determine the length of time the second cycle operates.

10. When the timer ends the second period, the controller deactivates the second valve. This sequence will continue through a maximum of four cycles at which point it will begin the same procedure with the second bank of valves. The timer mechanism will allow a cycle to operate between 0 and 24 hours.

If the flow to the wet well is greater than the capacity of a single pump, the controller will provide the following capability:

1. With the lead pump operating, if the water level continues to rise in the wet well to where the second preselected level is reached, a second switch will activate.

2. The second switch will turn on the second pump and an additional automatic valve. The secondary circuitry will parallel the operation previously described for the primary circuitry and will operate on the second bank of four solenoid valves on the control panel.

3. If the level continues to increase, the wet well will overflow to the storage reservoir.

When the flow from the wet well ceases or decreases to a volume less than the capacity of a single pump, the controller will provide the following capability:

1. With only the lead pump operating, if the water level in the wet well decreases to a preselected level, the level control switch is turned off, thereby interrupting the signal to the controller.

2. The controller initiates shutdown sequence beginning with deactivation of the solenoid valve circuit in operation at the time.

3. The controller activates a timer to provide a short delay, 15 to 60 seconds prior to closing the valve. The pump is shut-off, and when the timer has ended, the controller closes the valve.

4. The controller then stops the timer for the solenoid valve which was operating, but does not set it. Thus, when the controllers are again signalled by a rising water level in the wet well, the timer is started at the point where it was previously stopped.

5. This same shutdown sequence will also be followed for the secondary pump if it is operating because of high flows and gets shut down when the wet well decreases to the preselected shutoff level for the secondary pump.

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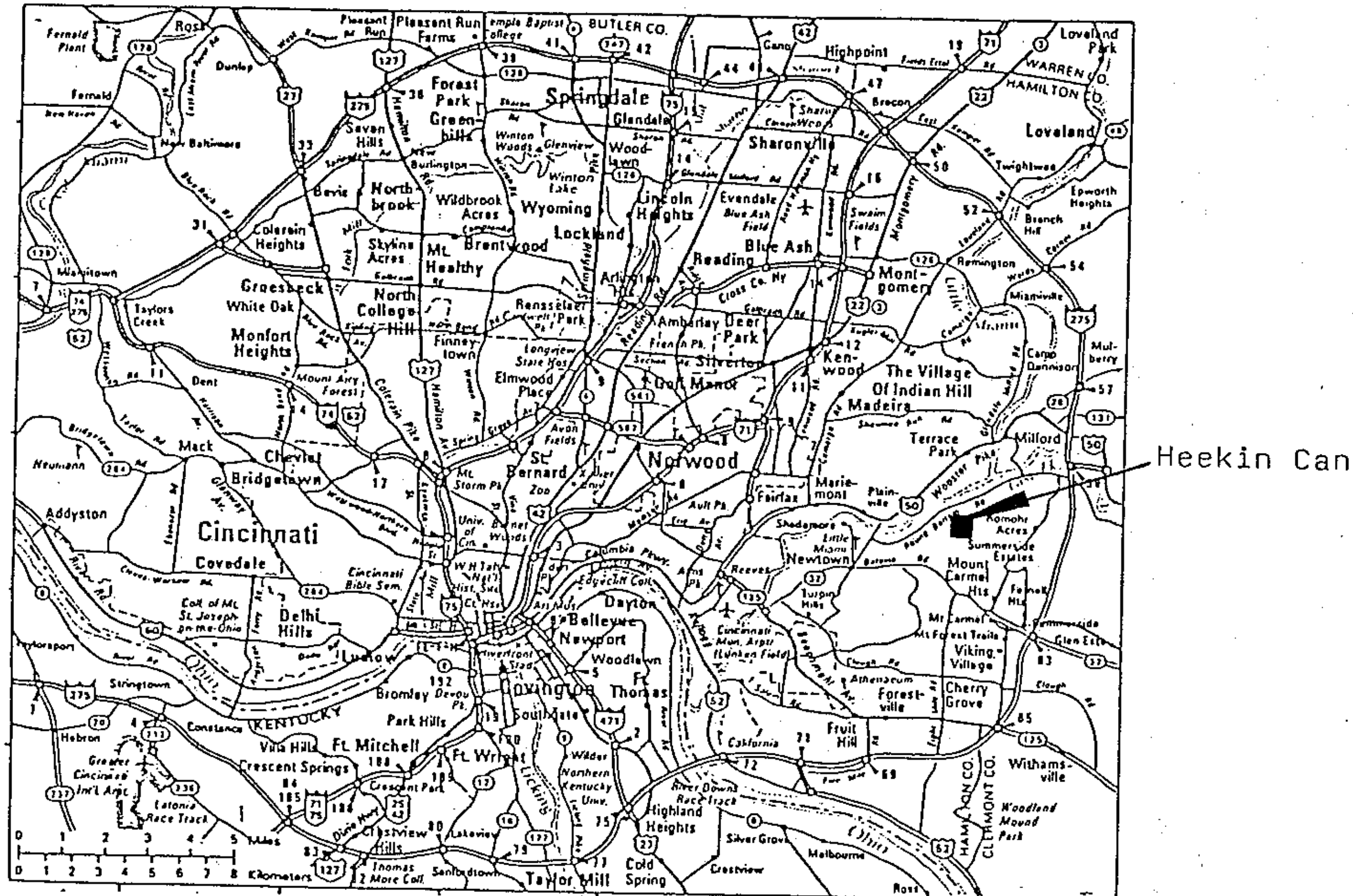


FIGURE 1

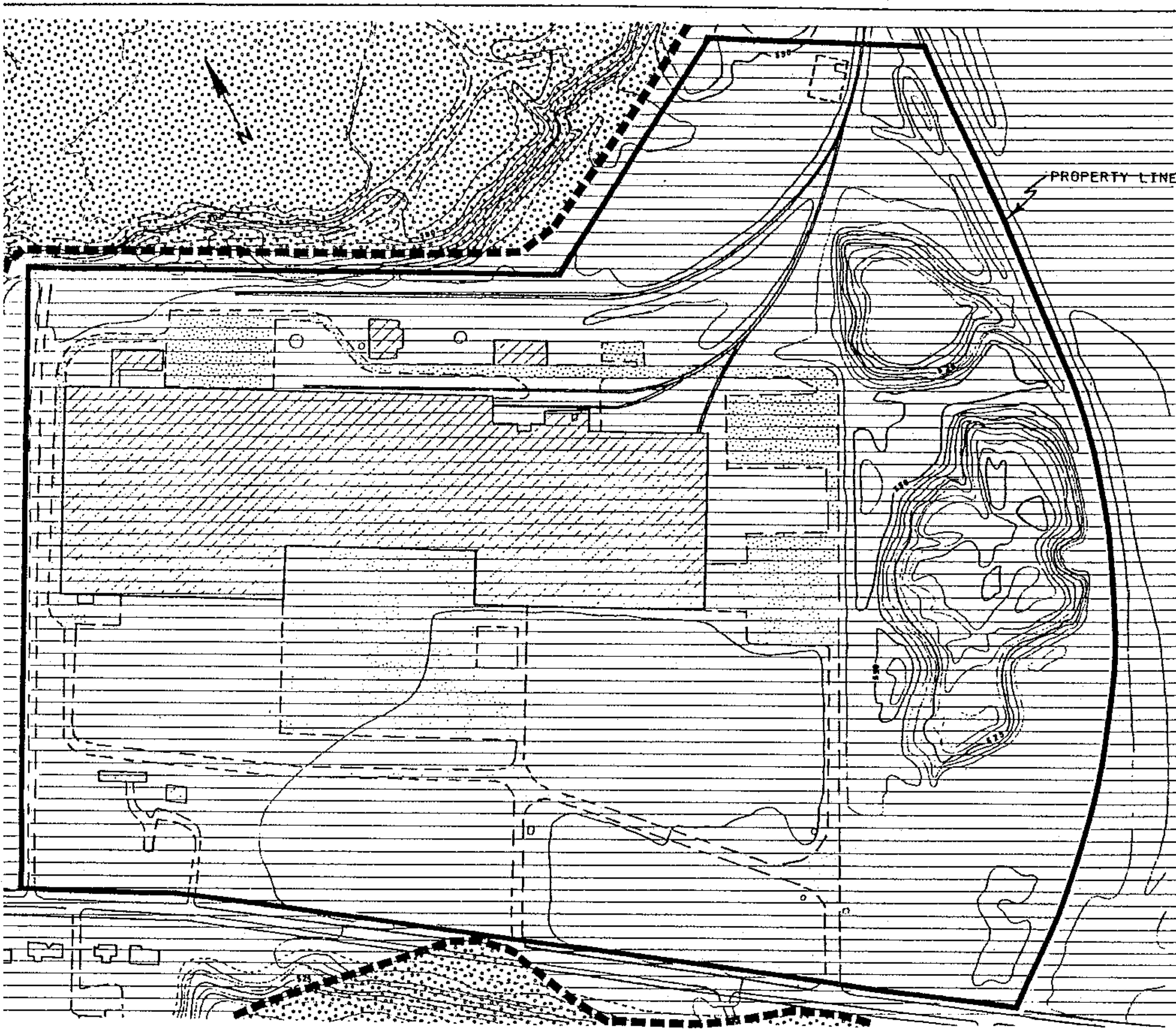
LOCATION MAP

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

FIGURE 2

SCS SOILS MAP



LEGEND:

- Po SOIL GROUP
- ErA SOIL GROUP
- BUILDINGS
- PARKING

CONTOUR INTERVAL = 5 ft

SCALE (ft):

0 200 400

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

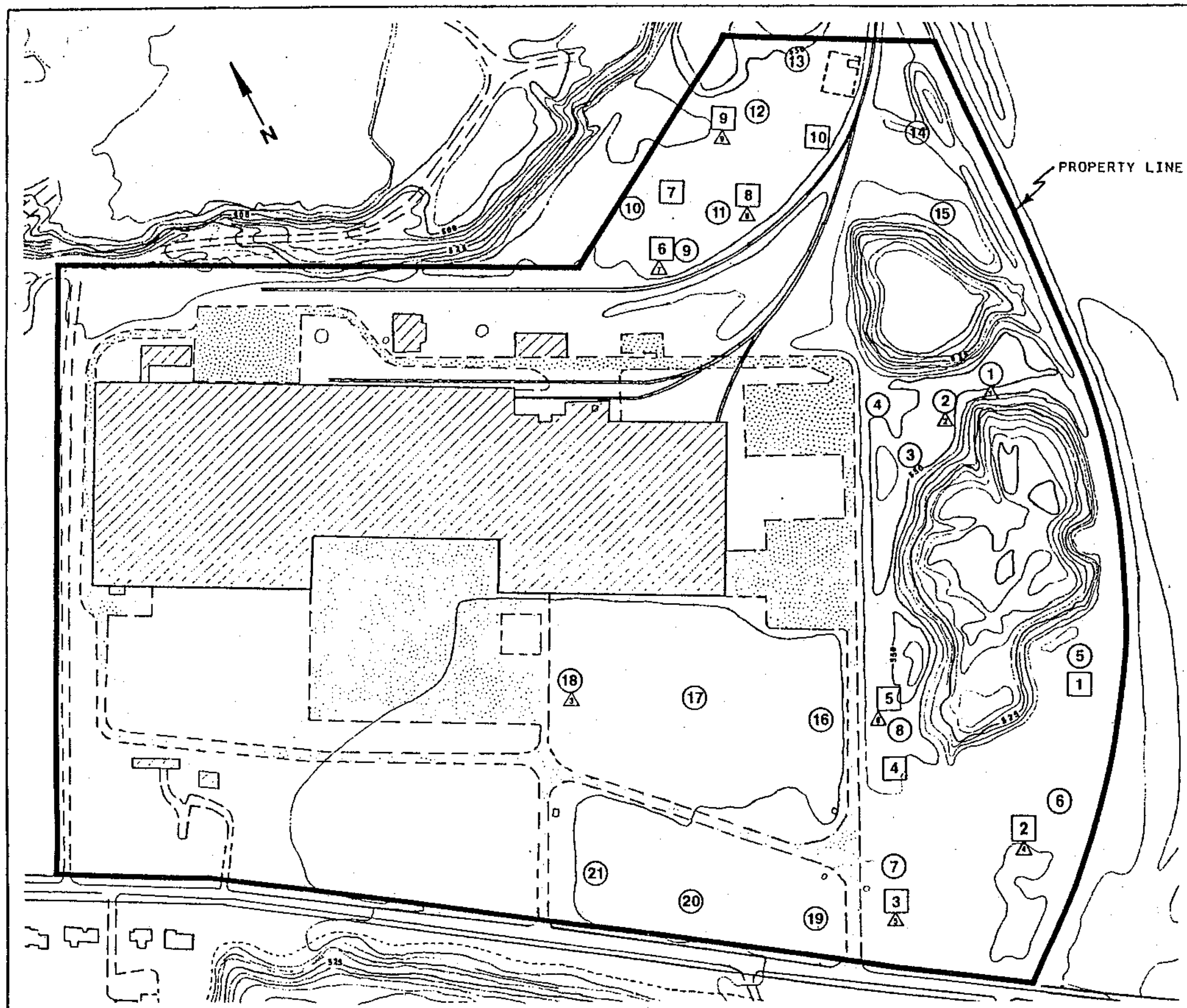


FIGURE 3

SUMMARY OF FIELD INVESTIGATION

LEGEND:

△ SOIL SAMPLE

○ HAND AUGER BORING

□ BACKHOE TEST PIT

BUILDINGS

PARKING

CONTOUR INTERVAL = 5 ft

SCALE (ft): 0 200 400

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

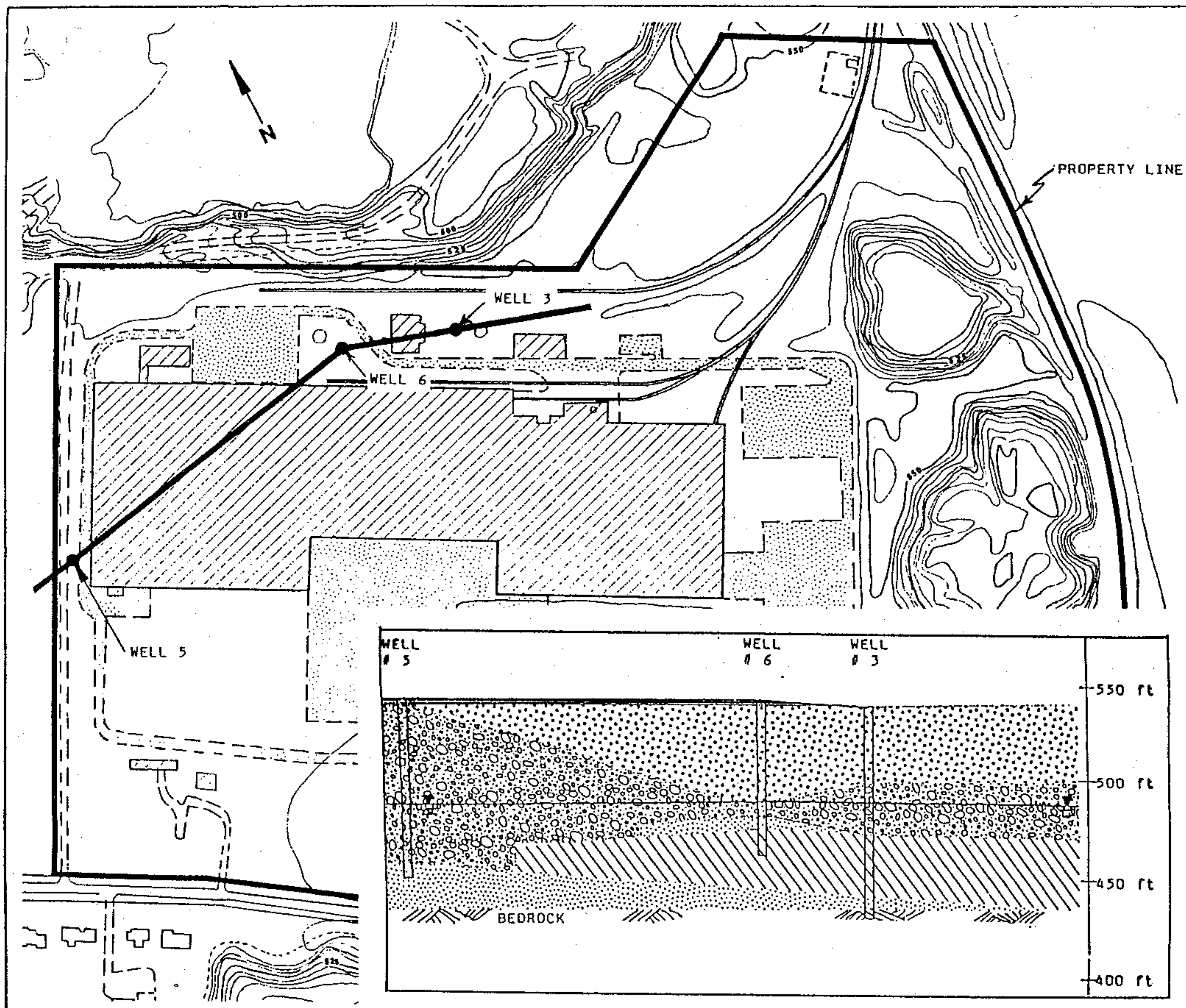


FIGURE 4

GEOLOGIC PROFILE

LEGEND:

- TOPSOIL
- SAND
- GRAVEL
- SAND AND GRAVEL
- CLAY
- BEDROCK
- WATER LEVEL WHEN DRILLED
- BUILDINGS
- PARKING

CONTOUR INTERVAL = 5 ft

SCALE (ft): 0 200 400

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

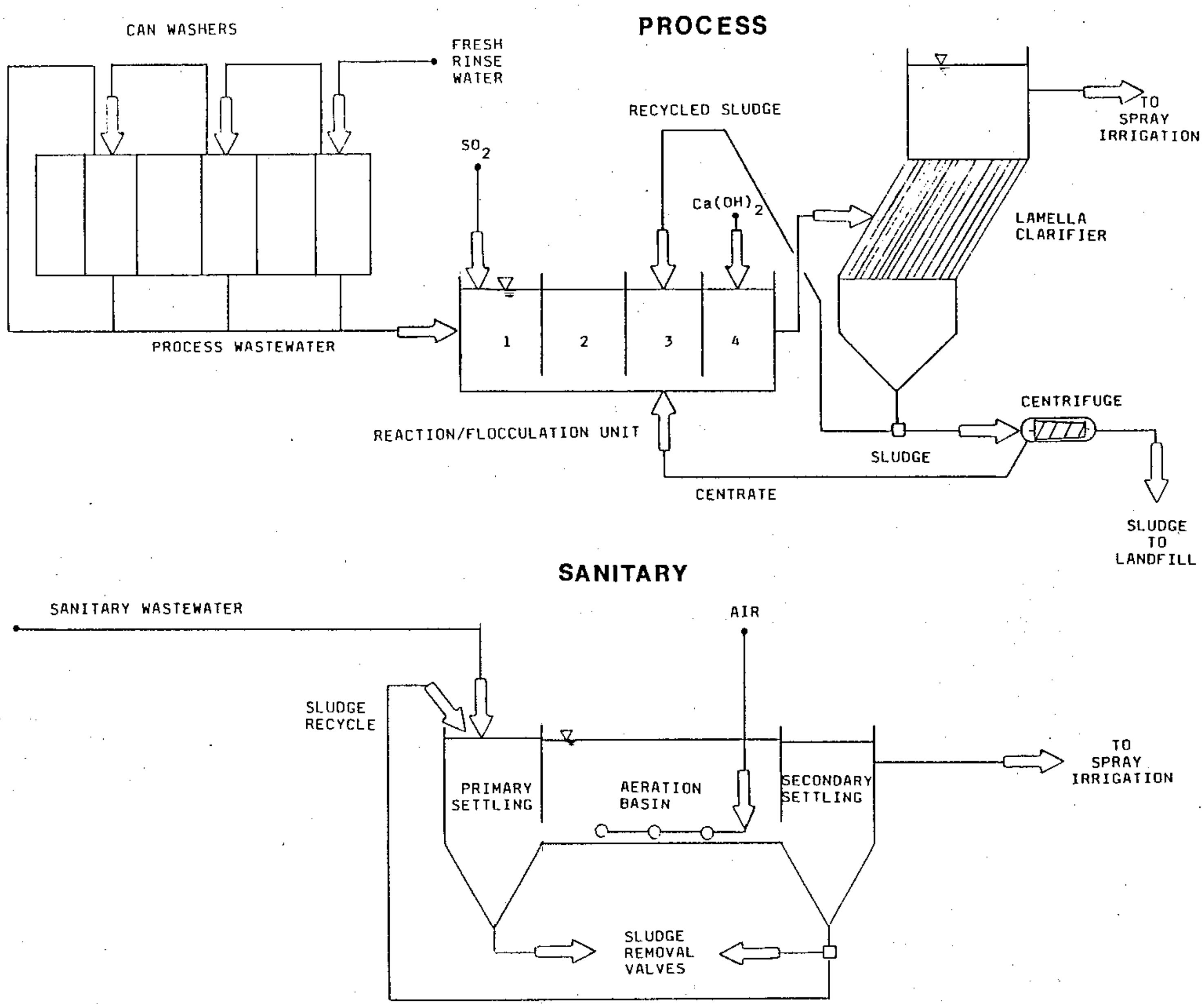


FIGURE 5

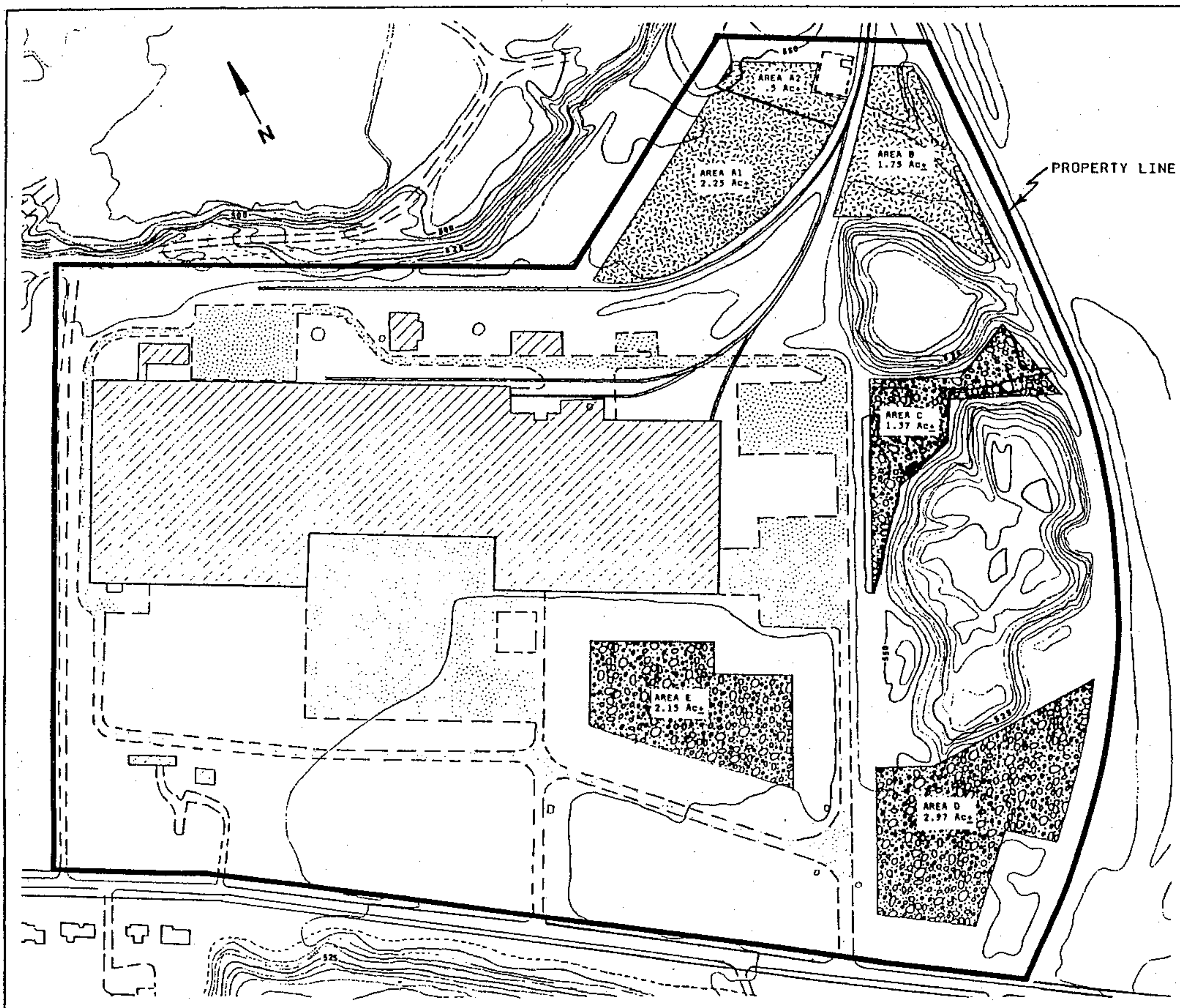
PROCESS SCHEMATIC DIAGRAMS FOR PRETREATMENT SYSTEMS

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

FIGURE 6

IRRIGABLE AREA



LEGEND:

- PROPOSED SITE
- OTHER SUITABLE AREAS
- BUILDINGS
- PARKING

CONTOUR INTERVAL = 5 ft

SCALE (ft): 0 200 400

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

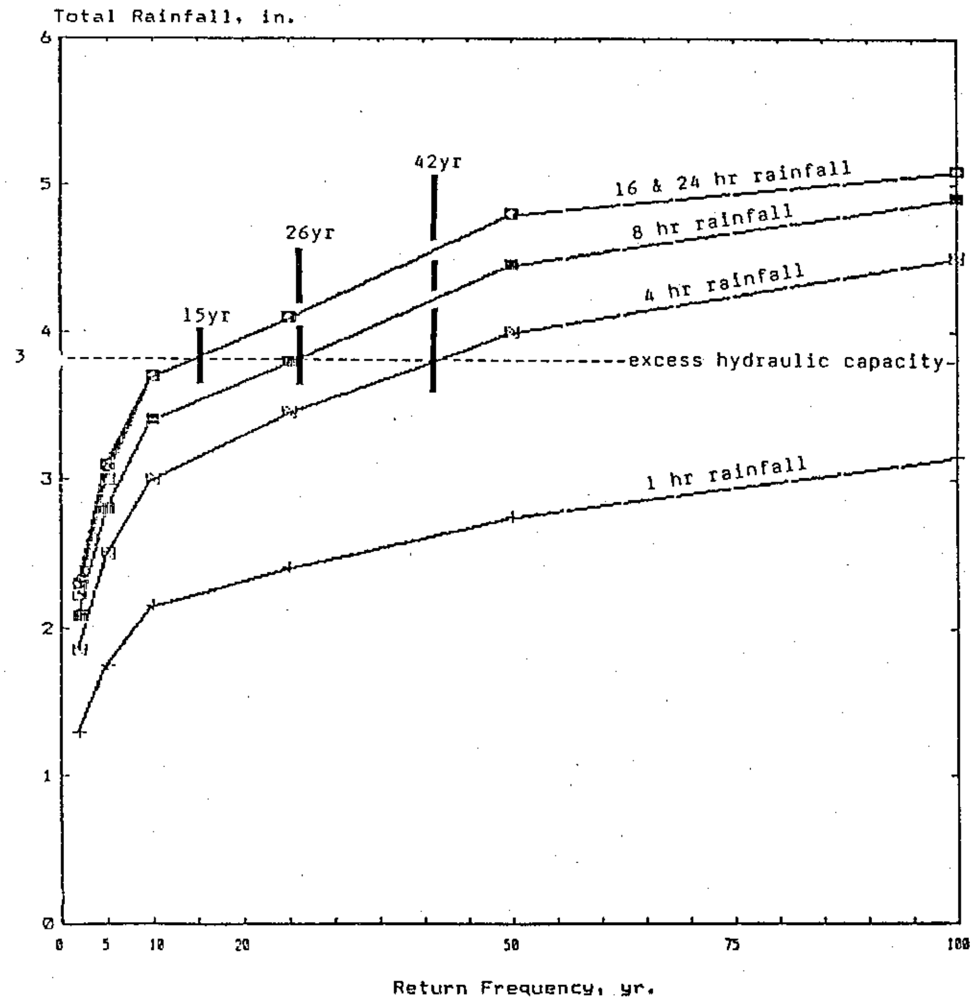


FIGURE 7

RAINFALL
INTENSITY/FREQUENCY
CINCINNATI, OH

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

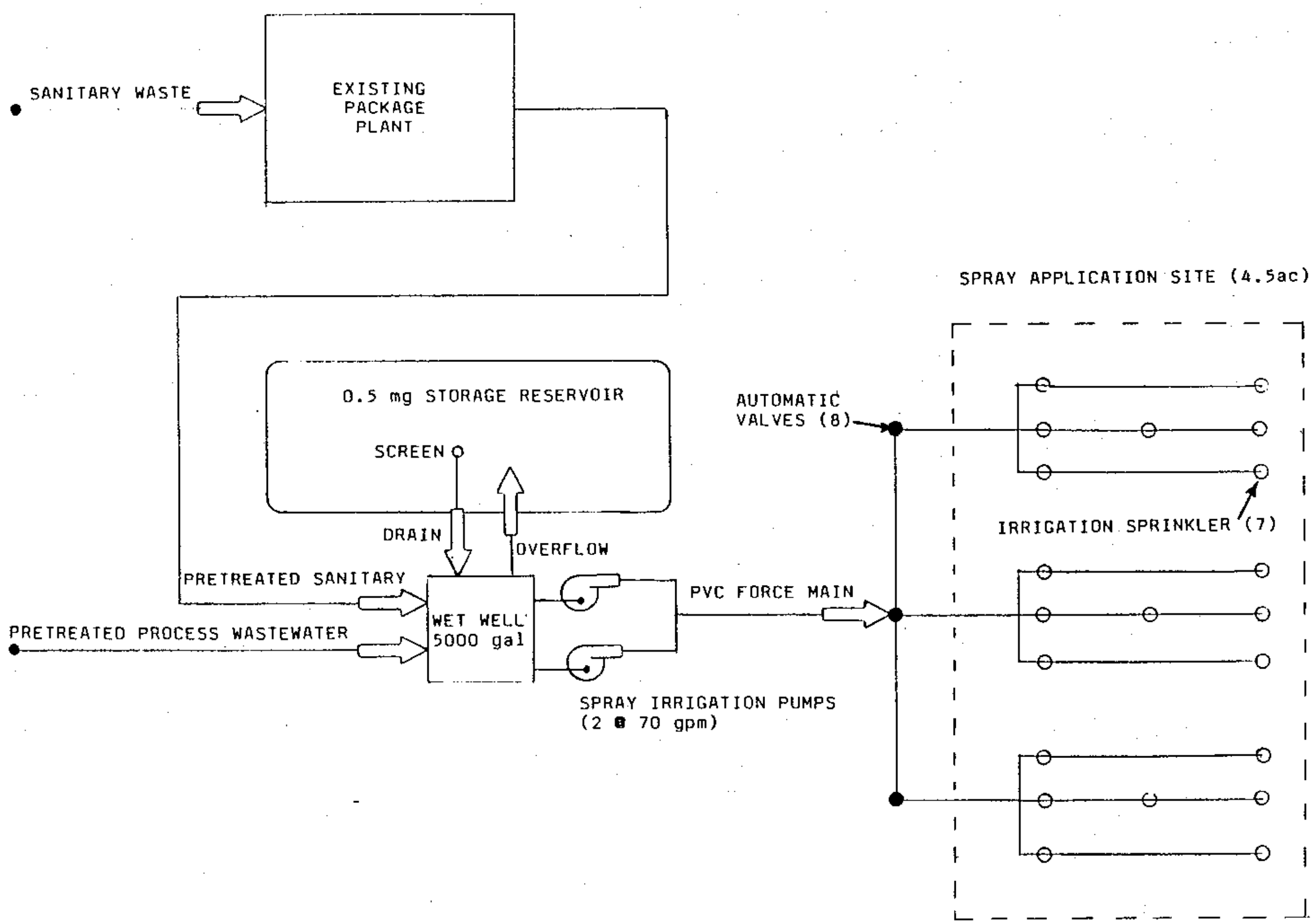


FIGURE 8

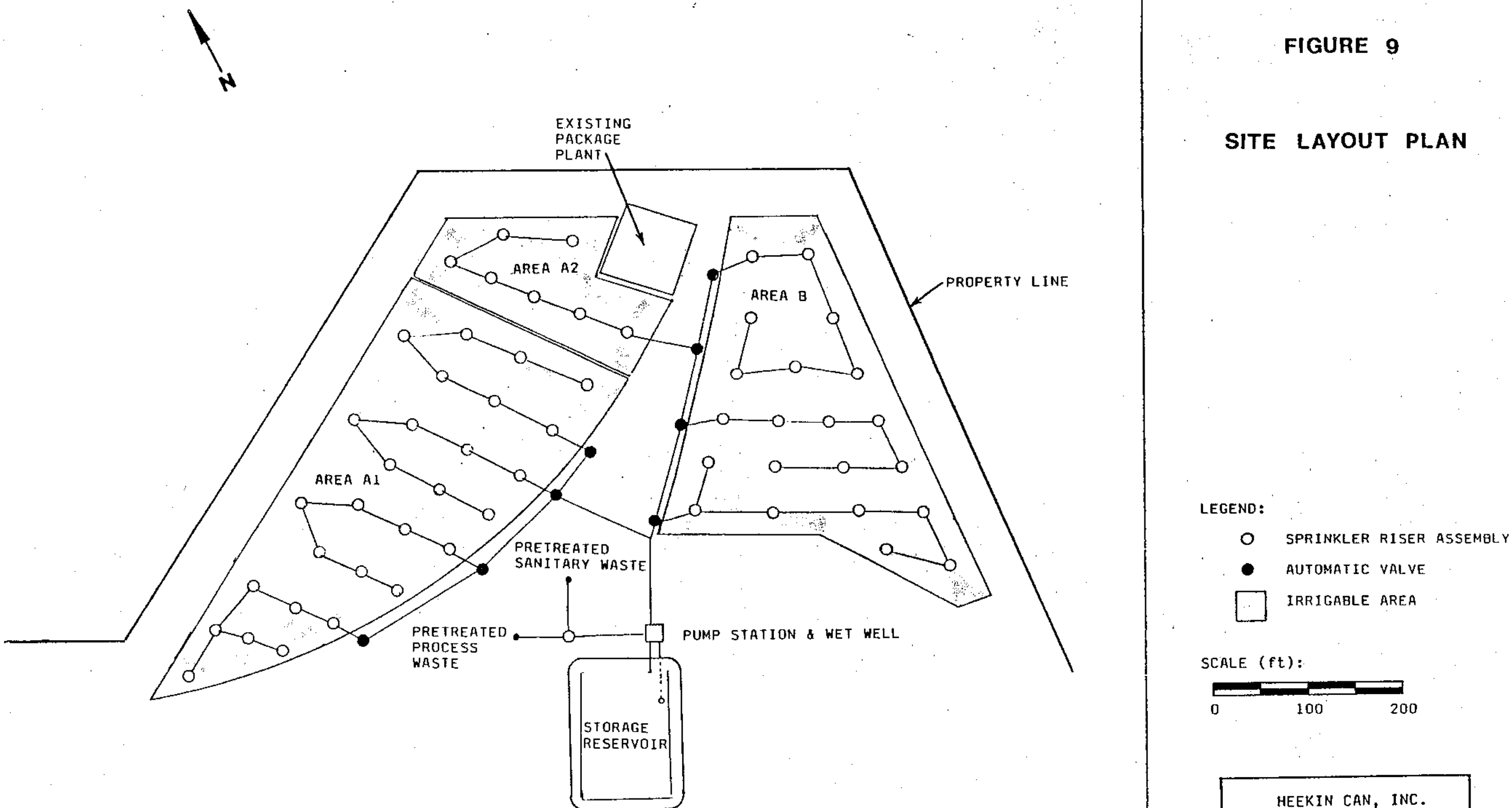
LAND APPLICATION PROCESS FLOW DIAGRAM

HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

FIGURE 9

SITE LAYOUT PLAN



HEEKIN CAN, INC.
LAND TREATMENT SYSTEM

ERM-North Central Inc.

TABLE 1
SUMMARY OF
REGIONAL CLIMATIC DATA(1)

Month	Average Precip. (inches)	Average Temperature (°F)	Average Class 'A' Pan Evaporation (inches) (2)
January	3.50	29.2	0.0
February	2.84	32.6	0.0
March	3.89	41.9	0.0
April	3.55	53.5	4.4
May	3.76	63.2	5.9
June	4.11	71.6	4.9
July	4.21	75.5	6.9
August	3.06	74.0	5.9
September	2.89	67.3	4.8
October	2.45	55.7	2.9
November	3.24	43.6	0.0
December	3.04	34.2	0.0
Annual	40.54	53.5	35.7

Ten year return annual precipitation = 48.0 inches.

(1). Source: Local Climatological Data, Annual Summary with Comparative Data, 1982, Cincinnati, Ohio, Greater Cincinnati Airport.
(2). Brown, 1983.

TABLE 2
CHARACTERISTICS OF THE
ELDEAN - URBAN LAND COMPLEX SOIL
OF THE ELDEAN SOIL SERIES*

Sample Depth Horizon	Permeability (Inches)	(In/hr.)	Soil pH (S.U.)	Available Water Capacity (In/Horizon)	Shrink-Swell Potential
A	0-7	.6-2.0	5.6-7.3	1.26-1.54	low
B	7-36	.2-2.0	5.6-7.8	2.32-4.06	moderate
C	36-60	>6.0	7.4-8.4	.24-.96	low

* USDA, SCS, "Soil Survey of Hamilton County, Ohio, 1979."

TABLE 3

SOIL PHYSICAL ANALYSES

Physical Sample Number	Sample Location(1)	Sample Depth (inches)	Soil Horizon(2)	Soil Type	In-Site Moisture Content %	Laboratory Permeability (cm/sec @ 20 C)	Void Ratio	Porosity
1	HA1 HA2	30 12	B_2 B_1	Clayey Sand with silt	9.6	2.0 x 10-3	.66	39.9
2	TP3 TP6	12 12	A_2 B_1	Sandy Silt	14.5	* (3)	.42	29.7
3	TP5 TP6	36 36	B_1 B_{21}	Sandy Clay	16.3	7.8 x 10-4	.78	43.8

(1). HA = Hand auger; TP = Test pit - See Figure 3 for Location

(2). See Appendix A for Horizon details

(3). Sample result invalid due to remolding of sample

TABLE 4

SOIL CHEMICAL ANALYSES (1)

Sample (2) Location	Sample Depth (inches)	Horizon (3)	Soil pH (S.U.)	Available Cation Exchange Capacity (meq/100g)	Ca	Mg	K	Na	N	P	S	B	Cu	Fe	Mn	Zn
HA18	6	A	6.3	7.1	.65	.135	.024	<0.1	.6	5.0	6.9	.28	1.4	21.8	3.3	.94
HA18	24	B_{12}	6.5	12.6	1.2	.217	.024	<0.1	.6	26.2	3.8	.23	1.2	36.2	.94	1.4
TP2	9	A_1	7.6	9.4	.96	.123	.015	<0.1	.6	11.2	8.1	.32	1.4	18.8	1.4	1.1
TP2	18	B_1	7.4	10.0	1.0	.147	.024	<0.1	.6	18.8	6.9	.23	1.4	76.9	2.6	.88
TP8	9	A_2	4.7	4.4	.32	.086	.012	<0.1	.6	11.2	2.5	.14	1.7	37.5	3.6	.94
TP8	30	B_{11}	4.9	11.2	1.0	.170	.020	<0.1	.6	38.1	13.8	.18	1.5	76.2	1.1	.69
TP9	12	A_6	6.7	8.4	.83	.125	.024	<0.1	.6	15.6	5.6	.28	1.6	44.4	1.4	.44
TP9	24	B_1	6.6	22.5	2.1	.436	.034	<0.1	.6	13.1	8.1	.38	1.8	19.4	1.1	.50

(1). All elemental analysis in mg/kg (ppm)

(2). HA = Hand auger; TP = Test Pit - See Figure 3 for Location

(3). See Appendix A for Horizon details

TABLE 5

GROUND WATER QUALITY (mg/l)

Parameter	Average Value*	Range
pH (S.U.)	7.5	6.9-8.3
Spec Conductance (μmhos)	750	580-1,000
BOD	4	<1-10
COD	20	5-70
TOC-C	2	<1-10
TDS	490	250-600
NH_3-N	.6	.05-1.4
NO_2-N	.01	<.01-.1
NO_3-N	.70	<.05-5
PO_4-P	.2	<.02-3
Alkalinity-$CaCO_3$	320	100-500
Total Hardness-$CaCO_3$	350	220-450
Cl	40	20-90
F	.3	.18-1
SO_4	70	15-200
Ag	.001	<.001-.008
Al	.03	<.001-.200
As	.005	<.001-.020
Ba	.05	<.002-.300
Be	---	---
Bo	---	---
Ca	40	16-56
Cd	.002	<.001-.008
Cr (Total)	---	---
Cr (VI)	.010	<.002-.040
Cu	.010	<.010-.040
Fe	.400	.100-6.000
Hg	<.0002	<.0002-.0003
K	3	1-10
Mg	8.5	2.43-24.3
Mn	.10	.05-.50
Na	20	10-50
Ni	.010	<.010-.070
Pb	.005	<.001-.040
Se	.001	<.001-.010
Zn	.010	.002-.040

* Source: Burgess & Niple, Limited, "Hydrogeologic Investigation, Heekin Can, Inc.," April, 1983.

TABLE 6

HEEKIN CAN

WASTEWATER CHARACTERIZATION (mg/l)

Parameters	Pretreated Industrial Wastewater	Sanitary Wastewater Influent (1,3)	Sanitary Wastewater Effluent (2,3)	Combined Wastewater (4)
Conventional				
Flow (GPD)	67,000	30,000	30,000	97,000
pH (S.U.)	8.0	7	7	7.7
BOD	--	200	50	--
COD	502	500	125	385
TSS	6.8	200	50	20
TDS	2476	200	200	1772
NH_3-N	.18	25	20	6.3
Total P	2.6	10	8	4.3
Oil and Grease (Method A)	61.2	100	25	50
Oil and Grease (Method E)	8.1	--	--	--
Ions				
Cl	207	26	26	151
F	26.8	.94	.94	18.8
SO_4	1148	83	83	819
Al	1.9	--	--	--
Ba	<.05	--	--	--
Be	<.005	--	--	--
Bo	<.1	--	--	--
Ca	480	43	43	345
Cd	<.02	--	--	--
Cr (Total)	.17	--	--	--
Cr (VI)	<.05	--	--	--
Co	<.05	--	--	--
Cu	<.05	--	--	--
Fe	.05	.011	.011	.04
Pb	<.05	--	--	--
Mg	14.7	9.4	9.4	13.1
Mn	.1	.002	.002	.07
Mo	<.05	--	--	--
Na	70.4	16.4	16.4	53.7
Ni	<.05	--	--	--
Sn	<.05	--	--	--
Ti	<.05	--	--	--
Vn	<.05	--	--	--
Yt	<.05	--	--	--
Zn	<.02	--	--	--

(1). Metcalf & Eddy, Inc. Wastewater Engineering. McGraw-Hill Book Co., New York, 1972.

(2). Assumed 75% removal of COD, BOD, TSS, and O & G (A); 20% removal of NH_3-N and P.

(3). Ion concentration based on 5 year average of Cincinnati Waterworks.

(4). Proportioned according to average flow.

TABLE 7
HYDROLOGIC BUDGET

Month	Average Precipitation (inches)	10 Year Return Distributed Precipitation (inches)	PE_t (1) (inches)	Deep Percolation (2) (inches)	Allowable Wastewater Application Rate (inches/month)	g/ac/dy
January	3.50	4.14	0.0	143.9	139.8	124,700
February	2.84	3.36	0.0	143.9	140.6	125,400
March	3.89	4.61	0.0	143.9	139.3	124,300
April	3.55	4.20	3.1	143.9	142.8	127,400
May	3.76	4.45	4.1	143.9	143.6	128,100
June	4.11	4.87	3.4	143.9	142.4	127,100
July	4.21	4.98	4.8	143.9	143.7	128,200
August	3.06	3.62	4.1	143.9	144.4	128,800
September	2.89	3.42	3.4	143.9	143.9	128,400
October	2.45	2.90	2.0	143.9	143.0	127,600
November	3.24	3.84	0.0	143.9	140.1	125,000
December	3.04	3.60	0.0	143.9	140.3	125,200

(1). PE_t = .7(Class A Pan Evaporation), (Brown, 1983).

(2). Unsaturated Hydraulic Conductivity = 10% of saturated hydraulic conductivity, (Overcash and Pal, 1979).

TABLE 8

LAND AREA REQUIREMENTS

Constituent	Concentration mg/l	Mass Generation kg/yr	Assimilative Capacity kg/ha/yr	Area Required acres	Application Rate in/wk
Hydraulics	---	---	31.3	.8	31.3
Organics	376.9	50,541	56,399	2.2	11.4
Nitrogen	6.3	845	500	4.2	6.0

Table 9

Expected Soil Temperature Profiles

Soil temperature @ depth & time

(average annual conditions)

aaat = 53.5 deg F Frost depth = 9 in
aast = 12 deg C

days past Dec. 31	soil depth in feet 0	.5	1	2	4
0	0	1	2	4	7
15	-0	1	2	3	6
30	0	1	2	3	5
45	1	2	2	3	5
60	3	3	4	4	5
75	6	6	5	5	6
90	9	8	8	7	7
120	15	14	13	12	10
150	20	19	18	16	13
180	23	22	21	20	17
210	24	23	22	21	19
240	21	21	21	20	19
270	16	16	16	17	17
300	9	10	11	12	14
330	4	5	6	8	11
360	1	2	3	4	7

Soil temperature @ depth & time

(worst case 1948 - 1982)

aaat = 51 deg F Frost depth = 9 in
aast = 11 deg C

days past Dec. 31	soil depth in feet 0	.5	1	2	4
0	-1	-0	1	3	6
15	-1	-1	0	2	5
30	-1	-0	0	1	4
45	0	0	1	2	4
60	2	2	2	3	4
75	4	4	4	4	5
90	7	7	6	6	6
120	13	12	12	10	9
150	19	18	17	15	12
180	22	21	20	18	15
210	22	22	21	20	17
240	19	19	19	19	17
270	14	15	15	15	16
300	8	9	10	11	13
330	3	4	5	6	9
360	-1	0	1	3	6

aaat = average annual air temperature
aast = average annual soil temperature

Frost depth = maximum value for foundation design

values for soil temperature from Fluker (1958)

θ_{zt} = aast + (12/exp(.1386z))sin(6.28t/364-1.84-.132z)

where:

θ_{zt} = average soil temp. at depth z, deg.C
z = depth in soil, ft
t = time in days after Dec. 31

TABLE 10

GROUND WATER MONITORING

Parameter	Frequency/Year 1	2
Spec. Conductance (μmhos)		X
COD	X	
No_3-N	X	
Total P	X	
Hardness	X	
Cl		X
F		X
SO_4		X

Appendix A

SOIL BORING AND PIT LOGS

Environmental Resources Management, Inc.

SITE NO: HA3

SOIL DESCRIPTION

PROJECT: Heekin Can

AREA: Ohio

SPECIFIC LOCATION: Terrace Park

VEGETATION: forested

PHYSIOGRAPHY:

RELIEF: nearly level

ELEVATION: 555

PARENT MATERIAL:

LOGGED BY: FB

FILE NO:

DATE: 5/8/84

STONINESS:

SLOPE:

SEEPAGE: none

DRAINAGE:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.25	medium brown	subangular blocky w/fine roots	sandy clayey silt	friable	
B_1	0.25 to 1.5	dark brown	subangular blocky	silt w/fine pebbles, some clay	friable	
B_2	1.5 to 3.0	dark brown	subangular blocky	clayey silt w/gravel	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO HA4

SOIL DESCRIPTION

PROJECT: Heekin Can

AREA: Ohio

SPECIFIC LOCATION: Terrace Park

VEGETATION: forested

PHYSIOGRAPHY:

RELIEF: nearly level

ELEVATION: 550

PARENT MATERIAL:

LOGGED BY: FB

FILE NO:

DATE: 5/8/84

STONINESS:

SLOPE:

SEEPAGE: none

DRAINAGE:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.25	medium brown	fine, granular w/roots	sandy loam	friable	
B_{11}	0.25 to 1.5	dark brown	subangular blocky	sandy silt	friable	
B_{12}	1.5 to 1.8	dark brown	subangular blocky w/some gravel	sandy silt	friable	
B_{21}	1.8 to 2.1	dark brown	subangular blocky w/gravel	sandy silt (more silt than above)	friable	
B_{22}	2.1 to 3.0	dark brown	subangular blocky w/gravel	sandy silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA1

SOIL DESCRIPTION

LOGGED BY: FB

FILE NO:

DATE: 5/8/84

PROJECT: Heekin Can

AREA: Ohio

SPECIFIC LOCATION: Terrace Park

VEGETATION: forested

PHYSIOGRAPHY:

RELIEF: nearly level

ELEVATION: 550

PARENT MATERIAL:

STONINESS:

SLOPE:

SEEPAGE: none

DRAINAGE:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.17	medium brown	weak, fine, granular w/roots	sandy, clayey loam	friable	
B_1	0.17 to 1.5	dark brown	subangular blocky w/roots	sandy silt w/ some gravel	friable	
B_2	1.5 to 3.5	dark brown	loose	fine sand w/gravel increasing w/depth	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA2

SOIL DESCRIPTION

LOGGED BY: FB

FILE NO:

DATE: 5/8/84

PROJECT: Heekin Can

AREA: Ohio

SPECIFIC LOCATION: Terrace Park

VEGETATION: forested

PHYSIOGRAPHY:

RELIEF: nearly level

ELEVATION: 550

PARENT MATERIAL:

STONINESS:

SLOPE:

SEEPAGE: none

DRAINAGE:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.33	medium brown	fine, granular w/roots	sandy clay loam	friable	
B_1	0.33 to 2.0	medium brown	subangular blocky w/roots	sandy silt	friable	
B_{21}	2.0 to 2.5	dark brown	subangular blocky	sandy silt	friable	
B_{22}	2.5 to 3.5	dark brown	subangular blocky	clayey silt	friable	
B_{23}	3.5 to 4.0	medium brown	subangular blocky	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA5

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 545

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots and pebbles	loam	friable	
B_1	0.5 to 1.0	dark brown	subangular blocky w/gravel	sandy clayey silt	friable	
B_{21}	1.0 to 1.25	seemed to hit burned wood				
B_{22}	1.25 to 1.5	dark brown	subangular blocky w/gravel	silty sand	friable	

NOTES AND COMMENTS:

Hole terminated when hard object was hit,probably a rock.

Environmental Resources Management, Inc.

SITE NO: HA6

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 540

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
B_1	0.5 to 2.0	medium brown	subangular blocky	silty loam	friable	
B_{21}	2.0 to 2.5	medium brown	subangular blocky w/few pebbles	sandy clayey silt	friable	
B_{22}	2.5 to 3.0	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA7

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 540

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
B_1	0.5 to 2.0	medium brown	subangular blocky	fine silty sand	friable	
B_{21}	2.0 to 3.0	medium brown	subangular blocky w/few pebbles	sandy clayey silt	friable	
B_{22}	3.0 to 3.5	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA8

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 555

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 1.5	dark brown	medium, granular	loam	friable	
B_1	1.5 to 2.0	dark brown	subangular blocky	silty sand	friable	
B_2	2.0 to 2.5	dark brown	subangular blocky w/pebbles	sandy silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA9

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: FB
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 550	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	subangular blocky w/roots	sandy silt	friable	
B_1	0.5 to 2.0	medium brown	subangular blocky	sandy silt	friable	
B_2	2.0 to 3.0	medium brown	subangular blocky w/pebbles	sandy silt	friable	

NOTES AND COMMENTS:

finer material with depth

Environmental Resources Management, Inc.

SITE NO: HA10

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: FB
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
B_1	0.5 to 1.0	dark brown	fine, granular w/roots	silty loam	friable	
B_{21}	1.0 to 1.5	medium brown	subangular blocky	sandy silt	friable	
B_{22}	1.5 to 2.0	medium brown	subangular blocky w/few pebbles	sandy clayey silt	friable	
B_{23}	2.0 to 2.5	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	
C	2.5 to 3.0	medium brown to tan	sand and gravel	coarse sand	very friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA11

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: FB
AREA: Ohio	FILE NO:
	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
B_{11}	0.5 to 1.0	medium brown	subangular blocky	sandy silt	friable	
B_{12}	1.0 to 1.5	medium brown	subangular blocky	sandy silt	friable	
B_{21}	1.5 to 2.0	medium brown	subangular blocky with few pebbles	sandy clayey silt	friable	
B_{22}	2.0 to 2.5	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	
B_{23}	2.5 to 3.0	medium brown	subangular blocky w/pebbles	sandy clayey silt w/gravel	friable	

NOTES AND COMMENTS:

sand content in B horizon decreases with depth

Environmental Resources Management, Inc.

SITE NO: HA12

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: FB
AREA: Ohio	FILE NO:
	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE
O	Surface to 0.25	dark brown	fine, granular w/roots	loam	friable	
A_1	0.25 to 0.5	dark brown	medium, granular w/roots and pebbles	sandy silty loam	friable	
A_2	0.5 to 0.75	dark brown	medium, granular w/roots and no pebbles	sandy silty loam	friable	
B_1	0.75 to 1.5	medium brown	subangular blocky	sandy loam	friable	
B_2	1.5 to 2.5	medium brown	subangular blocky w/gravel	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA13

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: forested

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: slight slope

ELEVATION: 555

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
A_2	0.5 to 1.0	dark brown	medium, granular w/roots	sandy loam	very friable	
B_1	1.0 to 2.5	dark brown	subangular blocky w/pebbles	sandy loam	friable	
B_{21}	2.5 to 3.5	medium brown	subangular blocky w/few pebbles	sandy silt	friable	
B_{22}	3.5 to 4.5	medium brown	subangular block w/pebbles	clayey sandy silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA14

SOIL DESCRIPTION

LOGGED BY: FB

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/8/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: forested

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 540

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.17	dark brown	fine, granular w/roots	loam	friable	
B_{11}	0.17 to 0.5	medium brown	subangular blocky	sandy silt	friable	
B_{12}	0.5 to 1.5	medium brown	subangular blocky w/few pebbles	sandy silt	friable	
B_{21}	1.5 to 2.0	medium brown	subangular blocky w/pebbles	very sandy silt	friable	
B_{22}	2.0 to 3.0	medium brown	subangular blocky w/many pebbles	silty sand	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA15

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: FB
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.25	dark brown	fine, granular w/roots	loam	friable	
B_{11}	0.25 to 0.5	medium brown	subangular blocky w/roots	fine silty sand	friable	
B_{12}	0.5 to 2.5	medium brown	subangular blocky w/roots	very fine silty sand	friable	
B_{21}	2.5 to 3.0	medium brown	N/A	silt	friable	
B_{22}	3.0 to 4.0	medium brown	subangular blocky	fine sandy silt	friable	

NOTES AND COMMENTS:

no pebbles or gravel in profile

Environmental Resources Management, Inc.

SITE NO: HA16

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: grass (lawn)	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: level — ELEVATION: 540	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots and few pebbles	loam	friable	
B_1	0.5 to 1.17	dark brown	subangular blocky w/few pebbles	silty loam	friable	
B_{21}	1.17 to 2.0	medium brown	subangular blocky w/pebbles	sandy silt	friable	
B_{22}	2.0 to 2.5	medium brown	subangular blocky w/pebbles	clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA17

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: grass (lawn)	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: level — ELEVATION: 540	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular w/roots	loam	friable	
B_1	0.5 to 1.5	medium brown	subangular blocky w/few pebbles	sandy silt	friable	
B_2	1.5 to 3.5	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA18

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/8/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: grass (lawn)	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: level — ELEVATION: 540	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.75	dark brown	fine, granular w/roots	loam	friable	
B_{11}	0.75 to 1.17	medium brown	subangular blocky	fine sandy silt	friable	
B_{12}	1.17 to 2.0	medium brown	subangular blocky w/few pebbles	fine sandy silt	friable	
B_2	2.0 to 3.5	medium brown	subangular blocky w/pebbles	clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA19

SOIL DESCRIPTION

PROJECT: Heekin Can		LOGGED BY: GLT	
AREA: Ohio		FILE NO:	
		DATE: 5/9/84	
SPECIFIC LOCATION: Terrace Park		STONINESS:	
VEGETATION: grass (lawn)		SLOPE:	
PHYSIOGRAPHY:		SEEPAGE: none	
RELIEF: level	ELEVATION: 535	DRAINAGE:	
PARENT MATERIAL:		EROSION:	

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.5	black	fine, granular w/roots	loam	friable	
A_2	0.5 to 1.0	dark brown	subangular blocky w/roots	sandy loam	friable	
B_1	1.0 to 1.5	medium brown	subangular blocky w/roots	sandy silt	friable	
B_{21}	1.5 to 3.0	medium brown	subangular blocky	sandy clayey silt	friable	
B_{22}	3.0 to 4.0	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA20

SOIL DESCRIPTION

PROJECT: Heekin Can		LOGGED BY: GLT	
AREA: Ohio		FILE NO:	
		DATE: 5/9/84	
SPECIFIC LOCATION: Terrace Park		STONINESS:	
VEGETATION: grass (lawn)		SLOPE:	
PHYSIOGRAPHY:		SEEPAGE: none	
RELIEF: level	ELEVATION: 535	DRAINAGE:	
PARENT MATERIAL:		EROSION:	

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.25	dark brown	fine, granular w/roots	loam	friable	
A_2	0.25 to 0.83	dark brown	fine, granular w/roots	fine sandy loam	friable	
B_1	0.83 to 2.5	medium brown	subangular blocky w/roots	sandy silt	friable	
B_{21}	2.5 to 3.0	medium brown	subangular blocky	sandy clayey silt	friable	
B_{22}	3.0 to 4.0	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: HA21

SOIL DESCRIPTION

LOGGED BY: GLT

FILE NO:

PROJECT: Heekin Can

AREA: Ohio

DATE: 5/9/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass (lawn)

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: level

ELEVATION: 535

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.25	very dark brown	fine, granular w/roots	loam	friable	
A_2	0.25 to 0.83	dark brown	fine, granular w/roots	sandy loam	friable	
B_1	0.83 to 1.25	medium brown	subangular blocky w/roots	sandy silt	friable	
B_{21}	1.25 to 1.67	medium brown	subangular blocky	sandy clayey silt	friable	
B_{22}	1.67 to 2.0	medium brown	subangular blocky	coarse sandy clayey silt	friable	
B_{22}	2.0 to 3.0	medium brown	subangular blocky w/pebbles	coarse sandy clayey silt	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: TPA

SOIL DESCRIPTION

LOGGED BY: GLT

FILE NO:

PROJECT: Heekin Can

AREA: Ohio

DATE: 5/9/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 545

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.25	dark brown	fine, granular w/roots	loam	friable	
B	0.25 to 1.0	dark brown	subangular blocky	silty sand	friable	
B	1.0 to 2.0	dark gray	subangular blocky w/many pebbles	sandy silt	friable	
B	2.0 to 2.25	yellowish tan	subangular blocky w/rock fragments	sand	friable	
B	2.25 to 3.0	dark gray to black	subangular blocky	silty sand	friable	
C	3.0 to 5.0	medium brown	subangular blocky w/few pebbles	clayey silt	friable	

NOTES AND COMMENTS:

All of the material in the pit appears to be fill.

Environmental Resources Management, Inc.

SITE NO: TPB

SOIL DESCRIPTION

PROJECT: Heekin Can

LOGGED BY: GLT

FILE NO:

AREA: Ohio

DATE: 5/9/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 540

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.25	very dark brown	fine, granular w/many fine roots	loam	friable	
A_2	0.25 to 1.0	dark brown	fine, granular, w/roots and few pebbles	fine sandy silt	friable	
B_1	1.0 to 3.0	medium brown	subangular blocky w/roots and pebbles	sandy clayey silt	friable	
B_2	3.0 to 4.0	medium brown	subangular blocky w/pebbles	silty sand	friable	
C	4.0 to 5.5	medium brown	subangular blocky	fine sand w/gravel	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: TPC

SOIL DESCRIPTION

PROJECT: Heekin Can

LOGGED BY: GLT

FILE NO:

AREA: Ohio

DATE: 5/9/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: grass

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 540

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.25	very dark brown	fine, granular	loam	friable	
A_2	0.25 to 1.0	dark brown	medium, granular	sandy loam	friable	
B_1	1.0 to 2.5	medium brown	subangular blocky w/few pebbles	sandy silt	friable	
B_2	2.5 to 4.0	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	
C	4.0 to 6.0	tan	subangular blocky	sand w/gravel	friable	

NOTES AND COMMENTS:

Roots down to 4.0 foot level

Environmental Resources Management, Inc.

SITE NO: TPD

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: grass	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level — ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.25	very dark brown	fine, granular w/roots	loam	friable	
B_{11}	0.25 to 0.67	dark brown	subangular blocky w/roots	sandy silt	friable	
B_{12}	0.67 to 1.5	medium brown	subangular blocky w/pebbles	fine sandy silt	friable	
B_2	1.5 to 2.0	medium brown	subangular blocky w/pebbles	sandy clayey silt	friable	
C	2.0 to 6.0	gray	subangular blocky	sand w/gravel	friable	

NOTES AND COMMENTS:

Indications of earth moving activities

Environmental Resources Management, Inc.

SITE NO: TPE

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: grass	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: slight
RELIEF: nearly level — ELEVATION: 550	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	subangular blocky w/roots	sandy loam	friable	
B_1	0.5 to 3.0	medium brown	subangular blocky w/small pebbles	clayey silt	friable	
B_2	3.0 to 4.0	medium brown w/gray mottles	subangular blocky w/pebbles	clayey silt	friable	
C	4.0 to 8.0	dark gray	subangular blocky w/pebbles	sandy clay	friable	

NOTES AND COMMENTS:

Slight seepage into pit at 4.0 foot level

Environmental Resources Management, Inc.

SITE NO: TPF

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A	Surface to 0.5	dark brown	fine, granular	fine sandy loam	friable	
B_1	0.5 to 2.0	medium brown	subangular blocky w/few pebbles	fine sandy silt	friable	
B_{21}	2.0 to 3.0	medium brown	subangular blocky	fine to medium sand	friable	
B_{22}	3.0 to 4.0	yellowish brown	subangular blocky w/few pebbles	sand	friable	
C	4.0 to 6.5	yellowish brown	subangular blocky	coarse sand and gravel	friable	

NOTES AND COMMENTS:

roots to about 4.0 foot level

Environmental Resources Management, Inc.

SITE NO: TPG

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.25	very dark brown	fine, granular w/roots	loam	friable	
A_2	0.25 to 1.0	dark brown	subangular blocky w/roots and fine pebbles	sandy silt	friable	
B_1	1.0 to 2.5	medium brown	subangular blocky w/roots	medium sandy silt	friable	
B_2	2.5 to 4.0	dark gray	subangular blocky w/fine pebbles	medium sand	friable	
C	4.0 to 8.0	light gray	subangular blocky w/no pebbles	coarse sand	friable	
C	8.0 to 10.0	light gray	subangular blocky w/pebbles	coarse sand	friable	

NOTES AND COMMENTS:

Environmental Resources Management, Inc.

SITE NO: TPH

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.33	very dark brown	fine, granular	loam	friable	
A_2	0.33 to 1.0	dark brown	medium, granular	sandy loam	friable	
B_{11}	1.0 to 2.5	medium brown	subangular blocky	fine sandy silt	friable	
B_{12}	2.5 to 3.0	medium brown	subangular blocky	medium sandy silt	friable	
B_2	3.0 to 4.0	medium brown	subangular blocky w/few pebbles	sandy clayey silt	friable	
C	4.0 to 6.0	gray	subangular blocky w/pebbles	sand	friable	

NOTES AND COMMENTS:

roots to the 4.0 foot depth

Environmental Resources Management, Inc.

SITE NO: TPI

SOIL DESCRIPTION

PROJECT: Heekin Can	LOGGED BY: GLT
	FILE NO:
AREA: Ohio	DATE: 5/9/84
SPECIFIC LOCATION: Terrace Park	STONINESS:
VEGETATION: forested	SLOPE:
PHYSIOGRAPHY:	SEEPAGE: none
RELIEF: nearly level ELEVATION: 545	DRAINAGE:
PARENT MATERIAL:	EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNES
A_1	Surface to 0.25	very dark brown	fine, granular	loam	friable	
A_2	0.25 to 0.75	dark brown	subangular blocky	sandy silt	friable	
A_b	0.75 to 1.0	dark gray	medium granular	sandy loam	firm	
B_1	1.0 to 2.0	medium brown	subangular blocky	sandy clayey silt	friable	
B_2	2.0 to 3.5	medium brown	subangular blocky w/fine pebbles	sandy clayey silt	friable	
C	3.5 to 6.0	yellowish brown	subangular blocky w/large gravel	coarse sand	friable	

NOTES AND COMMENTS:

roots to the 3.5 foot depth

Environmental Resources Management, Inc.

SITE NO: TPJ

SOIL DESCRIPTION

LOGGED BY: GLT

PROJECT: Heekin Can

FILE NO:

AREA: Ohio

DATE: 5/9/84

SPECIFIC LOCATION: Terrace Park

STONINESS:

VEGETATION: forested

SLOPE:

PHYSIOGRAPHY:

SEEPAGE: none

RELIEF: nearly level

ELEVATION: 545

DRAINAGE:

PARENT MATERIAL:

EROSION:

HORIZON	DEPTH IN FEET	COLOR AND/OR MOTTLING	STRUCTURE	TEXTURE	CONSISTANCY MOIST OR DRY	BOUNDARY DISTINCTNE:
A_1	Surface to 0.33	dark brown	fine, granular	loam	friable	
A_2	0.33 to 1.0	dark brown	medium, granular w/few pebbles	sandy loam	friable	
B_1	1.0 to 2.0	medium brown	subangular blocky	sandy silty clay	friable	
B_2	2.0 to 2.67	medium brown	subangular blocky w/few pebbles	sandy silty clay	friable	
C	2.67 to 4.0	medium to dark gray	subangular blocky w/pebbles	coarse sand	friable	
C	4.0 to 6.0	gray	subangular blocky w/gravel	coarse sand	friable	

NOTES AND COMMENTS:

roots to the 4.0 foot depth

Appendix B

SOIL PHYSICAL ANALYSES

JOB NO. Heckin Can Composite

TYPE FALLING HEAD

REMOLDED SPECIMEN

CELL NO. ______

DATE 5/31

TECHNICIAN MOG

LAB NO. HA (2.5') HA 2 (1')

SAMPLE IDENTIFICATION (A) Brn clayey f-m sand (SC) w/ si & small roots (f gvl. removed)

DATE START	DATE FINISH	TIME START	TIME FINISH	TIME T (SEC)	DIVISION START		DIVISION FINISH		H_0 (CM)	H_F (CM)	K (CM/SEC)	K_{20} (CM/SEC)	TEMPERATURE (°C)		FACT.
5/31		8:08	8:09	60	49.3	1.1	33.4	17.1	48.2	16.3	2.14×10^{-3}	2.06×10^{-3}	21.5	21.5	.965
		8:11	8:12	60	49.1	1.4	33.2	17.2	47.7	16.0	2.15×10^{-3}	2.08×10^{-3}	21.5	21.5	.965
		8:14	8:15	60	47.6	2.9	32.9	17.5	44.7	15.4	2.10×10^{-3}	2.03×10^{-3}	21.5	21.5	.965
		8:20	8:21	60	49.1	1.8	33.5	17.2	47.3	16.3	2.10×10^{-3}	2.03×10^{-3}	21.5	21.5	.965
		8:24	8:25	60	48.6	1.6	33.2	17.0	47.0	16.2	2.10×10^{-3}	2.03×10^{-3}	21.5	21.5	.965
	5/31	8:27	8:28	60	49.4	1.5	33.6	17.1	47.9	16.5	2.10×10^{-3}	2.03×10^{-3}	21.5	21.5	.965

DIAMETER 7.250 (CM)

LENGTH (L) 7.630 (CM)

TUBE AREA (a) 0.64 (CM^2)

SAMPLE AREA (A) 41.283 (CM^2)

DRY UNIT WEIGHT 101.3 PCF

MOISTURE CONTENT 7.6 %

SATURATION 39.1 %

Assumed $G_s = 2.7$

WEIGHT IN GRAMS

PAN NO. 3" Ring

PAN WT. 250.0

WT. WET SOIL & PAN 810.7

WT. DRY SOIL & ~~PAN~~ 511.6

PAN NO. #28

PAN WT. 39.6

WT. WET SOIL & PAN 145.3

WT. DRY SOIL & PAN 136.0

$$K = 2.3026 \frac{aL}{AT} \log_{10} \frac{H_0}{H_F}$$

$$= \frac{.2724}{T} \log_{10} \frac{H_0}{H_F}$$

$$K_{20} = K \times \text{CORR. FACT.}$$

CHAMBER PRESSURE PSI	BACK PRESSURE PSI	PERMEABILITY (CM/SEC @ 20°C)
123	120	2.0×10^{-3}

PERMEABILITY TEST

JOB NO. Heckin Can Composite

TYPE FALLING HEAD

REMOLDED SPECIMEN

CELL NO. ______

DATE 5/25/84

TECHNICIAN MOG

LAB NO. TPC (12") TPF (12")

SAMPLE IDENTIFICATION (B) Brown f-m sa si (ML) w/ roots, occas. f gvl., & tr cl

DATE START	DATE FINISH	TIME START	TIME FINISH	TIME T (SEC)	DIVISION START		DIVISION FINISH		H_0 (CM)	H_F (CM)	K (CM/SEC)	K_{20} (CM/SEC)	TEMPERATURE (°C)		FACT.
5/29	5/29	7:59	5:32	34,380	48.8	1.0	48.6	1.6	47.8	47.0	5.81×10^{-8}	5.33×10^{-8}	23.4	23.8	.918
5/29	5/30	5:33 pm	8:01 am	52,080	48.6	1.6	48.2	2.2	47.0	46.0	4.88×10^{-8}	4.57×10^{-8}	23.8	21.7	.936
5/30	5/30	8:02	3:15 pm	25,980	48.2	2.2	48.0	2.4	46.0	45.6	3.97×10^{-8}	3.75×10^{-8}	21.7	23.1	.942

DIAMETER 7.250 (CM)

LENGTH (L) 7.630 (CM)

TUBE AREA (a) 0.64 (CM^2)

SAMPLE AREA (A) 41.283 (CM^2)

DRY UNIT WEIGHT 118.5 PCF

MOISTURE CONTENT 14.5 %

SATURATION 92.8 %

Assumed $G_s = 2.7$

WEIGHT IN GRAMS

PAN NO. 3" Ring

PAN WT. 250.0

WT. WET SOIL & PAN 935.0

WT. DRY SOIL & ~~PAN~~ 598.3

PAN NO. #38

PAN WT. 36.9

WT. WET SOIL & PAN 163.4

WT. DRY SOIL & PAN 147.4

$$K = 2.3026 \frac{aL}{AT} \log_{10} \frac{H_0}{H_F}$$

$$= \frac{0.2724}{T} \log_{10} \frac{H_0}{H_F}$$

$$K_{20} = K \times \text{CORR. FACT.}$$

CHAMBER PRESSURE PSI	BACK PRESSURE PSI	PERMEABILITY (CM/SEC @ 20°C)
123	120	4×10^{-8}

PERMEABILITY TEST

TYPE **FALLING HEAD**

REMOLDED SPECIMEN

JOB NO. Heckin Can

Composite

LAB NO. TPF (36") IPE (36")

CELL NO.

DATE 6/1/84

TECHNICIAN mog

SAMPLE IDENTIFICATION (C) Brown fine to coarse sandy clay (CH) (+ gvl removed)

DATE START	DATE FINISH	TIME START	TIME FINISH	TIME T (SEC)	DIVISION START		DIVISION FINISH		H_0 (CM)	H_F (CM)	K (CM/SEC)	K_{20} (CM/SEC)	TEMPERATURE (°C)		FACT.
6/1		8:00	8:04	240	49.5	1.4	30.1	20.5	48.1	9.6	7.94×10^{-4}	7.54×10^{-4}	22.2	22.2	.949
		8:06	8:09	180	48.4	1.4	31.6	18.1	47.0	13.5	8.20×10^{-4}	7.78×10^{-4}	22.2	22.2	.949
		8:11	8:14	180	49.3	1.6	32.1	18.6	47.7	13.5	8.29×10^{-4}	7.87×10^{-4}	22.2	22.2	.949
		8:16	8:19	180	49.1	1.5	31.9	18.4	47.6	13.5	8.28×10^{-4}	7.86×10^{-4}	22.2	22.2	.949
		8:21	8:24	180	49.4	2.3	32.5	19.0	47.1	13.5	8.21×10^{-4}	7.79×10^{-4}	22.2	22.2	.949
		8:26	8:29	180	48.2	3.4	32.2	19.2	44.8	13.0	8.13×10^{-4}	7.72×10^{-4}	22.2	22.2	.949
		8:31	8:34	180	47.4	4.3	32.0	19.5	43.1	12.5	8.14×10^{-4}	7.72×10^{-4}	22.2	22.2	.949
		8:40	8:43	180	49.3	2.3	32.3	19.1	47.0	13.2	8.35×10^{-4}	7.92×10^{-4}	22.2	22.2	.949
	6/1	8:45	8:48	180	49.2	1.5	31.9	18.5	47.7	13.4	8.34×10^{-4}	7.92×10^{-4}	22.2	22.2	.949

DIAMETER 7.250 (CM)

LENGTH (L) 7.630 (CM)

TUBE AREA (a) 0.64 (CM²)

SAMPLE AREA (A) 41.283 (CM²)

DRY UNIT WEIGHT 94.8 PCF

MOISTURE CONTENT 16.3 %

SATURATION 56.6 %

Assumed G = 2.7

WEIGHT IN GRAMS

PAN NO. 3" Ring

PAN WT. 280

WT. WET SOIL & PAN 836.5

WT. DRY SOIL & ~~PAN~~ 478.5

PAN NO. B

PAN WT. 4.1

WT. WET SOIL & PAN 101.2

WT. DRY SOIL & PAN 87.6

$$K = 2.3026 \frac{aL}{AT} \log_{10} \frac{H_0}{H_F}$$

$$= \frac{.2724}{T} \log_{10} \frac{H_0}{H_F}$$

K_{20} = K x CORR. FACT.

CHAMBER PRESSURE PSI	BACK PRESSURE PSI	PERMEABILITY (CM/SEC @ 20°C)
123	120	7.8×10^{-4}

Appendix C

SOIL CHEMICAL ANALYSES

0.5 ft.

ERM-Southeast, Inc.
2623 Sandy Plains Road
Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ______ Field & Sample No. HA18
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 7.1 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 6.3; O.M. 0.6 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W5 52-4	meq/100 ml	ug/ml	INTERPRETATION GUIDE (Below / Optimum / Above)	FERTILIZER SUGGESTIONS B3	Lbs./acre kg/ha
Act. Acidity	A.A.	0				
Calcium	Ca	5.2			Calcium	
Magnesium	Mg	1.78			Magnesium	
Potassium	K	.10			Potash (K_2O)	
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	2.9			Dolomitic Lime	
Mg/K Ratio	Mg/K	17.8		Critical Level	Calcitic Lime	
Nitrogen	N		1		Nitrogen	
Phosphorus	P		8		Phosphate (P_2O_5)	
Sulphur	S		11		Sulphur	
Boron	B		.44		Boron	
Copper	Cu		2.2		Copper	
Iron	Fe		35		Iron	
Manganese	Mn		5.3		Manganese	
Zinc	Zn		1.5		Zinc	
Other						

This report is accepted by the client under the condition that Agro Services International, Inc. is responsible only for the accuracy of the analysis of the sample as received, such liability limited to the cost of the analysis. No other warranties, expressed or implied, are given.

Texture:

Comments:

AGRO SERVICES INTERNATIONAL, INC. ☐ 215 E. Michigan Ave. ☐ P.O. Box ... ☐ ...

2.0 ft.

ERM-Southeast, Inc.
2623 Sandy Plains Road
Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ______ Field & Sample No. HA18
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 12.6 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 6.5; O.M. 0.2 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W6 52-4	meq/100 ml	ug/ml	INTERPRETATION GUIDE (Below / Optimum / Above)	FERTILIZER SUGGESTIONS B3	Lbs./acre kg/ha
Act. Acidity	A.A.	0				
Calcium	Ca	9.6			Calcium	
Magnesium	Mg	2.86			Magnesium	
Potassium	K	.10			Potash (K_2O)	
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	3.4			Dolomitic Lime	
Mg/K Ratio	Mg/K	28.6		Critical Level	Calcitic Lime	
Nitrogen	N		1		Nitrogen	
Phosphorus	P		42		Phosphate (P_2O_5)	
Sulphur	S		6		Sulphur	
Boron	B		.37		Boron	
Copper	Cu		1.9		Copper	
Iron	Fe		58		Iron	
Manganese	Mn		1.5		Manganese	
Zinc	Zn		2.3		Zinc	
Other						

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Texture:

Comments:

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Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ______ Field & Sample No. 0.75 ft. TPB
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 9.4 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 7.6; O.M. 0.8 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W7 52-4	meq/100 ml	ug/ml	INTERPRETATION GUIDE	FERTILIZER SUGGESTIONS D2	Lbs./acre kg/ha
Act. Acidity	A.A.	0				
Calcium	Ca	7.7			Calcium	
Magnesium	Mg	1.62			Magnesium	
Potassium	K	.06			Potash (K_2O)	
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	4.8			Dolomitic Lime	
Mg/K Ratio	Mg/K	27.0			Calcitic Lime	
Nitrogen	N		1		Nitrogen	
Phosphorus	P		19		Phosphate (P_2O_5)	
Sulphur	S		13		Sulphur	
Boron	B		.52		Boron	
Copper	Cu		2.3		Copper	
Iron	Fe		30		Iron	
Manganese	Mn		2.2		Manganese	
Zinc	Zn		1.8		Zinc	
Other						

Interpretation guide columns: Below | Critical Level | Optimum | Above

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Texture:

Comments:

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Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ______ Field & Sample No. 1.5 ft. TPB
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 10.0 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 7.4; O.M. 0.2 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W8 52-4	meq/100 ml	ug/ml	INTERPRETATION GUIDE	FERTILIZER SUGGESTIONS B3	Lbs./acre kg/ha
Act. Acidity	A.A.	0				
Calcium	Ca	8.0			Calcium	
Magnesium	Mg	1.94			Magnesium	
Potassium	K	.10			Potash (K_2O)	
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	4.1			Dolomitic Lime	
Mg/K Ratio	Mg/K	19.1			Calcitic Lime	
Nitrogen	N		1		Nitrogen	
Phosphorus	P		30		Phosphate (P_2O_5)	
Sulphur	S		11		Sulphur	
Boron	B		.37		Boron	
Copper	Cu		2.2		Copper	
Iron	Fe		123		Iron	
Manganese	Mn		4.3		Manganese	
Zinc	Zn		1.4		Zinc	
Other						

Interpretation guide columns: Below | Critical Level | Optimum | Above

This report is accepted by the client under the condition that Agro Services International, Inc. is responsible only for the accuracy of the analysis of the sample as received, such liability limited to the cost of the analysis. No other warranties, expressed or implied, are given.

Texture:

Comments:

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Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ______ Field & Sample No. TPH
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 4.4 meq/100 ml; Base Satn. 86 %; Acid. Satn. 14 %; pH 4.7 ; O.M. 0.5 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W9 524	meq/100 ml	ug/ml	INTERPRETATION GUIDE (Below / Optimum / Above)	FERTILIZER SUGGESTIONS B2	Lbs./acre kg/ha
Act. Acidity	A.A.	0.6				
Calcium	Ca	2.6			Calcium	____
Magnesium	Mg	1.13			Magnesium	____
Potassium	K	.05			Potash (K_2O)	____
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	2.3			Dolomitic Lime	____
Mg/K Ratio	Mg/K	22.6			Calcitic Lime	____
Nitrogen	N		1		Nitrogen	____
Phosphorus	P		18		Phosphate (P_2O_5)	____
Sulphur	S		4		Sulphur	____
Boron	B		.22		Boron	____
Copper	Cu		2.7		Copper	____
Iron	Fe		60		Iron	____
Manganese	Mn		5.8		Manganese	____
Zinc	Zn		1.5		Zinc	____
Other						____

Critical Level

Texture:

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Comments:

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Heekin Can

2.5 ft.
Crop to Fert. ______ Field & Sample No. TPH
Yield Goal ______ Farm Location Ohio
Last Crop ______
Approx. Yield ______ Date Sample Rec'd. ______
Lime Applied ______ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 11.2 meq/100 ml; Base Satn. 95 %; Acid. Satn. 5 %; pH 4.9 ; O.M. 0.1 %; Sol. Salts ______ ppm ______

ELEMENTS	SOIL ANALYSIS Lab No. W10 52-4	meq/100 ml	ug/ml	INTERPRETATION GUIDE (Below / Optimum / Above)	FERTILIZER SUGGESTIONS B3	Lbs./acre kg/ha
Act. Acidity	A.A.	0.6				
Calcium	Ca	8.3			Calcium	____
Magnesium	Mg	2.24			Magnesium	____
Potassium	K	.08			Potash (K_2O)	____
Sodium	Na	.00				
Ca/Mg Ratio	Ca/Mg	3.7			Dolomitic Lime	____
Mg/K Ratio	Mg/K	28.0			Calcitic Lime	____
Nitrogen	N		1		Nitrogen	____
Phosphorus	P		61		Phosphate (P_2O_5)	____
Sulphur	S		22		Sulphur	____
Boron	B		.29		Boron	____
Copper	Cu		2.4		Copper	____
Iron	Fe		122		Iron	____
Manganese	Mn		1.8		Manganese	____
Zinc	Zn		1.1		Zinc	____
Other						____

Critical Level

Texture:

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Comments:

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Heekin Can

Crop to Fert. ________ Field & Sample No. TPI
Yield Goal ________ Farm Location Southern Ohio
Last Crop ________ Forested Area
Approx. Yield ________ Date Sample Rec'd. ________
Lime Applied ________ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 8.4 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 6.7; O.M. 0.9 %; Sol. Salts ____ ppm ____

Lab No. B1 52-4 — Fertilizer Suggestions D2

ELEMENTS		meq/100 ml	ug/ml
Act. Acidity	A.A.	0	
Calcium	Ca	6.6	
Magnesium	Mg	1.65	
Potassium	K	.10	
Sodium	Na	.00	
Ca/Mg Ratio	Ca/Mg	4.0	
Mg/K Ratio	Mg/K	16.5	
Nitrogen	N		1
Phosphorus	P		25
Sulphur	S		9
Boron	B		.44
Copper	Cu		2.5
Iron	Fe		71
Manganese	Mn		2.2
Zinc	Zn		0.7
Other			

Interpretation Guide: Below | Optimum | Above (Critical Level)

Fertilizer Suggestions (Lbs./acre / kg/ha): Calcium ____; Magnesium ____; Potash (K_2O) ____; Dolomitic Lime ____; Calcitic Lime ____; Nitrogen ____; Phosphate (P_2O_5) ____; Sulphur ____; Boron ____; Copper ____; Iron ____; Manganese ____; Zinc ____

Texture:

Comments:

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2.0 ft.

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Suite 201
Marietta, GA 30066

Heekin Can

Crop to Fert. ________ Field & Sample No. TPI
Yield Goal ________ Farm Location Ohio
Last Crop ________
Approx. Yield ________ Date Sample Rec'd. ________
Lime Applied ________ Date Returned 5/29/84

Soil Condition: Act.C.E.C. 22.5 meq/100 ml; Base Satn. 100 %; Acid. Satn. 0 %; pH 6.6; O.M. 0.5 %; Sol. Salts ____ ppm ____

Lab No. B2 52-4 — Fertilizer Suggestions B3

ELEMENTS		meq/100 ml	ug/ml
Act. Acidity	A.A.	0	
Calcium	Ca	16.6	
Magnesium	Mg	5.74	
Potassium	K	.14	
Sodium	Na	.00	
Ca/Mg Ratio	Ca/Mg	2.9	
Mg/K Ratio	Mg/K	41.0	
Nitrogen	N		1
Phosphorus	P		21
Sulphur	S		13
Boron	B		.60
Copper	Cu		2.8
Iron	Fe		31
Manganese	Mn		1.8
Zinc	Zn		0.8
Other			

Interpretation Guide: Below | Optimum | Above (Critical Level)

Fertilizer Suggestions (Lbs./acre / kg/ha): Calcium ____; Magnesium ____; Potash (K_2O) ____; Dolomitic Lime ____; Calcitic Lime ____; Nitrogen ____; Phosphate (P_2O_5) ____; Sulphur ____; Boron ____; Copper ____; Iron ____; Manganese ____; Zinc ____

This report is accepted by the client under the condition that Agro Services International, Inc. is responsible only for the accuracy of the analysis of the sample as received, such liability limited to the cost of the analysis. No other warranties, expressed or implied, are given.

Texture:

Comments:

Appendix D

BURGESS & NIPLE REPORT

HYDROGEOLOGIC INVESTIGATION

HEEKIN CAN, INC.

April 1983

BURGESS & NIPLE, LIMITED
Engineers and Architects

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

1. The Heekin Can, Inc., plant is located on about a 77-acre tract in Anderson Township, Hamilton County, Ohio. They manufacture two-piece aluminum cans and three-piece steel cans for the food and beverage industry.

2. A public water supply system is available in the area and a public sewer system has been designed and will be extended to serve the region in the future.

3. The plant's sanitary wastes are treated in a Ohio Department of Health approved 50,000 gallon per day package treatment facility and the sanitary effluent is discharged to a depression north of the treatment plant.

4. The plant's industrial wastewater is treated in a 67,000 gallon per day treatment facility and the effluent is discharged on the base of an abandoned gravel pit just north of the plant.

5. The plant site is located over a buried valley which is approximately 100 feet thick and 1 mile wide.

6. The underlying bedrock is composed of interbedded layers of shale and milestone belonging to the Kope Formation of Ordovician Age. The bedrock typically yields less than 5 gallons per minute to drilled wells and is not considered to be a significant aquifer.

7. The saturated sand and gravel deposits in the buried valley near the plant site are generally a productive aquifer.

8. The direction of groundwater movement in the vicinity of the plant was determined to be northwest towards the Little Miami River. The rate of groundwater movement under the plant site is in the range of 1 to 10 feet per day.

9. The effluent from the sanitary treatment facility is characterized by high concentrations of biochemical oxygen demand, suspended solids, and ammonia nitrogen.

10. The effluent from the industrial wastewater treatment facility is characterized by high concentrations of chemical oxygen demand, dissolved solids, sulfates, chlorides, and fluorides.

11. Based on the analyses of 17 water samples from five wells surrounding the plant, there is no indication of any effects from the discharge of treated wastewater by Heekin Can, Inc.

12. Three monitoring wells are recommended to be installed between the industrial effluent discharge point and the nearest residential wells to be certain that the groundwater in the area remains undegraded.

13. The monitoring wells should be sampled on a quarterly basis for 1 year for the parameters that are relevant to the effluent discharge.

14. Consideration should be given to the discharge of effluent from the industrial wastewater treatment plant to the MSD as soon as the collection system is constructed in the immediate plant area.

INTRODUCTION

The purpose of this report is to examine the geology and the groundwater hydrology in the vicinity of the Heekin Can, Inc., plant site in order to determine if there should be concern over the existing wastewater treatment and effluent disposal practices. Towards this goal, the following functions were performed:

1. A review of existing water well logs and other data on the geology and groundwater hydrology in the area.
2. A determination of the direction, amount, and rate of movement of the groundwater and the aquifer characteristics from existing data.
3. A determination from existing records of the natural groundwater quality.
4. A determination of the effect, if any, of plant wastewater effluent upon groundwater quality.
5. A recommendation of a course of action to determine that plant discharges are not adversely affecting groundwater quality.

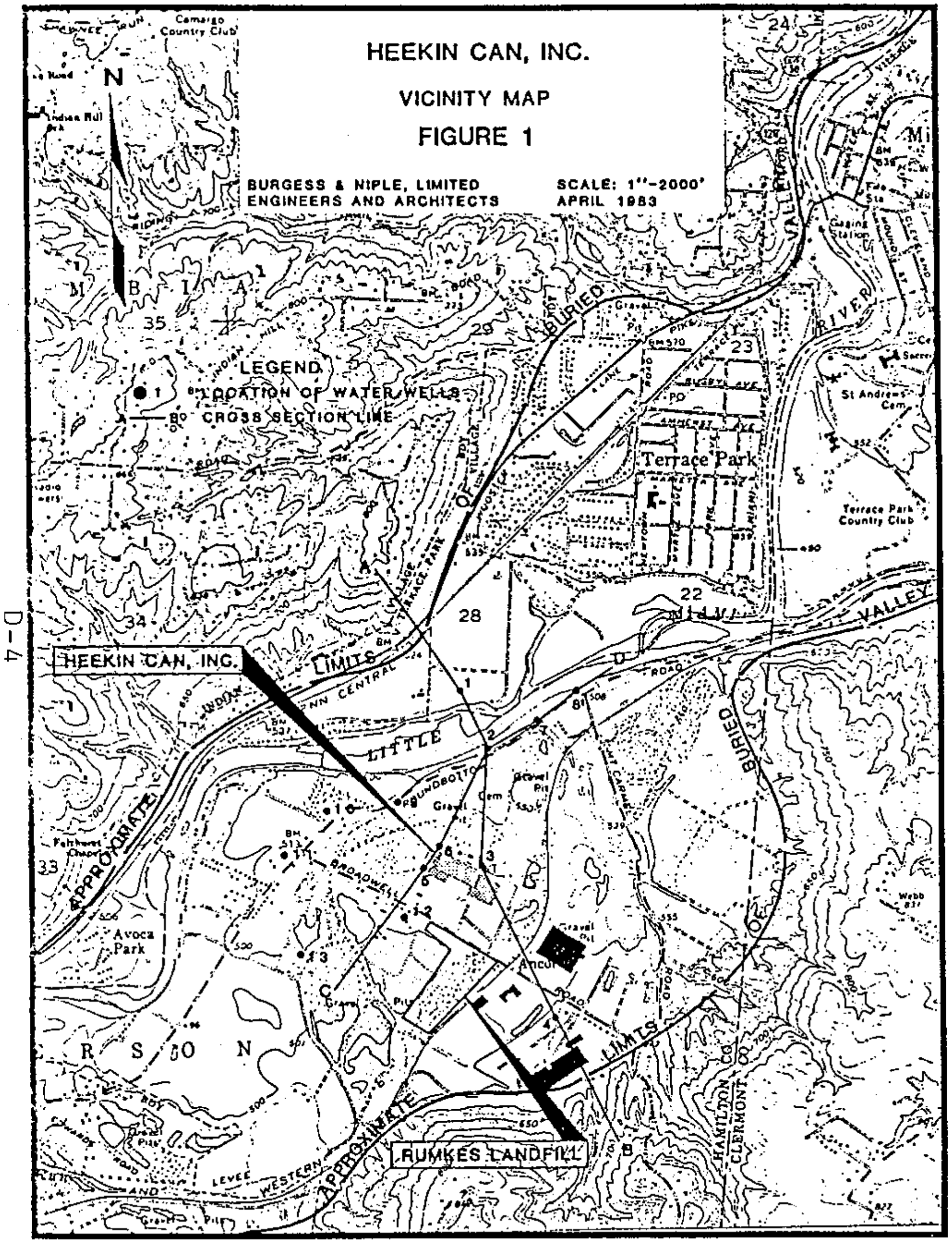
HISTORICAL BACKGROUND

The Heekin Can, Inc., plant is located in the southeasterly environs of Cincinnati, being more specifically located in a broad valley on the southeasterly side of the Little Miami River in Anderson Township, Hamilton County, Ohio, between Terrace Park and Newtown as shown on Figure 1. The plant was originally built and owned by the Baldwin Piano Company in the 1940's. In 1959, the plant was sold to Heekin Can, Inc.; it was reequipped and expanded to manufacture two-piece aluminum and three-piece steel cans for the food and beverage industry.

The plant property contains approximately 77 acres and is bounded as follows: on the south by Broadwell Road, on the east by the Norfolk and Western Railroad, on the north and west by the Dravo Company. Sand and gravel extraction is, and has been, very prevalent in the area surrounding the plant site. Numerous gravel pits are shown on Figure 1.

Along the south side of Broadwell Road opposite the plant property in the area of an abandoned gravel pit is the Rumpke Landfill, formerly the Anderson Township Waste Collection Landfill. This site has operated as a landfill since 1964 and as an open dump prior to 1964. Gas vents on-site at the landfill emit large quantities of methane which is flared. The Ohio Environmental Protection Agency (EPA) monitors groundwater quality from nine wells in the area. We have reviewed the records from five of these wells (Nos. 9 through 13 on Figure 1) as part of this investigation.

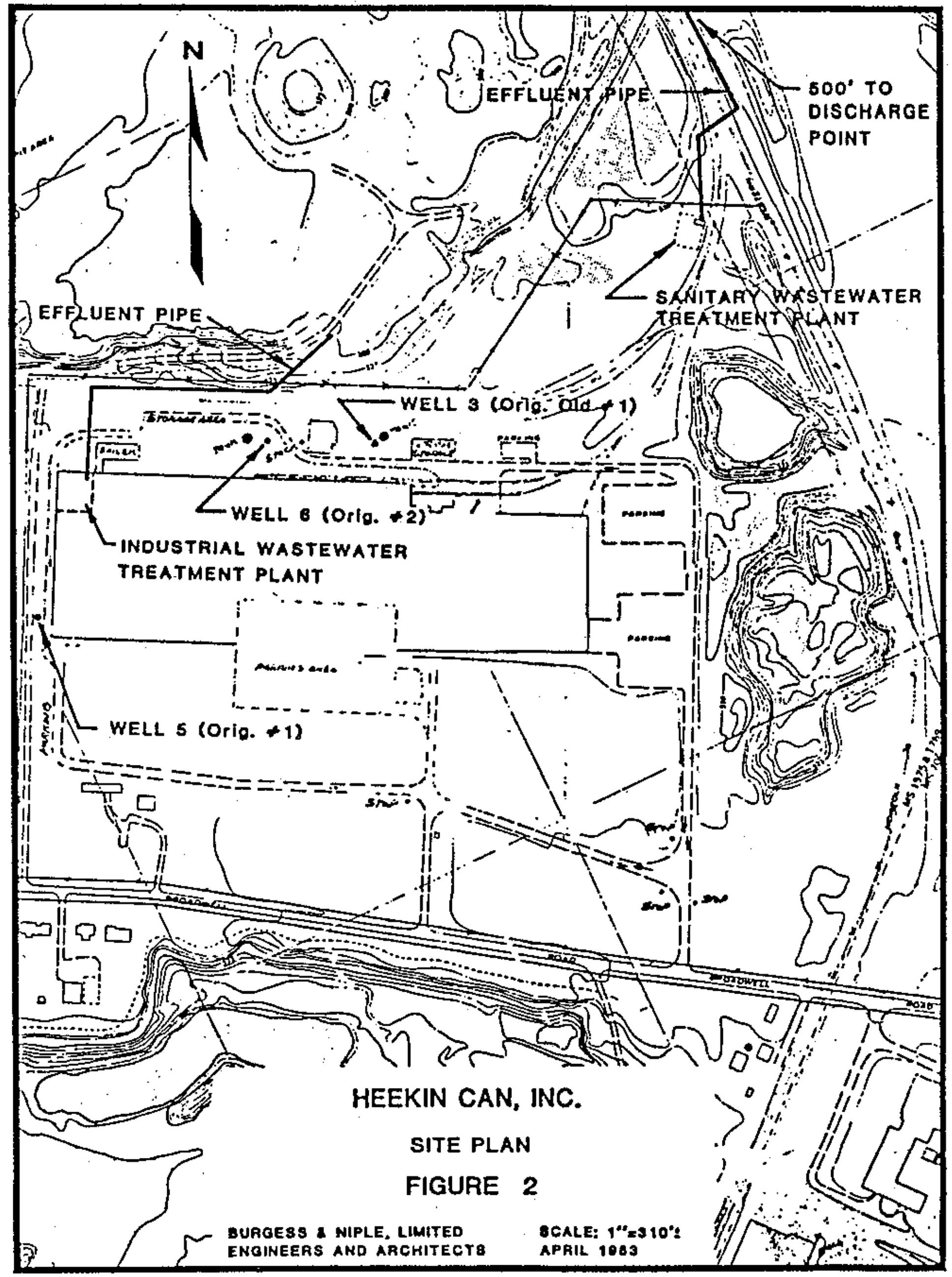
As shown on Figure 2, there are three drilled water wells on the Heekin plant property that were originally drilled for the Baldwin Piano Company. These wells provided potable and process water for the plants. Water for plant operation is currently furnished by the Cincinnati Water Works. The water distribution system in the vicinity of the plant is shown on Figure 3. Water is readily available for the entire area from the public systems of Cincinnati, Milford, or Indian Hills.



HEEKIN CAN, INC.

VICINITY MAP

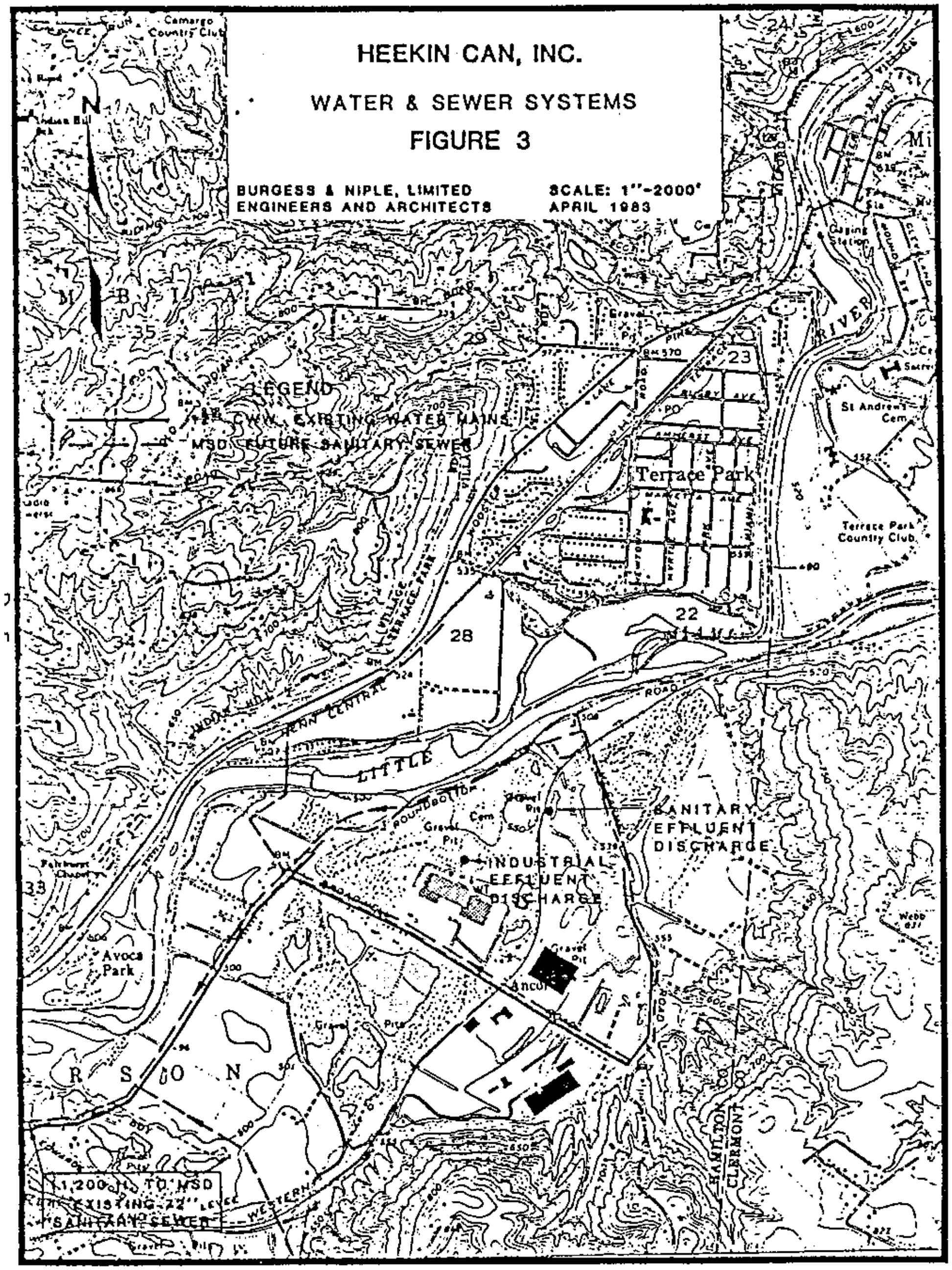
FIGURE 1



HEEKIN CAN, INC.

SITE PLAN

FIGURE 2



A public sewer system is not yet available in the area. The Cincinnati Metropolitan Sewer District (MSD) currently has a 72-inch trunk sewer approximately 19,000 feet (public right-of-way distance) from the plant site. A facilities plan has been completed for the area indicating that the entire region is planned to be served by the MSD. This proposed system is shown on Figure 3. Representatives of MSD have indicated that it will probably be several years before sewers are constructed in the plant area. The sewer would serve the Terrace Park area which has a population of about 2,500 people, the Washington Hills area, industries in the valley, and the City of Milford which has a population of about 5,200 people and inadequate treatment facilities.

WASTEWATER DISPOSAL

The Heekin plant, as other plants in the area, is situated in a region that in the past has been remote from any public sewer system; however, planned expansion of the MSD will serve the area in the future. Sanitary sewage from Heekin Can is treated on-site in a package treatment facility located near the northeast corner of the plant, and the treated effluent flows to the north as shown on Figure 2. Approximately 800 feet north of the package plant, the effluent is discharged to a depression that probably is the result of past sand and gravel operations. It appears that originally the overflow from this depression entered the unnamed tributary of the Little Miami River just north of the depression.

Plans for the sanitary sewage system were submitted to the Ohio Department of Health and approved on October 29, 1956. The capacity of the sanitary sewage treatment plant is 50,000 gallons per day. It is an aerobic digestion plant and was designed to treat normal strength sewage of 250 milligrams per liter biochemical oxygen demand and 300 milligrams per liter suspended solids. It was designed for a flow of 45 gallons per day per capita which is equal to an employment force of about 1,100 people. Currently, the number of employees at the plant is approximately 585 with full employment being about 600 persons.

The process wastewater from Heekin Can is composed primarily of rinse water generated in the manufacturing of aluminum cans. The process wastewater is treated in a 67,000 gallon per day capacity treatment plant located near the northwest corner of the plant. The effluent flows onto the base of an abandoned gravel pit located a few hundred feet to the north (see Figure 2). The average flow is 65,000 gallons per day. This industrial wastewater treatment plant consists of chromium reduction, pH adjustment, flocculation, and settling.

SITE CHARACTERISTICS

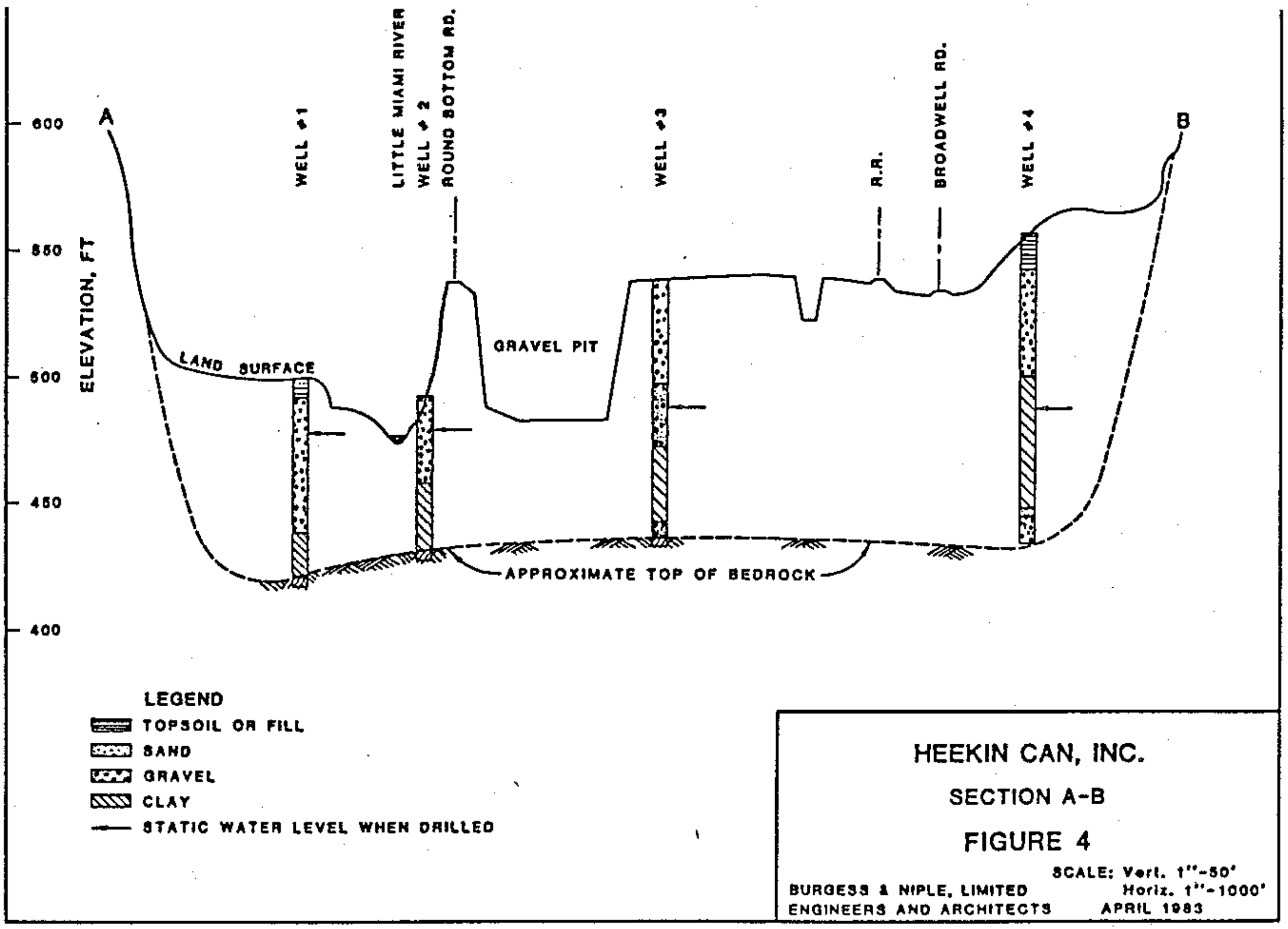
Subsurface Conditions

As previously mentioned, the Heekin plant is located in a broad valley in the most eastern portion of Hamilton County. The valley is remnant of an earlier drainage system which existed prior to Pleistocene glaciation and was partially filled with glacial drift and outwash. The Little Miami River flows through the valley today, but at a much higher elevation than the preglacial drainage system. Below the valley surface of today, the fill of glacial material is called a buried valley. In some places, the glacial deposits are covered with present day alluvium (silt and clay) deposited by floodwaters of the Little Miami River.

In this buried valley, some of the glacial fill materials were deposited by the meltwater resulting from the wasting action of the glacial ice. For this reason, some of the fill in the valley is permeable sand and gravel, and therefore, provides productive aquifers. In portions of the buried valley, clay has also been deposited.

The thickness and nature of the unconsolidated glacial material in the vicinity of the plant was determined from numerous water well logs and soil borings in the area. The locations of some of the well logs and borings used in this investigation are shown on Figures 1 and 2. Copies of the logs are duplicated in the Appendix. A transverse cross section through the width of the buried valley and a longitudinal section are presented on Figures 4 and 5. The locations of the sections and logs used in their preparation are shown on Figure 1.

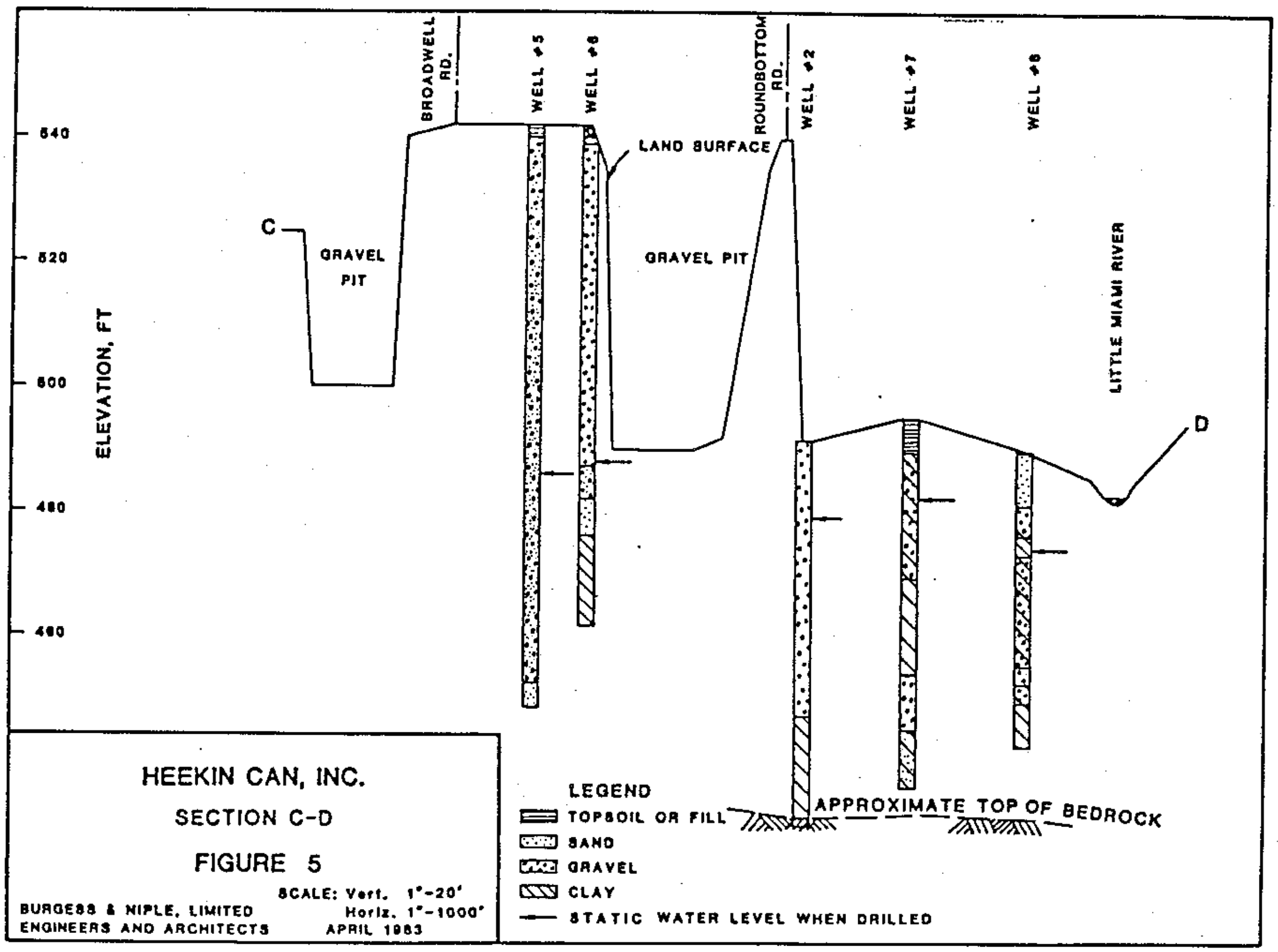
The extent of these unconsolidated glacial materials ranges from approximately 5,000 to 7,000 feet in width with an average thickness of about 100 feet. The approximate limits of the buried valley in the area are shown on Figure 1. In overall length, this buried valley extends approximately from Loveland, Ohio, to the confluence of the Little Miami and Ohio Rivers. This is a distance of about 24 miles. A branch of this buried valley extends through Norwood, Ohio, and is known as the Norwood Trough.



HEEKIN CAN, INC.

SECTION A-B

FIGURE 4



HEEKIN CAN, INC.

SECTION C-D

FIGURE 5

The nature of the unconsolidated material is variable but in the vicinity of the plant it consists of about 70 feet of sand and gravel underlain by about 30 feet of clay. This is based on well log information. Water well logs must be used with discretion since the well driller preparing the log was mainly interested in locating a water supply and not in describing in detail the characteristics of nonwater bearing strata.

Underlying the unconsolidated buried valley deposits are the consolidated bedrock units. The bedrock in the vicinity of the plant is the Kope Formation belonging to the Ordovician Age. These rocks are composed of interbedded layers of shale and limestone, with some mudstone and siltstone present as partings. Portions of the bedrock outcrop are exposed in the steep slopes and streambeds of the surrounding hills. Above the Kope Formation is the Fairview Formation which is very similar in nature. The Fairview Formation outcrops on the valley sides at an elevation of about 700 feet and has no direct bearing on the buried valley.

The consolidated bedrock is a very poor source of underground water. Wells generally yield less than 5 gallons per minute and many drilled wells are failures due to the low yield. The consolidated bedrock has very little effect on the groundwater hydrology of the area.

Groundwater Conditions

The saturated sand and gravel deposits in the buried valley near the plant site are generally a productive aquifer. According to an open file report from the Ohio Department of Natural Resources (ODNR), the yield of this aquifer ranges from approximately 1.9 million gallons per day per river mile upstream of the plant site to 5.3 million gallons per day per river mile downstream. Based on the regional information, wells in the vicinity of the plant are estimated to produce 500 gallons per minute each. Two of the wells for the former Baldwin Piano Company were equipped with pumps of 125 gallons per minute and 200 gallons per minute capacity. This indicates that conditions are not as favorable for groundwater development at the plant site as other locations in the valley. This reduced yield is due to the characteristics of the sand and gravel deposits as well as the presence of considerable clay in the deeper portions of the valley fill.

In addition to the former wells at the Heekin Can plant, there are public water supplies in the area which obtain their source of raw water from wells completed in the buried valley deposits. These systems are listed below.

Community	Number of Wells	Individual Well Capacity in gpm
Milford	3	500
Indian Hill	7	400-800

In the past, several other industries in the area had private wells as a source of water supply. Many have converted to the municipal water system since it became available in the region. There appears to be about six residents within 2,000 feet of either the sanitary or process water discharge of Heekin Can on the east side of the Little Miami River that relie upon groundwater as a source of water supply. One of these is located north and upgradient of the sanitary effluent discharge at a distance of 1,500 feet. The remaining residences are situated at distances in excess of 1,300 feet of the process water discharge. This analysis is based on data supplied by the Cincinnati Water Works on water services in the area.

The general direction of groundwater flow in the buried valley is from upstream to downstream and also from the edge of the buried valley towards the Little Miami River. The Little Miami River receives flow from the groundwater during periods of low flow.

On April 19, 1983 water level measurements were taken in two of the water wells at the Heekin plant, as well as one of the monitor wells at the landfill to the south. Based on these measurements, the direction of groundwater movement was determined to be toward the northwest. This confirms the direction of movement identified in the area of the landfill during 1975 as indicated in the report "Evaluation of the Effect of the Anderson Township Ohio Fill on Ground and Surface Water Resources."

On a regional basis, there is a direct hydraulic connection between the Little Maimi River and the sand and gravel aquifer. This means that during periods of sustained high river flow, stream water will infiltrate into the aquifer near the river and there will be a corresponding rise in the water level in wells near the river. This is confirmed by the state observation well, No. H-3 located at the Indian Hill Water Department well field, in which groundwater levels respond to river stage and also by the presence of sand and gravel deposits in the riverbed at the same elevation as the deposits in well logs. It also can be observed in the level of water in abandoned gravel pits in the area which correspond with stream stage. Also, one reason why this is a productive aquifer is that a major source of recharge to the groundwater is through induced stream infiltration to wells near the river.

The rate of groundwater movement in the buried valley aquifer is variable and dependent on the characteristics of the material in the aquifer and the head conditions. Typical permeabilities for various material will range from:

Material	Permeability cm/second	Permeability feet/day
Gravel	10^{-2} - 10^{-3}	10,000 - 1,000
Sand	10^{-3} - 10^{-5}	1,000 - 10
Silt	10^{-5} - 10^{-6}	10 - 1
Clay	10^{-7} - 10^{-9}	0.1 - .001

Based on the material and head conditions encountered, the average rate of groundwater movement in the plant vicinity is in the range of 1 to 10 feet per day.

WATER QUALITY

Natural Groundwater Quality

The natural or ambient quality of groundwater in the Little Miami River Valley aquifer system in the Hamilton-Clermont County area is presented in Table 1. This information is based on water quality data from wells at Loveland, Milford, Indian Hills, groundwater quality data from the "Southwest Ohio Water Development Plan," "Groundwater for Planning in Southwest Ohio," the Ohio Department of Health, Ohio EPA, and files of Burgess & Niple, Limited.

The maximums, minimums, and representative values listed in Table 1 were determined after discarding the high and low values of the available data for each parameter. This was done to prevent extreme values from indicating much wider than typical ranges. The representative values in Table 1 may be considered indicative of the natural groundwater pumped from uncontaminated wells completed in the glacial outwash deposits in the Little Miami River Valley. Table 1 also includes the U.S. EPA Drinking Water Standards for those parameters which limits have been established.

Effluent Quality

The quality of the effluent being discharged from the Heekin Can Industrial wastewater treatment plant is presented below. These results are based on a 10-hour composite sample analyzed by both Ohio EPA and Heekin Can in 1980 and a sample collected by Ohio EPA in 1977. In general, the effluent is characterized by the following parameters and values:

Parameter	Approximate Value, mg/l
COD	600
Suspended Solids	15
Dissolved Solids	4,500
Sulfate	1,000
Chloride	150
Fluoride	20
MBAS	3
Oil and Grease	50
Chromium (Total)	0.08

Table 1

Natural Groundwater Quality

Parameter	Units	Values: Representative	Maximum	Minimum	Drinking Water Standard (Maximum Level)
Chemical and General					
Alkalinity, Total - $CaCO_3$	mg/l	320	500	100	
Bicarbonate - HCO_3	mg/l	300	500	100	
BOD - 5-day	mg/l	4	10	<1	
Calcium, Total - $CaCO_3$	mg/l	100	140	40	
Carbon Dioxide - CO_2	mg/l	30	50	20	
Carbon, Total Organic - C	mg/l	2	10	<1	
Chloride - Cl	mg/l	40	90	20	250-S
COD	mg/l	20	70	5	
Cyanide - CN	mg/l	-	-	-	0.2-P
Fluoride - F	mg/l	.30	1	.18	1.4 to 2.4-P
Hardness, Total - $CaCO_3$	mg/l	350	450	220	
Hardness, Noncarbonate - $CaCO_3$	mg/l	30	70	<1	
Hydrogen Sulfide - H_2S	mg/l	-	-	-	0.5-S
Magnesium, Total - $CaCO_3$	mg/l	35	100	10	
MBAS	mg/l	.05	.5	<.01	0.5-S
Nitrate - N	mg/l	0.70	5	<.05	
Nitrite - N	mg/l	0.01	0.1	<.01	
Nitrogen, Ammonia - N	mg/l	0.6	1.4	.05	
pH, Lab	S.U.	7.5	8.3	6.9	6.5 to 8.5-S
Phenols	mg/l	.001	.06	<.001	
Phosphate, Total - PO_4-P	mg/l	0.2	3	<.02	
Potassium, Total - K	mg/l	3	10	1	
Silica - SiO_2	mg/l	11	20	8	
Sodium, Total - Na	mg/l	20	50	10	
Solids, Dissolved	mg/l	490	600	250	500-S
Sulfate - SO_4	mg/l	70	200	15	250-S

Table 1 (continued)

Parameter	Units	Values: Representative	Maximum	Minimum	Drinking Water Standard (Maximum Level)
Physical					
Color	PCU	2	7	0	15-S
Odor	TON	-	-	-	3-S
Specific Conductance	umhos	750	1000	580	
Turbidity	NTU	0.5	7	0.1	1-P
Metals					
Arsenic, Total - As	ug/l	5	20	<1	100-P
Aluminum, Total - Al	ug/l	30	200	<1	
Barium, Total - Ba	ug/l	50	300	<2	1000-P
Cadmium, Total - Cd	ug/l	2	8	<1	10-P
Chromium - Cr (VI)	ug/l	10	40	<2	50-P
Copper, Total - Cu	ug/l	10	40	<10	1000-S
Iron, Total - Fe	ug/l	400	6000	100	300-S
Lead, Total - Pb	ug/l	5	40	<1	50-P
Manganese, Total - Mn	ug/l	100	500	50	50-S
Mercury, Total - Hg	ug/l	<.2	.3	<.2	2-P
Nickel, Total - Ni	ug/l	10	70	<10	
Selenium, Total - Se	ug/l	1	10	<1	10-P
Silver, Total - Ag	ug/l	1	8	<1	50-P
Zinc, Total - Zn	ug/l	10	40	2	5000-S
Bacteriological					
Coliform, Total, MF	#/100 ml	1	1	<1	1-P

P - Interim Primary Standard
S - Secondary Standard

The effluent from the sanitary wastewater treatment plant should be characterized by the following constituents and concentrations:

BOD_5	30 mg/l
Suspended Solids	30 mg/l
pH	7
Ammonia Nitrogen	10 mg/l
Dissolved Oxygen	4 mg/l

Water Quality of Surrounding Wells

During the period from 1974 through 1979, there have been at least 17 quality analyses conducted on water samples from various wells surrounding the Heekin Can property. The water analyses are contained in the Appendix and the well locations are shown on Figure 1 and identified as follows:

Well Number	Well Owner
9	Robert Denneman
10	John C. Holitor
11	Mrs. Menke
12	Heck's Greenhouse
13	Dravo Production Well 1

Results from these analyses performed on the groundwater samples collected from the nearby wells do not indicate any adverse impact on groundwater quality due to the Heekin Can effluent. In the wells samples, the concentrations of those constituents that are indicative of the Heekin Can effluent are, in nearly every case, within the range representative of natural or ambient groundwater quality. In the case of well No. 11, higher than ambient concentrations of ammonia nitrogen, chloride, sodium, aluminum, iron, and zinc were observed based on one sample. Elevated concentrations of these constituents are generally indicative of the effects of a landfill and the observed quality is consistent with the occurrence of a landfill upgradient of this well. Moreover, the direction of groundwater flow beneath Heekin Can was determined to be northwest toward the Little Miami River. Well No. 11 is located west of the industrial waste discharge point, and therefore, not directly downgradient of the discharge point.

Two wells, Nos. 9 and 10, are located generally downgradient of the industrial waste discharge points. Analytical results from the samples collected from these wells indicate that the groundwater meets all U.S. EPA Primary and all but one Secondary Drinking Water Standards for which analyses were performed. Total dissolved solids in well No. 10 were slightly above the Secondary Standard. This is not unusual in this area as the natural groundwater quality is high in total dissolved solids.

The velocity of groundwater flow in this area has been given to be in the range of 1 to 10 feet per day. At the time the above mentioned samples were collected, many indicators of groundwater degradation could possibly be 3,500 to 35,000 feet from the source. Wells No. 9 and 10 are located, respectively, about 1,300 and 2,300 feet from the industrial waste discharge point. If groundwater at these wells were to become degraded, it would likely have occurred by the time the samples were collected. Based on both the velocity of groundflow flow and the quality data presented in the appendix, no evidence is indicated that the effluent from Heekin Can is adversely affecting local groundwater supplies.

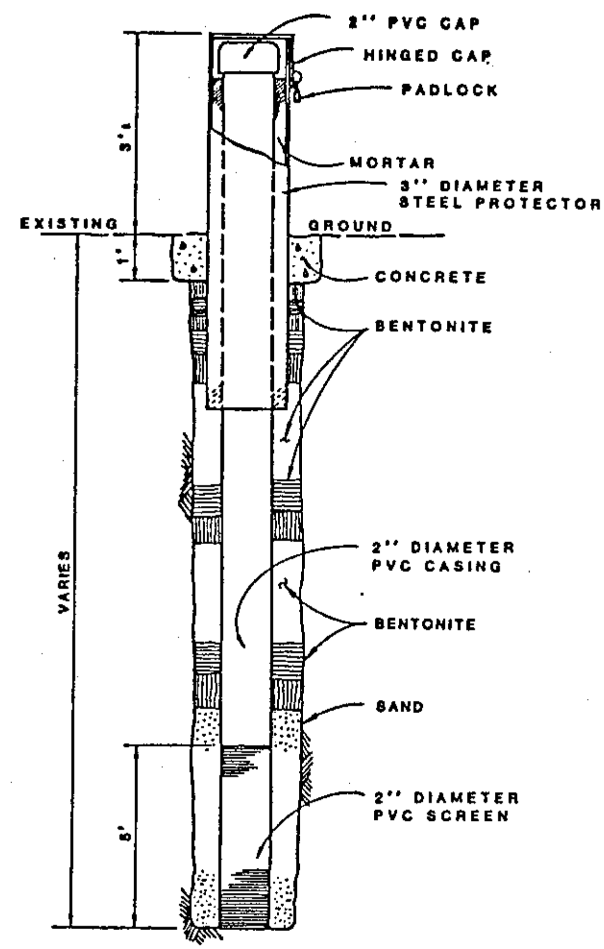
RECOMMENDATIONS

Since there is no indication that the effluent from Heekin Can is adversely effecting any groundwater, it is recommended that the present method, degree of treatment, and disposal be continued. However, in order to be certain that the groundwater in the area remains undegraded and that local groundwater users are ensured of good quality groundwater, it is recommended that a groundwater monitoring program be initiated.

The groundwater monitoring program should consist of installing monitoring wells in the area between the industrial wastewater effluent point and the closest downgradient residential wells and should be located so as to provide sufficient time to conduct a remedial action plan, if necessary. The general specifications for monitoring wells are given in Table 2 and a typical monitoring well is shown on Figure 6. It is recommended that three monitor wells be installed. The depth of these wells will be dependent on the surface elevation but an average depth would be approximately 50 feet.

Table 2
Monitoring Well Specifications

Number of Wells - 3
Depth - 50 feet
Diameter - 2 inches
Material - Flush Joint PVC
Screen - Closed Bottom-PVC
Screen Length - 5 feet
Slot Size - To be determined from sieve analyses, probably 10 slot
Screen Pack - Silica Sand
Casing Pack - Bentonite
Surface - Steel Protective Casing Locking Cap



HEEKIN CAN, INC.

FIGURE 6

TYPICAL MONITORING WELL

BURGESS & NIPLE, LIMITED ENGINEERS

NO SCALE

It is further recommended that the monitoring wells be sampled on a quarterly basis for the initial year. At that time, the results of the analyses should be evaluated and the future sampling frequency and parameters analyzed should be adjusted, if necessary. The parameters to be analyzed on the groundwater samples from the monitoring wells are those listed below. These parameters were selected on the basis of their relevance to the effluent discharges.

Recommended Groundwater Parameters

- Chemical oxygen demand
- Chloride
- Chromium
- Dissolved solids
- Fluoride
- MBAS
- Oil and Grease
- pH
- Sulfate

It is further recommended that consideration be given to the discharge of effluent from the industrial wastewater treatment plant to the MSD as soon as the collection system is constructed in the immediate plant area.

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CONFIDENTIAL

5-6-83

HYDROGEOLOGIC INVESTIGATION

HEEKIN CAN, INC.

APRIL - 1983

Burgess & Niple, Limited
Engineers and Architects

CONFIDENTIAL

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

BREWER Co.
7374 MAIN (RT-32)
NEWTOWN
561-7588
BILL BAKER
BUD BREWER

DAVE WILLIAMS
579-0042
BURGESS & NIPLE

NOTE:

(614) 459-2050

JOHN NOYES OF BURGESS & NIPLE
DID NOT PHYSICALLY LOCATE OR SEE
WELL #2, 1, 7 & 8. HE OBTAIN
LOG INFO. FROM OLD BALDWIN DRAWING.
PER PHONE ON 9-16-86
RAE

WELL #2 (BALDWIN TEST WELL #7)
MAY NOT HAVE CASING PER JOHN; COULD
BE TEST TO SEE WATER LEVEL & SOIL
CONDITIONS.

WELL #2 IS LOCATED ON PROPERTY OF
BREWER CO. I CONTACTED BILL BAKER 561-8843
& VISITED THE SITE ON 9-19-86.
WELL #2 IS NONEXISTENT; OUR) MR. BAKER COULD
NOT RECALL OF ANY WELLS ON THIS PROPERTY & 2)
THE LOCATION OF THE WELL IS PRESENTLY
ENCOMPASS BY A LAKE.

9-22-86 RAE

cc PHIL SCHWORER 6/22/88
GORDON SHAFFER 9/2/88
DAMES & MOORE

HYDROGEOLOGIC INVESTIGATION

HEEKIN CAN, INC.

April 1983

BURGESS & NIPLE, LIMITED
Engineers and Architects

SUMMARY

1. The Heekin Can, Inc., plant is located on about a 77-acre tract in Anderson Township, Hamilton County, Ohio. They manufacture two-piece aluminum cans and three-piece steel cans for the food and beverage industry.

2. A public water supply system is available in the area and a public sewer system has been designed and will be extended to serve the region in the future.

3. The plant's sanitary wastes are treated in a Ohio Department of Health approved 50,000 gallon per day package treatment facility and the sanitary effluent is discharged to a depression north of the treatment plant.

4. The plant's industrial wastewater is treated in a 67,000 gallon per day treatment facility and the effluent is discharged on the base of an abandoned gravel pit just north of the plant.

5. The plant site is located over a buried valley which is approximately 100 feet thick and 1 mile wide.

6. The underlying bedrock is composed of interbedded layers of shale and milestone belonging to the Kope Formation of Ordovician Age. The bedrock typically yields less than 5 gallons per minute to drilled wells and is not considered to be a significant aquifer.

7. The saturated sand and gravel deposits in the buried valley near the plant site are generally a productive aquifer.

8. The direction of groundwater movement in the vicinity of the plant was determined to be northwest towards the Little Miami River. The rate of groundwater movement under the plant site is in the range of 1 to 10 feet per day.

9. The effluent from the sanitary treatment facility is characterized by high concentrations of biochemical oxygen demand, suspended solids, and ammonia nitrogen.

10. The effluent from the industrial wastewater treatment facility is characterized by high concentrations of chemical oxygen demand, dissolved solids, sulfates, chlorides, and fluorides.

11. Based on the analyses of 17 water samples from five wells surrounding the plant, there is no indication of any effects from the discharge of treated wastewater by Heekin Can, Inc.

12. Three monitoring wells are recommended to be installed between the industrial effluent discharge point and the nearest residential wells to be certain that the groundwater in the area remains undegraded.

13. The monitoring wells should be sampled on a quarterly basis for 1 year for the parameters that are relevant to the effluent discharge.

14. Consideration should be given to the discharge of effluent from the industrial wastewater treatment plant to the MSD as soon as the collection system is constructed in the immediate plant area.

INTRODUCTION

The purpose of this report is to examine the geology and the groundwater hydrology in the vicinity of the Heekin Can, Inc., plant site in order to determine if there should be concern over the existing wastewater treatment and effluent disposal practices. Towards this goal, the following functions were performed:

1. A review of existing water well logs and other data on the geology and groundwater hydrology in the area.

2. A determination of the direction, amount, and rate of movement of the groundwater and the aquifer characteristics from existing data.

3. A determination from existing records of the natural groundwater quality.

4. A determination of the effect, if any, of plant wastewater effluent upon groundwater quality.

5. A recommendation of a course of action to determine that plant discharges are not adversely affecting groundwater quality.

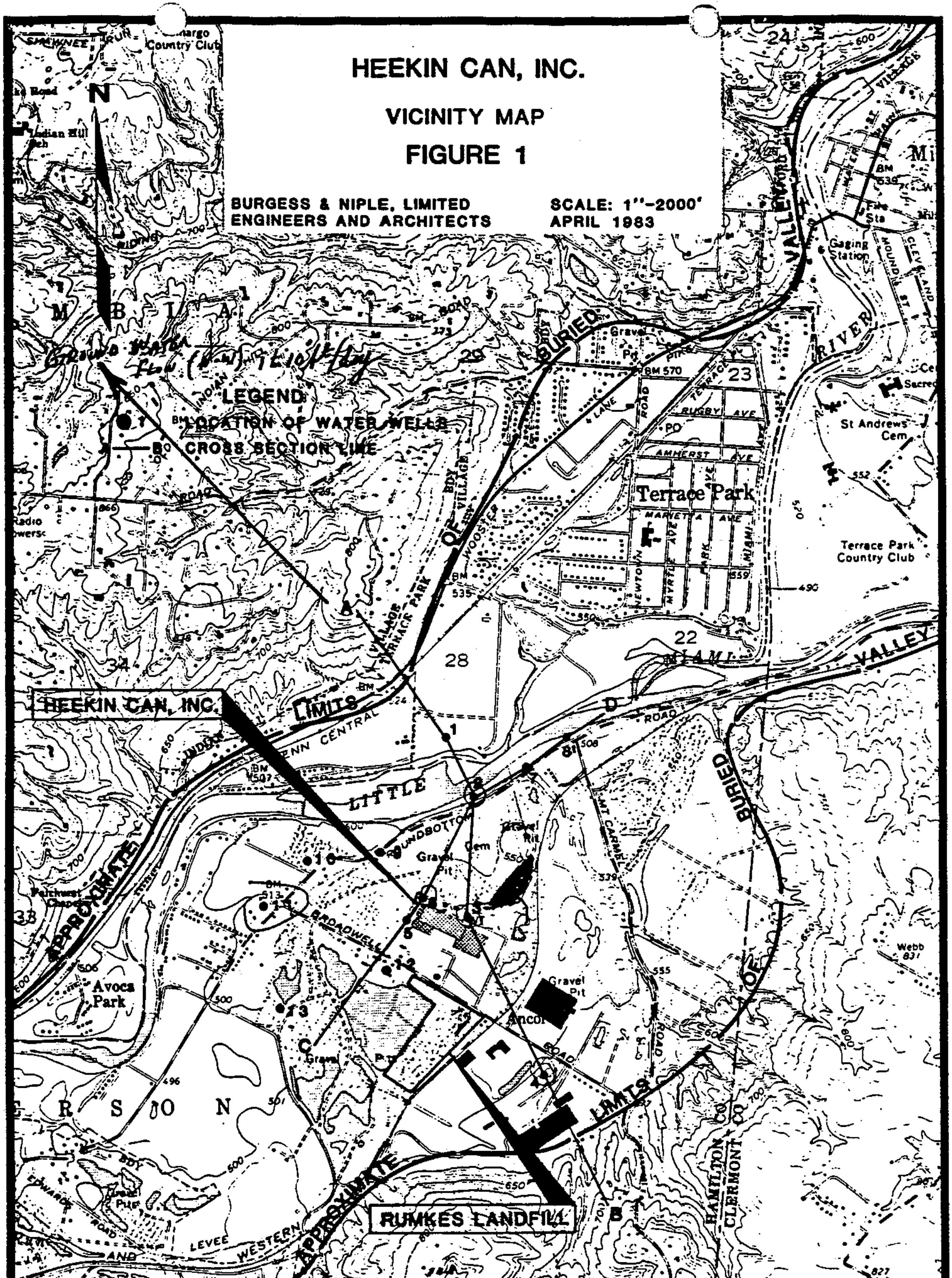
HISTORICAL BACKGROUND

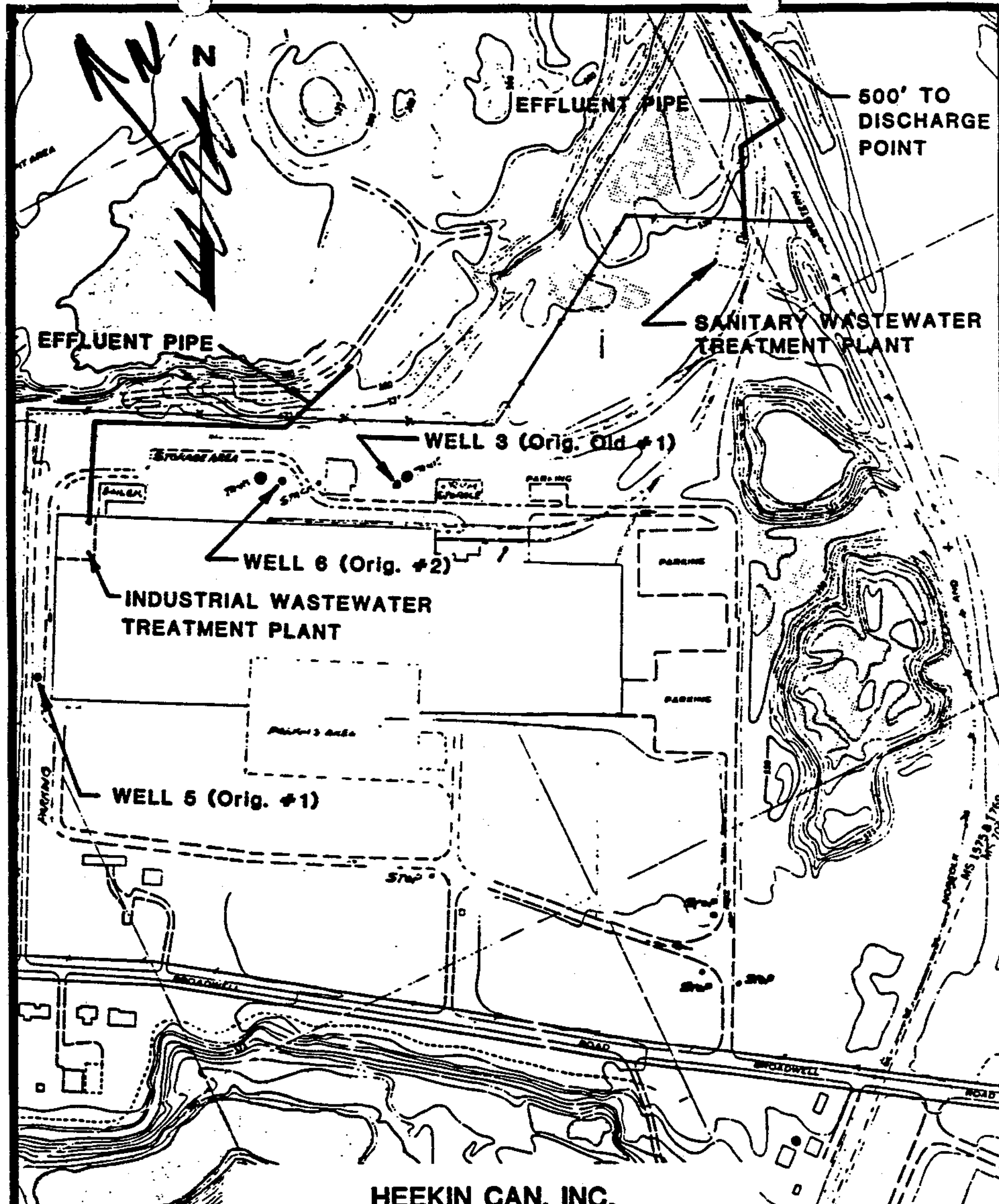
The Heekin Can, Inc., plant is located in the southeasterly environs of Cincinnati, being more specifically located in a broad valley on the southeasterly side of the Little Miami River in Anderson Township, Hamilton County, Ohio, between Terrace Park and Newtown as shown on Figure 1. The plant was originally built and owned by the Baldwin Piano Company in the 1940's. In 1959, the plant was sold to Heekin Can, Inc.; it was reequipped and expanded to manufacture two-piece aluminum and three-piece steel cans for the food and beverage industry.

The plant property contains approximately 77 acres and is bounded as follows: on the south by Broadwell Road, on the east by the Norfolk and Western Railroad, on the north and west by the Dravo Company. Sand and gravel extraction is, and has been, very prevalent in the area surrounding the plant site. Numerous gravel pits are shown on Figure 1.

Along the south side of Broadwell Road opposite the plant property in the area of an abandoned gravel pit is the Rumpke Landfill, formerly the Anderson Township Waste Collection Landfill. This site has operated as a landfill since 1964 and as an open dump prior to 1964. Gas vents on-site at the landfill emit large quantities of methane which is flared. The Ohio Environmental Protection Agency (EPA) monitors groundwater quality from nine wells in the area. We have reviewed the records from five of these wells (Nos. 9 through 13 on Figure 1) as part of this investigation.

As shown on Figure 2, there are three drilled water wells on the Heekin plant property that were originally drilled for the Baldwin Piano Company. These wells provided potable and process water for the plants. Water for plant operation is currently furnished by the Cincinnati Water Works. The water distribution system in the vicinity of the plant is shown on Figure 3. Water is readily available for the entire area from the public systems of Cincinnati, Milford, or Indian Hills.


HEEKIN CAN, INC.
VICINITY MAP
FIGURE 1
BURGESS & NIPLE, LIMITED
ENGINEERS AND ARCHITECTS
SCALE: 1''–2000'
APRIL 1983
N
LEGEND
LOCATION OF WATER WELLS
CROSS SECTION LINE
HEEKIN CAN, INC.
RUMKES LANDFILL
Terrace Park
Terrace Park Country Club
St Andrews Cem
Avoca Park
Gravel Pit
Ancor
Gaging Station
LITTLE
MIAMI
RIVER
VALLEY
BURIED
APPROXIMATE
LIMITS
OF
HAMILTON CO
CLERMONT CO
PENN CENTRAL
WESTERN
LEVEE
BROADWELL
ROUNDBOTTOM
MT CARMEL
WOOSTER
RUGBY AVE
AMHERST AVE
MARIETTA AVE
NEWTOWN
MYRTLE AVE
PARK
MIAMI
Radio Towers
Fairhurst Chapel
Camargo Country Club
Indian Hill
M B I L A
E R S O N
A
B
C
D
28
29
22
23
24
34
33
Ground water flow (N-W) 11-10-94 Jay



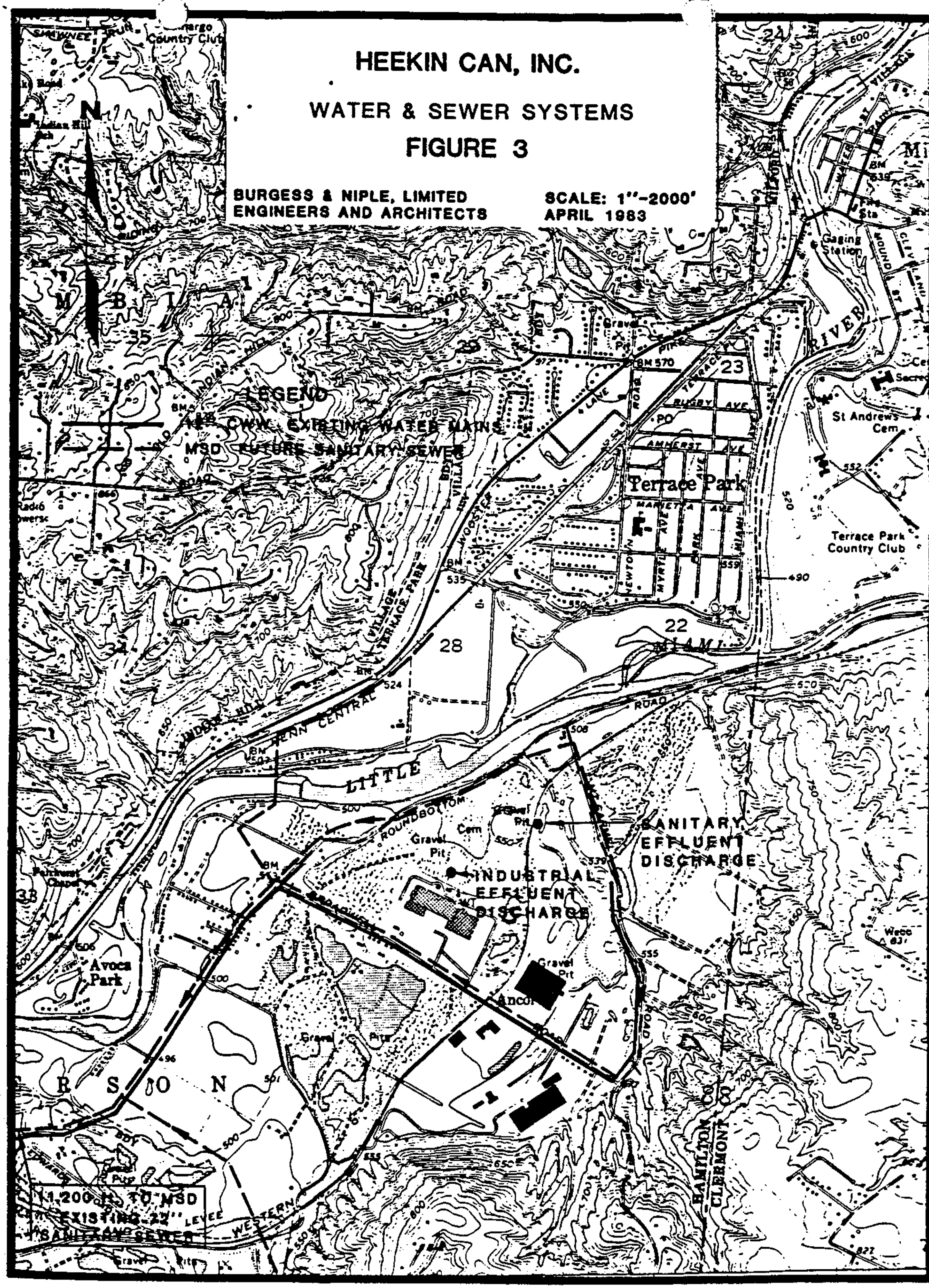
HEEKIN CAN, INC.

SITE PLAN

FIGURE 2

BURGESS & NIPLE, LIMITED
ENGINEERS AND ARCHITECTS

SCALE: 1"=310'
APRIL 1983


HEEKIN CAN, INC.
WATER & SEWER SYSTEMS
FIGURE 3
BURGESS & NIPLE, LIMITED
ENGINEERS AND ARCHITECTS
SCALE: 1"-2000'
APRIL 1983
LEGEND
12" CWW. EXISTING WATER MAINS
MSD FUTURE SANITARY SEWER
SANITARY EFFLUENT DISCHARGE
INDUSTRIAL EFFLUENT DISCHARGE
11,200 ft. TO MSD
EXISTING 22"
SANITARY SEWER
Terrace Park
Terrace Park Country Club
St Andrews Cem
Avoca Park
Gaging Station
LITTLE
MIAMI
RIVER
PENN CENTRAL
ROUNDBOTTOM
Gravel Pit
Cem
Ancor
WESTERN
LEVEE
HAMILTON CO
CLERMONT CO
RUGBY AVE
AMHERST AVE
MARIETTA AVE
NEWTON
MYRTLE AVE
PARK AVE
MIAMI
WOOSTER
VILLAGE
TERRACE PARK
INDIAN HILL
PO
Webb

A public sewer system is not yet available in the area. The Cincinnati Metropolitan Sewer District (MSD) currently has a 72-inch trunk sewer approximately 19,000 feet (public right-of-way distance) from the plant site. A facilities plan has been completed for the area indicating that the entire region is planned to be served by the MSD. This proposed system is shown on Figure 3. Representatives of MSD have indicated that it will probably be several years before sewers are constructed in the plant area. The sewer would serve the Terrace Park area which has a population of about 2,500 people, the Washington Hills area, industries in the valley, and the City of Milford which has a population of about 5,200 people and inadequate treatment facilities.

WASTEWATER DISPOSAL

The Heekin plant, as other plants in the area, is situated in a region that in the past has been remote from any public sewer system; however, planned expansion of the MSD will serve the area in the future. Sanitary sewage from Heekin Can is treated on-site in a package treatment facility located near the northeast corner of the plant, and the treated effluent flows to the north as shown on Figure 2. Approximately 800 feet north of the package plant, the effluent is discharged to a depression that probably is the result of past sand and gravel operations. It appears that originally the overflow from this depression entered the unnamed tributary of the Little Miami River just north of the depression.

Plans for the sanitary sewage system were submitted to the Ohio Department of Health and approved on October 29, 1956. The capacity of the sanitary sewage treatment plant is 50,000 gallons per day. It is an aerobic digestion plant and was designed to treat normal strength sewage of 250 milligrams per liter biochemical oxygen demand and 300 milligrams per liter suspended solids. It was designed for a flow of 45 gallons per day per capita which is equal to an employment force of about 1,100 people. Currently, the number of employees at the plant is approximately 585 with full employment being about 600 persons.

The process wastewater from Heekin Can is composed primarily of rinse water generated in the manufacturing of aluminum cans. The process wastewater is treated in a 67,000 gallon per day capacity treatment plant located near the northwest corner of the plant. The effluent flows onto the base of an abandoned gravel pit located a few hundred feet to the north (see Figure 2). The average flow is 65,000 gallons per day. This industrial wastewater treatment plant consists of chromium reduction, pH adjustment, flocculation, and settling.

SITE CHARACTERISTICS

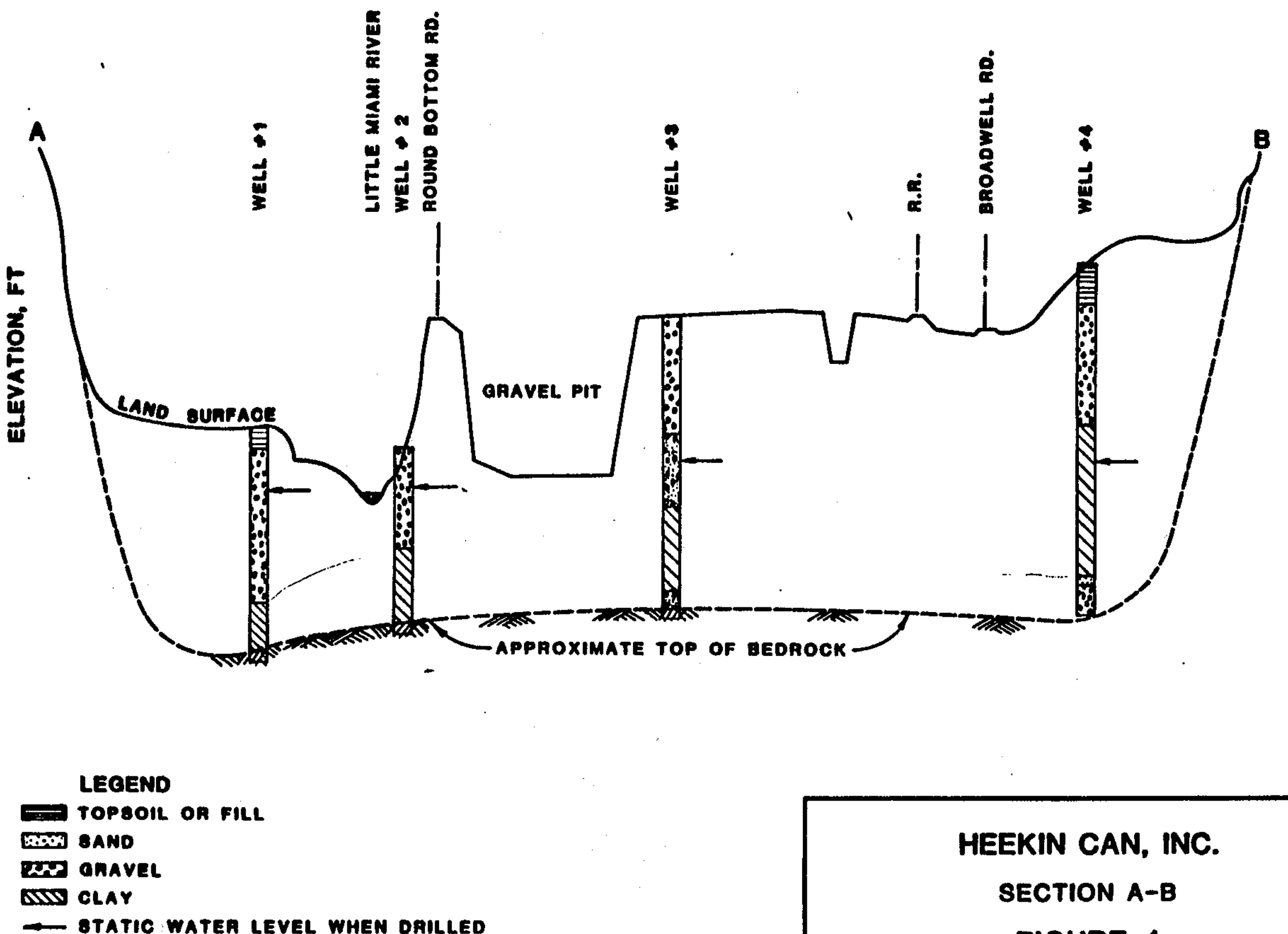
Subsurface Conditions

As previously mentioned, the Heekin plant is located in a broad valley in the most eastern portion of Hamilton County. The valley is remnant of an earlier drainage system which existed prior to Pleistocene glaciation and was partially filled with glacial drift and outwash. The Little Miami River flows through the valley today, but at a much higher elevation than the preglacial drainage system. Below the valley surface of today, the fill of glacial material is called a buried valley. In some places, the glacial deposits are covered with present day alluvium (silt and clay) deposited by floodwaters of the Little Miami River.

In this buried valley, some of the glacial fill materials were deposited by the meltwater resulting from the wasting action of the glacial ice. For this reason, some of the fill in the valley is permeable sand and gravel, and therefore, provides productive aquifers. In portions of the buried valley, clay has also been deposited.

The thickness and nature of the unconsolidated glacial material in the vicinity of the plant was determined from numerous water well logs and soil borings in the area. The locations of some of the well logs and borings used in this investigation are shown on Figures 1 and 2. Copies of the logs are duplicated in the Appendix. A transverse cross section through the width of the buried valley and a longitudinal section are presented on Figures 4 and 5. The locations of the sections and logs used in their preparation are shown on Figure 1.

The extent of these unconsolidated glacial materials ranges from approximately 5,000 to 7,000 feet in width with an average thickness of about 100 feet. The approximate limits of the buried valley in the area are shown on Figure 1. In overall length, this buried valley extends approximately from Loveland, Ohio, to the confluence of the Little Miami and Ohio Rivers. This is a distance of about 24 miles. A branch of this buried valley extends through Norwood, Ohio, and is known as the Norwood Trough.



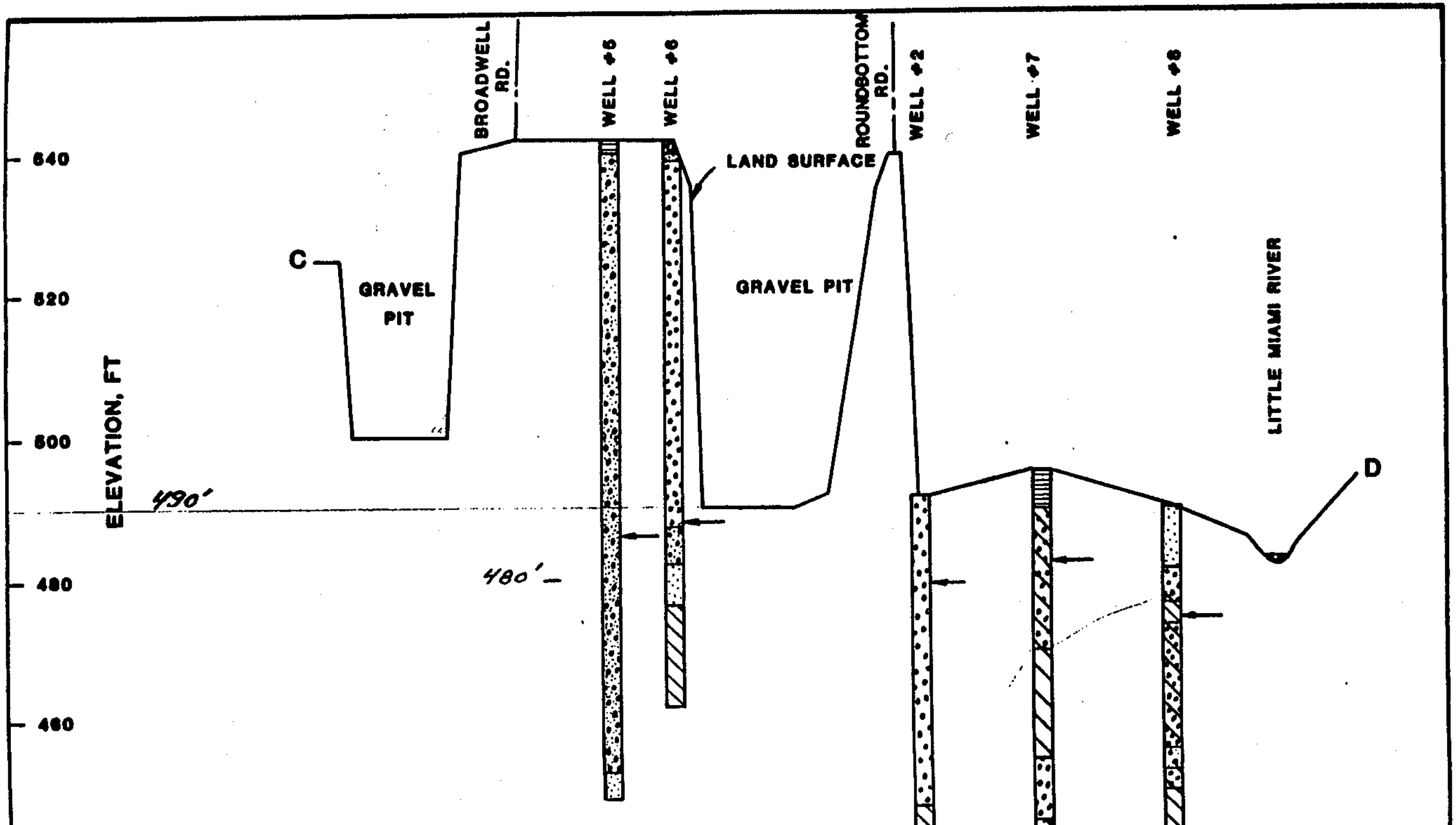
HEEKIN CAN, INC.

SECTION A-B

FIGURE 4

SCALE: Vert. 1''-50'
Horiz. 1''-1000'
APRIL 1983

BURGESS & NIPLE, LIMITED
ENGINEERS AND ARCHITECTS



HEEKIN CAN, INC.

SECTION C-D

FIGURE 5

SCALE: Vert. 1"-20'
Horiz. 1"-1000'
APRIL 1983

BURGESS & NIPLE, LIMITED
ENGINEERS AND ARCHITECTS

The nature of the unconsolidated material is variable but in the vicinity of the plant it consists of about 70 feet of sand and gravel underlain by about 30 feet of clay. This is based on well log information. Water well logs must be used with discretion since the well driller preparing the log was mainly interested in locating a water supply and not in describing in detail the characteristics of nonwater bearing strata.

Underlying the unconsolidated buried valley deposits are the consolidated bedrock units. The bedrock in the vicinity of the plant is the Kope Formation belonging to the Ordovician Age. These rocks are composed of interbedded layers of shale and limestone, with some mudstone and siltstone present as partings. Portions of the bedrock outcrop are exposed in the steep slopes and streambeds of the surrounding hills. Above the Kope Formation is the Fairview Formation which is very similar in nature. The Fairview Formation outcrops on the valley sides at an elevation of about 700 feet and has no direct bearing on the buried valley.

The consolidated bedrock is a very poor source of underground water. Wells generally yield less than 5 gallons per minute and many drilled wells are failures due to the low yield. The consolidated bedrock has very little effect on the groundwater hydrology of the area.

Groundwater Conditions

The saturated sand and gravel deposits in the buried valley near the plant site are generally a productive aquifer. According to an open file report from the Ohio Department of Natural Resources (ODNR), the yield of this aquifer ranges from approximately 1.9 million gallons per day per river mile upstream of the plant site to 5.3 million gallons per day per river mile downstream. Based on the regional information, wells in the vicinity of the plant are estimated to produce 500 gallons per minute each. Two of the wells for the former Baldwin Piano Company were equipped with pumps of 125 gallons per minute and 200 gallons per minute capacity. This indicates that conditions are not as favorable for groundwater development at the plant site as other locations in the valley. This reduced yield is due to the characteristics of the sand and gravel deposits as well as the presence of considerable clay in the deeper portions of the valley fill.

In addition to the former wells at the Heekin Can plant, there are public water supplies in the area which obtain their source of raw water from wells completed in the buried valley deposits. These systems are listed below.

Community	Number of Wells	Individual Well Capacity in gpm
Milford	3	500
Indian Hill	7	400-800

In the past, several other industries in the area had private wells as a source of water supply. Many have converted to the municipal water system since it became available in the region. There appears to be about six residents within 2,000 feet of either the sanitary or process water discharge of Heekin Can on the east side of the Little Miami River that relie upon groundwater as a source of water supply. One of these is located north and upgradient of the sanitary effluent discharge at a distance of 1,500 feet. The remaining residences are situated at distances in excess of 1,300 feet of the process water discharge. This analysis is based on data supplied by the Cincinnati Water Works on water services in the area.

The general direction of groundwater flow in the buried valley is from upstream to downstream and also from the edge of the buried valley towards the Little Miami River. The Little Miami River receives flow from the groundwater during periods of low flow.

On April 19, 1983 water level measurements were taken in two of the water wells at the Heekin plant, as well as one of the monitor wells at the landfill to the south. Based on these measurements, the direction of groundwater movement was determined to be toward the northwest. This confirms the direction of movement identified in the area of the landfill during 1975 as indicated in the report "Evaluation of the Effect of the Anderson Township Ohio Fill on Ground and Surface Water Resources."

On a regional basis, there is a direct hydraulic connection between the Little Maimi River and the sand and gravel aquifer. This means that during periods of sustained high river flow, stream water will infiltrate into the aquifer near the river and there will be a corresponding rise in the water level in wells near the river. This is confirmed by the state observation well, No. H-3 located at the Indian Hill Water Department well field, in which groundwater levels respond to river stage and also by the presence of sand and gravel deposits in the riverbed at the same elevation as the deposits in well logs. It also can be observed in the level of water in abandoned gravel pits in the area which correspond with stream stage. Also, one reason why this is a productive aquifer is that a major source of recharge to the groundwater is through induced stream infiltration to wells near the river.

The rate of groundwater movement in the buried valley aquifer is variable and dependent on the characteristics of the material in the aquifer and the head conditions. Typical permeabilities for various material will range from:

Material	Permeability cm/second	Permeability feet/day
Gravel	10^{-2} - 10^{-3}	10,000 - 1,000
Sand	10^{-3} - 10^{-5}	1,000 - 10
Silt	10^{-5} - 10^{-6}	10 - 1
Clay	10^{-7} - 10^{-9}	0.1 - .001

Based on the material and head conditions encountered, the average rate of groundwater movement in the plant vicinity is in the range of 1 to 10 feet per day.

10^{-5} cm/sec = .0283 ft/day — ok   Silt & Sand?

WATER QUALITY

Natural Groundwater Quality

The natural or ambient quality of groundwater in the Little Miami River Valley aquifer system in the Hamilton-Clermont County area is presented in Table 1. This information is based on water quality data from wells at Loveland, Milford, Indian Hills, groundwater quality data from the "Southwest Ohio Water Development Plan," "Groundwater for Planning in Southwest Ohio," the Ohio Department of Health, Ohio EPA, and files of Burgess & Niple, Limited.

The maximums, minimums, and representative values listed in Table 1 were determined after discarding the high and low values of the available data for each parameter. This was done to prevent extreme values from indicating much wider than typical ranges. The representative values in Table 1 may be considered indicative of the natural groundwater pumped from uncontaminated wells completed in the glacial outwash deposits in the Little Miami River Valley. Table 1 also includes the U.S. EPA Drinking Water Standards for those parameters which limits have been established.

Effluent Quality

The quality of the effluent being discharged from the Heekin Can industrial wastewater treatment plant is presented below. These results are based on a 10-hour composite sample analyzed by both Ohio EPA and Heekin Can in 1980 and a sample collected by Ohio EPA in 1977. In general, the effluent is characterized by the following parameters and values:

Parameter	Approximate Value, mg/l
COD	600
Suspended Solids	15
Dissolved Solids	4,500
Sulfate	1,000
Chloride	150
Fluoride	20
MBAS	3
Oil and Grease	50
Chromium (Total)	0.08

Table 1

Natural Groundwater Quality

Parameter	Units	Values: Representative	Maximum	Minimum	Drinking Water Standard (Maximum Level)
Chemical and General					
Alkalinity, Total - $CaCO_3$	mg/l	320	500	100	
Bicarbonate - HCO_3	mg/l	300	500	100	
BOD - 5-day	mg/l	4	10	<1	
Calcium, Total - $CaCO_3$	mg/l	100	140	40	
Carbon Dioxide - CO_2	mg/l	30	50	20	
Carbon, Total Organic - C	mg/l	2	10	<1	
Chloride - Cl	mg/l	40	90	20	250-S
COD	mg/l	20	70	5	
Cyanide - CN	mg/l	-	-	-	0.2-P
Fluoride - F	mg/l	.30	1	.18	1.4 to 2.4-P
Hardness, Total - $CaCO_3$	mg/l	350	450	220	
Hardness, Noncarbonate - $CaCO_3$	mg/l	30	70	<1	
Hydrogen Sulfide - H_2S	mg/l	-	-	-	0.5-S•
Magnesium, Total - $CaCO_3$	mg/l	35	100	10	
MBAS	mg/l	.05	.5	<.01	0.5-S•
Nitrate - N	mg/l	0.70	5	<.05	
Nitrite - N	mg/l	0.01	0.1	<.01	
Nitrogen, Ammonia - N	mg/l	0.6	1.4	.05	
pH, Lab	S.U.	7.5	8.3	6.9	6.5 to 8.5-S•
Phenols	mg/l	.001	.06	<.001	
Phosphate, Total - PO_4-P	mg/l	0.2	3	<.02	
Potassium, Total - K	mg/l	3	10	1	
Silica - SiO_2	mg/l	11	20	8	
Sodium, Total - Na	mg/l	20	50	10	
Solids, Dissolved	mg/l	490	600	250	500-S•
Sulfate - SO_4	mg/l	70	200	15	250-S•

Table 1 (continued)

Parameter	Units	Values: Representative	Maximum	Minimum	Drinking Water Standard (Maximum Level)
Physical					
Color	PCU	2	7	0	15-S
Odor	TON	-	-	-	3-S
Specific Conductance	umhos	750	1000	580	
Turbidity	NTU	0.5	7	0.1	1-P
Metals					
Arsenic, Total - As	ug/l	5	20	<1	100-P
Aluminum, Total - Al	ug/l	30	200	<1	
Barium, Total - Ba	ug/l	50	300	<2	1000-P
Cadmium, Total - Cd	ug/l	2	8	<1	10-P
Chromium - Cr (VI)	ug/l	10	40	<2	50-P
Copper, Total - Cu	ug/l	10	40	<10	1000-S
Iron, Total - Fe	ug/l	400	6000	100	300-S
Lead, Total - Pb	ug/l	5	40	<1	50-P
Manganese, Total - Mn	ug/l	100	500	50	50-S
Mercury, Total - Hg	ug/l	<.2	.3	<.2	2-P
Nickel, Total - Ni	ug/l	10	70	<10	
Selenium, Total - Se	ug/l	1	10	<1	10-P
Silver, Total - Ag	ug/l	1	8	<1	50-P
Zinc, Total - Zn	ug/l	10	40	2	5000-S
Bacteriological					
Coliform, Total, MF	#/100 ml	1	1	<1	1-P

P - Interim Primary Standard
S - Secondary Standard

The effluent from the sanitary wastewater treatment plant should be characterized by the following constituents and concentrations:

BOD_5	30 mg/l
Suspended Solids	30 mg/l
pH	7
Ammonia Nitrogen	10 mg/l
Dissolved Oxygen	4 mg/l

Water Quality of Surrounding Wells

During the period from 1974 through 1979, there have been at least 17 quality analyses conducted on water samples from various wells surrounding the Heekin Can property. The water analyses are contained in the Appendix and the well locations are shown on Figure 1 and identified as follows:

Well Number	Well Owner
9	Robert Denneman
10	John C. Holitor
11	Mrs. Menke
12	Heck's Greenhouse
13	Dravo Production Well 1

Results from these analyses performed on the groundwater samples collected from the nearby wells do not indicate any adverse impact on groundwater quality due to the Heekin Can effluent. In the wells samples, the concentrations of those constituents that are indicative of the Heekin Can effluent are, in nearly every case, within the range representative of natural or ambient groundwater quality. In the case of well No. 11, higher than ambient concentrations of ammonia nitrogen, chloride, sodium, aluminum, iron, and zinc were observed based on one sample. Elevated concentrations of these constituents are generally indicative of the effects of a landfill and the observed quality is consistent with the occurrence of a landfill upgradient of this well. Moreover, the direction of groundwater flow beneath Heekin Can was determined to be northwest toward the Little Miami River. Well No. 11 is located west of the industrial waste discharge point, and therefore, not directly downgradient of the discharge point.

Two wells, Nos. 9 and 10, are located generally downgradient of the industrial waste discharge points. Analytical results from the samples collected from these wells indicate that the groundwater meets all U.S. EPA Primary and all but one Secondary Drinking Water Standards for which analyses were performed. Total dissolved solids in well No. 10 were slightly above the Secondary Standard. This is not unusual in this area as the natural groundwater quality is high in total dissolved solids.

The velocity of groundwater flow in this area has been given to be in the range of 1 to 10 feet per day. At the time the above mentioned samples were collected, many indicators of groundwater degradation could possibly be 3,500 to 35,000 feet from the source. Wells No. 9 and 10 are located, respectively, about 1,300 and 2,300 feet from the industrial waste discharge point. If groundwater at these wells were to become degraded, it would likely have occurred by the time the samples were collected. Based on both the velocity of groundflow flow and the quality data presented in the appendix, no evidence is indicated that the effluent from Heekin Can is adversely affecting local groundwater supplies.

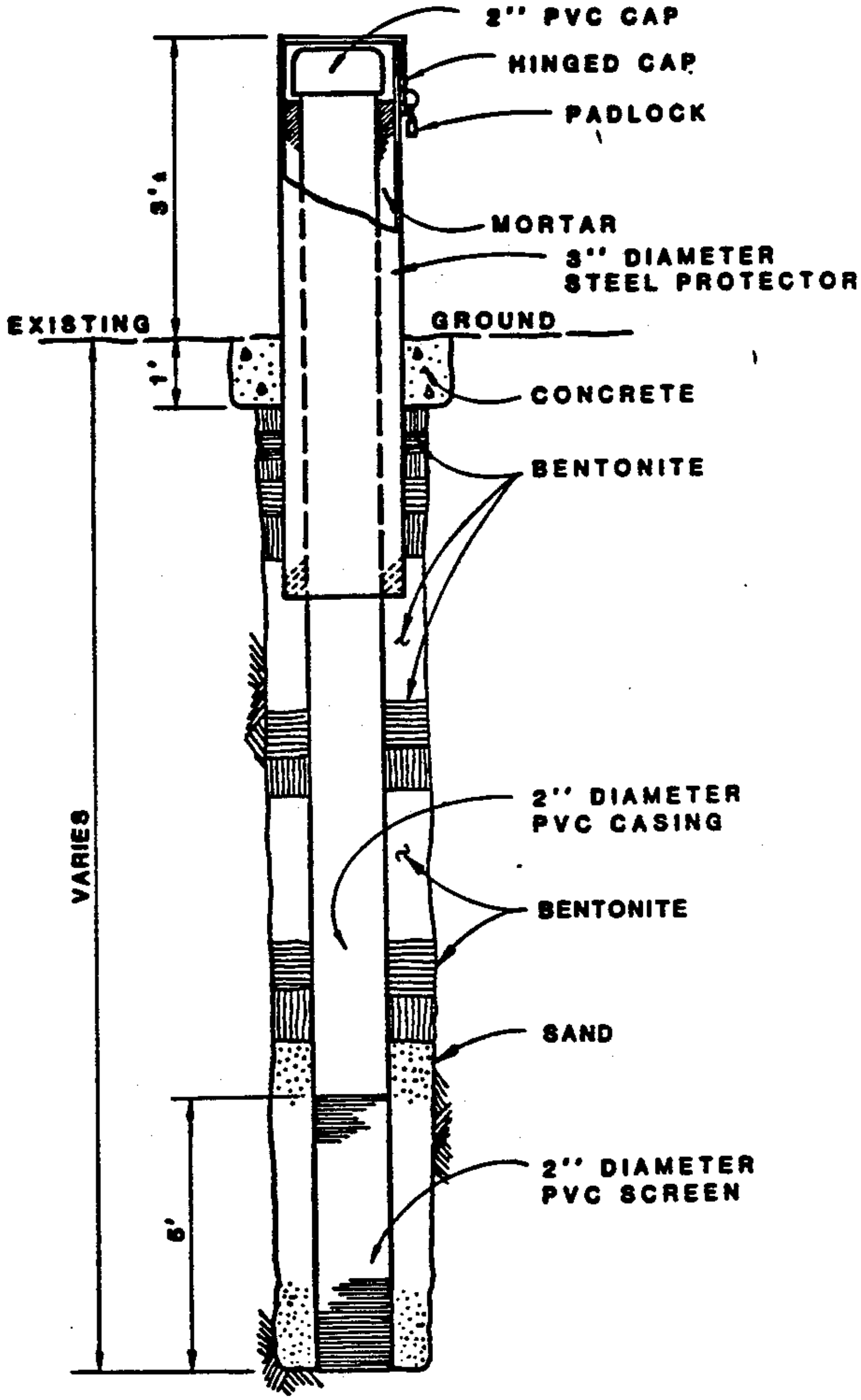
RECOMMENDATIONS

Since there is no indication that the effluent from Heekin Can is adversely effecting any groundwater, it is recommended that the present method, degree of treatment, and disposal be continued. However, in order to be certain that the groundwater in the area remains undegraded and that local groundwater users are ensured of good quality groundwater, it is recommended that a groundwater monitoring program be initiated.

The groundwater monitoring program should consist of installing monitoring wells in the area between the industrial wastewater effluent point and the closest downgradient residential wells and should be located so as to provide sufficient time to conduct a remedial action plan, if necessary. The general specifications for monitoring wells are given in Table 2 and a typical monitoring well is shown on Figure 6. It is recommended that three monitor wells be installed. The depth of these wells will be dependent on the surface elevation but an average depth would be approximately 50 feet.

Table 2
Monitoring Well Specifications

Number of Wells - 3
Depth - 50 feet
Diameter - 2 inches
Material - Flush Joint PVC
Screen - Closed Bottom-PVC
Screen Length - 5 feet
Slot Size - To be determined from sieve analyses, probably 10 slot
Screen Pack - Silica Sand
Casing Pack - Bentonite
Surface - Steel Protective Casing Locking Cap



HEEKIN CAN, INC.

FIGURE 6

TYPICAL
MONITORING WELL

BURGESS & NIPLE, LIMITED
ENGINEERS NO SCALE

It is further recommended that the monitoring wells be sampled on a quarterly basis for the initial year. At that time, the results of the analyses should be evaluated and the future sampling frequency and parameters analyzed should be adjusted, if necessary. The parameters to be analyzed on the groundwater samples from the monitoring wells are those listed below. These parameters were selected on the basis of their relevance to the effluent discharges.

Recommended Groundwater Parameters

Chemical oxygen demand
Chloride
Chromium
Dissolved solids
Fluoride
MBAS
Oil and Grease
pH
Sulfate

It is further recommended that consideration be given to the discharge of effluent from the industrial wastewater treatment plant to the MSD as soon as the collection system is constructed in the immediate plant area.

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APPENDIX

WELL LOGS

WELL #3 (PRODUCTION WELL #1 - BALDWIN)

BALDWIN PIANO COMPANY
ANCOR, OHIO

Date started: June 26, 1951

Diameter 8".

0'	- 12'	— 12'	Dry Gravel and Boulders
12'	- 41'	— 29'	Muddy Dry Gravel
41'	- 66'	— 25'	Sand and Gravel
66'	- 71'	— 5'	Blue Clay
71'	- 96'	— 25'	Blue Sandy Loom
96'	- 102'	— 6'	Coarse Sand and Gravel
102'	- 103'	— 1'	Shale

Installed 5 feet of 8" A. D. Cook Tubular Red Brass Strainer and fittings, cut slot No. 60. Static Water Level 50 feet.

Installed test pump in well, pumped 10 gallons of water per minute and pump broke suction.

Pulled test pump, 8" strainer and 8" pipe to make well at 66 ft. level. Installed 10 feet of 8" Cook Tubular Red Brass Strainer with standard fittings, cut slot No. 30, and water level of 48 feet.

Installed test pump and well pumped full capacity of pump, 55 gallons of water per minute with 2 1/2 foot draw down. We then pulled this pump and installed a larger pump, start of test showed 122 gallons of water per minute and well was surging itself. The next day was spent in pumping well and washing back, bringing capacity to a steady 144 gallons per minute.

Turbine installed in well No. 14193 - Curve 7-5/8TR-15

One 7-5/8" 8-stage Cook Deep Well Turbine
50 feet of 4" FPC column, 1-1/2" shaft tube and 1" line shaft.
10 feet of 4" suction tube
One No. 165 EZ-4 Cook Discharge head equipped with 10 HP, 1760 RPM, 3 phase, 60 cycles 220/440 volts, with 4" x 4" base.

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

WELL #4

Nº 142788

County Hamilton Township Andersen Section of Township or Lot Number Militray Survery 1575 1769

Owner The United States Concrete Pi e Co. Address Netown, Ohio

Location of property Broadwell Road, 1/4 mi. west of Mt. Carmel Rd.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 108

Type of screen Cook Tube Length of screen 11' OA

Type of pump Deming-Mueller

Capacity of pump 15-20 GPM

Depth of pump setting 110'

PUMPING TEST

Pumping rate ____ G.P.M. Duration of test ____ hrs

Drawdown ____ ft. Date ____

Developed capacity 20 GPM

Static level—depth to water 65 ft

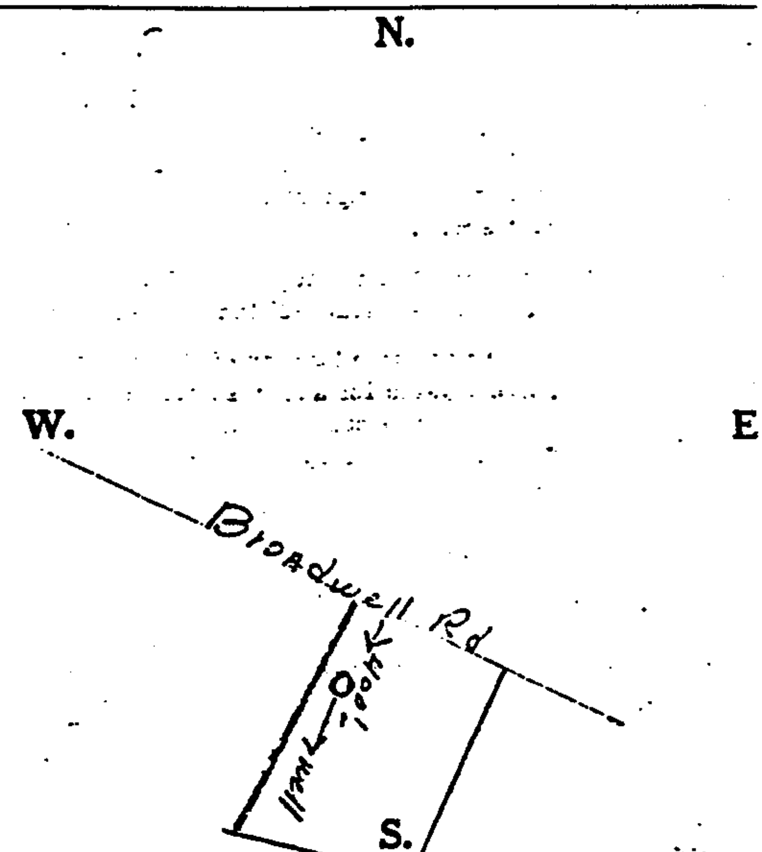
Pump installed by Jos. Koehne Sons.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Fill	0 Feet	10 Ft.
[illegible]ry Gravel	10'	53'
[illegible]lue Clay	53'	105'
Fine Gray Sand	105'	108'
Gravel	108'	118'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Jos. KoehneSons. Date June 18, 1956

Address 1826 Sherman Ave. Norwood O. Signed Clare R Holthaus

DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179951

WELL #5

County Hamilton Township Columbia Section of Township

Owner Baldwin Piano Company Address Cincinnati, Ohio

Location of property Off of Round Bottom Road, near Newtown, Ohio

CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 16" Length of casing 75	Pumping rate 125 G.P.M. Duration of test 8 hrs.
Type of screen Cook Length of screen 15	Drawdown 20 ft. Date February 8, 1957
Type of pump Byron-Jackson 8", 10 stage	Developed capacity 200 GPM
Capacity of pump 125 GPM	Static level—depth to water 56' ft.
Depth of pump setting 70'	Pump installed by ~~Diehl Pump & Supply Company~~
Date of completion February 11, 1957	

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top Soil	0 Feet	2 Ft.
Coarse sand & large boulders	2'	42'
Coarse sand & coarse gravel	42'	50'
Medium gravel & coarse sand	50'	90'
Sand	90'	94'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Company Date February 12, 1957

Address [illegible] Building
Cincinnati, Ohio

Signed J. [illegible] Reese
J. [illegible] Reese

1,485000
420005

State of Ohio
OHIO WATER RESOURCES BOARD
Department of Public Works
553 E. Broad St., Columbus 15, Ohio

№ 51746
WELL #6

County Hamilton Township Anderson Section of Township or Lot Number Military Survey #1575 & 1769

Owner The Baldwin Piano Co. Address 1801 Gilbert Avenue, Cincinnati, O

Location of property Broadwell Rd. & N. & W R. R., Newtown, Ohio

CONSTRUCTION DETAILS

Casing diameter 16" Length of casing 66'3"
Type of screen Cook RB Length of screen 8Ft.
Type of pump Turbine
Capacity of pump 125 GPM
Depth of pump setting 66'10"

PUMPING TEST

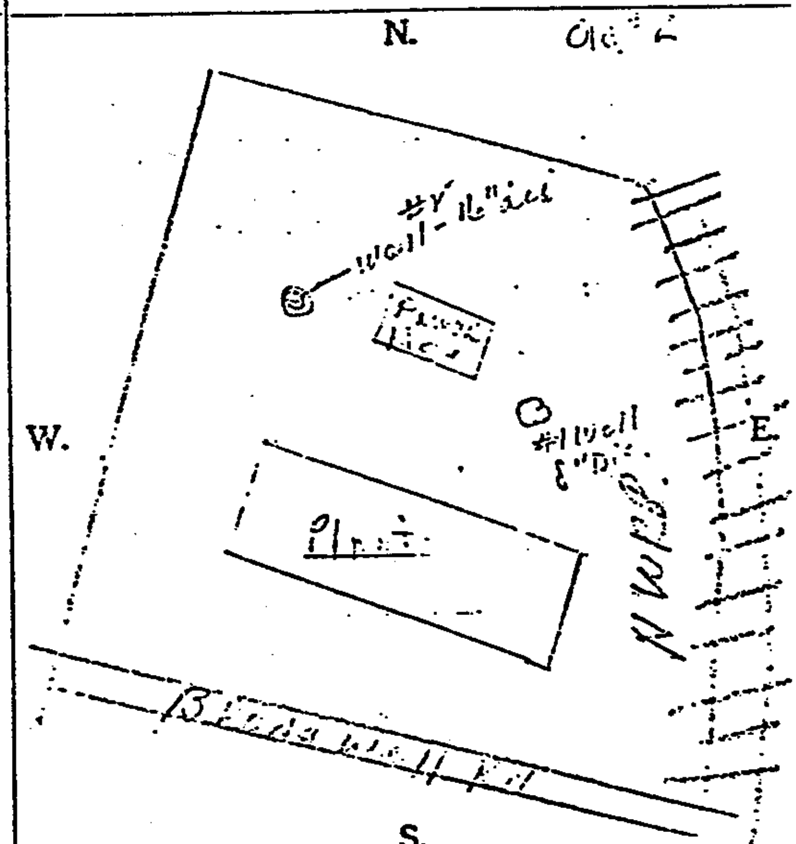
Pumping rate 125 G.P.M. Duration of test ______ hrs.
Drawdown ______ ft. Date ______
Developed capacity 125
Static level of completed well 54'5" ft.
Pump installed by Jos. Koehne Sons.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
lay & Gravel	0 Feet	2 Ft.
and	2	3
y Gravel	3	55
nd & Gravel	55	60
oarse Sand	60	66
ue Clay & Gravel	66	69
ue Clay	69	80'6"

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Jos. Koehne Sons.
Address 1826 Sherman Avenue,

Date July 12, 1954
Signed [signature]

WELL #7 (TEST WELL #12 - BALDWIN)

WELL LOG:	FROM	TO
TOPSOIL	0'	5'
MUD AND GRAVEL	5'	25'
BLUE MUD	25'	41'
FINE SAND AND GRAVEL	41'	43'
COARSE GRAVEL	43'	50'
CLAY MUD AND SAND	50'	60'

STATIC WATER LEVEL = 13'

WELL #8 (TEST WELL #10 - BALDWIN)

WELL LOG:	FROM	TO
SANDY SOIL	0′	9′
MUD AND GRAVEL	9′	14′
BLUE MUD	14′	17′
MUD AND GRAVEL	17′	35′
FINE SAND AND GRAVEL	35′	38′
MUD AND GRAVEL	38′	41′
MUD	41′	48′

STATIC WATER LEVEL = 16′

HEEKIN CAN, INC.
INDUSTRIAL WASTEWATER QUALITY

OhioEPA Inter-Office Commur'cati

TO: Elmer Rehme, Industrial roup
Jim Pennino, Water Supply

DATE: October 6, 1980

FROM: Graham Mitchell, Surveillance Group

SUBJECT: Heekin Can Sample Results

Listed below are the results of the 10-hour composite sample of Heekin Can's effluent, collected on July 29, 1980. Parameters of concern in a potential NPDES permit include pH, COD, dissolved solids, fluoride, and oil and grease. Parameters that do not compare favorably between the two laboratories include pH, total solids, dissolved solids, sulfate and iron.

Parameter	Heekin Can Results	OEPA Results
pH (S.U.)	6.95	9.3
COD (mg/l)	640	536
Total Solids (mg/l)	5799	3194
Dissolved Solids (mg/l)	5783	3176
Suspended Solids (mg/l)	16	18
Sulfate (mg/l)	500	1480
Chlorides (mg/l)	180	122
Fluoride (mg/l)	20.2	26.0
Ammonia-N (mg/l)	0.33	0.27
Phosphorous-Total (mg/l)	—	0.655
Orthophosphate (mg/l)	<0.5	—
MBAS (mg/l)	2.8	3.7
Oil & Grease (mg/l)	62	51
Cadmium (ug/l)	30	<5
Chromium (ug/l)	<134	80
Copper (ug/l)	100	50
Iron (ug/l)	<131	280
Lead (ug/l)	<524	<10
Mercury (ug/l)	<5	<0.5
Aluminum (ug/l)	2900	—

Date Reported 4/25/77 3/16/77

Laboratory

Analyst 15746

Station: HEEKIN CAN CO. — NEWTOWN BROADWELL ROAD

Station Code: [ ] [ ] [ ] [ ] [ ]

County: HAMILTON

Collected by: PENNINO/NOYES

Phone:

Identification of Sample: GROUND-WATER, DISCHARGE TO

Sample Code: [ ]

Date of grab sample (or last date of composite sample)	Year	Month	Day	Hour	Minute	Composite Type
	77	02	24	15	10	

Sample Types: ☒ Ground Water ☐ Industrial ☐ Sewage ☐ Comp Mon ☐ Water Supply ☐ Stream

Analysis to be Reported to: ☒ CO ☐ CDO ☐ SE ☐ NE ☐ SW ☐ NW

Beginning Date of Composite Sample	Year	Month	Day	Hour	Minute	Frequency
			C			

REASON FOR TAKING SAMPLE — ADDITIONAL INFORMATION — REMARKS BY ANALYST:

PRESERVATIVE: ☐ NaOH ☐ $CuSO_4$ ☐ H_2SO_4 ☐ HNO_3 ☐ OTHER

will be very high SO_4 + metals

· F results from distilled sample due to interferences

1.5 ml H_2SO_4 ADDED TO QT. SAMPLE

(1) 3 ml. HNO_3 ADDED TO QT. SAMPLE

Parameter	Code	Value	Unit	Parameter	Code	Value	Unit	Parameter	Code	Value	Unit
☐ Regular (or indicate by checking boxes)				☒ Fluoride Diss. F	H1	16.00	mg/l	☐ Cyanide, CN	N1		mg/l
☐ Flow	Y2		CFS	☒ Calcium Total, Ca	H2	390	mg/l	☒ MBAS	N2	2.08	mg/l
☐ Water Temperature, Field	Y3		C°	☒ Magnesium Total, Mg	H3	5	mg/l	☐ Oil-Grease, Total	N3		mg/l
☐ pH, Field	Y4		S.U.	☒ Potassium Total, K	H4	24	mg/l	☐ Phenols	N4		ug/l
☐ Dissolved Oxygen, Field	Y5		mg/l	☒ Sodium Total, Na	H5	62	mg/l	☐ Tannin Lignin	N5		mg/l
☐ Hydrogen Sulfide, Field	Y6		mg/l	☒ Aluminum Total, Al	H6	2900	ug/l	☐ Aldrin, Whl Smpl	N6		ug/l
☐ Chlorine Free Avl, Field	Y7		mg/l	☐ Antimony Total, Sb	H7		ug/l	☐ DDD, Whl Smpl	N7		ug/l
☐ Chlorine Tot Resd, Field	Y8		mg/l	☐ Arsenic Total, As	H8		ug/l	☐ DDE, Whl Smpl	N8		ug/l
☐ Color	Y9		Pt-Co	☐ Barium Total, Ba	H9		ug/l	☐ DDT, Whl Smpl	N9		ug/l
☐ Odor	Y0		T.N.	☐ Beryllium Total, Be	H0		ug/l	☐ Dieldrin, Whl Smpl	N0		ug/l
☐ Turbidity	U1		FTU	☐ Bismuth Total, Bi	J1		ug/l	☐ Chlordane, Whl Smpl	M1		ug/l
☐ Conductivity at 25 C°	U2		U-MHO	☐ Boron Total, B	J2		ug/l	☐ Endrin, Whl Smpl	M2		ug/l
☒ pH, Lab	U3	20	S.U.	☒ Cadmium Total, Cd	J3	0	ug/l	☐ Heptachlor, Whl Smpl	M3		ug/l
☐ pH, CaCO3 Stability	U4		S.U.	☒ Chromium Total, Cr	J4	270	ug/l	☐ Heptr-Epoxide, Whl Smpl	M4		ug/l
☒ Alkalinity Total, CaCO3	U5	10	mg/l	☒ Chromium Hex, Cr	J5	0	ug/l	☐ Lindane, Whl Smpl	M5		ug/l
☐ Alkalinity Phth, CaCO3	U6		mg/l	☐ Cobalt Total, Co	J6		ug/l	☐ Methoxychlor, Whl Smpl	M6		ug/l
☐ Alkalinity, CaCO3 Stab	U7		mg/l	☐ Copper Total, Cu	J7		ug/l	☐ Malathion, Whl Smpl	M7		ug/l
☐ Carbon Dioxide, CO2	U8		mg/l	☐ Iron Total, Fe	J8		ug/l	☐ Parathion, Whl Smpl	M8		ug/l
☐ Acidity Total, CaCO3	U9		mg/l	☐ Iron Diss, Fe	J9		ug/l	☐ Methyl Parathn, Whl Smpl	M9		ug/l
☐ Acidity M.O., CaCO3	U0		mg/l	☐ Iron Ferrous, Fe	J0		ug/l	☐ Beta, Total	M0		pc/l
☐ Hardness Total, CaCO3	I1		mg/l	☐ Lead Total, Pb	K1		ug/l	☐ Beta, Diss	,1		pc/l
☐ Residue, Total	I2		mg/l	☐ Lithium Total, Li	K2		ug/l	☐ Beta, Suspd	,2		pc/l
☐ Residue, Total Volatile	I3		mg/l	☐ Manganese Total, Mn	K3		ug/l	☐ Alpha, Total	,3		pc/l
☐ Residue, Total Nflt (Susp)	I4		mg/l	☐ Mercury Total, Hg	K4		ug/l	☐ Alpha, Diss	,4		pc/l
☐ Residue, Vol Nflt	I5		mg/l	☐ Molybdenum Total, Mo	K5		ug/l	☐ Alpha, Suspd	,5		pc/l
☒ Residue, Total Flt (Diss)	I6	1920	mg/l	☐ Nickel Total, Ni	K6		ug/l	☐ Radium 226, Total	,6		pc/l
☐ Residue, Vol Flt	I7		mg/l	☐ Selenium Total, Se	K7		ug/l	☐ Strontium 90, Total	,7		pc/l
☐ Residue, Settable	I8		mg/l	☐ Silver Total, Ag	K8		ug/l	☐ Coliform Total, MF	,8		#/100ml
☐ Nitrogen Organic, N	I9		mg/l	☐ Strontium Total, Sr	K9		ug/l	☐ Coliform Total MPN, Conf	,9		#/100ml
☒ Nitrogen Ammonia, N	I0	0	mg/l	☐ Thallium Total, Tl	K0		ug/l	☐ Fecal Coli Total, MF	,0		#/100ml
☐ Nitrite, N	G1		mg/l	☐ Tin Total, Sn	L1		ug/l	☐ Fecal Strep Total, MF	.1		#/100ml
☒ Nitrate, N	G2	1.30	mg/l	☐ Titanium Total, Ti	L2		ug/l	☐ Plate Count, Total	.2		#/ml
☐ Phosphorus Total, P	G3		mg/l	☐ Tungsten Total, T	L3		ug/l	☐ Algae Total	.3		#/ml
☐ Phosphorus Soluble, P	G4		mg/l	☐ Vanadium Total, V	L4		ug/l	☐ TOD	.4		mg/l
☒ Phosphate Total, PO4	G5	.005	mg/l	☒ Zinc Total, Zn	L5	70	ug/l	☐ BHC	.5		ug/l
☐ Phosphate Ortho, PO4	G6		mg/l	☐ Zirconium Total, Zr	L6		ug/l	☐ TKN	.6		mg/l
☒ Sulfate, SO4	G7	770	mg/l	☐ BOD, 5-Day	L7		mg/l	☐ Conductivity, Field	.7		U-MHO
☐ Sulfite, SO3	G8		mg/l	☒ COD	L8	640	mg/l	☐			
☐ Sulfide, S	G9		mg/l	☐ Chlorine Demand, 15 min	L9		mg/l	☐			
☒ Chloride, Cl	G0	82	mg/l	☒ Carbon Total Org. C	L0	190	mg/l	☐			

COPY DISTRIBUTION: White — Data Processing White — Central Office Yellow — District Office Pink — Owner White — Laboratory

GROUNDWATER QUALITY

ate Received 3/15/77

ate Reported 4/21/77

WATER QUALITY DATA

Laboratory 20 PARAMETERS

Analyst 1527

ation MRS. MENKE

Station Code

County HAMILTON

Collected by: FERN ... INGYER Phone:

entification of Sample: WELL AT 4193 ROUNDSTONE ... TO-99 ... RD

Sample Code

Date of grab sample (or last date of composite sample): Year 77 Month 03 Day 14 Hour Minute

Composite Type

mple Types: ☐ Ground Water ☐ Industrial ☐ Sewage ☐ Comp Mon ☐ Water Supply ☐ Stream

Beginning Date of Composite Sample: Year Month Day C Hour Minute

Frequency

alysis to be Reported to: ☒ CO ☐ CDO ☐ SE ☐ NE ☒ SW ☐ NW

EASON FOR TAKING SAMPLE — ADDITIONAL INFORMATION — REMARKS BY ANALYST:

RESERVATIVE: NaOH, $CuSO_4$, H_2SO_4, HNO_3, OTHER

Appeart ↓ AA sample contaminated with acid added

Parameter	Code	Value	Unit	Parameter	Code	Value	Unit	Parameter	Code	Value	Unit
☐ Regular (or indicate by checking boxes)				☒ Fluoride Diss. F	H1	0.16	mg/l	☐ Cyanide, CN	N1		mg/l
☐ Flow	Y2		CFS	☒ Calcium Total, Ca	H2	57	mg/l	☒ MBAS	N2	007	mg/l
☐ Water Temperature, Field	Y3		C°	☒ Magnesium Total, Mg	H3	20	mg/l	☐ Oil-Grease, Total	N3		mg/l
☐ pH, Field	Y4		S.U.	☐ Potassium Total, K	H4		mg/l	☐ Phenols	N4		ug/l
☐ Dissolved Oxygen, Field	Y5		mg/l	☒ Sodium Total, Na	H5	102	mg/l	☐ Tannin Lignin	N5		mg/l
☐ Hydrogen Sulfide, Field	Y6		mg/l	☒ Aluminum Total, Al	H6	300	ug/l	☐ Aldrin, Whl Smpl	N6		ug/l
☐ Chlorine Free Avl. Field	Y7		mg/l	☐ Antimony Total, Sb	H7		ug/l	☐ DDD, Whl Smpl	N7		ug/l
☐ Chlorine Tot Resd. Field	Y8		mg/l	☐ Arsenic Total, As	H8		ug/l	☐ DDE, Whl Smpl	N8		ug/l
☐ Color	Y9		Pt-Co	☐ Barium Total, Ba	H9		ug/l	☐ DDT, Whl Smpl	N9		ug/l
☐ Odor	Y0		T.N	☐ Beryllium Total, Be	H0		ug/l	☐ Dieldrin, Whl Smpl	N0		ug/l
☐ Turbidity	U1		FTU	☐ Bismuth Total, Bi	J1		ug/l	☐ Chlordane, Whl Smpl	M1		ug/l
☐ Conductivity at 25 C°	U2		U-MHO	☐ Boron Total, B	J2		ug/l	☐ Endrin, Whl Smpl	M2		ug/l
☐ pH, Lab	U3		S.U.	☐ Cadmium Total, Cd	J3		ug/l	☐ Heptachlor, Whl Smpl	M3		ug/l
☐ pH, $CaCO_3$ Stability	U4		S.U.	☒ Chromium Total, Cr	J4	0	ug/l	☐ Hchlr-Epoxide, Whl Smpl	M4		ug/l
☒ Alkalinity Total, $CaCO_3$	U5	292	mg/l	☒ Chromium Hex, Cr	J5	0	ug/l	☐ Lindane, Whl Smpl	M5		ug/l
☐ Alkalinity Phth, $CaCO_3$	U6		mg/l	☐ Cobalt Total, Co	J6		ug/l	☐ Methoxychlor, Whl Smpl	M6		ug/l
☐ Alkalinity, $CaCO_3$ Stabl	U7		mg/l	☐ Copper Total, Cu	J7		ug/l	☐ Malathion, Whl Smpl	M7		ug/l
☐ Carbon Dioxide, CO_2	U8		mg/l	☒ Iron Total, Fe	J8	21100	ug/l	☐ Parathion, Whl Smpl	M8		ug/l
☐ Acidity Total, $CaCO_3$	U9		mg/l	☐ Iron Diss, Fe	J9		ug/l	☐ Methyl Parathn, Whl Smpl	M9		ug/l
☐ Acidity M.O., $CaCO_3$	U0		mg/l	☐ Iron Ferrous, Fe	J0		ug/l	☐ Beta, Total	M0		pc/l
☐ Hardness Total, $CaCO_3$	I1		mg/l	☒ Lead Total, Pb	K1	9	ug/l	☐ Beta, Diss	,1		pc/l
☐ Residue, Total	I2		mg/l	☐ Lithium Total, Li	K2		ug/l	☐ Beta, Suspd	,2		pc/l
☐ Residue, Total Volatile	I3		mg/l	☐ Manganese Total, Mn	K3		ug/l	☐ Alpha, Total	,3		pc/l
☐ Residue, Total Nflt (Sus)	I4		mg/l	☐ Mercury Total, Hg	K4		ug/l	☐ Alpha, Diss	,4		pc/l
☐ Residue, Vol Nflt	I5		mg/l	☐ Molybdenum Total, Mo	K5		ug/l	☐ Alpha, Suspd	,5		pc/l
☒ Residue, Total Flt (Diss)	I6	462	mg/l	☐ Nickel Total, Ni	K6		ug/l	☐ Radium 226, Total	,6		pc/l
☐ Residue, Vol Flt	I7		mg/l	☐ Selenium Total, Se	K7		ug/l	☐ Strontium 90, Total	,7		pc/l
☐ Residue, Settable	I8		mg/l	☐ Silver Total, Ag	K8		ug/l	☐ Coliform Total, MF	,8		#/100ml
☐ Nitrogen Organic, N	I9		mg/l	☐ Strontium Total, Sr	K9		ug/l	☐ Coliform Total MPN, Conf	,9		#/100ml
☒ Nitrogen Ammonia, N	I0	2.27	mg/l	☐ Thallium Total, Tl	K0		ug/l	☐ Fecal Coli Total, MF	,0		#/100ml
☐ Nitrite, N	01		mg/l	☐ Tin Total, Sn	L1		mg/l	☐ Fecal Strep Total, MF	.1		#/100ml
☒ Nitrate, N	02	0	mg/l	☐ Titanium Total, Ti	L2		ug/l	☐ Plate Count, Total	.2		#/ml
☐ Phosphorus Total, P	03		mg/l	☐ Tungsten Total, T	L3		ug/l	☐ Algae, Total	.3		#/ml
☐ Phosphorus Soluble, P	04		mg/l	☐ Vanadium Total, V	L4		ug/l	☐ TOD	.4		mg/l
☐ Phosphate Total, PO_4	05	.07	mg/l	☒ Zinc Total, Zn	L5	7400	ug/l	☐ BHC	.5		ug/l
☐ Phosphate Ortho, PO_4	06		mg/l	☐ Zirconium Total, Zr	L6		ug/l	☐ TKN	.6		mg/l
☒ Sulfate, SO_4	07	0	mg/l	☐ BOD, 5-Day	L7		mg/l	☐ Conductivity, Field	7		U-MHO
☐ Sulfite, SO_3	08		mg/l	☒ COD	L8	7	mg/l	☐			
☐ Sulfide, S	09		mg/l	☐ Chlorine Demand, 15 min	L9		mg/l	☐			
☒ Chloride, Cl	00	111	mg/l	☒ Carbon Total Org. C	L0	infect	mg/l	☐			

OPY DISTRIBUTION: White — Data Processing White — Central Office Yellow — District Office Pink — Owner White — Laboratory

4956.32 — Ohio Department of Health

OHIO DEPARTMENT OF HEALTH
WATER QUALITY DATA

Date Received: 3/15/77

Date Reported: 4/21/77

Laboratory: 20 PARAMETERS

Laboratory Number: 15 [illegible]

Analyst: [illegible]

Station: JOHN C. HOLITOR

Station Code:

County: HAMILTON

Collected by: [illegible]

Phone: [illegible]

Identification of Sample: WELL AT 4267 ROUNDBOTTOM RD

Sample Code:

Date of grab sample (or last date of composite sample): Year 77 Month 03 Day 14 Hour Minute

Composite Type:

Sample Types: ☒ Ground Water ☐ Industrial ☐ Sewage ☐ Comp Mon ☐ Water Supply ☐ Stream

Beginning Date of Composite Sample: Year Month Day C Hour Minute

Frequency:

Analysis to be Reported to: ☒ CO ☐ CDO ☐ SE ☐ NE ☒ SW ☐ NW

REASON FOR TAKING SAMPLE — ADDITIONAL INFORMATION — REMARKS BY ANALYST:

PRESERVATIVE:
- NaOH
- $CuSO_4$
- H_2SO_4
- HNO_3
- OTHER

(20)

Parameter	Code	Value	Unit	Parameter	Code	Value	Unit	Parameter	Code	Value	Unit
☐ Regular (or indicate by checking boxes)				☒ Fluoride Diss. F	H1	0.20	mg/l	☐ Cyanide, CN	N1		mg
☐ Flow	Y2		CFS	☒ Calcium Total, Ca	H2	122	mg/l	☒ MBAS	N2	0.05	mg
☐ Water Temperature, Field	Y3		C°	☒ Magnesium Total, Mg	H3	30	mg/l	☐ Oil-Grease, Total	N3		mg
☐ pH, Field	Y4		S. U.	☐ Potassium Total, K	H4		mg/l	☐ Phenols	N4		ug
☐ Dissolved Oxygen, Field	Y5		mg/l	☒ Sodium Total, Na	H5	24	mg/l	☐ Tannin Lignin	N5		mg
☐ Hydrogen Sulfide, Field	Y6		mg/l	☒ Aluminum Total, Al	H6	0	ug/l	☐ Aldrin, Whl Smpl	N6		ug
☐ Chlorine Free Avl, Field	Y7		mg/l	☐ Antimony Total, Sb	H7		ug/l	☐ DDD, Whl Smpl	N7		ug
☐ Chlorine Tot Resd, Field	Y8		mg/l	☐ Arsenic Total, As	H8		ug/l	☐ DDE, Whl Smpl	N8		ug
☐ Color	Y9		Pt-Co	☐ Barium Total, Ba	H9		ug/l	☐ DDT, Whl Smpl	N9		ug
☐ Odor	Y0		T. N.	☐ Beryllium Total, Be	H0		ug/l	☐ Dieldrin, Whl Smpl	N0		ug
☐ Turbidity	U1		FTU	☐ Bismuth Total, Bi	J1		ug/l	☐ Chlordane, Whl Smpl	M1		ug
☐ Conductivity at 25 C°	U2		U-MHO	☐ Boron Total, B	J2		ug/l	☐ Endrin, Whl Smpl	M2		ug
☐ pH, Lab	U3		S. U.	☐ Cadmium Total, Cd	J3		ug/l	☐ Heptachlor, Whl Smpl	M3		ug
☐ pH, $CaCO_3$ Stability	U4		S. U.	☒ Chromium Total, Cr	J4	0	ug/l	☐ Hchlr-Epoxide, Whl Smpl	M4		ug
☒ Alkalinity Total, $CaCO_3$	U5	373	mg/l	☒ Chromium hex, Cr	J5	0	ug/l	☐ Lindane, Whl Smpl	M5		ug
☐ Alkalinity Phth, $CaCO_3$	U6		mg/l	☐ Cobalt Total, Co	J6		ug/l	☐ Methoxychlor, Whl Smpl	M6		ug
☐ Alkalinity, $CaCO_3$ Stabl	U7		mg/l	☐ Copper Total, Cu	J7		ug/l	☐ Malathion, Whl Smpl	M7		ug
☐ Carbon Dioxide, CO_2	U8		mg/l	☒ Iron Total, Fe	J8	90	ug/l	☐ Parathion, Whl Smpl	M8		ug
☐ Acidity Total, $CaCO_3$	U9		mg/l	☐ Iron Diss, Fe	J9		ug/l	☐ Methyl Parathn, Whl Smpl	M9		ug
☐ Acidity M.O., $CaCO_3$	U0		mg/l	☐ Iron Ferrous, Fe	J0		ug/l	☐ Beta, Total	M0		pc
☐ Hardness Total, $CaCO_3$	I1		mg/l	☒ Lead Total, Pb	K1	0	ug/l	☐ Beta, Diss	,1		pc
☐ Residue, Total	I2		mg/l	☐ Lithium Total, Li	K2		ug/l	☐ Beta, Suspd	,2		pc
☐ Residue, Total Volatile	I3		mg/l	☐ Manganese Total, Mn	K3		ug/l	☐ Alpha, Total	,3		pc
☐ Residue, Total Nflt (Sus)	I4		mg/l	☐ Mercury Total, Hg	K4		ug/l	☐ Alpha, Diss	,4		pc
☐ Residue, Vol Nflt	I5		mg/l	☐ Molybdenum Total, Mo	K5		ug/l	☐ Alpha, Suspd	,5		pc
☒ Residue, Total Flt (Diss)	I6	537	mg/l	☐ Nickel Total, Ni	K6		ug/l	☐ Radium 226, Total	,6		pc
☐ Residue, Vol Flt	I7		mg/l	☐ Selenium Total, Se	K7		ug/l	☐ Strontium 90, Total	,7		pc
☐ Residue, Settable	I8		mg/l	☐ Silver Total, Ag	K8		ug/l	☐ Coliform Total, MF	,8		#-100ml
☐ Nitrogen Organic, N	I9		mg/l	☐ Strontium Total, Sr	K9		ug/l	☐ Coliform Total MPN, Conf	,9		#-100ml
☒ Nitrogen Ammonia, N	I0	0	mg/l	☐ Thallium Total, Tl	K0		ug/l	☐ Fecal Coli Total, MF	,0		#-100ml
☐ Nitrite, N	01		mg/l	☐ Tin Total, Sn	L1		ug/l	☐ Fecal Strep Total, MF	.1		#-100ml
☒ Nitrate, N	02	98	mg/l	☐ Titanium Total, Ti	L2		ug/l	☐ Plate Count, Total	.2		#
☐ Phosphorus Total, P	03		mg/l	☐ Tungsten Total, T	L3		ug/l	☐ Algae, Total	.3		#
☐ Phosphorus Soluble, P	04		mg/l	☐ Vanadium Total, V	L4		ug/l	☐ TOD	.4		mg
☒ Phosphate Total, PO_4	05	43	mg/l	☒ Zinc Total, Zn	L5	30	ug/l	☐ BHC	.5		ug
☐ Phosphate Ortho, PO_4	06		mg/l	☐ Zirconium Total, Zr	L6		ug/l	☐ TKN	.6		mg
☒ Sulfate, SO_4	07	62	mg/l	☐ BOD 5-Day	L7		mg/l	☐ Conductivity, Field	.7		U-MHO
☐ Sulfite, SO_3	08		mg/l	☐ COD	L8	0	mg/l	☐			
☐ Sulfide, S	09		mg/l	☐ Chlorine Demand, 15 min	L9		mg/l	☐			
☒ Chloride, Cl	00	49	mg/l	☒ Carbon Total Org. C	L0	interf.	mg/l	☐			

COPY DISTRIBUTION: White — Data Processing White — Central Office Yellow — District Office Pink — Owner White — Laboratory

4956.32 — Ohio Department of Health

DIVISION OF SURVEILLANCE
GROUND WATER

REPORT OF WATER ANALYSIS

Project	ANDERSON TWP. LANDFILL - POINT SOURCE MONITOR					Analyzed by ODH		
Location	NEWTOWN OHIO HAMILTON COUNTY							
Well Data	HECK GREENHOUSE							
Station No.	3	3	3	3	3	3		
Date	12-27-74	5-29-75	6-3-76	11-19-76	10-21-77	4-13-78	4-19-79	
Sp. Cond.	570	560						
Dis. Solids	322	340	332	304		631	358	
Tot. Hard.	212	* 260	* 233	* 192	165	515	* 259	
Noncarb. Hard.	* 0	* 63	* 53	* 8	* 0		* 0	
pH	8.0	7.4						
Temp.							11	
Calcium		63	57	52	90	125	66	
Magnesium		25	22	15	34	46	23	
Sodium	40	27	25	22	34	39	30	
Potassium	7.0	6.7	4.6		54	6.0	6.1	
Bicarbonate/T.ALK	/226	/196	/180	/184	/310			
Carbonate								
Sulfate	19	66	45	43	41	54	66	
Chloride	39	38	41	32	65	44	32	
Fluoride	0.36	0.37	0.31			0.22	0.26	
Nitrate	0.1	0			0	< 0.05	<0.05	
Phosphate		0.1	0.25		0.45	0.17	0.35	
NITROGEN AMMONIA	3.61	4.58	1.85	.98	1.52	0.93	1.55	
Aluminum								
Iron	0.7	0.58	0.32		0.24	0.74	0.56	
Manganese					0.84			
Chromium	0		0					
Lead	0		0	0	0	< 0.005	0.006	
Nickel	0							
Zinc	0.2	1.0		.07	0.04	0.11		
BARIUM		< 0.2				<0.2		
Dis. Oxygen								
BOD								
COD	8	5	4	20	7	< 5	4	
TOC			13	7	9	17.0	10.3	
MBAS	0.06	< 0.05	0	.05	0.5		0.06	
Phenol								
ARSENIC			0		0		<0.1	
CADMIUM			0					
ORGANIC SCAN	NEGATIVE							

* CALCULATED VALUE

DIVISION OF SURVEILLANCE

GROUND WATER

REPORT OF WATER ANALYSIS

Project	ANDERSON TWP. LANDFILL – POINT SOURCE MONITOR					Analyzed by ODH		
Location	8311 BROADWELL RD NEWTOWN OHIO HAMILTON COUNTY							
Well Data	DRAVO #1 WELL PRODUCTION							
Station No.	1	1	1	1	1	1	1	
Date	1-28-74	12-27-74	5-29-75	6-3-76	11-16-76	6-21-77	10-21-77	

Sp. Cond.	520	490	450					
Dis. Solids	309	300	298	340	335	319		
Tot. Hard.	254	248	* 315		* 21	276	270	
Noncarb. Hard.	* 0	* 0	* 30		* 0	* 0	* 0	
pH	7.6	8.0	7.6					
Calcium			84		5	73	73	
Magnesium			26		2	21	22	
Sodium	17	17	72		129	8	8	
Potassium	2.3	3.9	2.1				1.4	
Bicarbonate/ALK	/260	/288	/285	/284	/291	/288	/285	
Carbonate								
Sulfate	5	0	< 10	0	0	0	0	
Chloride	24	6	6	8	6	8	7	
Fluoride		0.15	0.16	0.17		0.20		
Nitrate	0.1	0.1	0	0	0	0	0	
Phosphate	0.3	1.2	0.6	0.62		1.28	1.04	
NITROGEN AMMONIA		1.75	1.26	0.17	.31	1.06	1.05	
Aluminum								
Iron	3.6	0	1.43	0.03		2.71	2.48	
Manganese							0.09	
Chromium		0		0		0		
Lead		0		0	0	0	0	
Nickel		0						
Zinc	0.1	0.05	0.06		0		0.04	
BARIUM			< 0.2					
~~TKN~~								
Dis. Oxygen								
BOD								
COD		0	5.0	4	12	6	0	
TOC				17	5	8	2	
MBAS	0	0	< 0.05	0	0	0	0	
Phenol								
CADMIUM								
COPPER						0		
ARSENIC						0.01	0	
ORGANIC SCAN		NEGATIVE						

PHOS. T.T.P

* CALCULATED VALUE

GROUND WATER

REPORT OF WATER ANALYSIS

Project	ANDERSON TWP LANDFILL - POINT SOURCE MONITOR				Analyzed by CDH			
Location	8311 BROADWELL RD		NEWTOWN OHIO			HAMILTON COUNTY		
Well Data	DRAUD #1 WELL PRODUCTION							
Station No.	1	1	1	1	1	1	1	
Date	1-28-74	12-27-74	5-29-75	6-3-76	11-16-76	6-27-77	10-21-77	
Sp. Cond.	520	490	450					
Dis. Solids	309	300	298	340	335	319		
Tot. Hard.	254	248	* 315		* 21	276	270	
Noncarb. Hard.	* 0	* 0	* 30		* 0	* 0	* 0	
pH	7.6	6.0	7.6					
Calcium			84		5	73	73	
Magnesium			26		2	21	22	
Sodium	17	17	72		129	8	8	
Potassium	2.3	3.9	2.1				1.4	
Bicarbonate/ALK	/260	/288	/285	/284	/291	/288	/285	
Carbonate								
Sulfate	5	0	<10	0	0	0	0	
Chloride	24	6	6	8	6	8	7	
Fluoride		0.15	0.16	0.17		0.20		
Nitrate	0.1	0.1	0	0	0	0	0	
Phosphate	0.3	1.2	0.6	0.62		1.28	1.04	
NITROGEN AMMONIA		1.75	1.26	0.17	.31	1.06	1.05	
Aluminum								
Iron	3.8	0	1.93	0.03		2.71	2.48	
Manganese							0.09	
Chromium		0		0		0		
Lead		0		0	0	0	0	
Nickel		0						
Zinc	0.1	0.05	0.06		0		0.04	
BARIUM			<0.2					
TKN								
Dis. Oxygen								
BOD								
COD		0	5.0	4	12	6	0	
TOC				17	5	8	2	
MBAS	0	0	<0.05	0	0	0	0	
Phenol								
CADMIUM								
COPPER						0		
ARSENIC						0.01	0	
ORGANIC SCAN		NEGATIVE						

PHOS. TOT. P

* CALCULATED VALUE

BLUE

REPORT OF
SUBSURFACE INVESTIGATION
HEEKIN CAN, D & I ADDITION, BROADWELL RD.
HAMILTON COUNTY, OHIO

FOR

DIAMOND INTERNATIONAL CORPORATION HEEKIN CAN DIVISION

1978

INVESTIGATION BY
THE H. C. NUTTING COMPANY
CINCINNATI, OHIO

THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

December 13, 1978

Diamond International Corporation
Heekin Can Division
8200 Broadwell Road
Cincinnati, Ohio 45244

Attention: Mr. Thomas L. Wilkening,
Senior Project Engineer

Re: Subsurface Investigation
Proposed D & I Addition
Heekin Can Division
Cincinnati, Ohio

Gentlemen:

Persuant to your request, we have conducted a subsurface investigation for the subject project. We are forwarding herewith four copies of our report, including appendix and logs of test borings. Additional copies are available upon request.

This report summarizes our investigation and findings and presents recommendations for site preparation and foundation design. This report confirms our verbal recommendations provided to Mr. Wilkening, on December 5, 1978.

We appreciate this opportunity of providing these technical and professional services to you. We would be pleased to elaborate on any of the recommendations contained in this report or provide additional design information. Please contact us if we can be of additional service to you.

Thank you for your consideration.

Very truly yours,

THE H. C. NUTTING COMPANY

G. C. Webb, II,
Geotechnical Engineer

C. R. Lennertz, P.E.
Chief Engineer

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of the subsurface investigation for the proposed D & I addition to be constructed on the extreme west end of the existing plant. This investigation was made in general accordance with our proposal dated October 28, 1978 to Mr. Thomas Wilkening, Heekin Senior Project Engineer.

The purpose of this investigation is to delineate the general subsurface conditions in areas of proposed new construction, to analyze and evaluate these conditions and, based on this information, present recommendations for site preparation and foundation design. These recommendations represent opinions based on our engineering interpretation of available soil boring data and may require modification, should project scope be altered significantly, or as field conditions dictate.

PROJECT DESCRIPTION

We understand a plant addition, measuring approximately 130'x400' in plan deminsion, is to be constructed due west of the Lithographing addition constructed in 1965. The building is to be constructed as a slab-on-grade, prefabricated metal building, with some exterior brick veneer. The finished floor grades are expected to match existing plant first floor elevation. Design plans are preliminary at this time and it is not known by us if the addition will have an altogether separate foundation system or if it will be tied in with the existing Lithographing building.

We understand the building will house machinery which will fabricate aluminum and steel cans. The machinery is typically light and will be placed directly on the floor slabs. However, some heavier machines will have independent foundations. We understand the south portion of the addition will be used for metal coil storage, where a 10" thick slab is proposed. We understand maximum loading conditions for the aluminum coil storage will approximate 2000 lbs. per sq. ft., while steel coil storage could result in approximately 4000 lbs. per sq. ft. of floor slab.

INVESTIGATION

Seven Standard Penetration Test borings were performed at the site on October 27 thru 30, 1978 at general locations as shown on the attached Boring Location Plan. Boring number, depth and general locations were determined by the client. Borings extended to a depth ranging from 11.5 to 15 ft., which was deemed adequate for the purposes of this investigation. Borings 4 and 7 were extended only to 11.5 ft. due to the similar subsurface conditions encountered. This information is supplemented by four borings performed in 1965 for the existing Lithographing building.

The Standard Penetration Test borings were performed in general accordance with ASTM Designation D-1586. Split spoon samples were typically retained every 2-1/2 ft. or at a change of strata. Test borings were advanced between samples using 3.25" I.D. hollow stem augers, powered by a skid mounted drill rig.

Boring elevations were established using standard survey techniques (bench mark: first floor existing building = elevation 100.0, assumed).

Upon completion of the field investigation, the soil samples were returned to our Soils Laboratory, where they were reclassified. Laboratory tests were performed on representative samples, in order to define soil properties and to assist in evaluating foundation requirements. Results of the laboratory tests are presented in the appendix following this report.

SITE CONDITIONS

The proposed D & I plant addition is to be located on the extreme west end of the Heekin Can complex, adjacent to the existing Lithographing building. The existing grades of the proposed site are quite level, ranging from elevation 97.9 to 99.9 at the boring locations.

The soil borings are consistent with borings performed in 1965 for the Lithographing building. The general subsurface profile shows the site is mantled by a thin 2" to 4" layer of organic topsoil, or blacktop in paved areas. These materials are underlain by 2-1/2 ft. to 4 ft. of medium stiff, brown sandy clay with fine gravel. Blow counts range from 4 to 12, averaging 9 blows per ft.

Laboratory tests performed in 1965, indicate the stratum to be moderately to highly plastic with liquid limits varying from 26% to 48% and plastic indexes between 12% and 31%. Based on visual inspection and laboratory test results, this soil is an over-consolidated glacial till deposit.

This till is underlain by well-graded fine to coarse sand and gravel glacial outwash deposit. This material extended to the maximum 15 ft. depth explored. Blow counts vary from 15 to 139, becoming more dense with depth. Grain size analyses indicate a typical gradation to consist of approximately 45% gravel, 45% fine to coarse sand and 10% silt and clay size particles.

However, boring 7, performed in the southeast corner of the proposed addition penetrated medium stiff to stiff sandy clay fill soil to approximate elevation 92, 7-1/2 ft. below existing grade. This fill soil is underlain by very dense fine to coarse sand and gravel glacial outwash.

No groundwater was encountered during or shortly after drilling operations. Consequently, we do not expect groundwater to pose significant problems during construction.

DISCUSSION AND RECOMMENDATIONS

In our opinion, the subject site can be developed for the intended usage, but the presence of soil fill and medium stiff sandy clay will add to site preparation cost, especially in the proposed coil storage area.

Foundation Design

In our opinion, the proposed D & I addition can be supported on conventional shallow foundations. We recommend all exterior footings bypass the surficial medium stiff silty clay and bear directly on the underlying firm sand and gravel, or upon compacted fill. We understand proposed footing level will match the existing footing grade, which is near elevation 96. The soil borings show the top of the dense sand and gravel varies from elevation 92 to 97, most typically being near elevation 95. Consequently, some undercutting will be necessary to expose the underlying sand and gravel, especially in the southeast corner of the addition where approximately 7.5 ft. of fill was encountered.

Footing grades could be lowered to coincide with the exposed top of the sand and gravel stratum. Alternately, compacted fill could be used to reestablish footing grades at elevation 96. Should compacted fill be used, we recommend granular fill, uniformly compacted to 100% Standard Proctor (ASTM Designation D-698) be specified.

Prior to footing construction or before commencing backfill operations, it is recommended that subgrade conditions be inspected and approved by a qualified Geotechnical Engineer to confirm conditions as indicated by the soil borings. Based on the boring data, the undisturbed natural sand and gravel deposit should be in a dense and well compact state. However, disturbance or natural loose zones may exist such that it will be necessary to compact the exposed surface with a hand guided vibratory compactor. This decision should be made at the time of construction by the Geotechnical Engineer.

In our opinion, foundations can be designed for a maximum allowable soil bearing pressure of 6000 lbs. per sq. ft. on either the undisturbed dense sand and gravel or upon uniformly compacted fill as discussed above.

Floor Slab Support

We understand heavy loading conditions are expected in the proposed floor slab area. Consequently, it is our opinion that some site preparation will be necessary to achieve adequate floor slab support.

A. Coil Storage Area

In the coil storage area, heavy loading conditions are expected, with floor loads as great as 4000 lbs. per sq. ft. anticipated. In our opinion, if the existing compressible silty clay remains in-place, significant settlement could occur, causing structural distress to the floor slab. Therefore, we recommend the floor slab area in the proposed coil storage portion of the addition, be undercut a minimum of 4 ft., or to expose the dense sand and gravel stratum, whichever is least. The exposed surface should be proof-rolled prior to commencing backfill operations to compact the natural soil and to delineate local soft zones. We recommend the exposed surface be inspected and approved by a qualified soils technician, as local, deeper undercutting may be required, especially in the southeast corner of the addition where 7.5 ft. of fill exists. Finished floor grades could then be reestablished using granular fill, compacted to 100% Standard Proctor (ASTM Designation D-698). Periodic field density testing is recommended to confirm adequate compaction is being achieved in the field.

B. Manufacturing Area

In the manufacturing area (i.e., all areas other than the coil storage area) floor loads are not expected to be as great. Consequently, we do not believe such extensive site preparation is necessary. Initially, we recommend the building area be stripped of all topsoil and blacktop. We then recommend excavating as required, to approximate elevation 98 (i.e., approximately 2 ft. below finish floor). This exposed surface should then be thoroughly compacted with a large, self-propelled sheepsfoot or rubber tired roller, until there is no visible evidence of increased density with additional rolling. Floor subgrade elevations should then be established using granular fill, uniformly compacted to 100% Standard Proctor (ASTM Designation D-698). Here again, we recommend field density testing be performed to confirm adequate compaction is being achieved.

Following successful completion of this site preparation, interior machine footings could then be placed at a minimum depth on either the compacted fill or on stiff silty clay. We recommend footing design not exceed 2000 lbs. per sq. ft. to minimize potential settlement problems.

We trust this information is sufficient for your present needs. If you have any questions concerning our findings and recommendations or if you desire additional information, please do not hesitate to contact us.

APPENDIX

TEST BORING LOGS: HOLES 1 THRU 7

TABULATED AND PLOTTED LABORATORY TEST DATA

SUMMARY OF GEOTECHNICAL DATA

THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS — SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division — ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio — HOLE No. 1

LOCATION: As shown on plan

DRILLER: E. Roysdon — DRILL No. 30 — DATE STARTED: 10/27/78

ELEVATION REFERENCE: 1st. Floor Ext. Plant - N.W. Doorway = 100.0 — DATE COMPLETED: 10/27/78

CASING: DIAMETER: 3.25" I.D. Hollow Stem Auger — HAMMER WT. — FALL

SAMPLER: DIAMETER & TYPE: 2.0" O.D. Split Spoon — HAMMER WT. 140# — FALL 30"

DEPTH TO WATER: IMMEDIATE: Dry — UPON COMPLETION: Dry

DEPTH TO WATER ___ DAYS AFTER COMPLETION: Backfilled — WATER USED IN DRILLING: No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
97.9	0'						
		2.5' Dark brown clayey sandy silt with gravel, moist - medium stiff	1	0-1.5	SS	2-6-4	14"
95.4	2.5'		2	2.5-4	SS	4-11-14	6"
		7.5' Brown fine to coarse sand and gravel, some cobbles, moist - medium dense to dense	3	5-6.5	SS	11-11-14	10"
			4	7.5-9	SS	16-18-20	12"
87.9	10.0'		5	10-11.5	SS	12-31-34	16"
		5.0' Brown fine to coarse sand and gravel with cobbles, moist - very dense	6	13.5-15	SS	31-78-14	5"
82.9	15.0'						
		BORING COMPLETED					

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

HCN THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division   ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio   HOLE No. 2

LOCATION: As shown on plan

DRILLER: E. Roysdon   DRILL No. 30   DATE STARTED 10/27/78

ELEVATION REFERENCE 1st. Floor Ext. Plant - N.W. Doorway = 100.0   DATE COMPLETED 10/27/78

CASING: DIAMETER 3.25" I.D. Hollow Stem Auger   HAMMER WT. ____ FALL ____

SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon   HAMMER WT. 140#   FALL 30"

DEPTH TO WATER: IMMEDIATE Dry   UPON COMPLETION Dry

DEPTH TO WATER ____ DAYS AFTER COMPLETION Backfilled   WATER USED IN DRILLING No

ELEVATION 99.1	DEPTH 0'		DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
		2.5'	Dark brown clayey sandy silt, moist - medium stiff	1	0-1.5	SS	2-3-2	18"
96.6	2.5'			2	2.5-4	SS	4-5-9	16"
		1.5'	Brown sandy clay with some fine gravel and limestone fragments, moist - stiff					
95.1	4.0'							
		10.5'	Brown fine to coarse sand and gravel with cobbles, moist - dense to very dense	3	5-6.5	SS	14-21-29	6"
				4	7.5-9	SS	16-24-26	10"
				5	10-11.5	SS	8-25-46	14"
				6	13.5-14.5	SS	61-78	10"
84.6	14.5'							
			BORING COMPLETED					

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division — ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio — HOLE No. 3

LOCATION: As shown on plan

DRILLER: E. Roysdon — DRILL No. 30 — DATE STARTED 10/28/78

ELEVATION REFERENCE 1st. Floor Ext. Plant - N.W. Doorway = 100.0 — DATE COMPLETED 10/28/78

CASING: DIAMETER 3.25" I.D. Hollow Stem Auger — HAMMER WT. — FALL

SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon — HAMMER WT. 140# — FALL 30"

DEPTH TO WATER: IMMEDIATE Dry — UPON COMPLETION Dry

DEPTH TO WATER ___ DAYS AFTER COMPLETION Backfilled — WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
99.5	0'						
		2.5' Dark brown clayey sandy silt, moist - medium stiff	1	0-1.5	SS	2-3-1	18"
97.0	2.5'		2	2.5-4	SS	4-6-9	12"
		2.5' Brown fine to coarse sand and fine gravel, moist - medium dense					
94.5	5.0'		3	5-6.5	SS	12-17-28	18"
		2.5' Brown fine to coarse sand and gravel, some cobbles, moist - dense					
92.0	7.5'		4	7.5-9	SS	7-12-26	14"
		2.5' Brown fine to coarse sand and fine gravel, moist - dense					
89.5	10.0'						
		5.0' Brown sandy gravel with cobbles, moist - very dense	5	13.5-15	SS	27-51-68	15"
84.5	15.0'						

BORING COMPLETED

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

HCN THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD · CINCINNATI, OHIO 45226 · TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division — ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio — HOLE No. 4

LOCATION: As shown on plan

DRILLER: E. Roysdon — DRILL No. 30 — DATE STARTED: 10/28/78

ELEVATION REFERENCE: 1st. Floor Ext. Plant - N.W. Doorway = 100.0 — DATE COMPLETED: 10/30/78

CASING: DIAMETER: 3.25" I.D. Hollow Stem Auger — HAMMER WT. — FALL

SAMPLER: DIAMETER & TYPE: 2.0" O.D. Split Spoon — HAMMER WT. 140# — FALL 30"

DEPTH TO WATER: IMMEDIATE: Dry — UPON COMPLETION: Dry

DEPTH TO WATER ___ DAYS AFTER COMPLETION: Backfilled — WATER USED IN DRILLING: No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
98.3	0'						
		0.3' Blacktop					
98.0	0.3'						
		0.4' Crushed stone, (base)					
97.6	0.7'		1	0.7-2.2	SS	13-6-6	15"
		2.3' Brown sandy clay, some gravel, moist to very stiff	2	2.5-3.5	SS	6-29-27/0"	4"
95.3	3.0'						
		8.5' Brown fine to coarse sand and gravel with cobbles, moist - dense to very dense	3	5-6.5	SS	17-19-26	8"
			4	7.5-9	SS	18-19-24	14"
			5	10-11.5	SS	21-37-19	12"
86.8	11.5'						
		BORING COMPLETED					

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

HCN THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD · CINCINNATI, OHIO 45226 · TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division — ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio — HOLE No. 5

LOCATION: As shown on plan

DRILLER: E. Roysdon — DRILL No. 30 — DATE STARTED: 10/27/78

ELEVATION REFERENCE: 1st. Floor Ext. Plant - N.W. Doorway = 100.0 — DATE COMPLETED: 10/27/78

CASING: DIAMETER: 3.25" I.D. Hollow Stem Auger — HAMMER WT. ____ FALL ____

SAMPLER: DIAMETER & TYPE: 2.0" O.D. Split Spoon — HAMMER WT. 140# — FALL 30"

DEPTH TO WATER: IMMEDIATE: Dry — UPON COMPLETION: Dry

DEPTH TO WATER ____ DAYS AFTER COMPLETION: Backfilled — WATER USED IN DRILLING: No

ELEVATION 98.8	DEPTH 0'		DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
		2.5'	Dark brown clayey sandy silt, moist - medium stiff	1	0-1.5	SS	2-5-5	18"
96.3	2.5'			2	2.5-4	SS	4-5-5	12"
		1.5'	Brown sandy clay with some fine gravel, moist - medium stiff to stiff					
94.8	4.0'							
		11.0'	Brown fine to coarse sand and gravel, moist - dense	3	5-6.5	SS	11-21-29	11"
				4	7.5-9	SS	9-15-18	8"
				5	10-11.5	SS	14-18-22	16"
				6	13.5-15	SS	22-31-19	14"
83.8	15.0'							
			BORING COMPLETED					

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

HCN THE H. C. NUTTING COMPANY
GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921
4120 AIRPORT ROAD · CINCINNATI, OHIO 45226 · TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT Diamond International Corporation
Heekin Can Division ORDER No. 517.14

PROJECT Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio HOLE No. 6

LOCATION As shown on plan

DRILLER E. Roysdon DRILL No. 30 DATE STARTED 10/28/78

ELEVATION REFERENCE 1st. Floor Ext. Plant - N.W. Doorway = 100.0 DATE COMPLETED 10/28/78

CASING: DIAMETER 3.25" I.D. Hollow Stem Auger HAMMER WT. ____ FALL ____

SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"

DEPTH TO WATER: IMMEDIATE Dry UPON COMPLETION Dry

DEPTH TO WATER ____ DAYS AFTER COMPLETION Backfilled WATER USED IN DRILLING No

ELEVATION	DEPTH		DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
99.9	0'							
		2.5'	Dark brown clayey sandy silt, traces of gravel, moist - stiff	1	0-1.5	SS	1-4-5	15"
97.4	2.5'			2	2.5-4	SS	4-4-7	12"
		1.5'	Brown sandy clay, trace of gravel, moist - stiff					
95.9	4.0'							
		11.0'	Brown fine to coarse sand and gravel with cobbles, moist - dense to very dense	3	5-6.5	SS	8-10-21	15"
				4	7.5-9	SS	16-30-46	12"
				5	13.5-15	SS	18-19-43	12"
84.9	15.0'							
			BORING COMPLETED					

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.
By [signature]

THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

TEST BORING REPORT

11/7/78-dn
P.O. #P06334

CLIENT: Diamond International Corporation, Heekin Can Division — ORDER No. 517.14

PROJECT: Heekin Can, D & I Addition, Broadwell Rd., Hamilton County, Ohio — HOLE No. 7

LOCATION: As shown on plan

DRILLER: E. Roysdon — DRILL No. 30 — DATE STARTED: 10/30/78

ELEVATION REFERENCE: 1st. Floor Ext. Plant - N.W. Doorway = 100.0 — DATE COMPLETED: 10/30/78

CASING: DIAMETER: 3.25" I.D. Hollow Stem Auger — HAMMER WT. — FALL

SAMPLER: DIAMETER & TYPE: 2.0" O.D. Split Spoon — HAMMER WT. 140# — FALL 30"

DEPTH TO WATER: IMMEDIATE: Dry — UPON COMPLETION: Dry

DEPTH TO WATER ___ DAYS AFTER COMPLETION: Backfilled — WATER USED IN DRILLING: No

ELEVATION 99.5	DEPTH 0'		DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or % Core Rec.	Recovery
		0.3'	Blacktop					
99.2	0.3'	0.3'	Crushed stone, (base)					
98.9	0.6'	1.9'	Dark brown clayey sandy silt with gravel, (fill) moist - stiff	1	0.6-2.1	SS	24-17-14	16"
97.0	2.5'	5.0'	Brown sandy clay with gravel and cobbles, (fill), moist - medium stiff	2	2.5-4	SS	5-4-4	5"
				3	5-6.5	SS	4-5-4	0"
					Pick-up Auger Sample 5.0-7.5'			
92.0	7.5'	4.0'	Brown fine to coarse sand with cobbles, moist - very dense	4	7.5-9	SS	22-31-29	16"
				5	10-11.5	SS	16-29-29	14"
88.0	11.5'							

BORING COMPLETED

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,
THE H. C. NUTTING CO.

By [signature]

THE H. C. NUTTING COMPANY
4120 AIRPORT ROAD
CINCINNATI, OHIO 45226

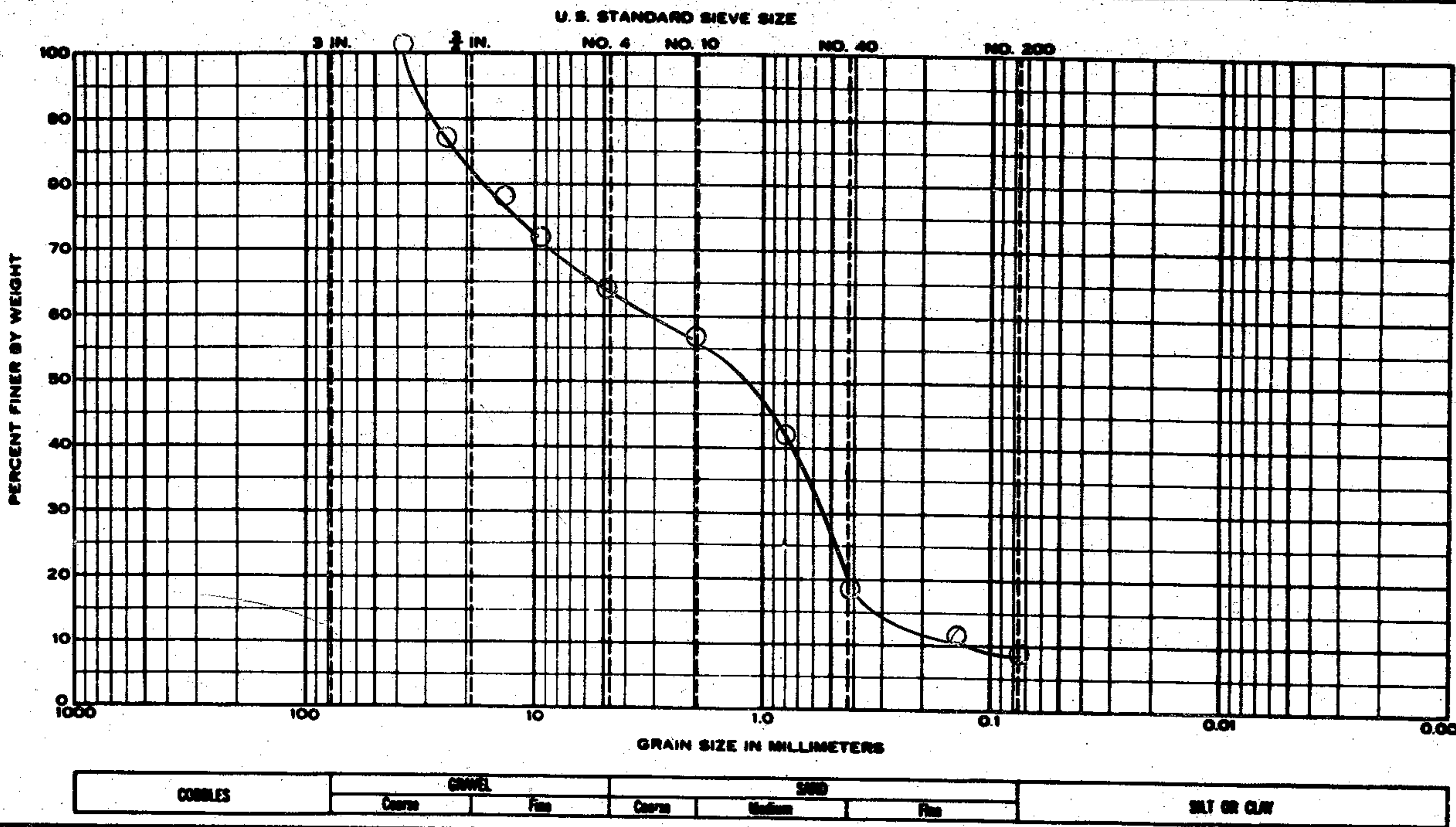
DIAMOND INTERNATIONAL CORPORATION
HEEKIN CAN DIVISION
D & I ADDITION, BROADWELL ROAD,
HAMILTON COUNTY, OHIO

TABLE I

CLASSIFICATION TEST DATA

Mechanical Analysis

Hole No.	Sample No.	Depth (Ft.)	% Gravel	% Sand	% Silt	% Clay	Classification U.S.C.S.
1	3	5-6.5	36	55	- 9 -		SW-SM
2	4	7.5-9.0	49	41	- 10 -		GP-GM
3	2	2.5-4.0	46	44	- 10 -		GP-GM
5	5	10-11.5	50	45	- 5 -		GP-GM



BORING NO	DEPTH	CLASSIFICATION	NWC	LL	PL	PI	U.S.C.S.
1	5-6.5'	Brown fine to coarse sand					SW-SM
(3)		and gravel					

GRADATION CURVES

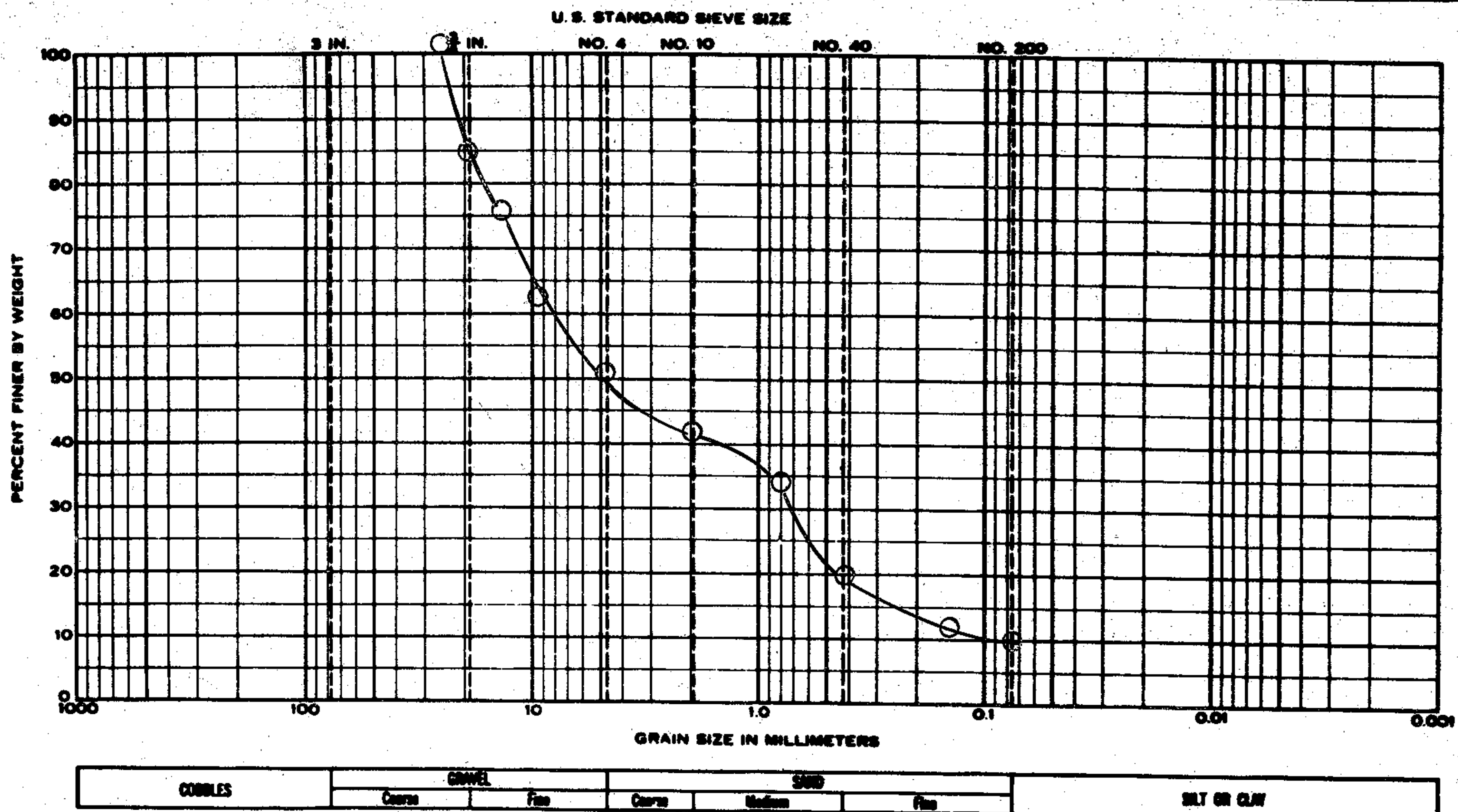
THE H.C. NUTTING CO.
CINCINNATI OHIO

CLIENT DIAMOND INTERNATIONAL CORPORATION HEEKIN CAN DIVISION

PROJECT D & I ADDITION, BROADWELL ROAD, HAMILTON COUNTY, OHIO

DATE DECEMBER, 1978

FIGURE NO. 1



BORING NO	DEPTH	CLASSIFICATION	NWC	LL	PL	PI	U.S.C.S.
2	7.5-9.0'	Brown fine to coarse sand					GP-GM
(4)		and gravel					

GRADATION CURVES

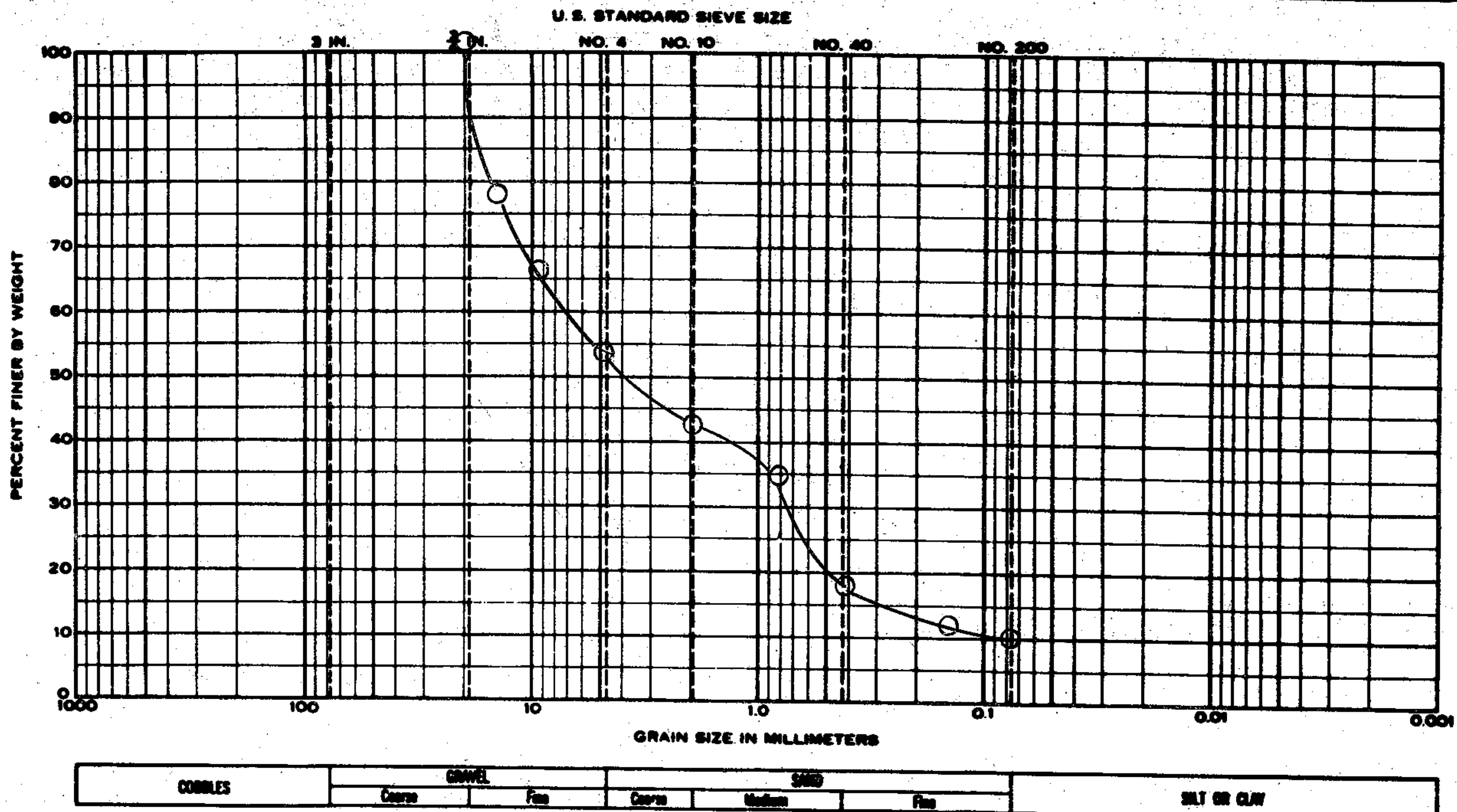
THE H.C. NUTTING CO.
CINCINNATI OHIO

CLIENT DIAMOND INTERNATIONAL CORPORATION
HEEKIN CAN DIVISION

PROJECT D & I ADDITION, BROADWELL ROAD,
HAMILTON COUNTY, OHIO

DATE DECEMBER, 1978

FIGURE NO. 2



Boring No	Depth	Classification	NWC	LL	PL	PI	U.S.C.S.
3	2.5-4.0'	Brown fine to coarse sand					GP-GM
(2)		and gravel					

GRADATION CURVES

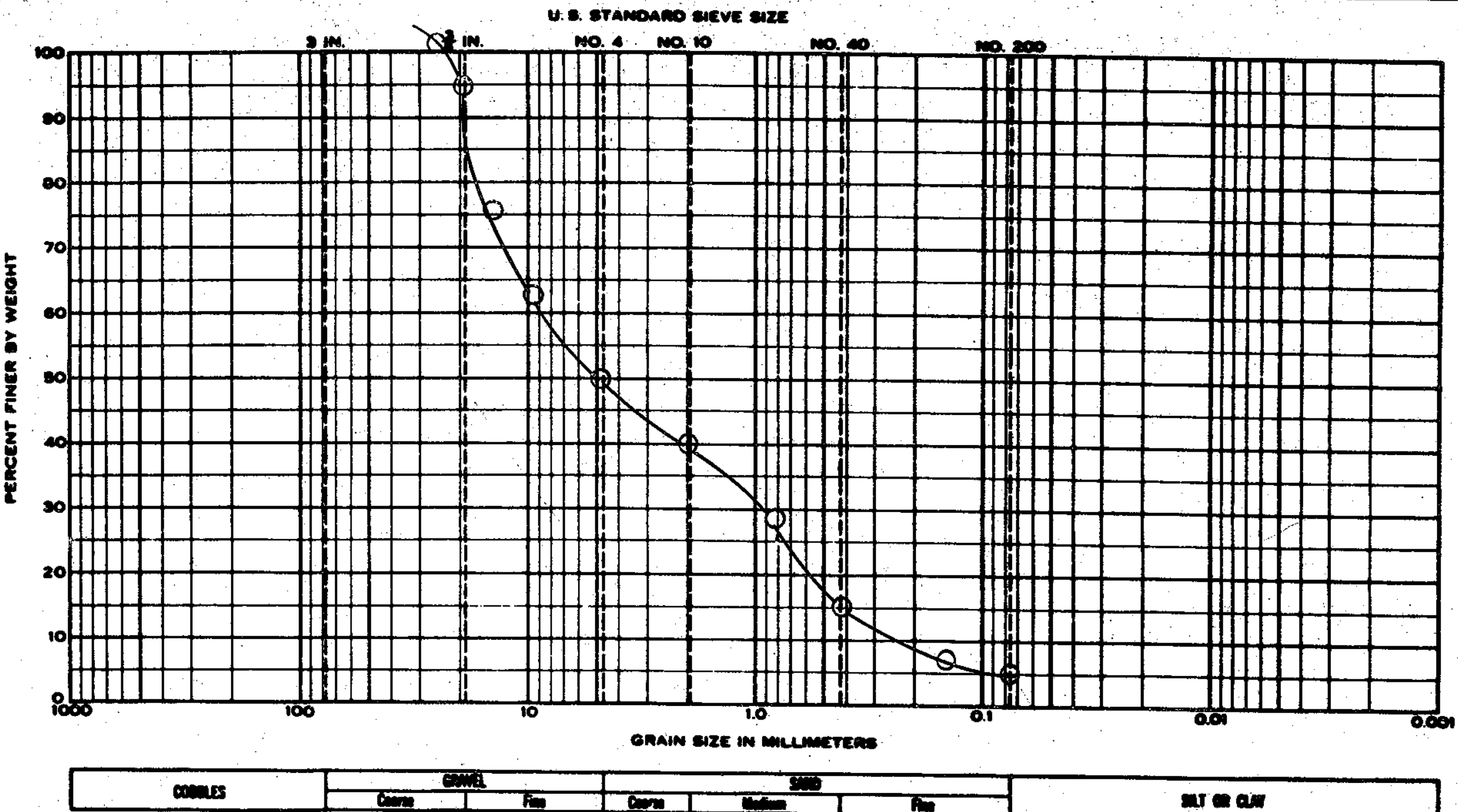
THE H.C. NUTTING CO.
CINCINNATI OHIO

CLIENT DIAMOND INTERNATIONAL CORPORATION HEEKIN CAN DIVISION

PROJECT D & I ADDITION, BROADWELL ROAD, HAMILTON COUNTY, OHIO

DATE DECEMBER, 1978

FIGURE NO. 3



BORING NO	DEPTH	CLASSIFICATION	NWC	LL	PL	PI	U.S.C.S.
5	10-11.5'	Brown fine to coarse sand					GP-GM
(5)		and gravel					

GRADATION CURVES

THE H.C. NUTTING CO.
CINCINNATI OHIO

CLIENT: DIAMOND INTERNATIONAL CORPORATION HEEKIN CAN DIVISION

PROJECT: D & I ADDITION, BROADWELL ROAD, HAMILTON COUNTY, OHIO

DATE: DECEMBER, 1978

FIGURE NO. 4

OhioEPA

State of Ohio Environmental Protection Agency

Industrial Water Pollution Control Certificate

Certificate Number 607

PURSUANT TO OHIO REVISED CODE SECTION 6111.31, THE DIRECTOR OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY FINDS THAT THE DISPOSAL SYSTEM, TREATMENT WORKS, PRETREATMENT WORKS, APPLIANCES, EQUIPMENT, MACHINERY, INSTALLATION OR STRUCTURES AS DESCRIBED IN INDUSTRIAL WATER POLLUTION CONTROL CERTIFICATE APPLICATION NUMBER T.E. 77-210, WITH EXCEPTIONS AS MAY BE NOTED ON THE ATTACHMENTS HERETO:

(1) ARE OWNED BY Diamond International, Heekin Can Division,
entity
8200 Broadwell Road,
street address
Cincinnati Ohio 45244 ;AND
city, state, zip code

(2) ARE LOCATED IN Hamilton, 8200 Broadwell Road,
county street
Cincinnati, OHIO; AND
city

(3) COST A TOTAL OF $ 241,422.00 BASED ON DATA SUBMITTED BY THE APPLICANT (THE OHIO EPA DOES NOT CERTIFY THE ACCURACY OF THESE COSTS).

IT IS THEREFORE CERTIFIED THAT SAID DISPOSAL SYSTEM, TREATMENT WORKS, PRETREATMENT WORKS, APPLIANCES, EQUIPMENT, MACHINERY, INSTALLATION AND STRUCTURES:

(1) COMPRISE ALL OR PART OF AN INDUSTRIAL WATER POLLUTION CONTROL FACILITY AS DEFINED IN OHIO REVISED CODE SECTION 6111.01(J); AND

(2) WERE INSTALLED PURSUANT TO APPROVAL OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY OR ANOTHER GOVERNMENTAL AGENCY HAVING AUTHORITY TO APPROVE THE INSTALLATION; AND

(3) ARE IN OPERATION OR CAPABLE OF OPERATION ON OR AFTER DECEMBER 31, 1965.

THEREFORE, THIS INDUSTRIAL WATER POLLUTION CONTROL CERTIFICATE IS ISSUED TO THE ABOVE-NAMED ENTITY, WITH ALL RIGHTS, PRIVILEGES, AND ENTITLEMENTS SET FORTH IN OHIO REVISED CODE SECTIONS 6111.31 THROUGH 6111.39, INCLUSIVE, ON THIS 5th DAY OF December, 1977, AND IS EFFECTIVE AS OF THE 15th DAY OF December, 1973.

Ned E. Williams

Director, Ohio Environmental Protection Agency

Attachments # --

OEPA-42G-3 (5/76)

State of Ohio Environmental Protection Agency, Box 1049, 361 East Broad Street, Columbus, Ohio 43216 (614) 466-8565

Re: Hamilton County
Cincinnati
Industrial Water Pollution Control Certificate No. 607
Application No. T.E. 77-210
Type: Additional Industrial Wastewater Treatment Facilities

December 5, 1977

CERTIFIED MAIL

OhioEPA

Diamond International
Heekin Can Division
8200 Broadwell Road
Cincinnati, Ohio 45244

Gentlemen:

Your water pollution control facility has been constructed and the final construction cost has been submitted to the Ohio EPA. This Agency has not received any adjudication hearing requests regarding the issuance of your Industrial Water Pollution Control Certificate. Therefore, under the provisions of Ohio Revised Code, Section 6111.31, your certificate, No. 607 is attached hereto.

Very truly yours,

Ralph W. Everett

Ralph W. Everett, Chief
Permit and Approval Section

RWE/beg

Encl.