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COVER SHEETS**

BOOK 2

*FINAL REPORT FOR PHASE I
REMEDIAL ACTION;
UNITED SCRAP LEAD SUPERFUND SITE
TROY, OHIO
Contract No. DACW45-89-D-9516
Delivery Order 46*

Submitted by:

OHM Remediation Services Corp.
Midwest Region



Submitted to:

United States Army Corps of Engineers
Omaha, Nebraska

August 22, 1995
Project 12601.1

USACE

Submission Date: August 22, 1995

FINAL REPORT FOR THE UNITED SCRAP LEAD SITE, TROY, OHIO

OHM PROJECT NO. 12601.1

Book 2

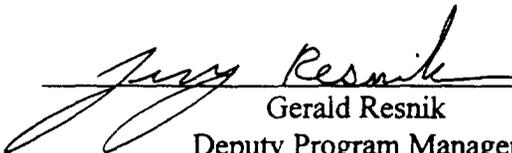
**FINAL REPORT FOR PHASE I
REMEDIAL ACTION;
UNITED SCRAP LEAD SUPERFUND SITE
TROY, OHIO
Contract No. DACW45-89-D-9516
Delivery Order 46**

Submitted by:



OHM Remediation Services Corp.
Midwest Region

Prepared by:


Gerald Resnik
Deputy Program Manager

August 22, 1995
Project 12601.1

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APPENDIX C
CONTRACTORS SAMPLING AND ANALYSIS PLAN
(SUMMARY)

SUMMARY

1.0 INTRODUCTION

OHM Remediation Services Corp. (OHM), a wholly owned subsidiary of the OHM Corporation, is pleased to submit this document detailing the sampling and analysis performed in connection with the remediation of the United Scrap Lead site located at 2109 S County Road 25-A, Troy, Ohio.

1.1 SITE HISTORY

The United Scrap Lead site in Troy, Ohio, is a former auto and industrial battery processing facility used to reclaim lead. The facility was active from 1946 until 1980. The site was placed on the National Priorities List by the United States Environmental Protection Agency (USEPA) in 1984. Lead contaminated soils and battery casings located above the water table were removed from adjacent properties and stockpiled on the site by the USEPA in 1985. The Record of Decision was signed in 1988. A Remedial Design Inter Agency Agreement was issued to the United States Army Corps of Engineers (USACE) on March 30, 1989.

2.0 EXCAVATION CONFIRMATION SAMPLING

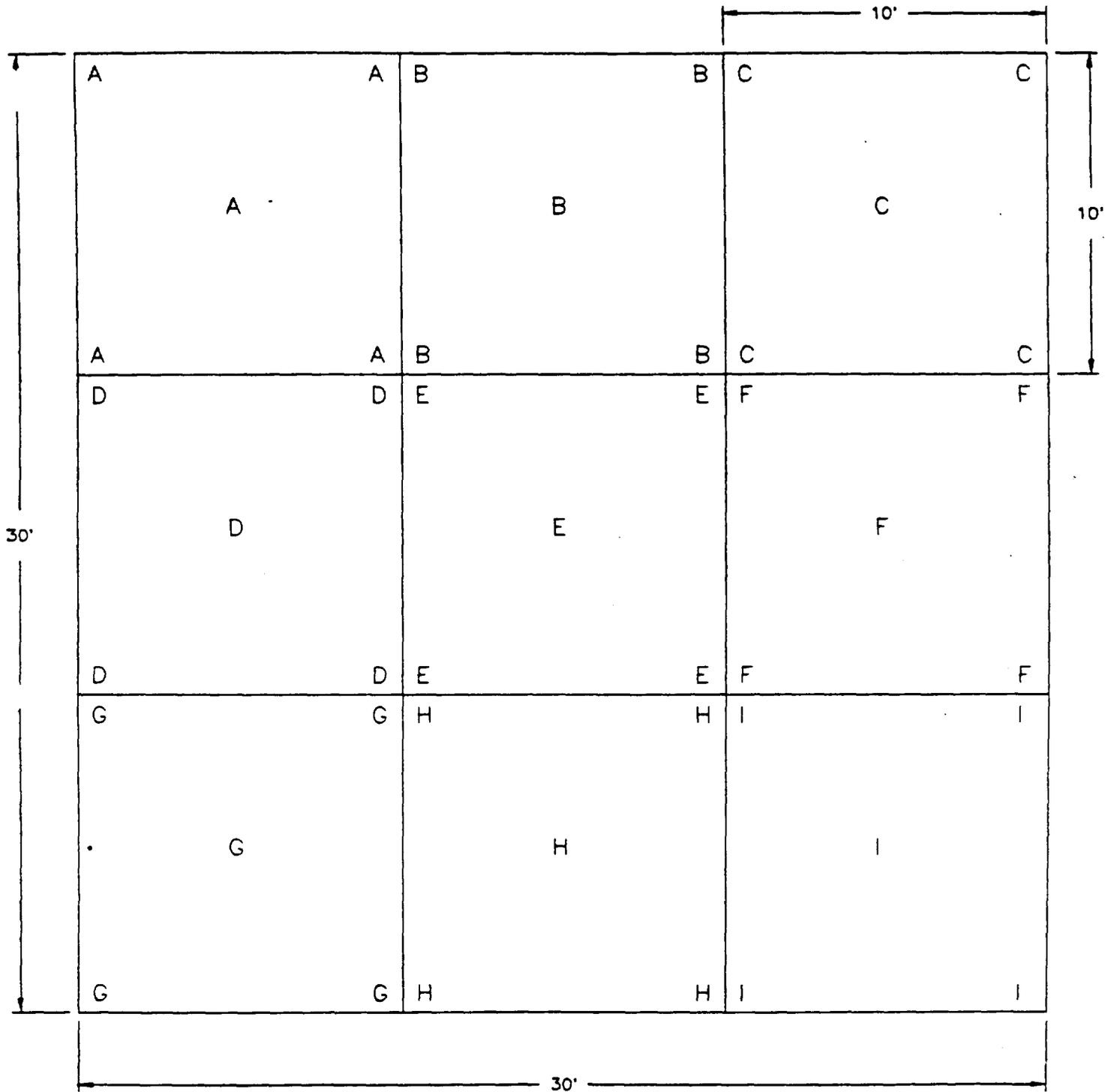
2.1 Objective

The objective of this sampling was to determine the extent of the lead contamination in the excavated areas.

2.2 Sampling Approach

As the excavation progressed, the floor of the excavation was sampled to determine the concentration of total lead remaining in the excavation.

The excavation floor was sampled at the conclusion of soil removal. Sampled according to the procedures established in the Contractor Sampling and Analysis Plan (CSAP) for the project. A grid was laid out covering the entire area to be sampled. The grid was divided into 10- by 10-foot sections. A composite sample was collected from each section of the grid. The composite consisted of soil from 5 points in the section (see Figure 1-A). The samples were collected in a stainless steel mixing bowl. The soil was then mixed, quartered and divided with a stainless steel spatula. The remaining solid was then transferred into a sample jar. Decontamination procedures set forth in the CSAP were followed. Sample gloves were changed between each composite sample.



General Notes:

LETTERS DESIGNATION 5 POINTS IN EACH SQUARE FOR 1 COMPOSITE SAMPLE

FIGURE 1A

SAMPLE LOCATIONS FOR COMPOSITES

LEASE TROY, OHIO



OHM Corporation
Findlay, Ohio

Drawn By: D. SOULT	Checked By:
Date: 10-18-94	Approved By:
Scale: AS SHOWN	Drawing No: 126C-A

2.3 Analytical

Off-site analysis of the soil samples was accomplished by SW-846 Method 6010 for total lead. The off-site analysis was performed by Analytical Services Corporation (ASC), and PACE Incorporated. Analytical data for these samples can be found in Appendix F, Section D of the final report for this project.

3.0 DISPOSAL SAMPLING

3.1 Objective

The objective was to define the waste characterization of the different wastestreams.

3.2 Sampling Approach

In order to properly dispose of the wastestreams on site the wastes first had to be representatively sampled to determine the characteristics of the different streams. This was achieved by collecting samples of the various items assigned to disposal. Composite samples were collected from the abandoned farmhouse, farmhouse siding, scrap pallets, mill shed, PPE drums, bulk containers in barn, and barn. The wood debris from each stream were collected by core sampling using a portable drill and a hole saw attachment or, by chip sampling using a hammer and stainless steel chisel. Each sample was composited in a stainless steel bowl. The PPE was sampled using a utility knife or scissors to cut squares of PPE that are no less than 2 inch squares. The sample consisted of these small swatches from each drum or bag or PPE being represented by the sample.

3.3 Analytical

The off-site analysis from the wastestreams for disposal was conducted by ASC. The samples were analyzed for disposal purposes. The analytical data for these samples can be found in Appendix H, Section B of the final report for this project.

4.0 MISCELLANEOUS SAMPLING

4.1 Objective

Due to the number of different tasks performed on the site, a wide array of sampling techniques were called into play in order to complete all of the different aspects of work on the site. The miscellaneous samples were used to ensure that all of the different items were covered.

4.2 Sampling Approach

As work at the site proceeded, different issues were encountered and addressed by OHM and USACE. The samples in this section reflect this. The section contains soil samples, wipe samples, and one water sample.

4.3 Analytical

The analysis of these samples was performed by ASC and PACE Incorporated. The analytical methods used were SW-846 Method for PCBs and SW-846 Method 6010 for lead. The individual analysis and results for these samples can be found in Appendix H, Section C of the final report for this project.

5.0 DRINKING WATER WELL SAMPLES

5.1 Objective

The objective of this sampling was to confirm that the well rechlorination effectively eliminated any coliform bacteria possibly caused by disturbances around the well due to excavation procedures.

5.2 Sampling Approach

The sampling techniques for this sampling was determined by the sampling procedures set forth by the receiving lab. The collection point spigots were heated with a propane torch to destroy any bacteria residing in the spigot. The water was then allowed to run for several minutes before the sample was collected.

5.3 Analytical

The analysis was performed for these samples by National Environmental Testing Incorporated. The analysis run was for total coliform. The analytical data for these samples can be found in Appendix H, Section E of this final report.

6.0 DOCUMENT CONTROL

6.1 Sample Tracking

In order to effectively track the different samples taken on site, a unique numbering system was established to aid in the tracking process. The samples taken for disposal analysis were designated at the 10,000 series, the miscellaneous sample category was designated at the 20,000 series, the excavation confirmation samples were designated as the 30,000 series, and the drinking water samples were designated as the 50,000 series.

6.2 Chain of Custody

After every sample or group of samples was taken, they were immediately logged into a sample logbook and a COC was completed. The COC was kept with samples at all times. The office and decon trailers were always locked overnight. Keeping the samples in secured storage effectively prevented any outside tampering.

7.0 LESSONS LEARNED

7.1 Communications and Continuity

Communications between interdepartmental functions is vital to the success of any project. Continuity among personnel throughout long-term projects is also essential.

Constant consideration to improve in these areas will no doubt improve the quality and effectiveness of future projects.

7.2 Reporting

During the sometimes quick-paced events of a project, it is imperative that adequate time be allotted for proper documentation and completion of thorough reports. Attention to detail in this area will improve the ability to manage the project as well as produce a quality final report.

APPENDIX C

CONTRACTORS SAMPLING AND ANALYSIS PLAN

(Section 1.0, Introduction, Page 1-3)

stored in garbage bags on site. OHM will crush/cut the metal grain bin, pressure wash it at the decontamination pad, and then dispose of the grain bin debris as recycled metal. The PPE stored in garbage bags will be combined in the pile of PPE previously contained drums, sampled, and a representative composite sample will be prepared for landfill disposal parameters. Please refer to Table 1.1, Sampling Summary, for a summary of the samples to be obtained and analyzed.

1.4 SOIL EXCAVATION

This task involves the excavation and stockpiling of all lead-contaminated soil in an area near the office building on the [REDACTED] property and on a small section of the Ishmael property (see Section 5.3, Soil Sampling Methodology). Excavation will proceed until lead contamination levels are below the action levels described below:

- Grade to 2 feet--210 ppm
- Deeper than 2 feet--500 ppm

Verification sampling will take place after each excavation.

1.5 INSTALLATION AND REMOVAL OF WELLS AND LEACHATE FIELD

This task consists of the abandonment on one drinking water well and the installation of a new one. Additionally this task consists of the removal and installation of a leachate system on the [REDACTED] property. Drinking water will be provided. Drinking water and potable water will be supplied to the [REDACTED] and Ishmael properties until the new wells and transmission system are installed and running. An existing leachate field on the [REDACTED] property will be removed. It is likely that contamination exists at levels greater than the action levels around the existing leachate field.

1.5.1 Well Abandonment

OHM will abandon the existing drinking water well located between the [REDACTED] and Ishmael properties (see Section 8.0, Water Supply Well Installation). The well abandonment will take place in accordance with all local, state, and federal regulations.

1.5.2 Installation of Wells

OHM will install one complete well system to supply water to the Ishmael and [REDACTED] properties. All local, state, and federal regulations will be adhered to.

1.5.2.1 Potable Water and Drinking Water

OHM will provide both the Ishmael and [REDACTED] properties with drinking water and potable water. The drinking water will be dispersed in 5-gallon jugs through a cooler. Potable will be placed outside of the house and office in an aboveground tank.

APPENDIX C

CONTRACTORS SAMPLING AND ANALYSIS PLAN

(Section 5.0, Lead Contaminated Soil Removal)

5.0 LEAD-CONTAMINATED SOIL REMOVAL

The lead-contaminated soil near the areas of the [REDACTED] and Ishmael properties will be excavated and sampled for verification before backfilling of the excavated area by OHM. The action limits set by USACE are 200 ppm for soils from the ground surface to a 2-foot depth and 500 ppm for soils greater than a 2-foot depth. The excavated soil from these two properties will be spread on site at a location determined by the USACE on-site representative.

Before any excavation procedures commence, OHM will secure all appropriate permits and utility checks. OHM will also be responsible for providing copies of all these permits to the USACE on-site representative.

OHM will verify that the action limits as set fourth by USACE will be met by sampling and analyzing the excavated areas from the surface. After excavation and verification samples for analysis have been obtained and action limits are met, OHM will be responsible for backfilling the excavated area with clean soil from an off-site source. The backfill will be compacted to meet all specifications by any state, county, and/or city regulations.

NOTE: The initial work plan calls for backfill to come from an on-site borrow area. Due to close proximity of the off-site vendor and competitive pricing, the cost comparison conducted on site showed off-site source to be the most economical for this project.

The soil adjacent to the office building located on the [REDACTED] property may need to be excavated if action levels dictate. OHM will comply with all OSHA and USACE regulations for excavations next to existing structures. During the excavation OHM and USACE will inspect the foundation daily.

This portion of the CSAP details the procedures OHM will use to sample the excavated soil.

5.1 OBJECTIVES

The objective of this task is to obtain representative samples of the excavated soil contaminated with lead. Samples will be taken at various locations and depths as directed by USACE at both the [REDACTED] and Ishmael properties.

5.2 TECHNICAL APPROACH

The samples to be obtained for pH and lead analysis will be representative of the excavated soil at the depths and locations of excavation. The backfill will be sampled to confirm that the soil is free of any lead contamination at a frequency of one sample per 100 cubic yards.

5.3 SOIL SAMPLING METHODOLOGY

The OHM sample technologist will thoroughly decontaminate a stainless steel auger and stainless steel mixing bowl with spatula as specified in Section 13.0, Decontamination. The technologist will proceed to take samples from the surface of the excavation area. A hexagonal grid will be developed by an OHM sample technologist to base the characterization samples. These samples will be composited at different depths from the same grid location.

The OHM sampling crew shall define the area which is to be sampled after excavation and then obtain measurements of the area. A sampling grid (see Exhibit II) will be laid out within the area to be sampled. The samples obtained in this grid will define the extent of lead contamination. The grid will have a total of 37 sample points, each of these points will be equidistant of one another. Sixteen sample points will be located around the excavation area, and the remaining 21 sample points will be within the excavation area. All sample points will be measured out and marked/flagged. From each sample point, a composite will be obtained from the surface to the 2-foot depth. The composites will be obtained using a stainless steel auger sampling device. When all of the sample points have been flagged or otherwise marked the sampler will decontaminate the stainless-steel auger. The sampler will first thoroughly wash the auger with Alconox soap and deionized water using a scrub brush. The next step is a deionized water rinse followed by a 10 percent HNO₃ rinse followed by a final deionized water rinse. The decontaminated auger will be placed on a clean surface to prevent outside or cross contamination. (NOTE: Clean sample gloves will be donned before and after each step of decontamination as well as sampling.) Decontamination of the auger will be performed before and after each sample point.

NOTE: Once excavation was initiated, it became clear that the existing sampling grid method would not be appropriate. A 10- by 10-foot grid system with a 5-point composite is what was decided upon and approved by the OSR (see Figure 1A) at beginning of Appendix C.

The sampling of the excavated area may present a safety hazard. If the OHM site safety officer determines that the excavation is unsafe to enter, the sample technologist will subsample the bucket of the excavation equipment. The samples may be grab samples from the bucket of the excavator taken with a clean, stainless-steel auger. Grab samples will be taken from excavated soils at the predetermined systematic intervals.

When the auger is cleaned and ready for use, the sampler will remove the first inch of top soil before inserting the auger sampler. With the soil now removed and the auger in place, the sampler will slowly twist/turn the auger into the soil. When the auger head has been fully inserted into the ground it will be retrieved and transferred into a precleaned stainless-steel bowl. The stainless-steel bowl will be decontaminated using the same protocol as the auger. After the contents have been transferred into the bowl, the auger will be reinserted into the soil and the process repeated until the 2-foot depth is reached.

The sample technologist will don clean sample gloves and thoroughly mix each grid sample in the stainless-steel mixing bowl (Cole-Parmer Catalog No. L-07300-50 or equivalent) to homogenize the contents. The stainless-steel spatula (VWR Catalog No. 58575 or equivalent) will be used to thoroughly mix the contents of the bowl for no less than 3 minutes. The mixture will be spread into a thin layer and quartered. Opposite quarters will be discarded and the mixing, quartering, and splitting process continued until no less than 1 quart by volume remains in the stainless-steel bowl. This material will be transferred to a precleaned, wide-mouth, clear glass 32-ounce sample container with Teflon-lined lid (Eagle-Picher Catalogue No. 233-32C or equivalent). The jar will be sealed, labeled, and placed into a Ziplock bag. The container will be wrapped in sorbent padding and placed into a sample cooler. A chain-of-custody record form will be completed and the sample will be documented in the field sampling notes.

The sample technologist will wear USEPA Level C personal protective equipment and don clean sample gloves before and after each composite sample is obtained from the grid area. The samples will then be placed in the appropriate containers.

5.4 BACKFILL SAMPLING

The backfill will be sampled by an OHM sample technician at the point of origin to determine and confirm that the backfill obtained does not exceed a level of lead above 210 ppm (source certification). The sample will be obtained using a stainless-steel decontaminated shovel to acquire a representative grab sample of the backfill soil.

The stainless-steel shovel will be decontaminated by first thoroughly washing the shovel with Alconox soap and deionized water using a scrub brush. The next step is a deionized water rinse followed by 10 percent HNO₃ rinse followed by a final deionized water rinse. The decontaminated shovel will be placed on a clean surface to prevent outside or cross contamination.

5.5 QUALITY ASSURANCE/QUALITY CONTROL

OHM will be required to submit for analysis at a minimum, three duplicate samples with splits for the USACE QA laboratory, two collocated samples, and two matrix spike/spike duplicates. Refer to Section 12.0, Analytical for QA/QC procedures to be used by the contract laboratory. The samples will be submitted on a 24-hour turnaround to the appropriate laboratories.

Every tenth sample will be collocated in triplicate. In each case the original sample point will be sampled and the sample will be submitted to the ASC laboratory. Two collocated sample points will be directly adjacent to the original sample point. One of these collocated sample will be submitted as a duplicate of the original sample point. This sample will be given a different consecutive sample number.

The three duplicate samples will be split using the mixing, quartering process until 2 quarts by volume remains in the stainless-steel mixing bowl. This material will be transferred to each of two precleaned, wide-mouth, clear, glass, 32-ounce sample containers with Teflon-lined lids (Eagle-Picher Catalogue No. 233-32C or equivalent). OHM will add the Project ID "MRD LIMS No. 1646" to the labels and chain-of-custody records for all QA samples shipped to the MRD laboratory throughout the duration of the project.

APPENDIX G
WASTE SHIPPING PAPERS

APPENDIX G

WASTE SHIPPING PAPERS

APPENDIX G

**WASTE TRANSPORTATION AND DISPOSAL
WASTE SHIPPING PAPERS**

TABLE OF CONTENTS

Section A	Non-Friable Asbestos Waste
Section B	Non-Hazardous Special Waste
Section C	Miscellaneous Waste
Section D	Hazardous Waste
Section E	PCB Waste

TRANSPORTATION AND DISPOSAL REPU...

Manifest#	Date off-site	Date received	Transporter	Disposal Facility	# yards	Tonnage	Contents of Container
14669	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	6.16	Metal/Crushed Drums
14670	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	8.29	Metal/Crushed Drums
14671	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	9.49	Metal/Crushed Drums
14672	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	7.17	Metal/Crushed Drums
14673	06/25/93	Reissued	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	Redone	House Debris (see 14676)
14674	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	7.48	House Debris
14675	06/25/93	06/25/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	7.52	House Debris
14676	06/25/93	06/28/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	10.89	House Debris
14668	06/28/93	06/28/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	6.34	House Debris
None	06/28/93	06/28/93	AWT Transfer Services	Franklin Iron & Metal Corp.	30	1 load	Heavy Scrap Metal
14067	06/29/93	06/29/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	15.77	House Debris
14068	06/29/93	06/30/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	15.3	House Debris
None	06/30/93	06/30/93	AWT Transfer Services	Franklin Iron & Metal Corp.	60	1 load	Heavy Scrap Metal
119528	07/07/93	07/07/93	AWT Transfer Services	BFI Bigfoot Run Cincinnati	60	1.62	Asbestos Siding
None	07/08/93	07/08/93	AWT Transfer Services	Franklin Iron & Metal Corp.	60	1 load	Heavy Scrap Metal
Slips	07/14/93	07/14/93	AWT Transfer Services	Tred Tech Inc.	30	60	Tires
Slips	07/16/93	07/16/93	AWT Transfer Services	Tred Tech Inc.	30	110	Tires
11001	11/11/94	11/12/94	Rust Industrial Services	Adams Center CWM -Ft Wayne	35		Barn Debris
11002	11/11/94	11/12/94	Rust Industrial Services	Adams Center CWM -Ft Wayne	35		Barn Debris
11003	11/11/94	11/12/94	Rust Industrial Services	Adams Center CWM -Ft Wayne	35		Barn Debris
11004	11/12/94	11/12/94	Metropolitan Environmental	Adams Center CWM -Ft Wayne	30		Barn Debris
11005	11/12/94	11/12/94	Metropolitan Environmental	Adams Center CWM -Ft Wayne	30		Barn/Mill Shed Debris
11006	11/12/94	11/12/94	Metropolitan Environmental	Adams Center CWM -Ft Wayne	30		Milished Debris
11007	11/12/94	11/12/94	Metropolitan Environmental	Adams Center CWM -Ft Wayne	30		Milished Debris
None	11/14/94	11/14/94	OHM	Franklin Iron & Metal Corp.	3	5	Barn Tin (Roof)
None	11/14/94	11/14/94	OHM	Franklin Iron & Metal Corp.	3	5	Barn Tin (Roof)
None	11/14/94	11/14/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
None	11/14/94	11/14/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
None	11/15/94	11/15/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
None	11/15/94	11/15/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
None	11/15/94	11/15/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
None	11/15/94	11/15/94	OHM	Franklin Iron & Metal Corp.	3	5	Metal Debris
240180381	11/15/94		Federal Express A/B #	S.D. Myers	5	15	4 PCB Ballasts

SECTION A
NON-FRIABLE ASBESTOS WASTE



BROWNING-FERRIS INDUSTRIES

NORTHERN REGION

August 16, 1995

Mr. Greg Norton
Transportation and Disposal Manager
O.H.M. Corporation
16406 State Route 224E
Findlay, Ohio 45840

RE: Certificate of Disposal

Dear Mr. Norton:

I have received your inquiry requesting information for obtaining certificates of disposal. BFI utilizes non-hazardous waste manifests to track the transportation and disposal of material coming into our landfills. A signed copy by the landfill is proof of disposal. This signed copy is sent to you with invoicing.

If you have any additional questions, please do not hesitate to call.

Sincerely,

Claudia Gerard

CPG: cm



NON-HAZARDOUS SPECIAL AND ASBESTOS WASTE MANIFEST

GENERATOR

GENERATOR INSTRUCTIONS: SPECIAL WASTE - COMPLETE SECTIONS I, II, V, VII, IX, XI
 ASBESTOS WASTE - COMPLETE SECTIONS I thru XI (Section I, if required to analyze for hazardous waste characteristics)

SECTION I BFI WASTE CODE OH 212 01024 2051 3229

SECTION II GENERATOR
 NAME USEPA Region V GENERATING LOCATION _____
 MAILING ADDRESS 77 W. Jackson Blvd. Chicago PHONE NO 312 286 6951 PHONE NO 312 335 6804

SECTION III OPERATOR/CONTRACTOR
 NAME OHM Corp.
 ADDRESS CS 2800 Findlay, OH 45839 PHONE NO 419 425 6041

SECTION IV OWNER
 NAME United Scrap Lead PHONE NO _____

SECTION V WASTE DISPOSAL SITE
 NAME Big Foot Run PHYSICAL SITE LOCATION _____
 MAILING ADDRESS 2420 E. Mason Maxwell Millgrove Rd. PHONE NO 513 892 2942

SECTION VI RESPONSIBLE AGENCY (LOCAL, STATE, EPA)
 NAME _____ PHONE NO _____
 ADDRESS _____

SECTION VII DESCRIPTION OF WASTE	CONTAINERS NO. TYPE	TOTAL QUANTITY UNIT	TYPE DM-METAL DRUM DM-PLASTIC DRUM BA-55L PLASTIC BAGS/WRAP T-TRUCK O-OTHER	UNITS P-POUND Y-YARDS M-CUBIC METER Y-CUBIC YARDS O-OTHER
<u>Non Hazardous Debris</u>	<u>1 T</u>	<u>30 yard</u>		
<u>Asbestos</u>	<u>1.62 tm</u>	<u>10</u>		

ASBESTOS WASTE
 FRIABLE NONFRIABLE BOTH % FRIABLE % NON FRIABLE

SECTION VIII SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION

SECTION IX GENERATOR CERTIFICATION
 I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.1 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.
George P. Hoang For USEPA 7-7-93
Print Name & Title Signature Date
George P. Hoang For USEPA
Signature Signature

SECTION X OPERATOR CERTIFICATION (ASBESTOS)
 I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.
Cecilia Hall 7-7-93
Print Name & Title Signature Date
Cecilia Hall
Signature Signature

TRANSPORTER

SECTION XI TRANSPORTER I
 NAME OF CO. Belt Tractor Services
 ADDRESS 97 Rt. 235 St. Louis, OH 43079
 DRIVER Charlie House
Print Name & Title
 TRUCK NO. 10 PHONE NO. (513) 643-5506
 Acknowledgment of receipt of materials:
Charlie House 7-7-93
Signature Signature Date

SECTION XII TRANSPORTER 2
 NAME OF CO. _____
 ADDRESS _____
 DRIVER _____
Print Name & Title
 TRUCK NO. _____ PHONE NO. _____
 Acknowledgment of receipt of materials:

Signature Signature Date

DISPOSAL SITE

DISCREPANCY INDICATION SPACE
This is note on OHM Employee

DISPOSAL COORDINATES (Latitude and Longitude)
N34 01 N, W 87 01 E (100 772)

DISPOSAL SITE AND ADDRESS
Big Foot Run
2420 E. Mason Maxwell Millgrove Rd.
St. Louis, OH 45152
 I hereby certify that the above material has been accepted and is the property of the generator and the foregoing is true and correct.
BEI
 AUTHORIZED AGENT (PLEASE PRINT)
George P. Hoang 7-7-93
Signature Signature Date
 SIGNATURE OF AUTHORIZED AGENT

DISPOSAL INSTRUCTIONS
Asbestos Part

SECTION B
NON-HAZARDOUS SPECIAL WASTE



BROWNING-FERRIS INDUSTRIES

NORTHERN REGION

August 16, 1995

Mr. Greg Norton
Transportation and Disposal Manager
O.H.M. Corporation
16406 State Route 224E
Findlay, Ohio 45840

RE: Certificate of Disposal

Dear Mr. Norton:

I have received your inquiry requesting information for obtaining certificates of disposal. BFI utilizes non-hazardous waste manifests to track the transportation and disposal of material coming into our landfills. A signed copy by the landfill is proof of disposal. This signed copy is sent to you with invoicing.

If you have any additional questions, please do not hesitate to call.

Sincerely,

Claudia Gerard

CPG: cm

CO. REC'D

JUL 09 1993



BROWNING-FERRIS INDUSTRIES

No. 4416474

Order: A28854 06/25/93 1: 09:41 am Browning-Ferris Industries
Customer: CUSTOMER NAME: 13-077
Account: 7777774 LMS# 998 0: 09:14 am BIGFOOT RUN LANDFILL (513) 899-2942
Truck: F07

OUTDISTRICT

Non compacted
Manifest: 14669
Checker: Tina Weaver
Gr: 30.74 Scale 1
Tare: 24.58 Scale 1 Net: 6.16 tn
Capacity: 60.00 Actual: 60.00
Transporter: Outside Hauler
Source: MIAMI COUNTY

No Pa
No h

Volume	Contents	Rate	Charge
6.16 tn	Spec Waste	15.00	0.00
Total			0.00
B. OUTDISTRICT SURCHARGE			19.71
BF-TOWNSHIP FEE			1.54
TOTAL			21.25

113.44

PO# 200297
J# 12001
Signature: *[Handwritten Signature]*

SIGNATURE:



No. 4415842

BROWNING-FERRIS INDUSTRIES

Order : 029371 06/29/93 I: 12:27 pm
Customer: DM/206513
Account : 0009118 LMS# A21 O: 12:57 pm
Truck : 10

Browning-Ferris Industries

BIGFOOT RUN LANDFILL (513) 899-2542

OUTDISTRICT

Non compacted

Manifest: 14067

Checker: Tina Weaver

Grs: 30.31 Scale 1

Tare: 22.54 Scale 1 Net: 15.77 tn

Capacity: 60.00 Actual: 60.00

Transporter: Outside Hauler

Source: MIAMI COUNTY

Waste

Volume	Contents	Rate	Charge
15.77 tn	Spec. Waste	18.50	291.75 237.34
	Total	15.05	291.75
	B. -OUTDISTRICT SURCHARGE		50.46
	BF-TOWNSHIP FEE		3.94
TOTAL			346.15 291.74

SIGNATURE:

Charlie Hess



No. 4415925

BROWNING-FERRIS INDUSTRIES

Account: A29455 06/30/93 I: 05:20 am
Customer: OHM/206513
Account: 0009118 LMS# A21 D: 05:49 am
Truck: 10

Browning-Ferris Industries

BIGFOOT RUN LANDFILL (513) 899-2942

OUTDISTRICT

Non-Compacted
Manifest: 14068
Checker: Jean Rogers
Grs: 37.99 Scale 1
Tare: 22.69 Scale 1 Net: 15.30 tn
Capacity: 60.00 Actual: 60.00
Transporter: Outside Hauler
Source: MIAMI COUNTY

Wrong Rate

Volume	Contents	Rate	Charge
15.30 tn	Spec. Waste	10.50 15.05	283.05 230.27
Total			293.05 230.27
BF-OUTDISTRICT SURCHARGE			48.96
BF-TOWNSHIP FEE			3.83
TOTAL			335.84 293.06

SIGNATURE:

Charlie Hess



No. 4416473

BROWNING-FERRIS INDUSTRIES

Customer: 028853 06/25/93 11 09:17 am
Account: 777774 LMS# 998 0: 09:12 am
Truck: 10
Browning-Ferris Industries
BIGFOOT RUN LANDFILL (513) 899-2942

OUTDISTRICT

Non compacted
Manifest: 14670
Checker: Tina Weaver
Grs: 30.71 Scale 1

Tare: 22.42 Scale 1 Net: 8.29 tn
Capacity: 60.00 Actual: 55.00
Transporter: Outside Hauler
Source: MIAMI COUNTY

No 2nd
No 1st

Volume	Contents	Rate	Charge
8.29 tn	Spec Waste	15.00	124.37
			0.00
			26.53
			2.07
			151.97

SIGNATURE: *Charlie Hess*



LM S TICKET NO. 14671
CINCINNATI LANDFILL DISTRICT
NON-HAZARDOUS SPECIAL WASTE MANIFEST

GENERATOR

Generator Name LISEPA Region V Generating Location United Scrap Lead
Address 77 W JACKSON BLVD Address 2165 S. Co. Rd 25A
CHICAGO, IL 60604 TROY, OH 45373

Phone No. 312-8866941 Phone No. 513-3356804

BFI Waste Code 04 217 740624 20651 3029 Containers

Description of Waste	Quantity	Units	No.	Type
<u>Non-Hazardous Special Waste</u>	<u>6055</u>	<u>Y</u>	<u>017</u>	
	<u>9.49</u>	<u>A</u>		

- Type
- D - Drum
 - C - Carton
 - B - Bag
 - T - Truck
 - P - Pounds
 - Y - Yards
 - O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA REGION V
GREGORY P. HOOVER
Generator Authorized Agent Name

[Signature] For USEPA
Region V
Shipment Date 062593

LANDFILL	Discrepancy Indication Space	Disposal Coordinates
	Printed/Typed Name	Signature

TRANSPORTER

Truck No. F-10 R-01 (10) Phone No. (513) 335-5506
Transporter Name AWT Transfer Services Driver Name (Print) Charlie Hees
Address St. Rt. 235 Vehicle License No./State P4 E 770 OH
St. Paris, OH 43072 Vehicle Certification 6/31/01

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 062593
Driver Signature Shipment Date

[Signature] 062593
Driver Signature Delivery Date

DESTINATION

SITE AND ADDRESS
BIGFOOT RUN SANITARY LANDFILL
2420 E. Mason Morrow Milgrove Road • Morrow, Ohio 45152

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

AUTHORIZED AGENT (PLEASE PRINT)

[Signature]
SIGNATURE OF AUTHORIZED AGENT

062593
Receipt Date

DISPOSAL INSTRUCTIONS

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	



LM S TICKET NO. 14672
 CINCINNATI LANDFILL DISTRICT
NON-HAZARDOUS SPECIAL WASTE MANIFEST

GENERATOR

Generator Name USEPA Region V Generating Location United Scrap Leasing
 Address 77 W. JACKSON BLVD Address 2165 S Co. Rd 25 A
Chicago, IL 60604 Troy, OH 45373

Phone No. 312-8866941 Phone No. 513-3356804

BFI Waste Code OH 21 940624 206513029 Containers
 Description Non-hazardous Special waste Quantity 10 Units 55 No. 01 Type T
7.17 4

- Type
- D - Drum
- C - Carton
- B - Bag
- T - Truck
- P - Pounds
- Y - Yards
- O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA REGION V For USEPA
 Generator Authorized Agent Name GREGORY P. HOOVER Signature [Signature] Region II Shipment Date 062593

LOCAL	Discrepancy Indication Space	Disposal Coordinates
	Printed/Typed Name	Signature

TRANSPORTER

Truck No. F07 R-02 (07) Phone No. (513) 663-5506
 Transporter Name AWT Transfer Services Driver Name (Print) Thomas Hayden
 Address St. Route 235 Vehicle License No./State P2Y 85K OH
St. Paris, OH 43072 Vehicle Certification [Signature]

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 062593 Driver Signature [Signature] Delivery Date 062593

DESTINATION

DISPOSAL INSTRUCTIONS

SITE AND ADDRESS
 BIGFOOT RUN SANITARY LANDFILL
 2420 E. Mason Morrow Millgrove Road • Morrow, Ohio 45152

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	

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

[Signature] AUTHORIZED AGENT (PLEASE PRINT)
[Signature] SIGNATURE OF AUTHORIZED AGENT
 Receipt Date 062593



NO 14674
CINCINNATI LANDFILL DISTRICT
NON-HAZARDOUS SPECIAL WASTE MANIFEST

GENERATOR

Generator Name USEPA Region II Generating Location United Scrap Lead
Address 77 W Jackson Blvd Address 2165 S Co Rd 25A
Chicago, IL 60604 Troy, OH 45373

Phone No. 312-8866941 Phone No. 513-3356804

BFI Waste Code	Description of Waste	Quantity	Units	No.	Type
<u>OH 217</u>	<u>9140624</u>	<u>20651</u>	<u>3029</u>	<u>011</u>	<u>T</u>
	<u>Non-Hazardous Special Waste</u>	<u>16065</u>	<u>Y</u>		
		<u>7.48</u>	<u>W</u>		

- Type
- D - Drum
 - C - Carton
 - B - Bag
 - T - Truck
 - P - Pounds
 - Y - Yards
 - O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA Region II
Gregory P. Howard Generator Authorized Agent Name
Gregory P. Howard Signature
062593 Shipment Date

FEDERAL TOXIC	Discrepancy Indication Space	Disposal Coordinates
	Printed/Typed Name	Signature

TRANSPORTER

Truck No. 117-10 R-01 (10) Phone No. (513) 663-5506
Transporter Name AWT Transfer Services Driver Name (Print) Charlie Hess
Address St. Route 225 Vehicle License No./State P4 E 770 OH
St. Paris, OH 43072 Vehicle Certification

I hereby certify that the above named material was picked up at the generator site listed above.
Charlie Hess Driver Signature 062593 Shipment Date
I hereby certify that the above named material was delivered without incident to the destination listed below.
Charlie Hess Driver Signature 062693 Delivery Date

DESTINATION

SITE AND ADDRESS
BIGFOOT RUN SANITARY LANDFILL
2420 E. Mason Morrow Millgrove Road • Morrow, Ohio 45152
I hereby certify that the above material has been accepted and to the best of my knowledge the foregoing is true and accurate.
BFI
AUTHORIZED AGENT (PLEASE PRINT)
Gregory P. Howard SIGNATURE OF AUTHORIZED AGENT
062593 Receipt Date

DISPOSAL INSTRUCTIONS

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	

GENERATOR

Generator Name USEPA Region I Generating Location United Scrap Lead
Address 77 W Jackson Blvd. Address 2165 S. Co. Rd 25A
Chicago, IL 60604 Troy, OH 45373

Phone No. 312-8866941 Phone No. 513-3356804

BFI Waste Code OH 21-940624 206513029 Containers
Description of Waste: Non-Hazardous Special Waste Quantity 10055 Units Y No. 017 Type
7.5 2 ASD 0

- Type
D - Drum
C - Carton
B - Bag
T - Truck
P - Pounds
Y - Yards
O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA Region I
GREGORY P. HOOPER Generator Authorized Agent Name
[Signature] Signature
For USEPA Region I Shipment Date 062693

Discrepancy Indication Space
Disposal Coordinates
Printed/Typed Name
Signature
Month Day Year

TRANSPORTER

Truck No. 10 R-01 Phone No. (513) 663-5506
Transporter Name AWT Transfer Services Driver Name (Print) Charlie Hess
Address St. Route 235 Vehicle License No./State P4E 770 OH
St. Paris, OH 43072 Vehicle Certification

I hereby certify that the above named material was picked up at the generator site listed above.
Charlie Hess Driver Signature
062693 Shipment Date
I hereby certify that the above named material was delivered without incident to the destination listed below.
Charlie Hess Driver Signature
062693 Delivery Date

DESTINATION

SITE AND ADDRESS
BIGFOOT RUN SANITARY LANDFILL
2420 E. Mason Morrow Milgrove Road • Morrow, Ohio 45152
I hereby certify that the above material has been accepted and to the best of my knowledge the foregoing is true and accurate.
[Signature] AUTHORIZED AGENT (PLEASE PRINT)
[Signature] SIGNATURE OF AUTHORIZED AGENT
062693 Receipt Date

DISPOSAL INSTRUCTIONS

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	

GENERATOR

Generator Name USEPA Region V Generating Location United Scrap Lead
Address 77 W JACKSON Blvd Address 2165 S. Co. Rd 25A
CHICAGO, IL 60604 TROY, OH 45373

Phone No. 312-8866941 Phone No. 513-3356804

BFI Waste Code OH 21 1940624 206513029 Containers

Description: NON-HAZARDOUS SPECIAL WASTE Quantity 604.55 Units Y No. 01 Type T

- Type
D - Drum
C - Carton
B - Bag
T - Truck
P - Pounds
Y - Yards
O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA REGION V
GREGORY P. HOWNER
Generator Authorized Agent Name

[Signature]
Signature

For USEPA REGION V
062893
Shipment Date

LANDFILL	Discrepancy Indication Space	Disposal Coordinates
	Printed/Typed Name	Signature
		Month Day Year

TRANSPORTER

Truck No. 08 TR01 #10 Phone No. (513) 663-5506
Transporter Name AWT Transfer Services Driver Name (Print) Thomas Hess
Address St. ROUTE 235 Vehicle License No./State P4A93T OH
St. PIRIS, OH 43072 Vehicle Certification

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature]
Driver Signature

062893
Shipment Date

CHARLIE HESS
Driver Signature

062893
Delivery Date

DESTINATION

SITE AND ADDRESS

BIGFOOT RUN SANITARY LANDFILL
2420 E. Mason Morrow Millgrove Road • Morrow, Ohio 45152

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

BEST
AUTHORIZED AGENT (PLEASE PRINT)

[Signature]
SIGNATURE OF AUTHORIZED AGENT

062893
Receipt Date

DISPOSAL INSTRUCTIONS

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	

GENERATOR

Generator Name USEPA Region I Generating Location United Scrap Lead
Address 77 W Jackson Blvd. Address 2165 S. Co. Rd 25A
Chicago, ILL 60604 Troy, OH 45373

Phone No. 312-8866941 Phone No. 513-3356504
BFI Waste Code OH 21E 940624 206513029 Containers
Description Waste Quantity Units No. Type
Non-Hazardous Special Waste 60 yds 55 Y 0 1 T
10.89 ton

- Type
D - Drum
C - Carton
B - Bag
T - Truck
P - Pounds
Y - Yards
O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

USEPA Region I
Generator Authorized Agent Name GREGORY P. HARVEY Signature [Signature] For USEPA Region I Shipment Date 062593

TOTAL	Discrepancy Indication Space	Disposal Coordinates
	Printed/Typed Name	Signature

TRANSPORTER

Truck No. F07T10 R-03 Phone No. (513) 663-5506
Transporter Name A.W.T. Transfer Services Driver Name (Print) Charlie Hess
Address St. Rt. 235 Vehicle License No./State P4E77Q OH
St. Paris, OH 43072 Vehicle Certification

I hereby certify that the above named material was picked up at the generator site listed above. I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature Charlie Hess Shipment Date 062593 Driver Signature [Signature] Delivery Date 062893

DESTINATION

SITE AND ADDRESS
BIGFOOT RUN SANITARY LANDFILL
2420 E. Mason Morrow Millgrove Road • Morrow, Ohio 45152

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

[Signature]
AUTHORIZED AGENT (PLEASE PRINT)
SIGNATURE OF AUTHORIZED AGENT [Signature] Receipt Date 062893

DISPOSAL INSTRUCTIONS

ASBESTOS CELL	
BURY AT BASE	
DIG A TRENCH	
MIX WITH REFUSE	
AVOID SKIN & EYE CONTACT	
AVOID BREATHING DUST	

SECTION C
MISCELLANEOUS WASTE

SCRAP TIRE MANIFEST



Specializing in Scrap Tire Clean Up

722 Caldwell Street • Piqua, Ohio 45356

William Hughes

Home (513) 773-0216

Cindy Hughes

Mobile (513) 239-2224

LOAD ORIGINATOR _____

Art J. Stanger

Piqua Ohio

PASS 137 @ .50 = 68.50

HDTs 52 @ 3.00 = 156.00

PASS MDT @ =

ARRIVE _____ DEPART _____

SIGNATURE William Hughes

DATE 7/14/93 INVOICE 17281

DRIVER Art J. Stanger (N. Martins)

TRUCK# 8 TRAILER# _____

COMMODITY Scrap Tires

CONSIGNEE Tred Tech, Inc.

2946 N.S. Rt. 108 N

Bellevue, Ohio

GROSS WT _____

TARE WT _____

NET WT _____

ARRIVE _____ DEPART _____

SIGNATURE _____

Signatures are mandatory from all parties to certify liability release. Load originator signs off, releases possession and ownership to Tred Tech, Inc. Tred Tech, Inc. is then responsible to get consignee signatures. Consignee at that point takes possession and ownership of commodity.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading.

OR TRUCK ON JULY 14 1993 From OHM CORP

The property described below, in apparent good order, except as noted (contents and conditions of packages unknown, marked, consigned, and destined as indicated below, which said carrier the 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 own 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 of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classification in effect on the date thereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

I, the undersigned, hereby certify that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the form of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Con. noted to Trud Tech

(Mail or street address at consignee—For purposes of notification only.)

Destination LAIDLAW, B211 State OH Zip _____ County _____ Delivery Address ★ _____

★ To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route _____

Delivering Carrier AWT Car or Vehicle Initials OR No. RO2/30

No. Packages	Kind of Package, Description of Articles, Special Marks, and Exceptions	WEIGHT (Subject to Correction)	Class or Rate	Check Column
25	TRUCK TIRES			
135	PASS. CAR TIRES			
5/15	13F			
137	1-30			

Subject to Section 7 of Conditions of applicable bill of lading, 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)

If charges are to be prepaid, write or stamp here: "To be Prepaid."

Received \$ _____ to apply in prepayment of the charges on the property described herein.

Agent or Cashier

Per _____ (The signature here acknowledges only the amount prepaid.)

Charges Advanced:

\$ _____

† Shipper's imprint in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is carrier's or shipper's weight.

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 _____

† The boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of the Freight Classification.

AWT Shipper, Per NIXON VANTIS Agent, Per ROD

Permanent post-office address of shipper: _____

Walter H. Jones

3

This Memorandum

is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. _____
 Carter's No. 7-1593

AWT Trans Services Inc.
 (Name of Carrier)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading.
BY/DNA 7-16 1993 From OHM

The carrier described below, in apparent good order, except as noted (contents and conditions of packages unexamined, marked, counted, and destined as indicated below, which said carrier (the shipper) or 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 own 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 of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classification in effect on the date thereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to AWI (Mail or street address of consignee - For purposes of notification only.)
 Destination _____ State _____ Zip _____ County _____ Delivery Address * _____

* To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route _____

Delivering Carrier AWT Trans Services Inc. or Vehicle Initials OB No. 101

No. Packages	Kind of Package, Description of Article, Special Marks, and Exceptions	WEIGHT (Subject to Correction)	Class or Rate	Check Columns
1	TIRE BOX (90TAX) (204R)	177 total 140 total		
		865		
		4 P.		

Subject to Section 7 of Conditions of applicable bill of lading, 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) _____
 If charges are to be prepaid, write "To be Prepaid."
 Received \$ _____
 to apply in payment of the charges on the property described herein.
 Agent or Cashier _____
 Per _____
 (The signature here acknowledges only the amount prepaid.)
 Charges Advanced: \$ _____
 * Shipper's imprint in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.

When shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is carrier's or shipper's property.
 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 _____

* The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of the Consolidated Freight Classification.

Shipper, Per [Signature] Agent, Per [Signature] **3**

Permanent post-office address of shipper: _____

SECTION D
HAZARDOUS WASTE

CHEMICAL WASTE MANAGEMENT OF INDIANA, INC.
4636 ADAMS CENTER ROAD
FORT WAYNE, INDIANA 46806
USEPA ID NUMBER IND078911146

Certificate of Disposal

Chemical Waste Management of Indiana, Inc. has received waste material from

United Scrap Lead on 11-12-94 as described on Indiana Hazardous

Waste Manifest number INA 0910331, 81, 0959946, 50, 61

Profile Number BD7344

Date Disposed 11-12-94

I hereby certify on behalf of the above listed treatment and disposal facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

Tracey C. Relue
Tracey C. Relue
(Site Service Representative

PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter))

Form Approved OMB No. 2050-0039 Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but Items D, F, H, I and K are required by State law.

O · H · D · 0 · 1 · 8 · 3 · 9 · 2 · 9 · 2 · 8 1 1 · 0 · 0 · 5

3. Generator's Name and Mailing Address
USEPA REGION 5

MAILING ADDRESS:
USACE ATTN: WALLY SHAHEEN
FORT CROOK AREA OFFICE
P.O. BOX 13287
OFFUTT AFB, NE 68113

A. State Manifest Document Number

INA 0910331

UNITED SCRAP LEAD C.R. 25A
TROY, OH 45373

4. Generator's Phone (513) 335-6804

5. Transporter 1 Company Name

Metropolitan Environmental

6. US EPA ID Number

IN · D · 0 · 1 · 9 · 0 · 0 · 1 · 0 · 3 · 9 · 7

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

CWM-ADAMS CENTER LANDFILL OF IN
4636 ADAMS CENTER ROAD
FORT WAYNE, IN 46806

10. US EPA ID Number

I · N · D · 0 · 7 · 8 · 9 · 1 · 1 · 1 · 4 · 6

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

a RQ, HAZARDOUS WASTE SOLID, n.o.s. (CONTAINS LEAD) 9, NA3077, PG III

12. Containers
No. Type

0 0 1 D-T

13. Total Quantity
14. Total Wt/Vol.

EST 300 LBS
0 0 0 2 5 0 Y

J. Additional Descriptions for Materials Listed Above

DEBRIS CONTAMINATED WITH LEAD
ERG #31
CWM APPROVAL
EMERGENCY PHONE #800

15. Special Handling Instructions and Additional Information

BILL TO: OHM CORPORATION, CS 2800, FINDLAY, OH 45840-2800
WORK ORDER # 171075

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; or, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name

JAMES MCNUITY USACE

Date
Month Day Year

11 28 84

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Kent L. Sloniker

Signature

Kent L. Sloniker

Date
Month Day Year

11 28 84

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19.

Printed/Typed Name

Stanley

Signature

Stanley

Date
Month Day Year

11 28 84

In case of a spill call the Indiana Office of Environmental Response at 800/424-8802 or 202/426-2675. 317/241-4336 (d. night) and the National Response Center at 800/424-8802 or 202/426-2675.

GENERATOR

TRANSPORTER

FACILITY

INA 0910331

PLEASE PRINT OR TYPE
UNIFORM HAZARDOUS WASTE MANIFEST

(Form designed for use on elite (12-pitch typewriter).)

Form Approved, OMB No. 2050-0039, Expires 9-30-94

1. Generator's US EPA No. O.H.D.O.1889292.8		Manifest Document No. 1-1-0-0-4		2. Page 1 of 3 Information in the shaded areas is required by Federal law, but items D, F, H, I and K are required by State law.	
1. Generator's Name and Mailing Address USEPA REGION 5 UNITED SCRAP LEAD C.R. 25A TROY, OH 45373		MAILING ADDRESS: USACE ATTN: WALLY SHAHEEN FORT CROOK AREA OFFICE P.O. BOX 13287 WEEKS OFFUTT AFB, NE 68113		A. State/Manifest Document Number INA 0910381	
4. Generator's Phone (-513) 335-6804		5. Transporter 1 Company Name Metropolitan Environmental		6. US EPA ID Number I.N.D.O.1.0.3.9.7	
7. Transporter 2 Company Name		8. US EPA ID Number		9. Designated Facility Name and Site Address CWM-ADAMS CENTER LANDFILL OF IN 4636 ADAMS CENTER ROAD FORT WAYNE, IN 46806	
10. US EPA ID Number I.N.D.O.7.8.9.1.1.1.4.6		11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers	
a		RQ, HAZARDOUS WASTE, SOLID (CONTAINS LEAD) 9, NA3077, PG III		No. Type Total 0 0 1 0 1	
b					
c					
d					
15. Special Handling Instructions and Additional Information BILL TO: OHM CORP, CS 2800, FORT WAYNE, IN 46840-2800 WORK ORDER # 171075					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport, storage, and handling according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name JAMES PROVOST		Signature [Signature]		Date 1/29/94	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name TED A. ZACHARAT		Signature [Signature]		Date 1/29/94	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest Printed/Typed Name SANDY [Signature]		Signature [Signature]		Date 1/29/94	

In case of a spill call the Indiana Office of Environmental Response at 317/241-4336 (during night) and the National Response Center at 800/424-8802 or 202/426-2675.

GENERATOR
TRANSPORTER
FACILITY

INACCURATE

PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter))

Form Approved, OMB No. 2050-0039, Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

0-H-D-0-1-8-3-9-2-9-2-8

Manifest Document No.

1-0-0-2

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address

USEPA Region 5
United Scrap Lead C.R. 25A
Troy, OH 45373

Mailing Address:

USACE, Attn: Wally Shaheen
Fort Crook Area Office
P.O. Box 13287
Offutt AFB, NE 68113

A. State Manifest Document Number

INA 0959946

4. Generator's Phone () 335-6804

5. Transporter 1 Company Name

RUST Industrial Svcs

6. US EPA ID Number

0-H-D-9-8-6-9-8-6-0-4-0

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

CWM - Adams Center Landfill, of IN
4636 Adams Center Road
Fort Wayne, IN 46806

10. US EPA ID Number

I, N, D, 0, 7, 8, 9, 1, 1, 1, 4, 6

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

a. RQ, Hazardous Waste Solid, n.o.s. (contains lead), 9,
NA 3077, PG III

12. Containers

No. Type

0-0-1 D-T

13. Total Net Quantity

6-0-0

ESTIMATED

14. Additional Descriptions for Materials Listed Above

Debris Contaminated with lead greater than 5 ppm XPC TCLP
ERG #31
Emergency phone # 800-537-5540
CWM Approval # 07344
Emergency contact GREG NORDEN

15. Special Handling Instructions and Additional Information

WORK ORDER # 171075
Bill to OHM Remediation Services Corp; CS2800; Findlay; OH 45839

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway, air, rail, water, international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that is consistent with applicable laws and regulations.

Printed/Typed Name

JAMES MCARDLE

Signature

James McArdle

Date

11/1/89

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

David L Shaw

Signature

David L Shaw

Date

11/1/89

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19.

Printed/Typed Name

SHARON STANLEY

Signature

Sharon Stanley

Date

11/2/89

2021426-2675
2021424-88
National Response Center at 800/424-88

INA 0959946

PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. **OH D 0 1 8 3 9 2 9 2** Manifest Document No. **11-0-0-3**
2. Page 1 of 1 Information in the shaded areas is not required by Federal law, but Items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
USEPA Region 5
Mailing Address:
USACE Attn: Wally Shaheen
Fort Crook Area Office
P.O. Box 13287
Offutt APB, NE 68113

A. State Manifest Document Number
INA 0959961

4. Generator's Phone **(303) 513-335-6804**
5. Transporter 1 Company Name
RUST Industrial Services
6. US EPA ID Number
OH D 9 8 6 9 8 6 0 4 0

B. State Generator ID
513-222-1109

7. Transporter 2 Company Name
8. US EPA ID Number

C. State Transporter ID

9. Designated Facility Name and Site Address
CWM - Adams Center Landfill of IN
4636 Adams Center Road
Fort Wayne, IN 46806
10. US EPA ID Number
IND 0 7 8 9 1 1 1 4 6

D. State Facility ID
ASS-008
E. Facility Phone
219-447-5585

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Total W/Vol.	15. Waste No.
	No.	Type			
a. RQ, Hazardous Waste Solid, n.o.s. (contains lead) 9, NA 3077, PG III	0	1 D T	35	0.02	D008
b.					
c.					
d.					

J. Additional Descriptions of Materials Listed Above
Debris contaminated with lead greater than 5 ppm
ERG #31 CWM Approval #: B07344
Emergency phone #: 800-537-9540 Emergency contact:

15. Special Handling Instructions and Additional Information
Bill to CWM Remediation Services, Corp.,
CS 2800, Findlay, OH 45839.
P.O. #: 171075

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by air, sea, or land, according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **JAMES MCIVERITY USACE** Signature *[Signature]* Date **11-11-94**

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name **DAVID L SHAW** Signature *[Signature]* Date **11-11-94**

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name _____ Signature _____ Date _____

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19.
Printed/Typed Name **DAVID L SHAW** Signature *[Signature]* Date **11-11-94**

Environmental Response at 317/241-4335 (day or night) and the National Response Center at 800/424-8802

INA 0959961

CHEMICAL WASTE MANAGEMENT OF INDIANA, INC.
4636 ADAMS CENTER ROAD
FORT WAYNE, INDIANA 46806
USEPA ID NUMBER IND078911146

Certificate of Disposal

Chemical Waste Management of Indiana, Inc. has received waste material from

United Scrap Lead on 11-14-94 as described on Indiana Hazardous

Waste Manifest number INA 0910380, 0959951.

Profile Number B07344

Date Disposed 11-14-94

I hereby certify on behalf of the above listed treatment and disposal facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

Tracey C. Relue

Tracey C. Relue

(Site Service Representative)

PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA No. O·H·D·0·1 8 3 9 2 9 2·8	Manifest Document No. 1·1·0·0·7	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.
3. Generator's Name and Mailing Address USEPA REGION 5 UNITED SCRAP LEAD C.R. 25A TROY, OH 45373			MAILING ADDRESS: USACE ATTN: WALLY SHAHEEN FORT CROOK AREA OFFICE P.O. BOX 13287 OFFUTT AFB, NE 68113		A. State Manifest Document Number INA 0910380
4. Generator's Phone (513) 335-6804		5. Transporter 1 Company Name Metropolitan Environmental		6. US EPA ID Number IN.T.190.0.1.0.39.7	
7. Transporter 2 Company Name		8. US EPA ID Number			
9. Designated Facility Name and Site Address CWM-ADAMS CENTER LANDFILL OF IN 4636 ADAMS CENTER ROAD FORT WAYNE, IN 46806			10. US EPA ID Number I.N.D.0.7.8.9.1.1.1.4.6		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity	14. Total Wt/Vol.
a. RQ, HAZARDOUS WASTE SOLID, n.o.s. (CONTAINS LEAD) 9, NA3077, PG III		No. Type 0 0 1 D T		0 0 0 0 2 0 0 Y	
b.					
c.					
d.					
J. Additional Descriptions for Materials DEBRIS CONTAINING LEAD BATTERIES					
15. Special Handling Instructions and Additional Information BILL TO: OHM CORP, CS 2800, FINDLAY, OH 45840-2800 WORK ORDER # 171075					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name JAMES MCNULTY USACE		Signature <i>James McNulty</i>		Date 1.1.1994	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Dick Hesselbart		Signature <i>Dick Hesselbart</i>		Date 1.1.1994	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19 Printed/Typed Name Frank J. [unclear]					
Signature <i>Frank J. [unclear]</i>		Signature <i>[unclear]</i>		Date 1.1.1994	

In the event of a spill call the Indiana Office of Environmental Response at 800/424-8802 or 202/426-2675.

GENERATOR

TRANSPORTER

FACILITY

INDUSTRIAL



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Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. **0.H.D.0.1.8.3.9.2.9.2.8** Manifest Document No. **1-T-0-0-6**

2. Page 1 of 1 Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
 USEPA Region 5
 Mailing Address:
 USACE Attn: Wally Shaheen
 Fort Crook Area Office
 P.O. Box 13287
 Offutt AFB, NE 68113

A. State Manifest Document Number
INA 0959951
 B. State Generator's ID

4. Generator's Phone (513) 335-6804
 5. Transporter 1 Company Name
Metropolitan Environmental Inc
 6. US EPA ID Number
IN.T.1.9.0.0.1.0.3.9.7

C. State Transporter's ID
 D. Transporter's Phone **800.334.9139**
 E. State Transporter's ID
 F. Transporter's Phone

7. Transporter 2 Company Name
 8. US EPA ID Number
 9. Designated Facility Name and Site Address
CWM - Adams Center Landfill of IN
4636 Adams Center Road
Fort Wayne, IN 46806

10 US EPA ID Number
I.N.D.0.7.8.9.1.1.1.4.6
 G. State Facility's ID
 H. Facility's Phone
219-447-5585

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Total Wt/Vol.	15. Waste No.
	No.	Type			
a RQ, Hazardous Waste Solid, n.o.s. (contains lead) 9, NA 3077, PG III	0-0-1	D-T	0-0-0	Y	D008
b					
c					
d					

J. Additional Descriptions for Materials Listed Above
Debris Contaminated with lead greater than 5 ppm
ERG #31 CWM Approval #: B07344
Emergency phone #: 800-537-9540 Emergency contact: **GREG NORDEN**

K. Handling Codes for Wastes Listed Above
D008

15. Special Handling Instructions and Additional Information
Bill to OHM Remediation Services Corp., WORK ORDER #: **171075**
CS 2800, Findlay, OH 45839
P.O. #:

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
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Printed/Typed Name **ON BEHALF OF USEPA** Signature *James McNulty* Month **11** Day **12** Year **94**

17. Transporter 1 Acknowledgement of Receipt of Materials
 Printed/Typed Name **VIRGIL RISMILLER** Signature *Virgie Rismiller* Month **11** Day **11** Year **94**

18. Transporter 2 Acknowledgement of Receipt of Materials
 Printed/Typed Name Signature Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19.
 Printed/Typed Name **SANDY HITCHCOCK** Signature *Sandy Hitchcock* Month Day Year

In case of a spill call the Indiana Office of Environmental Response at 317/241-4336 (7 or night) and the National Response Center at 800/424-8802 or 202/426-2675.

GENERATOR TRANSPORTER FACILITY

INA DCCCCCT

CERCLA & RCRA OFF-SITE RESPONSE APPROVAL MEMO

Date: 10-24-94

Contractor D.O. No.: DACW 45 90 D 9516
~~XXXXXXXXXXXX~~

Project: UNITED SCRAP/TROY, OH

USACE Site Rep.: Greg Hoover / Wally Shaker

Wastestream: Lead contaminated Debris

TSDF Name/Location: Adams Center of CWM, Fort Wayne, IN June of 1994

Waste is from a (CERCLA) (RCRA) (OTHER) site. (Circle one)

EPA contacts if waste is from CERCLA site: (Circle person contracted)

<u>REGION</u>	<u>PRIMARY CONTACT</u>	<u>SECONDARY CONTACT</u>
I. Boston (CT, MA, ME, NH, RI, VT)	Lynn Hanifan 617-573-9662	Austine Frawley 617-573-1754
II. New York (NJ, NY, PR, VT)	Greg Zaccardi 212-264-9504	Joel Golumbek 212-264-2638
III. Philadelphia (DE, MD, PA, VA, WV, DC)	Sarah Casper 215-597-1857	Naomi Henry 215-597-8338
IV. Atlanta (AL, FL, GA, KY, MS, NC, SC, TN)	Edmund Burks 404-347-7603	John Dickinson 404-347-7603
V. Chicago (IL, IN MI, OH, WI)	<u>Gertrud Matuschkovitz</u> 312-353-7921	Uylaine McMahon 312-886-4445
VI. Dallas (AR, LA, NM, OK, TX)	Ron Shannon 214-655-2282	Joe Dougherty 214-655-2281
VII. Kansas City, KS (IA, KS, MO, NE)	Gerald McKinney 913-551-7816	David Doyle 913-551-7667
VIII. Denver (CO, MT, ND, SD, UT, WY)	Terry Brown 303-293-1823	George Dancik 303-293-1506
IX. San Francisco (AZ, CA, HI, NV, AM SOM, GUAM, PAC TR TERR)	Diane Bodine 415-744-2130	Gloria Brownley 413-744-2114
X. Seattle (AK, ID, OR, WA)	Ron Lilich 206-553-6646	Kevin Schanilec 206-553-1061

If waste is from a RCRA site and TSDF is not CERCLA approved, contact the state agency responsible for hazardous waste disposal facilities to obtain compliance status of TSDF. Provide agency name, P.O.C., telephone number, and comments on status of TSDF.

Submitted by: [Signature]

Printed Name: Greg Norden

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. **OH 00-1-839-2928** Manifest Document No. **of 1** 2. Page 1 Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
USEPA REGION V, UNITED SCRAP LEAD CO USAFC
77 WEST JACKSON BLVD. SITE LOCATION: **Troy, OH**
CHICAGO, IL 60604

4. Generator's Phone **(312) 886-6941**

5. Transporter 1 Company Name **TBD** 6. US EPA ID Number

7. Transporter 2 Company Name 8. US EPA ID Number

9. Designated Facility Name and Site Address 10. US EPA ID Number

A. State Manifest Document Number **INA 0959945**

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers		13. Total Quantity	14. Total Wt/Vol.	15. Waste No.
	No.	Type			
a <i>RQ, Hazardous Waste Solid, n.o.s (contains lead), NA 3077, PG III</i>	0-0-1	DT	0-0-0-20	Y	D008
b					
c					
d					

J. Additional Descriptions for Materials Listed Above
DEBRIS CONTAMINATED WITH LEAD GREATER THAN 5 PPM TLP
ERG # 31
EMERGENCY PHONE # **EMERGENCY CONTACT**
CWM APPROVAL #

K. Handling Codes for Wastes Listed Above

L. Special Handling Instructions and Additional Information:
Bill to: OHM CORP. CS 2800 FINOLA, OH 45839 PO #

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name _____ Signature _____ Month _____ Date _____ Year _____

17. Transporter 1 Acknowledgement of Receipt of Materials
 Printed/Typed Name _____ Signature _____ Month _____ Date _____ Year _____

18. Transporter 2 Acknowledgement of Receipt of Materials
 Printed/Typed Name _____ Signature _____ Month _____ Date _____ Year _____

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted item 19.
 Printed/Typed Name _____ Signature _____ Month _____ Date _____ Year _____

In case of a spill call the Indiana Office of Environmental Response at 317/241-4338 (day or night) and the National Response Center at 800/424-8802/2426-2675.

INA 0959945

DATA SUMMARY REPORT

07/28/93

PAGE: 2

Company: OHM REMEDIATION SERVICES CORPORATION

Sample Point ID: 10-009
ASC Sample Number: JL1067
Sample Date: 930712
Facility Code: 012601C

Parameters Units

RCRA TCLP Leachate (SHE) Volatile Analysis, MS, (MV50)

Benzene	mg/L	<.125
Carbon tetrachloride	mg/L	<.125
Chlorobenzene	mg/L	<.125
Chloroform	mg/L	<.125
1,2-Dichloroethane	mg/L	<.125
1,1-Dichloroethylene	mg/L	<.125
Methyl ethyl ketone	mg/L	<.250
Tetrachloroethylene	mg/L	<.125
Trichloroethylene	mg/L	<.125
Vinyl chloride	mg/L	<.125



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Form Approved, OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Manifest Document No.

2. Page 1 of 1

Information in the shaded area is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
USEPA Region 5

Mailing Address:
**USACE Attn: Wally Shaheen
 Fort Crook Area Office
 P.O. Box 13287
 Offutt AFB, NE 68113**

A. State Manifest Document Number

INA 0959950

**United Scrap Lead C.R.25A
 Troy, OH 45373**

4. Generator's Phone (513) 335-6904

5. Transporter 1 Company Name
RUST Industrial Services

6. US EPA ID Number
0-40-9-8-6-9-8-6-0-4-0

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone **513 222-1109**

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

**CWM - Adams Center Landfill of IN
 4636 Adams Center Road
 Fort Wayne, IN 46806**

10. US EPA ID Number

IND 078911146

H. Facility's Phone

219 447-5585

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers
 No. Type

13. Total Quantity

14. Total Wt/Vol.

I. Waste No.

a **RQ, Hazardous Waste Solid, n.o.s. (contains lead)
 9, HA 3077, PG III**

0-0-1 D T 0-0-0-20 Y

EST 35

HA 3077 PG III

J. Additional Descriptions for Materials Listed Above

**Debris Contaminated with lead greater than 5 ppm
 ERG #31 CWM Approval #: B07344
 Emergency phone #: 800-537-9540 Emergency contact: GREG KORNBERG**

K. Handling Codes for Wastes Listed Above

91 Net 9160

L. Special Handling Instructions and Additional Information

**Bill to ORM Remediation Services Corp.,
 CS 2800, Findlay, OH 45839
 P.O. #:**

WORK ORDER # 171075

15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name **ON BEHALF OF USEPA**

Signature

JAMES McNEIL

[Signature]

Month Day Year
11 11 94

16. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

DAVID L SNOW

[Signature]

Month Day Year
11 11 94

17. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Discrepancy Indication Space

19. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest; except as noted here: 19.

Printed/Typed Name

Signature

STANLEY W. COLE

[Signature]

Month Day Year
11 21 94

In case of a spill call the Indiana Office of Environmental Response at 317-441-4338 (or night) and the National Response Center at 800/421-8802. 202/426-2676.

Generator Name: USEPA Region V UNITED STATES L940 c/o USACE

Manifest Doc. No.: 11001

CWM Profile Number: 8073441

State Manifest No.: 0959950

Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
 If waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, PCBs, Acid, Metals, Cyanides.

3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If P039, multi-source leachate applies, those standards must be attached by the generator.

REF	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
				6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
				DESCRIPTION	NONE	268.41(a)	
1	<u>D008</u>		X	X			<u>A</u>
2							
3							
4							
5							
6							
7							
8							
9							
10							

If additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

- A. RESTRICTED WASTE REQUIRES TREATMENT**
This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).
- B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS**
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."
- B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)**
"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS**
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- C. RESTRICTED WASTE SUBJECT TO A VARIANCE**
This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.
- D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT**
"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: [Signature] Title: USAACE - ONSITE REP Date: _____
 © 1990 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A



PLEASE PRINT OR TYPE

(Form designed for use on *silite* (12-pitch typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Manifest Document No.
0-H-D-0-1-8-3-9-2-9-2-8 1-1-0-0-2

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
 USEPA Region 5
 United Scrap Lead C.R. 25A
 Troy, OH 45373

Mailing Address:
 WACE Attn: Wally Sheehan
 Fort Creek Area Office
 P.O. Box 13287
 DEPT AFB, RE 68113

A. State Manifest Document Number
INA 0959946

4. Generator's Phone (813) 335-6804

5. Transporter 1 Company Name

RUST Industrial Svcs

6. US EPA ID Number
 0-H-D-9-1-1-9-2-1-0-4-0

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone **513-222-1109**

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

OH - Adams Center Landfill of IN
 4636 Adams Center Road
 Fort Wayne, IN 46806

10. US EPA ID Number

1-H-D-0-7-8-9-1-1-1-4-6

G. State Facility's ID

H. Facility's Phone

219-447-5585

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

**RQ, Hazardous Waste Solid, n.e.s. (contains lead), 9,
 NA 3077, PG III**

12. Containers

No. Type

13. Total Quantity

14. Total Vol.

1. Waste No.

0-0-1 D-T 0-0-0-2-0 Y 8008

J. Additional Descriptions for Materials Listed Above

**Leads Contaminated with lead greater than 5 ppm
 ERG 6314
 Emergency phone #: 800-537-9540
 OH Approval #: 887344**

K. Handling Codes for Wastes Listed Above

081 Net 13,620 #

L. State Handling Instructions and Additional Information

WORK ORDER # 17075 171075

Bill to OHK Remediation Services Corp., CS2800, Pindlay, OH 43839-P.O. #

15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **JAMIS MINUITY USACE** Signature **[Signature]**

Month **11** Day **11** Year **1994**

16. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name **[Signature]**

Signature **[Signature]**

Month **11** Day **11** Year **94**

17. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Discrepancy Indication Space

19. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted item 19.

Printed/Typed Name **SAROY HIRAHARA**

Signature **[Signature]**

Month **11** Day **12** Year **94**

In case of a spill call the Indiana Office of Environmental Response at 317-231-6330 (7 or night) and the Central Response Center at 800/424-8802 202/420 2075.

INA 0959946

Generator Name: USEPA Region V UNITED STATES L940 c/o USAF

Manifest Doc. No.: 11002

CWM Profile Number: 807344

State Manifest No.: 0959946

Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
 waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, PCBs, Acid, Metals, Cyanides.

3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generator.

REF	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	D009		X	X			A
2							
3							
4							
5							
6							
7							
8							
9							
10							

For additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart Q, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James M. [Signature] Title: USACE - ONSITE REP Date: _____
 C-1940 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A



PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter).)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. **OR 001839292** Manifest Document No. **110003**
 2. Page 1 of 1 information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
USEPA Region 5
United Scrap Lead, C.R.25A
Troy, OH 45373

Mailing Address:
USACE Attn: Wally Shaheen
Port Crook Area Office
P.O. Box 13287
Offutt AFB, NE 68113

A. State Manifest Document Number
INA 0959961

4. Generator's Phone (**513**) **335-6004**

5. Transporter 1 Company Name
RUST Industrial Services

B. State Generator's ID

7. Transporter 2 Company Name

6. US EPA ID Number
10-H-D-9-8-1-7-8-1-0-4-0

C. State Transporter's ID

9. Designated Facility Name and Site Address
CWM - Adams Center Landfill of IN
4636 Adams Center Road
Fort Wayne, IN 46806

10. US EPA ID Number
I.N.D.0.7.8.9.1.1.1.4.6

D. Transporter's Phone **513-222-1109**

E. State Transporter's ID
 F. Transporter's Phone
 G. State Facility's ID
 H. Facility's Phone **219-447-5585**

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers No. Type
 13. Total Quantity
 14. Total Wt/Vol
 1. Waste No.

a **RQ, Hazardous Waste Solid, n.o.s. (contains lead)**
9, NA 3077, PG III

0.0.1 D.T.O. Q Q 29 Y **D008**

b
 c
 d
 e

EST

J. Additional Descriptions for Materials Listed Above
Debris Contaminated with lead greater than 5 ppm
ERG #31 CWM Approval #: B07344
Emergency phone # 800-537-9540 Emergency contact: GREG RORER

K. Handling Codes for Wastes Listed Above
Net 12,200

L. Special Handling Instructions and Additional Information
Bill to OHM Remediation Services Corp.,
CS 2800, Findlay, OH 45839
P.O. #:

WORK ORDER # 171075

15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **JAMES MCKENNEY USACE**

Signature *James McKenney* Month **11** Day **11** Year **94**

17. Transporter 1 Acknowledgement of Receipt of Materials
 Printed/Typed Name **David L Shaw**

Signature *David L Shaw* Month **11** Day **11** Year **94**

18. Transporter 2 Acknowledgement of Receipt of Materials
 Printed/Typed Name

Signature Month Day Year

19. Discrepancy Indicator Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19
 Printed/Typed Name **JANIS...**

Signature *Janis...* Month **11** Day **11** Year **94**

In case of a spill call the Indiana Office of Environmental Response at 317-231-3336 (or night) and the Central Response Center at 800/421-8802 202/426-2675.

INA 0959961

Generator Name: USEPA Region V UNITED STATES L990 c/p OFA92

Manifest Doc. No.: 11003

CWM Profile Number: 807344

State Manifest No.: 0959961

1. Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
 waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, _____ PCBs, _____ Acid, _____ Metals, _____ Cyanides.
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If P039, multi-source leachate applies, those standards must be attached by the generator.

REF	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.43-TABLE 1 TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	<u>D009</u>		X	X			<u>A</u>
2							
3							
4							
5							
6							
7							
8							
9							
10							

list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

JUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James E. M. [Signature] Title: USACE - ONSITE REP Date: _____
 E. 1990 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A



PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter))

Form Approved OMB No. 2050-0039 Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Q. H. D. O. 1. 8 3 9 2 9 2 8

Manifest Document No. P. 1. 0. 0. 9

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but Items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address

USEPA REGION 5
 UNITED SCRAP LEAD C.R. 25A
 TROY, OH 45373

MAILING ADDRESS:
 USACE ATTN: WALLY SHERMAN
 FORT CROOK AREA OFFICE
 P.O. BOX 11267
 INDIANAPOLIS, IN 46213

A. State Manifest Document Number

INA 0910381

4. Generator's Phone (513) 335-6884

5. Transporter 1 Company Name

Metropolitan Environmental Int'l

6. US EPA ID Number

IND. 19.0.01.03.9.7

C. State Transporter's ID

D. Transporter's Phone 800334 9139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

OH-ADAMS CENTER LANDFILL OF IN
 4636 ADAMS CENTER ROAD
 FORT WAYNE, IN 46806

10. US EPA ID Number

I. H. D. O. 7. 8 9 1. 1. 1. 4 6

G. State Facility's ID

H. Facility's Phone 219-447-5385

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

NO, HAZARDOUS WASTE SOLID, n.o.s. (CONTAINS LEAD) 9, NA3077, PG III

12. Containers

No. Type

0-0-1 D-T

13. Total Quantity

35

0-0-0-0

14. Total Vol.

Y

Waste No.

D008

J. Additional Descriptions for Materials Listed Above

DEBRIS CONTAMINATED WITH LEAD GREATER THAN 5PPM TSLP
 EHS #31 OH APPROVAL: 807344
 EMERGENCY PHONE: 800-537-9540 CONTACT: GREG HODER

K. Handling Codes for Wastes Listed Above

081 NA 20800

L. Special Handling Instructions and Additional Information

BILL TO: OHM CORP, CS 2800, FINDLAY, OH 45840-2800
 WORK ORDER # 171075

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name ON BEHALF OF USEPA

JAMES MCNULTY USACE

Signature

[Signature]

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name TED A. ZACHARIN

Signature

[Signature]

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

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

Printed/Typed Name

SANDY L. TRACHTER

Signature

[Signature]

Month Day Year

In case of a spill call the Indiana Office of Environmental Response at 317/711-1330 (day or night) and the National Response Center at 800/424-8802 or 2426-2675.

INA0910381

Generator Name: USEPA Region V UNITED SCRAP L900 c/o O&A

Manifest Doc. No.: 11101014

CWM Profile Number: 807344

State Manifest No.: 0910381

1. Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
 : waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, PCBs, Acid, Metals, Cyanides.
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generator.

REF	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	<u>D009</u>		X	X			<u>A</u>
2							
3							
4							
5							
6							
7							
8							
9							
10							

list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

- A. RESTRICTED WASTE REQUIRES TREATMENT**
 This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).
- B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS**
 "I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."
- B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)**
 "I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS**
 "I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- C. RESTRICTED WASTE SUBJECT TO A VARIANCE**
 This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.
- D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT**
 "I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James M. McNully Title: USACE - ONSITE REP Date: _____
 MCNULLEY
 © 1990 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A



PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter).)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA No. 0-H-D-0-1-8-3-9-2-9-2-8	Manifest Document No. 1-0-0-0	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but Items D, E, H, I and K are required by State law.	
3. Generator's Name and Mailing Address USEPA Region 5		Mailing Address: USACE Attn: Wally Shaheen Fort Crook Area Office P.O. Box 13287 Offutt AFB, NE 68113		A. State Manifest Document Number INA 0959951		
4. Generator's Phone 513 335-6804		6. US EPA ID Number I.N.T.1.9.0.0.10.39.7		B. State Generator's ID		
5. Transporter 1 Company Name Metropolitan Environmental Inc		8. US EPA ID Number		C. State Transporter's ID		
7. Transporter 2 Company Name		10. US EPA ID Number		D. Transporter's Phone 800334 9131		
9. Designated Facility Name and Site Address CMH - Adams Center Landfill of IN 4636 Adams Center Road Fort Wayne, IN 46806		10. US EPA ID Number I.N.D.0.7.8.9.1.1.14.6		E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility's ID		
				H. Facility's Phone 219-447-5585		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	12. Containers Type	13. Total Quantity	14. Total Wt/Vol.	Waste No.
a RQ, Hazardous Waste Solid, n.o.s. (contains lead) 9, NA 3077, PG III		0	1	0	0	0008
b						
c						
d						
15. Additional Descriptions for Materials Listed Above Debris Contaminated with lead greater than 5 ppm ERG #31 CMH Approval #: 807344 Emergency phone #: 800-537-9540		K. Handling Codes for Wastes Listed Above ORIN 6.5008				
16. Special handling instructions and Additional information Bill to OHM Remediation Services Corp., CS 2800, Findley, OH 45839 P.O. #:		WORK ORDER # 171075				
17. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.						
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name ON BEHALF OF USEPA JAMES MENGLI, USACE		Signature <i>[Signature]</i>		Month 11	Date Day 12	Year 94
18. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name V. P. S. I. C. R. I. D. I. L. L. E. R.		Signature <i>[Signature]</i>		Month 11	Date Day 12	Year 94
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month	Date Day	Year
19. Discrepancy Indication: Space						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted Item 19. Printed/Typed Name SANJOY H. TRACHAR						
		Signature <i>[Signature]</i>		Month	Date Day	Year

In case of a spill call the Indiana Office of Environmental Response at 317/241-1336 (7 or night) and the Regional Response Center at 800/424-3802. 202/426-2675

LAND DISPOSAL NOTIFICATION AND CERTIFICATION

Generator Name: USEPA Region V UNITED SCRAP LTD c/o USAF

Manifest Doc. No.: 11006

CWM Profile Number: 807344

State Manifest No.: 0959951

1. Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
2. If waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, PCBs, Acid, Metals, Cyanides.
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If P039, multi-source leachate applies, those standards must be attached by the generator.

R E P O	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE I TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	<u>D009</u>		X	X			A
2							
3							
4							
5							
6							
7							
8							
9							
10							

For additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

HOW MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart Q, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James M. McNulty

Title: USACE - ONSITE REP

Date: _____

MCNULTY



PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter))

Form Approved OMB No. 2050-0039 Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

0 E D 0 1 8 3 9 2 9 2 8 1 1 0 0 5

3. Generator's Name and Mailing Address

MAILING ADDRESS:
 GRACE APTS: WALLY BEHRENS
 FORT CROOK AREA OFFICE
 P.O. BOX 11287
 OFFUTT AFB, NE 68113

A. State Manifest Document Number

INA 0910331

UNITED SCRAP LEAD C.R. 25A
 TROY, OH 45373

B. State Generator's ID

4. Generator's Phone (513) 335-6804

C. State Transporter's ID

5. Transporter 1 Company Name

6. US EPA ID Number

Metropol Enviro. Int'l

I.N.T. 1 7 0 0 1 0 3 9 7

D. Transporter's Phone 800 334 9139

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number

OHM ADAMS CENTER LANDFILL OF IN
 4636 ADAMS CENTER ROAD
 FORT WAYNE, IN 46806

I.N.D.0.7.8.9.1.1.1.4.6

G. State Facility's ID

H. Facility's Phone 219-447-5585

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers

13. Total Quantity

14. Total Wt/Vol.

I. Waste No.

a. RO, HAZARDOUS WASTE SOLID, n.o.s. (CONTAINS LEAD) 9, RA3077, PG III

0 0 1 D T 0 0 0 2 0 Y 2008

J. Additional Descriptions for Materials Listed Above

DEBRIS CONTAMINATED WITH LEAD GREATER THAN 5PPM TCLP
 ERG #31 CWM APPROVAL: 88888 807344
 EMERGENCY PHONE: 800-537-8540 CONTACT: GREG BORDEN

K. Handling Codes for Wastes Listed Above

DR/M/A 18480

15. Special Handling Instructions and Additional Information

BILL TO: OHM CORPORATION, CS 2800, FINDLAY, OH 45840-2800
 WORK ORDER # 171075

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name

ON BEHALF OF USEPA
 JAMES MCNUITY HSEAL

Signature

[Signature]

Date Month Day Year 1 1 9 4

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Kent L. Stoniker

Signature

[Signature]

Date Month Day Year 1 1 9 4

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date Month Day Year

19. Discrepancy Indicated on Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19.

Printed/Typed Name

SANDY [Signature]

Signature

[Signature]

Date Month Day Year 1 1 9 4

In case of a spill call the Indiana Office of Environmental Response at 317/241-4336 (day or night) and the National Response Center at 800/424-8802 or 426-2675.

INA0910331

1. Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
 If this waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
 HOCs, _____ PCBs, _____ Acid, _____ Metals, _____ Cyanides.
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generator.

REF	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	<u>R008</u>		X	X			<u>A</u>
2							
3							
4							
5							
6							
7							
8							
9							
10							

To list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

8. HOW MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James M. [Signature] Title: USACE - ONSITE REP Date: _____
 C-1940 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A



PLEASE PRINT OR TYPE

(Form designed for use on elite (12-pitch typewriter))

Form Approved OMB No. 2050-0039 Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No.

Manifest Document No. **1-1-807**

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
 USEPA REGION 5
 UNITED SCRAP LEAD C.R. 25A
 TROY, OH 45373

MAILING ADDRESS:
 BRUCE JETER, WALLY SHREVER
 FORT CROOK AREA OFFICE
 P.O. BOX 13287
 OXFORD, OH 45056

A. State Manifest Document Number
INA 0910380

4. Generator's Phone (513) 335-6804 OXFORD AFB, OH 45013

B. State Generator's ID

5. Transporter 1 Company Name

6. US EPA ID Number

C. State Transporter's ID

Metropolitan Environmental Int'l. N.T. 1-9-0-0-1-0-39-7

D. Transporter's Phone **800 534 9159**

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

9. Designated Facility Name and Site Address
 OH-ADAMS CENTER LANDFILL OF IN
 4636 ADAMS CENTER ROAD
 FORT WAYNE, IN 46806

10. US EPA ID Number

G. State Facility's ID

I.N.D.0.7.8.9.1.1.1.4.6

H. Facility's Phone **219-447-5585**

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers No. Type

13. Total Quantity

14. Total Wt/Vol.

15. Waste No.

RO, HAZARDOUS WASTE SOLID, n.o.s. (CONTAINS LEAD) 9, NA3077, PG III

0-0-1 D T

EST 30 lb

0-0-0-2-0

Y

D002

J. Additional Descriptions for Materials Listed Above

**DEBRIS CONTAMINATED WITH LEAD GREATER THAN 5PPM TOLP
 ENG #31 OH APPROVAL # 807344
 EMERGENCY PHONE: 800-537-9540 CONTACT: GREG WENZEL**

K. Handling Codes for Wastes Listed Above

D81 NA 13,380

L. Special Handling Instructions and Additional Information

**KILL TO: OEM CORP, CS 2800, FINDLAY, OH 45840-2800
 WORK ORDER # 171075**

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name **ON BEHALF OF USEPA** Signature

JAMES MCNEELY, USACE

Signature **[Signature]** Date **Month 1 Day 2 Year 99**

Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

DICK HESSELBART

Signature **[Signature]** Date **Month 1 Day 2 Year 99**

Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

15. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted item 19

Printed/Typed Name Signature

[Signature] Date **Month Day Year**

In case of a spill call the Indiana Office of Environmental Response at (317) 231-1336 (day) and the State Response Center at (307) 241-8802 or (317) 226-2575.

INDUST 000

1. Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
- (This waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
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REF #	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED ENTER THE LETTER FROM BELOW
		ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
		DESCRIPTION	NONE	268.41(a)	268.43(a)	268.42(a)	
1	<u>D008</u>		X	X			<u>A</u>
2							
3							
4							
5							
6							
7							
8							
9							
10							

To list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here:

MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

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B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: James M. [Signature] Title: USACE - ONSITE REP Date: _____
 C-1940 Chemical Waste Management, Inc. - 7/17/90 - Form CWM-2001-A

SECTION E

PCB WASTE



CONFIRMATION OF RECEIPT OF MANIFESTED WASTE

GENERATORS NAME/ADDRESS

D.H.M. REMEDIATION SERVICES CORP.
16406 STATE RT 224 EAST
FINDLAY, OH 45840

ATTN: LUC REMBERT

MANIFEST DOCUMENT NO.

B/L 15336

DATE OF RECEIPT AT FACILITY

11-17-94

This letter certifies receipt of your material at S. D. Myers, Inc. Enclosed is the signed original copy of the Hazardous Waste Manifest which indicates acceptance of material (with discrepancies as indicated, if any) by S. D. Myers, Inc. (40 CFR 761.208 (a)(4))

You will receive a copy of the Certificate(s) of Disposal after this material has been processed. Together these documents establish a complete tracking and disposal record for your material.

If you have any questions, please feel free to call me at (216) 633-2666 ext.354.

Ken Longsdorf
Ken Longsdorf
Manifest Control

12-07-94
Date

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

Shipper No. _____

Center No. 15336

Federal Express

(Name of carrier)

(BOL#)

Date _____

Page 1 of 1

TO: (Address) (City) (State) (Zip Code)

TO: 50 Maps

Street 180 South Ave

City Tallmadge State OH Zip Code 44278

FROM: Shipper United Scrap Lead C/o UALC

Street Highway 25A

City Troy State OH Zip Code 45373

24 hr. Emergency Contact Tel. No. 1 800 537 9540 Greg Norden

Remarks _____ 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 (Per Carrier Use Only)
1 -	X	Environmentally Hazardous Substance Solids, eqs (PCB balast) 9, UN 3077 PG III	PM	20P		
		DRUM CONTAINS 4 BALAST PROPOSAL # 35817				

RECEIVED
11/17/94
Ken Longmeyer

PLACARDS TENDERED: YES NO

WEIGHT 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 _____

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in conformity with the provisions of the International Maritime Dangerous Goods Code (IMDG) and other applicable international and national governmental regulations.

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 payment on the carrier's part, the carrier shall not be liable for the delivery of this shipment without payment of freight and all other lawful charges.

TOTAL CHARGES: \$ _____

FREIGHT CHARGES: PREPAID COLLECT

RECEIVED. Subject to the conditions and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in accordance with the order design is received by the carrier in the condition and quantity as described on the bill of lading, and the carrier is not responsible for the loss of or damage to the property under the contract of carriage to the extent of the liability of the carrier in such event, if any, in accordance with the provisions of the applicable international and national governmental regulations. It is mutually agreed as to each carrier of all or any of said property over all or any portion of the route to destination and as to each party at any time received in all or any said property, that every carrier 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 tendering 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 by the carrier and his assigns.

SHIPPER United Scrap Lead c/o UALC

CARRIER Federal Express

PER _____

PER _____

DATE _____

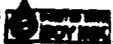
DATE _____

Permanent post-office address of shipper: _____

STYLE P90 LABELMASTER, An American Labelmark Co., Chicago, IL 60646 60021-0008



PRINTED ON RECYCLED PAPER



1

CERTIFICATE OF DESTRUCTION / RECYCLE

S.D. Myers Inc. 180 South Ave Tallmadge, Ohio 44278 Phone - 216-633-2666

Document # - 0062268
 EPA ID# - D053576294
 Date - 3/10/95
 P.O. Number - CK# 764652

This document is to certify that S.D. MYERS, INC. has completed the recycling of your Light Ballasts by utilizing our RESOURCE RECOVERY PROCESS.

Generator: 97890 O.H.M. REMEDIATION SERVIC
 Owner: CS 2800
 Customer: FINDLAY OH
 419/423-3526

Generator: UNITED SCRAP LEAD
 Owner: 2109 SOUTH COUNTY RD 25A
 Customer: TROY OH 45373
 513/335-6804

L-No.	Number of Ballasts	Wt in Kg.	Incoming Manifest	Date Out of Service	Date Destroyed
L 0000602	0	9	35917	11/17/94	03/07/95

Audited By:


 Sheree Butcher
 Contract Coordinator

Approved By:



The Disposition of Liquid is per attached detailed description sheet.

L_100

RECYCLE

PRINTED 3/10/95

***** CUST #: 97890 O.H.M. REMEDIATION SERVICES OWNER: UNITED SCRAP LEAD
 * L 0000602 * CS 2800 2109 SOUTH COUNTY RD 25A
 ***** FINDLAY OH 45839 TROY OH 45373
 419/423-3526 513/335-6804

SALES ORDER #: 0062268

MANIFEST #: 35917

CERTIFICATE OF RECYCLE: 0002268-L

NUMBER OF BALLAST: DATE OUT OF SERVICE: 11/17/94 NET WT: 20
 NUMBER OF SKIDS: NONE DATE RECEIVED: 11/17/94 NUMBER OF DRUMS: NONE
 TOTAL GROSS WEIGHT: 20

BALLAST COMPONENT	METHOD OF DESTRUCTION	DATE CLEANED	CERTIFICATE DESTRUCTION	WEIGHT	ug/100 SQ. CM.	SHIP DATE	OUTGOING MANIFEST	CONTAINER
CASE	RR			4				
LAMO	RR			9				
COPPER	RR			3				
TAR/PAPER	IN			3				9550211
PCB CAPS	IN			1				9550211

TOTAL GROSS WEIGHT 20

* This non-regulated material was processed in the Resource Recovery equipment to assure non-regulated levels of PCB's per 40CFR761.

APPENDIX H
WELL INSTALLATION REPORT

APPENDIX H

WELL INSTALLATION REPORT

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SECTION A - WELL ABANDONMENT AND NEW INSTALLATION SUMMARY

1.0 WATER WELL ABANDONMENT

On Monday, July 12, 1993, the drinking water well servicing the [REDACTED] and Ishmael properties was abandoned by Frontz Drilling, Inc. (Frontz) of Wooster, Ohio. USACE and OHM representatives were present and observed the abandonment procedure. The Troy-Miami County Health Department (Health Department) had previously been notified of the date of abandonment to allow a health department representative to be present. No Health Department representative attended the abandonment procedures.

1.1 Procedures

Upon arrival at the site, the Frontz personnel began to look over the site for set-up possibilities for the service rig, and began digging around the well-head by hand to locate the pipes leading from the well to the two facilities serviced. Large roots hampered digging efforts so an OHM backhoe was utilized to assist. The original well pit was found approximately 3 feet below ground surface, where it was discovered that the 6-inch casing present at the surface ended and was welded to 5-inch casing. A pitless adaptor was located immediately below this weld.

During the excavation around the well-head several stray battery casing chips were noticed. These chips were called to the attention of the OHM site supervisor. After conferring with the USACE representative on site, it was decided to dig down to at least 7 feet to determine if the layer of chips found south and east of the well's location was present. The layer of battery chips was not found, and the subcontractor proceeded with the well abandonment.

1.1.1 Well Materials

The only equipment found inside the well casing was the tubing suspended by the pitless adaptor. This was detached and withdrawn from the well. Both the Ishmaels and [REDACTED] were notified that their water service would not be available and therefore hot water tanks and jet pumps should be turned off to avoid damage. Both owners responded by checking their equipment and making sure it was off. Frontz then cut the service lines and removed the pitless adaptor from the well casing. All of the materials removed from the well were properly disposed by OHM.

1.1.2 Water Level Measurements

After the tubing had been removed, the total depth of the well was measured using an electronic water level indicator. The total depth of the well was determined to be 34.50 feet from ground level. The water level in the well was also measured and was found to be 5.75 feet from ground level.

1.1.3 Backfilling

Prior to the backfilling operation the well casing was cut off approximately two feet below the ground surface. The subcontractor used a service rig to perform the backfilling (grouting) procedure. Trees that had grown around the well made set-up of the rig impossible without their removal. The USACE representative was notified of this situation, and permission was given to remove the trees. OHM removed the trees with a track-hoe and cleared an area for the rig to set up.

After the service rig was set up over the well the subcontractor began bailing to remove sediments that might be present at the bottom. Bailing continued for approximately one hour, with no change occurring in the total depth of the well. Bailing was discontinued and the rig set up for the grouting procedure. The grout used for the abandonment was a bentonite product called Benseal[®]. The Benseal[®] and water mixture used was 50 pounds per 30 gallons of water or 20 percent by weight solids. This created a moderately high solids bentonite grout. This product was previously discussed with the USACE geologist located in Omaha, Nebraska, and approval for its use was granted. The grout was placed through a tremie pipe that was lowered to the bottom of the well. The pipe was kept submerged at all times and was withdrawn as the grout rose in the well. The grouting was performed in one continuous operation to the top of the casing. Because Benseal[®] remains moist, shrinkage does not occur and the grout did not recede from the top of the casing. A location of abandoned well is presented in Section J, and a copy of the Water Well Sealing Report submitted to the Troy-Miami County Health Department and the Ohio Department of Natural Resources (ODNR) is presented in Section D.

1.1.4 Clean-up

The abandoned well was buried with clean fill material after the area around it was excavated to insure that all battery casing chips had been removed. All materials removed from the well and any debris generated by the abandonment process were removed from the site and properly disposed.

2.0 WATER WELL INSTALLATION - GENERAL

One potable water well was installed during August 24 through August 27, 1993, to replace the well previously abandoned. The decision to install only one well to again be shared by two parties was made by the USACE when it became apparent that it would be very difficult to install two individual wells given the constraints of site conditions. A variance was required to allow two facilities to share one well, and the United States Environmental Protection Agency, Region V, made application for the variance to the Troy-Miami County Health Department (Health Department). The variance was eventually granted, and one well was installed on the [REDACTED] property. The Ishmael deed entitles the owner of the property to pump from the [REDACTED] well.

The well was installed in accordance with the requirements as set forth in the document published by the Ohio Department of Health entitled "Private Water System Rules", Chapter 3701-28. Several changes in USACE specifications were made, but all changes were approved and authorized prior to implementation by the USACE geologist present on site during well installation activities.

2.1 Subsurface Conditions

The well was constructed in unconsolidated glacial outwash material. Overburden at the well location consists of clays, silts, sands, gravels, and cobbles, with the principle aquifers occurring in the loose gravel/cobbles intervals. The production interval was also located in loose, clean, gravel. Bedrock was not encountered.

2.2 Well Location

The well location was determined by the USACE geologist after a review of the initial location plan showing site features. Required offsets from structures such as building foundations, septic systems, and roadways were all maintained according to Health Department regulations. The final location of the well is presented in Section J.

2.3 Permits and Qualifications

Application for permit was made by OHM on behalf of the USEPA, Region V. However, due to the variance involved, no official permit was issued, but verbal permission to proceed was granted by Dr. Guy Shrake, Director of the Miami County Health Department. This verbal permission was conveyed to OHM by the USACE. A copy of the permit application is included as Section E.

The licensed driller that performed the well installation was Frontz Drilling, Inc., Ohio Department of Health registration number 120.

2.4 Documentation

The following documents were prepared to document the installation, completion, and development of the water well.

2.4.1 Geologic Log

A geologic log was prepared by the OHM geologist present on site during well installation in conjunction with the driller. A copy of the boring log is presented in Section F.

2.4.2 Installation Diagram

An installation diagram was prepared by the OHM geologist present on site during well installation operations. The completed well installation diagram is presented in Section I.

2.4.3 Well Development Record

A well development record was completed by the OHM geologist present on site during the well development operations. The well development log is presented in Section G.

2.5 Products

2.5.1 Well Casing

The casing material used in the construction of the water well consisted of 5-inch nominal diameter steel with threaded joints. Use of this material was a deviation from USACE specifications, but was approved prior to installation by the USACE geologist.

2.5.2 Well Screen

The well screen used in the construction of the water well consisted of new, 5-inch telescoping, continuous slot, wire wrapped type constructed of stainless steel. The screen length was 3 feet. The driller determined the appropriate slot size to be .050-inch. Slot size, and screen length and placement were based on the drill cuttings examined, the performance of the drill rig, and the driller's expertise and experience. A sump 3 feet long constructed of galvanized steel was attached to the bottom of the screen section. The bottom of the sump section was sealed by a female threaded plug. The use of stainless steel screen and its length, and the length of the sump are all deviations from the USACE specifications, but were approved prior to installation by the USACE geologist. A sample of the soil from the production zone was not collected or analyzed. The well screen size was selected based on visual classification of soils and drillers' experience in placing well screens. This procedure was also approved by the USACE geologist on site.

2.5.3 Filter Pack

USACE specifications called for clean, washed, rounded to subrounded siliceous material free from calcareous grains or other deleterious material to be used for filter pack. A review of water well logs from nearby properties revealed that all of the wells in this area were completed in the natural formation without filter pack. The production interval in

this well was located in clean, unconsolidated, coarse sand and gravel and did not appear to require a filter pack to remove fines. The expertise of the driller was again called upon, and the decision was made to complete the well naturally. Approval was granted by the USACE geologist prior to implementing this change.

2.5.4 Well Seal and Grout

A 2-foot thick bentonite seal was placed from approximately 15 to 13 feet below ground surface within the borehole created by the rotary drill rig. The remaining 13 feet of annulus was backfilled with the natural soils. No grout was used in the completion. This is an accepted completion practice in water well construction and was approved by the USACE geologist.

2.5.5 Surface Completion

The decision was made by USACE representatives prior to the initiation of well installation activities to utilize the existing pumps and holding tanks at the [REDACTED] and Ishmael properties. After closer inspection, it was determined that new equipment at both locations would be prudent.

2.5.6 Catalog Data

Catalog data for the well screen, casing, and bentonite used in the well completion are presented in Section L.

3.0 WATER WELL INSTALLATION - EXECUTION

3.1 Drilling Method

Drilling was first attempted at this site with a rotary drill rig equipped with a tri-cone bit. Drilling mud was circulated to bring the cuttings to the surface and to coat the walls of the borehole to prevent collapse. Quick Gel^R was used as the drilling mud at a mix ratio of 35 pounds per 100 gallons of water. This created a 4 percent solids by weight mixture. This methodology was approved by the USACE geologist.

The rotary rig was unable to maintain an open borehole due to an interval of loose cobbles. Drilling with the rotary rig was discontinued at approximately 20 feet; and the driller decided to bring in a cable rig the following morning.

A cable rig was used to complete the well installation. In this drilling methodology, the production casing is driven into the soil as the hole is advanced with a hammer bit. Drill cuttings are removed from the casing interior with a sand pump and/or bailer. The methodology does not allow for an annular space between the casing and formation, and approval had already been granted to complete the well naturally.

3.2 Sampling

Samples for identification of the geologic materials encountered were obtained by the driller from the bailer used to remove the drill cuttings. A representative sample was also obtained from the production interval. The sample from the production interval was submitted by the driller to the well screen manufacturer for a grain-size analysis.

3.3 Water Source

The driller provided a water truck containing a clean, potable source of water for drilling.

3.4 Well Depth

The total depth of this well was 41 feet, with the production interval from 38 feet to 35 feet below ground level.

3.5 Well Assembly and Installation

Installation of the well occurs in conjunction with the drilling process when cable drilling methodology is used. All well materials used were new, clean, and in good condition. All joints were secured and tightened at the time of connection. No annulus was created during drilling, therefore no centralizers were necessary.

The production interval was selected at 35 to 38 feet below ground level. The total depth of the well was 41 feet, to accommodate a 3-foot sump attached to the bottom of the screen. With the bottom of casing still at 41 feet, the screen/sump unit was pushed to the bottom of the casing. The casing was then withdrawn, and the sump/screen unit allowed to telescope out the bottom. The seal between the screen and casing was made with an integral rubber packer that is part of the screen. The casing was cut off at the surface, allowing for at least 8 inches of stick-up above ground level as per ODNR regulations.

See Section I, Figure 1 for well installation diagram.

3.6 Alignment and Plumbness

Alignment and plumbness of the well was evident by the driller's use of a bailer that was 4 inches in diameter and 15 feet long. The bailer moved smoothly through the entire length of the well casing and screen. The use of this bailer was considered proof that the well was plumb by the USACE geologist.

3.7 Filter Pack Placement

Filter pack was not placed in this well because the natural formation was determined to be clean and free of fines. When the screen section was telescoped from the bottom of the casing during installation, the natural formation was allowed to fill in around it.

3.8 Well Development

The well was developed by surging with the cable tool and bailing. Three 10-minute sessions and one 6-minute sessions of surging were performed over a 2½-hour period. The remainder of the time was spent bailing at an average rate of approximately 35 gallons per minute. The total development water removed was approximately 4000 gallons. The water was clear upon termination of the development process. The water level recorded at the end of well development was 9.33 feet below ground level, as measured with an electronic water level indicator.

3.9 Bentonite Seal and Grout Placement

A bentonite seal was placed from 15 to 13 feet below the ground surface. Grout was not used in the completion of this well.

3.10 Well Testing

To ensure that a functioning well was installed, to identify suspended sediment problems, and to determine the well's performance characteristics, a performance test and suspended sediment test was performed. Test equipment included a submersible pump capable of pumping at a rate of at least 40 gallons per minute, an in-line flow meter, an electronic water level indicator, and a Rosco/Moss sand content analyzer. The pump was installed 20 feet below ground level.

3.10.1 Performance Test

After the temporary equipment was installed, a step drawdown performance test was performed. The water level at the start of the test was measured with the electronic water level indicator and was recorded at 9.10 feet below ground level. The initial pumping rate was 10 GPM (½ the desired capacity).

For each step of the performance test, initial water level readings were measured and recorded every minute for the first 10 minutes, then every 5 minutes for the next 20 minutes. The second, third and fourth steps were pumped at 20, 30 and 40 gallons per minute respectively. In each case, the well experienced minor drawdown and stabilized within one minute. The maximum drawdown observed from the initial water level was 4.42 feet (to 13.5 feet below ground level). The well was also pumped at 50 gpm for 5 minutes. Again the well stabilized after only one minute. All well performance data is presented in Section H.

In consideration of the excellent performance observed, the USACE geologist shortened each step of the drawdown test to only 30 minutes.

3.10.2 Sediment Test

At the direction of the USACE geologist, sediment testing was performed at the end of the 20, 30, and 40 gpm step drawdowns. The sediment content of the water was measured using a Rosco/Moss sediment analyzer. The device operates by creating a vortex in the flow of water passing through it that causes sediment to fall out into a clear glass cup for measurement. In each case, no sediment was detected.

3.11 Surface Equipment Installation

During the steps of the performance test, the driller proceeded to install the delivery line from the well to the Ishmael house. The line to the [REDACTED] facility was capped for eventual installation after further remediation activities are completed.

Flexible 1-inch diameter polyethylene tubing was installed at a depth of approximately 3 feet through the existing hole in the basement wall. The existing check valve attached to the Ishmael jet pump was replaced with a new brass check valve. The tubing was attached to the check valve and the hole in the wall grouted.

After completion of the performance test, a new brass pitless adaptor was installed on the side of the well casing 4 feet below ground level. A 20-foot long, 1-inch diameter, schedule 40 polyvinyl chloride drop tube was used in conjunction with the pitless adaptor. A brass tee was attached to the discharge side of the pitless adaptor and capped on the end to be used for the [REDACTED] service in the future. The tubing from the Ishmael pump was attached to the other side of the tee.

When the well connections were complete the driller primed and ran the Ishmael pump to make sure it was operating properly.

3.12 Well and Delivery System Sterilization

The well, delivery lines, existing pump equipment and holding tank, and all piping and associated equipment (i.e., hot water heater) throughout the Ishmael house were disinfected. Disinfection was accomplished by running a chlorine solution with a concentration of 200 parts per million available chlorine through the well and delivery system. Dry chlorine (70%) was added to the well and the solution was circulated from the well through the house and back to the well for 20 minutes. The system was then shut down and remained undisturbed overnight.

The following morning the Ishmael water system was flushed until no chlorine odor was present in the tap water. All available taps were purged to completely remove any remaining concentrated chlorine.

3.13 Health Department Approval Testing

After the well and distribution system were purged of residual chlorine the water was sampled for potability according to the Troy-Miami Health Department regulations. The sample was obtained from the cold water tap at the kitchen sink with the water softener by-passed, and collected in a HDPE sample bottle prepared and supplied by the analytical laboratory. The sample was then transported immediately to the laboratory for analysis (see Section K for data). The test results were negative for coliform so the well water can now be approved by the Troy-Miami county Health Department for Human Consumption. Sample results were requested to be sent to the Troy-Miami County Health Department, to the attention of Bud Domigan, Director of Environmental Health. The test results were negative, so the well water is satisfactory for human consumption.

Following excavation activities in 1994, Frontz Drilling was again contracted to install new water lines from water well "Tee". This contractor also installed a new pump and pressure tank system at Pro Car Care. Once installation was completed, the same disinfectant procedures were implemented as mentioned Section 3.12 and 3.13 with the addition of collecting extra samples from Pro Car Care.

3.14 Clean-up

Upon completion of well construction and other incidentals, all debris and surplus materials resulting from the work were removed from the jobsite. All excavations were backfilled and the area around the well was graded and prepared for landscaping.

SECTION B - CLARIFICATIONS/NOTIFICATIONS



OHM Corporation

January 19, 1993

Mr. Lowell H. Domigan
Director of Environmental Health
Troy-Miami County Department of Health
3232 North County Road 25A
Troy, OH 45373

Dear Mr. Domigan:

RE: ABANDONMENT OF PRIVATE DRINKING WATER WELL
ISHMAEL AND [REDACTED] PROPERTIES
UNITED SCRAP LEAD SITE
TROY, OHIO

This letter serves as notification pursuant to the Ohio Administrative Code (OAC), Chapter 3701-28-07 for the abandonment of the private drinking water well at the above referenced project site. The private drinking water well is located between the Ishmael and [REDACTED] properties. Well water use is currently shared between the two residences.

Well abandonment activities will be performed in accordance with the guidelines presented in the OAC, Chapter 3701-28-07. The abandonment activities are scheduled for February 12, 1993. Enclosed is a copy of the work plan describing well abandonment activities.

If you have any questions, please call me or Mr. Jeff Habegger at (419) 423-3526.

Sincerely,

Christopher P. Strzempka
Project Hydrogeologist

CPS/ebb

Enclosures

cc: J. Habegger
J. Hubbard

If you have any questions, please do not hesitate to contact me at (312) 886-6941 or Wally Shaheen of the U.S. Army Corps of Engineers at (402) 291-4260. We request, your expedient review of this as other aspects of the project are currently under way and require timely action on our part.

Sincerely,

Anita L. Boseman

Anita L. Boseman
Remedial Project Manager

Enclosures

cc: Bud Domigan
Wally Shaheen

Know all Men by these Presents

That **Charley A. Hopkins, Trustee to Recover,**

of **Miami County, State of Ohio, for valuable consideration paid, grant**

with ^{limited} ~~irrevocable~~ ^{limited} covenants, to **Joseph P. Ichniok and Harriet M. Ichniok, husband and wife, jointly, their heirs and assigns, and to the survivor of them, his or her separate heirs and assigns forever,**
whose ~~tax~~ mailing address is **2125 S. County Road 25-A, Troy, Ohio 43073,**

the following real property:

Situate in the Township of Concord, County of Miami, State of Ohio, and bounded and described as follows:

Being 0.583 acres, more or less, in the northwest quarter of Section three (3), Town four (4), Range six (6), Concord Township, Miami County, Ohio, and being more particularly described as follows:

Beginning at a point in the west line of Section 3, Town 4, Range 6, which is also the center line of the Dayton-Troy Road No. 51, State Route No. 23, said beginning point being South 0° 40' East 598.3 feet from the northwest corner of said section; thence from the above described beginning point South 89° 21' E. 214.1 feet; thence South 0° 40' East 123.4 feet to an iron pipe; thence North 87° 02' West 214.4 feet to a point in the center line of said road, witness an iron pin South 87° 02' East 30.06 feet; thence North 0° 40' West 114.1 feet along the center line of said road, to the place of beginning.

In accordance with the survey of M. A. Lewis April 29, 1949 recorded in Plat No. 126, Volume No. 7, Miami County Engineer's Record of Land Surveys, with an addition of 10 feet to the north side thereof.

And a right and easement to pump ~~water~~ ^{oil} ~~gas~~ ^{gas} well on the premises located on the land immediately north of premises described above.

DESCRIPTION APPROVED
MIAMI COUNTY ENGINEER
BY: *[Signature]* DATE: *7-15-81*

TRANSFERRED
JUL 15 1981
SEC. 31204
SEC. 31205 CONFIRMED WITH
IN AMT. ...
DALL E. DAVIS
AUSTIN, OHIO

BOOK 557 PAGE 693

BOOK 621 PAGE 415

RECEIVED
12 48 O'CLOCK PM
DEC 18 1990
10:00
JAMES E. CAIN
RECORDS SECTION MIAMI COUNTY, OHIO

**SECTION C - SOIL CONFIRMATION SAMPLING IN AREA OF NEW WELL
INSTALLATION**

September 7, 1993

Fort Crook Area

USEPA, Region 5
(5 HSRM - 6J)
77 W. Jackson Blvd.
Chicago, IL 60604
ATTN: Ms. Anita Boseman

Dear Ms. Boseman,

Reference is made to Rapid Response Contract DACW45-89-D-9516
Delivery Order No. 46, United Scrap Lead Project, Troy, OH.

Enclosed you will find the analytical results for soil
confirmation sampling in the area of the new drinking water well
installation on the Pro Car Care, Inc. property. Let me explain
what this data represents.

When the original water well was abandoned, the remediation
contractor excavated down around the well in search of battery
chips and contaminated soils. The chips were located at 5-8 foot
depths and the excavation continued to below that visible chip
layer. The excavation then progressed radially until the chip
layer was no longer visible. Two soil samples (sample numbers
30,059 and 30,060) were taken in the base of that excavation for
the purpose of confirming that soils with a contamination level
above the action limits had, in fact, been removed. The soil
samples were analyzed by a laboratory for total lead
concentration. The results of sample numbers 30,059 and 30,060
are 154ppm and 49ppm, respectively (see attached). The action
limits are 210ppm down to 2' depth and 500ppm deeper than 2'. If
lab results had been higher than those limits additional
excavation and confirmation sampling would have been performed.
The excavation was then backfilled with clean, compacted soils.

The new, replacement drinking water well was then installed
through the clean backfill materials approximately 7' west of the
abandoned well. The water was tested per the Troy-Miami County
requirements for total coliform with a result of negative (see
attached).

August 31, 1993



OHM Corporation

Mr. Wally Shaheen
United States Army Corps of Engineers
ATTN: CEMRO-CD-FC (SHAHEEN)
P.O. Box 13287
Offut AFB, NE 68113

RE: Water Well Documents

Dear Mr. Shaheen,

Pursuant to your recent request, attached please find the following:

1. Water well test results
2. Confirmation sampling analytical results of the area around the water well

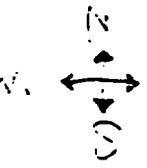
Please feel free to contact me if you need anything else or have any questions.

Sincerely,

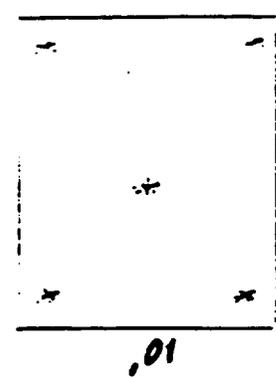
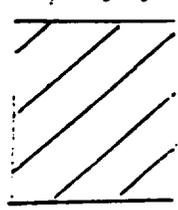
Gerald S. Resnik
Project Manager
Midwest Region

Apx. 7 foot

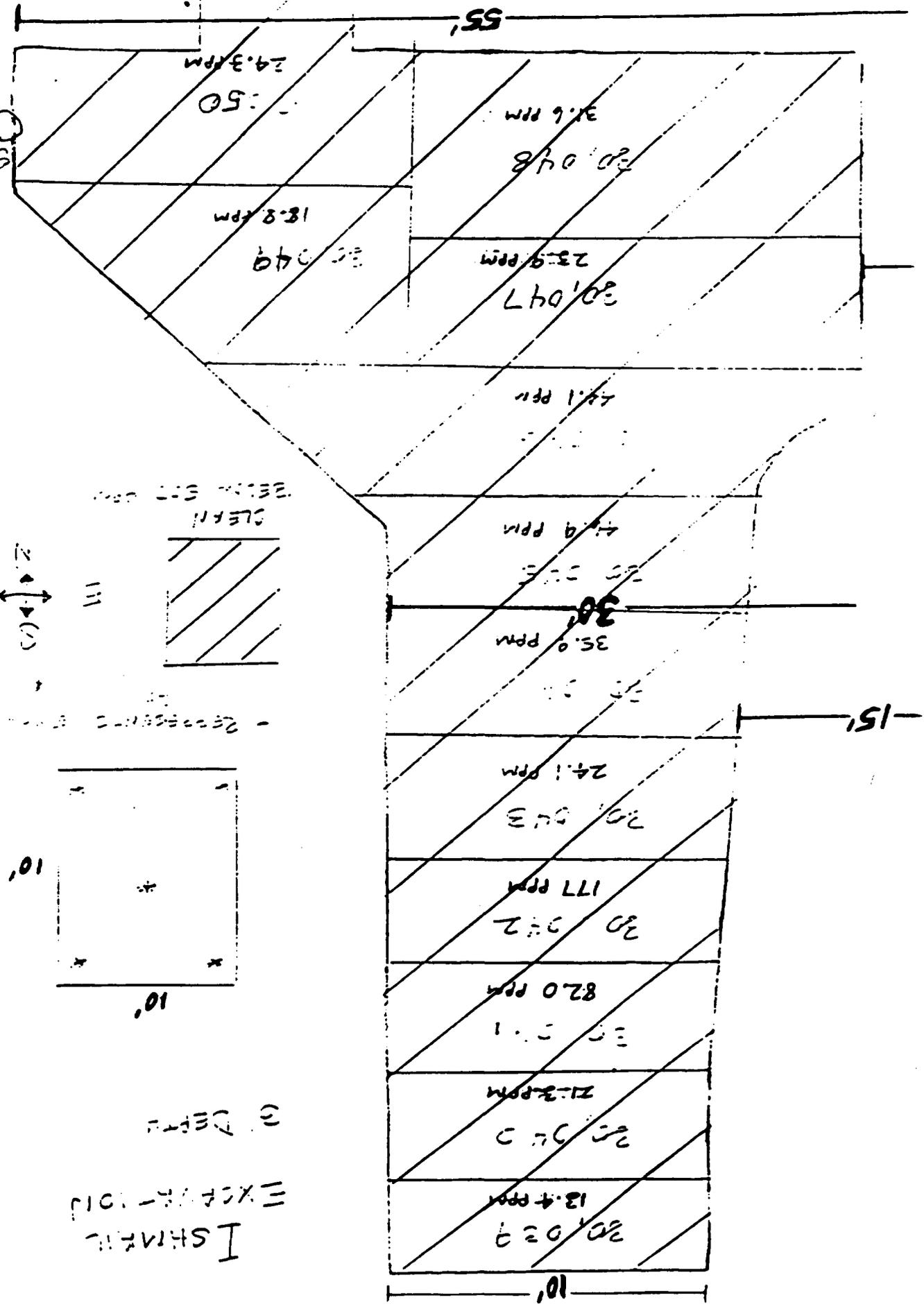
Approximate Loc



SLEAFI



ISHARIL
EXFAR-1011
3 DEPT



Mr. Guy Gallelo
Page 5

July 20, 1993
PACE Project Number: 13071950

Client Reference: 12501

PACE Sample Number:
Date Collected:
Date Received:
Client Sample ID:
Parameter

97 0060952
07/16/93
07/19/93
30,049

Units MDL METHOD DATE ANALYZED

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS
Lead

mg/kg 10 18.8 SW846-6010
EPA 200.7 07/19/98

PACE Sample Number:
Date Collected:
Date Received:
Client Sample ID:
Parameter

97 0060960
07/16/93
07/19/93
30,050

Units MDL METHOD DATE ANALYZED

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS
Lead

mg/kg 10 24.3 SW846-6010
EPA 200.7 07/19/93

PACE Sample Number:
Date Collected:
Date Received:
Client Sample ID:
Parameter

97 0060979
07/16/93
07/19/93
30,051

Units MDL METHOD DATE ANALYZED

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS
Lead

mg/kg 10 11.7 SW846-6010
EPA 200.7 07/19/93

COMPOSITE NUMBER	DATE	TIME	MATRIX	ANALYSIS	RESULT
30,048	7-16-93	1025	SOIL FROM KHAMAR	6010	31.6 PPM
30,049	7-16-93	1030	SOIL FROM ISHMAIL	6010	18.8 PPM
30,050	7-16-93	1035	SOIL FROM ISHMAIL	6010	24.3 PPM
30,051	7-16-93	1345	SOIL BACKFILL BURTON RE-SAMPLE BURTON COMP. # 30,020	6010	11.7 PPM
30,052	7-16-93	1435	RE-SAMPLE BURTON COMP. # 30,021	6010	18.9 PPM
30,053	7-16-93	1440	RE-SAMPLE BURTON COMP. # 30,022	6010	14.9 PPM
30,054	7-16-93	1445	RE-SAMPLE BURTON COMP. # 30,038	6010	12.3 PPM
30,055	7-16-93	1450	RE-SAMPLE BURTON COMP. # 30,022	6010	10.4 PPM
30,056	7-16-93	1455	RE-SAMPLE BURTON COMP. # 30,037	6010	12.3 PPM
30,057	7-16-93	1500	RE-SAMPLE BURTON COMP. # 30,023	6010	< 10 PPM
30,058	7-16-93	1505	RE-SAMPLE BURTON COMP. # 30,029	6010	< 10 PPM
30,059	7-17-93	1025	SOIL FROM ABD. WELL EXCAVATION	6010	154
30,060	7-17-93	1030	SOIL FROM ABD. WELL EXCAVATION	6010	49
30,061	7-20-93	0815	SOIL FROM BURTON	6010	40.0 PPM
30,062	7-20-93	0820	SOIL FROM BURTON	6010	169 PPM
30,063	7-20-93	0825	SOIL FROM BURTON	6010	74.1 PPM
30,064	7-20-93	0830	SOIL FROM BURTON	6010	19.4 PPM
30,065	7-20-93	0835	SOIL FROM BURTON	6010	40.8 PPM
30,066	7-20-93	0840	SOIL FROM BURTON	6010	10.8 PPM
30,067	7-20-93	0845	SOIL FROM BURTON	6010	129 PPM
30,068	7-20-93	0850	SOIL FROM BURTON	6010	10.7 PPM
30,069	7-20-93	1600	SOIL FROM BURTON	6010	15.0 PPM
30,070	7-20-93	1605	SOIL FROM BURTON	6010	< 10 PPM
30,071	7-20-93	1610	SOIL FROM BURTON	6010	< 10 PPM

SW-846

SECTION D - ABANDONED WATER WELL SEALING REPORT

(For Abandoned or Unused Wells)
OHIO DEPARTMENT OF NATURAL RESOURCES
Division of Water, Ground Water Resources Section
1939 Fountain Square Drive
Columbus, Ohio 43224-1360

LOCATION

County MIAMI Township CONCORD Section 3
Property Owner _____
Address of Property _____
Location: 1.5 miles NORTH of INTERSTATE 75
n, e, s, w nearest intersection
on the _____ side of _____
n, e, s, w road name

ORIGINAL WELL

ODNR Well Log Number NONE Copy attached? Yes or No
(circle one)

MEASURED CONSTRUCTION DETAILS

Date of measurements JULY 12, 1993

Depth of Well 34.5' G.L. Static Water Level 5'8" G.L.
Size of Casing 5" I.D. Length of casing 36.5'
Well Condition GOOD

SEALING PROCEDURE

Method of Placement PUMP THROUGH TREMIE PIPE

Placement:	From	To	Sealing Material	Volume
	<u>TOTAL DEPTH</u>	<u>SURFACE</u>	<u>BENTONITE</u>	<u>36 GAL.</u>
	From _____	To _____		<u>(4.7' 3)</u>
	From _____	To _____		

Casing Removed? Yes or No
(circle one)

Condition of Casing UNKNOWN

Perforations: From UNKNOWN To _____
From _____ To _____

Date Sealing Performed JULY 12, 1993

Reason(s) for Sealing WELL ABANDONED DUE TO US ENVIRONMENTAL PROTECTION
AGENCY REMEDIATION ACTIVITIES AT THE WELL'S LOCATION.

CONTRACTOR

Name FRONTZ DRILLING, INC. ODH Registration # 120
Address 2031 MILLERSBURG ROAD
City/State/Zip WOOSTER OHIO 44691 Signature [Signature]

SUBMIT COMPLETED FORM TO ODNR-DIVISION OF WATER

SECTION E - WATER WELL PERMIT APPLICATION

APPLICATION / PERMIT FOR PRIVATE WATER SYSTEM

Permit #
Fee
\$95.00

Health District
Troy-Miami County Health Department

CHECK ONE ITEM IN EACH BOX:

<input checked="" type="checkbox"/> New Installation	Water System Will Serve:	<input checked="" type="checkbox"/> Well	<input type="checkbox"/> Spring
<input type="checkbox"/> Alteration	<input type="checkbox"/> Single-family dwelling	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Pond
	Single Family	<input type="checkbox"/> Cistern	<input type="checkbox"/> Hauled Water Storage Tank
	<input checked="" type="checkbox"/> Other Dwelling & Small		

(Please type or print in ballpoint pen) Business (5 Employees)

Owner	Phone No.
[Redacted]	[Redacted]

Mailing Address	City	Zip
[Redacted]	Troy	45373

Location of Property
[Redacted]

Street Address	Township
[Redacted]	Concord

Name of Applicant	Phone No.
United States Environmental Protection Agency/Anita Roseman	(312) 886-6941

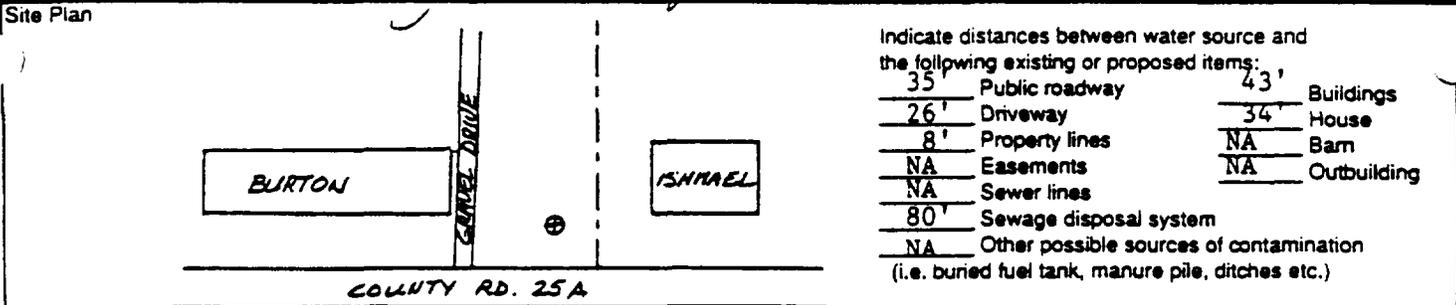
Address
Region V (SHSRM-65), 77 Jackson Boulevard, Chicago, Illinois 60604

NOTICE TO APPLICANT: It may be your advantage to read the rules governing Private Water Systems, Chapter 3701-28 of the Administrative Code. This application will not be processed until the site plan is complete and this form bears the signature of the applicant and is accompanied by the appropriate fee.

I/we, the undersigned, hereby agree to install, construct, develop or alter the private water system named in this permit application in accordance with the attached site plan and all other applicable rules.

I/we also understand that the issuance of this permit is conditioned upon the right of the department to enter upon the premises of the private system named in this permit at any reasonable time prior to, during, or after completion of the work specified in this permit for the purpose of determining compliance with Chapter 3701-28 of the Administrative Code.

Applicant's Signature United States Environmental Protection Agency/Region V/ORM Remediation Services Corp. By: John P. Swanson, Jr. <i>[Signature]</i>	Date 8/2/93
---	----------------



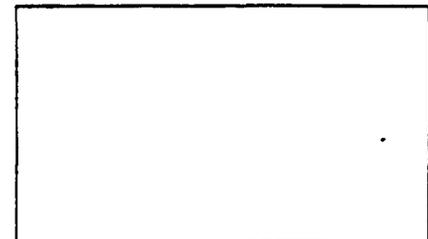
Note: If the private water system will serve other than a single-family dwelling, detailed plans must also be submitted in compliance with rule 3701-28-03 of the Administrative Code.

DO NOT WRITE BELOW THIS LINE

Permit Approved by	Date
_____	_____

te: Not valid without official audit number.

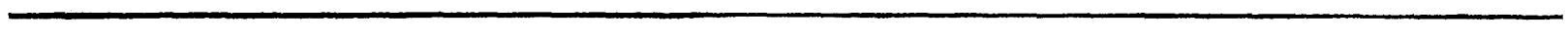
White, Property Owner-Pink, Water System Contractor-Canary, Health Dept.



SECTION F - WATER WELL BORING LOG

1

1



SECTION G - WELL DEVELOPMENT RECORD



OF Corporation

WELL DEVELOPMENT LOG

PROJECT NAME: United Scrap Lead

WELL No: [REDACTED] Well

SHEET 1 OF 1

Drinking Water Well

SITE

Pro Car Care and Used Cars

CONTRACTOR: Frontz Drilling

DEVELOPMENT CONTRACTOR

Frontz Drilling

DATE/TIME DEVELOPMENT STARTED: 8-25-93/1400 Hrs.

DATE/TIME DEVELOPMENT COMPLETED: 8-25-93/1630 Hrs.

DEVELOPMENT METHOD: Surge and bail

DEVELOPED BY: Ron Tucker

EQUIPMENT: Cable tool drill rig, hammer bit, 15' x 4" diameter bailer

PRE-DEVELOPMENT SWL: 9.08' TOC

MAXIMUM DRAWDOWN DURING DEVELOPMENT: .25 FT at 35 GPM

TOTAL QUANTITY OF MATERIAL BAILED: N/A

TOTAL DEVELOPMENT WATER DISCHARGED: 3990 GAL

DISPOSITION OF DISCHARGE WATER: Development water was discharged onto the ground surface

TIME	VOLUME REMOVED (GAL)	WATER LEVEL (FT. BTWC)	TURBIDITY	CLARITY/COLOR	TEMP. (°C)	pH	CONDUCTIVITY	REMARKS
1400	0	9.08	---	---	---	---	---	Begin bailing @ approx. 35 gpm
1415	175	---	---	CLOUDY	---	---	---	Begin surging with hammer bit
1435	875	---	---	SLIGHTLY CLOUDY	---	---	---	Resume bailing @ 35 gpm
1445	---	---	---	---	---	---	---	Begin surging with hammer bit
1500	1400	---	---	ALMOST CLEAR	---	---	---	Resume bailing @ 35 gpm
1530	2450	---	---	CLEAR	---	---	---	Continue bailing
1536	---	---	---	---	---	---	---	Begin surging with hammer bit
1605	3465	---	---	CLEAR	---	---	---	Resume bailing @ 35 gpm
1615	---	---	---	---	---	---	---	Begin surging with hammer bit
1630	3990	9.33	---	CLEAR	---	---	---	Resume bailing @ 35 gpm
								End Development

NOTES: No change in the total depth of the well was noticed due to well development.

Total depth of well after development 41 feet GL.

REVIEWED BY: _____

SECTION H - WELL PERFORMANCE DATA



OHM Corporation

PERFORMANCE TEST RECORD

PROJECT NAME: United Scrap Lead

1 OF 3

WELL No: [REDACTED] Well

STATION Drinking Water Well		SITE Pro Car Care and Used Cars	
CONTRACTOR Frontz Drilling		PUMP TEST CONTRACTOR Frontz Drilling	
DATE/TIME PUMP TEST STARTED 8-26-93/0845 Hrs.		DATE/TIME PUMP TEST COMPLETED 8-26-93/1125 Hrs.	
TEST METHOD Step drawdown		OPERATOR Douglas Frontz	
EQUIPMENT Grundfos submersible pump rated at 50 gpm, in-line flow meter, Rosco-Moss sand content analyzer			
PRE-TEST SWL 9.08' TOC		MAXIMUM DRAWDOWN DURING PUMPING 6.34 FT at 50 GPM	
POINT OF MEASUREMENT Top of casing		TOTAL QUANTITY OF WATER DISCHARGED BY PUMPING 4450 GAL	
POSITION OF DISCHARGE WATER Performance-test water was discharged into the channel adjacent to the Ishmael property			

REAL TIME	ELAPSED TIME (MIN)	DISCHARGE RATE (GPM)	DEPTH (FEET)	DRAWDOWN (FEET)	REMARKS
0845	0	STATIC	9.08	0	START PUMP
0852	7	---	10.50	1.42	ADJUSTING FLOW
0853	8	---	10.25	1.17	ADJUSTING FLOW
0854	9	10	10.08	1.00	STABLE
0855	10	10	10.08	1.00	.
0856	11	10	10.08	1.00	.
0857	12	10	10.08	1.00	.
0858	13	10	10.08	1.00	.
0859	14	10	10.08	1.00	.
0900	15	10	10.08	1.00	.
0901	16	10	10.08	1.00	.
0906	21	10	10.08	1.00	.
0911	26	10	10.08	1.00	.
0916	31	10	10.08	1.00	.
0921	36	10	10.08	1.00	.
0922	37	20	10.92	1.84	NEW FLOW RATE - DRAWDOWN
0923	38	20	11.25	2.17	DRAWDOWN
0924	39	20	11.25	2.17	STABLE
0925	40	20	11.25	2.17	.
0926	41	20	11.25	2.17	.
0927	42	20	11.25	2.17	.

**PERFORMANCE
TEST RECORD**

PROJECT NAME: United Scrap Lead

WELL No: ██████████ Well

	ELAPSED TIME (MIN)	DISCHARGE RATE (GPM)	DEPTH (FEET)	DRAWDOWN (FEET)	REMARKS
1055	135	40	13.50	4.42	STABLE
1100	140	40	13.50	4.42	"
1105	145	40	13.50	4.42	"
1110	150	40	13.50	4.42	Took sediment test - Non-detectable
1115	155	50	15.17	6.09	NEW FLOW RATE - DRAWDOWN
1120	160	50	15.33	6.25	DRAWDOWN
1125	165	50	15.42	6.34	DRAWDOWN
1130	170	50	15.42	6.34	STABLE
1135	175	50	15.42	6.34	"
					Recovery at end of test was nearly instantaneous - final depth 9.17'

SECTION I - WELL INSTALLATION DIAGRAM

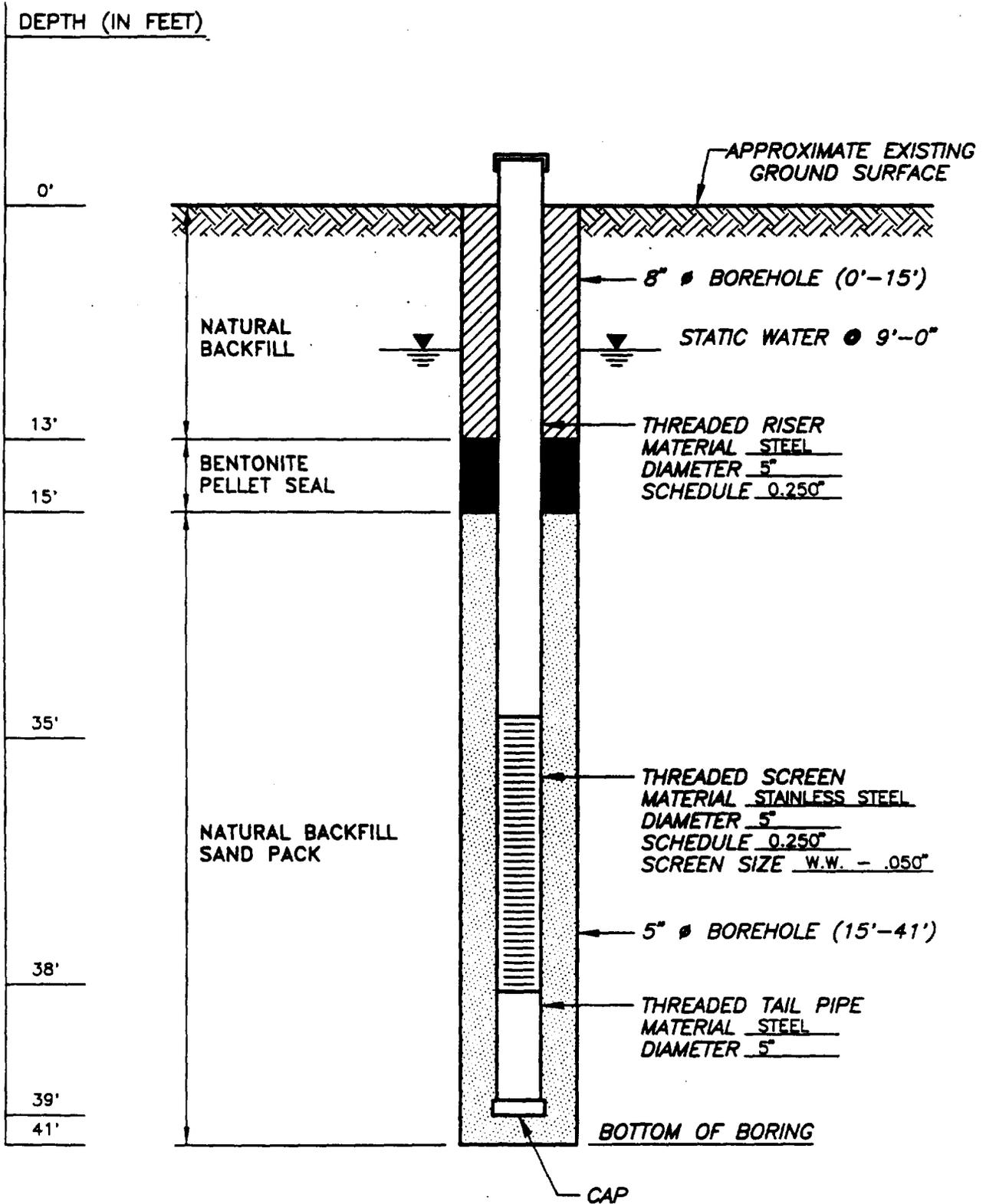
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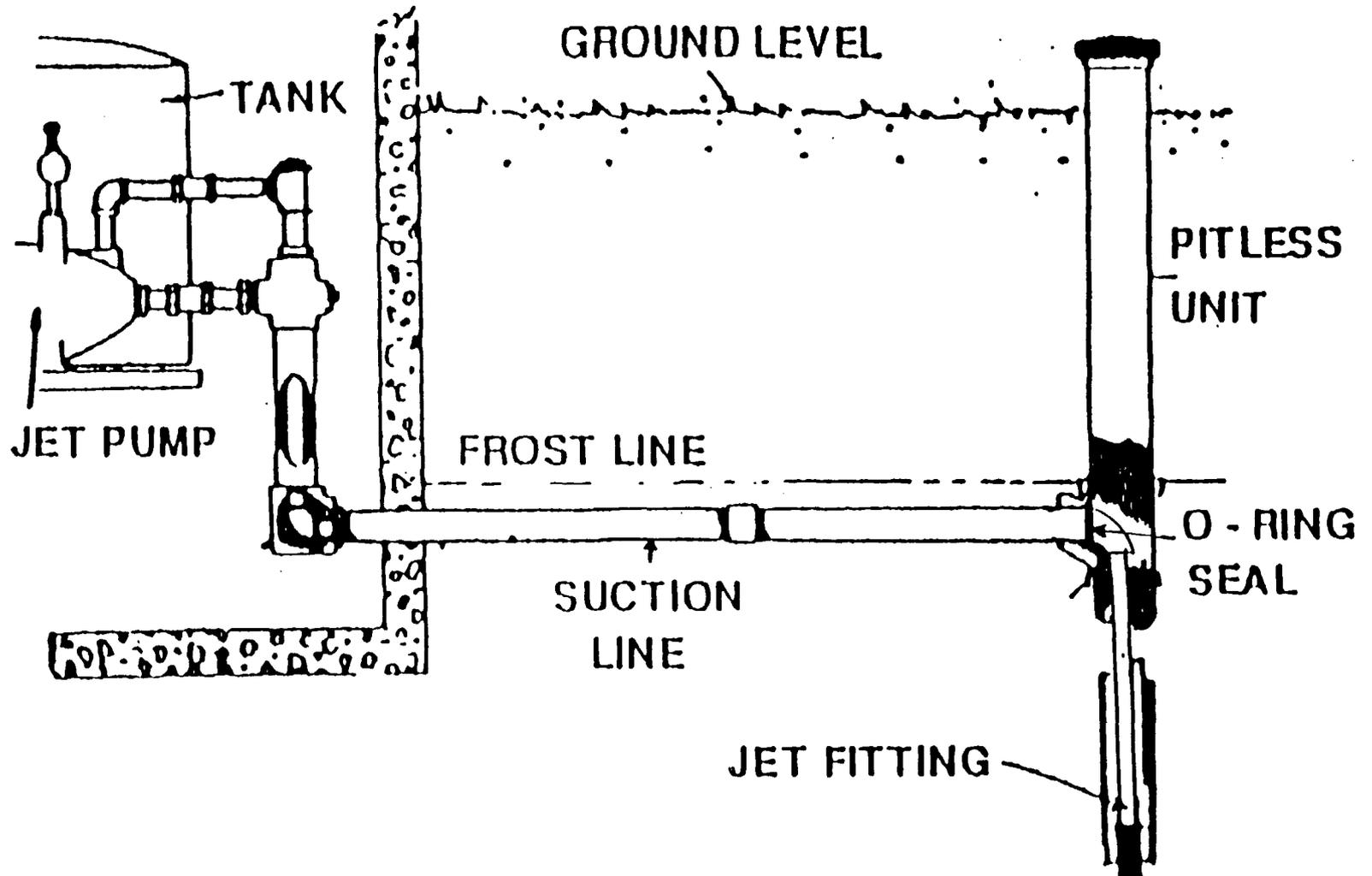


WATER SUPPLY WELL INSTALLATION DETAIL

Project Number 12601 Date Installed 9/15/93
Project Name USACE - TROY
Well Number WATER WELL, [REDACTED]



Each property will have a pump installation similar to the diagram below. Two suction lines will be Tee'ed off the pitless adaptor. Suction lines will be equipped with check valves to prevent backflow into the well or cross contamination of the facilities.



SECTION J - FINAL LOCATION OF WELL INSTALLATION

**WELL LOCATION MAP
HAS BEEN REDACTED – ONE PAGE**

CONTAINS POTENTIAL PERSONALLY-IDENTIFYING INFORMATION

SECTION K - WELL WATER LAB ANALYSIS

5916



NATIONAL ENVIRONMENTAL TESTING, I

272251 94.16156 REC 11/29/1994 GERALD RESNIK P.Bact. # 58783 Res. L: D:12/05/1994

LABORATORY MICROBIOLOGICAL WATER SAMPLE REPORT

Residence Water Supply Name Miami County PWS ID # (Mandatory for PWS) 11/29/94 Date Collected Back Faucet Sample Tap Identification 1115 Time Collected Address of Sample Signature of Sample Collector

Completely fill out-use only permanent ink or soft pencil.

Sample Classification Routine [X] Repeat [] Special Repeat - Last Sample # 50001 Public [X] Private Distribution System Raw [] Plant Tap Surface [] Ground

PERSON TO RECEIVE RESULTS

Name: Gerald Resnik Street Address: Zip:

Verification

Test Used

Sample # 50003

Table with columns LTB and BGB, and rows 24 and 48.

Membrane Filter MMO-MUG

Date Rec'd 11/29/94

Total Coliform (TC) Results

Time Rec'd 12:10

Table with TC results: Positive, Positive/HBC, Positive/CG, Negative, Negative/HBC-INVALID, Negative/CG; INVALID.

Date Rep't 11-29 / 11-30

- Not Analyzed [] Sample Too Old [] Leaked In Transit [] Broken In Transit [] Residual Chlorine Insufficient Sample [] Incomplete Info [] Lab Accident []

Analyst MP / MP

Lab Cert # 857

EPA Agency to Receive Results NAME: ADDRESS: CITY: STATE: ZIP:

Dayton Division 3601 S. Dixie Dr. Dayton, OH 45439 Tel: (513) 294-6856 Fax: (513) 294-7816

Please call our Customer Service Representatives if there are any questions or concerns.

Approved



Handwritten notes and numbers at the bottom right.

5835



NATIONAL ENVIRONMENTAL TESTING, INC.

271848 94.15992 REC 11/22/1994 GERALD RESNIK P.Bact.# 58703-Bathroom L: D:11/27/1994

LABORATORY MICROBIOLOGICAL WATER SAMPLE REPORT

Water Supply Name: Miami; County: Miami; Date Collected: 11/22/94; Sample Tap Identification: Bathroom Faucet; Signature of Sample Collector: [Signature]; Completely fill out-use only permanent ink or soft pencil

Sample Classification: [X] Routine [] Repeat [] Special; Public [X] Private []; Distribution System []; Raw []; Surface []; Ground []

PERSON TO RECEIVE RESULTS

Name: Gerald Resnik; Street Address: [Redacted]; City: [Redacted]; State: [Redacted]; Zip: [Redacted]

Verification

Table with columns LTB and BGB, and sub-columns 24 and 48. All cells are empty.

- Not Analyzed []
Sample Too Old []
Leaked In Transit []
Broken In Transit []
Residual Chlorine []
Insufficient Sample []
Incomplete Info []
Lab Accident []

Test Used

Membrane Filter [X]
MMO-MUG [X]

Total Coliform (TC) Results table with rows for TC Positive, HBC, CG, Negative, and INVALID results.

Sample # 50002; Date Rec'd 11/22; Time Rec'd 1:55; Date Rep't 11/22; Analyst [Signature]; Lab Cert # 857

EPA Agency to Receive Results: NAME, ADDRESS, CITY, STATE, ZIP

Dayton Division
3601 S. Dixie Dr.
Dayton, OH 45439
Tel: (513) 294-6856
Fax: (513) 294-7816

Please call our Customer Service Representatives if there are any questions or concerns.

[Signature]
Approved



Amount Due 27.00
 Paid
 Bill
 Results to be Picked up
 Mailed

Will pay when sample brought back
Belmonte Park Laboratories
 The Science Company
 Since 1954
 1418 Salem Avenue • Dayton, Ohio 45406
 (513) 276-4181
 E.P.A. Certification No. 107

Ohio E.P.A. to receive results:
 Yes No
 N.E. Twinsburg
 S.E. Logan
 Central Columbus
 N.W. Bowling Green
 S.W. Dayton

BACTERIAL SAMPLE REPORT

No Samples Over 30 Hours Old Will Be Tested

ATTENTION: RUD DOMIBAL
 OWNER OR PURVEYOR TO RECEIVE RESULTS
7004-MIAMI CITY DEPT OF HEALTH
 NAME
3232 N. COUNTY RD 25A
 ADDRESS
TRDY, OHIO 45373
 CITY, STATE, ZIP

SAMPLE CLASSIFICATION
 PUBLIC DRINKING WATER
 PRIVATE
 DISTRIBUTION
 SURFACE RAW
 GROUND
 PLANT DIST. SYS.

WATER SUPPLY NAME (IF PRIVATE, RESIDENT): [REDACTED]

COUNTY: MIAMI PWS ID (IF APPLICABLE): KITCHEN SINK LAST SAMPLE # [REDACTED]

DATE COLLECTED: 0948/9-27/93 SAMPLE TAG IDENTIFICATION: [REDACTED] TAG ID # [REDACTED]

TIME COLLECTED: [REDACTED] ADDRESS OF SAMPLE TAP: [REDACTED]

NAME OF PERSON COLLECTING SAMPLE: JOHN P. SWANSON, JR / JOHNS CORP PHONE # [REDACTED]

(SIGNATURE): *John P. Swanson, Jr*

THE ABOVE MUST BE FILLED IN OR SAMPLE WILL NOT BE TESTED. PRINT FIRMLY.

ANALYST: RL

HBC-CONFLUENT VERIFICATION

	24	48
BG		

QUESTIONABLE VERIFICATION

	LTB		6GB	
	24	48	24	48
1				
2				
3				
4				
5				

AUG 28 '93 10:49

LABORATORY FINDINGS

TOTAL COLIFORM POSITIVE

TOTAL COLIFORM NEGATIVE

HIGH BACKGROUND COUNT

CONFLUENT GROWTH

NOT ANALYZED

SAMPLE TOO OLD

LEAKED/BROKEN IN TRANSIT

RESIDUAL CHLORINE

INSUFFICIENT SAMPLE

INCOMPLETE INFORMATION

LABORATORY ACCIDENT

SAMPLE# 4038

DATE REC'D Aug 27, 1993

TIME REC'D _____

DATE REPT'D Aug 28, 1993

Comments: _____

SECTION L - WELL INSTALLATION CATALAYS DATA

TELESCOPE SIZES

PHYSICAL DATA

STANDARD CONSTRUCTION

Telescope size screens are commonly lowered through API standard pipe to the bottom of the well. The well casing is then pulled back to expose the screen surface to the aquifer.

The top fitting on the screen is usually a figure K-Packer which seals against the casing I.D. preventing sand from entering the well past the top of the screen during installation and development. The lower fitting is normally a bail plug which closes off the bottom end of the screen also providing a bail with which the screen is lowered.

Other fittings are available when different methods of installation are employed. Contact your Distributor or call if your requirements call for other materials or special fittings.

DIMENSIONS & WEIGHTS

NOMINAL SCREEN SIZE DIAMETER OF CASING	SCREEN O.D.		SCREEN I.D.		PIPE THREAD END FITTINGS	APPROXIMATE SHIPPING WEIGHT	
	INCHES	MM.	INCHES	MM.		lb./ft.	KG/M
3 TEL	2-3/4	70	2-1/4	57	2" M-F	4	6
4 TEL	3-3/4	95	3-1/4	83	3" M-F	6	9
* 5 TEL	4-3/4	121	4-1/4	108	4" M-F	7	10
6 TEL	5-5/8	143	5	127	5" M-F	10	15
8 TEL	7-1/2	191	6-7/8	175	6" M-F	15	22
10 TEL	9-1/2	241	8-7/8	225	8" M-F	19	28
12 TEL	11-1/4	286	10-1/2	267	10" M-F	22	33
14 TEL	12-3/4	324	12	305	12" M-F	35	52
16 TEL	14	356	13-1/8	333	Weld Ring	38	57
18 TEL	16	406	15	381	Weld Ring	43	64
20 TEL	18	457	17	432	Weld Ring	54	80

Shipping weights may vary somewhat with different wire shape and slot sizes.

INTAKE AREAS

(SQUARE INCHES PER LINEAL FOOT OF SCREEN)

TELESCOPE SCREEN SIZE	10 SLOT	20 SLOT	30 SLOT	40 SLOT	60 SLOT	80 SLOT	100 SLOT	125 SLOT
3 TEL	5	26	35	41	52	59	65	70
4 TEL	20	35	47	57	71	81	88	96
5 TEL	26	45	60	72	90	102	112	121
6 TEL	30	53	71	85	106	121	132	143
8 TEL	28	51	71	87	113	133	149	164
10 TEL	36	65	72	90	119	143	139	158
12 TEL	42	77	85	106	141	170	164	187
14 TEL	37	69	77	97	132	162	186	212
16 TEL	41	75	84	107	145	177	205	233
18 TEL	46	86	96	122	166	203	234	266
20 TEL	52	97	108	137	187	228	263	300

- Open areas may differ somewhat from these figures. Extra strong construction for example, reduces open area in some cases because heavier material is used to increase strength. For specialized installations, ultra-high open area screens are available.
- The maximum recommended transmitting capacity of screens can be derived from these figures. To determine GPM per ft. of screen, multiply the intake area in square inches by 0.31. It must be remembered that this is the maximum capacity of the screen under ideal conditions with an entrance velocity of 0.1 ft. per sec.



GOLDEN JET® - SUPER GOLDEN JET® - B-D (PE 3406)

Meets requirements of ASTM D-2239

ULTRA GOLDEN JET (For Deep Well Submersibles) SIDR-6

NOMINAL SIZE	ITEM NUMBER	UNIT LENGTH	NOMINAL O.D.	NOMINAL I.D.	MINIMUM WALL	MAXIMUM ALLOWABLE PRESSURE AT 73°F F.	WEIGHT	LIST PRICE
1"	01225	500 R.	1.469	1.049	.198	800 PSI	1720	\$678.96

SUPER GOLDEN JET (For Deep Setting Submersible Pumps) SIDR-7

NOMINAL SIZE	ITEM NUMBER	UNIT LENGTH	NOMINAL O.D.	NOMINAL I.D.	MINIMUM WALL	MAXIMUM ALLOWABLE PRESSURE AT 73°F F.	WEIGHT	LIST PRICE
1"	03228	100 R.	1.359	1.049	.180	100 PSI	24.3	\$ 95.94
	03228	200 R.					48.6	191.88
	03230	300 R.					72.9	287.82
	03232	400 R.					97.2	383.76
	03234	500 R.					121.5	575.64
1 1/4"	03240	100 R.	1.786	1.380	.197	100 PSI	61.8	184.82
	03243	300 R.					125.4	484.46

GOLDEN JET (For Submersible Pumps and Water Distribution Lines) SIDR-11.5

NOMINAL SIZE	ITEM NUMBER	UNIT LENGTH	NOMINAL O.D.	NOMINAL I.D.	MINIMUM WALL	MAXIMUM ALLOWABLE PRESSURE AT 73°F F.	WEIGHT	LIST PRICE
3/4"	05200	100 R.	.730	.522	.080	100 PSI	6.2	20.91
	05204	400 R.					22.8	83.64
1/2"	05210	100 R.	.578	.324	.072	100 PSI	5.9	32.47
	05214	400 R.					26.8	129.88
1"	05220	100 R.	1.238	1.049	.091	100 PSI	12.1	50.43
	05222	200 R.					24.2	100.86
	05223	300 R.					36.3	151.29
	05224	400 R.					48.4	201.72
	05225	500 R.					60.5	252.15
1 1/4"	05230	100 R.	1.630	1.380	.120	100 PSI	24.5	90.41
	05233	300 R.					73.5	271.23
1 1/2"	05240	100 R.	1.990	1.610	.140	100 PSI	33.1	122.51
	05244	300 R.					99.3	367.53
2"	05250	100 R.	2.437	2.067	.180	100 PSI	54.2	205.41
	05251	200 R.					108.4	410.82

B-D (For Domestic Water System Distribution Lines and other Cold Water Applications) SIDR-15

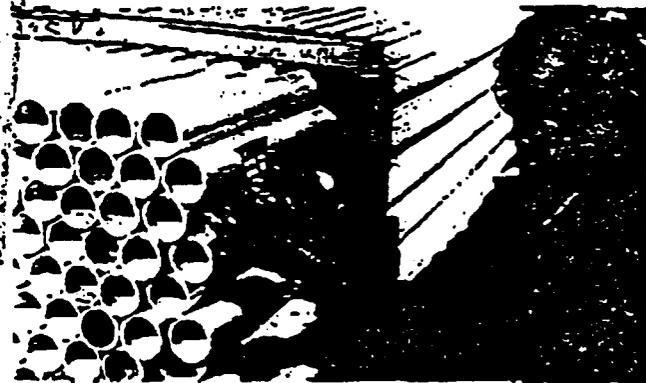
NOMINAL SIZE	ITEM NUMBER	UNIT LENGTH	NOMINAL O.D.	NOMINAL I.D.	MINIMUM WALL	MAXIMUM ALLOWABLE PRESSURE AT 73°F F.	WEIGHT	LIST PRICE
3/4"	06110	100 R.	.862	.624	.080	80 PSI	7.4	26.75
	06114	400 R.					29.8	107.00
1"	06120	100 R.	1.197	1.049	.070	80 PSI	10.6	38.62
	06123	300 R.					32.4	115.86
1 1/4"	06130	100 R.	1.572	1.380	.092	80 PSI	18.4	67.90
	06133	300 R.					55.2	203.70
1 1/2"	06140	100 R.	1.934	1.610	.107	80 PSI	25.1	92.90
	06144	300 R.					75.3	278.70
2"	06150	100 R.	2.363	2.067	.138	80 PSI	41.1	155.77
	06151	200 R.					82.2	311.54

Dimensional Specifications for Schedule 40 (White Pipe) and Schedule 80 (Gray Pipe)

National Pipe Company's Schedule 40 and 80 PVC Pipe is manufactured from PVC compounds with Cell Classification 124548 (Type 1, Grade 1 material, PVC 1120).

The pipe is listed by the National Sanitation Foundation (NSF) for use in potable water lines, and meets ASTM-1785 requirements.

Available in 20-ft. lengths (Plain End).



	Pipe Size (in inches)	Stock Number	Outside Diameter (in inches)	Minimum Wall Thickness (in inches)	Maximum Working Pressure (at 73.4°F)	Weight Per 100' (in pounds)
SCHEDULE 40 (WHITE)	1/2	3240 006 20	.840	.109	600	16.4
	3/4	3240 007 20	1.050	.113	480	21.8
	1	3240 010 20	1.315	.133	450	32.1
	1 1/4	3240 012 20	1.660	.140	370	43.1
	1 1/2	3240 015 20	1.900	.145	330	51.8
	2	3240 020 20	2.375	.154	280	69.5
	2 1/2	3240 025 20	2.875	.203	300	109.6
	3	3240 303 20	3.500	.216	260	143.5
	3 1/2	3240 035 20	4.000	.226	240	172.9
	4	3240 040 20	4.500	.237	220	204.3
	5	3240 050 20	5.563	.258	190	277.6
	6	3240 060 20	6.625	.280	180	360.0
8	3240 080 20	8.625	.322	160	542.7	
10	3240 100 20	10.750	.365	140	768.3	
12	3240 120 20	12.750	.406	130	1017.1	
SCHEDULE 80 (GRAY)	1/2	3280 006 20	.840	.147	850	20.5
	3/4	3280 007 20	1.050	.154	690	27.8
	* 1	3280 010 20	1.315	.179	630	40.9
	1 1/4	3280 012 20	1.660	.191	520	56.7
	1 1/2	3280 015 20	1.900	.200	470	68.6
	2	3280 020 20	2.375	.218	400	94.9
	2 1/2	3280 025 20	2.875	.276	420	144.9
	3	3280 030 20	3.500	.300	370	193.8
	3 1/2	3280 035 20	4.000	.318	350	236.5
	4	3280 040 20	4.500	.337	320	283.3
	5	3280 050 20	5.563	.375	290	393.8
	6	3280 060 20	6.625	.432	280	641.1
8	3280 080 20	8.625	.600	250	821.9	
10	3280 100 20	10.750	.593	230	1219.5	
12	3280 120 20	12.750	.687	230	1676.5	

A complete line of fittings and valves is available for all pipe sizes.



Baroid Product Information

BENSEAL® Sealing and Plugging Agent

BENSEAL® is a specially processed coarse ground, non-drilling mud grade bentonite for use in sealing and grouting well casings and earthen structures.

Recommended Uses:

BENSEAL® provides superior sealing qualities to:

Seal and grout plastic or steel casings.

Seal engineering test study holes.

Plug and abandon minerals exploration holes and seismic shot holes.

Seal conductor pipe in and around mud tanks.

Seal ponds, dams and ditches.

Major Advantages:

Convenient, single sack product. BENSEAL® is safe and easy to use.

Stable in storage.

Yields slowly for maximum solids without excessive thickening.

Pumps easily with minimum pump pressure.

Eliminates problems caused by premature setting up.

Forms a permanent, flexible seal. BENSEAL is not subject to permanent drying, shrinking or cracking.

Reduces formation fracturing which could cause sealing loss because BENSEAL is lighter than cement.

Does not generate heat upon setting up.

Prevents commingling of aquifers and contamination from surface sources.

Protects casing from corrosive waters.

Allows hole reentry without mud contamination.

Compatible with BAROID® weight material. Density may be increased to control artesian conditions or other subsurface overpressures.

Recommended Treatment:

BENSEAL® forms an excellent seal when properly applied. For effective sealing the maximum number of

swelling particles is required; this is contrary to what is desired in a drilling fluid. BENSEAL performs most efficiently in fresh water.

Casing Seal — Cable Tools

1. Dig a cone-shaped depression around the casing (diameter 1 foot, depth 1 foot).
2. Keep cone-shaped depression filled with dry BENSEAL as the casing is being driven.
3. Example: 2½ pounds per foot of 4" casing.

Lost Returns

1. Begin with the pit full of mud or water.
2. Raise pump suction off bottom and place a shovel next to it and slightly under suction.
3. Slowly pour dry BENSEAL into space between shovel and suction, and pump it down the hole.

BENSEAL/Sand Mixture — Grouting and Pumping

BENSEAL and sand, mix well, dry, in a ratio of 1:2, develop permeabilities of $K = 1 \times 10^{-4}$ cm/sec. This mixture can be poured from top into holes not over 100 feet deep and through less than 50 feet of water.

BENSEAL/Sand is often used to set shallow casing, heat-pumps, etc.

Permeability test data available on request.

Sealing Earthen Structures

Work BENSEAL® into the soil, covering completely the area which will be under water. Normal treatment is between 1 and 2 pounds per square foot depending on the condition of the soil. To treat a water filled structure, broadcast BENSEAL evenly over the entire area, in above amounts.



Seamless and Welded Carbon Steel Water Well Pipe ASTM A589

General Description

Water well reamed and drifted pipe is made especially for use in water wells and it may be driven. It is manufactured by the furnace-welded, electric welded or seamless processes, in nominal pipe sizes 1 in. to 12 in., inclusive, and in weights and wall thicknesses shown in the table, page 37. This pipe is reamed on the ends, drifted to insure inside clearance and is supplied in lengths of 16 ft. to 22 ft., with threaded ends and provided with recessed couplings. For threading data, see the tables, pages 38 and 39.

Chemical Composition, nominal (Heat)				
	C	Mn	P max	S max
Water Well R&D	—	—	0.050	0.060

	Continuous Weld	Seamless or EW	
		Grade A	Grade B
Tensile Strength, min, psi	45,000	48,000	60,000
Yield Point, min, psi	25,000	30,000	35,000
Elongation in 2 in. min, % †	30	35	30

† Basic value; see specification for lower value permitted when strip specimens from light wall pipe are tested.

Dimensions, Weights and Test Pressures													
	Size Inches Nom.	Weights per Foot		Wall Thickness Inches	Diameters		No. of Threads per Inch	Couplings			Test Pressures, psi*		
		T & C Pounds	Plain Ends Pounds		Outside Inches	Inside Inches		Length Inches	OD Inches	Calculated Weight Pounds	Continuous Welded	Electric Welded and Seamless	
												Grade A	Grade B
Reamed and Drifted Pipe†	1	1.70	1.68	.133	1.315	1.049	11½	2¾	1.576	.52	700	700	—
	1¼	2.30	2.27	.140	1.660	1.380	11½	2¾	1.900	.60	1000	1000	—
	1½	2.75	2.72	.145	1.900	1.610	11½	2¾	2.200	.84	1000	1000	—
	2	3.75	3.65	.154	2.375	2.067	11½	3¾	2.750	1.58	1000	1000	—
	2	4.00	3.94	.167	2.375	2.041	11½	3¾	2.750	1.58	1000	1000	—
	2½	5.90	5.79	.203	2.875	2.469	8	3½	3.250	2.32	1000	1000	—
	3	7.70	7.58	.216	3.500	3.068	8	4¼	4.000	3.80	1000	1000	—
	3½	9.25	9.11	.226	4.000	3.548	8	4¼	4.625	5.53	1200	1200	—
	4	11.00	10.79	.237	4.500	4.026	8	4¼	5.200	7.14	1200	1200	—
	5	15.00	14.62	.258	5.563	5.047	8	4½	6.296	9.57	—	1200	—
	6	19.45	18.97	.280	6.625	6.065	8	4½	7.390	12.32	—	1200	—
	8	29.35	28.55	.322	8.625	7.981	8	5¼	9.625	22.35	—	1300	—
10	41.85	40.48	.365	10.750	10.020	8	5¼	11.750	30.61	—	1200	—	
12	51.15	49.56	.375	12.750	12.000	8	5¼	14.000	47.96	—	1100	—	

* Taper of thread is 3/8 in. per ft. on diameter for all sizes.

† (a) Taper of threads is 3/4 in. per ft. on diameter for all sizes.

(b) Drift pin dimensions:

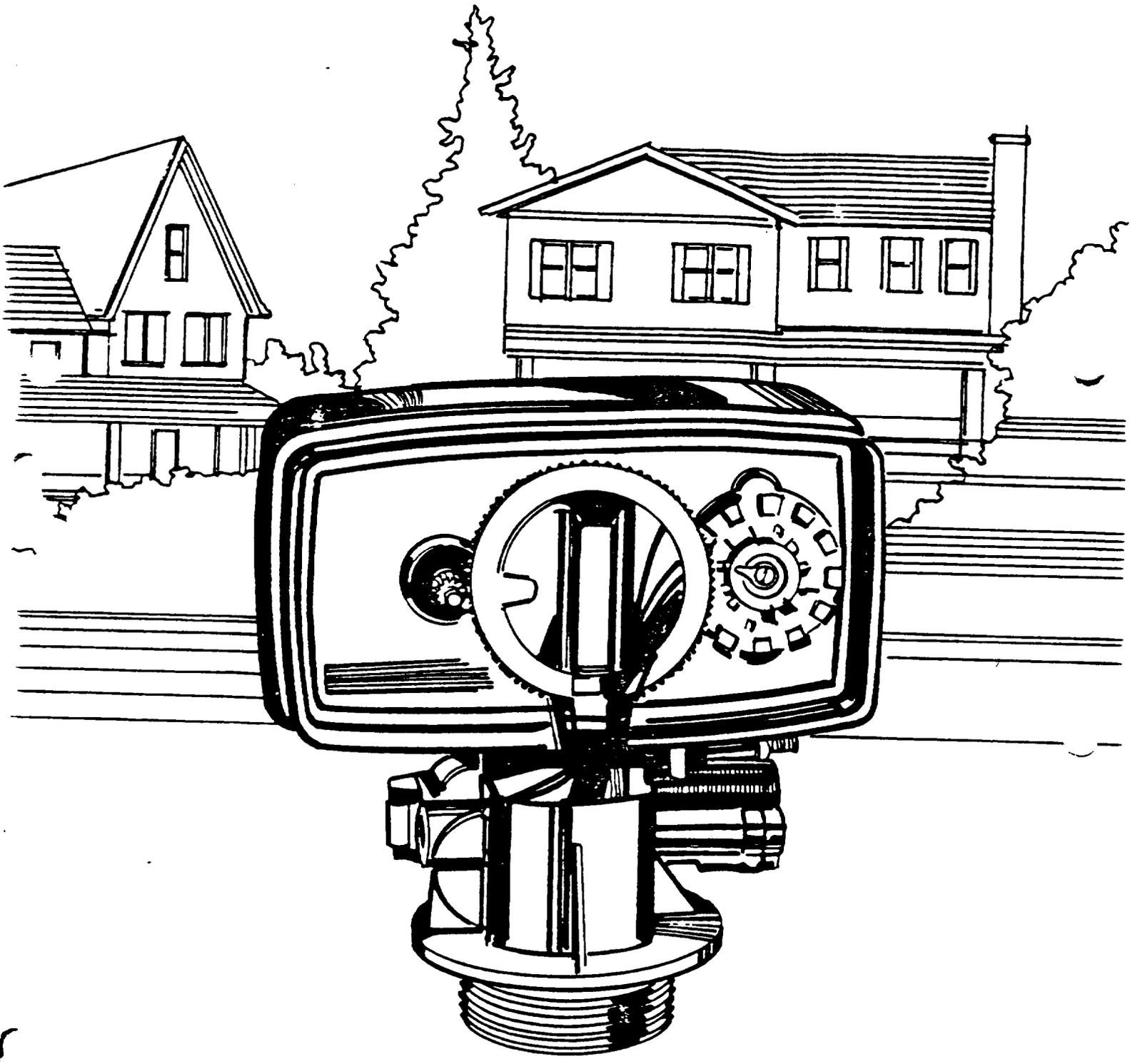
Nominal Size Inches	Length of Pin Inches	Diameter of Pin, inches	Smallest Diameter of Pipe, inches
To 6, incl.	12	5/8	
8, 10, 12	12	3/4	

SPECIFICATION	A53 Sizes 1/2"–26" Std., XS and XXS, A.N.S.I. Schedules 10 through 160—Other sizes subject to inquiry.																																			
Scope	Covers seamless and welded BLACK and hot-dipped galvanized nominal (average) wall pipe for coiling, bending, flanging and other special purposes and is suitable for welding. CONTINUOUS WELD pipe is not intended for flanging (rail back operation to form flange using pipe wall). Purpose for which pipe is intended should be stated on order.																																			
Kinds of Steel Permitted For Pipe Material	Open-hearth Basic-oxygen Electric-furnace																																			
Hot-Dipped Galvanizing	Sets standards for coating of pipe with zinc inside and outside by the hot-dipped process. Weight of coating must not average less than 1.8 oz. per square foot and not less than 1.6 oz. per square foot.																																			
Permissible Variations in Wall Thickness	Same as A120.																																			
Chemical Requirements	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="5" style="text-align: center;">Type S (Seamless pipe) & Type E (electric weld)</td> </tr> <tr> <td style="text-align: left;">Open-Hearth, Electric-Furnace or Basic Oxygen</td> <td style="text-align: center;">C</td> <td style="text-align: center;">Mn</td> <td style="text-align: center;">P</td> <td style="text-align: center;">S</td> </tr> <tr> <td style="text-align: left;">Grade A</td> <td style="text-align: center;">0.25</td> <td style="text-align: center;">0.35</td> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> </tr> <tr> <td style="text-align: left;">Grade B</td> <td style="text-align: center;">0.30</td> <td style="text-align: center;">1.20</td> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> </tr> <tr> <td colspan="5" style="text-align: center;">Type F (furnace-welded pipe)</td> </tr> <tr> <td style="text-align: left;">Open-Hearth, Electric-Furnace or Basic Oxygen</td> <td style="text-align: center;">C</td> <td style="text-align: center;">Mn</td> <td style="text-align: center;">P</td> <td style="text-align: center;">S</td> </tr> <tr> <td></td> <td style="text-align: center;">—</td> <td style="text-align: center;">—</td> <td style="text-align: center;">0.08</td> <td style="text-align: center;">0.06</td> </tr> </table>	Type S (Seamless pipe) & Type E (electric weld)					Open-Hearth, Electric-Furnace or Basic Oxygen	C	Mn	P	S	Grade A	0.25	0.35	0.05	0.06	Grade B	0.30	1.20	0.05	0.06	Type F (furnace-welded pipe)					Open-Hearth, Electric-Furnace or Basic Oxygen	C	Mn	P	S		—	—	0.08	0.06
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Tensile Requirements	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Continuous Weld (furnace-welded)</td> <td style="text-align: center;">Acid-Bessemer</td> <td style="text-align: center;">O.N., Basic Oxygen or Elec. Furn.</td> </tr> <tr> <td style="text-align: left;">Tensile Strength min., psi</td> <td style="text-align: center;">50,000</td> <td style="text-align: center;">45,000</td> </tr> <tr> <td style="text-align: left;">Yield Point min., psi</td> <td style="text-align: center;">30,000</td> <td style="text-align: center;">25,000</td> </tr> <tr> <td colspan="3" style="text-align: center;">Seamless or Electric-Weld</td> </tr> <tr> <td style="text-align: left;">Tensile Strength min., psi</td> <td style="text-align: center;">Grade A 48,000</td> <td style="text-align: center;">Grade B 60,000</td> </tr> <tr> <td style="text-align: left;">Yield Point min., psi</td> <td style="text-align: center;">30,000</td> <td style="text-align: center;">35,000</td> </tr> </table>	Continuous Weld (furnace-welded)	Acid-Bessemer	O.N., Basic Oxygen or Elec. Furn.	Tensile Strength min., psi	50,000	45,000	Yield Point min., psi	30,000	25,000	Seamless or Electric-Weld			Tensile Strength min., psi	Grade A 48,000	Grade B 60,000	Yield Point min., psi	30,000	35,000																	
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Tensile Strength min., psi	Grade A 48,000	Grade B 60,000																																		
Yield Point min., psi	30,000	35,000																																		
Hydrostatic Testing	Hydrostatic inspection test pressures for plain end and threaded and coupled pipe are specified. Hydrostatic pressure shall be maintained for not less than 5 seconds for all sizes of seamless and electric-weld pipe.																																			
Permissible Variations in Weights per Foot	For Extra Strong and lighter wall thicknesses Plus or Minus 5% For heavier than extra strong wall thicknesses Plus or Minus 10%																																			
Permissible Variations in Outside Diameter	Same as A120.																																			
Mechanical Tests Specified	Tensile Test—Transverse required on EW sizes 8 3/4" and larger. Bending Test (Cold) Std. and XS-2" and under. XXS-1 1/4" and under. <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">Degree of Bend</td> <td style="text-align: center;">Diameter of Mandrel</td> </tr> <tr> <td style="text-align: left;">For Normal A53 Uses</td> <td style="text-align: center;">90</td> <td style="text-align: center;">12 x nom. dia. of pipe</td> </tr> <tr> <td style="text-align: left;">For Close Coiling</td> <td style="text-align: center;">180</td> <td style="text-align: center;">8 x nom. dia. of pipe</td> </tr> </table> Flattening Test 2 1/2" and larger Std. and XS. (Not required for XXS pipe).		Degree of Bend	Diameter of Mandrel	For Normal A53 Uses	90	12 x nom. dia. of pipe	For Close Coiling	180	8 x nom. dia. of pipe																										
	Degree of Bend	Diameter of Mandrel																																		
For Normal A53 Uses	90	12 x nom. dia. of pipe																																		
For Close Coiling	180	8 x nom. dia. of pipe																																		
Number of Tests Required	Seamless and Continuous Weld—Bending, flattening tensile on one length of pipe from each lot of 500 lengths or less of a size. Electric-Weld—Bending and tensile on one length of pipe from each lot of 500 lengths or less of a size. Electric-Weld—Flattening on both crop ends of each length. (Coil, in case of multiple lengths.)																																			
Lengths	Same as A120. (Lengths longer than single random, heavier wall than XS subject to negotiation.)																																			
Required Markings on Each Length (On Tags attached to each Bundle in case of Bundled Pipe)	Rolled, Stamped or Stenciled Name or brand of manufacturer. Kind of pipe, that is, furnace-continuous weld, EW-A, seamless B, etc. XS—for extra strong. XXS—for double extra strong. ASTM A53. Also necessary to indicate when electric-furnace, Length of pipe. or basic-oxygen steel is used.																																			
General Information	Couplings—Applied handling tight. Couplings, 2" and smaller straight tapped, other sizes taper tapped. Line pipe couplings may be specified. Thread Protection—Same as specified under A120. End Finish (unless otherwise specified) Std. or XS, or wall thicknesses less than 0.500 in. (excluding XXS): Plain end beveled. EW pipe may be furnished cold expanded. All XXS and wall thicknesses over 0.500 in.: Plain end square cut.																																			

SECTION M - [REDACTED] WATER SOFTENER DATA
AND JET PUMP DATA

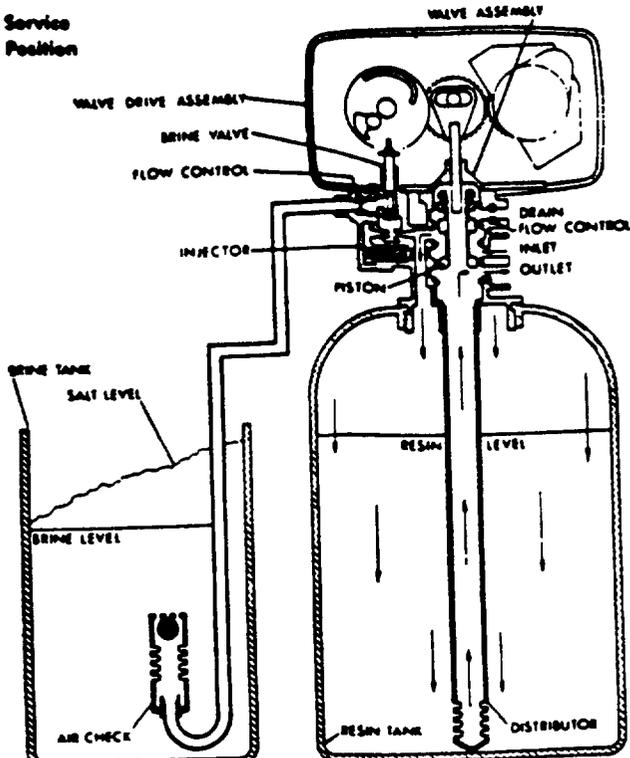
Installed Fleck 5600 30,000 G. Water Conditioner Service Manual

ON 11/23/94



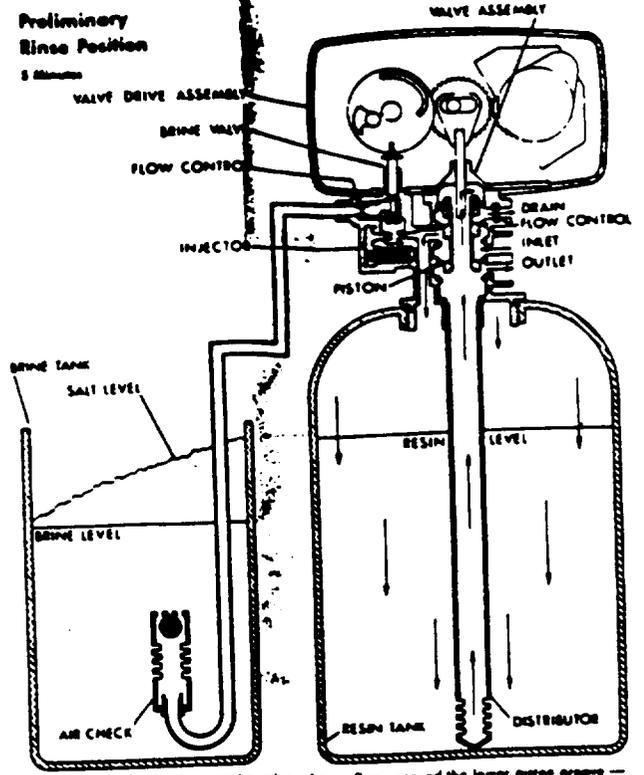
water conditioner flow diagrams

1 Service Position



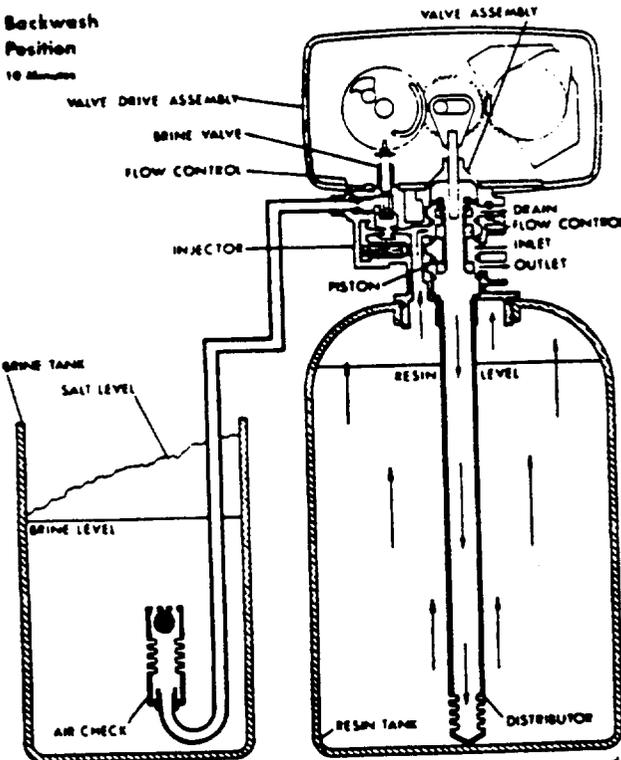
Hard water enters the unit at the valve inlet — flows around the lower piston grooves — thru the passage to the top of tank — down thru the resin and enters the distributor as conditioned water. The conditioned water flows up thru the center tube to the valve outlet.

2 Preliminary Rinse Position



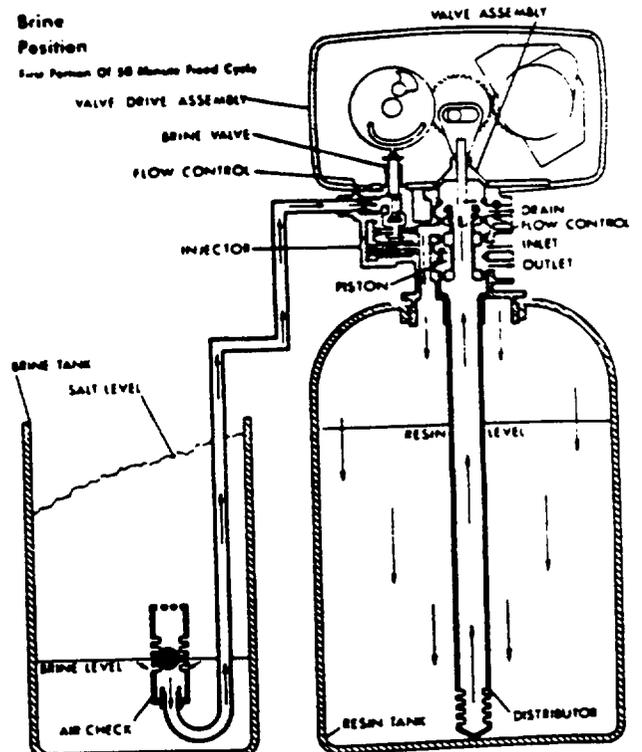
Hard water enters the unit at the valve inlet — flows around the lower piston grooves — down thru the top of tank passage — downward thru the resin — up the distributor tube — thru the center hole in the piston — over the top edge of the piston and out the drain line.

3 Backwash Position



Hard water enters the unit at the valve inlet — flows around the lower piston grooves and lower piston land — down thru the center tube and out the distributor — up thru the resin — thru the top of tank passage — around the upper piston grooves and out the drain line.

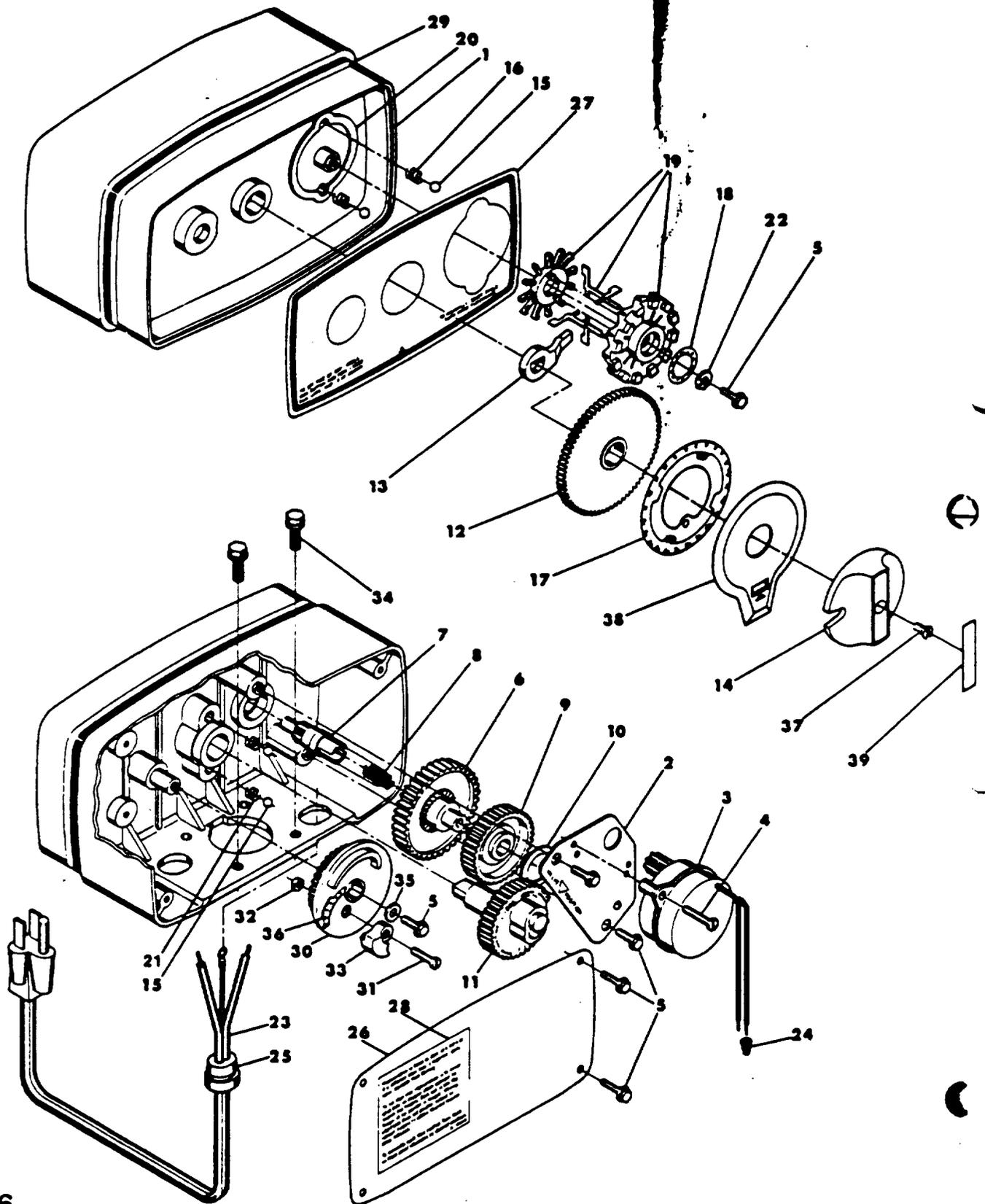
4 Brine Position



Hard water enters the unit at the valve inlet — flows around the lower piston grooves — thru the injector nozzle and orifice to draw brine from the brine tank. The brine flows down thru the resin — into the distributor — up thru the center tube — thru the center hole in the piston and out the drain line.

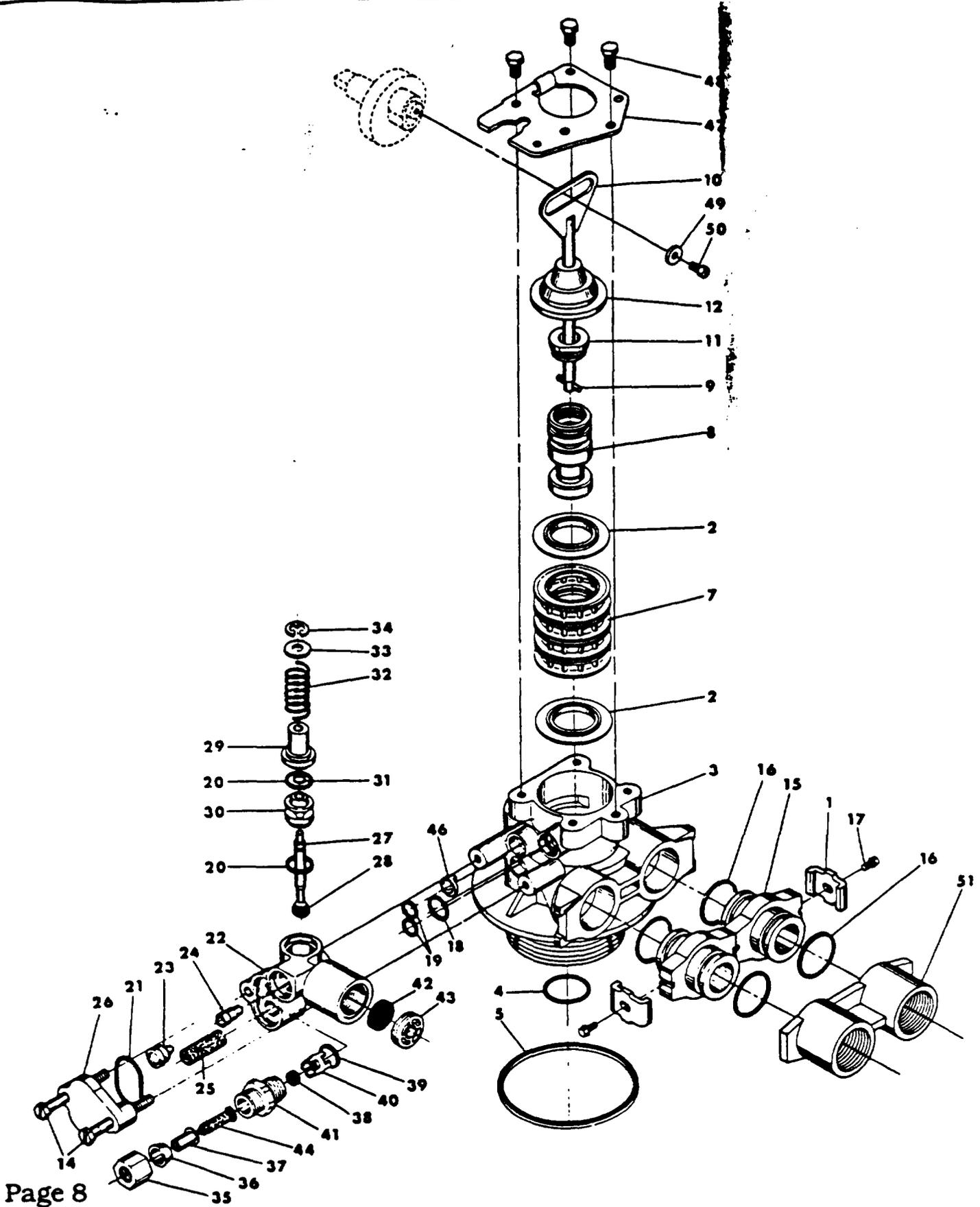
control valve drive assembly

(see opposite page for parts list)



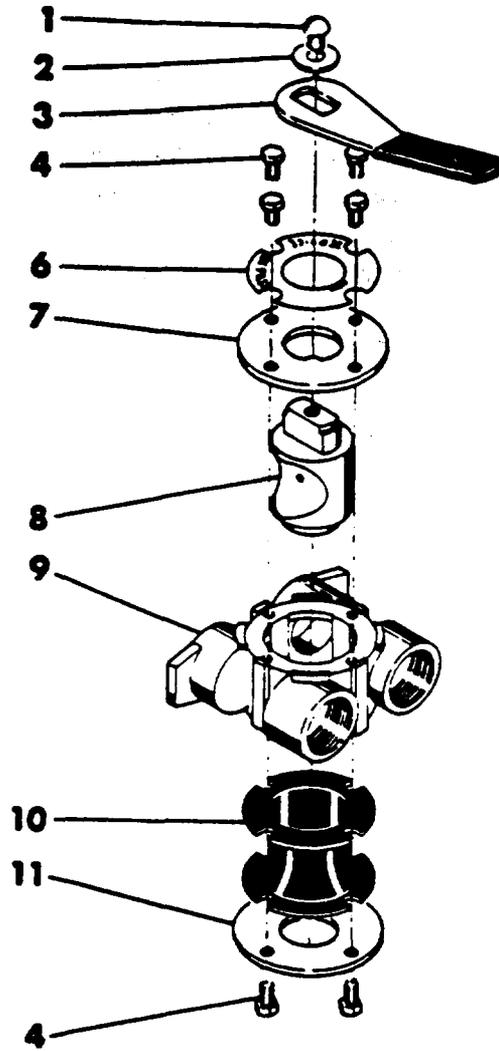
control valve assembly

(see opposite page for parts list)



by-pass valve assembly

(see opposite page for parts list)



A. TO REPLACE TIME BRINE VALVE, INJECTORS, AND SCREEN

1. Unplug electrical cord from outlet ,
 2. Turn off water supply to conditioner.
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves of the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
 3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
 4. Disconnect brine tube and drain line connections at the injector body.
 5. Remove the two injector body mounting screws. The injector and brine module can now be removed from the control valve. Remove and discard valve body "O" rings.
- 6A. To replace brine valve.
1. Pull brine valve from injector body, also remove & discard "O" ring at bottom of brine valve hole.
 2. Apply silicone lubricant to new "O" ring and reinstall at bottom of brine valve hole.
 3. Apply silicone lubricant to "O" ring on new valve assembly and press into brine valve hole, shoulder on bushing should be flush with injector body.
- 6B. To replace injectors and screen.
1. Remove injector cap and screen, discard "O" ring. Unscrew injector nozzle and throat from injector body.
 2. Screw in new injector throat and nozzle, be sure they are seated tightly. Install a new screen.
 3. Apply silicone lubricant to new "O" ring and install around oval extension on injector cap.
 7. Apply silicone lubricant to three new "O" rings and install on protrusions on injector body.
 8. Insert screws thru injector cap and injector. Place this assembly thru hole in timer housing and into mating holes in the valve body. Tighten screws.
 9. Reconnect brine tube and drain line.
 10. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.

11. Check for leaks at all seal areas. Check drain seal with the control in the backwash position.
12. Plug electrical cord into outlet.
13. Set time of day and cycle the control valve manually to assure proper function. Make sure the control valve is returned to the service position.
14. Make sure there is enough brine in the brine tank.
15. Start regeneration cycle manually if water is hard.

B. TO REPLACE TIMER

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner.
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Remove the control valve back cover.
5. Remove screw and washer at drive yoke. Remove timer mounting screws. The entire timer assembly will now lift off easily. (Slide forward with slight rotational movement).
6. Put new timer on top of valve. Be sure drive pin on main gear engages slot in drive yoke (rotate control knob if necessary).
7. Replace timer mounting screws. Replace screw and washer at drive yoke.
8. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
9. Plug electrical cord into outlet.
10. Set time of day, days of regeneration, and salt usage. Cycle the control valve manually to assure proper function. Make sure the control valve is returned to the service position.
11. Replace the control valve back cover.
12. Make sure there is enough brine in the brine tank.
13. Start regeneration cycle manually if water is hard.

service instructions

PROBLEM	CAUSE	CORRECTION
1. Softener Fails To Regenerate.	<p>A. Electrical Service To Unit Has Been Interrupted.</p> <p>B. Timer is Defective.</p> <p>C. Power Failure.</p>	<p>A. Assure Permanent Electrical Service (Check Fuse, Plug, Pull Chain or Switch).</p> <p>Replace Timer.</p> <p>C. Reset Time of Day.</p>
2. Softener Delivers Hard Water.	<p>A. By-Pass Valve is Open.</p> <p>B. No Salt in Brine Tank.</p> <p>C. Injectors Or Screen Plugged.</p> <p>D. Excessive Water Usage.</p> <p>E. Insufficient Water Flowing Into Brine Tank.</p> <p>F. Hot Water Tank Hardness.</p> <p>G. Leak At Distributor Tube.</p> <p>H. Internal Valve Leak.</p>	<p>A. Close By-Pass Valve</p> <p>B. Add Salt to Brine Tank and Maintain Salt Level Above Water Level.</p> <p>C. Replace Injectors and Screen.</p> <p>D. Increase Frequency of Regeneration and/or Salt Setting (See Timer Instructions). Make Sure That There Is Not A Leaking Valve in The Toilet Bowl or Sinks.</p> <p>E. Check Brine Tank Fill Time And Clean Brine Line Flow Control If Plugged.</p> <p>F. Repeated Flushings of the Hot Water Tank is Required.</p> <p>G. Make Sure Distributor Tube Is Not Cracked. Check 'O' Ring And Tube Pilot.</p> <p>H. Replace Seals And Spacers And/Or Piston.</p>
3. Unit Uses Too Much Salt.	<p>A. Improper Salt Setting.</p> <p>B. Excessive Water In Brine Tank.</p>	<p>A. Check Salt Usage And Salt Setting.</p> <p>B. See Problem No. 7.</p>
4. Loss of Water Pressure.	<p>A. Iron Buildup In Line To Water Conditioner.</p> <p>B. Iron Buildup In Water Conditioner.</p>	<p>A. Clean Line To Water Conditioner.</p> <p>B. Clean Control And Add Resin Cleaner To Resin Bed. Increase Frequency of Regeneration.</p>

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**AERMOTOR
WATER SYSTEMS
LIMITED WARRANTY**

This warranty does not apply to SE Submersible pumps shipped outside the United States.

Your new Aermotor Pump is warranted to be free from mechanical defects in material and workmanship and to perform as claimed in descriptive literature. This warranty does NOT cover damage to controls, pipe, and accessories nor labor involved in repairing or replacing the pump. It also does NOT cover damage caused by misapplication, faulty installation or abuse of the product.

Any Aermotor Pump that becomes inoperative within the warranty period, due to defects in materials or workmanship, shall be repaired or replaced at Aermotor's option free of charge. The inoperative pump must be shipped, freight prepaid, to the nearest Aermotor branch within thirty (30) days from date of failure.

WARRANTY PERIOD — AERMOTOR 4" SUBMERSIBLES

The warranty period for all Aermotor 4" Submersible Pump Ends is twenty-four (24) months from date of installation or thirty-six (36) months from date of manufacture, whichever occurs first.

AERMOTOR JETS, CENTRIFUGALS AND 6" SUBMERSIBLES

The warranty period for Aermotor Jets, Centrifugals and 6" Submersibles is twelve (12) months from date of installation or twenty-four (24) months from date of manufacture, whichever occurs first.

MOTORS AND CONTROLS

These are warranted by Aermotor coextensive with the original manufacturer's warranty that they will be free from electrical and mechanical defects for a period of twelve (12) months from date of original installation or twenty-four (24) months from date of manufacture, whichever occurs first. Any motor or control that becomes inoperative due to an electrical or mechanical defect shall be repaired or replaced free of charge and returned freight prepaid. The defective motor or control must be shipped to an Aermotor branch within thirty (30) days from date of failure, freight charges prepaid.

IN NO EVENT SHALL AERMOTOR BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES, IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.

Aermotor reserves the absolute right to make changes in specifications and materials and to repair or replace the Aermotor Pump with products of comparable quality and performance.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Contact Aermotor, Commerce & Exchange Streets, Conway, AR 72032, if you have any questions about the coverage of this warranty or service under this warranty.

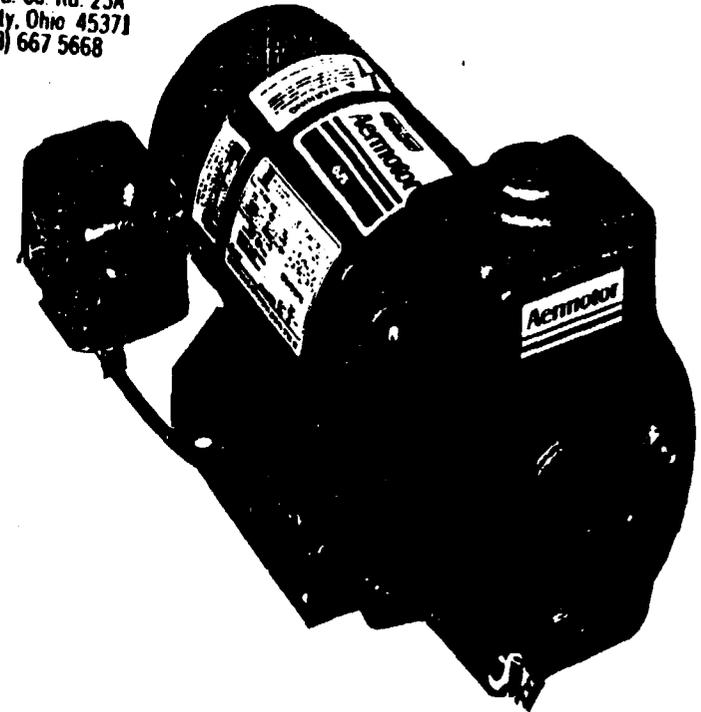
Aermotor

P O Box 1364
Commerce & Exchange
Conway, AR 72032
501-329-9811

3. Co. Rd 25A Tro, Miss
Jet Pump

INSTALLATION & OPERATION

MIKES PLUMBING
7140 S. Co. Rd. 25A
Tipp City, Ohio 45371
(513) 667 5668



**Aermotor
Jet Pumps**

**OJS • OJ/OJ-V
DMJ/DMJ-V**

OWNER'S RECORD

Pump Model _____
 HP _____ Phase _____
 Date Codes: Pump _____ Motor _____
 Date of Installation _____
 Suction Lift Ft. _____ Ejector _____
 Owner _____
 Installer _____

Please read thoroughly these instructions BEFORE attempting to install your new jet pump. It can not only save you time but also enable you to get the maximum performance from your water system.

HOW TO INSTALL CONVERTIBLE JET PUMPS

General Information

Convertible jet pumps install on shallow or deep wells, some vertically or horizontally, offset or over the well, 2-pipe or packer.

There are models in this series range in size from 1/3 H.P. through 1 H.P. A "V" following the Model Number indicates a vertical configuration, available on some Models.

Model	Horsepower	Suction	Pressure	Discharge
OJ-33, OJS-33	1/3	1 1/4"	1"	1"
OJ-50, OJS-50	1/2	1 1/4"	1"	1"
OJ-75, OJS-75	3/4	1 1/4"	1"	1"
OJ-100, OJS-100	1	1 1/4"	1"	1"

Model	Horsepower	Suction	Discharge
DMC-2-75	3/4	1 1/4"	1"
DMC-2-100	1	1 1/4"	1"
DMC-2-150	1 1/2	1 1/4"	1"
DMC-2-200	2	1 1/4"	1"
DMC-2-SW-75	3/4	1 1/4"	1"
DMC-2-SW-100	1	1 1/4"	1"
DMC-2-SW-150	1 1/2	1 1/4"	1"
DMC-2-SW-200	2	1 1/4"	1"

Model	Horsepower	Suction	Pressure	Discharge
DMJ-2-50	1/2	1 1/4"	1"	1"
DMJ-2-75	3/4	1 1/4"	1"	1"
DMJ-2-100	1	1 1/4"	1"	1"

Keep the static suction lift (vertical distance between the center line of the pump and the water level) to a minimum.

Mount the pump on a solid, level foundation which provides a rigid and vibration-free support. It should be located where the unit is readily accessible for service and maintenance.

Examine the unit for any visible shipping damage. Immediately report any damage to the carrier.

All pipe used should be clean and free from rust and scale.

Use pipe joint compound on all joints to avoid leaks.

This manual should be kept near the pump installation for ready reference when servicing.

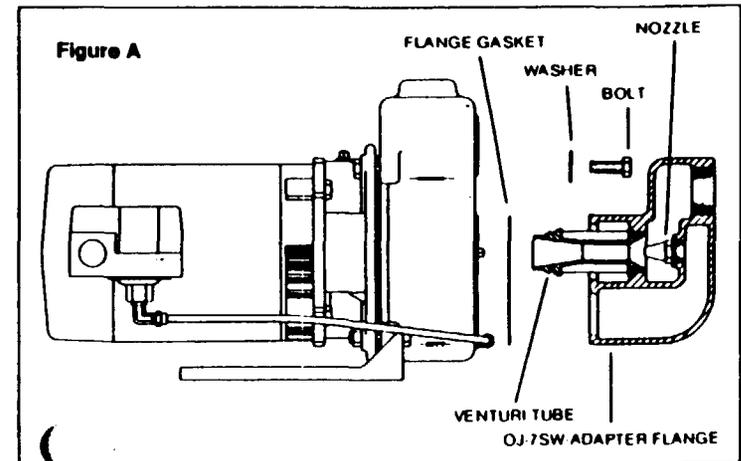
All correspondence, relating to your particular pump, should include the complete Model Number. Order any required repair parts by Part Description and Part Number.

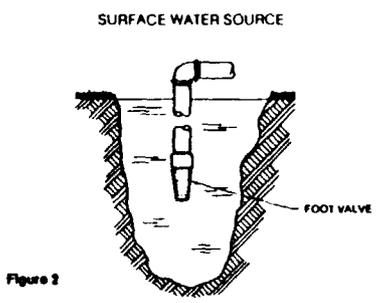
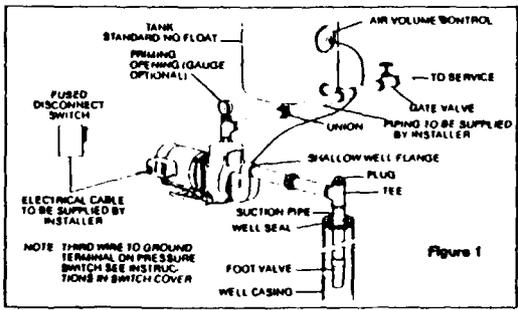
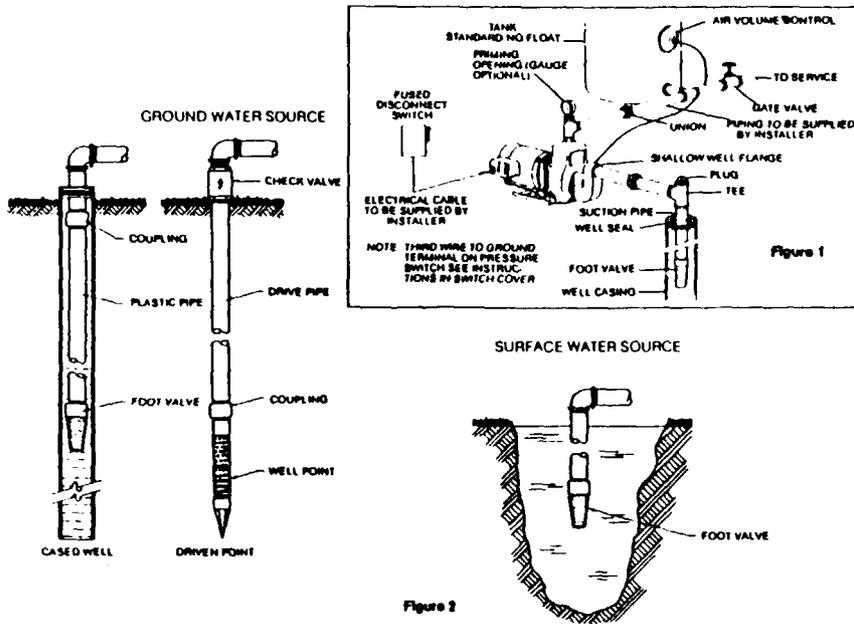
SHALLOW WELL INSTALLATION

For Shallow Well Application, it requires the Basic Pump Unit of Horsepower Selected PLUS Shallow Well Package for Corresponding H.P. Size. Be certain that you are using the correct Venturi Tube and Nozzle Combination based on Pump Horsepower.

To Install The Shallow Well Adapter

1. Screw the Nozzle into the Adapter Flange and tighten. This is usually done by the factory to save you time.
2. Screw the Venturi Tube into Adapter Flange and tighten. (Be sure you have the correct Venturi Tube size for the H.P. size of pump being installed).
3. With Gasket in place bolt SW Adapter Assembly to pump case flange. Tighten bolts evenly.





Suction Piping

SINGLE PIPE SHALLOW WELL INSTALLATION

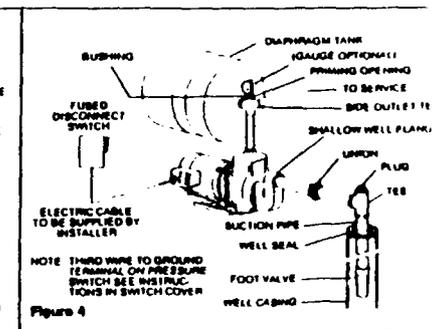
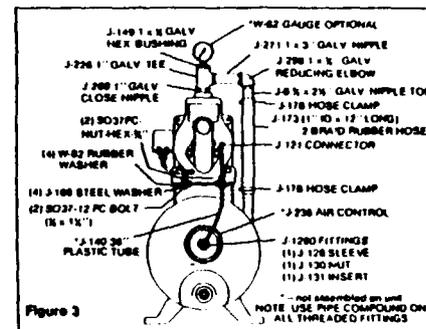
1. Use good pipe joint compound on all male pipe threads to prevent air leaks.
2. Use clean pipe. Pipe should have a gradual slope upward to the pump suction.
3. Suction is limited to a vertical lift of 20 to 25 feet. A long suction line results in additional friction losses, which reduce the effective suction lift of the pump. Do not use smaller than 1 1/4 inch suction pipe. On long horizontal suction line (10 to 50 feet), use 1 1/2 inch pipe to reduce friction loss.
4. Install a foot valve and strainer on the end of the suction pipe or a check valve at the pump. (Figure 1.) A suction strainer with 1/8" mesh on the end of the suction pipe should be installed to prevent foreign matter from entering the system. Connect foot valve to end of drop pipe and lower drop pipe into the well. Make certain foot valve is at least 12 inches from bottom of well, but that it will be submerged below drawdown water level when pump is operating. For driven wells, install either a spring-dog check valve just above the well point or a horizontal check valve near the well.
5. Install well seal at top of well casing. This seal will prevent dirt or other foreign matter from contaminating the well. (See Figure 1.)
6. Attach a tee to the top of the vertical suction pipe and plug the top opening of the tee with a pipe plug. To reduce priming time later, fill suction pipe with clean water before plugging top of tee.
7. Slope all horizontal pipe continuously upward from the well pipe to the pump (approximately 1 inch for each 10 feet). Avoid dips or peaks, as they may create air pockets and make the pump difficult to prime.

8. Connect the suction tapping of the pump to the horizontal pipe. Use a union or compression type of coupling for final connection for ease of installation and service.
 9. Install an air tight union in the suction line close to the pump. (Figure 1.)
 10. Make certain that the unions and all fittings and joints in the suction line are air tight.
 11. A foot valve, or check valve located as near as possible to the water source is necessary and will reduce the priming time to an absolute minimum (Figure 2).
- A CHECK VALVE OR FOOT VALVE IS NOT FURNISHED WITH YOUR PUMP

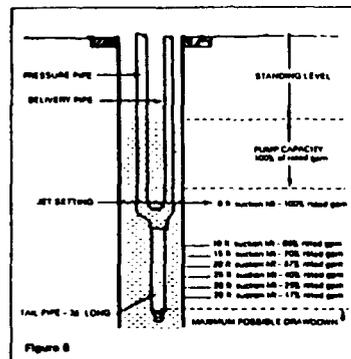
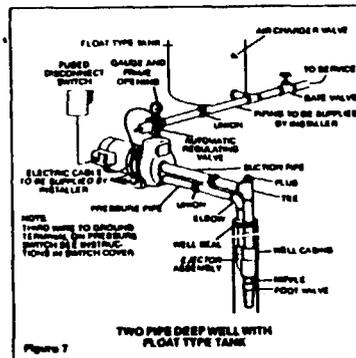
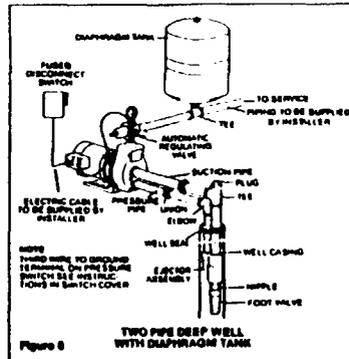
Discharge Piping

SHALLOW WELL INSTALLATION

1. Install a nipple and tee in the top of the pump. The top opening is used for initial priming. (Figure 1.)
2. It is advisable to increase the size of the discharge pipe if any appreciable run of pipe is required.
3. Provision for draining discharge lines is also recommended to prevent freezing.
4. Connect the priming tee to the pressure tank. Use a union or compression type coupling for ease of installation and service. Standard OJ-SW-H12/30T1 packages contain all fittings needed to connect pump to a horizontal mounted tank installation (as shown in Fig. 3.) For mounting diaphragm tank on pump (Fig. 4.) standard package OJ-SW-X101,2,3 contains the necessary fittings.
5. Install air volume control (OJ-ACP-100 package) according to instruction furnished with control. Tanks equipped with floating discs or other air separation devices do not require an air volume control. See separate section for information on how to precharge a tank with float separator in tank.



2. Be certain to place seal collar and seal ring (Figure 5) on well casing BEFORE lowering jet assembly and BEFORE beginning any installation whatsoever.
3. Attach foot valve to Packer ejector. Attach suction piping to ejector assembly and lower to desired depth in well.
4. Screw casing head onto suction pipe.
5. Use three bolts to connect seal collar on well casing to casing head. Tighten seal collar.
6. Proceed with balance of suction line piping as described in the section "Suction Piping — Single Pipe."



Suction Piping — Deep Well Installation

2-PIPE

1. Select the proper ejector package including nozzle and venturi for pumping depth and horsepower of pump.
2. Make certain offset suction and pressure pipes both slope continuously upward from well toward pump. Use slip couplings and unions as desired for convenience in further servicing.
3. Install in well in manner described in the section "Suction Piping — Single Pipe." (Figures 6 and 7.)

NOTE: For a weak well or one with an excessive drawdown, use a tailpipe 35 feet long below the jet chamber and put the foot valve on the lower end. (Figure 8.)

With tailpipe, pump delivery remains at 100 percent of capacity down to the ejector level. If water level falls below that, flow decreases in proportion to drawdown as shown in Figure 8. When delivery equals well inflow, the water level remains constant until the pump shuts off.

Discharge Piping — Deep Well Installation

1. Install Regulating Valve, No DJ-210 in the discharge opening at the top of the pump case. (See Table for adjustment of Regulating Valve.)
2. After priming pump, connect system to pressure tank. Connect piping from the Automatic Regulating Valve to the pressure tank. Use a union of compression type coupling for ease of installation and service. The OJ-DW-H-12/30-TF package contains the fittings required to connect the pump to a horizontal mounted tank installation. (Figure 9.) For mounting a diaphragm type tank on the pump, use package OJ-DW-RX-TF. (Figure 6.)

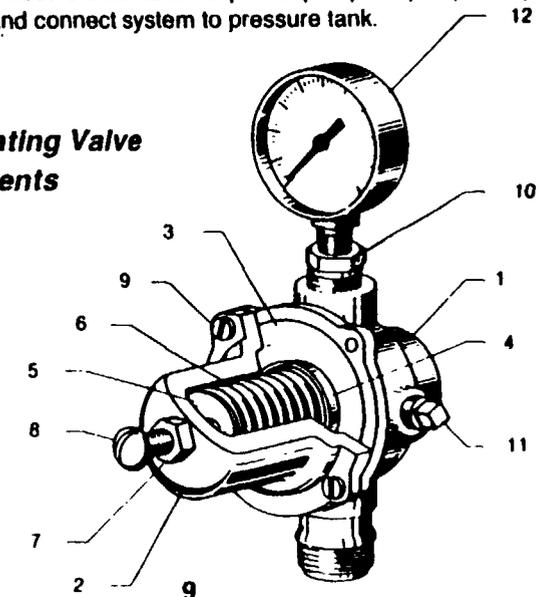
Tanks equipped with diaphragms or bladders or other air separation devices do not require an air volume control. If required, install air volume control (OJ-ACP-100 package) according to instructions furnished with the control. See information on how to precharge a tank with a separator in tank.

Starting the Pump

Remove pressure gauge or bushing from automatic regulating valve or priming tee. Use opening to fill pump with clean water until no more air bubbles appear. Replace pressure gauge or bushing.

Start pump at disconnect switch and allow it to pump open discharge to determine if well supply is adequate. Adjust regulating valve according to instructions, to get necessary back-pressure setting. If pump fails to deliver water within 2 to 3 minutes, pull disconnect switch and re-prime pump. If pump is operating satisfactorily, cut it off and connect system to pressure tank.

DJ-210 Regulating Valve — Components



DJ-210 Regulating Valve — Components

KEY NO.	DP NO.	DESCRIPTION
1	27419	Valve Body
2	27420	Spring Housing
3	27421	Diaphragm
4	27422	Spring Retainer
5	27423	Spring Washer
6	27424	Spring
7	27425	3/8" N.C. Hex Nylon Nut
8	27426	Rd. Hd. Brass Screw — 3/8" NC x 1 1/4"
9	27427	10-32 x 3/4" TapTite Pan Head Cad. Plated Steel Machine Screw
10	27533	Galvanized Bushing — 1/2" x 1/4"
11	27081	Square Head Pipe Plug — 1/4"
12	17345	Pressure Gauge

Precharging A Tank Not Factory Precharged.

Precharging increases the capacity and gallons per draw cycle, reduces the number of pump starts, increases pump life, and saves electricity.

1. Let system start and stop twice through 20 to 40 psi (or other start-stop) cycle. Stop system by shutting off at disconnect switch.
2. Drain tank down to zero pounds pressure and precharge the tank through the air valve using a compressor, air tank, or hand operated air pump. Pump air into tank until gauge reads 20 psi (or the start setting of the switch). Start pump system at the disconnect switch.

Trouble Shooting:

If motor will not run:

- a. Check fused disconnect switch for blown fuse or loose wire.
- b. Check power supply for correct voltage.
- c. Shut off Electrical supply at Disconnect Switch and check for loose connections.

If motor runs but does not pump water:

- a. Check to be sure that pump is primed.
- b. Check water level to be sure foot valve is submerged when pumping.
- c. If air valve control is used, check for proper operation. Faulty air control can cause pump to lose prime.

Adjustment of Automatic Regulating Valve

The automatic regulating valve, should be used on two pipe deep well or packer type installations, for maximum efficiency.

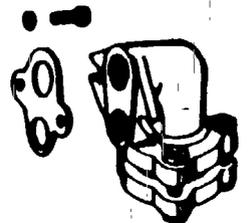
To adjust:

1. Turn nylon locknut (Key No. 7) counter clockwise toward screw head so adjusting screw is free for adjustment.
2. Close regulating valve by turning adjusting screw (Key No. 8) clockwise—then start pump. Make certain tank pressure is 20 psi or less. Keep faucets open or remove a plug from tank.
3. Gradually open regulating valve until pump becomes unsteady.
4. Close adjusting screw slowly until pump again is steady.
5. Lock regulating valve with nylon locknut, making certain adjusting screw does not turn while tightening locknut.



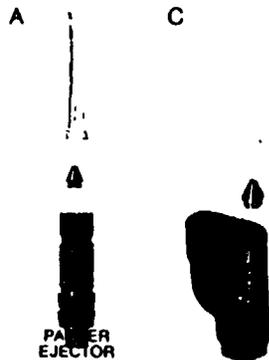
ADAPTERS AND EJECTORS

ADAPTERS FOR BASIC PUMP Vertical Pump Mounting — Close Coupled				
ADAPTER NO.	EDP NO.	WELL SIZE	TYPE OF INSTALLATION	PIPE SIZE SUCTION
DCJ-20A	66512	2"	Over the Well	1/4"
DCJ-25A	66513	2 1/2"	Over the Well	1/4"
DCJ-30A	66514	3"	Over the Well	1/2"



CASING HEAD ADAPTERS Off-Set Installation or Horizontal Pump — Close Coupled			
ADAPTER NO.	EDP NO.	WELL SIZE	HORIZONTAL TAPPING
VJ-72A	66054	2"	1/4" & 1"
VJ-725A	66053	2 1/2"	1/4" & 1"
VJ-73A	66055	3"	1/4"

EJECTOR PACKAGES						
Specify Pump Model, H.P., and Pumping Depth						
JET CHAMBER NUMBER	EDP NO.	WELL DIAMETER	PIPE SIZE		TYPE	
			SUCTION	PRESSURE		
A	JC-20A**	66532	2"	1 1/4"		Brass
	JC-250A	66626	2 1/2"	1 1/4"		Brass
	JC-30A	66531	3"	1 1/2"		Brass
	JCI-20A**	66628	2"	1 1/4"		Cast Iron
C	AJ-37FP	66118	4"	1 1/4"	1"	Cast Iron
	AJ-37BFP	66119	4"	1 1/4"	1"	Brass



SERVICE GUIDE

A — PUMP WON'T START OR RUN

CAUSE OF TROUBLE	REMEDY
1. Blown fuse.	Check to see if fuse is OK. If blown, replace with fuse of proper size.
2. Low line voltage.	Use voltmeter to check pressure switch or terminals nearest pump. If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company.
3. Loose, broken, or incorrect wiring	Check wiring circuit against diagram. See that all connections are tight and that no short circuits exist because of worn insulation, crossed wire, etc. Rewire any incorrect circuits. Tighten connections, replace defective wires.
4. Defective motor.	Check to see that switch is closed. Repair or take to motor service station.
5. Defective pressure switch.	Check switch setting. Examine switch contacts for dirt or excessive wear. Adjust switch settings. Clean contacts with emery cloth if dirty.
6. Tubing to pressure switch plugged.	Remove tubing and blow through it. Clean or replace if plugged.
7. Impeller or seal.	Turn off power, then use screwdriver to try to turn impeller or motor. If impeller won't turn, remove housing and locate source of binding.
8. Defective start capacitor.	Use an ohmmeter to check resistance across capacitor. Needle should jump when contact is made. No movement means an open capacitor; no resistance means capacitor is shorted. Replace capacitor or take motor to service station.
9. Motor shorted out.	If fuse blows when pump is started (and external wiring is OK) motor is shorted. Replace motor.

B — MOTOR OVERHEATS AND OVERLOAD TRIPS OUT

CAUSE OF TROUBLE	REMEDY
1. Incorrect line voltage.	Use voltmeter to check at pressure switch or terminals nearest pump. If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company.
2. Motor wired incorrectly.	Check motor wiring diagram. Reconnect proper voltage as per wiring diagram.

SERVICE GUIDE

B Continued

CAUSE OF TROUBLE	REMEDY
3. Inadequate ventilation.	Check air temperature where pump is located. If over 100°F., overload may be tripping on external heat. Provide adequate ventilation or move pump.
4. Prolonged low pressure delivery.	Continuous operation at very low pressure places heavy overload on pump. This can cause overload protection to trip. Install globe valve on discharge line and throttle to reduce flow and to increase pressure.

C — PUMP STARTS AND STOPS TOO OFTEN

CAUSE OF TROUBLE	REMEDY
1. Leak in pressure tank.	Apply soapy water to entire surface above water line. If bubbles appear, air is leaking from tank. Repair leaks or replace tank.
2. Defective air volume control.	This will lead to a waterlogged tank. Make sure control is operating properly. If not, remove and examine for plugging. Clean or replace defective control.
3. Faulty pressure switch	Check switch setting. Examine switch contacts for dirt or excessive wear. Adjust switch settings. Clean contacts with emery cloth if dirty.
4. Leak on discharge side of system.	Make sure all fixtures in plumbing system are shut off. Then check all units (especially ballcocks) for leaks. Listen for noise of water running. Repair leaks as necessary.
5. Leak on suction side of system.	On shallow well units, install pressure gauge on suction side. On deep well systems, attach a pressure gauge to the pump. Close the discharge line valve. Then, using a bicycle pump or air compressor, apply about 30 psi pressure to the system. If the system will not hold this pressure when the compressor is shut off, there is a leak on the suction side. Make sure above ground connections are tight. Then repeat test. If necessary, pull piping and repair tank.
6. Leak in foot valve	Pull piping and examine foot valve. Repair or replace defective valve.

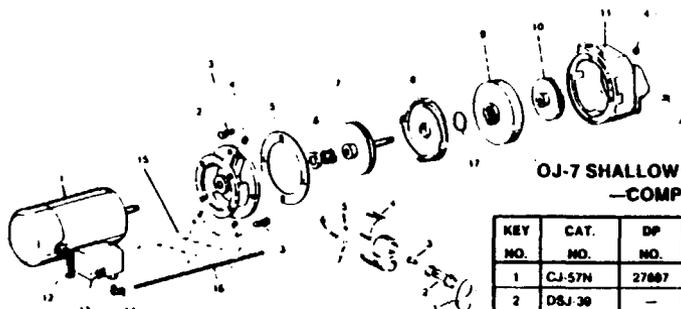
SERVICE GUIDE

D — PUMP WON'T SHUT OFF

CAUSE OF TROUBLE	REMEDY
1. Wrong pressure switch setting or setting "drift"	Lower switch setting. If pump shuts off, this was the trouble. Adjust switch to proper setting.
2. Defective pressure switch	Arcing may have caused switch contacts to "weld" together in closed position. Examine points and other parts of switch for defects. Replace switch if defective.
3. Tubing to pressure switch plugged	Remove tubing and blow through it. Clean or replace if plugged.
4. Loss of prime	When no water is delivered, check prime of pump and well piping. Reprime if necessary.
5. Low well level	Check well depth against pump performance table to make sure pump and ejector are properly sized. If undersized, replace pump or ejector.
6. Plugged ejector	Remove ejector and inspect. Clean and reinstall if dry.

E — PUMP OPERATES BUT DELIVERS LITTLE OR NO WATER

CAUSE OF TROUBLE	REMEDY
1. Low line voltage.	Use voltmeter to check at pressure switch or terminals nearest pump. If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company.
2. System Incompletely primed.	When no water is delivered, check prime of pump and well piping. Reprime if necessary.
3. Air lock in suction line	Check horizontal piping between well and pump. If it does not pitch upward from well to pump, an air lock may form. Rearrange piping to eliminate air lock.
4. Undersized piping	If system delivery is low, the discharge piping and/or plumbing lines may be undersized. Refigure friction loss. Replace undersized piping or install pump with higher capacity.
5. Leak in air volume control or tubing	Disconnect air volume control tubing at pump and plug hole. If capacity increases, a leak exists in the tubing of control. Tighten all fittings and replace control if necessary.



OJ-7 SHALLOW WELL ADAPTER
—COMPONENTS

KEY NO.	CAT. NO.	DP NO.	DESCRIPTION
1	CJ-57N	27887	Gasket
2	DSJ-38	—	(See Pump Repair Parts)
3	OJ-8	—	(See Pump Repair Parts)
4	OJ-7	27887	Shallow Well Adapter
5	E025C	27081	Pipe Plug 1/2" Plated
6	S037-12PC	16698	1/2" x 1 1/4" Hex Bolt — Plated
7	C037C	26886	1/2" Washer — Plated

DMJ/DMJ-V, DMC/DMC-SW
Replacement Parts

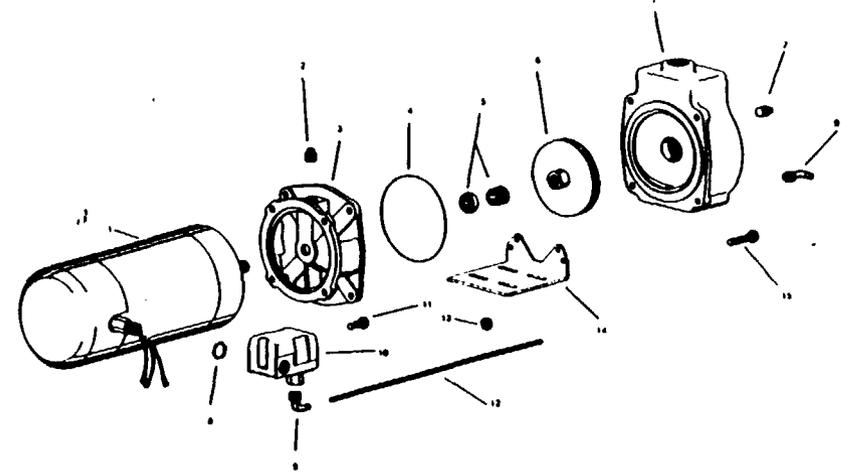
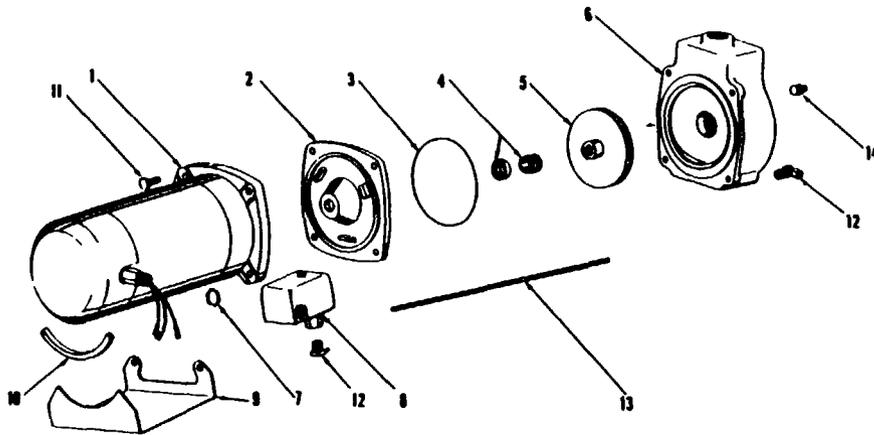
KEY NO.	DP NO.	DESCRIPTION	DMJ			DMJV			DMC				
			50	75	100	50	75	100	75	100	150	200	
1	27389	1/2 HP Jet Motor - 1-115/230 CST	1										
1	27390	3/4 HP Jet Motor - 1-115/230 CST		1					1				
1	31311	1 HP Jet Motor - 1-115/230 CST			1					1			
1	67507	1/2 HP Jet Motor - 1-115/230 CST				1							
1	67508	3/4 HP Jet Motor - 1-115/230 CST					1						
1	67509	1 HP Jet Motor - 1-115/230 CST						1					
1	27648	1 1/2 HP Jet Motor - 1-115/230 CST									1		
1	27811	2 HP Jet Motor - 1-115/230 CST											1
2	27433	Motor Adapter Bracket	1	1	1				1	1	1	1	1
2	31307	Motor Adapter Bracket				1	1	1					
3	16703	3/8" x 1" Hex Bolt - Plated	8	8	8	8	8	8	8	8	8	8	8
4	27081	Pipe Plug - 1/2" Plated	2	2	2	3	3	3	2	2	2	2	2
5	26360	Case Gasket	1	1	1	1	1	1	1	1	1	1	1
6	17038	1/2" Shaft Seal	1	1	1	1	1	1	1	1	1	1	1
7	31289	Impeller - Plastic 4 7/8" Dia									1		
7	31290	Impeller - Plastic 5" Dia			1				1				1
7	31291	Impeller - Plastic 3 11/16" Dia	1			1			1				
7	31292	Impeller - Plastic 4 9/16" Dia		1			1						
7	31293	Impeller - Plastic 4 1/4" Dia								1			
8	26322	Diffuser - Plastic	1	1	1	1	1	1	1	1	1	1	1
9	86807	Diffuser Assembly	1	1	1	1	1	1	1	1	1	1	1
10	27385	Impeller - Plastic 3 11/16" Dia	1			1			1				
10	27387	Impeller - Plastic 4 1/4" Dia		1	1		1	1		1	1	1	1
11	27369	Pump Case	1	1	1	1	1	1	1	1	1	1	1
12	16672	Conduit Locknut	1	1	1	1	1	1					
13	27762	Pressure Switch Set 20/40	1	1	1	1	1	1	1*	1*	1*	1*	1*
14	16647	1/4" MPT x 1/2" Plastic - 90° FTG	1	1	1	1	1	1	1*	1*	1*	1*	1*
	16645	1/4" MPT x 1/2" Plastic - Straight FTG	1	1	1	1	1	1	1*	1*	1*	1*	1*
15	31765	Pump Mounting Base	1	1	1				1	1	1	1	1
16	97037	1/2" O.D. x 11/16" I.D. Plastic Tube	1	1	1	1	1	1	1*	1*	1*	1*	1*
17	27673	"O" Ring [1 1/4" x 1 9/16" x 3/32"]	1	1	1	1	1	1	1	1	1	1	1
	28155	Pipe Plug - 1" Plated							1	1	1	1	1
Tube & Nozzle Combinations for DMC Shallow Well (See Above)													
—	27923	Nozzle 16/64" I.D. - OJ-8-16							1	1	1	1	1
—	27398	Venturi Tube 30/64" I.D. - DSJ-39-30							1				
—	27400	Venturi Tube 34/64" I.D. - DSJ-39-34								1			
—	27401	Venturi Tube 36/64" I.D. - DSJ-39-36									1		
—	27403	Venturi Tube 38/64" I.D. - DSJ-39-38										1	

* DMC Shallow Well Only

SERVICE GUIDE

E Continued

CAUSE OF TROUBLE	REMEDY
6. Pressure regulating valve stuck or incorrectly set. (Deep well only)	Check valve setting. Inspect valve for defects. Reset, clean, or replace valve as needed.
7. Leak on suction side of system.	On shallow well units, install pressure gauge on suction side. On deep well systems, attach a pressure gauge to the pump. Close the discharge line valve. Then, using a bicycle pump or air compressor, apply about 30 psi pressure to the system. If the system will not hold this pressure when the compressor is shut off, there is a leak on the suction side. Make sure above ground connections are tight. Then repeat test. If necessary, pull piping and repair leak.
8. Low well level	Check well depth against pump performance table to make sure pump and ejector are properly sized. If undersized, replace pump or ejector.
9. Wrong pump-ejector combination	Check pump and ejector models against manufacturer's performance tables. Replace ejector if wrong model is being used.
10. Low water level in well	Shut off pump and allow well to recover. Restart pump and note whether delivery drops after continuous operation. If well is "weak," lower ejector (deep well pumps), use a tail pipe (deep well pumps), or switch from shallow well to deep well equipment.
11. Plugged ejector	Remove ejector and inspect. Clean and reinstall if dirty.
12. Defective or plugged foot valve and/or strainer	Pull foot valve and inspect. Partial clogging will reduce delivery. Complete clogging will result in no water flow. A defective foot valve may cause pump to lose prime, resulting in no delivery. Clean, repair, or replace as needed.
13. Worn or defective pump parts or plugged impeller	Low delivery may result from wear on impeller or other pump parts. Disassemble and inspect. Replace worn parts or entire pump. Clean parts if required.



OJS Jet Pump Replacement Parts

KEY NO.	DP NO.	DESCRIPTION	OJS				
			33	50	75	100	250
1	32370	1/2 HP Jet Motor-1-115/230 S.P.-1.8 S.F.	1				
1	32371	1/2 HP Jet Motor-1-115/230 C.S.-1.8 S.F.		1			
1	32372	3/4 HP Jet Motor-1-115/230 C.S.-1.5 S.F.			1		
1	32373	1 HP Jet Motor-1-115/230 C.S.-1.4 S.F.				1	
1	32375	1/2 HP Jet Motor-1-115/230 C.S.-1.2 S.F.					1
2	32354	Seal Plate	1	1	1	1	1
3	27891	O-Ring (5 1/2 x 5 1/4 x 1/8)	1	1	1	1	1
4	32252	Mechanical Shaft Seal - 1/2"	1	1	1	1	1
5	32355	Impeller - Plastic - 4 7/16" Dia.	1				1
5	32356	Impeller - Plastic - 4 11/16" Dia.		1			
5	32357	Impeller - Plastic - 5" Dia.			1		
5	32358	Impeller - Plastic - 4" Square				1	
6	32212	Pump Case	1	1	1	1	1
7	16672	Conduit Locknut	1	1	1	1	1
8	74506	Pressure Switch Set 3/50 psi	1	1	1	1	1
9	32363	Mounting Base	1	1	1	1	1
10	32364	Rubber Vibration Strip	1	1	1	1	1
11	32270	Bolt - 1/4 x 1 1/4 Hex	4	4	4	4	4
12	Q30-11-C2	1/4" NPT x 1/4" Plastic - 90° Elbow	2	2	2	2	2
13	Q30-6-V8	Tubing - 1/4" O.D. Nylon	1	1	1	1	1
14	Q23-1-CZ	1/4" NPT Pipe Plug	1	1	1	1	1
Tube & nozzle combinations for shallow well (See table for adapter, fittings & deep well components)							
	27395	Venturi Tube 24/64" I.D.	1				1
	27399	Venturi Tube 32/64" I.D.		1			
	27401	Venturi Tube 36/64" I.D.			1		
	27403	Venturi Tube 38/64" I.D.				1	
	27921	Nozzle 14/64" I.D.	1				1
	27923	Nozzle 16/64" I.D.		1	1	1	

OJ, OJ-V Jet Pump Replacement Parts

KEY NO.	CAT. NO.	DP NO.	DESCRIPTION	OJ				OJ-V					
				33	50	75	100	33	50	75	100		
1		27369	1/2 HP Jet Motor-1-115 SP	1									
1		27369	1/2 HP Jet Motor-1-115/230 CST	1	1								
1		27369	3/4 HP Jet Motor-1-115/230 CST			1							
1		27420	1 HP Jet Motor-1-115/230 CST				1						
1		67506	1/2 HP Jet Motor-1-115 SP					1					
1		67507	1/2 HP Jet Motor-1-115/230 CST						1				
1		67508	3/4 HP Jet Motor-1-115/230 CST							1			
1		67510	1 HP Jet Motor-1-115/230 CST								1		
2		27661	Pipe Plug - 1/4" Plastic	1	1	1	1	2	2	2	2	2	2
2	OJ-2	27988	Motor Adapter Bracket	1	1	1	1	1	1	1	1	1	1
3	OJ-V-2	31308	Motor Adapter Bracket-Venturi										
4	OJ-4	27891	O-Ring (5 1/2 x 5 1/4 x 1/8)	1	1	1	1	1	1	1	1	1	1
5	32355	17030	5/8" Snap Seal	1	1	1	1	1	1	1	1	1	1
6	AJ-80	27080	Impeller - Plastic 4 7/16" Dia					1					
6	AJ-81	27081	Impeller - Plastic 4 11/16" Dia						1				
6	AJ-82	27082	Impeller - Plastic 5" Dia				1						
6	AJ-87	27437	Impeller - Plastic 4" Sq										
7	OJ-1	27086	Pump Case	1	1	1	1	1	1	1	1	1	1
8	J-174	16672	Conduit Locknut	1	1	1	1	1	1	1	1	1	1
8	J-123	16647	1/4" MPT x 1/4" Plastic - 90° FITG	2	2	2	2	2	2	2	2	2	2
10	PS-1040	27462	Pressure Switch Set 20/50	1	1	1	1	1	1	1	1	1	1
11	SO37-07PC	16938	3/8" x 3/4" Hex Bolt - Plated	4	4	4	4	4	4	4	4	4	4
12	J-140-16	97037	1/4" O.D. x 1 1/4" I.D. Plastic Tube	1	1	1	1	1	1	1	1	1	1
12	SO37PC	27863	3/8" Hex Nut - Plated	4	4	4	4	4	4	4	4	4	4
12		31765	Pump Mounting Base	1	1	1	1	1	1	1	1	1	1
15	OJ-8	27927	3/8" x 1 3/4" Hex Bolt - Plated	4	4	4	4	4	4	4	4	4	4
Tube & nozzle combinations for shallow well (See Page IV-17) for adapter, fittings & deep well components:													
	DSJ-38-24	27395	Venturi Tube 24/64" I.D.	1									
	DSJ-38-32	27399	Venturi Tube 32/64" I.D.		1								
	DSJ-38-36	27401	Venturi Tube 36/64" I.D.			1							
	DSJ-38-38	27403	Venturi Tube 38/64" I.D.				1						
	OJ-8-14	27921	Nozzle 14/64" I.D.	1									
	OJ-8-16	27923	Nozzle 16/64" I.D.		1	1	1						

SECTION N - [REDACTED] JET PUMP DATA

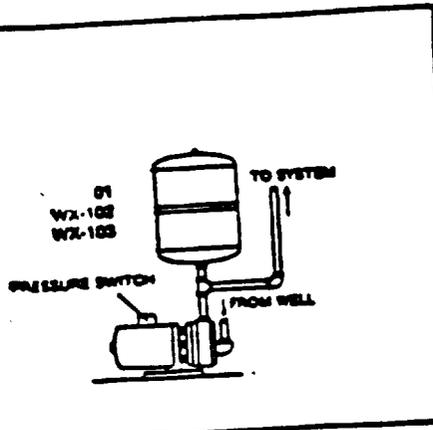
**PRIVATE WATER SYSTEM
CONTRACTOR/INSTALLER
COMPLETION FORM**

This form must be completed and returned to the health department prior to final approval of the private water system. This form is required according to Ohio Revised Code 3701.34 and 3701.44; and Ohio Administrative Code 3701-28-03.

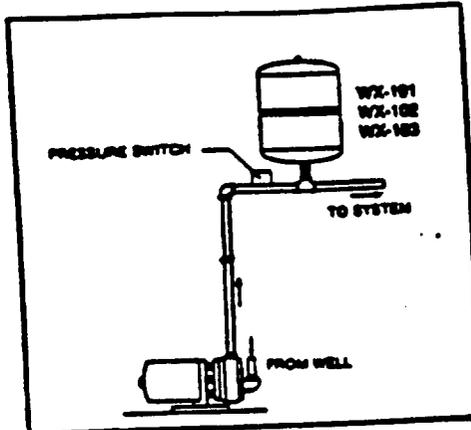
Owner _____
 Mailing Address _____
 City TROY, OHIO Zip 45373
 Location of Property _____
TROY, OHIO Township CONCORD
 Contractor/Installer FRONTZ DRILLING, INC. Registration # 120
 Company Name FRONTZ DRILLING, INC.
 Address 2031 MILLERSBURG ROAD
WOOSTER, OHIO 44691 Phone # 262-5301
 Date of Completion NOVEMBER 23, 1994

PUMP	WELL
<p>Type Pump <u>HJ 50 S MEYERS JET PUMP</u> Capacity (GPM) <u>8</u> Depth of pump setting or intake <u>20'</u> Installer <u>FRONTZ DRILLING, INC.</u> Registration # <u>120</u></p>	<p>Fitness device (check and complete applicable section)</p> <p><input checked="" type="checkbox"/> Adapter: Manufacturer <u>SNAPPY</u> Depth below grade <u>48"</u> Method of cutting hole <u>HOLESAN</u> Method of attaching casing extension (if applicable) _____</p> <p><input type="checkbox"/> Preassembled unit: Manufacturer _____ Depth below grade _____ Method of attachment _____</p>

mounted at jet pump.

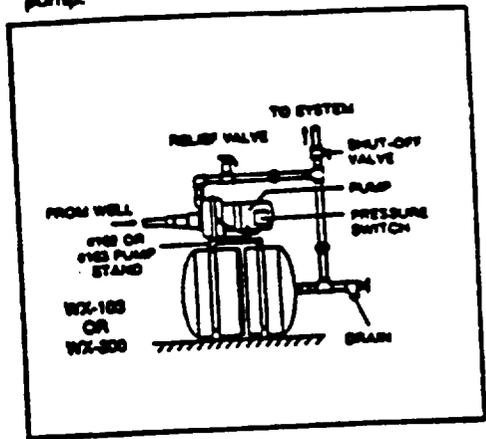


WX-201 through WX-350 WELL-X-TROL installed on-line with jet pump.

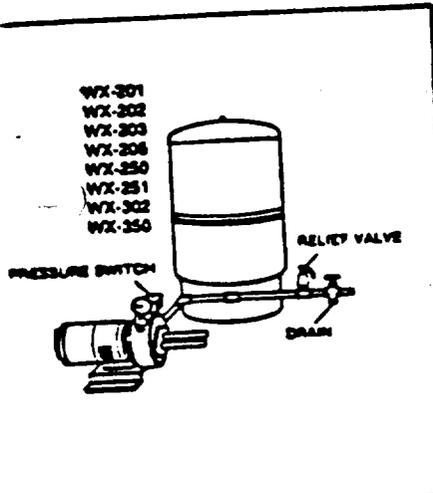


WX-201 through WX-203 using #161 pump stand. WX-205 through WX-380 using #165 pump stand. Shallow well jet pump mounted on tank.

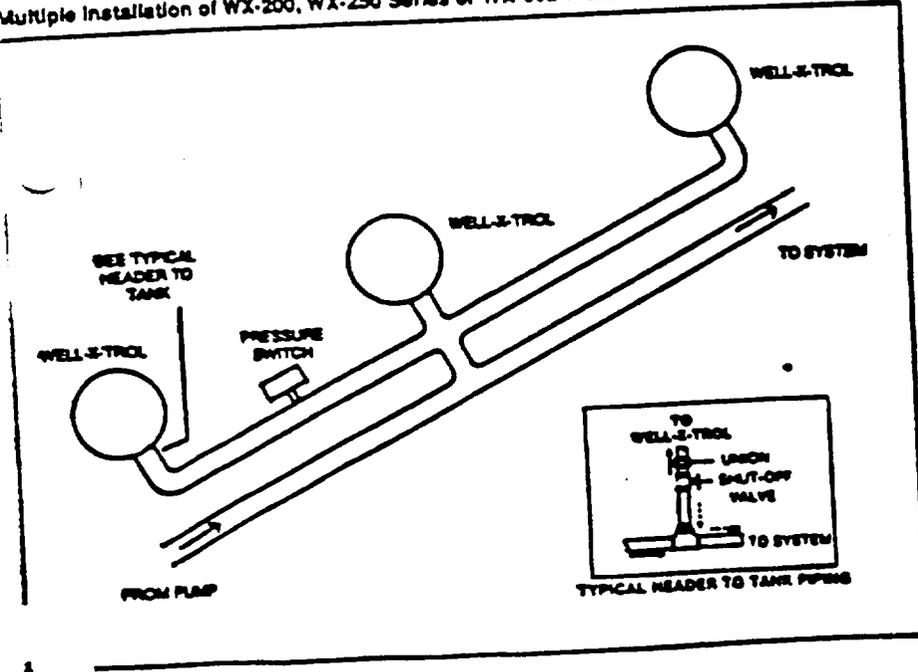
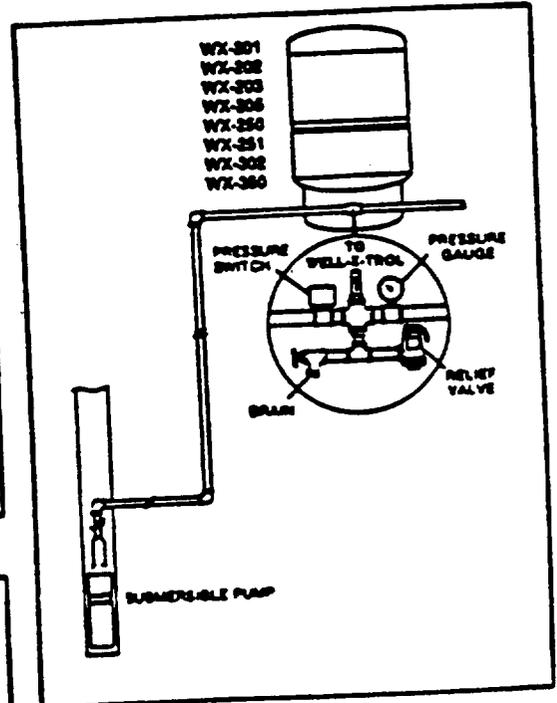
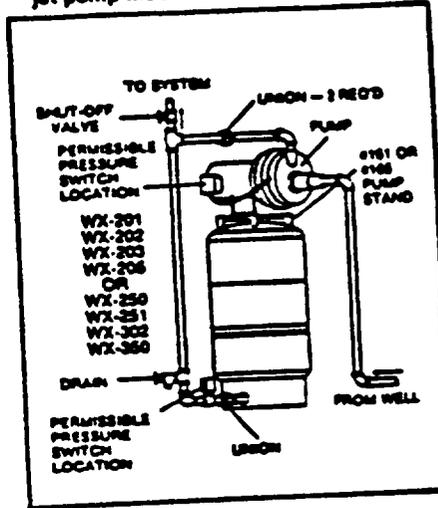
PLATE 10



WX-201 through WX-350 WELL-X-TROL installed on-line using submersible pump.



Multiple installation of WX-200, WX-250 Series or WX-302 WELL-X-TROL



AMTROL INC.
WEST WARWICK, R I 02893

Part No. 140X76

Printed in U.S.A.

MAJOR COMPONENTS AND WHAT THEY DO

Tank and Air Volume Control

The tank serves two functions: (1) It provides a reservoir of water—some of which can be drawn through the house fixture before the pump must start. (2) It maintains a cushion of air under pressure.

When a Precharged Bladder Tank is used, no air volume control is needed. This tank contains a permanent precharge of air. See instructions with tank for proper air charge.

When a non-bladder type tank is used, an air volume control adds air to the tank as needed. The air volume control is hooked to the side of the tank, and a pressure tube is connected from the air volume control to the suction side of the pump.

Pressure Switch

The pressure switch provides for automatic operation. The pump starts when the pressure drops to the cut-in setting and stops when pressure reaches the cut-out setting.

Impeller, Jet and Pressure Regulator

The pump impeller rotates with the motor shaft, causing an increase in pressure. The rotation of the impeller creates a vacuum, allowing water to be drawn in. Part of the water is diverted back to the jet, where it again passes through the nozzle and venturi, creating additional vacuum to draw in more water and deliver it at high pressure to the impeller.

In a deep well installation, the jet assembly is submerged in the well because the vertical distance to the water level exceeds the suction lift of the pump. Adjustment of the regulator causes the right amount of water to be diverted back to the jet for the most efficient operation.

In a shallow well installation, the jet assembly is attached directly to the pump because a vacuum will lift water to the pump.

The regulator may be used to restrict the flow of water in a shallow well system if the convertible pump has the capacity to draw more water than the well can produce.

Lubrication of Motor Bearings

Follow Motor Manufacturer's recommendation for lubrication. Generally, the bearings are sufficiently lubricated for 5 years.

ELECTRICAL INFORMATION

Installation Instructions

Wiring to this pump must be installed and maintained in accordance with both the National Electrical Code and state/local codes. If more information is needed, call your local licensed electrician or your power company.

WARNING: Motor Grounding Instructions

Reduced risk of electric shock during operation of this pump requires the provision of acceptable grounding: **Caution:** Failure to ground this unit properly may result in severe electrical shock. If the means of connection to the supply-connection box is other than grounded metal conduit, ground the pump back to the service by connecting a copper conductor, at least the size of the circuit conductors supplying the pump, to the grounding screw provided within the wiring compartment. **NOTE:** National Electric Code requires pumps be grounded at installation.

Grounding the Motor: Permanently ground the motor in accordance with the National Electrical Code Article 250 and applicable local codes and ordinances. It is recommended that a permanent ground connection be made to the unit using a conductor (of appropriate size) from a metal underground water pipe or a grounded lead in the service panel. A metal underground water pipe or well casing at least 10 feet long makes the best ground electrode.

If plastic pipe or insulated fittings are used, run the ground wire directly to the metal well casing or use ground electrode furnished by the power company.

Caution: Do not ground to a gas supply line and do not connect to an electric power supply until unit is permanently grounded. Connect the ground wire to the approved ground and then connect to the terminal provided.

Important: For your safety, be sure electrical circuit to pump is shut off (disconnected) before attempting to wire pump. Pump should be connected to a separate electrical circuit directly from main switch. A fuse box or circuit breaker must be used in this line (see Fuse Chart). Plugging into existing outlets can cause low voltage at motor, resulting in blown fuses, tripping of motor overload, or burned-out motor. All wiring must follow local codes.

Note: If ever in doubt, call a licensed electrician.

INSTALLATION INSTRUCTIONS

Materials Needed

- 1 can PVC cement (read manufacturer's instructions carefully)
- Foot valve
- 1-1/4" PVC adapters (2 required)
- 1-1/4" rigid PVC pipe and couplings (Couplings not required for flared pipe).
- Well seal
- 1-1/4" PVC elbow
- Discharge tee
- Pressure gauge
- 1" x 4" nipple
- 1" check valve
- Copper electric wire with ground (see Wire Selection Guide on page 4)
- Fuse box or circuit breaker

Step 1: Connect foot valve to 1-1/4" plastic pipe adapter. Cement adapter to 1-1/4" PVC rigid plastic pipe. All connections must be watertight for pump to operate properly.

Step 2: Add rigid PVC pipe sections and couplings (as required) while lowering foot valve into well. As much as 30 feet of pipe could be required. Note: Removing foot valve screen could void Warranty.

Step 3: Install well seal over rigid PVC pipe and onto well casing. Cement 1-1/4" PVC elbow to top of pipe at correct length to position foot valve 5 feet above bottom of well. Lower foot valve-piping assembly carefully into well, using pipe clamp. Draw up bolts on well seal until rubber gaskets are tight against both the well casing and the pipe.

Step 4—For Shallow Well Pumps: Cement one end of horizontal 1-1/4" pipe into elbow. Add sections to reach the pump. This pipe should slope up to the pump from the elbow. Thread 1-1/4" adapter into pump. Cement horizontal pipe into adapter that has been threaded into pump.

Step 4A—For Convertible Pumps: Install venturi into Ejector. Secure shallow well ejector assembly and gasket to pump case with bolts supplied (see diagram). Connect tube between pump case and pressure switch on pump. Thread 1-1/4" PVC adapter into shallow well ejector. Cement horizontal pipe into adapter threaded into ejector.

Step 5: Using pipe wrench, install discharge tee in pump discharge until tight.

Step 6: Important—Go to Electrical Instructions on pages 3 and 4. Make electrical connections as described.

Step 7: After electrical work is completed—and before pump is connected to pressure tank—the pump should be primed and test run. To prime, remove bushing from top of discharge tee. Fill piping and pump with water until the water overflows from top of tee. Replace bushing and tighten to seal. Install pressure gauge. Before starting pump, place large bucket or other container under check valve opening.

Step 8: Start motor. If pump is installed with a horizontal offset line of 4 feet or more, it may take several minutes to prime. If pump does not prime in 5 minutes: (1) stop motor; (2) remove discharge plug and pressure gauge; and (3) add more water.

Step 9: Allow pump to empty into container long enough to clear the well of any sand or dirt, and to be sure well is not going to run out of water.

Step 10: Stop pump and complete connections to pressure tank. Allow pump to cycle automatically several times to check pressure switch setting and operation. To adjust pressure switch settings, see instructions inside pressure switch cover. If a new pressure tank is required, follow "Pressure Tank Installation Instructions."

If pump is being used as a lawn sprinkler or irrigation pump, you **MUST** remove the pressure switch and wire the pump direct. Also, no pressure tank is used.

Caution: Make sure the pressure switch is set low enough to shut off the pump. If a valve is shut off and the pressure switch setting is too high, the pump will run continuously without water flow. This will overheat and damage the pump.

Note: Check valve between tank and pump can cause short cycling in the following conditions:

- 1) Leaky foot valve
- 2) Long horizontal suction line
- 3) Air trapped in suction line
- 4) Wells with gaseous water

To resolve this problem you can do the following:

- 1) Remove the check valve completely
- 2) Move the check valve beyond the tank
- 3) Change the pressure switch. Tap to the tank tee.

INSTALLATION INSTRUCTIONS

Materials Needed for Two-Pipe Well Installation

- 1" PVC cement (read manufacturer's instructions carefully)
- 1" foot valve
- 1" close nipple
- Twin ejector
- 1" PVC adapter
- 1-1/4" female PVC adapter
- 1" rigid PVC pipe and couplings
- 1-1/4" PVC pipe and couplings
- Well seal
- 1" PVC elbow
- 1-1/4" PVC elbow
- 1-1/4" PVC adapter
- 1" x 4" nipple
- 1" PVC female adapter
- Pressure regulator
- Pressure gauge
- Copper electric wire with ground (see Wire Selection Guide on page 4)
- Fuse box or circuit breaker

Step 1: Begin installation by attaching foot valve to close nipple of corresponding size. Connect nipple/foot valve assembly to bottom of ejector body. Next install clear plastic venturi into top of ejector body. All connections must be watertight for pump to operate properly.

Step 2—For 1/3 and 1/2 HP Pumps and HJA 3/4 & 1 HP Pumps: Install 1" PVC adapter in ejector body. Then install 1-1/4" female PVC adapter on ejector body over the plastic venturi.

Step 2A—For 3/4 and 1 HP Pumps (except HJA): Install a 1-1/4" female PVC adapter on ejector body over the plastic venturi. Then install a 1-1/4" x 5" nipple in ejector body, covered by a 1-1/4" female PVC adapter.

Cement rigid PVC pipes into the pipe adapters on the ejector body. Add rigid PVC pipes and couplings (as required) while lowering ejector assembly into the well with pipe clamps.

Note: Removing foot valve screen could void Warranty.

After lowering pipes and ejector assembly into well, install well seal. Draw up bolts on well seal until the rubber gaskets are tight against the well casing and the two plastic pipes.

Step 3—For 1/3 and 1/2 HP Pumps and HJA 3/4 & 1 HP Pumps: Cut pipes at length to position foot valve 5 feet above bottom of well. Cut top of 1" pipe 2" shorter than the 1-1/4" pipe, as shown in the installation diagram.

Cement 1-1/4" PVC elbow and 1" PVC elbow to the top of each pipe. Cement 1-1/4" and 1" rigid PVC horizontal pipes to elbows. Thread 1-1/4" PVC adapter into top opening in pump face. Install 1" x 4" nipple into bottom opening of pump face. Add 1" female PVC adapter onto nipple. Cut 1" horizontal pipe 3-1/2" shorter than 1-1/4" horizontal pipe. Cement 1-1/4" and 1" horizontal pipes into these adapters. Horizontal pipes should slope up to pump from elbows.

Step 3A—For 3/4 and 1 HP Pumps (except HJA): Cut length of pipe to position foot valve 5 feet above bottom of well. Cut the top of the pressure pipe 2-1/4" shorter than delivery pipe, as shown in the installation diagram. Cement PVC elbows to each pipe. Cement rigid PVC horizontal pipes to elbows at the top of the well. Add pipe sections and couplings (as needed) to connect to the pump. Thread 1-1/4" PVC adapters into openings in pump face. Cement rigid PVC horizontal pipes into adapters. Horizontal pipes should slope up to pump from elbows.

Step 4: Install pressure regulator into pump discharge outlet. Install brass fittings and tubing to connect pressure switch to pressure regulator (see installation diagram). Install pressure gauge into pressure regulator.

NOTE: Check valve between tank and pump can cause short cycling in the following conditions:

- 1) Leaky foot valve
- 2) Long horizontal suction line
- 3) Air trapped in suction line
- 4) Wells with gaseous water

To resolve this problem you can do the following:

- 1) Remove the check valve completely
- 2) Move the check valve beyond the tank
- 3) Change the pressure switch. Tap to the tank tee.

for 2" Diameter Wells

INSTALLATION INSTRUCTIONS

Materials Needed

- 1 can PVC cement (read manufacturer's instructions carefully)
- Foot valve
- Packer ejector
- 1" PVC adapter
- 1" rigid PVC pipe and couplings (Couplings not required-for flared pipe).
- 1" x 8" nipple
- 1" PVC female adapter (2 required)
- 2" Packer well adapter
- 1-1/4" x 1" PVC reducer bushing
- 1-1/4" PVC adapters
- 1-1/4" rigid PVC pipe
- 1" x 4" nipple
- Pressure regulator
- Pressure gauge
- Copper electric wire with ground (see Wire Selection Guide on page 4)
- Fuse box or circuit breaker

Step 1: Begin installation by attaching foot valve to bottom of packer ejector body. Remove brass coupling from top of ejector. Next install clear plastic venturi into top of packer body. Re-install brass coupling over venturi. All connections must be watertight for pump to operate properly.

Step 2: Thread 1" PVC adapter into brass coupling. Cement the 1" PVC rigid pipe to the pipe adapter.

Step 3: Carefully lower pipe/packer ejector assembly into well, adding PVC rigid plastic pipe sections and couplings as required. Use pipe clamps shown on page 4. Cut 1" PVC rigid pipe at length to position packer ejector assembly at least 5 feet above bottom of well casing. Note: Removing foot valve screen could void Warranty.

Step 4: Install 1" x 8" nipple into bottom of packer well adapter. Install 1" PVC female adapter onto nipple.

Step 5: Slip packer adapter compression plate and compression gasket over the PVC rigid pipe. Cement 1" female PVC pipe adapter to top of PVC rigid pipe.

Step 6: Install the 3 nuts and bolts and alternately tighten the packer adapter to the packer compression plate—sealing it with the well casing.

Step 7: If desired, pumps may be bolted directly to the well adapter. If pump is installed directly to adapter, proceed to step 8.

Step 8—For 1/3 and 1/2 HP Pumps and HJA 3/4 & 1 HP Pumps: Thread 1-1/4" PVC adapters into packer adapter. Cement 1-1/4" x 1" PVC reducer into lower adapter. Cement 1-1/4" and 1" rigid PVC horizontal pipes into PVC adapter and reducer. Add pipe sections and couplings (as needed) to connect to the pump. Because of different center distances, these pipes will deviate slightly.

Thread 1-1/4" PVC adapter into top opening in pump face. Install 1" x 4" nipple into bottom opening in pump face. Add 1" female PVC adapter onto nipple. Cut 1" horizontal pipe 3-1/2" shorter than 1-1/4" horizontal pipe. Cement 1-1/4" and 1" horizontal pipes into these adapters. Horizontal pipes should slope up to pump from packer adapter.

Step 8A—For 3/4 and 1 HP Pumps (except HJA): Thread 1-1/4" PVC adapters into packer adapter. Cement rigid PVC horizontal pipes into pipe adapters. Add pipe sections and couplings (as needed) to connect to the pump. Thread 1-1/4" PVC adapters into openings in pump face. Cement rigid PVC horizontal pipes into adapters. Horizontal pipes should slope up to pump from packer adapter.

Remaining Steps: To complete installation, turn to "Deep Well Jet Pumps" on page 8 and follow Steps 4 thru 8. Also read "caution" instructions on pressure switch settings.

HJA-HJ-HR-HT Ejecto Pump Installation and Service

JET PUMP TROUBLESHOOTING CHECKLIST

This information is for checking jet pump installations which are not operating properly. It is based on the premise that the installed system will consist of a jet pump taking water from a well where the water well level is below the pump and the pump is delivering water into a pressure storage tank.

Warning: To guard against accidental personal injury, the electric power to the pump should be turned off when conducting the checking procedures outlined herein. There are obvious exceptions, however, and service personnel should take necessary safeguards against the hazard of electrical shock.

Shallow Well

PROBLEM	CHECKING PROCEDURE	
Pump will not prime	1. Stop motor, remove priming plug, and fill case with water.	4. Check for plugged venturi tube or nozzle.
	2. Make sure suction line has no leaks, and that it slopes gradually from pump to well with no high or low spots.	5. Make sure the foot valve is not sitting in sand or mud, and that it is not stuck shut.
	3. Make sure pump shaft turns clockwise when viewed from motor end opposite shaft.	
Pump delivers water for a period of time, then stops pumping	1. Make sure well water is not drawing below the foot valve. Use a water-level tester while pump is operating.	3. Check for plugged impeller parts.
	2. Check for plugged or worn nozzle or venturi tube.	
Pump does not deliver rated capacity	1. Check nozzle and venturi for wear or partial plugging.	3. Check pressure gauge. It may be defective, resulting in false readings.
	2. On 3/4 and 1 HP models, make sure diffuser "O" ring seal is in place.	
Motor overheats and shuts off (overload)	1. Make sure motor is properly wired for the correct voltage. (See Electrical Information on pages 3-4.)	3. Make sure the impeller is not rubbing against the pump case.
	2. Make sure wire is properly sized. (See Chart on page 4.)	
Motor fails or does not operate properly	1. If within Warranty, return pump/motor unit to place of purchase (with proof of purchase) for exchange.	

Repair Instructions

DISCONNECT POWER AND DRAIN PRESSURE TANK BEFORE SERVICING PUMP.

HJ & HJA

Replacing Mechanical Seal:

1. The seal used on all HJ & HJA units is 1/8" size.
2. This seal is made in two parts.
 - (a) Rotating assembly, stainless steel spring, drive ferrule with rubber ring and carbon seal ring.
 - (b) Stationary ceramic seal ring mounted in synthetic rubber cup.
3. Always replace both rotating assembly and stationary ceramic seat. **DO NOT USE OLD STATIONARY SEAT WITH NEW ROTATING ASSEMBLY SEAL.**
4. Old ceramic ring can be removed from housing by cracking with a chisel or screw driver without removing the pump shaft.
5. Housing and shaft must be clean and free of sand and dirt before replacing new seal. Wash parts with clean water.
6. Place stationary ceramic seat into housing. Press in with fingers only.
7. Place rotating assembly unit on shaft, carbon ring toward ceramic seat, and press into position with fingers.
8. Dirt on seal faces can cause failure. All pumping parts of unit can be removed from case without disturbing well piping or tank piping.

How to Dismantle: HJ & HJA — Deep Well

1. Disconnect power and drain pressure tank before dismantling pump.
2. Disconnect pressure switch tube, remove pump case bolts and bracket foot bolts.
3. Use heavy screwdriver behind bolt ears and pry motor bracket from case.
4. Remove diffuser plate bolts and take off diffuser. (See Fig. 1) When replacing diffuser, use three .010" thick shims equally spaced between impeller eye and diffuser to prevent impeller rubbing diffuser and bindings.
5. Remove impeller by holding pump shaft with water pump pliers and unscrewing impeller, left hand CCW facing the impeller to remove. (Fig. 3) Impeller can also be removed by prying out motor shaft end cap. Place screwdriver in slot in end of shaft and hold to prevent shaft rotation. Unscrew impeller counter-clockwise. On A.O. Smith motors remove motor end cover and hold shaft with 7/16" open end wrench.
6. Using two screwdrivers, pry out rotating assembly of shaft seal.

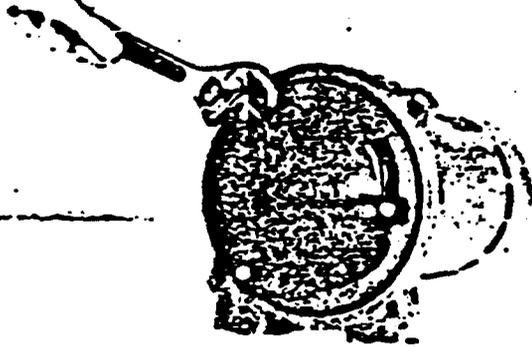


Fig. 1

7. Pump shaft is extension of motor shaft so it is not necessary to replace or adjust for seal position.
8. Remove 4 bolts holding motor to bracket and remove motor.

How to Dismantle: HJ — Shallow Well

1. Remove case bolts and pry bracket from pump case.
2. Remove screen and plastic diffuser plate. When replacing diffuser, use three .010" thick shims equally spaced between impeller eye and diffuser to prevent impeller rubbing diffuser and bindings.
3. On 1/3 and 1/2 HP models hold impeller with pliers and unscrew venturi tube. On 3/4 and 1 HP models venturi tube is screwed into the pump case. (See Fig. 2)

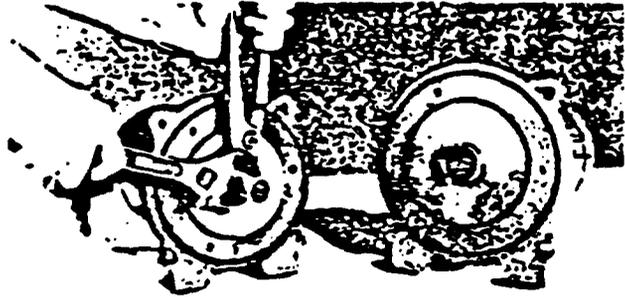


Fig. 2

4. Hold pump shaft with pliers and unscrew impeller as shown. (See Fig. 3)

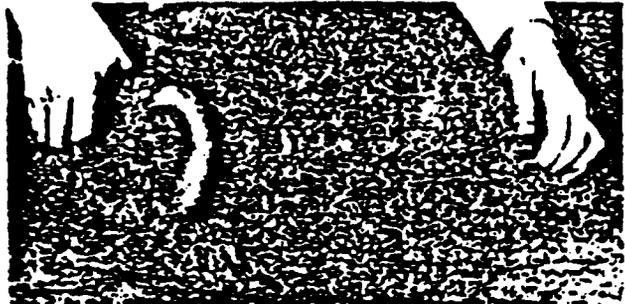


Fig. 3

5. When replacing impeller, file any plier cuts smooth after tightening in place.
6. Priming screen must be placed with dimple down. **THIS IS IMPORTANT FOR PUMP TO PRIME PROPERLY. DO NOT LEAVE THIS SCREEN OFF.**
7. Nozzle on 1/3 and 1/2 HP models can be removed from pump case with any standard 1 1/4" socket wrench with an extension. On 3/4 and 1 HP models venturi tube and nozzle can be removed in same manner using 27/32" socket for the venturi and 9/16" socket with extension for the nozzle.

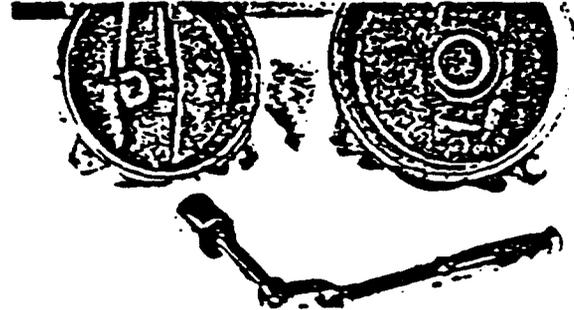


Fig. 4

8. When replacing nozzle and venturi, be sure they are tight against shoulder. Use care not to cross threads. If nozzle is not screwed clear in, flow will be blocked by venturi entrance.
9. Remove 4 bolts holding motor to bracket and remove motor.

Instructions

When to Drain:

If system is used for seasonal periods only, pump, tank and piping must be drained when not in use to prevent freezing in winter.

RAIN AS FOLLOWS:

1. Release pressure in system by draining at discharge outlet normally located in discharge line leading from pressure tank. Connect a section of water hose to outlet to assist in draining water to an outside area, if possible, being careful not to elevate hose higher than drain outlet. (See Fig. 9)
2. Disconnect pressure and delivery pipes for drainage. Drain below ground freeze level if pipes are not sufficiently buried.
3. Disconnect pipes from tank and lay vertical tank on side or horizontal tank on end for complete drainage. (Not required on diaphragm tanks.)
Remove drain plugs from pump case.
Care should be taken not to scratch finish of epoxy tanks

NOTE:

Before starting pump after long period of non-operation, be sure pump shaft turns freely. Turn shaft clockwise when facing motor end of pump. Use pliers if necessary.

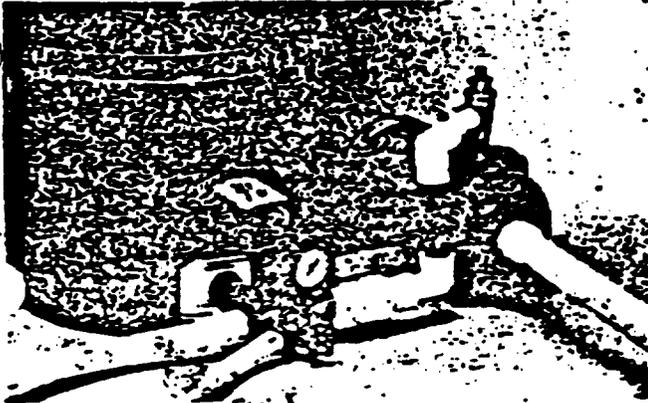


Fig. 9

Tank Mounted Units:

1. All general instructions apply to tank mounted pumps.
2. With tank mounted unit the air control must be connected at time of installation.
3. Always install air control in position shown and connect to pump in accordance with instructions given under installation Twin Type. (See Fig. 10)



Fig. 10

Myers

F.E. Myers, 1101 Myers Parkway, Ashland, Ohio 44805-1988
419/289-1144 • Telex 98-7443 • FAX 419/289-8658

Made in U.S.A. 3/84
0A718



SECTION O - USACE WATER WELL DATA

To: Jeff Hubbard CEMRO-ED-ER
From: Todd Wilson CEMRO-ED-EG *kw*
Jim Woolcott CEMRO-ED-EH *JW*

RE: Drinking Water Data from the United Scrap Lead Homeowners Water Wells.

December 6, 1993

I have reviewed the data provided by the Missouri River Division Laboratory. The water samples in question were analyzed for the water quality criteria as required by the Safe Drinking Water Act (SDWA). The only chemical of concern was determined to be iron and hardness. Samples were collected prior to and after the water softener with little to no difference between the results. Hardness was determined to be moderately elevated, and iron is elevated above the Secondary Maximum Contaminant Level. These should be corrected by the water softener. The other result of concern is the aerobic bacterial count found in the water. Coliform could not be detected due to the number of bacterial colonies found in the water. These colonies are not coliform or iron bacteria, but a non-specific type of bacteria. This bacteria may have been introduced during sampling, or may be indigenous to the site.

Suggestions:

Due to the fact that hardness data did not show a significant change from the pre and post-water softener samples, the water softener resin should be replaced. The bacteria in the water should be remedied by "shocking" with Ohio approved methods, such as chlorination, and resampled for coliform. This coliform sample should be analyzed by a Ohio certified local laboratory to eliminate possible introduction of bacterial contaminants, and reduce the shipping and incubation period prior to analysis. If the bacterial problem continues, the State of Ohio should be contacted to determine the final remedy to the situation. The presence of bacterial contamination is not due to the United Scrap Lead Site, and should not be held accountable for the bacterial contamination of the Ishamael water well.

cc: Resnik (OHM)

For Cell Probe:

MV = 738 5.8 d

$15.8^{\circ} - 25^{\circ} = -9.2^{\circ} \times 1.3 \text{ mV} = -11.96$

238 - 11.96 = 226.04
Well purging begins using outside tap.

1619 Stopped well suction pump from hydrov pump
began Peristaltic Pump, Pump rate estimated at approx. 50ml per min.

1558

Time Temp °C Conduct/cm pH/mV MV

1625	14.7	.77	6.89	-184
1627	14.7	.77	7.00	-164
1629	14.6	.79	7.06	-144
1640	14.9	.70	7.22	-145
1642	14.8	.79	7.22	-148
1645	14.7	.87	7.23	-146
1647	14.6	.87	7.23	-112
1660	14.5	.85	7.22	-139

Turbidity 9.5 NTU's.

Begin sampling at 1655.

1655 1554-RW-002
2 - 40-ml glass

VOCs
HCl to pH 2, ice to 4°C

Water matrix

1704	1554-RW-002 1 1-liter poly CN NaOH to pH > 12, ice to 4°C Water matrix 1554-RW-002 1 1-liter poly Sulfide 4 ml Zinc acetate NaOH to pH > 7, ice to 4°C Water matrix 1554-RW-002 3 125ml-amber glass Total Coliform Water matrix ice to 4°C 1554-RW-002 1 1-liter poly F, Cl, NO ₃ , Br, SO ₄ ice to 4°C Water matrix 1554-RW-002 2 1-liter poly Alkalinity Color ice to 4°C Water matrix	
1717	1721	1725

MRD Lab Project No. 2313

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

17 DEC 1993

Subject: Certificate of Analysis

Project: United Scrap Lead, Troy, OH

Intended Use: Superfund

Source of Material: _____

Submitted by: Steve Ott, CEMRO-ED-EB

Date Sampled: 27 - 28 Oct 93, Date Received: 29 Oct 93

Method of Test or Specification: See attached test result sheets.

References: Omaha District Request No. ENE 4440 dated 29 Oct 93

-- REMARKS --

1. The samples arrived in good condition.
2. Enclosed please find the following:

Part A: Sample Receipt Information (1 page)

Part B: Chain-of-Custody Information (8 pages)

Part C: Analytical Test Results (49 pages)

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

LP 12/13/93
Percifield/nhv/444-4313

TEST RESULTS

1. DISCUSSION:

- a. Four (4) water samples were received by MRD Laboratory for analysis on 29 Oct 93. The samples were analyzed as follows:
 - . One (1) water sample was analyzed for volatiles (VOA) by EPA method 502.2; metals (arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, potassium, selenium, silver, sodium, and zinc) by EPA methods 200.7, 206.2, 245.1, and 270.2; alkalinity by EPA method 310.1; color by EPA method 110.2; cyanide by EPA method 225.2; phenolic compounds by EPA method 420.1; total organic carbon (TOC) by SM5310C; hardness by SM2340B; sulfide by EPA method 376.2; total dissolved solids (TDS) by EPA method 160.1; bicarbonate/carbonate and chloride by SM4500; fluoride by EPA method 340.2; sulfate by EPA method 375.4; bromide by ASTM method D1246; nitrate/nitrite by EPA method 353.2; orthophosphate by EPA method 365.1, odor by EPA method 140.1; N-P pesticides by EPA method 507; pesticides/PCBs by EPA method 508; chlorinated acids by EPA method 515.1; carbonates by EPA method 531.1; total coliform by SM922B; aerobic plate count by SM9215B; and iron bacteria by SM9240B.
 - . One (1) water sample was analyzed for VOA by EPA method 502.2.
 - . Two (2) water samples were analyzed for lead by method 239.2.

Appendix "A" of this report lists all of the samples received.

- b. The samples arrived in good condition.

Appendix "B" of this report contains the chain-of-custody and sample receipt information.

- c. The samples were analyzed by Continental Analytical Services (CAS) of Salina, KS and Midwest Laboratories, Inc., of Omaha, NE.

Appendix "C" of this report lists the analytical test results and method quality control results.

2. DATA SUMMARY:

Refer to the test report sheets in Appendix "C".

3. METHOD QUALITY CONTROL:

- a. Method blanks were free of contamination for all analyses except 0.3 µg/L methylene chloride in one VOA blank.
- b. Surrogate spike recoveries for required methods were found to be within acceptable limits.

- c. Matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within acceptable limits for all methods where reported. MS and MSD analyses could not be completed for N-P pesticides, pesticides/PCBs, and chlorinated acids because of insufficient sample.
- d. Relative percent differences (RPDs) for MS/MSD were within acceptable limits for all methods where reported.
- e. Laboratory control sample (LCS) and laboratory control sample duplicates (LCD) were within acceptable limits for all analyses except chlorinated acids where 2,4,5-TP recoveries were low (31 and 15%).
- f. RPDs for LCS/LCD were within acceptable limits for all analyses except chlorinated acids where 2,4,5-T was high (70%).
- g. Holding times were met.

PART A

SAMPLE RECEIPT INFORMATION

QA/QC Table #	Customer Sample #	Date Sampled	Matrix	MRD Lab # Assigned	Tests Assigned	QA Test Results Page Number
	TRIP BLANK - 1	27 Oct 93	Water	931029-016	VOA (to CAS)	C2-C3
	USL-RW-002	28 Oct 93	Water	931029-017	VOA (to CAS)	C4-C5
				931029-018	Coliform (to A & L)	C49
				931029-018	Plate Count (to A & L)	C49
				931029-018	Iron & Sulfur Bacteria (to A & L)	C49
				931029-027	Metals (to CAS)	C6
				931029-030	Alk. (to CAS)	C10
				931029-030	Color (to CAS)	C10
				931029-031	Cyanide (to CAS)	C11
				931029-032	Hardness (to CAS)	C12
				931029-032	Phenolics (to CAS)	C12
				931029-032	TOC (to CAS)	C12
				931029-033	Hardness (to CAS)	C13
				931029-034	Sulfide (to CAS)	C14
				931029-035	Metals (to CAS)	C15
				931029-036	TDS (to CAS)	C16
				931029-037	F (to CAS)	C33
				931029-037	Cl (to CAS)	C33
				931029-037	Bromide (to CAS)	C33
				931029-037	SO ₄ (to CAS)	C33
				931029-037	HCO ₃ (to CAS)	C33
				931029-037	CO ₃ (to CAS)	C33
				931029-038	Ortho PO ₄ (to CAS)	C34
				931029-038	NO ₃ , NO ₂ (to CAS)	C34
				931029-039	Odor (to CAS)	C34
				931029-040	OPP (to CAS)	C34
				931029-040	Pesticides/PCBs (to CAS)	C34
				931029-041	Herbicides (to CAS)	C35
				931029-042	Carbamates (to CAS)	C35
	AIM-RW-001	28 Oct 93	Water	931029-028	Metals (to CAS)	C8
	USL-RW-001	28 Oct 93	Water	931029-029	Metals (to CAS)	C9

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
B1	2519	28 Oct 93
B2	2520	28 Sep 93
B4	4020	28 Oct 93
B7	2518	28 Sep 93

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS							REMARKS
JMS 2313		UNITED SCRAP LEAD/ARCANUM IRON & METAL											
SAMPLERS: (Signature) <i>R. Dulowski</i>													
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	SULFIDE	DISSOLVED METALS	ODOR	TOTAL DISSOLVED SOLIDS	PCBS	CHLORINATED ACIDS		
3HMBEL	10/28	1713		X	USL-RW-002	X						1 LITER POLY; 4 ML ZINC ACETATE; NaOH PH 7.9; 4°C	
4	11	1815		X	11		X					1 LITER POLY; HNO ₃ PH 4.2; ICED TO 4°C	
11	11	1807		X	11			X				1 LITER AMBER GLASS; ICED TO 4°C	
4	11	1804		X	11				X			1 LITER POLY; ICED TO 4°C	
11	11	1749		X	11				X			1 LITER AMBER GLASS; ICED TO 4°C	
4	11	1759		X	11					X		1 LITER AMBER GLASS; ICED TO 4°C	

Relinquished by: (Signature) <i>R. Dulowski</i>	Date / Time 10/28/93 2100	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
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) <i>[Signature]</i>	Date / Time 10-28-93 0850	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

COOLER RECEIPT FORM

B3

LIMS# 2313 MRD Cooler # 840 Number of Coolers 3 of 3 Contractor Cooler _____

PROJECT: United Scrap Lead Date received: 29 Oct 93

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 29 Oct 93 C-of-C Number: 2519 5590

by (print) Conrad German (sign) Conrad German

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO

If YES, enter carrier name & air bill number here: FEDX:

2. Were custody seals on outside of cooler? YES NO
CUSTOMER PACKAGE TRACKING NUMBER - PULL UP PURPLE TAB 620 9661 552

How many & where: 2 - one Front - one Side, seal date: 10-28-93, seal name _____

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. YES NO

9. If required, was enough ice used? Type of ice: Regular YES NO

10. Have designated person initial here to acknowledge receipt of cooler: GP (date) 10/29/93

8. LOG-IN PHASE: Date samples were logged-in: _____

by (print) _____ (sign) _____

11. Describe type of packing in cooler: Peanuts

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken & were labels in good condition? YES NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

15. Did all bottle labels agree with custody papers? YES NO

16. Were correct containers used for the tests indicated? YES NO

17. Were correct preservatives added to samples? YES NO

18. Was a sufficient amount of sample sent for tests indicated? YES NO

19. Were bubbles absent in Volatile samples? If NO, list by QAJ: _____ YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

COOLER RECEIPT FORM

B5

LIMS# 2313 HRO Cooler # 18 Number of Coolers 2 of 3 Contractor Cooler N/A

PROJECT: United Scrap Lead Date received: 29 Oct 93

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 29 Oct 93 C-of-C Number: 2518 Whitney
by (print) Conrad L. German (sign) Conrad L. German Code

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO
If YES, enter carrier name & air bill number here: FEDX: 6209661 561

2. Were custody seals on outside of cooler? YES NO
How many & where: 2-one each side seal date: 10-28-93 seal name Richard

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. YES NO

9. If required, was enough ice used? Type of ice: Regular 4.3 YES NO

10. Have designated person initial here to acknowledge receipt of cooler: LA (date) 10/29/93

B. LOG-IN PHASE: Date samples were logged-in: 29 Oct 93

by (print) Conrad L. German (sign) Conrad L. German

11. Describe type of packing in cooler: Peanuts

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken & were labels in good condition? YES NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

15. Did all bottle labels agree with custody papers? YES NO

16. Were correct containers used for the tests indicated? YES NO

17. Were correct preservatives added to samples? YES NO

18. Was a sufficient amount of sample sent for tests indicated? YES NO

19. Were bubbles absent in Volatile samples? If NO, list by QAL: one sample vial YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO. OF CONTAINERS	LEAD	METALS	ALKALINITY, COLOR	ACIDNESS, PHENOLS, OILS, GREASE	HARDNESS	C/N	REMARKS
LIMS 2313		UNITED SCRAP LEAD/ARCANUM IRON & METAL											
SAMPLERS: (Signature) R. Dzialowski													
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								
YANBERGER	10/28	1236		X	AIM-RW-001	1	X					1 LITER POLY; 1:1 HNO ₃ PH < 2; ICED TO 4°C	
BURTON/DAUPIN	10/28	1341		X	USL-RW-001	1	X					1 LITER POLY; 1:1 HNO ₃ PH < 2; ICED TO 4°C	
ISHMAEL	10/28	1735		X	USL-RW-002	1	X					1 LITER POLY; 1:1 HNO ₃ PH < 2; ICED TO 4°C	
"	"	1738		X	"	1		X				1 LITER POLY; 1:1 HNO ₃ PH < 2; ICED TO 4°C	
"	"	1725		X	"	2			X			1 LITER POLY; ICED TO 4°C	
"	"	1742		X	"	2			X			1 LITER AMBER GLASS; HCL PH < 2; ICED TO 4°C	
"	"	1827		X	USL-RW-002 (BATH TAP)	1				X		1 LITER AMBER GLASS; HCL PH < 2; ICED TO 4°C	
"	"	1704		X	USL-RW-002	1				X		1 LITER POLY; NaOH PH > 12; ICED TO 4°C	

Relinquished by: (Signature) <i>R. Dzialowski</i>	Date / Time 10/28/93 2100	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
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) <i>Conrad R. ...</i>	Date / Time 10-29-93 0850	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

COOLER RECEIPT FORM

B8

LIMS# 2313 MRO Cooler # #721 Number of Coolers 1 Contractor Cooler N/A

PROJECT: United Scrap Lead Date received: 29 Oct 93

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 29 Oct 93 C-of-C Number: 2518

by (print) Conrad German (sign) Conrad German

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO
If YES, enter carrier name & air bill number here: FEDX: 589 2639041

2. Were custody seals on outside of cooler? YES NO
How many & where: 2 one end side, seal date: 10-28-93, seal name: Richard

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. YES NO

9. If required, was enough ice used? Type of ice: 23 YES NO

10. Have designated person initial here to acknowledge receipt of cooler: RP (date) 10/29/93

B. LOG-IN PHASE: Date samples were logged-in: 29 Oct 93

by (print) Conrad L German (sign) Conrad L German

11. Describe type of packing in cooler: Permits

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken & were labels in good condition? YES NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

15. Did all bottle labels agree with custody papers? YES NO

16. Were correct containers used for the tests indicated? YES NO

17. Were correct preservatives added to samples? YES NO

18. Was a sufficient amount of sample sent for tests indicated? YES NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: N/A YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

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Continental Analytical
S E R V I C E S , I N C .

11/12/93

US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Received: 10/30/93
CAS File No.: 93-5409
CAS Order No.: 19511
Your P.O./Project No.: Work Order #89

Dear Ms. Percifield:

Enclosed are the laboratory reports for the following samples:

<u>CAS LAB ID #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE SAMPLED</u>
93101951	931029-H016	10/27/93
93101952	931029-H017	10/28/93
93101953	931029-H027	10/28/93
93101954	931029-H028	10/28/93
93101955	931029-H029	10/28/93
93101956	931029-H030	10/28/93
93101957	931029-H031	10/28/93
93101958	931029-H032	10/28/93
93101959	931029-H033	10/28/93
93101960	931029-H034	10/28/93
93101961	931029-H035	10/28/93
93101962	931029-H036	10/28/93

Thank you for choosing CAS for this project. If you have any questions, please contact me at 800-535-3076.

CONTINENTAL ANALYTICAL SERVICES, INC.



Gregory D. Groene
Project Manager

Continental Analytical

S E R V I C E S , I N C .

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Page: 1

Client: US Army Corps of Engineers
 Attn: Laura Percifield
 420 South 18th Street
 Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
 Date Sample Recd: 10/30/93
 CAS File No: 93-5409
 CAS Order No: 19511
 Client P.O.: Work Order #89

Lab Number: 93101951
 Sample Description: 931029-H016

Date Sampled: 10/27/93
 Time Sampled:

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Drinking Water Volatiles			11/01/93	/
1,1,1,2-Tetrachloroethane	ND(0.2)	µg/L		1533/19
1,1,1-Trichloroethane	ND(0.2)	µg/L		1533/19
1,1,2,2-Tetrachloroethane	ND(0.2)	µg/L		1533/19
1,1,2-Trichloroethane	ND(0.2)	µg/L		1533/19
1,1-Dichloroethane	ND(0.2)	µg/L		1533/19
1,1-Dichloroethene	ND(0.2)	µg/L		1533/19
1,1-Dichloropropene	ND(0.2)	µg/L		1533/19
1,2,3-Trichlorobenzene	ND(0.2)	µg/L		1533/19
1,2,3-Trichloropropane	ND(0.2)	µg/L		1533/19
1,2,4-Trichlorobenzene	ND(0.2)	µg/L		1533/19
1,2,4-Trimethylbenzene	ND(0.2)	µg/L		1533/19
1,2-Dibromo-3-Chloropropane	ND(0.2)	µg/L		1533/19
1,2-Dibromoethane	ND(0.2)	µg/L		1533/19
1,2-Dichlorobenzene	ND(0.2)	µg/L		1533/19
1,2-Dichloroethane	ND(0.2)	µg/L		1533/19
1,2-Dichloropropane	ND(0.2)	µg/L		1533/19
1,3,5-Trimethylbenzene	ND(0.2)	µg/L		1533/19
1,3-Dichlorobenzene	ND(0.2)	µg/L		1533/19
1,3-Dichloropropane	ND(0.2)	µg/L		1533/19
1,3-Dichloropropene (cis)	ND(0.2)	µg/L		1533/19
1,3-Dichloropropene (trans)	ND(0.2)	µg/L		1533/19
1,4-Dichlorobenzene	ND(0.2)	µg/L		1533/19
2,2-Dichloropropane	ND(0.2)	µg/L		1533/19
2-Chlorotoluene	ND(0.2)	µg/L		1533/19
4-Chlorotoluene	ND(0.2)	µg/L		1533/19
Benzene	ND(0.2)	µg/L		1533/19
Bromobenzene	ND(0.2)	µg/L		1533/19
Bromochloromethane	ND(0.2)	µg/L		1533/19
Bromodichloromethane	ND(0.2)	µg/L		1533/19
Bromoform	ND(0.2)	µg/L		1533/19
Bromomethane	ND(0.2)	µg/L		1533/19
Carbon Tetrachloride	ND(0.2)	µg/L		1533/19
Chlorobenzene	ND(0.2)	µg/L		1533/19
Chloroethane	ND(0.2)	µg/L		1533/19
Chloroform	ND(0.2)	µg/L		1533/19
Chloromethane	ND(0.2)	µg/L		1533/19
cis-1,2-Dichloroethene	ND(0.2)	µg/L		1533/19
Dibromochloromethane	ND(0.2)	µg/L		1533/19
Dibromomethane	ND(0.2)	µg/L		1533/19
Dichlorodifluoromethane	ND(0.2)	µg/L		1533/19

-Continued-

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CONTINENTAL ANALYTICAL SERVICES, INC.

LABORATORY REPORT

Page: 2

Client: US Army Corps of Engineers
 Lab Number: 93101951

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Ethylbenzene	ND (0.2)	µg/L		1533/19
Hexachlorobutadiene	ND (0.2)	µg/L		1533/19
Isopropylbenzene	ND (0.2)	µg/L		1533/19
Methylene Chloride	ND (0.2)	µg/L		1533/19
n-Butylbenzene	ND (0.2)	µg/L		1533/19
n-Propylbenzene	ND (0.2)	µg/L		1533/19
Naphthalene	ND (0.2)	µg/L		1533/19
Xylene (Total)	ND (0.2)	µg/L		1533/19
P-Isopropyltoluene	ND (0.2)	µg/L		1533/19
sec-Butylbenzene	ND (0.2)	µg/L		1533/19
Styrene	ND (0.2)	µg/L		1533/19
tert-Butylbenzene	ND (0.2)	µg/L		1533/19
Tetrachloroethene	ND (0.2)	µg/L		1533/19
Toluene	ND (0.2)	µg/L		1533/19
trans-1,2-Dichloroethene	ND (0.2)	µg/L		1533/19
Trichloroethene	ND (0.2)	µg/L		1533/19
Trichlorofluoromethane	ND (0.2)	µg/L		1533/19
Vinyl Chloride	ND (0.2)	µg/L		1533/19

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Drinking Water Volatiles	NA	1GC3305	DKT	502.2

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
 Clifford J. Baker
 Laboratory Director

Continental Analytical

S E R V I C E S , I N C .

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Page: 3

Client: US Army Corps of Engineers
 Attn: Laura Percifield
 420 South 18th Street
 Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
 Date Sample Recd: 10/30/93
 CAS File No: 93-5409
 CAS Order No: 19511
 Client P.O.: Work Order #89

Lab Number: 93101952
 Sample Description: 931029-H017

Date Sampled: 10/28/93
 Time Sampled: 1655

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Drinking Water Volatiles			11/01/93	/
1,1,1,2-Tetrachloroethane	ND(0.2)	µg/L		1533/19
1,1,1-Trichloroethane	ND(0.2)	µg/L		1533/19
1,1,2,2-Tetrachloroethane	ND(0.2)	µg/L		1533/19
1,1,2-Trichloroethane	ND(0.2)	µg/L		1533/19
1,1-Dichloroethane	ND(0.2)	µg/L		1533/19
1,1-Dichloroethene	ND(0.2)	µg/L		1533/19
1,1-Dichloropropene	ND(0.2)	µg/L		1533/19
1,2,3-Trichlorobenzene	ND(0.2)	µg/L		1533/19
1,2,3-Trichloropropane	ND(0.2)	µg/L		1533/19
1,2,4-Trichlorobenzene	ND(0.2)	µg/L		1533/19
1,2,4-Trimethylbenzene	ND(0.2)	µg/L		1533/19
1,2-Dibromo-3-Chloropropane	ND(0.2)	µg/L		1533/19
1,2-Dibromoethane	ND(0.2)	µg/L		1533/19
1,2-Dichlorobenzene	ND(0.2)	µg/L		1533/19
1,2-Dichloroethane	ND(0.2)	µg/L		1533/19
1,2-Dichloropropane	ND(0.2)	µg/L		1533/19
1,3,5-Trimethylbenzene	ND(0.2)	µg/L		1533/19
1,3-Dichlorobenzene	ND(0.2)	µg/L		1533/19
1,3-Dichloropropane	ND(0.2)	µg/L		1533/19
1,3-Dichloropropene (cis)	ND(0.2)	µg/L		1533/19
1,3-Dichloropropene (trans)	ND(0.2)	µg/L		1533/19
1,4-Dichlorobenzene	ND(0.2)	µg/L		1533/19
2,2-Dichloropropane	ND(0.2)	µg/L		1533/19
2-Chlorotoluene	ND(0.2)	µg/L		1533/19
4-Chlorotoluene	ND(0.2)	µg/L		1533/19
Benzene	ND(0.2)	µg/L		1533/19
Bromobenzene	ND(0.2)	µg/L		1533/19
Bromochloromethane	ND(0.2)	µg/L		1533/19
Bromodichloromethane	ND(0.2)	µg/L		1533/19
Bromoform	ND(0.2)	µg/L		1533/19
Bromomethane	ND(0.2)	µg/L		1533/19
Carbon Tetrachloride	ND(0.2)	µg/L		1533/19
Chlorobenzene	ND(0.2)	µg/L		1533/19
Chloroethane	ND(0.2)	µg/L		1533/19
Chloroform	ND(0.2)	µg/L		1533/19
Chloromethane	ND(0.2)	µg/L		1533/19
cis-1,2-Dichloroethene	ND(0.2)	µg/L		1533/19
Dibromochloromethane	ND(0.2)	µg/L		1533/19
Dibromomethane	ND(0.2)	µg/L		1533/19
Dichlorodifluoromethane	ND(0.2)	µg/L		1533/19

-Continued-

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CONTINENTAL ANALYTICAL SERVICES, INC.

LABORATORY REPORT

Page: 4

Client: US Army Corps of Engineers
 Lab Number: 93101952

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Ethylbenzene	ND(0.2)	µg/L		1533/19
Hexachlorobutadiene	ND(0.2)	µg/L		1533/19
Isopropylbenzene	ND(0.2)	µg/L		1533/19
Methylene Chloride	ND(0.2)	µg/L		1533/19
n-Butylbenzene	ND(0.2)	µg/L		1533/19
n-Propylbenzene	ND(0.2)	µg/L		1533/19
Naphthalene	ND(0.2)	µg/L		1533/19
Xylene(Total)	ND(0.2)	µg/L		1533/19
P-Isopropyltoluene	ND(0.2)	µg/L		1533/19
sec-Butylbenzene	ND(0.2)	µg/L		1533/19
Styrene	ND(0.2)	µg/L		1533/19
tert-Butylbenzene	ND(0.2)	µg/L		1533/19
Tetrachloroethene	ND(0.2)	µg/L		1533/19
Toluene	ND(0.2)	µg/L		1533/19
trans-1,2-Dichloroethene	ND(0.2)	µg/L		1533/19
Trichloroethene	ND(0.2)	µg/L		1533/19
Trichlorofluoromethane	ND(0.2)	µg/L		1533/19
Vinyl Chloride	ND(0.2)	µg/L		1533/19

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Drinking Water Volatiles	NA	1GC3305	DKT	502.2

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
 Clifford J. Baker
 Laboratory Director

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Continental Analytical SERVICES, INC.

Page: 5

Client: US Army Corps of Engineers
ATTN: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101953
Sample Description: 931029-H027

Date Sampled: 10/28/93
Time Sampled: 1738

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Arsenic, Total	ND(0.01)	mg/L	11/11/93	1889/6
Barium, Total	0.2	mg/L	11/11/93	1868/89
Cadmium, Total	ND(0.005)	mg/L	11/11/93	1908/73
Calcium, Total	99.	mg/L	11/10/93	1829/42
Chromium, Total	ND(0.01)	mg/L	11/11/93	1909/82
Copper, Total	ND(0.02)	mg/L	11/11/93	1926/10
Iron, Total	4.1	mg/L	11/11/93	1828/71
Lead, Total	ND(0.003)	mg/L	11/11/93	1878/21
Magnesium, Total	37.	mg/L	11/10/93	1910/16
Manganese, Total	0.07	mg/L	11/11/93	1791/75
Mercury, Total	ND(0.0002)	mg/L	11/11/93	1918/25
Potassium, Total	ND(5)	mg/L	11/10/93	1757/73
Selenium, Total	ND(0.005)	mg/L	11/10/93	1854/35
Silver, Total	ND(0.01)	mg/L	11/11/93	1869/102
Sodium, Total	28.	mg/L	11/10/93	1792/71
Zinc, Total	ND(0.02)	mg/L	11/11/93	1927/11

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Arsenic, Total	11/01/93	4	MLH	206.2/7060
Barium, Total	11/01/93	3	MAG	200.7/6010
Cadmium, Total	11/01/93	3	MAG	200.7/6010
Calcium, Total	11/01/93	3	MAG	200.7/6010
Chromium, Total	11/01/93	3	MAG	200.7/6010
Copper, Total	11/01/93	3	MAG	200.7/6010
Iron, Total	11/01/93	3	MAG	200.7/6010
Lead, Total	11/01/93	4	MLH	239.2/7421
Magnesium, Total	11/01/93	3	MAG	200.7/6010
Manganese, Total	11/01/93	3	MAG	200.7/6010
Mercury, Total	11/11/93	1	HJW	245.1/7470/7471
Potassium, Total	11/01/93	3	MAG	200.7/6010
Selenium, Total	11/01/93	4	MLH	270.2/7740
Silver, Total	11/01/93	3	MAG	200.7/6010
Sodium, Total	11/01/93	3	MAG	200.7/6010
Zinc, Total	11/01/93	3	MAG	200.7/6010

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

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CONTINENTAL ANALYTICAL SERVICES, INC.

LABORATORY REPORT

Page: 6

Client: US Army Corps of Engineers
Lab Number: 93101953

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
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Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

CAS

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Continental Analytical SERVICES, INC.

Page: 7

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101954
Sample Description: 931029-H028

Date Sampled: 10/28/93
Time Sampled: 1236

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Lead, Total	ND(0.003)	mg/L	11/11/93	1878/21

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Lead, Total	11/01/93	4	MLH	239.2/7421

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

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Continental Analytical
SERVICES, INC.

Page: 8

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101955
Sample Description: 931029-H029

Date Sampled: 10/28/93
Time Sampled: 1341

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Lead, Total	ND(0.003)	mg/L	11/11/93	1878/21

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Lead, Total	11/01/93	4	MLH	239.2/7421

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

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Laboratory Director

Continental Analytical

S E R V I C E S , I N C .

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Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101956
Sample Description: 931029-H030

Date Sampled: 10/28/93
Time Sampled: 1725

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Alkalinity, Total	309.	mg/L as CaCO3	11/03/93	1527/55
Color	70.	APPARENT COLOR	11/02/93	1556/94

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Alkalinity, Total	NA	1	MRH	310.1
Color	NA	1	HJW	110.2

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

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Laboratory Director

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S E R V I C E S , I N C .

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Page: 10

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101957
Sample Description: 931029-H031

Date Sampled: 10/28/93
Time Sampled: 1704

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Cyanide, Total	ND(0.01)	mg/L	11/04/93	1503/77

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Cyanide, Total	NA	1	HJW	335.2/9010

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

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Laboratory Director

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S E R V I C E S , I N C .

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Page: 11

Client: US Army Corps of Engineers
 Attn: Laura Percifield
 420 South 18th Street
 Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
 Date Sample Recd: 10/30/93
 CAS File No: 93-5409
 CAS Order No: 19511
 Client P.O.: Work Order #89

Lab Number: 93101958
 Sample Description: 931029-H032

Date Sampled: 10/28/93
 Time Sampled: 1742

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Phenolic Compounds	ND(0.005)	mg/L	11/02/93	1818/25
Total Organic Carbon, Sparged	2.	mg/L	11/05/93	1824/36
Hardness (Calculated)	485.	mg/L as CaCO3	11/11/93	629 /55
Calcium, Total	88.	mg/L	11/10/93	1829/43
Magnesium, Total	34.	mg/L	11/10/93	1910/17

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Phenolic Compounds	NA	1	MRH	420.1/9065
Total Organic Carbon, Sparged	NA	2	BLP	SM 5310C
Hardness (Calculated)	NA	1	MRH	SM 2340B
Calcium, Total	11/02/93	3	MAG	200.7/6010
Magnesium, Total	11/02/93	3	MAG	200.7/6010

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

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Page: 12

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101959
Sample Description: 931029-H033

Date Sampled: 10/28/93
Time Sampled: 1827

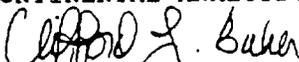
<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Hardness (Calculated)	405.	mg/L as CaCO3	11/11/93	629 /55
Calcium, Total	75.	mg/L	11/10/93	1829/43
Magnesium, Total	33.	mg/L	11/10/93	1910/17

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Hardness (Calculated)	NA	1	MRH	SM 2340B
Calcium, Total	11/02/93	3	MAG	200.7/6010
Magnesium, Total	11/02/93	3	MAG	200.7/6010

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

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Page: 13

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101960
Sample Description: 931029-H034

Date Sampled: 10/28/93
Time Sampled: 1713

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Sulfide, Total	ND(0.1)	mg/L	11/03/93	1529/23

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Sulfide, Total	NA	1	HJW	376.2

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

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Laboratory Director

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Page: 14

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101961
Sample Description: 931029-H035

Date Sampled: 10/28/93
Time Sampled: 1818

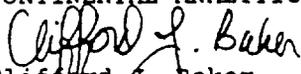
<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Iron, Soluble	3.1	mg/L	11/11/93	1828/73
Manganese, Soluble	0.06	mg/L	11/11/93	1791/76

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Iron, Soluble	11/01/93	1	MAG	200.7/6010
Manganese, Soluble	11/01/93	1	MAG	200.7/6010

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

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Laboratory Director

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Page: 15

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101962
Sample Description: 931029-H036

Date Sampled: 10/28/93
Time Sampled: 1804

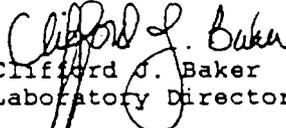
<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Solids, Total Dissolved	524.	mg/L	11/02/93	1762/61

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Solids, Total Dissolved	NA	1	MRH	160.1

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

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Laboratory Director

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S E R V I C E S , I N C .

11/15/93

US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Re: CAS File Number: 93-5409
CAS Order Number: 19511
CAS Project Manager: Gregory J. Groene

Dear Ms. Percifield:

Enclosed are the following CAS Quality Control Reports for the above referenced order number:

- METHOD BLANK DATA
- LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE
- SURROGATE DATA
- MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A general description of the information contained in the reports is presented below:

METHOD BLANK DATA

A Method Blank is a matrix similar to that of the sample which has been prepared and analyzed by the same method as the sample. The Method Blank is used to assure that the preparation and analysis method has not introduced contamination. The CAS Method Blank Data Report provides the analytical results for all method blanks prepared and analyzed from the same batch as that of the client's samples.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE

A Laboratory Control Sample is a matrix similar to that of the sample which has been spiked with known concentrations of analytes and prepared and analyzed by the same method as the sample. The Laboratory Control Sample (LCS) percent recovery is a measure of the accuracy of the preparation and analysis method. The Laboratory Control Sample Duplicate (LCSD) is a duplicate preparation and analysis of the LCS. The LCS and LCSD are used to calculate the relative percent difference, which is a measure of the precision of the preparation and analysis method. The CAS LCS/LCSD Report provides the analytical results for all laboratory control samples prepared and analyzed from the same batch as that of the client's sample.

SURROGATE DATA

A Surrogate is a compound that is similar to the compounds of interest, but is not normally found in environmental samples. Surrogates are added to the sample prior to preparation and analysis. The surrogate percent recovery is a measure of the effectiveness of the preparation and analysis method on the individual sample. The CAS Surrogate Data Report provides the surrogate recoveries for each sample that required organic analysis.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike is an aliquot of a sample spiked with compounds of interest and prepared and analyzed by the same method as the sample. The Matrix Spike (MS) percent recovery is a measure of the effectiveness of the preparation and analysis method on the specific sample matrix. The Matrix Spike Duplicate (MSD) is a duplicate preparation and analysis of the MS. The MS and MSD are used to calculate the relative percent difference, which is a measure of the precision of the preparation and analysis method. The CAS MS/MSD Report provides the analytical results for all matrix spike and matrix spike duplicate analyses performed on samples from the client's order.

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11/15/93
US Army Corps of Engineers
420 South 18th Street
Omaha, NE 68102-2586

ACCURACY AND PRECISION LIMITS

The accuracy and precision limits are method or laboratory determined limits indicating acceptable accuracy or precision for a given matrix. The accuracy limits are expressed with units of percent recovery. The precision limits are expressed with units of relative percent difference (RPD). Accuracy and precision limits are provided on the CAS LCS/LCSD Report, CAS MS/MSD Report and the CAS Surrogate Report.

QUALITY CONTROL BATCH

Each batch of twenty or fewer samples of the same matrix, prepared and analyzed at CAS, is assigned a Quality Control Batch number. The Quality Control Batch number for each sample is provided on the CAS Laboratory Report. With each batch, a Method Blank and two Laboratory Control Samples are also prepared and analyzed. The analytical results for the Method Blank and the Laboratory Control Samples are provided on the CAS Method Blank Data Report and the CAS LCS/LCSD Report, respectively.

DATE PREPARED

The date prepared is the date the sample was extracted or digested in preparation for analysis. If the extraction or digestion is performed as part of the analysis, "NA" is reported for the date prepared. The date prepared for each sample is provided on the CAS Laboratory Report.

DATE ANALYZED

The date analyzed is the date the analysis was performed on the sample. The date analyzed for each sample is provided on the CAS Laboratory Report.

If you have any questions regarding this data, please contact me or your CAS Project Manager at (800) 535-3076.

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Clifford J. Baker
Laboratory Director

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QUALITY CONTROL REPORT METHOD BLANK DATA

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931101BLK1

Date Prepared: 11/01/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Iron, Soluble	ND(0.1)	mg/L	1	1828/74
Manganese, Soluble	ND(0.01)	mg/L	1	1791/77

Conclusion of lab number 931101BLK1

Lab Number: 931101BLK3

Date Prepared: 11/01/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Barium, Total	ND(0.1)	mg/L	3	1868/73
Cadmium, Total	ND(0.005)	mg/L	3	1908/48
Calcium, Total	ND(5)	mg/L	3	1829/42
Chromium, Total	ND(0.01)	mg/L	3	1909/60
Copper, Total	ND(0.02)	mg/L	3	1926/10
Iron, Total	ND(0.1)	mg/L	3	1828/71
Magnesium, Total	ND(5)	mg/L	3	1910/16
Manganese, Total	ND(0.01)	mg/L	3	1791/75
Potassium, Total	ND(5)	mg/L	3	1757/73
Silver, Total	ND(0.01)	mg/L	3	1869/83
Sodium, Total	ND(5)	mg/L	3	1792/71
Zinc, Total	ND(0.02)	mg/L	3	1927/11

Conclusion of lab number 931101BLK3

Lab Number: 931101BLK4

Date Prepared: 11/01/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Arsenic, Total	ND(0.01)	mg/L	4	1764/64
Lead, Total	ND(0.003)	mg/L	4	1878/14
Selenium, Total	ND(0.005)	mg/L	4	1767/76

Conclusion of lab number 931101BLK4

-Continued-

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QUALITY CONTROL REPORT
METHOD BLANK DATA

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931102BLK1

Date Prepared: 11/02/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Color	ND(1)	APPARENT COLOR	1	1556/94
Phenolic Compounds	ND(0.005)	mg/L	1	1818/24
Solids, Total Dissolved	ND(2)	mg/L	1	1762/60

Conclusion of lab number 931102BLK1

Lab Number: 931102BLK3

Date Prepared: 11/02/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Calcium, Total	ND(5)	mg/L	3	1829/44
Magnesium, Total	ND(5)	mg/L	3	1910/18

Conclusion of lab number 931102BLK3

Lab Number: 931103BLK1

Date Prepared: 11/03/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Alkalinity, Total	ND(2)	mg/L as CaCO3	1	1527/54
Sulfide, Total	ND(0.1)	mg/L	1	1529/23

Conclusion of lab number 931103BLK1

Lab Number: 931104BLK1

Date Prepared: 11/04/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Cyanide, Total	ND(0.01)	mg/L	1	1503/76

Conclusion of lab number 931104BLK1

-Continued-

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QUALITY CONTROL REPORT
METHOD BLANK DATA

Page: 3

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931105BLK2

Date Prepared: 11/05/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Total Organic Carbon, Sparged	ND(1)	mg/L	2	1824/36

Conclusion of lab number 931105BLK2

Lab Number: 931111BLK1

Date Prepared: 11/11/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Hardness (Calculated)	ND(5)	mg/L as CaCO3	1	629 /55
Mercury, Total	ND(0.0002)	mg/L	1	1918/24

Conclusion of lab number 931111BLK1

Lab Number: BLK1GC3305

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Drinking Water Volatiles			1GC3305	
1,1,1,2-Tetrachloroethane	ND(0.2)	µg/L		1533/18
1,1,1-Trichloroethane	ND(0.2)	µg/L		1533/18
1,1,2,2-Tetrachloroethane	ND(0.2)	µg/L		1533/18
1,1,2-Trichloroethane	ND(0.2)	µg/L		1533/18
1,1-Dichloroethane	ND(0.2)	µg/L		1533/18
1,1-Dichloroethene	ND(0.2)	µg/L		1533/18
1,1-Dichloropropene	ND(0.2)	µg/L		1533/18
1,2,3-Trichlorobenzene	ND(0.2)	µg/L		1533/18
1,2,3-Trichloropropane	ND(0.2)	µg/L		1533/18
1,2,4-Trichlorobenzene	ND(0.2)	µg/L		1533/18
1,2,4-Trimethylbenzene	ND(0.2)	µg/L		1533/18
1,2-Dibromo-3-Chloropropane	ND(0.2)	µg/L		1533/18
1,2-Dibromoethane	ND(0.2)	µg/L		1533/18
1,2-Dichlorobenzene	ND(0.2)	µg/L		1533/18
1,2-Dichloroethane	ND(0.2)	µg/L		1533/18
1,2-Dichloropropane	ND(0.2)	µg/L		1533/18
1,3,5-Trimethylbenzene	ND(0.2)	µg/L		1533/18
1,3-Dichlorobenzene	ND(0.2)	µg/L		1533/18
1,3-Dichloropropane	ND(0.2)	µg/L		1533/18

-Continued-

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QUALITY CONTROL REPORT
METHOD BLANK DATA

Page: 4

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: BLK1GC3305

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch Book/Page</u>
1,3-Dichloropropene(cis)	ND(0.2)	µg/L	1533/18
1,3-Dichloropropene(trans)	ND(0.2)	µg/L	1533/18
1,4-Dichlorobenzene	ND(0.2)	µg/L	1533/18
2,2-Dichloropropane	ND(0.2)	µg/L	1533/18
2-Chlorotoluene	ND(0.2)	µg/L	1533/18
4-Chlorotoluene	ND(0.2)	µg/L	1533/18
Benzene	ND(0.2)	µg/L	1533/18
Bromobenzene	ND(0.2)	µg/L	1533/18
Bromochloromethane	ND(0.2)	µg/L	1533/18
Bromodichloromethane	ND(0.2)	µg/L	1533/18
Bromoform	ND(0.2)	µg/L	1533/18
Bromomethane	ND(0.2)	µg/L	1533/18
Carbon Tetrachloride	ND(0.2)	µg/L	1533/18
Chlorobenzene	ND(0.2)	µg/L	1533/18
Chloroethane	ND(0.2)	µg/L	1533/18
Chloroform	ND(0.2)	µg/L	1533/18
Chloromethane	ND(0.2)	µg/L	1533/18
cis-1,2-Dichloroethene	ND(0.2)	µg/L	1533/18
Dibromochloromethane	ND(0.2)	µg/L	1533/18
Dibromomethane	ND(0.2)	µg/L	1533/18
Dichlorodifluoromethane	ND(0.2)	µg/L	1533/18
Ethylbenzene	ND(0.2)	µg/L	1533/18
Hexachlorobutadiene	ND(0.2)	µg/L	1533/18
Isopropylbenzene	ND(0.2)	µg/L	1533/18
Methylene Chloride	0.3	µg/L	1533/18
n-Butylbenzene	ND(0.2)	µg/L	1533/18
n-Propylbenzene	ND(0.2)	µg/L	1533/18
Naphthalene	ND(0.2)	µg/L	1533/18
Xylene(Total)	ND(0.2)	µg/L	1533/18
P-Isopropyltoluene	ND(0.2)	µg/L	1533/18
sec-Butylbenzene	ND(0.2)	µg/L	1533/18
Styrene	ND(0.2)	µg/L	1533/18
tert-Butylbenzene	ND(0.2)	µg/L	1533/18
Tetrachloroethene	ND(0.2)	µg/L	1533/18
Toluene	ND(0.2)	µg/L	1533/18
trans-1,2-Dichloroethene	ND(0.2)	µg/L	1533/18
Trichloroethene	ND(0.2)	µg/L	1533/18
Trichlorofluoromethane	ND(0.2)	µg/L	1533/18
Vinyl Chloride	ND(0.2)	µg/L	1533/18

Conclusion of lab number BLK1GC3305

-Continued-

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Continental Analytical
SERVICES, INC.

QUALITY CONTROL REPORT
METHOD BLANK DATA

Page: 5

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

C24

Continental Analytical

S E R V I C E S , I N C .

QUALITY CONTROL REPORT

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 1

Client: US Army Corps of Engineers
 Attn: Laura Percifield
 420 South 18th Street
 Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
 Date Sample Recd: 10/30/93
 CAS File No: 93-5409
 CAS Order No: 19511
 Client P.O.: Work Order #89

Lab Number: 931101LCS1

Date Prepared: 11/01/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Iron, Soluble	1	38 mg/L	93.0	94.0	93.5	80-120	1.1	20
Manganese, Soluble	1	5.0 mg/L	89.0	93.0	91.0	80-120	4.4	20

Conclusion of Lab Number 931101LCS1

Lab Number: 931101LCS3

Date Prepared: 11/01/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Barium, Total	3	5.0 mg/L	91.0	93.0	92.0	80-120	2.2	20
Cadmium, Total	3	0.50 mg/L	91.0	93.0	92.0	80-120	2.2	20
Calcium, Total	3	50 mg/L	98.0	100	99.0	80-120	2.0	20
Chromium, Total	3	5.0 mg/L	93.0	95.0	94.0	80-120	2.1	20
Copper, Total	3	5.0 mg/L	93.0	94.0	93.5	80-120	1.1	20
Iron, Total	3	38 mg/L	92.0	93.0	92.5	80-120	1.1	20
Magnesium, Total	3	50 mg/L	92.0	92.0	92.0	80-120	0.0	20
Manganese, Total	3	5.0 mg/L	90.0	91.0	90.5	80-120	1.1	20
Potassium, Total	3	50 mg/L	96.0	98.0	97.0	80-120	2.1	20
Silver, Total	3	0.50 mg/L	98.0	94.0	96.0	80-120	4.2	20
Sodium, Total	3	50 mg/L	94.0	96.0	95.0	80-120	2.1	20
Zinc, Total	3	5.0 mg/L	91.0	93.0	92.0	80-120	2.2	20

Conclusion of Lab Number 931101LCS3

Lab Number: 931101LCS4

Date Prepared: 11/01/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Arsenic, Total	4	0.05 mg/L	99.0	99.0	99.0	80-120	0.0	20
Lead, Total	4	0.05 mg/L	97.0	100	98.5	80-120	3.0	20

-Continued-

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Continental Analytical

S E R V I C E S , I N C .

QUALITY CONTROL REPORT

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931101LCS4

Date Prepared: 11/01/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Selenium, Total	4	0.05 mg/L	101	101	101	80-120	0.0	20

Conclusion of Lab Number 931101LCS4

Lab Number: 931102LCS1

Date Prepared: 11/02/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Color	1	10 APPAR	100	100	100	#	0.0	#
Phenolic Compounds	1	0.02 mg/L	98.0	94.0	96.0	90-110	4.2	20
Solids, Total Dissolved	1	500 mg/L	108	97.0	103	90-110	11.	20

- Quality control limits are currently unavailable for this analysis.

Conclusion of Lab Number 931102LCS1

Lab Number: 931102LCS3

Date Prepared: 11/02/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Calcium, Total	3	50 mg/L	96.0	98.0	97.0	80-120	2.1	20
Magnesium, Total	3	50 mg/L	90.0	92.0	91.0	80-120	2.2	20

Conclusion of Lab Number 931102LCS3

Lab Number: 931103LCS1

Date Prepared: 11/03/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Alkalinity, Total	1	54 mg/L	103	103	103	90-110	0.0	20

-Continued-

Continental Analytical

S E R V I C E S , I N C .

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QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 3

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931103LCS1

Date Prepared: 11/03/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Sulfide, Total	1	0.40 mg/L	106	106	106	90-110	0.0	20

Conclusion of Lab Number 931103LCS1

Lab Number: 931104LCS1

Date Prepared: 11/04/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Cyanide, Total	1	0.10 mg/L	92.0	90.0	91.0	90-110	2.2	20

Conclusion of Lab Number 931104LCS1

Lab Number: 931105LCS2

Date Prepared: 11/05/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Total Organic Carbon, Sp 2	2	8.6 mg/L	99.0	102	101	90-110	3.0	20

Conclusion of Lab Number 931105LCS2

Lab Number: 931111LCS1

Date Prepared: 11/11/93

Analysis	QC Batch	Spike Level Units	LCS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				LCSD	Avg.	Limits	RPD	Limits
Hardness (Calculated)	1	330 mg/L	100	104	102	90-110	3.9	20
Mercury, Total	1	0.01 mg/L	96.0	99.0	97.5	80-120	3.1	20

-Continued-

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Continental Analytical

S E R V I C E S , I N C .

QUALITY CONTROL REPORT

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 4

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 931111LCS1

Conclusion of Lab Number: 931111LCS1

Lab Number: LCS1GC3305

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (* RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Drinking Water Volatiles 1GC3305								
Benzene		5.0 µg/L	91.3	94.0	92.7	76-127	2.9	11
Chlorobenzene		5.0 µg/L	89.8	92.1	90.9	75-130	2.5	13
1,1-Dichloroethene		5.0 µg/L	91.6	93.8	92.7	61-145	2.4	14
Toluene		5.0 µg/L	90.3	95.0	92.7	76-125	5.1	13
Trichloroethene		5.0 µg/L	98.1	99.0	98.6	78-126	0.9	24

Conclusion of Lab Number LCS1GC3305

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT SURROGATE DATA

PAGE: 1

CLIENT: US Army Corps of Engineers
ATTN: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

DATE SAMPLE RPTD: 11/15/93
DATE SAMPLE RECD: 10/30/93
CAS FILE NO: 93-5409
CAS ORDER NO: 19511
CLIENT P.O.: Work Order #89

LAB NUMBER: 93101951
SAMPLE DESCRIPTION: 931029-H016

<u>SURROGATE DATA</u>	<u>DATE PREPARED</u>	<u>DATE ANALYZED</u>	<u>Q.C. RESULTS % RECOVERED</u>	<u>ACCEPTABLE % RECOVERY RANGE</u>
4-BFB(GC)	NA	11/01/93	92.0 at 20	86.0 - 115

LAB NUMBER: 93101952
SAMPLE DESCRIPTION: 931029-H017

<u>SURROGATE DATA</u>	<u>DATE PREPARED</u>	<u>DATE ANALYZED</u>	<u>Q.C. RESULTS % RECOVERED</u>	<u>ACCEPTABLE % RECOVERY RANGE</u>
4-BFB(GC)	NA	11/01/93	86.7 at 20	86.0 - 115

ND(), where noted, indicates none detected with the detection limit in parentheses.
% Rec indicates % recovered at the indicated concentration.

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

C29

Continental Analytical

S E R V I C E S . . . I N C .

QUALITY CONTROL REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: 93101960

<u>Analysis</u>	<u>QC Batch</u>	<u>Spike Level Units</u>	<u>MS</u>	<u>ACCURACY DATA (% RECOVERY)</u>			<u>PRECISION DATA</u>	
				<u>MSD</u>	<u>Avg.</u>	<u>Limits</u>	<u>RPD</u>	<u>Limits</u>
Sulfide, Total	1	0.40 mg/L	108	107	108	49-160	0.9	20

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

Continental Analytical

S E R V I C E S , I N C .

C30

QUALITY CONTROL REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: Matrix Spike Data from Sample Batch(s)

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA		Date Prepared
			MS	MSD	Avg.	Limits	RPD	Limits	
Drinking Water Volatiles 1G3305									NA
Benzene		2.0 µg/L	103	101	102	76-127	2.0	11	
Chlorobenzene		2.0 µg/L	102	102	102	75-130	0.0	13	
1,1-Dichloroethene		2.0 µg/L	124	122	123	61-145	1.6	14	
Toluene		2.0 µg/L	112	111	112	76-125	0.9	13	
Trichloroethene		2.0 µg/L	117	122	120	78-126	4.2	24	
Arsenic, Total	4	0.05 mg/L	86.0	87.0	86.5	75-131	1.2	20	11/01/93
Barium, Total	3	5.0 mg/L	89.0	89.0	89.0	80-120	0.0	20	11/01/93
Calcium, Total	3	50 mg/L	82.0	85.0	83.5	70-133	3.6	20	11/01/93
Chromium, Total	3	5.0 mg/L	91.0	92.0	91.5	80-120	1.1	20	11/01/93
Copper, Total	3	5.0 mg/L	94.0	93.0	93.5	80-120	1.1	20	11/01/93
Iron, Total	3	38 mg/L	91.0	92.0	91.5	80-120	1.1	20	11/01/93
Lead, Total	4	0.05 mg/L	78.0	77.0	77.5	63-129	1.3	20	11/01/93
Magnesium, Total	3	50 mg/L	91.0	90.0	90.5	79-118	1.1	20	11/01/93
Manganese, Total	3	5.0 mg/L	89.0	89.0	89.0	80-120	0.0	20	11/01/93
Mercury, Total	1	0.01 mg/L	84.0	93.0	88.5	55-148	10.	20	11/11/93
Potassium, Total	3	50 mg/L	100	100	100	71-125	0.0	20	11/01/93
Selenium, Total	4	0.05 mg/L	84.0	84.0	84.0	67-124	0.0	20	11/01/93
Silver, Total	3	0.50 mg/L	92.0	94.0	93.0	80-120	2.2	20	11/01/93
Sodium, Total	3	50 mg/L	94.0	94.0	94.0	75-121	0.0	20	11/01/93
Zinc, Total	3	5.0 mg/L	92.0	91.0	91.5	80-120	1.1	20	11/01/93
Cyanide, Total	1	0.10 mg/L	91.0	97.0	94.0	66-134	6.4	23	NA
Calcium, Total	3	50 mg/L	110	112	111	70-133	1.8	20	11/02/93
Magnesium, Total	3	50 mg/L	100	101	101	79-118	1.0	20	11/02/93
Phenolic Compounds	1	0.05 mg/L	93.0	102	97.5	36-150	9.2	33	NA
Total Organic Carbon, Sp	2	5.0 mg/L	82.0	85.0	83.5	59-125	3.6	20	NA
Manganese, Soluble	1	5.0 mg/L	89.0	88.0	88.5	80-120	1.1	20	11/01/93
Iron, Soluble	1	38 mg/L	90.0	89.0	89.5	80-120	1.1	20	11/01/93
Solids, Total Dissolved	1	0.00 mg/L	944 *	928 *	936	#	1.7	#	NA
Cadmium, Total	3	0.50 mg/L	87.0	88.0	87.5	80-120	1.1	20	11/01/93
Sulfide, Total	1	0.40 mg/L	108	107	108	49-160	0.9	20	NA

*Result is a duplicate.

- Quality control limits are currently unavailable for this analysis.

-Continued-

Continental Analytical

S E R V I C E S , I N C .

C31

QUALITY CONTROL REPORT MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19511
Client P.O.: Work Order #89

Lab Number: Matrix Spike Data from Sample Batch(s)

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

C32

Continental Analytical SERVICES, INC.

11/12/93

US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Received: 10/30/93
CAS File No.: 93-5409
CAS Order No.: 19514
Your P.O./Project No.: Work Order #89

Dear Ms. Percifield:

Enclosed are the laboratory reports for the following samples:

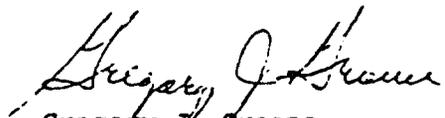
<u>CAS LAB ID #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DATE SAMPLED</u>
93101982	931029-H037	10/28/93
93101983	931029-H038	10/28/93
93101984	931029-H039	10/28/93
93101985	931029-H040	10/28/93
93101986	931029-H041	10/28/93
93101987	931029-H042	10/28/93

The footnotes contained in the attached laboratory reports are summarized below for your reference.

<u>CAS LAB ID #</u>	<u>TEST NAME</u>	<u>SAMPLE CONC.</u>	<u>LAB REPORT FOOTNOTE</u>
93101984	Odor	*	*No apparent odor

Thank you for choosing CAS for this project. If you have any questions, please contact me at 800-535-3076.

CONTINENTAL ANALYTICAL SERVICES, INC.


Gregory J. Groene
Project Manager

Continental Analytical

S E R V I C E S , I N C .

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Page: 1

Client: US Army Corps of Engineers
 Attn: Laura Percifield
 420 South 18th Street
 Omaha, NE 68102-2586

Date Sample Rptd: 11/12/93
 Date Sample Recd: 10/30/93
 CAS File No: 93-5409
 CAS Order No: 19514
 Client P.O.: Work Order #89

Lab Number: 93101982
 Sample Description: 931029-H037

Date Sampled: 10/28/93
 Time Sampled: 1721

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Bicarbonate	305.	mg/L as CaCO3	11/12/93	1527/60
Carbonate	ND(2)	mg/L as CaCO3	11/12/93	1527/60
Chloride	64.	mg/L	11/05/93	1584/89
Fluoride	0.3	mg/L	11/02/93	169 /95
Sulfate	69.	mg/L	11/03/93	907 /233
Bromide	0.4	mg/L	11/02/93	1913/5

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Bicarbonate	NA	1	HJW	SM 4500-C02D
Carbonate	NA	1	HJW	SM4500-C02D
Chloride	NA	1	HJW	SM 4500-C1-B
Fluoride	NA	1	BLP	340.2
Sulfate	NA	1	BLP	375.4/9038
Bromide	NA	1	BLP	ASTM D1246

Conclusion of Lab Number: 93101982

Lab Number: 93101983
 Sample Description: 931029-H038

Date Sampled: 10/28/93
 Time Sampled: 1721

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Nitrite, as N	ND(0.1)	mg/L as N	11/08/93	1715/209
Nitrate, as N	0.2	mg/L	11/01/93	1715/190
Orthophosphate, as P	ND(0.1)	mg/L	11/01/93	1530/70

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Nitrite, as N	NA	1	HJW	353.2
Nitrate, as N	NA	1	BLP	353.2
Orthophosphate, as P	NA	1	BLP	365.1

Conclusion of Lab Number: 93101983

-Continued-

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LABORATORY REPORT

Page: 4

Client: US Army Corps of Engineers
 Lab Number: 93101987

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Book/Page</u>
Aldicarb Sulfone	ND(2.0)	µg/L		1848/15
Aldicarb Sulfoxide	ND(2.0)	µg/L		1848/15
Carbaryl	ND(2.0)	µg/L		1848/15
Carbofuran	ND(2.0)	µg/L		1848/15
Methomyl	ND(0.5)	µg/L		1848/15
Oxamyl (Vydate)	ND(20.0)	µg/L		1848/15

<u>Analysis</u>	<u>Date Prepared</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Analytical Method</u>
Phase II & V Carbamates	NA	1	HSY	EPA 531.1

Conclusion of Lab Number: 93101987

Laboratory analyses were performed on samples utilizing procedures published in Title 40 of the Code of Federal Regulations, Parts 136 or 141, or in EPA Publication, SW-846, 3rd edition, September, 1986. ND(), where noted, indicates none detected with the detection limit in parentheses.

Samples will be retained for thirty days unless otherwise notified.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
 Clifford J. Baker
 Laboratory Director

C37

Continental Analytical
S E R V I C E S , I N C .

11/15/93

US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Re: CAS File Number: 93-5409
CAS Order Number: 19514
CAS Project Manager: Gregory J. Groene

Dear Ms. Percifield:

Enclosed are the following CAS Quality Control Reports for the above referenced order number:

- METHOD BLANK DATA
- LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE
- SURROGATE DATA
- MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A general description of the information contained in the reports is presented below:

METHOD BLANK DATA

A Method Blank is a matrix similar to that of the sample which has been prepared and analyzed by the same method as the sample. The Method Blank is used to assure that the preparation and analysis method has not introduced contamination. The CAS Method Blank Data Report provides the analytical results for all method blanks prepared and analyzed from the same batch as that of the client's samples.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE

A Laboratory Control Sample is a matrix similar to that of the sample which has been spiked with known concentrations of analytes and prepared and analyzed by the same method as the sample. The Laboratory Control Sample (LCS) percent recovery is a measure of the accuracy of the preparation and analysis method. The Laboratory Control Sample Duplicate (LCSD) is a duplicate preparation and analysis of the LCS. The LCS and LCSD are used to calculate the relative percent difference, which is a measure of the precision of the preparation and analysis method. The CAS LCS/LCSD Report provides the analytical results for all laboratory control samples prepared and analyzed from the same batch as that of the client's sample.

SURROGATE DATA

A Surrogate is a compound that is similar to the compounds of interest, but is not normally found in environmental samples. Surrogates are added to the sample prior to preparation and analysis. The surrogate percent recovery is a measure of the effectiveness of the preparation and analysis method on the individual sample. The CAS Surrogate Data Report provides the surrogate recoveries for each sample that required organic analysis.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike is an aliquot of a sample spiked with compounds of interest and prepared and analyzed by the same method as the sample. The Matrix Spike (MS) percent recovery is a measure of the effectiveness of the preparation and analysis method on the specific sample matrix. The Matrix Spike Duplicate (MSD) is a duplicate preparation and analysis of the MS. The MS and MSD are used to calculate the relative percent difference, which is a measure of the precision of the preparation and analysis method. The CAS MS/MSD Report provides the analytical results for all matrix spike and matrix spike duplicate analyses performed on samples from the client's order.

11/15/93
US Army Corps of Engineers
420 South 18th Street
Omaha, NE 68102-2586

ACCURACY AND PRECISION LIMITS

The accuracy and precision limits are method or laboratory determined limits indicating acceptable accuracy or precision for a given matrix. The accuracy limits are expressed with units of percent recovery. The precision limits are expressed with units of relative percent difference (RPD). Accuracy and precision limits are provided on the CAS LCS/LCSD Report, CAS MS/MSD Report and the CAS Surrogate Report.

QUALITY CONTROL BATCH

Each batch of twenty or fewer samples of the same matrix, prepared and analyzed at CAS, is assigned a Quality Control Batch number. The Quality Control Batch number for each sample is provided on the CAS Laboratory Report. With each batch, a Method Blank and two Laboratory Control Samples are also prepared and analyzed. The analytical results for the Method Blank and the Laboratory Control Samples are provided on the CAS Method Blank Data Report and the CAS LCS/LCSD Report, respectively.

DATE PREPARED

The date prepared is the date the sample was extracted or digested in preparation for analysis. If the extraction or digestion is performed as part of the analysis, "NA" is reported for the date prepared. The date prepared for each sample is provided on the CAS Laboratory Report.

DATE ANALYZED

The date analyzed is the date the analysis was performed on the sample. The date analyzed for each sample is provided on the CAS Laboratory Report.

If you have any questions regarding this data, please contact me or your CAS Project Manager at (800) 535-3076.

CONTINENTAL ANALYTICAL SERVICES, INC.



Clifford J. Baker
Laboratory Director

Enclosures
JAC/si

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S E R V I C E S , I N C .

QUALITY CONTROL REPORT METHOD BLANK DATA

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931101BLK1

Date Prepared: 11/01/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Nitrate, as N	ND(0.1)	mg/L	1	1715/190
Orthophosphate, as P	ND(0.1)	mg/L	1	1530/70

Conclusion of lab number 931101BLK1

Lab Number: 931102BLK1

Date Prepared: 11/02/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Phase II & V Chlorinated Acids			1	
2,4,5-TP(Silvex)	ND(5.0)	µg/L		1691/96
2,4-D	ND(7.0)	µg/L		1691/96
Dalapon	ND(20.0)	µg/L		1691/96
Dicamba	ND(0.1)	µg/L		1691/96
Dinoseb	ND(0.7)	µg/L		1691/96
Pentachlorophenol	ND(0.1)	µg/L		1691/96
Picloram	ND(50.0)	µg/L		1691/96
Phase II & V Pesticides/PCBS			1	
Aldrin	ND(0.1)	µg/L		1810/39
Chlordane	ND(0.2)	µg/L		1810/39
Dieldrin	ND(0.02)	µg/L		1810/39
Endrin	ND(0.2)	µg/L		1810/39
Heptachlor	ND(0.04)	µg/L		1810/39
Heptachlor Epoxide	ND(0.02)	µg/L		1810/39
Hexachlorobenzene	ND(0.1)	µg/L		1810/39
Hexachlorocyclopentadiene	ND(5.0)	µg/L		1810/39
Lindane	ND(0.02)	µg/L		1810/39
Methoxychlor	ND(4.0)	µg/L		1810/39
Propachlor	ND(0.5)	µg/L		1810/39
Toxaphene	ND(0.6)	µg/L		1810/39
PCB-1016	ND(0.08)	µg/L		1810/39
PCB-1221	ND(20.0)	µg/L		1810/39
PCB-1232	ND(0.5)	µg/L		1810/39
PCB-1242	ND(0.3)	µg/L		1810/39
PCB-1248	ND(0.1)	µg/L		1810/39
PCB-1254	ND(0.1)	µg/L		1810/39
PCB-1260	ND(0.2)	µg/L		1810/39
Fluoride	ND(0.1)	mg/L	1	169 /95

-Continued-

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT METHOD BLANK DATA

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931102BLK1

Date Prepared: 11/02/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Bromide	ND(0.1)	mg/L	1	1913/5

Conclusion of lab number 931102BLK1

Lab Number: 931102BLK2

Date Prepared: 11/02/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Phase II & V N-P Pesticides			2	
Alachlor	ND(0.2)	µg/L		1670/59
Atrazine	ND(0.3)	µg/L		1670/59
Butachlor	ND(1.0)	µg/L		1670/59
Metolachlor	ND(1.0)	µg/L		1670/59
Metribuzin	ND(0.2)	µg/L		1670/59
Simazine	ND(0.4)	µg/L		1670/59

Conclusion of lab number 931102BLK2

Lab Number: 931103BLK1

Date Prepared: 11/03/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Sulfate	ND(10)	mg/L	1	907 /233

Conclusion of lab number 931103BLK1

Lab Number: 931105BLK1

Date Prepared: 11/05/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Chloride	ND(2)	mg/L	1	1584/88

Conclusion of lab number 931105BLK1

-Continued-

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S E R V I C E S , I N C .

QUALITY CONTROL REPORT
METHOD BLANK DATA

Page: 3

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931108BLK1

Date Prepared: 11/08/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Nitrite, as N	ND(0.1)	mg/L	1	1715/209

Conclusion of lab number 931108BLK1

Lab Number: 931110BLK1

Date Prepared: 11/10/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Phase II & V Carbamates			1	
3-Hydroxycarbofuran	ND(2.0)	µg/L		1848/13
Aldicarb	ND(1.0)	µg/L		1848/13
Aldicarb Sulfone	ND(2.0)	µg/L		1848/13
Aldicarb Sulfoxide	ND(2.0)	µg/L		1848/13
Carbaryl	ND(2.0)	µg/L		1848/13
Carbofuran	ND(2.0)	µg/L		1848/13
Methomyl	ND(0.5)	µg/L		1848/13
Oxamyl (Vydate)	ND(20.0)	µg/L		1848/13

Conclusion of lab number 931110BLK1

Lab Number: 931112BLK1

Date Prepared: 11/12/93

<u>Analysis</u>	<u>Concentration</u>	<u>Units</u>	<u>QC Batch</u>	<u>Book/Page</u>
Bicarbonate	ND(2)	mg/L as CaCO3	1	1527/60
Carbonate	ND(2)	mg/L as CaCO3	1	1527/60

Conclusion of lab number 931112BLK1

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

Continental Analytical

S E R V I C E S , I N C .

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QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931101LCS1

Date Prepared: 11/01/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Nitrate, as N	1	2.0 mg/L	100	95.0	97.5	90-110	5.1	20
Orthophosphate, as P	1	1.0 mg/L	100	100	100	90-110	0.0	20

Conclusion of Lab Number 931101LCS1

Lab Number: 931102LCS1

Date Prepared: 11/02/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Bromide	1	1.0 mg/L	91.0	92.0	91.5	90-110	1.1	20
Fluoride	1	1.0 mg/L	103	105	104	90-110	1.9	20
Phase II & V Chlorinated 1								
2,4,5-TP(Silvex)		0.50 µg/L	31 N.	15 N.	23.0	40-135	70.N	25
Pentachlorophenol		0.10 µg/L	71.0	65.0	68.0	#	8.8	#
Dinoseb		0.50 µg/L	71.0	57.0	64.0	#	22.	#
Picloram		0.50 µg/L	10.0	15.0	12.5	#	40.	#
Phase II & V Pesticides/ 1								
Heptachlor		0.05 µg/L	57.0	56.0	56.5	40-131	1.8	20
Aldrin		0.10 µg/L	91.0	86.0	88.5	40-120	5.6	22
Dieldrin		0.10 µg/L	96.0	87.0	91.5	52-126	9.8	18
Endrin		0.10 µg/L	107	87.0	97.0	56-121	21.	21

N-Data exceeds precision control limits. Data meets accuracy control limits. All other associated quality control is within the quality control limits.

- Quality control limits are currently unavailable for this analysis.

Conclusion of Lab Number 931102LCS1

Lab Number: 931102LCS2

Date Prepared: 11/02/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Phase II & V N-P Pesticide 2								
Alachlor		2.0 µg/L	84.0	75.0	79.5	43-162	11.	57

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931102LCS2

Date Prepared: 11/02/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Atrazine		1.0 µg/L	75.0	69.0	72.0	36-156	8.3	47
Butachlor		5.0 µg/L	88.0	79.0	83.5	#	11.	#
Metolachlor		2.0 µg/L	83.0	71.0	77.0	#	16.	#
Metribuzin		1.0 µg/L	75.0	63.0	69.0	#	17.	#
Simazine		1.0 µg/L	62.0	59.0	60.5	#	5.0	#

- Quality control limits are currently unavailable for this analysis.

Conclusion of Lab Number 931102LCS2

Lab Number: 931103LCS1

Date Prepared: 11/03/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Sulfate	1	200 mg/L	105	93.0	99.0	90-110	12.	20

Conclusion of Lab Number 931103LCS1

Lab Number: 931105LCS1

Date Prepared: 11/05/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Chloride	1	40 mg/L	108	109	109	90-110	0.9	20

Conclusion of Lab Number 931105LCS1

Lab Number: 931108LCS1

Date Prepared: 11/08/93

-Continued-

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE

Page: 3

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 931108LCS1

Date Prepared: 11/08/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Nitrite, as N	1	10 mg/L	110	110	110	90-110	0.0	20

Conclusion of Lab Number 931108LCS1

Lab Number: 931110LCS1

Date Prepared: 11/10/93

Analysis	QC Batch	Spike Level Units	ACCURACY DATA (% RECOVERY)				PRECISION DATA	
			LCS	LCSD	Avg.	Limits	RPD	Limits
Phase II & V Carbamates	1							
Aldicarb		10 µg/L	98.7	103	101	#	4.3	#
Aldicarb Sulfone		10 µg/L	98.2	101	99.6	#	2.8	#
Aldicarb Sulfoxide		10 µg/L	98.2	101	99.6	#	2.8	#
Carbofuran		10 µg/L	100	102	101	#	2.0	#
Oxamyl (Vydate)		10 µg/L	98.8	104	101	#	5.1	#
Carbaryl		10 µg/L	96.8	84.5	90.7	#	14.	#
3-Hydroxycarbofuran		10 µg/L	99.7	103	101	#	3.3	#
Methomyl		10 µg/L	99.3	102	101	#	2.7	#

- Quality control limits are currently unavailable for this analysis.

Conclusion of Lab Number 931110LCS1

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

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Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

C4:

Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT SURROGATE DATA

PAGE: 1

CLIENT: US Army Corps of Engineers
ATTN: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

DATE SAMPLE RPTD: 11/15/93
DATE SAMPLE RECD: 10/30/93
CAS FILE NO: 93-5409
CAS ORDER NO: 19514
CLIENT P.O.: Work Order #89

LAB NUMBER: 93101985
SAMPLE DESCRIPTION: 931029-H040

<u>SURROGATE DATA</u>	<u>DATE PREPARED</u>	<u>DATE ANALYZED</u>	<u>Q.C. RESULTS % RECOVERED</u>	<u>ACCEPTABLE % RECOVERY RANGE</u>
1,3-Dimethyl-2-Nitrobenz	11/02/93	11/04/93	47.0 at 13	21.4 - 125
4,4-Dichlorobiphenyl	11/02/93	11/10/93	85.0 at 0.25	45.7 - 150

LAB NUMBER: 93101986
SAMPLE DESCRIPTION: 931029-H041

<u>SURROGATE DATA</u>	<u>DATE PREPARED</u>	<u>DATE ANALYZED</u>	<u>Q.C. RESULTS % RECOVERED</u>	<u>ACCEPTABLE % RECOVERY RANGE</u>
2,4-Dichlorophenylacetic	11/02/93	11/09/93	136 at 5.0	36.2 - 177

LAB NUMBER: 93101987
SAMPLE DESCRIPTION: 931029-H042

<u>SURROGATE DATA</u>	<u>DATE PREPARED</u>	<u>DATE ANALYZED</u>	<u>Q.C. RESULTS % RECOVERED</u>	<u>ACCEPTABLE % RECOVERY RANGE</u>
BDMC	NA	11/10/93	72.8 at 10	41.0 - 127

ND(), where noted, indicates none detected with the detection limit in parentheses.
% Rec indicates % recovered at the indicated concentration.

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Page: 1

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: 93101982

Analysis	QC Batch	Spike Level Units	MS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				MSD	Avg.	Limits	RPD	Limits
Sulfate	1	50 mg/L	102	106	104	52-158	3.8	20
Bromide	1	1.0 mg/L	73.0	67.0	70.0	#	8.6	#

- Quality control limits are currently unavailable for this analysis.

Conclusion of Lab Number 93101982

Lab Number: 93101983

Analysis	QC Batch	Spike Level Units	MS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				MSD	Avg.	Limits	RPD	Limits
Nitrate, as N	1	1.0 mg/L	100	100	100	69-128	0.0	20

Conclusion of Lab Number 93101983

Lab Number: 93101987

Analysis	QC Batch	Spike Level Units	MS	ACCURACY DATA (% RECOVERY)			PRECISION DATA	
				MSD	Avg.	Limits	RPD	Limits
Phase II & V Carbamates	1							
3-Hydroxycarbofuran		10 µg/L	106	113	110	#	6.4	#
Aldicarb		10 µg/L	107	110	109	#	2.8	#
Aldicarb Sulfone		10 µg/L	112	112	112	#	0.0	#
Aldicarb Sulfoxide		10 µg/L	112	112	112	#	0.0	#
Carbaryl		10 µg/L	112	96.1	104	#	15.	#
Carbofuran		10 µg/L	103	108	106	#	4.7	#
Methomyl		10 µg/L	111	113	112	#	1.8	#
Oxamyl (Vydate)		10 µg/L	103	114	109	#	10.	#

- Quality control limits are currently unavailable for this analysis.

-Continued-

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Page: 2

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number:

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
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Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer

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Continental Analytical SERVICES, INC.

QUALITY CONTROL REPORT MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Client: US Army Corps of Engineers
Attn: Laura Percifield
420 South 18th Street
Omaha, NE 68102-2586

Date Sample Rptd: 11/15/93
Date Sample Recd: 10/30/93
CAS File No: 93-5409
CAS Order No: 19514
Client P.O.: Work Order #89

Lab Number: Matrix Spike Data from Sample Batch(s)

Analysis	QC Batch	Spike Level Units	MS	ACCURACY DATA (% RECOVERY)			PRECISION DATA		Date Prepared
				MSD	Avg.	Limits	RPD	Limits	
Fluoride	1	0.40 mg/L	99.0	94.0	96.5	79-121	5.2	20	NA
Chloride	1	40 mg/L	104	101	103	72-130	2.9	20	NA
Bromide	1	1.0 mg/L	73.0	67.0	70.0	#	8.6	#	NA
Sulfate	1	50 mg/L	102	106	104	52-158	3.8	20	NA
Nitrate, as N	1	1.0 mg/L	100	100	100	69-128	0.0	20	NA
Orthophosphate, as P	1	0.50 mg/L	100	100	100	65-141	0.0	20	NA
Phase II & V Carbamates	1								/ /
Aldicarb		10 µg/L	107	110	109	#	2.8	#	
Aldicarb Sulfone		10 µg/L	112	112	112	#	0.0	#	
Aldicarb Sulfoxide		10 µg/L	112	112	112	#	0.0	#	
Carbofuran		10 µg/L	103	108	106	#	4.7	#	
Oxamyl (Vydate)		10 µg/L	103	114	109	#	10.	#	
Carbaryl		10 µg/L	112	96.1	104	#	15.	#	
3-Hydroxycarbofuran		10 µg/L	106	113	110	#	6.4	#	
Methomyl		10 µg/L	111	113	112	#	1.8	#	
Nitrite, as N	1	1.0 mg/L	100	100	100	85-131	0.0	20	NA

MS/MSD data is unavailable for Phase II & V N-P Pesticides for QC Batch 2 of 11/02/93 due to insufficient sample volume.

MS/MSD data is unavailable for Phase II & V Pesticides/PCB and Chlorinated Acids for QC Batch 1 of 11/02/93 due to insufficient sample volume.

Quality control limits are currently unavailable for this analysis.

Quality control analyses were performed on samples at time of analysis in accordance with procedures published in the Code of Federal Regulations, Part 136, July 1, 1986 or in EPA publication, SW-846, 3rd edition, Nov. 1986.

CONTINENTAL ANALYTICAL SERVICES, INC.

Clifford J. Baker
Clifford J. Baker
Laboratory Director

Jacqueline Cairo
Jacqueline Cairo
Quality Assurance Officer



Midwest Laboratories, Inc.

13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121

REPORT NUMBER 3-307-1595

Date: 11/3/93 MS

SUBJECT: Report of Analysis

Corps of Engineers #7140
MRD Lab Order #DACW4593A0041
420 South 18th Street
Omaha NE 68102-2501

Project Name: United Scrap Lead
Location: Troy OH
Customer: Omaha
Project Number: 2313
Project Type: SUPERFUND
Work Order Number: 34
Date Received: 10-29-93

Laboratory Number	Sample Identification	Analysis	Level Found	Detection Limit	Method
87254	28 Oct 93 1717 Grab 931029-H018	Total Coliform Aerobic Plate Count Iron Bacateria	TNTC/Negative 105 CFU/1 ml Not Detected	1 CFU/100 ml 1 CFU/1 ml ---	SM 922B SM 9215B SM 9240B

Date Tested: 10-29-93 16:30

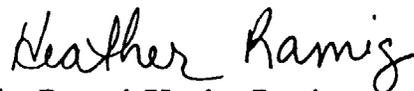
#1) Holding/Transit time between sampling and analysis cannot exceed 48 hours. *If this time has been exceeded, the results are invalid.*

#3) **TNTC**: Too numerous to count is defined as greater than 200 bacterial colonies (non-coliform) per 100 ml of sample. At this time the sanitary significance of non-coliform bacteria present in a sample has not been defined. However, due to the excessive numbers of bacteria present, it cannot be determined if the sample meets the bacteriological standard for purity (less than 1 coliform per 100 ml).

#7) A new sample should be resubmitted indicating that the sample is to be retested so that different measures can be taken to determine an accurate count. *

**Note: There will be a charge for the coliform test performed on the resubmitted sample.*

Respectfully submitted,



Lisa Dworak/Heather Ramig
Client Services

The above analytical results apply only to the sample(s) submitted.

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CAF

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

09 AUG 1994

Subject: Certificate of Analysis

Project: United Scrap Lead, Troy, OH

Intended Use: Superfund RA

Source of Material: _____

Submitted by: Steve Ott, CEMRO-ED-EB

Date Sampled: 18 Jul 94, Date Received: 19 Jul 94

Method of Test or Specification: See attached test result sheets.

References: Omaha District Request No. ENE 4456 dated 18 Jul 94

-- REMARKS --

1. The samples arrived in good condition.
2. Enclosed are the following:

Part A: Sample Receipt Information (1 page)
Part B: Chain-of-Custody Information (2 pages)
Part C: Analytical Test Results (7 pages)

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

LP 8-9-94
Percifield/glm/444-4313

TEST RESULTS

1. DISCUSSION

- a. Three water samples were received by MRD Laboratory on 19-Jul-94. The samples were analyzed for lead by EPA method 7421.

The method is from SW-846 (1986), "Test Methods for Evaluation of Solid Waste."

Part "A" of this report lists all of the samples received.

- b. The samples arrived in good condition.

Part "B" of this report contains the chain-of-custody information.

- c. The samples were analyzed by MRD Laboratory.

Part "C" of this report lists the analytical test results.

2. DATA SUMMARY

See the attached data report sheets.

3. METHOD QUALITY CONTROL FOR LEAD

- a. The method blank was free of contamination.
- b. Laboratory duplicate results matched the results from the original field sample.
- c. Matrix spike/matrix spike duplicate recoveries and associated relative percent differences were within acceptable limits.
- d. Laboratory check sample recoveries were within acceptable limits.
- e. Holding times were met for all samples.

4. QUALITY ASSURANCE/ANALYTICAL RESULT DATA COMPARISON

No quality assurance samples associated with this project.

A1

PART A

SAMPLE RECEIPT INFORMATION

<u>Sample Number</u>	<u>Customer Sample ID</u>	<u>Date Sampled</u>	<u>Matrix</u>	<u>MRD Lab # Assigned</u>	<u>Tests Assigned</u>	<u>QA Test Results Page Number</u>
001	AIM-RW-001	18 Jul 94	Water	940719-037	Lead	C1
002	USL-RW-001	18 Jul 94	Water	940719-038	Lead	C2
003	USL-RW-002	18 Jul 94	Water	940719-039	Lead	C3

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
B1	3283	18 Jul 96

COOLER RECEIPT FORM

LIMS# 3777 MRD Cooler # 25- Number of Coolers 1 Contractor Cooler N/A

PROJECT: United States / Air num Tr - Mdu Date received: 7 18 94

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 7/18/94 C-of-C Number: 283

by (print) Susan Siragusa (sign) Susan Siragusa

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO
If YES, enter carrier name & air bill number here: FedX: 5892 648 191

2. Were custody seals on outside of cooler? YES NO
How many & where: 2 - front side, seal date: 7-18-94, seal name: R. Giabowoli

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. YES NO

9. If required, was enough ice used? Type of ice: regular 2.5°C YES NO

10. Have designated person initial here to acknowledge receipt of cooler: RP (date) 7/20/94

B. LOG-IN PHASE: Date samples were logged-in: 19 July 94

by (print) Conrad L. German (sign) Conrad L. German

11. Describe type of packing in cooler: peanuts

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken & were labels in good condition? YES NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

15. Did all bottle labels agree with custody papers? YES NO

16. Were correct containers used for the tests indicated? YES NO

17. Were correct preservatives added to samples? YES NO

18. Was a sufficient amount of sample sent for tests indicated? YES NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: N/A YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called? _____ By whom? _____ (date) _____

PART C

ANALYTICAL TEST RESULTS

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead

Sample Description: Water
MRD Lab Sample No.: 940719-H037
Client Sample No.: AIM-RW-001
Analyst: A. Hindemith

Date Sample Taken: 18 Jul 94
Date Sample Received: 19 Jul 94
Date Digested: 29 Jul 94
Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

Analyte	EPA Method	Result	Detection Limit	Date Analyzed
Lead	(Pb) 7421	u	2	04 Aug 94

u: Below Detection Limit

Laboratory Comments:

Approved By:
AMH

P. M. N. Aron

Date: 8-6-94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead

Sample Description: Water
MRD Lab Sample No.: 940719-H038
Client Sample No.: USL-RW-001
Analyst: A. Hindemith

Date Sample Taken: 18 Jul 94
Date Sample Received: 19 Jul 94
Date Digested: 29 Jul 94
Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

Analyte	EPA Method	Result	Detection Limit	Date Analyzed
Lead (Pb)	7421	u	2	04 Aug 94

u: Below Detection Limit

Laboratory Comments:

Approved By:
Am#

Prem. N. Arova

Date: 8-6-94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777

Project Name: United Scrap Lead

Sample Description: Water

Date Sample Taken: 18 Jul 94

MRD Lab Sample No.: 940719-H039

Date Sample Received: 19 Jul 94

Client Sample No.: USL-RW-002

Date Digested: 29 Jul 94

Analyst: A. Hindemith

Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

Analyte	EPA Method	Result	Detection Limit	Date Analyzed
Lead	(Pb) 7421	u	2	04 Aug 94

u: Below Detection Limit

Laboratory Comments:

Approved By:

AH

Prem. N. Aron

Date:

8-6-94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead
QC Identifier: Method Blank

Sample Description: Water
Analyst: A. Hindemith

Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

Analyte	EPA Method	Result	Detection Limit	Date Analyzed
Lead (Pb)	7421	u	2	04 Aug 94

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem. v. Arora
AMH

Date: 8.6.94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead
QC Identifier: Laboratory Matrix Duplicate

Sample Description: Water
MRD Lab Sample No.: 940719-H038
Client Sample No.: USL-RW-001
Analyst: A. Hindemith

Date Sample Taken: 18 Jul 94
Date Sample Received: 19 Jul 94
Date Digested: 29 Jul 94
Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

EPA Analyte Method	Sample Result	Duplicate Result	RPD	Detection Limit	Date Analyzed
7421	u	u	NC	2	04 Aug 94

u: Below Detection Limit
NC: Not Calculable
Control Limits: ± 20 (for $>5X$ CRDL)

atory Comments:

Approved By:
Amit

Prem. n. Arora

Date: 8-6-94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead
QC Identifier: Matrix Spike, Matrix Spike Duplicate

Sample Description: Water
MRD Lab Sample No.: 940719-H038
Client Sample No.: USL-RW-001
Analyst: A. Hindemith

Date Sample Taken: 18 Jul 94
Date Sample Received: 19 Jul 94
Date Digested: 29 Jul 94
Batch: 9408040939

RESULTS (µg/L)

Analyte	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
	u	20	20	100	20	100	0.0

u: Below Detection Limit
%Rec: Percent of the spike recovered from the matrix
Control Limits: 75-125 (if [spike added] > [sample]/4)

Analyte	EPA Method	Detection Limit	Analysis Date	
			MS	MSD
Lead	(Pb) 7421	2	04 Aug 94	04 Aug 94

Laboratory Comments:

Approved By: *Prem. A. Arora* Date: 8-6-94
AUC+

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2777
Project Name: United Scrap Lead
QC Identifier: Laboratory Control Sample (LCS)

Sample Description: Water

LCS Source: VHG Labs, Inc.
Lot Number: 400723D 400723E
Analyst: A. Hindemith

MRD Lab Code: PEGF3
Expiration Date: 30 Apr 95
Batch: 9408040939

RESULTS ($\mu\text{g/L}$)

EPA Analyte Method	True Value	Result	%Rec	Detection Limit	Date Analyzed
7421	20	19	95	2	04 Aug 94

Laboratory Comments:

Approved By:

pmh

Prem. N. Aron

Date:

8-6-94

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

Subject: Certificate of Analysis

Project: United Scrap Lead - Long Term Monitoring, Troy, OH

Intended Use: Superfund

Source of Material: _____

Submitted by: Jeff Hubbard, CEMRO-ED-ER

Date Sampled: 22 Nov 94, Date Received: 25 Nov 94

Method of Test or Specification: See attached test result sheets.

References: Omaha District Request No. ENE 5704 dated 20 Dec 94

-- REMARKS --

1. Three (3) water samples were received at MRD Laboratory for lead analysis.
2. Detailed results can be found in the attached pages of narrative and in the following appendices:

Part A: Sample Receipt Information (1 page)
Part B: Chain-of-Custody Information (2 pages)
Part C: Quality Control Test Results (11 pages)

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

SM for LP 12-23-94
Percifield/glm/444-4313

TEST RESULTS

1. DISCUSSION

- a. Three water samples were received by MRD Laboratory on 22 Nov 94. The samples were analyzed for lead by EPA method 6010.

The method is from SW-846 (1986), "Test Methods for Evaluation of Solid Waste."

Part "A" of this report lists all of the samples received.

- b. The samples arrived in good condition with proper documentation.

Part "B" of this report contains the chain-of-custody information.

- c. The samples were analyzed by MRD Laboratory.

Part "C" of this report lists the analytical test results.

2. DATA SUMMARY

See the attached data report sheets.

3. METHOD QUALITY CONTROL FOR LEAD

- a. The method blank was free of contamination.
- b. Laboratory duplicate results matched the results from the original field sample.
- c. Matrix spike/matrix spike duplicate recoveries and associated relative percent differences were within acceptable limits.
- d. Laboratory check sample recoveries were within acceptable limits.
- e. Holding times were met for all samples.

4. QUALITY ASSURANCE/ANALYTICAL RESULT DATA COMPARISON

No quality assurance samples associated with this project.

PART A

SAMPLE RECEIPT INFORMATION

Sample Number	Customer Sample #	Date Sampled	Matrix	MRD Lab # Assigned	Tests Assigned	Test Results Page Number
001	AIM-RW-001	22 Nov 94	Water	941128-009	Lead	C1
002	USL-RW-002	22 Nov 94	Water	941128-010	Lead	C6
003	USL-RW-001	22 Nov 94	Water	941128-011	Lead	C7

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
B1	4023	22 Nov 94

COOLER RECEIPT FORM

LIMS# 3057 MRD Cooler # 451 Number of Coolers 1 Contractor Cooler ~~451~~ N/A

PROJECT: United Scrap Lead Date received: 11/25/94

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 11/25/94 C-of-C Number: 4023

by (print) David Splichal (sign) David E. Splichal

1. Did cooler come with a shipping slip (air bill, etc.)? Sent Tuesday 11/22, Rec'd Friday 11/25 YES NO

If YES, enter carrier name & air bill number here: Fed X 319-3585006

2. Were custody seals on outside of cooler? YES NO

How many & where: 2 -> Front + Back, seal date: 11/22/94, seal name R. Grabowski

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? YES NO

9. Type of ice: Regular Temperature: 4.3°C Date temperature measured: 11/25/94

10. Describe type of packing in cooler: Peanuts

11. Were all bottles sealed in separate plastic bags? YES NO

B. LOG-IN PHASE: Date samples were logged-in: 11/28/94
by (print) Shelly Swink (sign) Shelly Swink

12. Did all bottles arrive unbroken & were labels in good condition? YES NO

13. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? YES NO

14. Did all bottle labels agree with custody papers? YES NO

15. Were correct containers used for the tests indicated? YES NO

16. Were correct preservatives added to samples? YES NO

17. Was a sufficient amount of sample sent for tests indicated? YES NO

18. Was headspace absent in Volatile samples? If NO, list by QA#: N/A YES NO

QA # (cont.) _____

19. Were the custody papers checked against the sample receipt form? By whom? SP Date: 11/28/94

PART C

ANALYTICAL TEST RESULTS

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

AMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

Sample Description: Water

Date Sample Taken: 22 Nov 94

Lab Sample No.: 941128-H009

Date Sample Received: 25 Nov 94

Client Sample No.: AIM-RW-001

Date Digested: 08 Dec 94

Method: EPA Method 3005/6010

Date Analyzed: 13 Dec 94

Analyst: T. Shannon

Batch: 9412130828

Sequence: 9412130828

RESULTS ($\mu\text{g/L}$)

Analyte	Result	Method Det Limit
Pb	u	20

u: Below Method Detection Limit (MDL)

Laboratory Comments:

Approved By:

Penn v Ann

Date: *12.14.94*

TLS

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

Identifier: Method Blank

Sample Description: Water

Method: EPA Method 3005/6010

Analyst: T. Shannon

Date Analyzed: 13 Dec 94

Batch: 9412130828

Sequence: 9412130828

RESULTS ($\mu\text{g/L}$)

Analyte	Result	Det Limit
Pb	u	20

u: Below Detection Limit

atory Comments:

Approved By:

Prem. N. Arora

Date:

12.14.94

TLG

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057
Project Name: United Scrap Lead - Long Term Monitoring
QC Identifier: Laboratory Matrix Duplicate

Sample Description: Water
MRD Lab Sample No.: 941128-H009
Client Sample No.: AIM-RW-001
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 22 Nov 94
Date Sample Received: 25 Nov 94
Date Digested: 08 Dec 94
Date Analyzed: 13 Dec 94
Batch: 9412130828
Sequence: 9412130828

RESULTS ($\mu\text{g/L}$)

Analyte	Sample Result	Duplicate Result	RPD	Method Detection Limit
Pb	u	u	NC	20

u: Below Method Detection Limit (MDL)
NC: Not Calculable

Control Limit: $\pm 20\%$ (RPD could be higher if the sample results are low)

Laboratory Comments:

Approved By: Prem. v. Ann Date: 12.14.94

TC

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

AMIS Number: 3057
Project Name: United Scrap Lead - Long Term Monitoring
Identifier: Matrix Spike, Matrix Spike Duplicate

Sample Description: Water	Date Sample Taken: 22 Nov 94
Lab Sample No.: 941128-H009	Date Sample Received: 25 Nov 94
Client Sample No.: AIM-RW-001	Date Digested: 08 Dec 94
Method: EPA Method 3005/6010	Date Analyzed: 13 Dec 94
Analyst: T. Shannon	Batch: 9412130828
	Sequence: 9412130828

RESULTS ($\mu\text{g/L}$)

Element	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
Pb	u	500	522	104	534	107	2.3

u: Below Method Detection Limit (MDL)

Control Limit: 75-125

Control Limit: $\pm 20\%$ (RPD could be higher if the sample results are low)

Laboratory Comments:

Approved By: *P. M. A. Aron*

Date: 12.14.94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

AMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

Identifier: Laboratory Control Sample (LCS)

Sample Description: Water

LCS Source: VHG Labs, Inc.

Lot Number: 400723A, 400723B, 301500

Method: EPA Method 3005/6010

Analyst: T. Shannon

Date Analyzed: 13 Dec 94

MRD Lab Code: ICPW4

Expiration Date: 30 Apr 95

Batch: 9412130828

Sequence: 9412130828

RESULTS ($\mu\text{g/L}$)

Analyte	Result	True Value	%Rec	Method Detection Limit
Pb	2090	2000	105	20

u: Below Method Detection Limit (MDL)

NC: Not Calculable

Control Limit: 75 to 125

Laboratory Comments:

Approved By:

Prem. N. Avon

Date: *12.14.94*

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057

Project Name: ~~United~~ Scrap Lead - Long Term Monitoring

Sample Description: Water

MRD Lab Sample No.: ~~94~~1128-H010

Client Sample No.: ESL-RW-002

Method: EPA Method 3005/6010

Analyst: T. Shannon

Date Sample Taken: 22 Nov 94

Date Sample Received: 25 Nov 94

Date Digested: 08 Dec 94

Date Analyzed: 13 Dec 94

Batch: 9412130828

Sequence: 9412131242

RESULTS ($\mu\text{g/L}$)

Analyte	Result	Method Det Limit
Pb	u	20

u: Below Method Detection Limit (MDL)

Laboratory Comments:

Approved By:

P. M. A. A.

Date:

12.14.94

TCS

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

Sample Description: Water	Date Sample Taken: 22 Nov 94
MRD Lab Sample No.: 941128-H011	Date Sample Received: 25 Nov 94
Client Sample No.: USL-RW-001	Date Digested: 08 Dec 94
Method: EPA Method 3005/6010	Date Analyzed: 13 Dec 94
Analyst: T. Shannon	Batch: 9412130828
	Sequence: 9412131242

RESULTS ($\mu\text{g/L}$)

Analyte	Result	Method Det Limit
Pb	u	20

u: Below Method Detection Limit (MDL)

Laboratory Comments:

Approved By:

Pem. N. Arora

Date:

12.14.94

TCS

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

Identifier: Method Blank

Sample Description: Water

Method: EPA Method 3005/6010

Analyst: T. Shannon

Date Analyzed: 13 Dec 94

Batch: 9412130828

Sequence: 9412131242

RESULTS ($\mu\text{g/L}$)

Analyte	Result	Det Limit
---------	--------	-----------

Pb	u	20
----	---	----

u: Below Detection Limit

Laboratory Comments:

Approved By:

Prem. N. Aron

Date:

12.14.94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057

Project Name: United Scrap Lead - Long Term Monitoring

QC Identifier: Laboratory Matrix Duplicate

Sample Description: Water

ARD Lab Sample No.: 941128-H010

Client Sample No.: USL-RW-002

Method: EPA Method 3005/6010

Analyst: T. Shannon

Date Sample Taken: 22 Nov 94

Date Sample Received: 25 Nov 94

Date Digested: 08 Dec 94

Date Analyzed: 13 Dec 94

Batch: 9412130828

Sequence: 9412131242

RESULTS ($\mu\text{g/L}$)

Analyte	Sample Result	Duplicate Result	RPD	Method Detection Limit
Pb	u	u	NC	20

u: Below Method Detection Limit (MDL)

NC: Not Calculable

Control Limit: $\pm 20\%$ (RPD could be higher if the sample results are low)

Laboratory Comments:

Approved By:

Prem N. Arora

Date:

12.14.94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

AMIS Number: 3057
Project Name: United Scrap Lead - Long Term Monitoring
Identifier: Matrix Spike, Matrix Spike Duplicate

Sample Description: Water	Date Sample Taken: 22 Nov 94
D Lab Sample No.: 941128-H010	Date Sample Received: 25 Nov 94
Client Sample No.: USL-RW-002	Date Digested: 08 Dec 94
Method: EPA Method 3005/6010	Date Analyzed: 13 Dec 94
Analyst: T. Shannon	Batch: 9412130828
	Sequence: 9412131242

RESULTS (µg/L)

Ete	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
Pb	u	500	521	104	521	104	0.0

u: Below Method Detection Limit (MDL)

Rec Control Limit: 75-125

Control Limit: ± 20% (RPD could be higher if the sample results are low)

Laboratory Comments:

Approved By:

Prem. v. Arora

Date:

12.14.94

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 3057
Project Name: United Scrap Lead - Long Term Monitoring
QC Identifier: Laboratory Control Sample (LCS)

Sample Description: Water
LCS Source: VHG Labs, Inc.
Lot Number: 400723A, 400723B, 301500
Method: EPA Method 3005/6010
Analyst: T. Shannon
Date Analyzed: 13 Dec 94
MRD Lab Code: ICPW4
Expiration Date: 30 Apr 95
Batch: 9412130828
Sequence: 9412131242

RESULTS (µg/L)

Analyte	Result	True Value	%Rec	Method Detection Limit
Pb	2150	2000	108	20

u: Below Method Detection Limit (MDL)

NC: Not Calculable

Control Limit: 75 to 125

Laboratory Comments:

Approved By:

Prem. v. Arma

Date:

12.14.94

TCS



Section P-Leachfield System and Well Connection Inspection Report

Memo



**OHM Remediation
Services Corp.**
A Subsidiary of OHM Corporation

16406 U.S. Route 224 East • Findlay, Ohio 45840

Midwest Region

TO: Gerry Resnik
FROM: John O'Toole
PC: Fred Haas
DATE: 11-22-94
SUBJECT: Site Visit and Inspection
United Lead, Troy, Ohio.

This report presents the results of my site visit to the Troy United Scrap Lead site on Friday, November 18, 1994, and on Monday, November 21, 1994. The inspection covered the installation of a leachfield, and the connection of a well to an existing garage.

The leachfield was also inspected by John Spitler of the Ohio EPA, and an approval notice was given.

At the conclusion of the site visit, the following items are outstanding and will require additional attention to complete the project:

- CEST
y
- 1: The conditions of the permit for the leachfield installation require that the Design Professional provide a verification report after 12 months of operation. Provisions should be made to accommodate this requirement, including the accounting aspects of this requirement.
 - 2: The well installation specifications require a submittal for the operation and maintenance instructions for the well pump. A copy of this information is attached to this report.

During the inspections, the following deviations were noted and corrected:

- 1: The leachfield Contractor installed water pipe instead of rigid electrical conduit. This violates the National Electric Code. The corrective action was that the Contractor removed the water pipe and replaced it with the specified conduit. No further corrective action is required.

LEACHFIELD CONSTRUCTION

The leachfield was constructed by Municipal Specialty Services Inc. of New Carlisle, Ohio, OHM PO# 200108. By the time I arrived on site on November 18, the contractor had excavated the leachfield and had backfilled with the sand. The equipment used by the Subcontractor was a Case 580K hoe and a New Holland L445 bobcat. The excavation for the stone was executed by hand using shovels. Grade was controlled using a self levelling laser. The stone was placed using the Case hoe, and spread by hand using shovels. Overall dimensions were verified to be in compliance with the design drawings.

The installed pipe was 1" Freedom PVC 1120 Sch 40 ASTM D-1785 NSF-PW 450 PSI @ 73F FG 099-4. 1/4" holes were drilled every 24", and placed facing downwards.

As of 17:00 hours on November 21, 1994, the installation was complete except for the topsoil placement, and the permanent electrical tie in. A temporary electrical connection was made to verify the operation of the pump.

Attached to this report is a copy of the Ohio EPA approval, the electrical permit, the Zoller pump operating instructions, the wiring diagram for the float controls, the delivery receivers for the sand and stone used in the construction, and a gradation for the sand verifying compliance with the specifications.

DEVIATIONS TO THE PLANS:

- 1: The dosing chamber was an "or equal" to the Duracrete model specified in the drawings.
- 2: The grounded GFI outlet was installed in a separate chamber rather than in the dosing chamber as shown on the drawings. This modification was made compliance with the current Electrical Code.

WATER WELL TIE IN:

The well tie in was installed by Frontz Drilling of Wooster, OH, OHM PO# 200298. The connection was made using 1" ENDOT/YARDLEY 100 PSI 73F GOLDEN JET PIPE SIDR 17.5 PE 3406 ASTM 2239 6 79453ASYK-24-C3 pipe. The pump was a Meyers HJA505 pump, SN SKC39HN2701BX which was installed in the garage at the location of the existing pump. The pump had a 100 PSI pressure gauge, marked in 2 PSI increments, and powered by a plug in to an existing outlet.

The specifications were developed with a submersible pump and an above ground jet pump. No attempt was made to enforce the submersible pump testing requirements for the above ground pump, with the exception of the disinfection, which was completed.

Attached to this report is a copy of the operations and maintenance instructions for the Meyers pump, and the hydromatic chamber.

APPENDIX I

LEACH FIELD INSTALLATION REPORT

APPENDIX I

LEACHFIELD INSTALLATION REPORT

Leachfield Installation Report and Associated Documents Table of Contents

Section A-Leachfield System and Well Connection Inspection Report

Section B-Ohio EPA Approval

Section C-Electrical Permit

Section D-National Electrical Code Verification of Noncompliance Replacement of
Electrical Conduit

Section E-Aggregate Records

Section F-Zoller Pump Information

Section G-Meyers Pump Information

Section H-Record Drawing

Section I-Approved Design

Section J-Application for Permit to Install

Section K-Final Leachate System Electrical Inspection

Section A-Leachfield System and Well Connection Inspection Report

Memo



**OHM Remediation
Services Corp.**
A Subsidiary of OHM Corporation

16406 U.S. Route 224 East • Findlay, Ohio 45840

Midwest Region

TO: Gerry Resnik
FROM: John O'Toole
PC: Fred Haas
DATE: 11-22-94
SUBJECT: Site Visit and Inspection
United Lead, Troy, Ohio.

This report presents the results of my site visit to the Troy United Scrap Lead site on Friday, November 18, 1994, and on Monday, November 21, 1994. The inspection covered the installation of a leachfield, and the connection of a well to an existing garage.

The leachfield was also inspected by John Spidler of the Ohio EPA, and an approval notice was given.

At the conclusion of the site visit, the following items are outstanding and will require additional attention to complete the project:

- cost
y
- 1: The conditions of the permit for the leachfield installation require that the Design Professional provide a verification report after 12 months of operation. Provisions should be made to accommodate this requirement, including the accounting aspects of this requirement.
 - 2: The well installation specifications require a submittal for the operation and maintenance instructions for the well pump. A copy of this information is attached to this report.

During the inspections, the following deviations were noted and corrected:

- 1: The leachfield Contractor installed water pipe instead of rigid electrical conduit. This violates the National Electric Code. The corrective action was that the Contractor removed the water pipe and replaced it with the specified conduit. No further corrective action is required.

The specifications were developed with a submersible pump and the unit installed was an above ground jet pump. No attempt was made to enforce the submersible pump testing requirements for the above ground pump, with the exception of the disinfection, which was completed.

Attached to this report is a copy of the operations and maintenance instructions for the Meyers pump, and the hydromatic chamber.

Section B-Ohio EPA Approval



State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
(614) 644-2329

George V. Voinovich
Governor

May 27, 1994

Re: Troy
Miami County
Application No. 05-6371
Application for Mound System for Pro Car Care &
Used Cars, Inc.
Plans Received August 2, 1993;
Revised Plans Received April 14, 1994
From Thomas Winemiller & Associates, Inc.

CERTIFIED MAIL

U. S. EPA
77 West Jackson Boulevard (5HSRM-65)
Chicago, IL 60604

Ladies and 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.

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 must be filed with the Environmental Board of Review at 236 East Town Street, Room 300, Columbus, OH 43266-0557.

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

Robert E. Phelps, P.E., Manager
Permit Administration Section
Division of Surface Water

REP/rk

Enclosure

cc: Southwest District Office
Miami County Health Department
Thomas Winemiller & Associates, Inc.



Roof drains, foundation drains, and other clean water connections to the disposal system are prohibited.

No liquids, sludges, or toxic or hazardous substances other than those set forth in the approved permit shall be accepted for disposal without the prior written approval of the Ohio Environmental Protection Agency.

Construction of any wastewater treatment works shall be completed and operation of the facility approved by the Ohio Environmental Protection Agency before sewage or other wastewater is generated by the applicant or is discharged to the wastewater disposal system.

The treatment works shall be abandoned and the sanitary sewers connected to the public sanitary sewerage system whenever such system becomes available.

The sanitary control of the area shall be maintained within a 100 foot radius of each water supply well.

The tile field shall not be constructed during periods when the ground is frozen or when the moisture content will cause smearing of the trench walls and/or trench bottom.

A report supporting the twelve month effectiveness of the disposal system design shall be submitted by the design engineer to the Ohio Environmental Protection Agency Southwest District Office within 30 days after one year of operation.

The Northwest District Office of the Ohio Environmental Protection Agency shall be notified prior to the start of construction so that construction of this system can be routinely inspected and approved by the Ohio EPA. The final request for inspection and approval of this installation shall be made at least twenty-four (24) hours in advance of its being covered with earth and/or placed into operation.

Excavation of the leaching trenches shall proceed only when the moisture content is below the soil's plastic limit. If a sample of soil taken at the depth of the proposed bottom of the trench forms a wire instead of crumbling when attempting to roll it between the hands, the soil is too wet.

Special Condition

No parking of vehicles will be allowed over this system.

Section C-Electrical Permit

Electrical Permit

From Carlton 412nd Ave Address _____ Phone _____
 Project Location 2A 4577. C Hdl 25-9 Lot No. _____
 Plat or Subdivision _____ Township Paris
 Contractor Foran, Ron - Int. M. Power Company _____
 Address _____ Phone 698-5484

Dwelling Two Family Dwelling Three Family Dwelling Other
 New Building Existing Building Rough Ready Will Call Final Ready Will Call

Minimum fee of \$10.00	No.	Price	Amount		No.	Price	Amount
New Service (1st 200 Amps.)		\$ 20.00		Electric Heat (system) Central**		\$ 20.00	
Each Additional 100 Amps.		\$ 5.00		Elec. heating ductwork (system)**		\$ 20.00	
Service Charge		\$ 20.00		Swimming pool		\$ 20.00	
Temporary (Pole) Service		\$ 20.00		Swimming pool bonding		\$ 20.00	
Wire Circuits		\$ 2.00		Final Inspection**		\$ 20.00	
3 Wire Circuits		\$ 3.00		Special or Commercial Inspection	2	\$25.00	50.00
Openings of existing building*		\$ 20.00		Penalty proceeding without permit			
Additional, All or Extensions of				Processing Fee <u>Final</u>			1.50
Wiring*		\$ 20.00		New House		\$10.00	
Heat \$10.00 per residence**		\$ 20.00		Other		\$ 5.00	
Air Conditioning 5 tons or less		\$ 20.00					
Pre-heat (system)		\$ 20.00					
Total				Total			
				Grand Total			
				51.50			

* For 1 to 5 openings
 each additional opening 50c

** If accompanied by other wiring. Add \$5.00 if
 work is done alone

By Check _____ By Cash _____
 Received by [Signature]

Permit issued to install electrical equipment and or wiring within the jurisdiction of the Department of Building Inspection, Miami County, Ohio such installation shall be in accordance with the National Electrical Code, latest edition, the provisions of the Miami County Building Code and or the Ohio Building Code

A penalty fee of \$12.50 is assessed for each re-inspection necessary after the initial attempt to inspect reveals an incomplete or not ready condition, or conditions that preclude an inspection being completed

It is understood and agreed that the structure for which electrical service has been permitted under a preheat arrangement through this permit, issued by Miami County, Ohio, located at the above project address shall not be occupied or otherwise used until final building and electrical inspections have been successfully passed and an occupancy permit issued by said County.

It is further understood and agreed that the use or occupancy of the aforementioned structure prior to the successful completion of all required inspections will result in the disconnection of electrical service and that neither Miami County nor the utility company will be held responsible in any way for any damage which may occur as a result of the disconnection

[Signature] _____ 19 _____
 Applicant Signature Date

 _____ 11-21 19 94
 Building Official Signature Date

**Section D-National Electrical Code Verification of Noncompliance
Replacement of Electrical Conduit**

(6.36 mm) in a straight run between securely mounted items such as boxes, cabinets, elbows, or other conduit terminations, an expansion joint shall not be required.

(FPN): See Table 10 in Chapter 9 for expansion characteristics of PVC rigid nonmetallic conduit.

347-10. Minimum Size. No conduit smaller than 1/2-inch electrical trade size shall be used.

347-11. Number of Conductors. The number of conductors permitted in a single conduit shall not exceed the percentage fill specified in Table 1, Chapter 9.

(FPN): For conductor cross-sectional area, see Tables 5, 5A, 6, and 8 and the applicable Notes to Tables at the beginning of Chapter 9.

347-12. Bushings. Where a conduit enters a box or other fitting, a bushing or adapter shall be provided to protect the wire from abrasion unless the design of the box or fitting is such as to provide equivalent protection.

(FPN): See Section 373-6(c) for the protection of conductors No. 4 and larger at bushings.

347-13. Bends — How Made. Bends of rigid nonmetallic conduit shall be so made that the conduit will not be damaged and that the internal diameter of the conduit will not be effectively reduced. Field bends shall be made only with bending equipment identified for the purpose, and the radius of the curve of the inner edge of such bends shall not be less than shown in Table 346-10.

347-14. Bends — Number in One Run. There shall not be more than the equivalent of four quarter bends (360 degrees total) between pull points, e.g., conduit bodies and boxes.

347-15. Boxes and Fittings. Boxes and fittings shall comply with the applicable provisions of Article 370.

347-16. Splices and Taps. Splices and taps shall be made only in junction boxes, outlet boxes, device boxes, or conduit bodies. See Article 370.

B. Construction Specifications

347-17. General. Rigid nonmetallic conduit shall comply with the following:

Marking. Each length of nonmetallic conduit shall be clearly and durably marked at least every 10 feet (3.05 m) as required in the first sentence of Section 110-21. The type of material shall also be included in the marking unless it is visually identifiable. For conduit recognized for use above-ground, these markings shall be permanent. For conduit limited to underground use only, these markings shall be sufficiently durable to remain legible until the material is installed. Conduit shall be permitted to be surface marked to indicate special characteristics of the material.

(FPN): Examples of these optional markings include but are not limited to "LS" for limited-smoke and markings such as "sunlight-resistant."

ARTICLE 348 — ELECTRICAL METALLIC TUBING

348-1. Use. The use of electrical metallic tubing shall be permitted for both exposed and concealed work. Electrical metallic tubing shall not be used (1) where, during installation or afterward, it will be subject to severe physical damage; (2) where protected from corrosion solely by enamel; (3) in cinder concrete or cinder fill where subject to permanent moisture unless protected on all sides by a layer of noncinder concrete at least 2 inches (50.8 mm) thick or unless the tubing is at least 18 inches (457 mm) under the fill; (4) in any hazardous (classified) location except as permitted by Sections 502-4, 503-3, and 504-20; or (5) for the support of fixtures or other equipment. Where practicable, dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action.

Exception: Aluminum fittings and enclosures shall be permitted to be used with steel electrical metallic tubing.

Ferrous or nonferrous electrical metallic tubing, elbows, couplings, and fittings shall be permitted to be installed in concrete, in direct contact with the earth, or in areas subject to severe corrosive influences where protected by corrosion protection and judged suitable for the condition.

(FPN): See Section 300-6 for protection against corrosion.

348-2. Other Articles. Installations of electrical metallic tubing shall comply with the applicable provisions of Article 300.

A. Installation

348-4. Wet Locations. All supports, bolts, straps, screws, etc., shall be of corrosion-resistant materials or protected against corrosion by corrosion-resistant materials.

(FPN): See Section 300-6 for protection against corrosion.

348-5. Size.

(a) **Minimum.** Tubing smaller than 1/2-inch electrical trade size shall not be used.

Exception: For enclosing the leads of motors as permitted in Section 430-145(b).

(b) **Maximum.** The maximum size of tubing shall be the 4-inch electrical trade size.

348-6. Number of Conductors in Tubing. The number of conductors permitted in a single tubing shall not exceed the percentage fill specified in Table 1, Chapter 9.

(FPN): For conductor cross-sectional area, see Tables 5, 5A, 6, and 8 and the applicable Notes to Tables at the beginning of Chapter 9.

348-7. Threads. Electrical metallic tubing shall not be threaded. Where integral couplings are utilized, such couplings shall be permitted to be factory threaded.

Section E-Aggregate Records

PLANT
PHONE

TROY GRAVEL - # 433
(800) 331-4242

DATE	TIME OUT	CUST. NO.	SOLD TO			
11/17/94	13:00	05433	CASH SALES PLANT 433			
TICKET NO.	P.O. NUMBER	JOB NO.	JOB DESCRIPTION			
387611						
DIRECTIONS TO JOB: 2045 25A						
	LBS. GROSS	TRUCK IDENTIFICATION	PRODUCT CODE	PRODUCT DESCRIPTION		
65400		715	703R	MASON SAND RESALE		
	LBS. TARE	TONS	UNIT PRICE	EXT. AMT.	TAX	TOTAL
24100		20.65	11.000	227.15	14.20	241.35
	LBS. NET	TONS	HAUL RATE	EXT. AMT.	TAX	TOTAL
41300		20.65	2.050	42.33	0.00	42.33
OH-295411			MISC. CHG.	EXT. AMT.	TAX	TOTAL
WEIGHED BY: HAVE A GOOD DAY! BECKY				TOTAL AMOUNT		283.68
DRIVER'S SIGNATURE <i>Denny</i>				RECEIVED BY		

CUSTOMER COPY

SCALE TICKET



**American
Aggregates**

PLANT
PHONE

TROY GRAVEL - # 433
(800) 331-4242

DATE	TIME OUT	CUST. NO.	SOLD TO			
11/17/94	13:00	05433	CASH SALES PLANT 433			
TICKET NO.	P.O. NUMBER	JOB NO.	JOB DESCRIPTION			
387612						
DIRECTIONS TO JOB: 2045 RT. 25A						
	LBS. GROSS	TRUCK IDENTIFICATION	PRODUCT CODE	PRODUCT DESCRIPTION		
60000		1051	004	#4 ROOFING GRAVEL		
	LBS. TARE	TONS	UNIT PRICE	EXT. AMT.	TAX	TOTAL
27600		10.60	7.500	139.50	8.72	148.22
	LBS. NET	TONS	HAUL RATE	EXT. AMT.	TAX	TOTAL
37200		10.60	2.030	38.13	0.00	38.13
OH-295412			MISC. CHG.	EXT. AMT.	TAX	TOTAL
WEIGHED BY: HAVE A GOOD DAY! BECKY				TOTAL AMOUNT		186.35
DRIVER'S SIGNATURE <i>Steve</i>				RECEIVED BY		

CUSTOMER COPY

Section F-Zoller Pump Information

Quality Pumps Since 1938

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER PUMP CO.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
 SHOP TO: 3280 Old Millers Lane • Louisville, KY 40218
 (502) 778-2731 • FAX (502) 774-3624



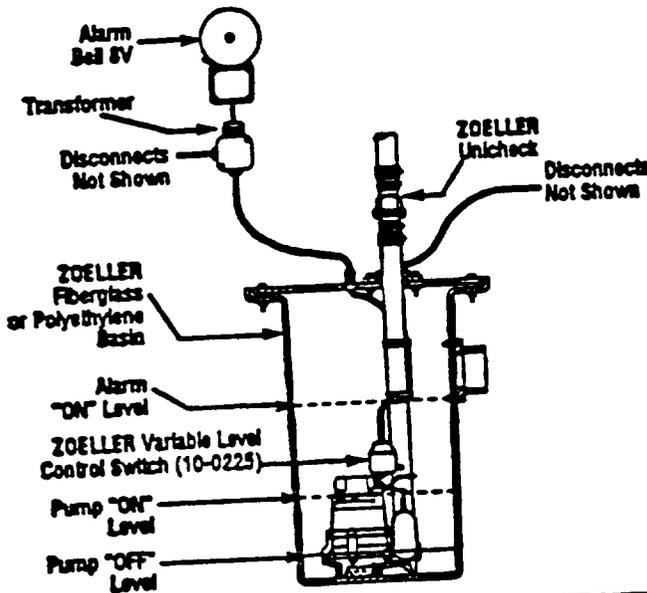
0253
 Supersedes
 0801

WARNING: All wiring shall be installed in accordance with the National Electrical Code (NEC) and all other applicable codes.

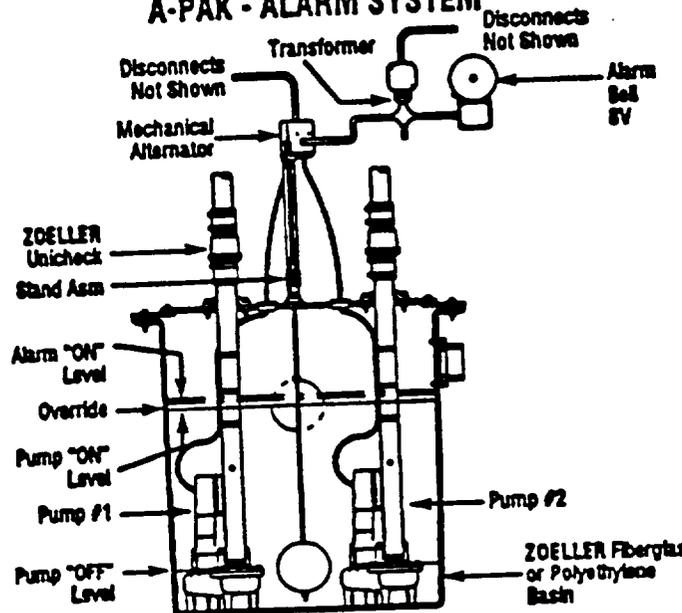
TYPICAL INSTALLATION AND WIRING INSTRUCTIONS FOR "A-PAK" (115V OR 230V)

- NOTICE:** P/N 10-0015 A-PAK 115V/1Ph and P/N 10-0016 A-Pak 230V/1Ph includes bell and transformer. Utility box, cordage and float switch must be purchased separately.
- NOTICE:** P/N 10-0028 Residential A-Pak 115V/1Ph includes bell, transformer and float switch. Utility box and cordage must be purchased separately.
- NOTICE:** P/N 10-0053 A-Pak Alarm System 120V/1Ph includes all components. (See other side).

***TYPICAL SIMPLEX SYSTEM WITH A-PAK - ALARM SYSTEM**



***TYPICAL DUPLEX SYSTEM WITH MECHANICAL ALTERNATOR AND A-PAK - ALARM SYSTEM**

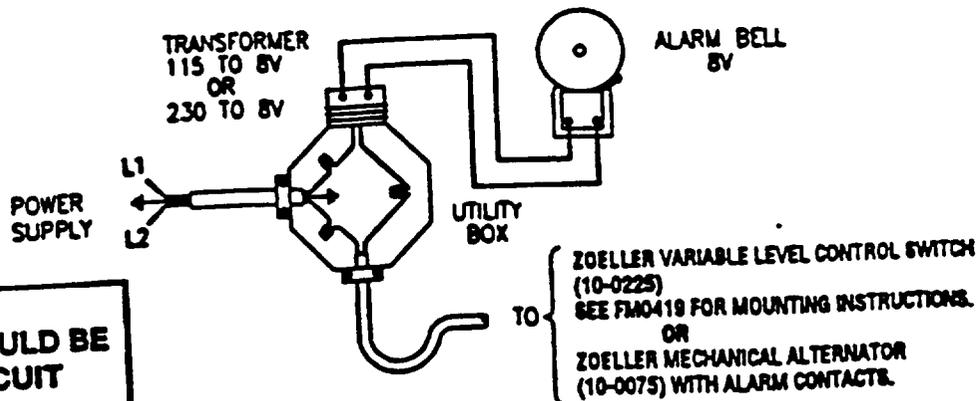


WIRING DIAGRAM

(10-0015)
 (10-0016)
 (10-0028)

DISCONNECT NOT SHOWN

NOTE:
 ALARM SYSTEM SHOULD BE ON A SEPARATE CIRCUIT FROM PUMPS.



10-0053 "A-PAK" ALARM SYSTEM INSTALLATION INSTRUCTIONS

Installer must provide proper length of two conductor wires which connects the control switch to the alarm panel. (*When used underground, wire must be approved for underground use. For example: 14-2 type UF.)

ALARM PANEL INSTALLATION

Mount alarm panel inside building. Mount with screw supplied and hang on keyhole in back of alarm panel.

Connect the two conductors from the control switch to either of the terminations on the bottom of the alarm panel.

WARNING: FOR YOUR PROTECTION ALWAYS DISCONNECT FROM POWER SOURCE BEFORE HANDLING. This unit is supplied with a 3-prong grounded plug to help protect you against the possibility of electrical shock. **DO NOT UNDER ANY CIRCUMSTANCES REMOVE THE GROUND PIN.** The 3-prong plug must be inserted into a mating 3-prong grounded receptacle. If the installation does not have such a receptacle, it must be changed to the proper type, wired and grounded in accordance with the National Electrical Code and all applicable local codes and ordinances.

NOTE: The alarm panel plugs into a standard household 120V A.C. socket. **DO NOT** plug "A-Pak" Alarm System into the same circuits as the pump. The "A-Pak" Alarm System should be connected to a circuit separate from the pump circuit. Push test button to check alarm panel for operation.

CONTROL SWITCH INSTALLATION

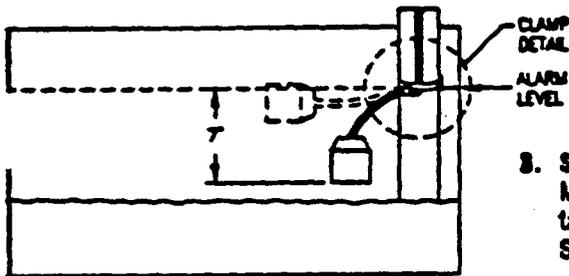
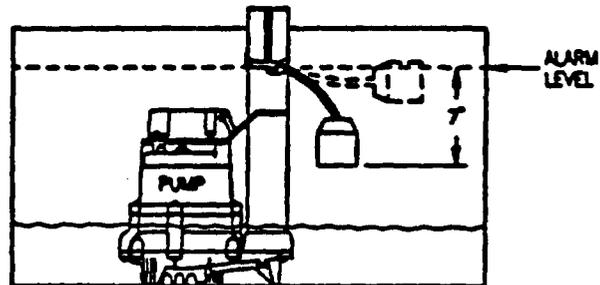
The control switch operates on low voltage and is isolated from the 120V power line to reduce shock hazards.

NOTE: When installing the control switch, a cable strain relief must be used to secure control switch on entry into tank.

TO SET ALARM LEVEL: The control switch must be suspended seven inches below desired alarm level. See figures A or B.

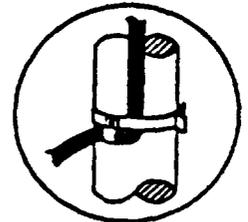
A. LIFT PUMP HIGH LEVEL FLOAT APPLICATION:

MODEL 10-0053 (refer to fig. A). Suspend control switch above pump turn-on level. If a pump failure causes a high level condition, the "A-Pak" Alarm System will activate.



B. SEWAGE HOLDING TANK HIGH LEVEL FLOAT APPLICATION: MODEL 10-0053 (refer to fig. B). Suspend control switch into tank seven inches below desired alarm level. "A-Pak", Alarm System will activate if float ascends to alarm level.

CLAMP DETAIL



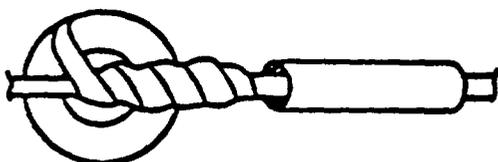
DIRECTIONS FOR UNDERGROUND SPLICE CONNECTION-LOW VOLTAGE ONLY



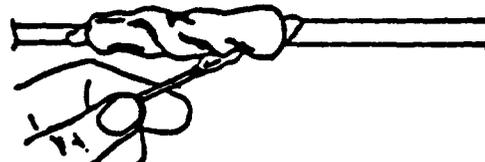
1-Make wire nut connections.



3-Slide sleeve over taped connection.



2-Wrap electrical tape around wire connections.



4-Heat sleeve with stick match or torch.

Check and test your installation by tipping the float manually. The alarm panel should indicate an alarm condition. The Zoeller Pump Company cannot be responsible for damages caused by the faulty or negligent installation of this device. We respectfully suggest you engage the services of a qualified licensed electrician or serviceman.

CAUTION: All electrical systems must be installed by a qualified licensed electrician according to the National Electrical Code.

Section G-Meyers Pump Information

HJA-HJ-HR-HT Ejecto Pump Installation and Service

Motor Voltage: 1/3 HP and 1/2 HP motors are wired for 115 volts. The 3/4 HP and 1 HP motors are wired for 230 volts, but may be converted to 115 volts by referring to instructions printed on motor. If motor is converted to 115 volts, have a qualified electrician check the entire Electrical and Power Leads System to be sure they can handle the higher AMPS.

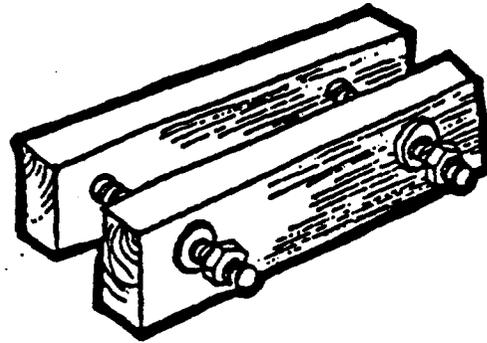
To Wire Pump: Remove cover from pressure switch and make electrical connections (see wire size chart below) with ground. First connect bare copper ground to ground screw in pressure switch. Next make power connections onto terminals marked "Line."

TOOLS NEEDED FOR INSTALLATION

- Screwdriver
- Pipe Wrench
- Adjustable Wrench (medium-large)
- Hacksaw with 24-Tooth Blade for cutting plastic pipe.
- Knife or Round File for smoothing inside of all plastic pipe connections.
- Pipe Clamps. Make with two pieces of 2 x 4 board 12" long. Drill holes for 1/2" bolts about 8" long. Assemble as shown.

Jet Pump Wire Selection Guide

Motor HP	Voltage	Name Plate AMPS	Max. Wire Length Using AWG Wire Size			
			614	612	610	60
1/3	115	8.2	148	230	370	500
	230	10.8	118	180	280	404
1/2	115	14.8	84	130	211	281
	230	7.4	330	640	940	1287
3/4	115	17.8	74	110	180	250
	230	8.8	297	672	740	1101



Recommended Fuse Sizes (Amps)

HP	Standard Line Plug Fuse		Low Peak Cartridge Type Fusetron Cartridge Type "Fusetal-Plug" Type	
	115V	230V	115V	230V
1/3	10	—	10	—
1/2	20	10	10	0-14
3/4	25	10	10	0
1	30	15	30	10

*For circuits not over 120 volts to ground.

Shallow Well Jet Pumps for 4" Diameter Wells

Myers

INSTALLATION INSTRUCTIONS

Materials Needed

- 1 can PVC cement
(read manufacturer's instructions carefully)
- Foot valve
- 1-1/4" PVC adapters (2 required)
- 1-1/4" rigid PVC pipe and couplings
(Couplings not required for flared pipe).
- Well seal
- 1-1/4" PVC elbow
- Discharge tee
- Pressure gauge
- 1" x 4" nipple
- 1" check valve
- Copper electric wire with ground
(see Wire Selection Guide on page 4)
- Fuse box or circuit breaker

Step 1: Connect foot valve to 1-1/4" plastic pipe adapter. Cement adapter to 1-1/4" PVC rigid plastic pipe. All connections must be watertight for pump to operate properly.

Step 2: Add rigid PVC pipe sections and couplings (as required) while lowering foot valve into well. As much as 30 feet of pipe could be required. Note: Removing foot valve screen could void Warranty.

Step 3: Install well seal over rigid PVC pipe and onto well casing. Cement 1-1/4" PVC elbow to top of pipe at correct length to position foot valve 5 feet above bottom of well. Lower foot valve-piping assembly carefully into well, using pipe clamp. Draw up bolts on well seal until rubber gaskets are tight against both the well casing and the pipe.

Step 4—For Shallow Well Pumps: Cement one end of horizontal 1-1/4" pipe into elbow. Add sections to reach the pump. This pipe should slope up to the pump from the elbow. Thread 1-1/4" adapter into pump. Cement horizontal pipe into adapter that has been threaded into pump.

Step 4A—For Convertible Pumps: Install venturi into Ejector. Secure shallow well ejector assembly and gasket to pump case with bolts supplied (see diagram). Connect tube between pump case and pressure switch on pump. Thread 1-1/4" PVC adapter into shallow well ejector. Cement horizontal pipe into adapter threaded into ejector.

Step 5: Using pipe wrench, install discharge tee in pump discharge until tight.

Step 6: Important—Go to Electrical Instructions on pages 3 and 4. Make electrical connections as described.

Step 7: After electrical work is completed—and before pump is connected to pressure tank—the pump should be primed and test run. To prime, remove bushing from top of discharge tee. Fill piping and pump with water until the water overflows from top of tee. Replace bushing and tighten to seal. Install pressure gauge. Before starting pump, place large bucket or other container under check valve opening.

Step 8: Start motor. If pump is installed with a horizontal offset line of 4 feet or more, it may take several minutes to prime. If pump does not prime in 5 minutes: (1) stop motor; (2) remove discharge plug and pressure gauge; and (3) add more water.

Step 9: Allow pump to empty into container long enough to clear the well of any sand or dirt, and to be sure well is not going to run out of water.

Step 10: Stop pump and complete connections to pressure tank. Allow pump to cycle automatically several times to check pressure switch setting and operation. To adjust pressure switch settings, see instructions inside pressure switch cover. If a new pressure tank is required, follow "Pressure Tank Installation Instructions."

If pump is being used as a lawn sprinkler or irrigation pump, you **MUST** remove the pressure switch and wire the pump direct. Also, no pressure tank is used.

Caution: Make sure the pressure switch is set low enough to shut off the pump. If a valve is shut off and the pressure switch setting is too high, the pump will run continuously without water flow. This will overheat and damage the pump.

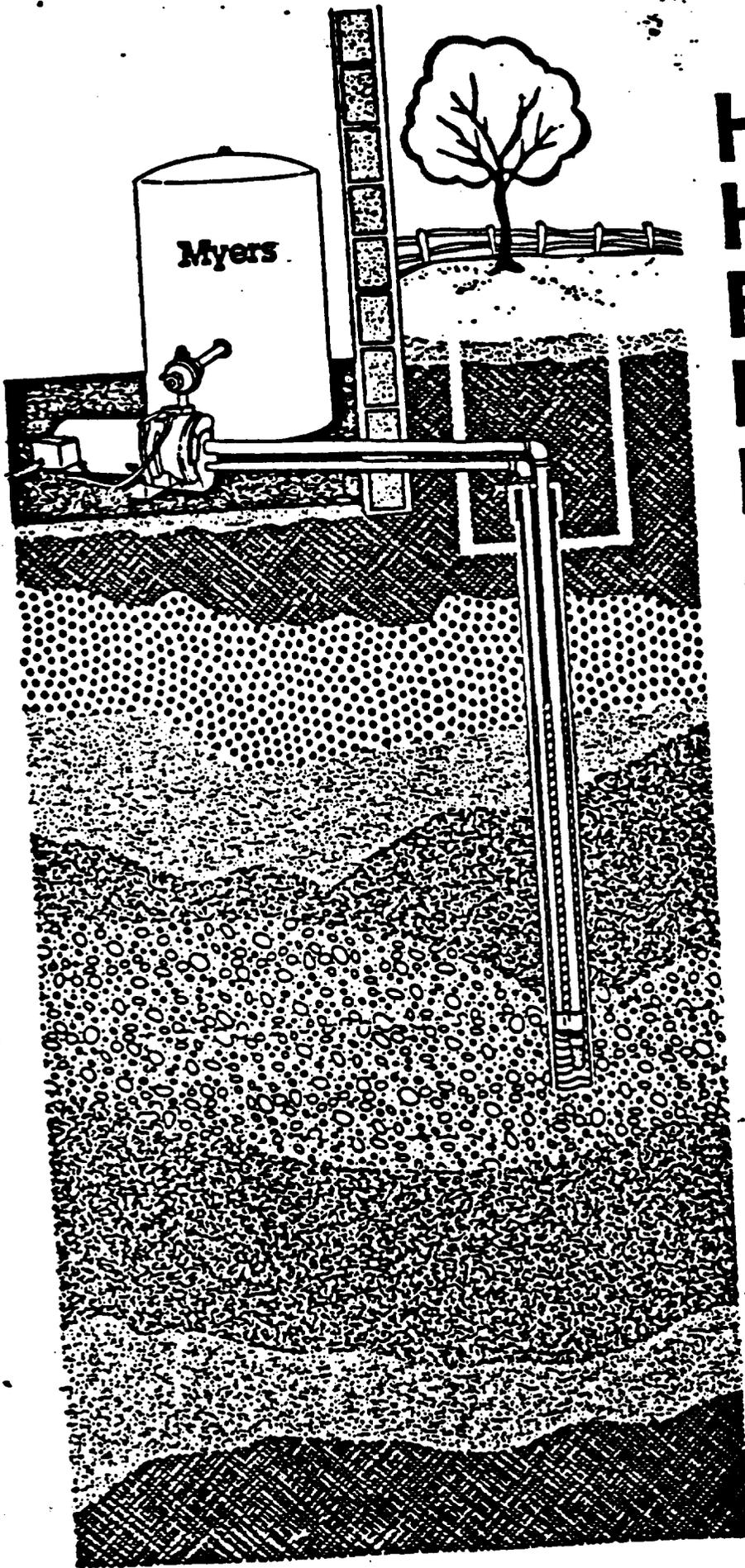
Note: Check valve between tank and pump can cause short cycling in the following conditions:

- 1) Leaky foot valve
- 2) Long horizontal suction line
- 3) Air trapped in suction line
- 4) Wells with gaseous water

To resolve this problem you can do the following:

- 1) Remove the check valve completely
- 2) Move the check valve beyond the tank
- 3) Change the pressure switch. Tap to the tank tee.

Section H-Record Drawing



HJA, HJ, HR, HT Ejecto Pump Installation & Service Manual

DO NOT RUN THIS PUMP DRY



AMTROL INC.

1400 DIVISION ROAD
W. WARWICK, RHODE ISLAND 02883
(401) 884-6300

Supersedes BUL 140-18

INSTALLATION INSTRUCTIONS WELL-X-TROL®

Revised March 1981

ATTACHING ACCEPTANCE FITTINGS:

SKIRTLESS MODELS WX-101, 102, 103 and 200

In-line Models WX-101, 102, and 103 are conventionally installed directly in the main water supply line with a 3/4" connection. For Model WX-200, a 1" fitting is used.

SKIRTED MODELS WX-201 thru WX-350

Skirted Models WX-201 thru WX-302 are equipped with an elbow for connection to the system. The WX-201 thru WX-203 has a 1" elbow; the WX-205 thru WX-302 has a 1 1/4" elbow. The WX-350 has a 1 1/4" tee for straight through piping.

PROPER WELL-X-TROL LOCATION

The WELL-X-TROL should be installed as close as possible to the pressure switch. This will reduce the adverse effects of added friction loss and differences in elevation between WELL-X-TROL and/or water supply main and switch.

ADJUSTING WELL-X-TROL PRECHARGE TO SYSTEM REQUIREMENTS

WELL-X-TROLS are shipped with a standard precharge of 20 psi for Models WX-101 and WX-102, 30 psi for Models WX-103 thru WX-203, and 38 psi for Models WX-205, WX-250, WX-251, WX-302, and WX-350. This precharge should be adjusted, when not attached to the system, as follows:

1. Remove protective air valve cap and using a suitable pressure gauge, check precharge pressure. (Tank should be at room temperature and empty of water).
2. Release or add air as necessary to make precharge pressure 1 - 2 psi below the pressure switch pump cut-in setting.
NOTE: Pressure switch setting may be out-of-adjustment, i.e., if labeled "30/50", it may be actually 28 or 29 to 48 to 49. See "Fine Tuning Procedure", below, for correcting this situation. Do not adjust WELL-X-TROL precharge for this variation.
3. Replace protective air valve cap and seal with the air valve label provided. (See Figure 1) This will enable you to determine if valve has been tampered with on possible future service calls.

When the WELL-X-TROL is installed in the system, system pressure must be reduced to exhaust the tank of acceptance water before precharging. Once this has been done, follow above steps 1-3.

SYSTEM CONNECTION

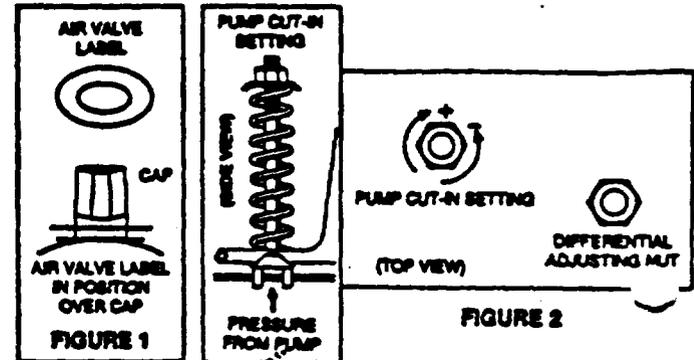
1. Locate WELL-X-TROL in final desired location.
2. Level as necessary
3. Connect to pump supply line with same size pipe as from pump. Eliminate unnecessary friction loss.
4. All piping should be in accordance with prevailing local codes and standards.

FINE TUNING PROCEDURE (see chart)

Many times actual pressure switch settings will vary from the standard pressure range indicated. These variations could cause a momentary lag of water delivery as the pressure switch is not "tuned" to the WELL-X-TROL's precharge pressure.

TO "FINE TUNE", FOLLOW THESE STEPS:

1. Fill the system and WELL-X-TROL until pump cuts off.
2. Open one or more fixtures to drain WELL-X-TROL.
3. If there is a momentary pause in the water flow from the time the WELL-X-TROL is emptied and the pump starts, adjust pump switch cut-in setting upward (clockwise) slightly. (Refer to Adjustment Instructions by switch manufacturer).



4. Close fixtures and refill WELL-X-TROL to pump cut-off. Check time to fill.
5. Open fixtures and see if pause in water is eliminated at pump cut-in. If not, continue adjusting pressure switch.

REPLACING GALVANIZED OR EPOXY LINED TANKS WITH WELL-X-TROL

Many times a defective steel tank must be replaced with a WELL-X-TROL to provide Effective System Protection, (ESP).

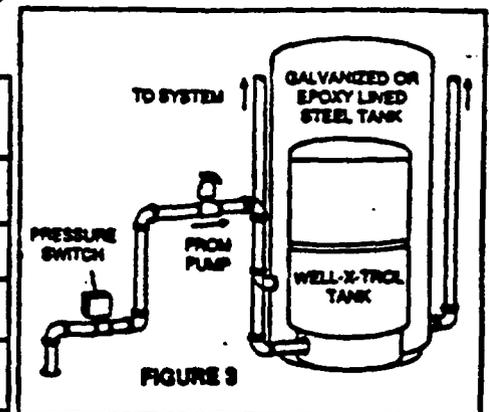
It is a simple procedure and the line drawing should be followed for correct connection to the system. Because the WELL-X-TROL is precharged with air, it will always occupy less space for equal amounts of pressurized water than a galvanized or epoxy lined steel tank.

It is recommended that a relief valve be installed at the WELL-X-TROL connection to ensure system protection.

Also BE SURE to plug the air port on a jet pump, as air is no longer required to be supplied to the tank.

RECOMMENDED PIPE SIZE FOR PUMP FLOWS

PIPE SIZE	FLOW GPM
3/4	10
1	16
1 1/4	30
1 1/2	40

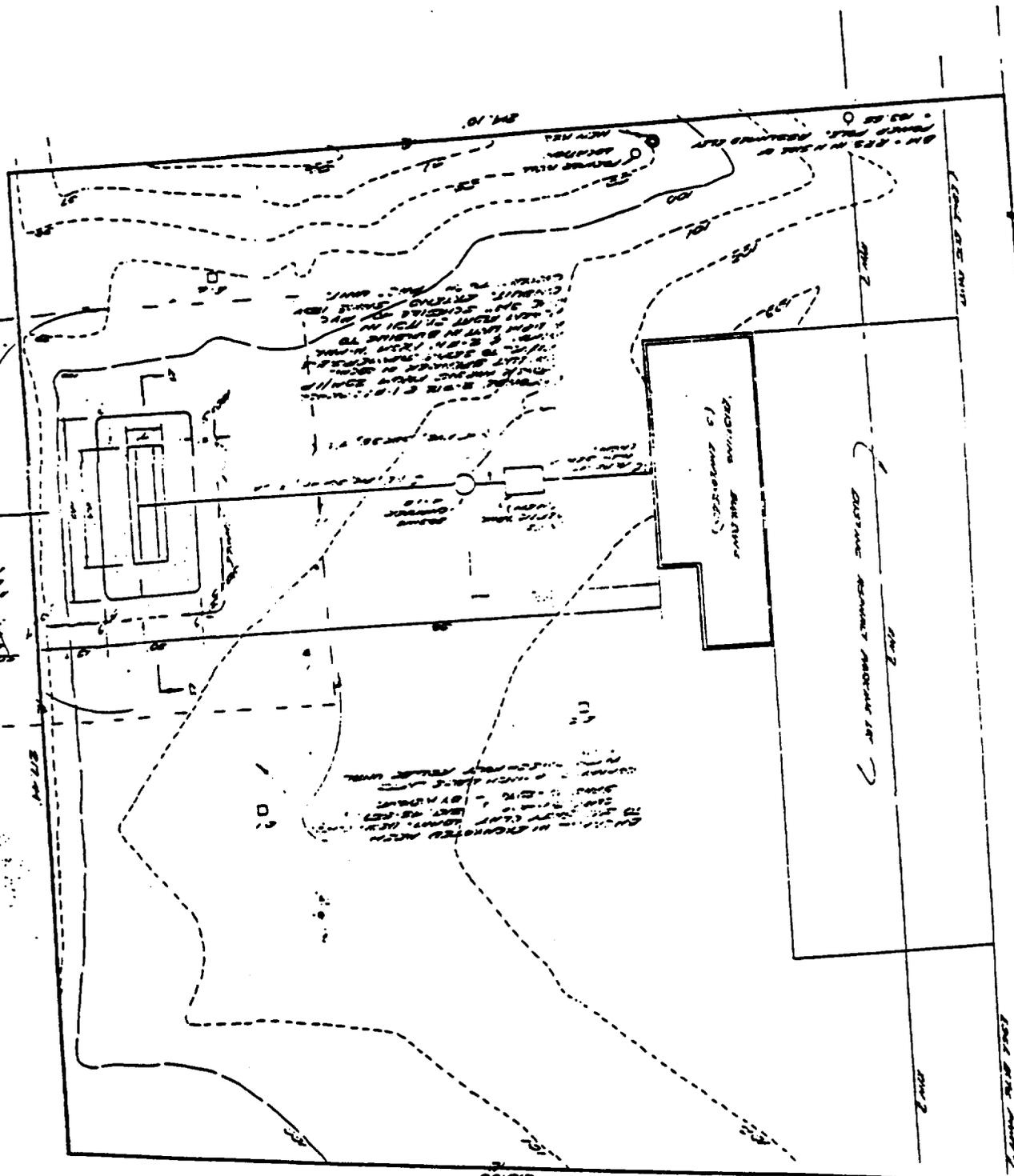


Section I-Approved Design

COUNTY

ROAD

1/4



DISTANCE FROM PROPERTY LINE TO 1
 DISTANCE FROM PROPERTY LINE TO 2
 DISTANCE FROM PROPERTY LINE TO 3
 DISTANCE FROM PROPERTY LINE TO 4
 DISTANCE FROM PROPERTY LINE TO 5
 DISTANCE FROM PROPERTY LINE TO 6
 DISTANCE FROM PROPERTY LINE TO 7
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 DISTANCE FROM PROPERTY LINE TO 18
 DISTANCE FROM PROPERTY LINE TO 19
 DISTANCE FROM PROPERTY LINE TO 20

179

Section J-Application for Permit to Install

Division of Water Pollution Control
 Application for Permit to Install or Plan Approval

- New Source Treatment Works :
 (includes Septic Systems)
- Modification of existing
 Wastewater Treatment Works :
- Pretreatment Only
- Other (Sewers, Pump Stations, etc.)

For Office Use Only	
PTI Application No	_____
Date Received	_____
PAID	
Amount	_____ Date _____
Check #	_____ Date _____

1. a) Owner/Responsible Official United States Environmental Protection Agency/Anita Boseman
 b) Mailing Address Region V (5HSRM-65), 77 West Jackson Blvd.
Chicago, Illinois 60604 Telephone (312) 886-6941
 c) Name of Project/Facility Pro Car Care and Used Cars, Inc.
 d) Project/Facility Location Description: (List street/road address, township, county)
 if possible) East side, County Road 25-A, 0.3 miles south of Swalles Road,
Concord Township, Miami County, Ohio (2045 County Road 25-A, Troy, Ohio 45373
 e) Treatment Works to or Receiving Stream to Receive Waters N/A
 f) Person to Contact: Name: Gerard S. Reznik, OHM Remediation Service Corp.
 Title Project Manager, Midwest Reg Phone: (419) 423-3526
 g) Operator of facility Pro Car Care and Used Cars, Inc.
2. a) Reason for project: Soil at site is contaminated with lead. Project on US EPA Superfund
list. OHM Corp. is contracted with the US Army Corp of Engineers to perform clean-up
activities at site. Since soil will be excavated this mandates replacement of ext'g system
 b) Is this facility regulated under an effective NPDES Permit? Y N Permit # _____
 *Is this application filed in compliance with Y N
 Ohio EPA Findings and Orders or a Consent Order Y N Date: _____
3. a) Designed by: THOMAS WINEMILLER & ASSOCIATES, INC. Engineers/Planners/Survevors
 b) Address: 34 East National Road, Vandalia, Ohio Phone: (513) 898-5862
4. Project Costs: \$ 6,000.00 (estimated bid invoiced)
 (Amount) (Check one)
 *If the answer is yes, fill in the effective date of the Finding and Orders.
5. Estimated schedule
 a) Construction: begin July, 1993 complete July, 1993 (estimated)
 b) Operation: start July, 1993 compliance immediate

Additional Information for
Septic System Installation at
2045 County Road 25-A
Troy, Ohio

- A. The occupant of this existing building is Pro Car Care and Used Cars, Inc. They buy and sell used cars. They currently anticipate 5 employees using the septic system.
- B. Product produced from the facility will be normal human sewage from the buildings sole restroom (one toilet and sink).
- C. Application is being made for the new installation of the following: one 1000 gallon septic tank, one diversion device and two 200 hundred feet leech beds. The soil at the site is contaminated by lead and The OHM Corporation will be performing remedial activities at the site. Since soil removal/replacement will be required the existing septic system must also be removed and replaced. This site is a US EPA Superfund Cleanup site.
- D. No known PTI for a septic system for this facility has been submitted.
- E. All applicable rules and regulations of the US EPA and Ohio EPA will be complied with.
- F. Wastewater pollutant is normal human sewage from the facilities single restroom.
- G. Anticipated flow rate 35gal/employee/day = 175 gallons/day. (5 employees)
Minimum storage for settling = 438 gallons.
Proposed septic system consist of:
1000 gallon septic tank to settle solids
One - concrete diversion device
Two - leach beds (200 LF of line per bed - minimum). Have designed trenches at a width of 24" to compensate for possible soil consolidation from automobile parking after installation

H. N/A

I. N/A

J. N/A

K. N/A

L. N/A



OHM Corporation

CHECK REQUEST

Form 0024
Accounting
Rev. 05/98

Date: 07 / 20 / 93

Payable to: FEDERAL STATE OF OHIO

Complete 1 of the following 5

JS 13601

Remit to Address:

Charge to Job

Billable Non-Billable

OHM EPA

Charge to Bids & Proposal

BP _____

SOUTHWEST DISTRICT OFFICE

Charge to Asset

EC _____

40 SOUTH MAIN STREET DAYTON

Charge to R & D

RD _____

State OHIO Zip 45402

Charge to Department

DD _____

Account No. _____ (must be completed)

COMPANY:

OHM Remediation Services Corp.

OHM Corporation

OHM Solvent Processors & Reclaimers Corp.

OHM Remediation Services Corp. of Canada

Amount: \$ 239.00

U.S. Dollar

Date

Canadian Dollar

Required: 07 / 20 / 93

Certified Check

Inv # _____

Inv. Date: _____

DESCRIPTION

PERMIT APPLICATION, REVIEW, AND ISSUANCE FEE FOR LEACHFIELD SYSTEM AT UNITED SCRAP LEAD SITE

Disposition of Check:

Regular U.S. Mail

Return To: JOHN SWANSON

By Interoffice Mail

Will pick up, call ext. 4120 when ready.

Prepared By:

Approved By:

Reviewed By (Accounting):

John Swanson

John Swanson

Accounting Use Only

Checker No.: _____

Vendor No.: _____

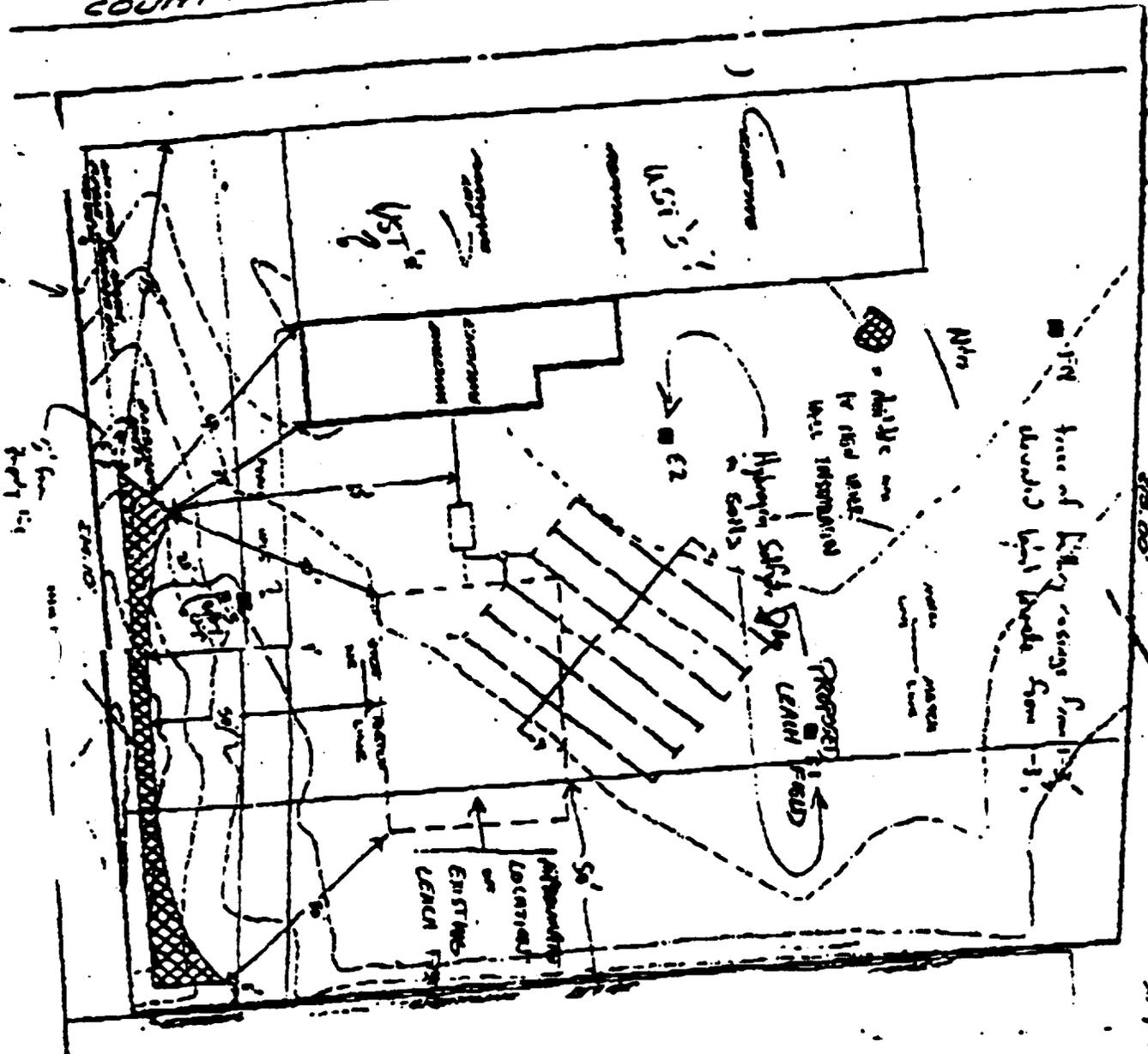
Original Invoice must be attached to White Copy

White — Accounts Payable

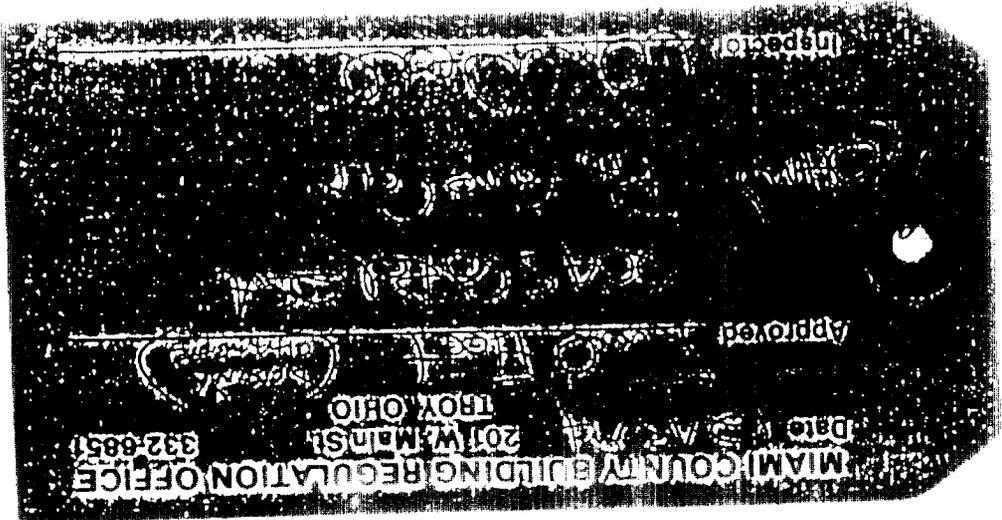
Canary — Preparer's Copy

Section K-Final Leachate System Electrical Inspection

COURT



N
 SCALE 1" = 20'
 as printed.



MIAMI COUNTY BUILDING REGULATION OFFICE

201 W. MAIN ST.

BOX OHIO

APPROVED

INSPECTOR

APPENDIX J

PHOTO DOCUMENTATION

(1994 Photographs, Replace Last 11 Pages)



46-98-11 AN UNLAW 88
SE NORTH, MA
BEGIN TO ENGAGE BERSON PROPHET



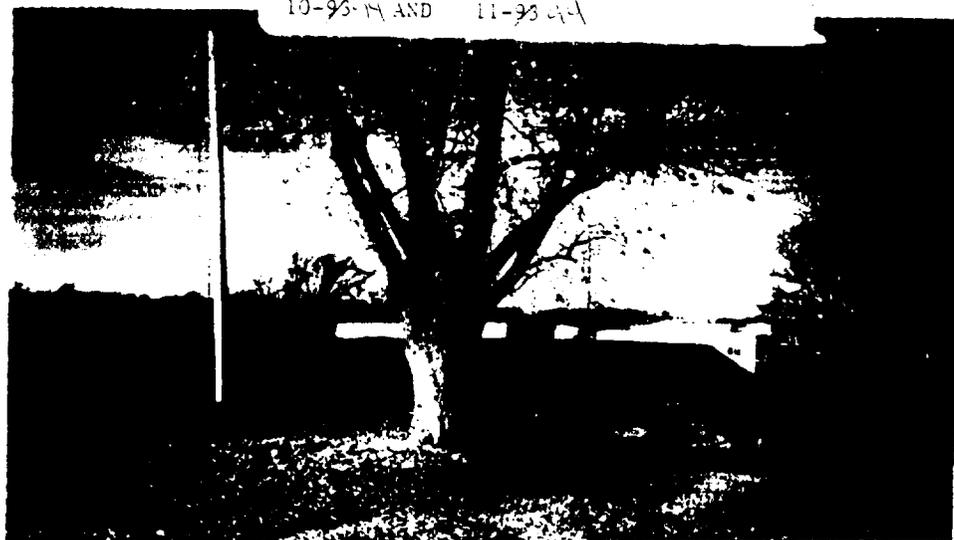


ON-SITE STAGING AREA BEFORE
EXCAVATIONS BEGIN 10-93



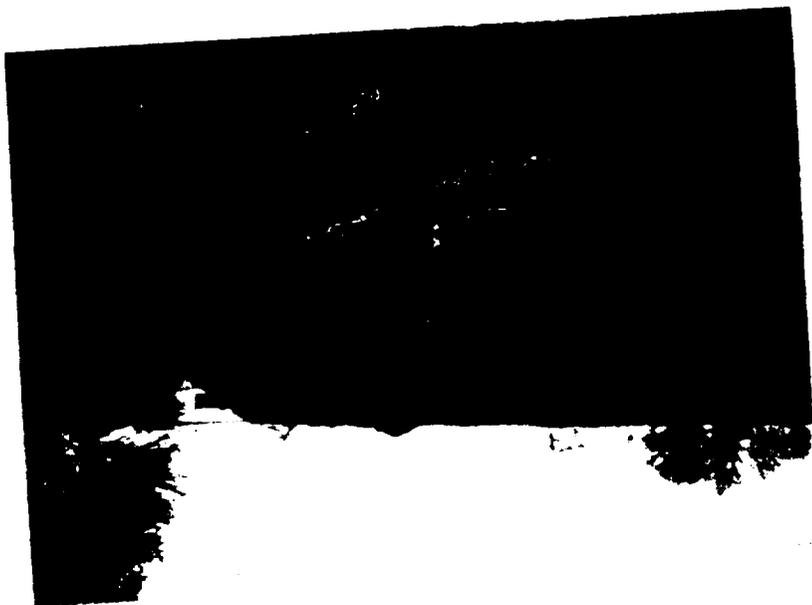
ON-SITE SOIL STAGING AREA

10-93 AND 11-93





11-93-11
ON-SITE SOIL STAGING AREA

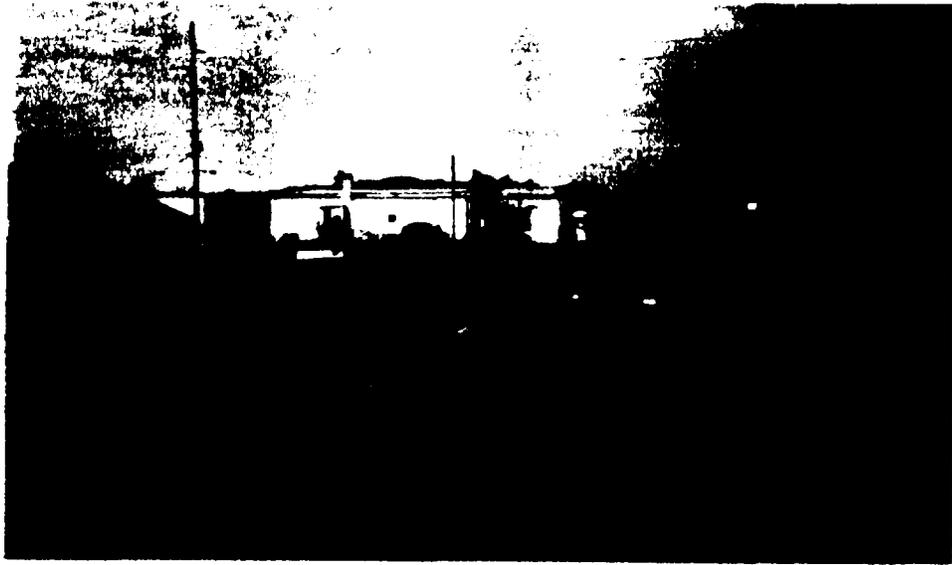




LEVELING LARGE BATTERY CHIP PILE

10-93

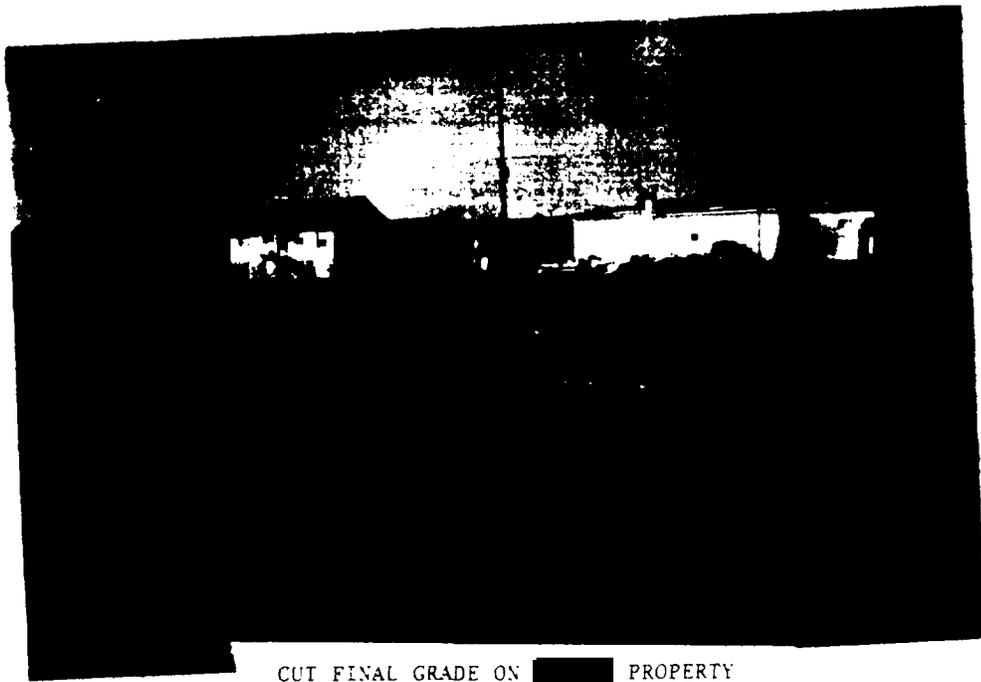






BACKFILL [REDACTED] PROPERTY
NORTH PORTION 11-93 04





CUT FINAL GRADE ON [REDACTED] PROPERTY

11-93 69





GROUTING OF FLOOR DRAINS IN BOSTON

GARAGE 11-93 84



SUBCONTRACTOR PERFORMING FENCE

INSTALLATION 11-93 84

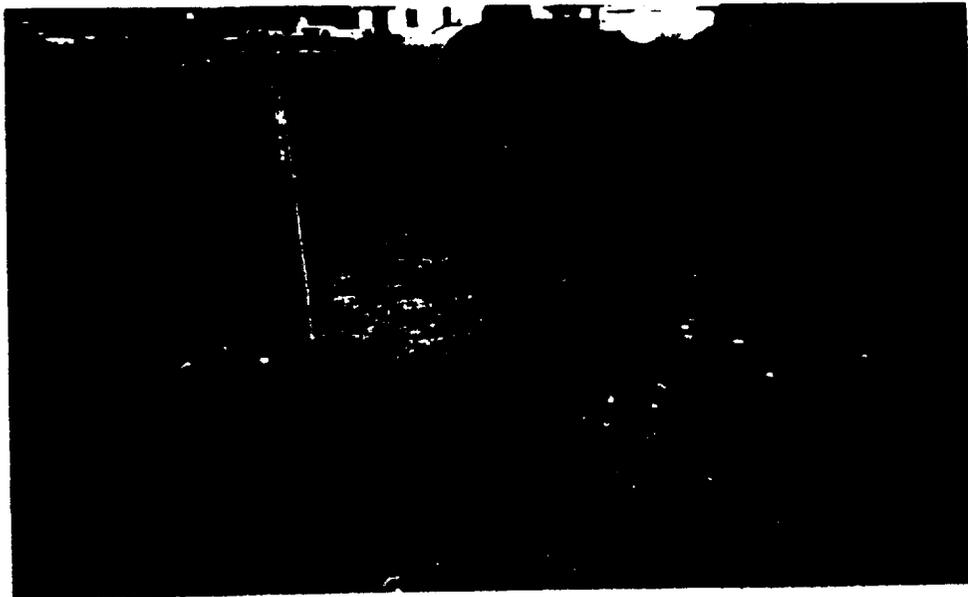




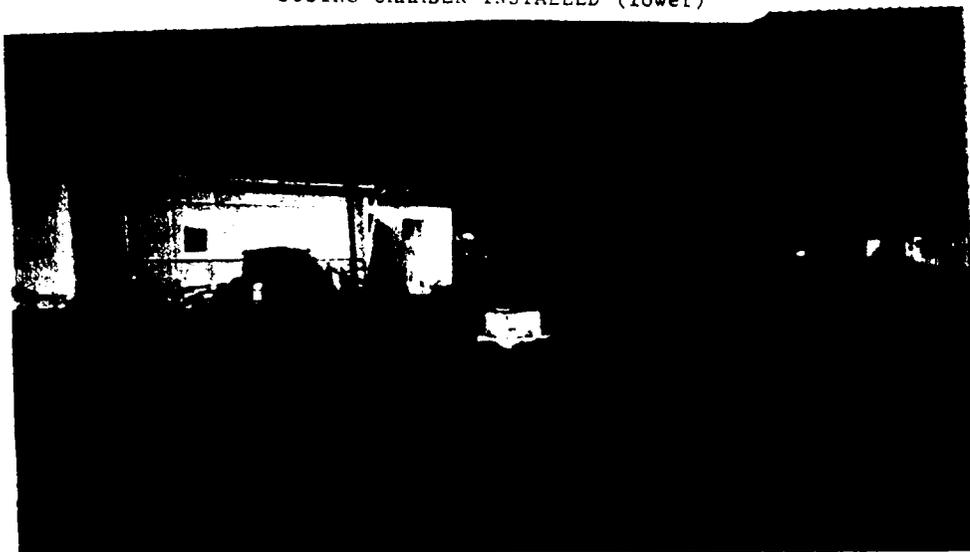
FENCING INSTALLATION COMPLETE

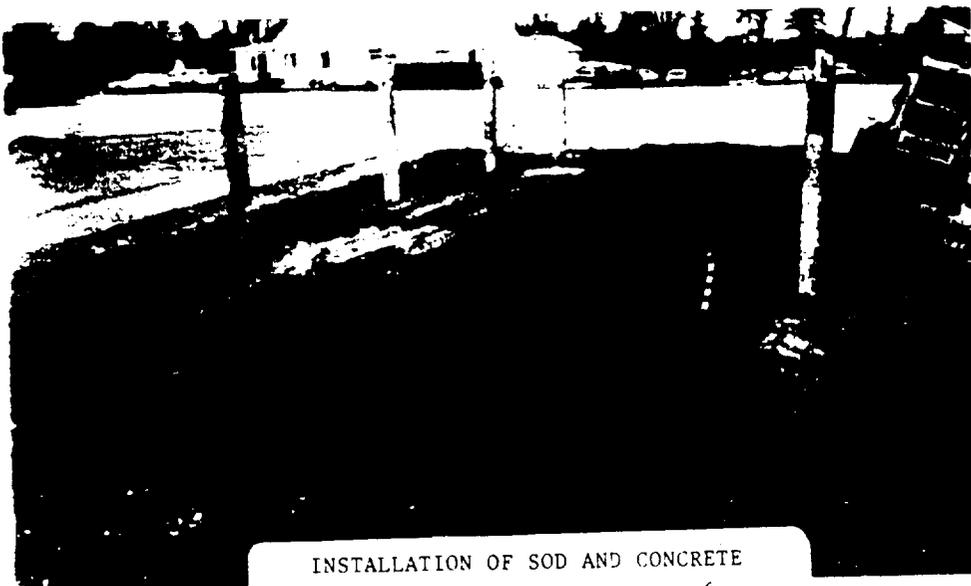
11-98 94





1994
— INSTALLATION OF BURTON LEACH FIELD
(upper)
DOSING CHAMBER INSTALLED (lower)





INSTALLATION OF SOD AND CONCRETE
PILLARS AT LEACH FIELD 11-93



LEACH FIELD, FENCING, AND STONING OF
PARKING LOT 11-93

