HELEN KRAMER LANDFILL SUPERFUND SITE

MANTUA TOWNSHIP, NEW JERSEY

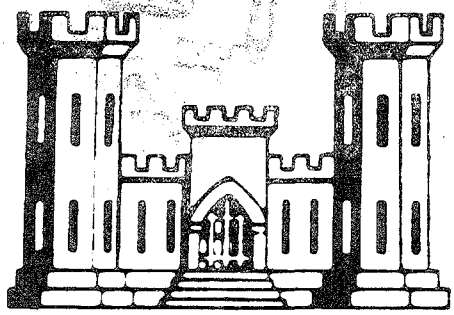
REMEDIAL ACTION DESIGN

CONTRACT NO. DACW 41-86-C-0113

FINAL
DESIGN ANALYSIS REPORT

VOLUME 3 OF 5

APPENDIX 3 — APPENDIX 5



DEPARTMENT OF THE ARMY

KANSAS CITY DISTRICT, CORPS OF ENGINEERS

SEPTEMBER 1988

Prepared by :

URS Company, Inc.

COPY 1 OF 2

DESIGN ANALYSIS REPORT

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APPENDIX 3

DESIGN ANALYSIS REPORT

APPENDIX 3A

LANDFILL GAS INVESTIGATION

HELEN KRAMER LANDFILL REMEDIAL ACTION DESIGN PROJECT

APPENDIX 3A

LANDFILL GAS INVESTIGATIONS

1.0 INTRODUCTION

This Appendix presents the methods and results of the field investigation and laboratory analyses on the landfill gas, completed during Phase II of the Helen Kramer Landfill Superfund Site Remedial Action Design contract. These investigations were carried out in general accordance with the methods presented in the Work Plan document approved by the COE at completion of Phase I. The purpose of the investigations was to collect data required for the design of an Active Gas Collection and Treatment System as described in the Record of Decision by the USEPA - Region II Administrator. The investigation activities began October 22, 1986, and were completed December 17, 1986. The monitoring wells were constructed by John Mathes Associates, Inc., of Columbia, Illinois, under the full-time supervision of URS.

The Phase II investigation included the following activities:

- A site reconnaissance to select the monitoring well locations

- Installation of the gas monitoring wells

- Sampling and monitoring of gas at each of the twelve gas monitoring wells

- A Gas Treatability Study

- A Condensate Treatability Study

These landfill gas field investigation activities were conducted to characterize the gas being produced on the Helen Kramer Landfill site and to determine the presence and concentration (if any) of toxic volatile organics in the landfill gas. The gas and condensate treatability studies were conducted to select appropriate methods of gas treatment to meet air emission requirements of the NJDEP.

The results were used to establish design criteria for the proposed gas collection and treatment systems.

2.0 METHODOLOGY

The field investigation activities began with a site reconnaissance by a three-man team on October 22, 1986.

The reconnaissance team walked the site to review accessibility for drilling equipment and used a portable hand-held TIP* (Total Ionizables Present) Meter manufactured by Photovac Inc. to measure total ionizable volatile organics present. Based on the site reconnaissance and meter readings, the locations of six (6) wells (numbered 1 through 6) around the perimeter of the landfill and six (6) wells on top of the landfill (number 7 through 12) were selected and staked with wood lath.

The organic vapor readings at each gas well were recorded and are shown in Table 3A-1.

The explosivity meter was not available for use on the day of the site reconnaissance and gas well staking, and no combustible gas readings are included in Table 3A-1.

At wells numbered 7, 8, 11 and 12, which were on top of the landfill, gas was observed venting to the atmosphere through ground fissures. The TIP* meter was used to measure total ionizable volatile organics close to the ground surface in the stream of venting gas. As shown in Table 3A-1, these readings are not significantly different from those at some of the perimeter well locations which did not exhibit ground

Table 3A-1. Site Reconnaissance Screening[1]
For
Total Organic Vapors

Gas Well	T.O.V. ppm
1	2.3
2	2.0
3	ND[2]
4	1.2
5	0.6
6	0.2
7	0.3
8	0.2
9	ND
10	ND
11	2.6
12	1.9

[1] Screening was done using a portable instrument. A TIP* meter manufactured by Photovac, Inc. was used to measure "Total Ionizables Present", which represents a composite of all ionizable pollutants. Readings were taken within 12 inches of the ground surface on October 22, 1986.

[2] Not Detected

fissures and venting gas. The reconnaissance team decided the sampling of ambient gas through a collection hole by use of a metal bar probe would not provide additional data and would not aid in selecting the well locations since the total ionizable volatile organic readings were similar along the perimeter well locations and the well locations on top of the landfill.

A design and drawing of the gas monitoring well were prepared to show the 2-inch PVC casing, 10 to 15 feet of slotted casing or standard well screen, pea gravel backfill, bentonite seal, 4-inch steel protective casing with lock, and a 3/4-inch gas valve on top of the well casing. The gas wells on top of the landfill were designed to be 25 feet deep and the perimeter gas wells 30 feet deep, which should yield sufficient representative gas quantities for the investigation activities. The perimeter wells were designed 5 feet deeper to aid in the evaluation of subsurface gas migration from the landfill, but without extending below the anticipated water table surface.

Prior to the construction of the gas monitoring wells, a site safety meeting was held on site to review the Site Specific Safety Plan related to the drilling and site operations. The various levels of safety protection and action levels anticipated during the drilling operation were covered.

Personnel from John L. Mathes and Associates, URS, and Dames & Moore participated in the meeting.

The monitoring wells around the landfill were constructed from October 23, 1986, to October 25, 1986. Combustible gas monitoring was performed during the drilling operation to ensure that the proper level of safety action or protection was provided for the personnel involved. Table 3A-2 indicates the instrument readings recorded during the drilling operation at each well site.

The wells on top of the landfill were constructed from October 25, 1986, to October 28, 1986. These wells were constructed under Level "B" safety equipment using supplied air. Information during drilling was recorded as described above for the drilling of the perimeter wells.

Moisture in the air occasionally caused a malfunction of the TIP* Meter during the drilling of the gas wells. The explosimeter functioned well and was used at all times as a safety guide during the drilling operations.

Table 3A-2. Gas Well Screening[1]
For
Methane and Total Organic Vapors

Date	10-23 to 10-28[2]		11-12 to 11-13		11-19 to 11-20		11-24	
Gas Well	L.E.L. %	T.O.V. PPM	L.E.L. %	T.O.V. PPM	L.E.L. %	T.O.V. PPM	L.E.L. %	T.O.V. PPM
1	<5	<10[3]	100	2	100	4.5	8	12
2	<5	<10	0	70	0	25	0	120
3	<5	<10	11	15	--	--	0	40
4	<5	<10	25	0	100	0	100	0
5	<5	<10	14	2	20	60	15	0
6	<5	<10	10	30	0	56	0	14
7	<5	<10	100	50	100	6	100	0
8	25	--[4]	100	--[4]	100	4.5	100	100[5]
9	<5	<10	100	0	45	3.5	100	0
10	<5	10	100	0	100	0	50	1
11	<5	<10	17	18	100	0	100	2
12	<5	<10	14	0	70	0	100	0

[1] Screening was done using portable instruments. A Model 302 Sniffer manufactured by United Technologies Bacharach was used to measure the presence of combustible gases or vapors (0-100%) in air. A TIP* meter manufactured by Photovac, Inc. and a Model PI 101 HNU meter were used to measure "Total Ionizables Present" which represents a composite of all ionizable pollutants. Dates are from October 23, 1986 to November 24, 1986.

[2] These values were obtained during and immediately after the installation of the gas monitoring wells.

[3] Initial reading at this site was 60 when ground surface was first disturbed. Readings then dropped to less than 10.

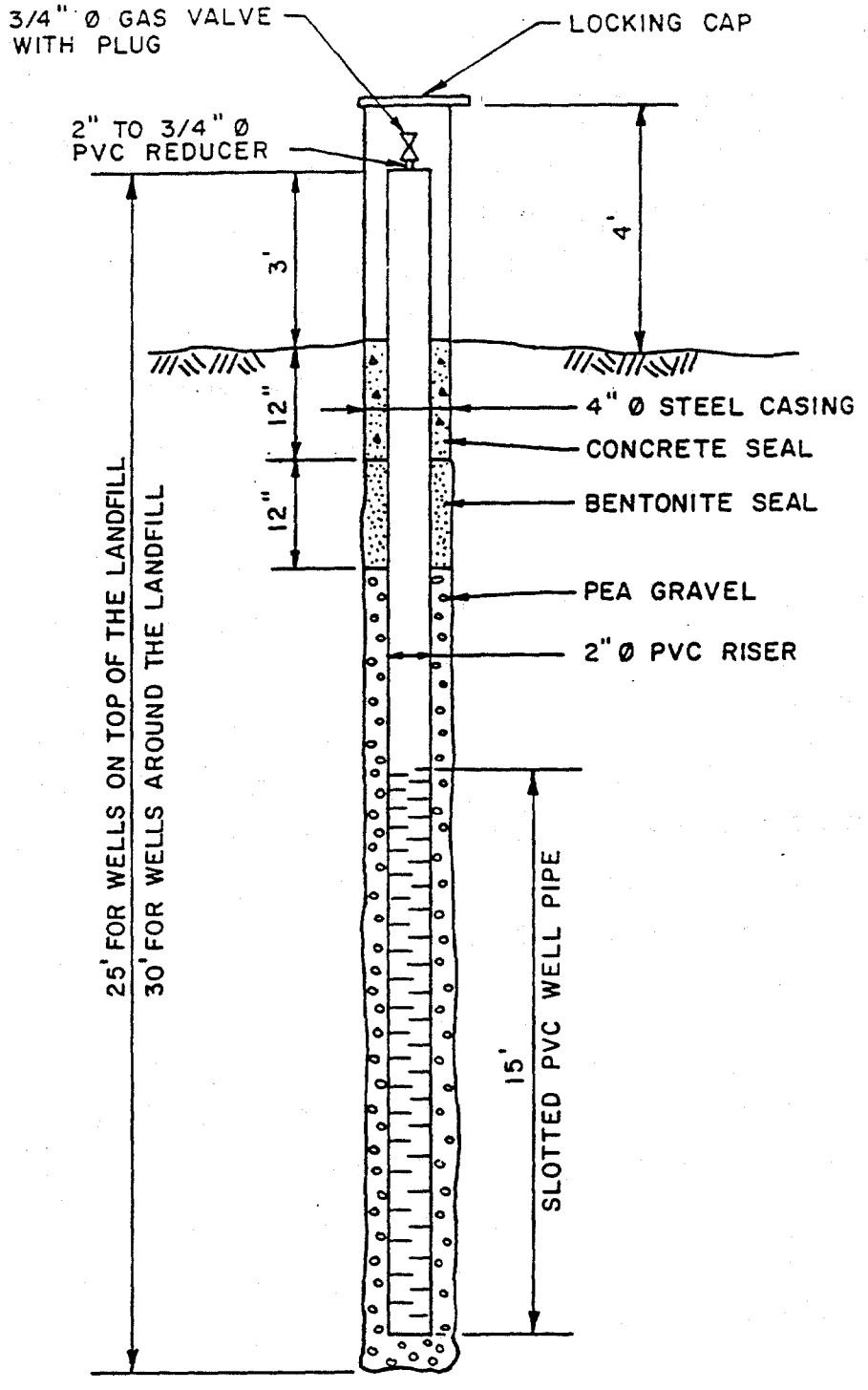
[4] No reading obtained, due to high humidity and moisture which affect instrument operation.

[5] The instrument showed a slow steady rise to 100 due to high humidity and moisture which affects the operation of the instrument.

All of the gas monitoring wells were constructed in accordance with the design drawing. The only difficulty that occurred involved the construction of well No. 10 when a portion of a mattress spring was encountered at a depth of 18.5 feet and pulled to the surface. The drilling crew continued drilling and was able to complete the well construction without further incident.

All of the gas monitoring wells had a 4-inch steel casing with locking lid above the ground for protection. A 2-inch to 3/4-inch PVC reducer was installed on top of the 2-inch PVC well casing with a 3/4-inch gas valve and plug to facilitate the gas monitoring and sampling activities. Each well casing was numbered 1 through 12 in the field for identification and reference. A drawing of the well cross-section is shown in Figure 3A-1.

Between October 23, 1986, and November 24, 1986 a 30-day monitoring or screening of the gas wells was conducted. This screening involved taking readings through the 3/4-inch gas valve at the top of each well casing with portable hand-held instruments. An explosivity meter was used to measure combustible gases (methane), and a TIP* meter and HNU meter were



DR 004029

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URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

HELEN KRAMER LANDFILL
GAS MONITORING WELL

FIGURE 3A-1

used to measure total ionizable volatile organics. These readings were used to select one or more gas wells on which to conduct the gas treatability study. The readings from this screening are shown in Table 3A-2.

Gas samples were taken from each of the twelve gas monitoring wells for laboratory analysis by Princeton Testing Laboratory on November 12 and 13, 1986.

On the basis of results of the gas well screening, well No. 8 was selected for the Gas Treatability Study due to the consistently high combustible gas readings. Well No. 7 was not used because venting gas from the fissures in the ground surface around the well could cause difficulty in obtaining proper test samples and meter readings. Wells No. 9 and 2 were selected for additional gas treatability testing to evaluate the results from different wells.

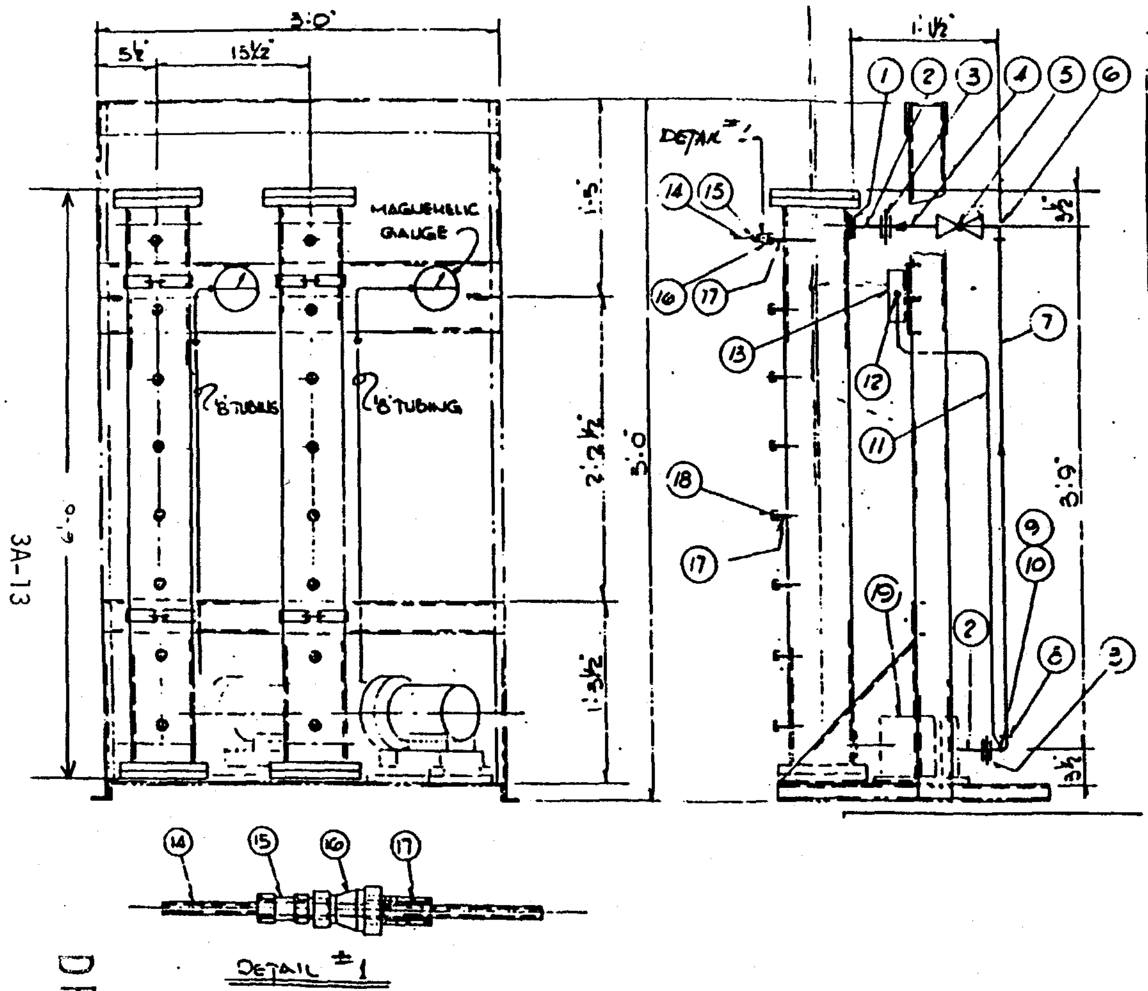
The Gas Treatability Study was conducted from November 19, 1986, to November 25, 1986, by use of a dual column vapor phase carbon system obtained from Calgon Carbon Corporation, Pittsburgh, Pennsylvania. Calgon Carbon Corporation provided two types of carbon for testing, a BPL (fine grain) and a BPL-F3 (coarse

grain). The two types of carbon were used to determine if porosity of the carbon affected the gas treatability.

The carbon system consisted of two 5-inch inside diameter columns, 6 feet long with sampling ports. A blower was located downstream of the columns to draw gas through the columns. A portable electric generator was used to provide power for the blower. The gas was vented to the atmosphere from the blower. Each column contained 10 pounds of carbon during the test. A drawing of the carbon system is shown in Figure 3A-2.

A condensate separator was placed on line between the gas monitoring well and the carbon unit. The condensate separator is manufactured by Wright-Austin, Detroit, Michigan and has 1-1/4 inch inlet and outlet threaded fittings. The condensate separator consists of a tank with vanes on the interior to create a swirling motion of the gas which throws the entrained moisture to the walls. The entrained moisture collects at the bottom of the tank and can be removed manually or ejected automatically by use of a float controlled stainless steel valve.

Initial background readings of organic compounds were made with the portable hand-held meters. The carbon unit was connected to



BILL OF MATERIAL

ITEM No	No REQD	MAT'L	DESCRIPTION	REMARKS
1	2		1½" x 1" HEX BUSHING	
2	4		1" x 0-3 LG. NIPPLE	
3	4		1" 150# CLPG.	
4	2		1" x 0-5" LG NIPPLE	
5	2		1" BALL VALVE	
6	2		1" 90° STREET ELL	
7	2		1" SCH 40 PIPE x 3'-7 3/16"	
8	2		1" 90° STREET ELL	TAP
9	2		½" x 1/8" HEX BUSHING	
10	2		MALE CONNECTOR (SWAGELOK)	400-1-2
11	2		1/8 ALUM. TUBING x 60" LG	
12	2		MALE CONNECTOR (SWAGELOK)	400-1-2
13	2		MAGNEHELIC GAUGE	
14	2		1/8" S.STL TUBING x 6" LG	
15	2		¼" MALE CONNECTOR (SWAGELOK) 400-1-2	DRILL
16	2		3/8 x ¼ RED.	
17	16		3/8" x 1½ LG NIPPLE	
18	14		3/8" PIPE CAP	
19	2		BLOWERS (ROTRON MODEL	
			(VFC 201P) 115 VOLT, 1 PHASE 50/60 HZ	
			3.4 AMPS	

FOR INFORMATION ONLY

PLANT 90 CUSTOMER GENERAL

TITLE DUAL COLUMN VAPOR PHASE PILOT PLANT ADSORBER UNIT

DRAWN	CHECKED	APPROVED	SCALE
GMC	ff	ff 6/14/76	1½" = 1'-0

PROJECT	DRAWING NO	REV
6-2018-059	90-30-0095	—

3A-13

DR- 0040032

the 3/4-inch gas valve on the gas monitoring well using flexible tubing. The laboratory sampling apparatus was located so that gas samples could be taken upstream and downstream from the carbon unit.

After the initial readings were recorded, the carbon unit was activated, and the test period began. During the test period both analytical and field tests were performed. The test was considered completed when the TIP* Meter indicated the presence of total volatile organics at the outlet of the carbon unit. At the completion of the test, carbon samples were taken from each of the two columns for laboratory analysis by Calgon Carbon Corporation.

3.0 LABORATORY ANALYSIS

The gas sampling laboratory analysis and gas and condensate treatability study were conducted by Princeton Testing Laboratory, Princeton, New Jersey.

A gas sample from each of the twelve gas monitoring wells was analyzed for the following parameters:

Volatile organics (Tenex Desorption on GC/MS)
Carbon Dioxide
Oxygen
Nitrogen
Methane
Hydrogen Cyanide
Hydrogen Sulfide
Percent Moisture

A condensate sample from gas monitoring wells No. 7 and 8 was analyzed for volatile organics. The condensate samples collected from the condensate separator during the gas treatability study were contaminated and were not used for laboratory analysis.

During the Gas Treatability Study on gas monitoring wells No. 2, 8, and 9, gas was sampled and tested at the influent and effluent ports of the carbon adsorption system and analyzed by Princeton Testing Laboratory for the gas sample parameters to determine efficiency of the carbon adsorption system.

The spent carbon samples from gas monitoring wells No. 8 and 9 were delivered to Calgon Carbon Corporation for laboratory analysis of the following parameters:

- Virgin apparent density
- Apparent density
- Weight of organics adsorbed
- Weight of water adsorbed
- Carbon tetrachloride number
- Screen size distribution

The carbon unit was run until a reading of total volatile organics was obtained with the TIP* meter at the outlet of the blower. On each run, this occurred in less than 60 minutes. This procedure determined the "break through" point of the carbon, meaning the first time in which total volatile organics passed through the carbon unit and were measured by the TIP* meter. When Calgon Carbon Corporation conducted the apparent density laboratory analysis, the results showed no significant adsorption of organics, and no further laboratory analyis was

conducted. In reviewing the data with the Calgon Carbon Corporation laboratory staff, it was decided the carbon unit did not run long enough for either the coarse or fine carbon to adsorb sufficient organics to test for the full range of parameters on the carbon. Discussion was held on running the carbon unit until complete saturation of the carbon in which the inlet and outlet readings of total volatile organics are approximately equal. However, due to an estimated length of time of 24 hours to 14 days to reach saturation of the carbon, it was not feasible to conduct this type of test due to the hazards of staffing the carbon unit 24 hours a day on the landfill site.

An evaluation will be made during the Phase III work if it is possible for Calgon Carbon Corporation to conduct computer simulation of the carbon saturation point based on the laboratory analysis by Princeton Testing Laboratory.

A copy of the Laboratory Report and Procedures by Princeton Testing Laboratory and Calgon Carbon Corporation is included in this section.

LABORATORY RESULTS AND PROCEDURES

FROM

PRINCETON TESTING LABORATORY

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

princeton testing laboratory

P.O. Box 318, Princeton, N.J. 08540

Member

December 18, 1986

URS Dalton
3005 Warrensville Center Rd
Cleveland, Ohio 44122-5203

Dear Rich:

Please find enclosed the analytical data package on the Helen Fraser landfill project. You will find that the entire project is reported in two phases, note the two separate job numbers 96HG3069, 96HG3072.

All of the data from the twelve wells are included with this package. Data from the second phase (3072) of the project which included the testing of the scrubbing system is also enclosed, with the exception of the volatile organic results. Due to some internal difficulties we are unable to submit these results with this package; we hope to have these to you within 24 hours. We will contact you later today to update you on the results.

Very truly yours,

David Kichula

David Kichula, CIH, Manager
Industrial Hygiene

DR .004038

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

princeton testing laboratory

Member

[illegible] Princeton, N.J. 08540

December 18, 1986

URS Dalton
3605 Warrensville Center Rd
Cleveland, Oh 44122-5203

Attention: Richrd Hunsicker, P.E., P.S.

Job #: 86HGW3009, 86HGW3072

Service: Sampling and analysis of emission gases from 12 monitoring wells and gas stream at the input and output of a carbon gas scrubber.

Method:

1. Volatile organics in air - tenax tube collection, gas chromotography/mass spectroscopy. EPA #600/4-84/041, April, 1984

2. Water, carbon dioxide, oxygen, nitrogen, methane - tedlar bag collection, gas chromotography/thermal conductivity detector.

3. Hydrogen sulfide - tedlar bag collection, P&CAM 126- colorimetric analysis detector.

4. Hydrogen cyanide - tedlar bag collection, P&CAM 116 ion specific electrode

5. Total hydrocarbons: Teldar bag collection; ASTM D-3416 gas chromotography with flame ionization detection

Field Hygienists: Kevin McHugh, Bob Harvey
Princeton Testing Laboratory

Location: Helen Kramer Landfill
Mantua Township, Gloucester County, NJ

DR 004039

Phase I

Samples at each of twelve wells were collected by three methods. Hydrogen cyanide was collected by impinger. Volatile organics were collected by adsorbtion onto tenax. H2S, H2O, CH4, O2, and N2 were collected by Mylar bag. Details of the sampling procedure follow.

At each of the sampling sites, a 15-25 foot section of Teflon line was placed into each well. Each of the three sampling procedures used this line. Each well had its own dedicated sampling train.

To sample for hydrogen cyanide, a bendix pump (model #PDX44) was connected to the teflon line through a train of 2 miget impingers. Each impinger contained 10 mls of .10N KOH as a collection medium. The pump was run for 15 minutes at a rate of 1 liter/min. to obtain a total volume of approximately 15 liters. After the 15 minutes sampling period the pump was removed from the line and the contents of both impingers were combined and placed in a 25ml vial.

The volatile organics were sampled by drawing a sample of well gas through a tenax tube by a MSA low flow pump, model #C-210. The pump was connected to the teflon sampling line at each well. Well gas was then drawn through a tenax GC filled glass tube. Sample retention was by surface adsorbtion onto the tenax. Sample volumes averaged about 15 liters. After sampling was completed, the pump was disconnected from the well. The tenax tube was then removed from the pump, wrapped in aluminum foil, placed in a ziplock bag, and put into an ice chest. In the bottom of the ice chest was a cold pack and silica gel.

CO2, O2, N2, CH4, H2O and H2S were sampled by taking a 44 liter sample of well gas. A Thomas pump (Model #107CA18) was connected to the teflon sampling line and to a 44 liter calibrated instruments mylar sample bag. Well gas was pumped into the bag.

All samples were analyzed by standard NIOSH P&CAM Methods, as referenced above.

Phase II - scrubber efficiency tests

On the first three scrubber runs sampling proceeded basicly by the same methods used in phase I, with these modifications. Two samples of each type were taken for each run site. A sampling device was connected to the side of the line running from the well to the scrubber. Another device was connected to the side of the output line from the scrubber to the atmosphere. This was done to sample both the input and output flows of the scrubber.

On the last three scrubber runs samples were taken for total hydrocarbons analysis. Because the time required to sample the gas flow by the methods presented in phase I was longer than the apparent time the scrubber took to break through, it was decided by URS's and PTL's on site personnel that s faster sampling method was needed. Because of the speed of sampling, grab bag sampling was done. An Air Cadet pump (model #7530-60) was connected to the side of the input line to the scrubber. Another Air Cadet pump was connected to the side of the output line. Samples were drawn from both input and output flows, at the same time, into a calibrated instrument mylar sample bag. Six samples were taken during each run at each side of the scrubber. Analysis was performed as indicated above.

Condensent samples were also taken at well #7 and #8 at the direction of URS's personnel. A teflon line was placed into each well. This line was then connected to a train of three ball joint impingers. Well gas was drawn through these impingers by a bendix pump (model #BDX-44). The first two impingers (ie. the impingers which gas is drawn through first) each contained 20 mls of purged deionized water. These impingers wre packed in ice during the sample collection. After collection was completed the contents of all the impingers were combined and placed into a 35 ml volatile organic bottle and analyzed as above.

CHAIN OF CUSTODY RECORD

PROJECT #: HGW3009 | PROJECT NAME: URS Co.

SAMPLERS SIGNATURE: R. Hargett PTL

LAT. #	DATE	TIME	STATION LOCATION	SOLIDS			MERCURY	METALS	CYANIDES	ASBESTOS	ANALYSES REQUIRED: ORGANICS GC/MS	BASE/NEUTRAL	ACID FRACTIONS	PESTICIDES & PCB's	SEMI-VOA	MISC. CHEM.	REMARKS

SAMPLES RECEIVED: 34 HOW MANY CONTAINERS? 16 knox + 2 Bottles of D.I. water

Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)
→	11/14/86 10:30	R Kruse	R Kruse	11/14/86 10:30	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Rec'd by: (signature)
Relinquished by: (signature)	Date/Time	Rec'd for laboratory by (signature):	Date/Time	REMARKS:	

DR

PRINCETON TESTING LABORATORY

SAMPLE ANALYSIS REQUEST FORM

JOB NO. 04/[illegible]

DATE RECEIVED: 11/14/86

P.O. NUMBER:

URS Company

(A) Sample Facility Company/Person | CODE | MAILING ADDRESS

SAMPLE LOCATION

(B) SAMPLE COLLECTOR

SAMPLER(S) NAME | AGENCY: PTL | SAMPLER ID#

AGENCY: | SAMPLER ID#

(C) SAMPLE IDENTIFICATION

SAMPLE NOS. (Used Day 1 & 2 (DI Water)) | SAMPLING DATE | DEPTH TO WATER LEVEL

TIME SAMPLING BEGAN | DEPTH OF WELL

#Well 1, 2, 3, 4, 5, (6) 7, 8, 9, 10, 11, 12, trip + [illegible] | TIME SAMPLING FINISHED | ELEVATION

WELL CASING DIAMETER 11/3 Exp 11/12 #7 split #6 split 5"

(D) SAMPLING PROCESS

COLLECTION METHOD | CODE | SAMPLE TYPE | CODE

TYPE OF SAMPLER | CODE | SAMPLE MATRIX | CODE

DESCRIPTION

(E) FIELD MEASUREMENTS

SAMPLE TEMP. °C	PARAMETER	PARAMETER	PARAMETER
AIR TEMP. °C	VALUE	VALUE	VALUE
WEATHER			

(F) CHAIN-OF-CUSTODY IMPLEMENTED / /YES / /NO | PRESERVATION CODE(S)

REQUESTED ANALYSIS(ES)

PARAMETERS (by Compound or Group of Compounds)	CONTAINER NUMBER	DETECTION LIMIT (digits/units)	PRECISION & ACCURACY LIMITS	REQUESTED TURNAROUND (days)
GC/MS for V.O.	18			
tenax tubes				

(G) ANALYSIS AUTHORIZED BY TITLE

ANALYZING LABORATORY

NAME PERSON ACCEPTING SAMPLE R Kovacs TITLE

2/24/86

DR 004043

I # Job

CHAIN OF CUSTODY RECORD

PROJECT # HG43000 PROJECT NAME: URS Co

SAMPLERS SIGNATURE: R. Harry PTL

LAB #	DATE	TIME	STATION LOCATION	SOILS	SEDIMENT	WATER	CHLORIDES	ASBESTOS	ANALYSIS REQUIRED: ORGANICS (GC/MS)	ORGANICS BASE/NEUTRAL	ORGANICS PESTICIDES & PCB's	ORGANICS PHENOLICS	MISC. (SEE REMARKS)	REMARKS
			Well #1				✓							
			2				✓							
			4				✓							
			5				✓							
			6				✓							
			7				✓							
			8				✓							
			9				✓							
			10				✓							
			11				✓							
			12				✓							
			~~Trip~~ blank 11/18				✓							
			~~Trip~~ blank 11/12				✓							
			~~#7 split~~				✓							
			~~#6 split~~				✓							

34 field blank Day 2

SAMPLES RECEIVED: HOW MANY CONTAINERS? 16 test tubes

Relinquished by: (signature)	Date/Time 11/14/82 10:30Am	Received by: (signature) R Kovacs	Relinquished by: (signature) R Kovacs	Date/Time 11/14/82 10:30Am	Rec'd by: (signature) Robert Mann
Relinquished by:	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Rec'd by: (signature)
ed by:	Date/Time	Rec'd for laboratory by (signature):	Date/Time	REMARKS:	

DR 0040044

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

URS Company

princeton testing laboratory

Princeton, N.J. 08540

Member

DATE: December 16, 1986
JOB #: 86HGW3072
SAMPLE: Water

METHOD: EPA 624

PRIORITY POLLUTANT VOLATILE ORGANICS

NO.	COMPOUND	Sample I.D. / Date Run / Multiplier	Day #2- Trip Blank / 12/11/86 / 1
1.	Chloromethane		ND
2.	Bromomethane		ND
3.	Vinyl Chloride		ND
4.	Chloroethane		ND
5.	Methylene Chloride		30
6.	1,1-Dichloroethene		ND
7.	1,1-Dichloroethane		ND
8.	Trans-1,2-Dichloroethene		ND
9.	Chloroform		ND
10.	1,2-Dichloroethane		ND
11.	1,1,1-Trichloroethane		ND
12.	Carbon Tetrachloride		ND
13.	Bromodichloromethane		ND
14.	1,2-Dichloropropane		ND
15.	Trans-1,3-Dichloropropene		ND
16.	Trichloroethene		ND
17.	Dibromochloromethane		ND
18.	1,1,2-Trichloroethane		ND
19.	Benzene		ND
20.	Cis-1,3-dichloropropene		ND
21.	2-Chloroethylvinylether		ND
22.	Bromoform		ND
23.	Tetrachloroethene		ND
24.	1,1,2,2-Tetrachloroethane		ND
25.	Toluene		ND
26.	Chlorobenzene		ND
27.	Ethyl Benzene		ND

SURROGATE RECOVERY DATA - % RECOVERY

1,2-Dichloroethane-D 4	66
Toluene - D 8	90
4-Bromofluorobenzene	96

To obtain Method Detection Limit for each sample, multiply "sample multiplier" times detection limit for each parameter.

ND = Not Detected

RECEIVED: 11/21/86

NANCY S. DUNN, Manager
Organic Laboratory

:cs

DR 004045

PURGEABLES BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

(EPA 624)

This method covers the compounds listed in EPA 624 (July, 1982). It's goal is to reach those method detection limits and recoveries so listed in EPA 624. This is a purge and trap gas chromatographic/mass spectrometer (GC/MS) method applicable to the determination of the compounds listed in municipal and industrial discharges under 40 CFR 136.1. This method detection limits, ions, and average percent recoveries are listed in Table 1 (EPA values).

SUMMARY OF METHOD

An inert gas is bubbled through a 5 ml sample contained in a specially designed purging chamber at ambient temperature. The purgeables are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the purgeables are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the purgeables onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the purgeables which are then detected with a mass spectrometer.

APPARATUS AND MATERIALS

1. Vial - 25 ml capacity or larger, equipped with a screw cap with a hole in the center (Pierce #13075). Detergent wash, rinse with tap and deionized water, and dry at 105°C before use.

2. Septum - Teflon face silicone (Pierce #12722) - Wash and dry as in cap.

3. Envirochem Unacon 310 Concentrator.

4. Hewlett-Packard 5993 GC/MS System.

5. Columns: (A) 6 ft. long by 0.1 inch ID; stainless steel packed with 1% SP-1000 on Carbopack B (60/80 mesh).
   (B) 32 meter long by 0.32 mm ID - fused silica capillary, SP3-5 1.0 µm loading

REAGENTS

1. Reagent Water that is free of interferences and volatile organics.
2. High quality trap materials (Tenax, Sigel, and Ambersorb XE-347).
3. Methanol - glass distilled pesticide grade.
4. Stock Standard Solutions - Reagents should be NBS traceable and at least 98 percent true (Standards should be prepared weekly as per EPA 624).

CALIBRATION AND TUNING

The GC/MS System should be tuned with 4-BFB and meet the minimum requirements as determined in EPA 624 (See Table 2). A three point calibration is necessary to determine linearity of the instrument. The analyst should demonstrate that both the low and high ends of his/her calibrations are linear. An unknown must then lie on this calibration. If the unknown does not lie on this line, subsequent dilutions will be necessary.

The working calibration curve or calibration factor must be verified on each working day by the measurement of one or more of the calibration standards. If the response for any parameter varies from the predicted response by more than ± 10%, the test must be repeated using a fresh calibration standard.

QUALITY CONTROL

Spiked sample recovery data is obtained on the volatile organics. This serves as a continuing check on performance. Surrogate compounds are also purged and their recoveries are calculated.

QUANTITATIVE ANALYSIS - WATER

The sample (5-10 ml) is analyzed using a 20 ml vial. The internal and surrogate standards are injected into the vial that already contains the water sample. The sample is purged for 9 minutes with a secondary carrier flow of 5 minutes. The trap to trap transfer time is 2 minutes. The vial is rinsed twice with freshly purged deionized water before another analysis is performed. If the response for any ion exceeds the working range of system, dilute the sample aliquot in freshly purged reagent water and reanalyze.

Obtain extracted ion current profiles (EICP) for the primary and secondary ions for each parameter of interest (See Table 1.). The following criteria must be met to make a qualitative identification:

A. The characteristic ions of each parameter of interest must maximize in the same or within one scan of each other.

B. The retention time must fall within ± 30 seconds of the retention time of the authentic compound.

C. The relative peak heights of the three characteristic ions in the EICP's must fall within ± 20% of the relative intensities of these ions in the reference mass spectrum.

QUANTITATIVE ANALYSIS - SOLID WASTE

The procedure is similar to that for water. The solid is weighed into a vial and a known amount of methanol is added. The solution is sonicated at ambient temperature for 30 minutes. A blank is also prepared and treated identically. An aliquot is then injected into a heel of purged water and analyzed as above. Method detection limits are usually higher using this method.

CALCULATIONS

If all criteria concerning qualitative identification are met, integrate the primary ion, unless the peak is not Gaussian or interferences are found. Then check the secondary ion and check its shape. Integrate the nearest internal standard. Repeat procedure for the standard. Apply the formulas below:

For internal standard calculation—

$$\text{Concentration (ug/l)} = \text{conc. std (ug/l)} \times \frac{\text{response sample}}{\text{response standard}} \times \frac{\text{ml std}}{\text{ml spl}} \times \frac{\mu\text{L IS spl}}{\mu\text{L IS std}} \times \frac{\text{respone IS std}}{\text{response IS spl}}$$

For external standard calculation—

$$\text{Concentration (ug/l)} = \text{conc. std (ug/l)} \times \frac{\text{response sample}}{\text{response std}} \times \frac{\text{ml std}}{\text{ml spl}}$$

TABLE 1

Compound	Method Detection Limit (ug/l)	Primary Ion	Secondary Ion (s)	Reagent H_2O Avg. % Rec.	Reagent H_2O S.D.%	Wastewater Avg. % Rec.	Wastewater S.D.%
Benzene	4.4	78	—	99	9	98	-10
Bromodichloromethane	2,2	127	83,85	102	12	103	10
Bromoform	4.7	173	171,175	104	14	105	16
Bromomethane	ND	94	96	100	20	88	23
Carbon Tetrachloride	2.8	117	119,121	102	16	104	15
Chlorobenzene	6.8	112	114	100	7	102	9
Chloroethane	ND	64	66	97	22	103	31
2-Chloroethylvinylether	ND	106	63,65	101	13	95	17
Chloroform	1.6	83	85	101	10	101	12
Chloromethane	ND	50	52	99	19	99	24
Dibromochloromethane	3.1	127	129,208	103	11	104	14
1,1-dichloroethane	4.7	63	65,83	101	10	104	15
1,2-dichloroethane	2.8	98	62,64	100	8	102	10
1,1-dichloroethylene	2.8	96	61,98	102	17	99	15
tr(1,2)-dichloroethylene	1.6	96	61,98	99	12	101	10
1,2-dichloropropane	6.0	112	63,65	102	8	103	12
c/t-1,3-dichloropropene	5.0 (t)	75	77	105	15/11	102/100	19/18
Ethylbenzene	7.2	106	91	104	8	103	10
Methylene Chloride	2.8	84	49	100	16	89	28
1,1,2,2-tetrachloroethane	6.9	168	83,85	96	9	104	14
Tetrachloroethylene	4.1	166	129,131	102	9	100	11
Toluene	6.0	91	—	101	9	98	14
1,1,1-trichloroethane	3.8	97	99,117	101	11	102	16
1,1,2-trichloroethane	5.0	97	83,85	101	10	104	15
Trichloroethylene	1.9	130	95,97	101	9	100	12
Trichlorofluoromethane	ND	101	103	103	11	107	19
Vinyl Chloride	ND	62	64	100	13	98	25
1,3-dichlorobenzene	ND	146	148,113	ND	ND	ND	ND
1,2-dichlorobenzene	ND	146	148,113	ND	ND	ND	ND
1,4-dichlorobenzene	ND	146	148,113	ND	ND	ND	ND

ND = not determined

TABLE 2. BFB KEY ION ABUNDANCE CRITERIA

MASS	CRITERIA
50	15 - 40% of 95
75	30 - 60% of 95
95	100% Base Peak
96	5 - 9% of 95
173	< 2% of 174
174	> 50% of 95
175	5 - 9% of 174
176	> 95% but < 101% 174
177	5 to 9% Mass 176

TABLE 3. SURROGATE AND INTERNAL STANDARDS

	COMPOUND	PRIMARY ION	SECONDARY IONS
Surrogates			
	Benzene - d_6	84	—
	4-Bromofluorobenzene	95	174,176
	Ethylbenzene-d_{10}	98	—
	Ethylbenzene-d_5	111	—
	Fluorobenzene	96	70
	Pentafluorobenzene	168	—
Internal Standards			
	Bromochloromethane	128	49,130,51
	2-Bromo-1-Chloropropane	77	79,156
	1,4-Dichlorobutane	55	90,92

LABORATORY RESULTS AND PROCEDURES

FROM

CALGON CARBON CORPORATION

CALGON CARBON CORPORATION

CALGON CARBON CORPORATION P.O. BOX 6768 1081 ROUTE 22 BRIDGEWATER, NJ 08807-2985 (201) 526-4646

December 15, 1986

Mr. Richard A. Hunsicker, P.E., P.S.
URS Dalton
3605 Warrensville Center Road
Cleveland, Ohio 44122-5203

Reference: Purchase Order No. 2693
Helen Kramer Landfill, Carbon Analysis

Dear Rick:

Four samples of carbon used in your field pilot test work at Helen Kramer Landfill were analyzed by Calgon Carbon Labs, Pittsburgh, PA. The carbon samples were oven dried at 105°C overnight and apparent density (A.D.) measured by Calgon's TM-7. The results are as follows:

Sample	Date	Type Carbon	Apparent Density (gm/cc)
Virgin	-	BPL-F3	0.380
Well No. 8	11/25/86	BPL-F3	0.387
Virgin	-	BPL 4x10	0.497
Well No. 8	11/20/86	BPL 4x10	0.498
Well No. 8	11/25/86	BPL 4x10	0.495
Well No. 9	11/25/86	BPL 4x10	0.507

The results show no significant difference between the virgin carbon density and those of the pilot run samples. This can indicate (1) The columns were not on line a sufficient length of time to load the carbon with organics or (2) The organics present in the gas stream are not amenable to carbon adsorption. Based upon discussions of the actual test conditions, we believe (1) above to be the situation.

If we can be of any further assistance, please don't hesitate to contact us.

Very truly yours,

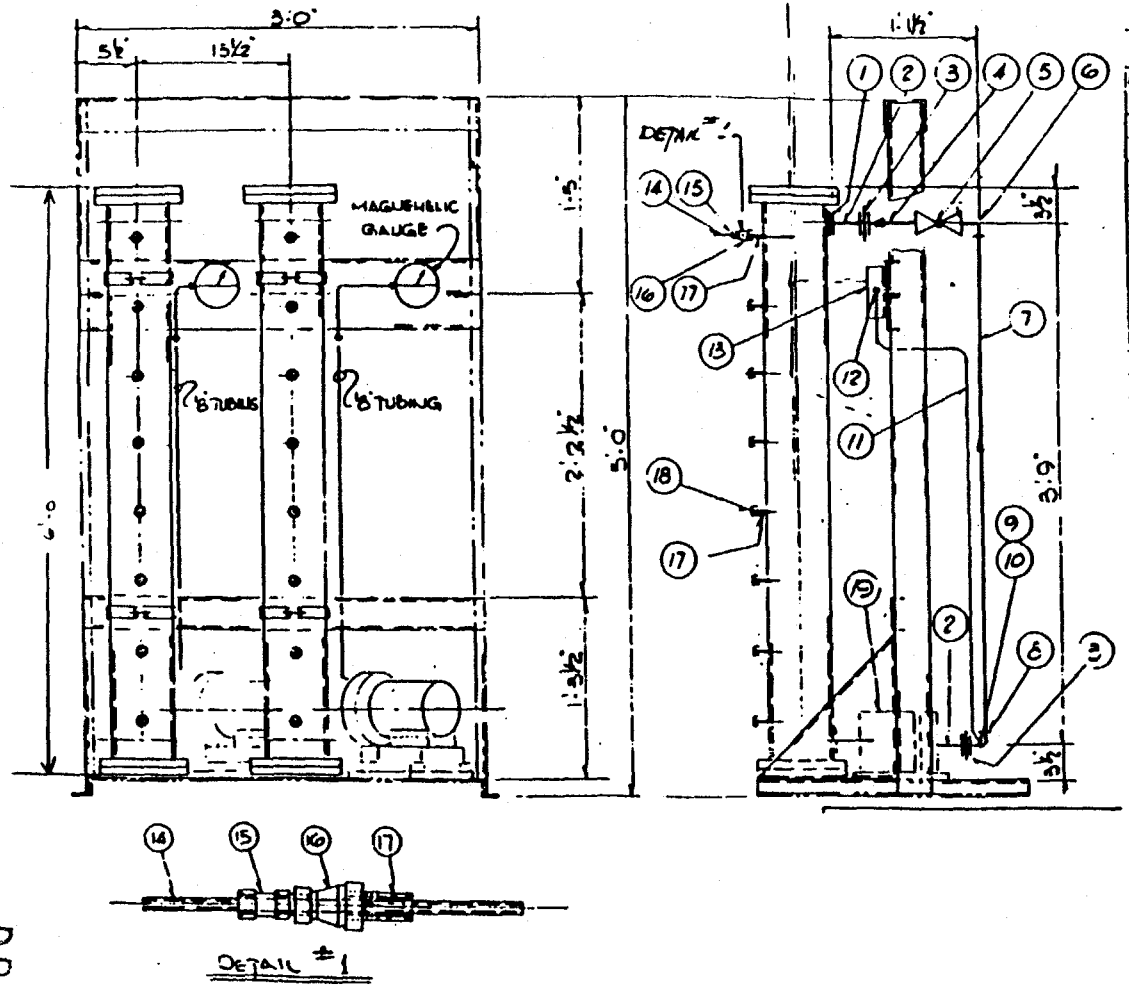
CALGON CARBON CORPORATION

Stephanie Lesiga

Stephanie Lesiga
Applications Engineer

SL:lg

DR 004052



BILL OF MATERIAL

ITEM No	No REQD	MAT'L	DESCRIPTION	REMARKS
1	2		1½" x 1" HEX BUSHING	
2	4		1" x C-3 LG. NIPPLE	
3	4		1" 150# CLPG.	
4	?		1" x 0-5 LG NIPPLE	
5	?		1" BALL VALVE	
6	?		1" 90° STREET ELL	
7	?		1" SCH 40 PIPE x 3'-7¾"	
8	?		1" 90° STREET ELL	TAP
9	?		1½" x 1/8" HEX BUSHING	
10	?		MALE CONNECTOR (SWAGELOK)	400-1-2
11	?		1/8" ALUM. TUBING x 60" LG	
12	?		MALE CONNECTOR (SWAGELOK)	400-1-2
13	?		MAGNEHELIC GAUGE	
14	?		1/8" S.STL TUBING x 6" LG	
15	?		1/8" MALE CONNECTOR (SWAGELOK) 400-1-2	DRILL
16	?		3/8" x 1/4" RED.	
17	16		3/8" x 1½" LG NIPPLE	
18	14		3/8" PIPE CAP	
19	?		BLOWERS (ROTRON MODEL VFC 20(P) 115 VOLT, 1 PHASE 50/60 HZ 3.4 AMPS	

FOR INFORMATION ONLY

PLANT: 90 COUSTOMER GENERAL

TITLE: DUAL COLUMN VAPOR PHASE PILOT PLANT ADSORBER UNIT

DRAWN	CHECKED	APPROVED	SCALE
GMC	[illegible]	[illegible] 5/14/85	1½"=1'-0"

PROJECT: 0-208-059

DRAWING NO: 90-30-0095

REV: C

PITTSBURGH ACTIVATED CARBON

TEST METHOD

TYPE:	ISSUE DATE:	METHOD NUMBER:
R.M.) QUAL. CONT. X PROD) PROD. CONT. X GEN. ANAL X	April, 1971	TM - 7

TITLE	REQUESTED OR SUBMITTED BY:	APPROVAL
DETERMINATION OF THE APPARENT DENSITY OF ACTIVATED CARBON	M. F. Kranc	S A R _____
WRITTEN BY: B. S. Pawlowski	ORIGINAL REFERENCE: Control Lab Test Method	S C L _____

SCOPE: This method is intended to determine the weight of carbon per unit volume and is expressed in grams per milliliter.

LIMITATIONS: This method covers a procedure for granular activated carbons. It cannot be used for fine mesh or pulverized carbons.

PRINCIPLE OF METHOD: A representative sample of granular carbon is added to a 100 ml graduated cylinder at a uniform rate to obtain maximum packing. The weight of the 100 ml sample divided by 100 is the apparent density, expressed in grams per milliliter.

MFK:BSP/pb
Form 213

APPARATUS:

Vibrator Feeder - see attached sketch.

Cylinder - Graduated, capacity 100 ml, ASTM.

PROCEDURE:

1. A representative sample is carefully placed into the reservoir funnel of the vibrator feeder so that the material does not prematurely flow into the graduated cylinder.

2. The sample is added to the cylinder by the vibrator feeder, through the feed funnel having a 15/16 inch inside diameter stem.

3. Fill the graduated cylinder at a uniform rate not to exceed one (1) milliliter per second, up to the 100 ml mark.

4. Quantitatively transfer the contents of the cylinder to a balance pan and weigh to the nearest tenth of a gram (0.1 g).

5. Calculate the apparent density as follows:

$$\text{A.D., g/cc} = \frac{\text{weight of activated carbon}}{100}$$

PRECAUTIONS AND EXPLANATIONS:

If some material does flow into the graduated cylinder prior to starting the test, it should be returned to the reservoir funnel.

The dimension of the feed funnel is designed to allow uniform filling of the graduated cylinder.

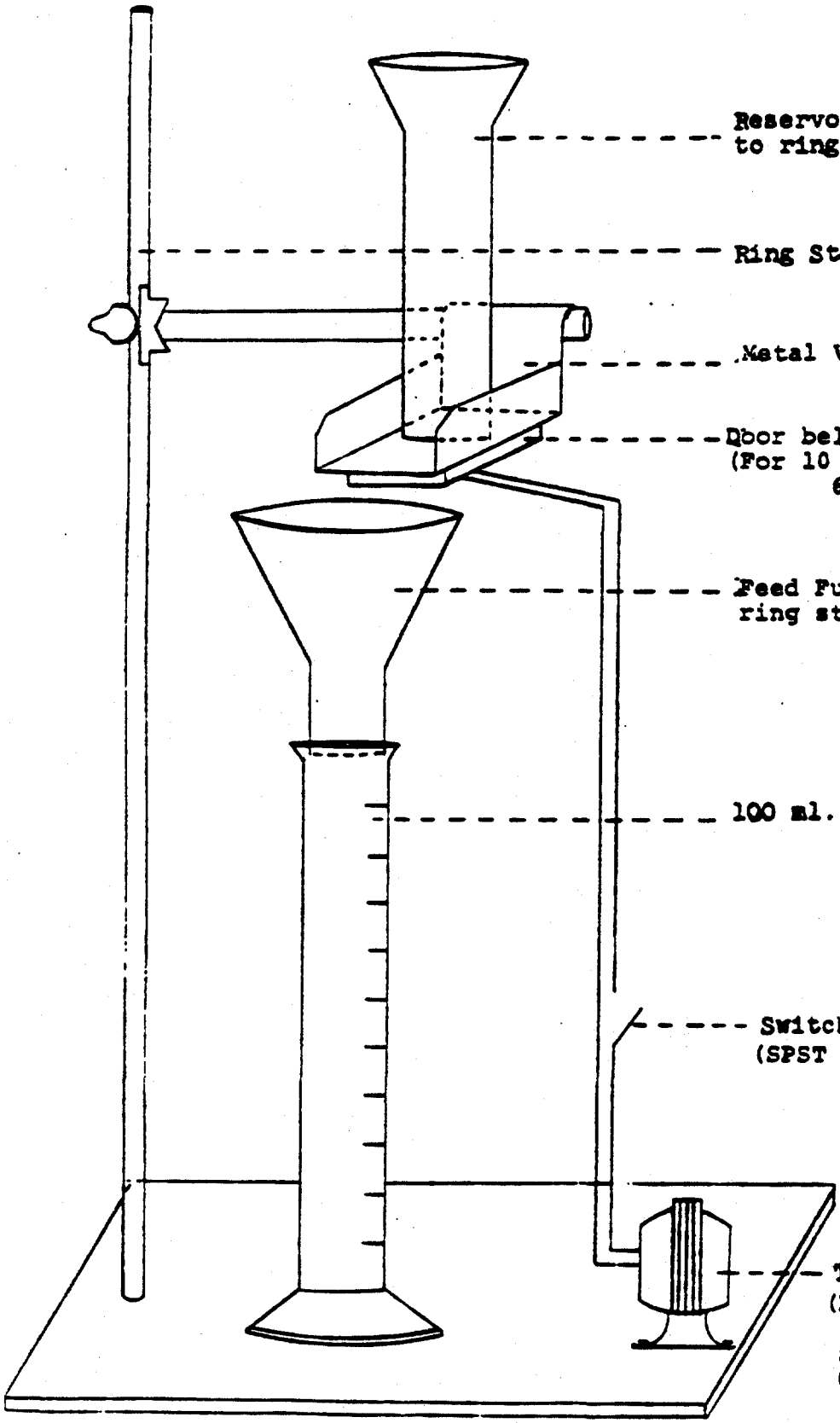
The rate of filling can be adjusted by changing the slope of the metal vibrator and/or raising or lowering the reservoir funnel.

Care should be taken to prevent loss of material during this transfer.

To obtain the apparent desnity on a dry basis, calculate as follows:

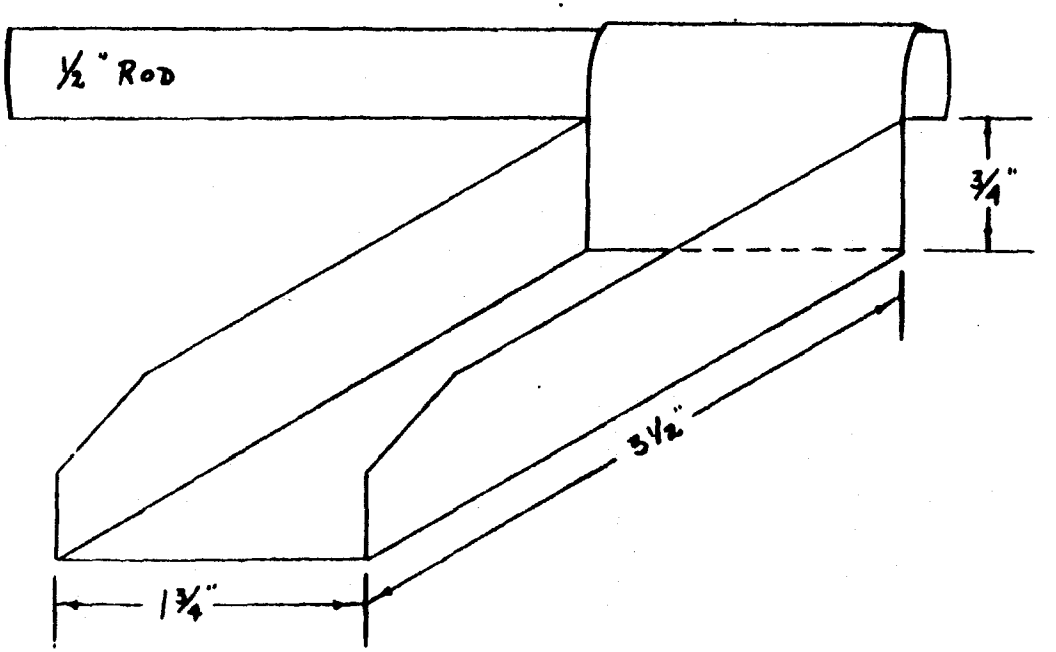
$$\text{A.D., g/cc (dry basis)} = \frac{\text{wt. carbon (100-\% moisture)}}{10{,}000}$$

APPARENT DENSITY VIBRATOR FEEDER



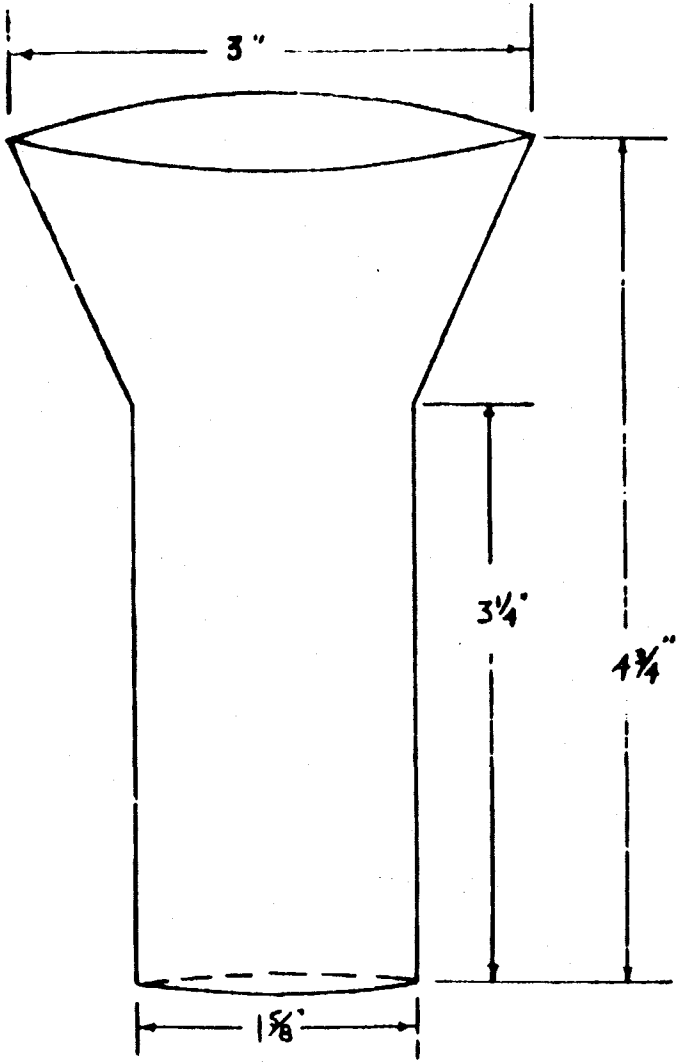
DR 004056

METAL VIBRATOR

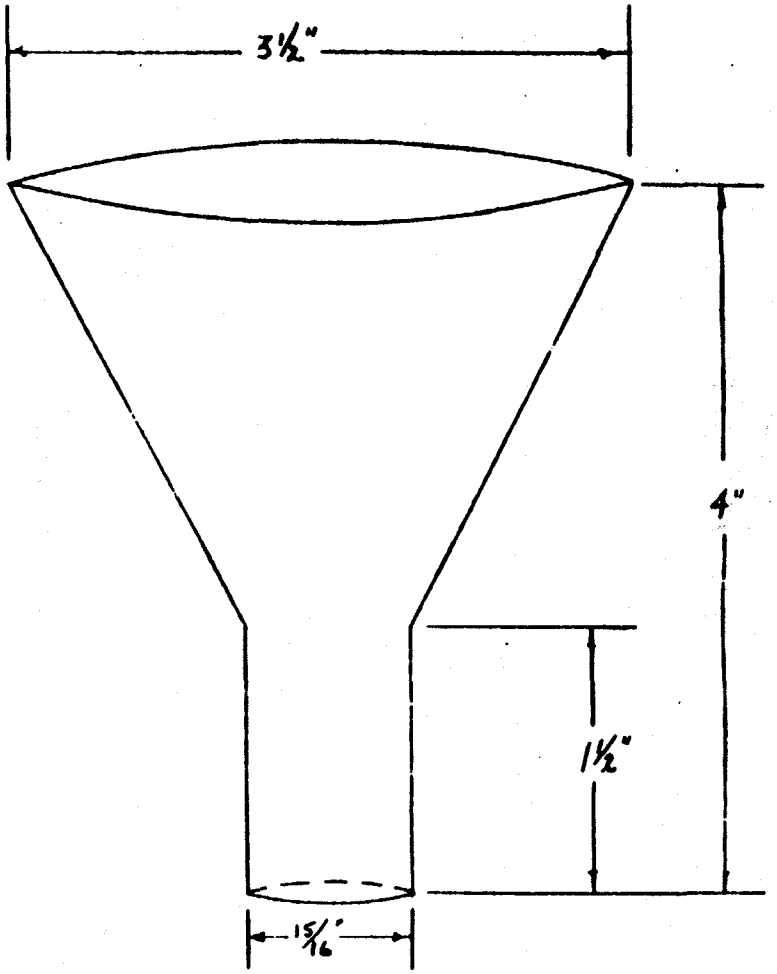


Actual Size - 26 gauge galvanized sheet metal.

RESERVOIR FUNNEL



FEED FUNNEL



CONDITIONS: Glass or Metal - Actual Size

DESIGN ANALYSIS REPORT

APPENDIX 3B

CHEMICAL ANALYSIS

TABLE OF CONTENTS

1.0 INTRODUCTION

This Appendix describes the chemical sampling and analytical program that was carried out as part of the Phase II field investigation for the Helen Kramer Remedial Design. The samples were collected over the period of November 11-14, 1986. The program included the collection of water samples from five groundwater monitoring wells, three residential wells, and a surface seep point. A leachate composite was also collected (Figure 3B-1).

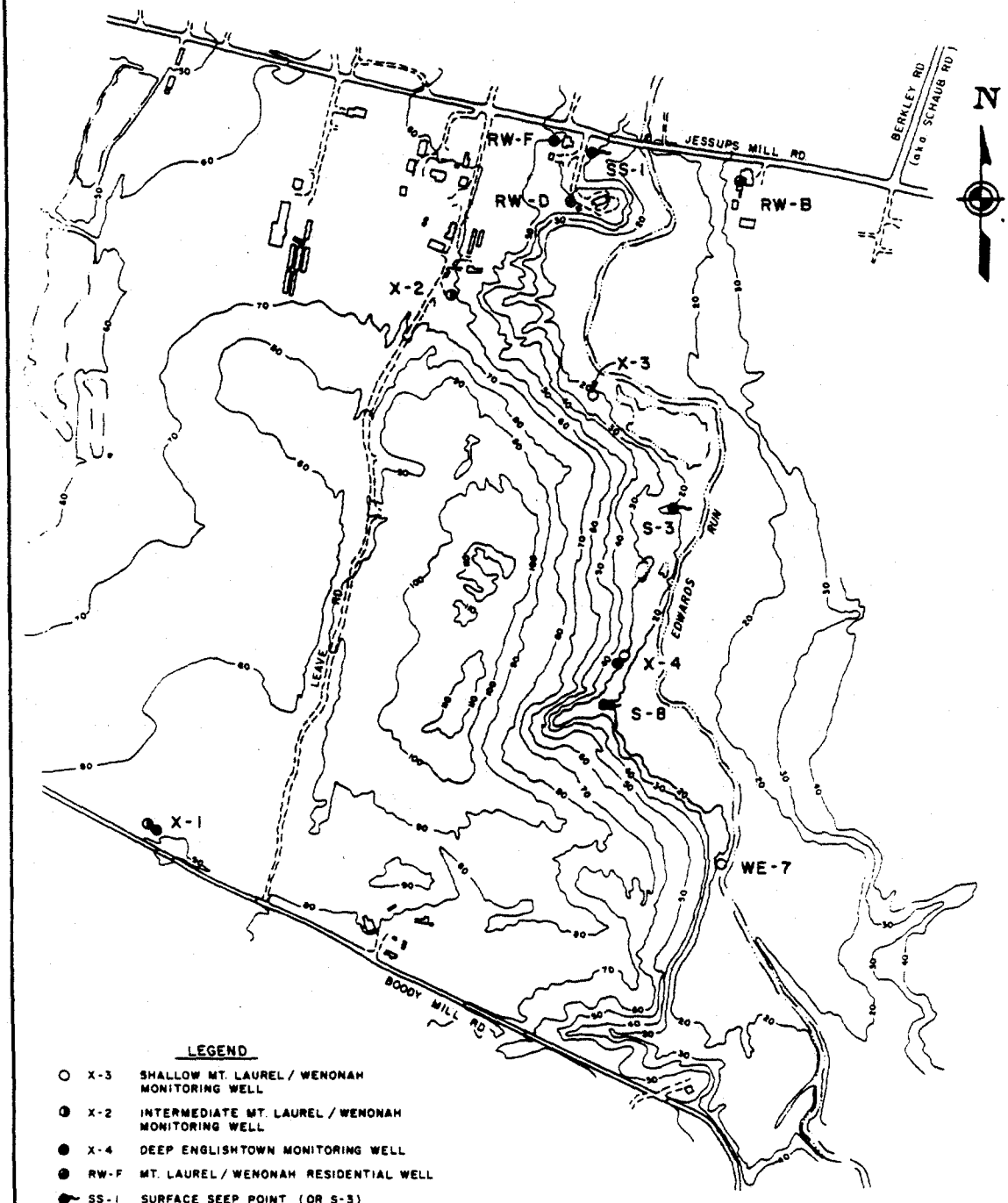
In addition to the samples from each matrix (groundwater leachate, surface seep, etc.), internal quality control and external quality assurance samples were collected. These QA/QC samples consisted of trip blanks (VOA only), rinsate blank (a deionized water rinse of cleaned sampling equipment), and sample duplicates. The internal QC samples were sent to Wilson Laboratories, while the external QA samples were sent to the Missouri River Division (MRD) Laboratory (the Corps of Engineers' (COE) Quality Assurance laboratory).

Each day's collection of samples was processed, preserved, and shipped to Wilson Laboratories or the COE Quality Assurance laboratory via overnight air express. A summary of samples collected, including QA/QC is presented in Table 3B-1.

1.1 Weather Conditions

Since typical late fall weather patterns prevailed during site sampling activities, site operations were not adversely affected. Light rain fell on Tuesday, November 11, during the purging of the groundwater monitoring wells. The balance of the week, however, was clear to partly

DWG. NO. C-1415



LEGEND

○	X-3	SHALLOW MT. LAUREL / WENONAH MONITORING WELL
◑	X-2	INTERMEDIATE MT. LAUREL / WENONAH MONITORING WELL
●	X-4	DEEP ENGLISHTOWN MONITORING WELL
◉	RW-F	MT. LAUREL / WENONAH RESIDENTIAL WELL
⊶	SS-1	SURFACE SEEP POINT (OR S-3)

NOTE: ALL WELLS AND SEEP POINTS WERE INSTALLED OR LOCATED DURING THE R.I./F.S. CONDUCTED BY R.E. WRIGHT & ASSOCIATES, EXCEPT SS-1 WHICH WAS ADDED BY URS COMPANY INC., FOR THE DESIGN FIELD INVESTIGATION.

3B-2

DR 004062

URS URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

HELEN KRAMER LANDFILL
CHEMICAL SAMPLING POINT LOCATIONS

FIGURE 3B-1

TABLE 3B-1

SAMPLES COLLECTED AT HELEN KRAMER LANDFILL

MATRIX	INTERNAL QC (WILSON LAB.)	EXTERNAL QA (MRD LAB)
GROUNDWATER WELLS		
X-1I	X-4D (DUP)	X-1I (MRD)
X-1D	Trip Blank #1	Trip Blank #1 (MRD)
X-2I	Rinsate Blank	Rinsate Blank (MRD)
X-4D		
X-4S		
RESIDENTIAL WELLS		
RW-B	RW-F (DUP)	No. QA Samples
RW-D	Trip Blank #4	Requested
RW-F		
LEACHATE COMPOSITE		
LCH-1	LCH-1 (DUP)	LCH-1 (MRD)
	Trip Blank #2	Trip Blank #2 (MRD)
SURFACE SEEP		
SS-1	SS-1 (DUP)	SS-1 (MRD)
	Trip Blank #3	Trip Blank #3 (MRD)

TABLE 3B-2
HELEN KRAMER LANDFILL
WELL EVACUATION INFORMATION

Well	Date	Size/Type Casing	Water Level (Feet Below Top of Casing)	Well Depth (Feet Below Top of Casing)	Volume of Standing Water (Gals.)	Volume of Water Purged (Gals.)	Method of Purging	Recharge Rate*
X-1I	11/11/86	4"SS	35.52'	65'	19.5	60.0	Bailer	1
X-1D	11/11/86	4"SS	35.00'	146'	73.25	225	Bailer	1
X-2I	11/11/86	4"SS	19.89'	42'	14.5	50.0	Pump	1
X-4S	11/11/86	4"SS	3.97'	22'	11.9	35.0	Pump	1
X-4D	11/12/86	4"SS	0.50'	90'	56.4	180	Pump	1
X-3	11/12/86	4"SS	5.82'	22'	10.7	32.0	Pump	1
WE-7	11/13/86	4"PVC	4.42'	21'	10.9	35.0	Pump	1

* Recharge Rates

1. Rapid - recharges continuously
2. Moderate - recharges within several hours
3. Slow - recharges after 24 hours

cloudy, with temperatures ranging from the mid-thirties to upper forties. Except for November 11, winds were generally out of the west or northwest at 5-10 mph with gusts of up to 23 mph occurring on November 13. On November 11 the winds were out of the east at 7 mph as a front came through, producing the light rain mentioned previously.

2.0 FIELD METHODS

In the following sections are summarized the field methods employed to collect the samples. A more detailed treatment of sampling protocols is presented in the Site Specific Quality Management Plan (SSQMP).

2.1 Groundwater Monitoring Well Samples

A total of five groundwater monitoring wells was evacuated and sampled over a two-day period. On November 11 all wells were evacuated; this required the removal of three times the standing volume of water. The purging operation was accomplished by either of two methods. A suction lift pump with dedicated tubing was use if the water level was not initially greater than twenty-five feet below the top of the casing (BTOC), or did not drop to such a point during pumping. For those wells with water levels greater than twenty-five feet BTOC, dedicated PVC bottom-filling bailers were used for evacuation. The pump method was used on wells X-2I, X-4S and X-4D, while dedicated bailers were used on X-1I and X-1D. A summary of well evacuation information is presented in Table 3B-2.

On November 19 all wells were sampled, using dedicated, precleaned, stainless steel, bottom-filling (teflon check valve) bailers.

The QA/QC samples collected for the groundwater monitoring wells consisted of a VOA trip blank, a rinsate blank and a sample duplicate. A complete set of QA/QC samples was supplied to Wilson Laboratories and the COE MRD laboratory. The duplicate sample supplied to Wilson Laboratories was from X-4D while the duplicate sample supplied to the MRD laboratory was from X-1I.

2.2 Residential Well Samples

Three residential wells were sampled on Friday, November 14. These wells were located at the Frazier, Dehnhard, and Bolton residences. The samples were collected from the kitchen cold water tap after the water was allowed to run for approximately five minutes. The pump system at the Dehnhard residence contained a particulate filter in line upstream from the water tap. It could not be bypassed. The other residential well systems contained no treatment or filtration systems.

The quality control samples collected for the residential wells included a duplicate sample from the Frazier residence and a VOA trip blank sent to Wilson laboratories. No external QA (MRD) samples were requested by the COE for residential wells.

2.2 Leachate Composite Sample

The leachate composite was formed by mixing water from three wells (X-3, X-4S, WE-7) and two surface points (S-3, S-8). Prior to sampling on Friday November 14, the wells were evacuated using the pump method as described in the previous section on groundwater monitoring well sampling (Table 3B-2).

The surface points that comprised the composite sample were sampled by digging a "sump" and submerging a pond sampler (with glass beaker) to collect the appropriate volume of liquid. The wells were sampled using dedicated, precleaned, stainless steel, bottom-filling bailers. At each point, five gallons of liquid were collected into a precleaned five-gallon jug. All five jugs were transferred to the command trailer where the final composite was mixed into another five-gallon jug in the following proportions:

X-3 - 25%
S-3 - 15%
X-4S - 25%
S-8 - 15%
WE-7 - 20%

From this composite sample, liquid was dispensed into appropriate sample bottles and preserved for various analyses. Also split out from the composite was a set of samples for Gloucester County Utilities Authority (GCUA). The dispensing of the liquid from the five-gallon jug into the required bottles was accomplished with a peristaltic pump with new, dedicated silastic pump hose and new, dedicated teflon intake and discharge tubes. The exception to this was the volatile organic samples which were collected by submerging the VOA vial directly into the liquid contained in the five-gallon jug.

The QA/QC samples collected for the leachate composite consisted of a duplicate sample and a trip blank. A set of QA/QC samples was supplied to both Wilson Laboratories and the COE MRD laboratory.

2.4 Surface Seep Sample

On November 14, at a location on the Dehnhard property, a sample was collected from a seep area. As with the surface seep points for the leachate composite, a small "sump" was dug so as to allow a pond sampler to be submerged for filling. This sample was designated SS-1.

The QA/QC samples collected for the surface seep sample consisted of a duplicate sample and a trip blank. A set of QA/QC samples was sent to both Wilson Laboratories and the COE MRD laboratory.

3.0 FIELD MEASUREMENTS AND PRESERVATION

After samples were collected in the field they were placed in coolers and transported to the onsite laboratory located in the command trailer. Samples were then processed, preserved, and field measurements taken for pH, specific conductance, and temperature. All groundwater monitoring wells, including the residential wells, were analyzed for both total and soluble metals. This required a separate sample to be split out and filtered through a 0.45 micron filter prior to being preserved with nitric acid. All preservatives were added to samples in the field prior to their shipment to the laboratory.

Specific conductance, pH, and temperature measurements were made using calibrated instrumentation. The results of these measurements are presented in Table 3B-3.

4.0 CHAIN OF CUSTODY

Chain of custody was maintained from the time samples were collected until delivery of the samples to Wilson

TABLE 3B-3

HELEN KRAMER LANDFILL
FIELD MEASUREMENTS

Sample Point	Sample Matrix	Date	Method of Sampling	pH (Standard Units)	Specific Conductance (umhos/cm)	Temp. (°C)
X-1I	Groundwater	11/12/86	Bailer	4.50	110	17.0
X-1I(MRD)	Groundwater	11/12/86	Bailer	4.63	110	17.5
X-1D	Groundwater	11/12/86	Bailer	7.63	210	16.8
X-2I	Groundwater	11/12/86	Bailer	6.30	230	18.5
X-4S	Groundwater	11/12/86	Bailer	5.94	3720	17.0
X-4D	Groundwater	11/12/86	Bailer	7.23	190	17.2
X-4D(Dup)	Groundwater	11/12/86	Bailer	7.60	190	17.2
RW-B	Groundwater	11/14/86	Tap	4.64	220	15.0
RW-D	Groundwater	11/14/86	Tap	8.05	500	15.0
RW-F	Groundwater	11/14/86	Tap	7.14	170	15.0
RW-F(Dup)	Groundwater	11/14/86	Tap	7.18	180	15.0
* LCH-1	Leachate Comp.	11/14/86	Bailers/Pump	6.26	2230	10.0
* LCH-1(Dup)	Leachate Comp.	11/14/86	Bailers/Pump	6.30	2235	11.0
* LCH-1(MRD)	Leachate Comp.	11/14/86	Bailers/Pump	6.28	2240	11.0
SS-1	Surface Seep	11/14/86	Grab	6.17	240	11.8
SS-1(Dup)	Surface Seep	11/14/86	Grab	6.18	240	11.8
SS-1(MRD)	Surface Seep	11/14/86	Grab	6.18	240	11.8

* Leachate Composite = X-3 - 25%
S-3 - 15%
X-4S - 25%
S-8 - 15%
WE-7 - 20%

Laboratories. Chain-of-custody records were shipped with the samples; these were to be signed by the Wilson Laboratories sample custodian at their time of arrival. Chain-of-custody tape was placed at two locations on every cooler of shipped samples. The tape was placed on the cooler in such a manner that the cooler could not be opened without destroying the tape. Copies of the chain-of-custody records are contained in Appendix 3B-1.

5.0 CHEMICAL ANALYSIS

All samples collected were analyzed for the following parameters according to methods presented in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods" SW-846, 2nd Ed., July 1982.

- Volatile Organics
- Semi-Volatile Organics
- Pesticides and PCBs
- RECRA and CERCLA Metals (24)
- Total Phenol
- Total Cyanide

In addition to the above-listed parameters, the leachate composite was analyzed for the following:

- 2,4-D
- 2,4,5-TP
- BOD_5
- COD
- TOC
- NH_3-N
- NO_3-N
- Organic-N
- TKN
- Total Solids
- Total Volatile Solids
- Total Suspended Solids
- Total Dissolved Solids
- Total Settleable Solids
- Acidity as $CaCO_3$
- Alkalinity as $CaCO_3$
- Chloride
- Sulfide as S

- Ortho-P
- Total-P
- Oil and Grease
- Sulfite as SO_3
- Sulfate as SO_4
- Silica

Originally it was anticipated (and so written in the SSQMP) that these samples would be analyzed according to the USEPA Contract Laboratory Program (CLP). The COE and URS had also agreed to honor a request by the New Jersey Department of Environmental Protection (NJDEP) to analyze the residential wells according to the New Jersey Tier I analytical protocol (essentially USEPA CLP). A problem arose when the laboratory that URS had proposed to perform the analyses did not pass the performance audit by the COE in time. While the laboratory eventually passed the audit the scheduling of a required laboratory inspection (by the COE) would have delayed the startup of field sampling. It was then decided to contract a laboratory which had already completed the COE performance audit and inspection. The laboratory (Wilson Laboratories) was qualified to perform the analyses according to SW-846 methods but was not part of the USEPA Contract Laboratory Program. While it is COE policy to attempt to comply with requests from other regulatory agencies (EPA, NJDEP) while performing work, it was decided by the COE that the samples would be analyzed by Wilson Laboratories using SW-846 methods.

Another change was the deletion of hexavalent chromium analysis. The COE decided that hexavalent chromium was not considered a RCRA or CERCLA metal and was not normally analyzed for unless total chromium values were expected to be high, which was not the case.

6.0 DATA VALIDATION

In addition to the use of accepted methods, the validity of the data was ascertained by collecting and analyzing quality control (QC) samples. The purpose of QC samples is to determine the precision of the sampling and analytical method and techniques, to assess the variation in the sample matrix, and to determine what outside contamination might be contributed to the samples during handling, shipment, and analysis. Field QC samples include duplicates (DUPs), rinsate (equipment) blanks, and trip blanks. The laboratory QC samples include duplicates, spiked samples, and laboratory (method) blanks.

6.1 Field Quality Control Results

Field quality control samples were collected for each matrix. These included duplicates, (field) rinsate blanks, and trip blanks. The duplicate analysis indicated that the sampling method generally produced representative samples from each matrix. The exception to this may be the seep samples, SS-1 and SS-1 DUP. The organic analysis revealed the presence of one BHC isomer and one phthalate ester in SS-1 which were not detected in SS-1 DUP. The metals analysis displayed a greater variation in results. Concentrations observed in SS-1 DUP were consistently higher (by a factor of 1.5 to 3) than values determined for SS-1. This probably can be explained by the sampling method. In order to sample the surface seep, a "sump" had to be dug to form a small pool so as to allow for the collection of liquid with a pond sampler. The process of repeatedly submerging the pond sampler to fill the required bottles stirred up the bottom sediment in this shallow pool, resulting in a considerable amount of suspended solids collected in the sample. The lab also noted a difference in

the amount of sediment in each sample. Since total metals (not dissolved only) were analyzed for in this sample, the differing analytical results for metals may be attributed to the variation in suspended solids between samples.

6.2 Laboratory Quality Control Results

Quality control samples included laboratory duplicates, spiked samples, and laboratory (method) blanks. Two sets of quality control samples were examined: a set with the groundwater monitoring wells, and a set with the balance of the samples. The laboratory QC samples analyzed with the groundwater wells included a duplicate (X-1I), a dissolved metals duplicate (X-1T), two spiked samples (X-1I, X-1D), a dissolved metals spike (X-1I), a laboratory blank, and a laboratory blank for dissolved metals. The results of these analyses are presented in Appendix 3B-1. The duplicate analysis of X-1I indicated that the precision of the data, at least for the metals (only one organic was detected), was very good.

The spiked samples, X-1I, X-1T (dissolved metals), and X-1D generally displayed good recoveries (especially for metals analysis), indicating that matrix interference was not a serious problem. One elevated recovery (240 percent) was noted for spiked sample X-1D (for bis(2-ethylhexyl)phthalate). This compound, however, was present in the sample at a concentration of 260 ug/l, which may have caused a positive interference.

The laboratory method blanks were free of any contamination. This indicated that neither the procedure nor the laboratory deionized water had contaminated the samples.

The second set of quality control samples, analyzed with the balance of the samples, included a duplicate analysis (LCH-1), a spiked sample (LCH-1 DUP), and a laboratory blank. The results of the second set of laboratory quality control samples again indicated good precision of laboratory methods (duplicate analysis). The analysis of the laboratory blanks also indicated a lack of external contamination. The spiked samples analysis was generally good, considering the level of contaminants present in the sample and the resulting potential for interferences. The exception to this was the analysis of total phosphorus. Spiked samples for LCH-1 resulted in a zero percent recovery. Corrective actions were taken, including redigestion, pH adjustment, filtration, and reanalysis, but without success. A description of corrective measures attempted by the laboratory is presented in the narrative at the end of analytical results for LCH-1 in Appendix 3B-2-3. An unknown and unexplainable interference apparently existed in the sample taken for total phosphorus analysis. Complete results for the second set of lab QC samples are presented in Appendix 3B-2-3.

7.0 ANALYTICAL RESULTS

Below is a brief summary of the analytical results for each of the four groups of samples: groundwater monitoring wells, residential wells, leachate composite, and surface seep samples. Also included in the text is a table listing those compounds (and concentrations) detected in each sample for each fraction (volatiles, semi-volatiles, metals, etc.). The complete analytical report, including QC results, is presented in Appendix 3B-2.

7.1 Groundwater Monitoring Well Results

The groundwater monitoring well analysis revealed the expected pattern of contamination. The least contaminated wells proved to be the upgradient wells X-1I, X-1D, and X-2I, while the most contaminated well was X-4S. Well X-4D at the same location but in a deeper aquifer was observed to be relatively free of the contaminants determined to be in X-4S. The exception to this was the volatile compound trans-1,2-dichloroethene, which was found at 15,000 ug/l (15 ppm) in X-4S but only at 5.6 ug/l (.0056 ppm) in X-4D. This pattern of contaminant attenuation between these two wells was also observed in metals analysis. For example, arsenic, barium, and cadmium were found in X-4S at levels of 0.12 mg/l, 0.4 mg/l, and 0.037 mg/l, respectively, but were not detected in X-4D. The balance of analysis for X-4S revealed the leachate nature of the water collected from that well. Analysis of the X-4S sample detected 278,000 ug/l (278 ppm) of volatile compounds (including 91 ppm of an unknown compound found in the library search), and 8,141 ug/l (8.14 ppm) semi-volatile (acid and base neutral) compounds.

The upgradient wells were relatively free of contamination, as indicated by volatiles analysis that showed only 7.3 ug/l methylene chloride at X-1D, and semi-volatiles analysis, that showed only low ppb levels of one phthalate ester at X-1I and X-1D and no compounds at X-2I. No pesticides or PCBs were detected in any of the groundwater monitoring wells. A summary of the compounds detected in these wells is presented in Table 3B-4.

7.2 Residential Well Results

The analytical results for the residential wells as presented in Table 3B-5 indicate that these drinking water

TABLE 3B-4

COMPOUNDS DETECTED IN THE GROUNDWATER MONITORING WELLS

	X-1I	X-1D	X-2I	X-4S	X-4D	X-4D (DUP)
Volatiles (ug/l)						
Benzene	ND	ND	ND	7500	ND	ND
Chloroform	ND	ND	ND	1400	ND	ND
1,1-Dichloroethane	ND	ND	ND	530	ND	ND
1,2-Dichloroethane	ND	ND	ND	8700	ND	ND
Ethylbenzene	ND	ND	ND	4000	ND	ND
Methylene Chloride	ND	7.3	ND	3300	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	NO	20000	ND	ND
Tetrachloroethene	ND	ND	ND	990	ND	ND
Toluene	ND	ND	ND	17000	ND	ND
Trans-1,2-Dichloroethene	ND	ND	ND	15000	5.6	5.1
1,1,1-Trichloroethane	ND	ND	ND	2300	ND	ND
Trichloroethene	ND	ND	ND	2600	ND	ND
Vinyl Chloride	ND	ND	ND	3600	ND	ND
Library Search						
Unknown 4-6 Carbon Aliphitic	ND	ND	ND	91000	ND	ND
Semi-Volatiles (ug/l)						
Bis(2-Ethylehexyl) phthalate	130	260	ND	12	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	9.2	ND	ND

Di-N-Butylphthalate	ND	ND	ND	94	ND	ND
Naphthalene	ND	ND	ND	86	ND	ND
2,4-Dimethylphenol	ND	ND	ND	54	ND	ND
2-Nitrophenol	ND	ND	ND	24	ND	ND
Pentachlorophenol	ND	ND	ND	10	ND	ND
Phenol	ND	ND	ND	32	ND	ND
Library Search						
Ethylmethylbenzene	ND	ND	ND	170	ND	ND
Trimethylbenzene	ND	ND	ND	300	ND	ND
Cresol	ND	ND	ND	150	ND	ND
Xylene	ND	ND	ND	4000	ND	ND
Dimethylpyridine	ND	ND	ND	1900	ND	ND
1,1-oxybis(2-chloro) ethane	ND	ND	ND	1300	ND	ND
Metals, Total (mg/l)						
Aluminum	0.27	ND	0.23	ND	ND	ND
Arsenic	ND	ND	ND	0.12	ND	ND
Barium	0.1	ND	ND	0.4	ND	ND
Cadmium	0.008	ND	ND	0.35	ND	ND
Calcium	7	32	11	111	29	29
Chromium	0.01	0.01	0.01	ND	ND	ND
Cobalt	ND	ND	ND	0.12	ND	ND
Copper	0.03	ND	ND	ND	0.02	ND
Iron	0.5	2.4	7.4	309	2.1	2.0
Lead	ND	ND	ND	0.012	ND	ND
Magnesium	2	2	6	64	3	3

Manganese	0.05	0.05	1.15	4.93	0.03	0.03
Nickel	ND	0.05	ND	ND	ND	ND
Potassium	3	5	ND	9	3	3
Selenium	ND	ND	ND	0.01	ND	ND
Sodium	ND	5	20	425	ND	ND
Tin	ND	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND	ND
Zinc	0.11	0.04	0.03	0.82	0.02	ND
Metals, Dissolved (mg/l)						
Aluminum	ND	ND	ND	ND	ND	ND
Arsenic	0.1	ND	ND	0.09	ND	ND
Barium	ND	ND	ND	0.3	ND	ND
Cadmium	ND	ND	ND	0.029	ND	ND
Calcium	6	30	10	106	29	28
Chromium	ND	ND	ND	ND	ND	ND
Cobalt	ND	ND	ND	0.07	ND	ND
Copper	0.03	0.02	ND	ND	ND	ND
Iron	ND	0.1	5.5	259	0.8	0.5
Lead	ND	ND	ND	0.012	ND	ND
Magnesium	2	ND	6	61	2	2
Manganese	0.05	0.04	1.08	4.54	0.03	0.2
Nickel	ND	0.05	ND	ND	ND	ND
Potassium	3	5	ND	9	3	3
Selenium	ND	ND	ND	0.021	ND	ND
Sodium	ND	5	19	395	6	5
Tin	ND	ND	ND	ND	ND	ND

Vanadium	ND	ND	ND	0.06	ND	ND
Zinc	0.10	ND	0.03	0.10	ND	ND

Additional Parameters

Total Phenolics (mg/l)	ND	ND	ND	1.64	ND	ND
pH (Std. units)	4.50	7.63	6.30	5.94	7.23	7.60
Specific Conductance (umhos/cm)	110	210	230	3720	190	190
Temperature	17.0	16.8	18.5	17.0	17.2	17.2

TABLE 3B-5

COMPOUNDS DETECTED IN RESIDENTIAL WELLS

	RW-D	RW-B	RW-F	RW-F DUP
Pesticides & PCBs (ug/l)	ND	ND	ND	ND
Volatiles (ug/l)	ND	ND	ND	ND
Semi-Volatiles (ug/l)				
Bis(2-Ethylhexyl) Phthalate	120	ND	ND	ND
Metals, Total (mg/l)				
Aluminum	ND	0.6	ND	ND
Calcium	8	19	27	27
Copper	ND	0.02	0.02	ND
Iron	0.3	ND	0.8	0.7
Lead	ND	0.007	ND	ND
Magnesium	2	7	ND	ND
Manganese	ND	0.13	0.03	0.03
Potassium	5	7	3	2
Sodium	97	ND	ND	ND
Zinc	0.06	0.11	0.02	0.02

Metals, Dissolved (mg/l)				
Aluminum	ND	ND	0.07	ND
Calcium	8	19	27	27
Copper	ND	0.03	ND	ND
Iron	0.10	0.2	0.5	0.8
Lead	ND	0.009	ND	ND
Magnesium	2	7	ND	ND
Manganese	ND	0.13	0.03	0.03
Potassium	5	7	3	3
Sodium	95	ND	ND	ND
Zinc	0.2	0.17	ND	0.04
Additional Parameters				
pH (Std. Units)	8.05	4.64	7.14	7.18
Specific Conductance (umhos/cm)	500	220	170	180
Temperature (^{o}C)	15	15	15	15

sources are relatively free of the contaminants determined to be present at the landfill. No pesticides, PCBs, or volatile organics were detected in any of the residential wells. A single semi-volatile compound, (bis(2-ethyhexyl) phthalate) was detected at a level of 120 ug/l in the Dehnhard well, possibly the result of a filter system on the well. The metals analyses revealed no significant metals concentrations. A depressed pH (4.64) was recorded at the Bolton residence. It should also be noted that lead was detected (below the drinking water standard) at the Bolton residence, but was not detected at the other residences. This may be a result of the acidic water leaching lead from soldered pipe joints.

7.3 Leachate Composite Sample Results

A summary of analytical results for the leachate composite sample is presented in Table 3B-6. Analysis indicated 44,190 ug/l (44.19 ppm) volatile compounds and 5,717 ug/l (5.72 ppm) semi-volatile contaminants (including library search compounds) present in the sample. No pesticides or PCBs were detected. The results of the organic analyses were very similar to the results obtained during the Remedial Investigation/Feasibility Study (RI/FS) conducted by R.E. Wright and Associates.

The metals analyses indicated elevated levels of several compounds, including aluminum (21.1 mg/l), arsenic (0.18 mg/l), barium (0.3 mg/l), cadmium (0.043 mg/l), cobalt (0.10 mg/l), copper (0.03 mg/l), iron (580 mg/l), lead (0.033 mg/l), magnesium (37 mg/l), manganese (2.61 mg/l), nickel (0.12 mg/l), potassium (15 mg/l), sodium (207 mg/l), vanadium (0.17 mg/l), and zinc 0.64 (mg/l). These results also are comparable to those obtained during the RI/FS.

Also analyzed were additional "leachate characterization" parameters such as BOD_5, COD, TOC, oil and grease, total dissolved solids and a number of others. The results of these analyses are also presented in Table 3B-6.

7.4 Surface Seep Sample Results

The single surface seep sample (SS-1) collected near the Dehnhard residence did not indicate the presence of any significant amounts of organic contamination. No volatile compounds were detected; only one pesticide was found (A-BHC, at 3 ug/l) and a single phthalate ester at 6.4 ug/l. Neither of these compounds was detected in the field duplicate sample. The metals analysis indicated the presence of several elements. However, as a result of the sampling method (Section 6.1), this sample contained a great deal of suspended material and was analyzed for total metals without filtration. The concentrations found are not beyond what might be expected in a typical soil sample. The total phenolic analysis indicated up to 0.017 mg/l total phenolics. However, the semi-volatiles analysis (acid fraction), including the library search, did not indicate the presence of any phenolic compounds. The total phenolics value may represent a total of a number of compounds, each individually present in a concentration below the detection limit. A summary of the compounds detected at SS-1 is presented in Table 3B-7.

TABLE 3B-6

COMPOUNDS DETECTED IN THE LEACHATE COMPOSITE SAMPLE

	LCH-1	LCH-1 DUP
Pesticides & PCBs (ug/l)	ND	ND
Volatiles (ug/l)		
Benzene	1600	1600
Chloroform	520	510
1,1-Dichloroethane	250	250
1,2-Dichloroethane	2900	2600
Ethylbenzene	1400	1500
Methylene Chloride	910	910
1,1,2,2 Tetrachloroethane	4400	4000
Tetrachloroethene	380	420
Toluene	25000	27000
Trans-1,2-Dichloroethene	4500	4800
1,1,1 Trichloroethane	710	720
Trichloroethene	1200	1200
Vinyl Chloride	420	430
Semi-Volatiles (ug/l)		
Bis(2-Chloroethyl) ether	690	750
Bis(2-Ethylhexyl) Phthalate	ND	11

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1,2-Dichlorobenzene	82	82
1,4-Dichlorobenzene	5.6	5.6
Isophorone	220	220
Napthalene	38	36
2,4 Dimethylphenol	25	32
P-Chloro-M-Cresol	6.0	5.6
Phenol	580	690
Library Search		
Xylene	1800	1700
Dimethylpyridine	370	360
Unknown	560	580
Trimethylcyclohexanol	220	230
Unknown	100	110
Cresol	250	280
1,2-Bis(2-Chloroethoxy) Ethane	770	740
Metals, Total (mg/l)		
Aluminum	22.6	21.1
Arsenic	0.20	0.18
Barium	0.3	0.3
Cadmium	0.039	0.043
Calcium	81	85
Chromium	0.20	0.12
Cobalt	0.11	0.10
Copper	0.03	0.03
Iron	574	580

Lead	0.036	0.033
Magnesium	36	37
Manganese	2.45	2.61
Nickel	0.11	0.12
Potassium	15	15
Sodium	196	207
Vanadium	0.17	0.17
Zinc	0.71	0.64
Silica	20	18
Additional Parameters		
pH (Std. Units)	6.26	6.30
Specific Conductance (umhos/cm)	2230	2235
Temperature (^{o}C)	10	11
Acidity (mg/l as $CaCO_3$)	305	315
Alkalinity Total (mg/l as $CaCO_3$)	172	172
Ammonia, Total (mg/l as N)	12.4	13.0
BOD_5 (mg/l)	380	368
Chloride (mg/l)	520	530
COD (mg/l)	770	850
Nitrate/Nitrite (mg/l as N)	0.2	0.2
Nitrogen, Kjeldahl (mg/l as N)	30	34
Nitrogen, Organic (mg/l as N)	18	21
Oil and Grease (mg/l)	16	16
Phenolic Compounds (mg/l)	1.07	1.08
Solids, Dissolved (mg/l)	1430	1060
Solids, Suspended (mg/l)	680	610

Solids, Total (mg/l)	2040	1840
Solids, Total Settleable (mg/l)	6	8
Solids, Total Volatile (mg/l)	500	320
Sulfate (mg/l)	17	15
Sulfide (mg/l)	3.8	3.3
Sulfite (mg/l)	2	2
Total Organic Carbon (mg/l)	249	244

TABLE 3B-7

COMPOUNDS DETECTED IN THE SURFACE SEEP

	SS-1	SS-1DUP
Pesticides (ug/l)		
A-BHC	3	ND
Volatiles (ug/l)	ND	ND
Semi-Volatiles (ug/l)		
Bis(2-Ethylhexyl)phthalate	6.4	ND
Metals (mg/l)		
Aluminum	15.0	69.5
Arsenic	0.03	0.08
Barium	0.4	2.1
Beryllium	0.019	0.019
Cadmium	0.013	0.062
Chromium	0.07	0.30
Cobalt	0.13	0.86
Copper	0.04	0.32
Iron	61.3	329
Lead	0.12	1.53
Magnesium	8	21
Manganese	3.35	28.7
Mercury	0.0003	.0012
Nickel	0.17	0.73
Potassium	8	21

Sodium	5	ND
Vanadium	0.10	0.48
Zinc	0.73	3.03

Additional Parameters

pH (Std. Units)	6.17	6.18
Specific Conductance (umhos/cm)	240	240
Temperature (^{o}C)	11.8	11.8
Phenolic Compounds (mg/l)	0.011	0.017

APPENDIX 3B-1

CHAIN OF CUSTODY RECORDS

86-9802

URS Company, Inc.

CHAIN OF CUSTODY RECORD

PROJECT NO: 35127

SITE NAME: HELEN KRAMER LANDFILL

SAMPLERS (SIGNATURE): George Moretti, Rick Fuhrman, Dave Rutkowski

STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO OF CONTAINERS	VOA	BNA	PEST/PCB	METALS (TOT)	METALS (DIS)	PHENOL	CYANIDE	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	REMARKS
LCH-1	11/13/86		X		LEACHATE COMPOSITE	16	X	X	X	X		X	X	X	X	X	X	X	
LCH-1 DUP	↓		X		LEACHATE COMPOSITE (DUP)	16	X	X	X	X		X	X	X	X	X	X	X	
RW-F	11/14/86			X	FRAZIER RESIDENCE	9	X	X	X	X	X	X	X						
RW-F DUP				X	" " DUP	9	X	X	X	X	X	X	X						
RW-D				X	DENHARD RESIDENCE	9	X	X	X	X	X	X	X						
RW-B				X	BOLTON RESIDENCE	9	X	X	X	X	X	X	X						
TRIP BLANK						3	X												
SS-1	↓			X	SURFACE SEEP	8	X	X	X	X		X	X						
SS-1 Dup (11/17/86)						8	X	X	X	X		X	X						

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
George C. Moretti	11/14/86	1800	FED EXPRESS				
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	REMARKS
			[signature]	11/15/86	0915	PLEASE SIGN AND RETURN TO URS

DR 004091

86-9802

DR 004092

URS Company, Inc.

CHAIN OF CUSTODY RECORD

PROJECT NO: 35127

SITE NAME: Helen Kramer Landfill

SAMPLERS (SIGNATURE): Richard A. [signature]

STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO OF CONTAINERS	VOA	BNA	Pest./PCB	CN	Phenol	Tot. Metals	Diss. Metals	REMARKS
X-1I	11/12	1355		X	Well # X-1I	9	X	X	X	X	X	X	X	Preservations:
X-1D		1355		X	Well # X-1D	9	X	X	X	X	X	X	X	CN-NaOH-pH>12
X-2I		1435		X	Well # X-2I	9	X	X	X	X	X	X	X	Phenol-H_2SO_4-pH<2
X-4S		1535		X	Well # X-4S	9	X	X	X	X	X	X	X	Tot. Metals-HNO_3-
X-4D		1545		X	Well # X-4D	9	X	X	X	X	X	X	X	pH<2
X-4D Dup		1600		X	Well # X-4D	9	X	X	X	X	X	X	X	
Rinse Blank		1715		X	Rinse Blank	9	X	X	X	X	X	X	X	
Trip Blank		1715		X	Trip Blank	2	X							

vol extr Saturday Storage

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)
Richard A. [signature]	11-12-86	1845					
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	REMARKS
			[signature]	11/13/86	1845	Diss. Metals are Filtered. Please return coolers to URS. Thanks

APPENDIX 3B-2

ANALYTICAL RESULTS FROM WILSON LABORATORIES

APPENDIX 3B-2-1

GROUNDWATER WELLS ANALYTICAL RESULTS

Samples:

- X-1I
- X-1I (Dissolved Metals)
- X-1D
- X-1D (Dissolved Metals)
- X-2I
- X-2I (Dissolved Metals)
- X-4S
- X-4S (Dissolved Metals)
- X-4D
- X-4D (Dissolved Metals)
- X-4D DUP
- X-4D DUP (Dissolved Metals)
- Rinse Blank
- Rinse Blank Dissolved Metals
- Trip Blank # 1

Laboratory Quality Control Results

- X-1I Duplicate
- X-1I (Dissolved Metals) Duplicate
- X-1I Spike
- X-1I (Dissolved Metals) Spike
- X-1D Spike
- Lab Blank
- Lab Blank (Dissolved Metals)

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120714
SAMPLE DESCRIPTION: X-1I

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	17.0	DEGREES C	
PH, FIELD ANALYSIS	4.50	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	110.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	0.011	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-3

DR 004095

LAB NUMBER: 86120714 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-3
3V. BENZENE	ND(5.0)	UG/L	791-3
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-3
5V. BROMOFORM	ND(5.0)	UG/L	791-3
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-3
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-3
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-3
9V. CHLOROETHANE	ND(5.0)	UG/L	791-3
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-3
11V. CHLOROFORM	ND(5.0)	UG/L	791-3
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-3
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-3
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-3
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-3
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-3
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-3
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-3
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-3
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-3
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-3
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-3
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-3
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-3
25V. TOLUENE	ND(5.0)	UG/L	791-3
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-3
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-3
30V. TRICHLOROFLUOROMETHANE	NOT ANALYZED	UG/L	791-3
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-3
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-91
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-91
3B. ANTHRACENE	ND(5.0)	UG/L	830-91
4B. BENZIDINE	ND(50)	UG/L	830-91
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-91
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-91
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-91
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-91
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-91
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-91
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-91

LAB NUMBER: 86120714 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-91
13B. BIS(2-ETHYLHEXYL)PHTHALATE	130.	UG/L	830-91
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-91
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-91
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
18B. CHRYSENE	ND(5.0)	UG/L	830-91
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-91
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-91
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-91
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-91
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-91
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-91
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-91
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-91
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-91
31B. FLUORANTHENE	ND(5.0)	UG/L	830-91
32B. FLUORENE	ND(5.0)	UG/L	830-91
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-91
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-91
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-91
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-91
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-91
38B. ISOPHORONE	ND(5.0)	UG/L	830-91
39B. NAPHTHALENE	ND(5.0)	UG/L	830-91
40B. NITROBENZENE	ND(5.0)	UG/L	830-91
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-91
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-91
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-91
44B. PHENANTHRENE	ND(5.0)	UG/L	830-91
45B. PYRENE	ND(5.0)	UG/L	830-91
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-91
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-22
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-22
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-22
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-22
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-22
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-22

LAB NUMBER: 86120714 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-22
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-22
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-22
10A. PHENOL	ND(5.0)	UG/L	832-22
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-22
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	114.	% REC. @ 30 UG/L	791-4
BENZENE-D6	93.5	% REC. @ 30 UG/L	791-4
ETHYLBENZENE-D10	95.9	% REC. @ 30 UG/L	791-4
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	78.8	% REC. @ 100 UG/L	832-22
PHENOL-D6	15.2	% REC. @ 100 UG/L	832-22
2,4,6-TRIBROMOPHENOL	37.6	% REC. @ 100 UG/L	832-22
PENTAFLUOROPHENOL	33.6	% REC. @ 100 UG/L	832-22
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	98.1	% REC. @ 100 UG/L	830-92
2-FLUOROBIPHENYL	81.2	% REC. @ 100 UG/L	830-92
TERPHENYL-D14	104.	% REC. @ 100 UG/L	830-92
DI-N-OCTYLPHALATE-D4	92.6	% REC. @ 100 UG/L	830-92
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	0.27	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	0.1	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	7.	MG/L	884-7
CHROMIUM, TOTAL	0.01	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	0.03	MG/L	884-7
IRON, TOTAL	0.5	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.05	MG/L	884-5
MERCURY, TOTAL	ND(0.0002)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-272
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120714 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.11	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120714 X-1I

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120724
SAMPLE DESCRIPTION: X-1I DISSOLVED

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	0.1	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	0.008	MG/L	884-66
CALCIUM, TOTAL	6.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	0.03	MG/L	884-7
IRON, TOTAL	ND(0.1)	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.05	MG/L	884-5
MERCURY, TOTAL	ND(0.0002)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.10	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120724 X-1I DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120715
SAMPLE DESCRIPTION: X-1D

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	16.8	DEGREES C	
PH, FIELD ANALYSIS	7.63	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	210.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-3

DR 004102

LAB NUMBER: 86120715 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-3
3V. BENZENE	ND(5.0)	UG/L	791-3
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-3
5V. BROMOFORM	ND(5.0)	UG/L	791-3
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-3
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-3
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-3
9V. CHLOROETHANE	ND(5.0)	UG/L	791-3
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-3
11V. CHLOROFORM	ND(5.0)	UG/L	791-3
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-3
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-3
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-3
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-3
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-3
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-3
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-3
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-3
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-3
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-3
22V. METHYLENE CHLORIDE	7.3	UG/L	791-3
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-3
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-3
25V. TOLUENE	ND(5.0)	UG/L	791-3
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-3
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-3
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-3
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-3
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-91
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-91
3B. ANTHRACENE	ND(5.0)	UG/L	830-91
4B. BENZIDINE	ND(50)	UG/L	830-91
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-91
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-91
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-91
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-91
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-91
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-91
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-91

LAB NUMBER: 86120715 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-91
13B. BIS(2-ETHYLHEXYL)PHTHALATE	260.	UG/L	830-91
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-91
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-91
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
18B. CHRYSENE	ND(5.0)	UG/L	830-91
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-91
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-91
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-91
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-91
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-91
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-91
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-91
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-91
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-91
31B. FLUORANTHENE	ND(5.0)	UG/L	830-91
32B. FLUORENE	ND(5.0)	UG/L	830-91
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-91
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-91
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-91
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-91
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-91
38B. ISOPHORONE	ND(5.0)	UG/L	830-91
39B. NAPHTHALENE	ND(5.0)	UG/L	830-91
40B. NITROBENZENE	ND(5.0)	UG/L	830-91
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-91
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-91
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-91
44B. PHENANTHRENE	ND(5.0)	UG/L	830-91
45B. PYRENE	ND(5.0)	UG/L	830-91
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-91
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-22
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-22
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-22
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-22
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-22
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-22

LAB NUMBER: 86120715 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-22
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-22
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-22
10A. PHENOL	ND(5.0)	UG/L	832-22
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-22
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	85.1	% REC. @ 30 UG/L	791-4
BENZENE-D6	106.	% REC. @ 30 UG/L	791-4
ETHYLBENZENE-D10	93.2	% REC. @ 30 UG/L	791-4
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	72.0	% REC. @ 100 UG/L	832-22
PHENOL-D6	25.0	% REC. @ 100 UG/L	832-22
2,4,6-TRIBROMOPHENOL	40.4	% REC. @ 100 UG/L	832-22
PENTAFLUOROPHENOL	25.6	% REC. @ 100 UG/L	832-22
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	100.	% REC. @ 100 UG/L	830-92
2-FLUOROBIPHENYL	86.0	% REC. @ 100 UG/L	830-92
TERPHENYL-D14	107.	% REC. @ 100 UG/L	830-92
DI-N-OCTYLPHALATE-D4	85.4	% REC. @ 100 UG/L	830-92
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	32.	MG/L	884-7
CHROMIUM, TOTAL	0.01	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	2.4	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.05	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	5.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-272
SODIUM, TOTAL	5.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120715 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.04	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120715 X-1D

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120725
SAMPLE DESCRIPTION: X-1D DISSOLVED

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	30.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	0.02	MG/L	884-7
IRON, TOTAL	0.1	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	ND(2)	MG/L	884-5
MANGANESE, TOTAL	0.04	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	5.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120725 X-1D DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120716
SAMPLE DESCRIPTION: X-2I

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1435

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	18.5	DEGREES C	
PH, FIELD ANALYSIS	6.30	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	230.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-7

DR 004109

LAB NUMBER: 86120716 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-7
3V. BENZENE	ND(5.0)	UG/L	791-7
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-7
5V. BROMOFORM	ND(5.0)	UG/L	791-7
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-7
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-7
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-7
9V. CHLOROETHANE	ND(5.0)	UG/L	791-7
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-7
11V. CHLOROFORM	ND(5.0)	UG/L	791-7
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-7
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-7
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-7
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-7
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-7
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-7
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-7
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-7
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-7
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-7
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-7
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-7
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-7
25V. TOLUENE	ND(5.0)	UG/L	791-7
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-7
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-7
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-7
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-7
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-91
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-91
3B. ANTHRACENE	ND(5.0)	UG/L	830-91
4B. BENZIDINE	ND(50)	UG/L	830-91
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-91
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-91
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-91
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-91
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-91
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-91
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-91

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120716 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-91
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-91
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-91
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-91
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
18B. CHRYSENE	ND(5.0)	UG/L	830-91
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-91
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-91
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-91
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-91
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-91
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-91
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-91
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-91
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-91
31B. FLUORANTHENE	ND(5.0)	UG/L	830-91
32B. FLUORENE	ND(5.0)	UG/L	830-91
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-91
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-91
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-91
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-91
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-91
38B. ISOPHORONE	ND(5.0)	UG/L	830-91
39B. NAPHTHALENE	ND(5.0)	UG/L	830-91
40B. NITROBENZENE	ND(5.0)	UG/L	830-91
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-91
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-91
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-91
44B. PHENANTHRENE	ND(5.0)	UG/L	830-91
45B. PYRENE	ND(5.0)	UG/L	830-91
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-91
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-22
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-22
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-22
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-22
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-22
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-22

LAB NUMBER: 86120716 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-22
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-22
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-22
10A. PHENOL	ND(5.0)	UG/L	832-22
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-22
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	102.	% REC. @ 30 UG/L	791-8
BENZENE-D6	101.	% REC. @ 30 UG/L	791-8
ETHYLBENZENE-D10	95.0	% REC. @ 30 UG/L	791-8
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	64.6	% REC. @ 100 UG/L	832-22
PHENOL-D6	24.4	% REC. @ 100 UG/L	832-22
2,4,6-TRIBROMOPHENOL	45.2	% REC. @ 100 UG/L	832-22
PENTAFLUOROPHENOL	23.4	% REC. @ 100 UG/L	832-22
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	80.4	% REC. @ 100 UG/L	830-92
2-FLUOROBIPHENYL	57.6	% REC. @ 100 UG/L	830-92
TERPHENYL-D14	84.0	% REC. @ 100 UG/L	830-92
DI-N-OCTYLPHALATE-D4	32.4	% REC. @ 100 UG/L	830-92
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	0.23	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	11.	MG/L	884-7
CHROMIUM, TOTAL	0.01	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	7.4	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	6.	MG/L	884-5
MANGANESE, TOTAL	1.15	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	ND(2)	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	20.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120716 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.03	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120716 X-2I

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATIN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120726
SAMPLE DESCRIPTION: S-2I DISSOLVED
X GCM 12-17-86

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1435

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	10.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	5.5	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-110
MAGNESIUM, TOTAL	6.	MG/L	884-5
MANGANESE, TOTAL	1.08	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	ND(2)	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	19.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.03	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120726 S-2I DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120717
SAMPLE DESCRIPTION: X-4S

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1555

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	17.0	DEGREES C	
PH, FIELD ANALYSIS	5.94	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	3720.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(10)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	1.64	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(2500)	UG/L	791-7

DR 004116

LAB NUMBER: 86120717 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(2500)	UG/L	791-7
3V. BENZENE	7300.	UG/L	791-7
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-7
5V. BROMOFORM	ND(500)	UG/L	791-7
6V. CARBON TETRACHLORIDE	ND(500)	UG/L	791-7
7V. CHLOROBENZENE	ND(500)	UG/L	791-7
8V. CHLORODIBROMOMETHANE	ND(500)	UG/L	791-7
9V. CHLOROETHANE	ND(500)	UG/L	791-7
10V. 2-CHLOROETHYLVINYL ETHER	ND(500)	UG/L	791-7
11V. CHLOROFORM	1400.	UG/L	791-7
12V. DICHLOROBROMOMETHANE	ND(500)	UG/L	791-7
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-7
14V. 1,1-DICHLOROETHANE	530.	UG/L	791-7
15V. 1,2-DICHLOROETHANE	8700.	UG/L	791-7
16V. 1,1-DICHLOROETHENE	ND(500)	UG/L	791-7
17V. 1,2-DICHLOROPROPANE	ND(500)	UG/L	791-7
18V. 1,3-DICHLOROPROPYLENE	ND(500)	UG/L	791-7
19V. ETHYLBENZENE	4000.	UG/L	791-7
20V. METHYL BROMIDE	ND(500)	UG/L	791-7
21V. METHYL CHLORIDE	ND(500)	UG/L	791-7
22V. METHYLENE CHLORIDE	3300.	UG/L	791-7
23V. 1,1,2,2-TETRACHLOROETHANE	20000.	UG/L	791-7
24V. TETRACHLOROETHENE	990.	UG/L	791-7
25V. TOLUENE	170000.	UG/L	791-7
26V. TRANS-1,2-DICHLOROETHENE	15000.	UG/L	791-7
27V. 1,1,1-TRICHLOROETHANE	2300.	UG/L	791-7
28V. 1,1,2-TRICHLOROETHANE	ND(500)	UG/L	791-7
29V. TRICHLOROETHENE	2600.	UG/L	791-7
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-7
31V. VINYL CHLORIDE	3600.	UG/L	791-7
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-93
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-93
3B. ANTHRACENE	ND(5.0)	UG/L	830-93
4B. BENZIDINE	ND(50)	UG/L	830-93
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-93
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-93
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-93
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-93
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-93
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-93
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-93

LAB NUMBER: 86120717 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-93
13B. BIS(2-ETHYLHEXYL)PHTHALATE	12.	UG/L	830-93
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-93
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-93
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93
18B. CHRYSENE	ND(5.0)	UG/L	830-93
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-93
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
22B. 1,4-DICHLOROBENZENE	9.2	UG/L	830-93
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-93
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-93
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-93
26B. DI-N-BUTYLPHTHALATE	94.	UG/L	830-93
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-93
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-93
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-93
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-93
31B. FLUORANTHENE	ND(5.0)	UG/L	830-93
32B. FLUORENE	ND(5.0)	UG/L	830-93
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-93
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-93
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-93
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-93
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-93
38B. ISOPHORONE	ND(5.0)	UG/L	830-93
39B. NAPHTHALENE	86.	UG/L	830-93
40B. NITROBENZENE	ND(5.0)	UG/L	830-93
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-93
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-93
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-93
44B. PHENANTHRENE	ND(5.0)	UG/L	830-93
45B. PYRENE	ND(5.0)	UG/L	830-93
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-93
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-23
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-23
3A. 2,4-DIMETHYLPHENOL	54.	UG/L	832-23
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-23
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-23
6A. 2-NITROPHENOL	24.	UG/L	832-23

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120717 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-23
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-23
9A. PENTACHLOROPHENOL	10.	UG/L	832-23
10A. PHENOL	32.	UG/L	832-23
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-23
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	109.	% REC. @ 30 UG/L	791-8
BENZENE-D6	91.6	% REC. @ 30 UG/L	791-8
ETHYLBENZENE-D10	114.	% REC. @ 30 UG/L	791-8
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	110.	% REC. @ 100 UG/L	832-23
PHENOL-D6	47.8	% REC. @ 100 UG/L	832-23
2,4,6-TRIBROMOPHENOL	80.6	% REC. @ 100 UG/L	832-23
PENTAFLUOROPHENOL	32.6	% REC. @ 100 UG/L	832-23
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	13.0	% REC. @ 100 UG/L	830-94
2-FLUOROBIPHENYL	36.4	% REC. @ 100 UG/L	830-94
TERPHENYL-D14	28.0	% REC. @ 100 UG/L	830-94
DI-N-OCTYLPHALATE-D4	14.8	% REC. @ 100 UG/L	830-94
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE NARRATIVE		786-74
ALUMINUM, TOTAL	ND(2)	MG/L	890-36
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	0.12	MG/L	890-110
BARIUM, TOTAL	0.4	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	0.037	MG/L	884-66
CALCIUM, TOTAL	111.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	0.12	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	309.	MG/L	884-5
LEAD, TOTAL	0.012	MG/L	884-109
MAGNESIUM, TOTAL	64.	MG/L	884-5
MANGANESE, TOTAL	4.93	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	0.05	MG/L	884-3
POTASSIUM, TOTAL	9.	MG/L	884-70
SELENIUM, TOTAL	0.01	MG/L	890-68
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	425.	425.	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120717 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	0.07	MG/L	884-5
ZINC, TOTAL	0.82	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120717 X-4S

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

NARRATIVE

Wilson Laboratories Sample ID : 86120717
URS ID : X-4S

VOLATILE SURVEY SEARCH

The NBS mass spectral library search for the unidentified peak in this sample did not produce a good match. The compound appears to have between 4 and 6 carbons. The concentration of this unknown compound is calculated to be 91000 ug/l based on the response of the internal standard a,a,a - Trifluorotoluene.

EXTRACTABLE SURVEY SEARCH

Below are the compounds identified by GC/MS NBS Library. The analysis indicated that other compounds may be present but NBS Library survey search results have shown matches with "FITS" less than 850 which makes positive identification impossible. Concentration of compounds identified by the NBS Library were calculated based on the response of the internal standard 1,4-dichlorobenzene - d4.

Scan Number	Compound	Concentration (ug/l)
376	ethylmethylbenzene	170.
426	trimethylbenzene	300.
576	cresol	150.
219 & 255	xylene	4000.
461	dimethylpyridine	1900.
418	1,1' - oxybix[2-chloro-]ethane	1300.

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120727
SAMPLE DESCRIPTION: X-4S DISSOLVED

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1555

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(2)	MG/L	890-36
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	0.09	MG/L	890-105
BARIUM, TOTAL	0.3	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	0.029	MG/L	884-66
CALCIUM, TOTAL	106.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	0.07	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	259.	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-110
MAGNESIUM, TOTAL	61.	MG/L	884-5
MANGANESE, TOTAL	4.54	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	9.	MG/L	884-70
SELENIUM, TOTAL	0.021	MG/L	884-105
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	395.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	0.06	MG/L	884-5
ZINC, TOTAL	0.10	MG/L	884-1

--CONCLUSION--LAB NUMBER: 86120727 X-4S DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATIN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120718
SAMPLE DESCRIPTION: X-4D

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1545

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	17.2	DEGREES C	
PH, FIELD ANALYSIS	7.23	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	190.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-7

DR 004124

LAB NUMBER: 86120718 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-7
3V. BENZENE	ND(5.0)	UG/L	791-7
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-7
5V. BROMOFORM	ND(5.0)	UG/L	791-7
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-7
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-7
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-7
9V. CHLOROETHANE	ND(5.0)	UG/L	791-7
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-7
11V. CHLOROFORM	ND(5.0)	UG/L	791-7
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-7
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-7
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-7
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-7
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-7
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-7
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-7
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-7
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-7
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-7
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-7
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-7
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-7
25V. TOLUENE	ND(5.0)	UG/L	791-7
26V. TRANS-1,2-DICHLOROETHENE	5.6	UG/L	791-7
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-7
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-7
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-7
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-91
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-91
3B. ANTHRACENE	ND(5.0)	UG/L	830-91
4B. BENZIDINE	ND(50)	UG/L	830-91
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-91
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-91
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-91
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-91
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-91
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-91
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-91

LAB NUMBER: 86120718 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-91
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-91
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-91
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-91
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
18B. CHRYSENE	ND(5.0)	UG/L	830-91
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-91
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-91
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-91
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-91
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-91
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-91
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-91
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-91
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-91
31B. FLUORANTHENE	ND(5.0)	UG/L	830-91
32B. FLUORENE	ND(5.0)	UG/L	830-91
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-91
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-91
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-91
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-91
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-91
38B. ISOPHORONE	ND(5.0)	UG/L	830-91
39B. NAPHTHALENE	ND(5.0)	UG/L	830-91
40B. NITROBENZENE	ND(5.0)	UG/L	830-91
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-91
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-91
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-91
44B. PHENANTHRENE	ND(5.0)	UG/L	830-91
45B. PYRENE	ND(5.0)	UG/L	830-91
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-91
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-22
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-22
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-22
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-22
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-22
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-22

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120718 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-22
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-22
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-22
10A. PHENOL	ND(5.0)	UG/L	832-22
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-22
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	102.	% RECOVER @ 30 UG/L	791-8
BENZENE-D6	97.2	% RECOVER @ 30 UG/L	791-8
ETHYLBENZENE-D10	94.3	% RECOVER @ 30 UG/L	791-8
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	80.5	% REC. @ 100 UG/L	832-22
PHENOL-D6	19.2	% REC. @ 100 UG/L	832-22
2,4,6-TRIBROMOPHENOL	42.0	% REC. @ 100 UG/L	832-22
PENTAFLUOROPHENOL	53.0	% REC. @ 100 UG/L	832-22
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	95.8	% REC. @ 100 UG/L	830-92
2-FLUOROBIPHENYL	99.8	% REC. @ 100 UG/L	830-92
TERPHENYL-D14	85.4	% REC. @ 100 UG/L	830-92
DI-N-OCTYLPHALATE-D4	40.2	% REC. @ 100 UG/L	830-92
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	29.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	0.02	MG/L	884-7
IRON, TOTAL	2.1	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	3.	MG/L	884-5
MANGANESE, TOTAL	0.03	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120718 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.02	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120718 X-4D

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120730
SAMPLE DESCRIPTION: 4 D DISSOLVED

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1545

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	29.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	0.8	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.03	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	6.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

--CONCLUSION--LAB NUMBER: 86120730 4 D DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120719
SAMPLE DESCRIPTION: X-4D DUP

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1600

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	17.2	DEGREES C	
PH, FIELD ANALYSIS	7.60	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	190.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-14
2P. A-BHC	ND(1.0)	UG/L	870-14
3P. B-BHC	ND(1.0)	UG/L	870-14
4P. G-BHC	ND(1.0)	UG/L	870-14
5P. D-BHC	ND(1.0)	UG/L	870-14
6P. CHLORDANE	ND(1.0)	UG/L	870-14
7P. 4,4'-DDT	ND(1.0)	UG/L	870-14
8P. 4,4'-DDE	ND(1.0)	UG/L	870-14
9P. 4,4'-DDD	ND(1.0)	UG/L	870-14
10P. DIELDRIN	ND(1.0)	UG/L	870-14
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-14
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-14
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-14
14P. ENDRIN	ND(1.0)	UG/L	870-14
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-14
16P. HEPTACHLOR	ND(1.0)	UG/L	870-14
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-14
18P. PCB-1242	ND(1.0)	UG/L	870-14
19P. PCB-1254	ND(1.0)	UG/L	870-14
20P. PCB-1221	ND(1.0)	UG/L	870-14
21P. PCB-1232	ND(1.0)	UG/L	870-14
22P. PCB-1248	ND(1.0)	UG/L	870-14
23P. PCB-1260	ND(1.0)	UG/L	870-14
24P. PCB-1016	ND(1.0)	UG/L	870-14
25P. TOXAPHENE	ND(1.0)	UG/L	870-14
26P. KEPONE	ND(1.0)	UG/L	870-14
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-14
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-7

DR 004131

LAB NUMBER: 86120719 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-7
3V. BENZENE	ND(5.0)	UG/L	791-7
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-7
5V. BROMOFORM	ND(5.0)	UG/L	791-7
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-7
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-7
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-7
9V. CHLOROETHANE	ND(5.0)	UG/L	791-7
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-7
11V. CHLOROFORM	ND(5.0)	UG/L	791-7
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-7
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-7
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-7
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-7
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-7
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-7
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-7
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-7
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-7
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-7
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-7
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-7
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-7
25V. TOLUENE	ND(5.0)	UG/L	791-7
26V. TRANS-1,2-DICHLOROETHENE	5.1	UG/L	791-7
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-7
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-7
30V. TRICHLOROFLUOROMETHANE	NOT ANALYZED	UG/L	791-7
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-7
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UGL	830-93
2B. ACENAPHTHYLENE	ND(5.0)	UGL	830-93
3B. ANTHRACENE	ND(5.0)	UGL	830-93
4B. BENZIDINE	ND(50)	UGL	830-93
5B. BENZO(A)ANTHRACENE	ND(5.0)	UGL	830-93
6B. BENZO(A)PYRENE	ND(5.0)	UGL	830-93
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UGL	830-93
8B. BENZO(GHI)PERYLENE	ND(5.0)	UGL	830-93
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UGL	830-93
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UGL	830-93
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UGL	830-93

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120719 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UGL	830-93
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UGL	830-93
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UGL	830-93
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UGL	830-93
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UGL	830-93
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UGL	830-93
18B. CHRYSENE	ND(5.0)	UGL	830-93
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UGL	830-93
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UGL	830-93
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UGL	830-93
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UGL	830-93
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UGL	830-93
24B. DIETHYLPHTHALATE	ND(5.0)	UGL	830-93
25B. DIMETHYLPHTHALATE	ND(5.0)	UGL	830-93
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UGL	830-93
27B. 2,4-DINITROTOLUENE	ND(5.0)	UGL	830-93
28B. 2,6-DINITROTOLUENE	ND(5.0)	UGL	830-93
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UGL	830-93
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UGL	830-93
31B. FLUORANTHENE	ND(5.0)	UGL	830-93
32B. FLUORENE	ND(5.0)	UGL	830-93
33B. HEXACHLOROBENZENE	ND(5.0)	UGL	830-93
34B. HEXACHLOROBUTADIENE	ND(5.0)	UGL	830-93
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UGL	830-93
36B. HEXACHLOROETHANE	ND(5.0)	UGL	830-93
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UGL	830-93
38B. ISOPHORONE	ND(5.0)	UGL	830-93
39B. NAPHTHALENE	ND(5.0)	UGL	830-93
40B. NITROBENZENE	ND(5.0)	UGL	830-93
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UGL	830-93
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UGL	830-93
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UGL	830-93
44B. PHENANTHRENE	ND(5.0)	UGL	830-93
45B. PYRENE	ND(5.0)	UGL	830-93
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UGL	830-93
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-23
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-23
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-23
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-23
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-23
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-23

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120719 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-23
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-23
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-23
10A. PHENOL	ND(5.0)	UG/L	832-23
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-23
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	103.	% REC. @ 30 UG/L	791-8
BENZENE-D6	99.2	% REC. @ 30 UG/L	791-8
ETHYLBENZENE-D10	96.2	% REC. @ 30 UG/L	791-8
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	88.0	% REC. @ 100 UG/L	832-23
PHENOL-D6	19.2	% REC. @ 100 UG/L	832-23
2,4,6-TRIBROMOPHENOL	50.0	% REC. @ 100 UG/L	832-23
PENTAFLUOROPHENOL	32.8	% REC. @ 100 UG/L	832-23
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	95.6	% REC. @ 100 UG/L	830-94
2-FLUOROBIPHENYL	80.0	% REC. @ 100 UG/L	830-94
TERPHENYL-D14	75.4	% REC. @ 100 UG/L	830-94
DI-N-OCTYLPHALATE-D4	32.2	% REC. @ 100 UG/L	830-94
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	29.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	2.0	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	3.	MG/L	884-5
MANGANESE, TOTAL	0.03	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120719 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120719 X-4D DUP

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120728
SAMPLE DESCRIPTION: X-4D DUP DISSOLVED

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1545

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	28.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	0.5	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.02	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	5.	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120728 X-4D DUP DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120720
SAMPLE DESCRIPTION: RINSE BLANK

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1715

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	15.0	DEGREES C	
PH, FIELD ANALYSIS	4.64	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	220.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-15
2P. A-BHC	ND(1.0)	UG/L	870-15
3P. B-BHC	ND(1.0)	UG/L	870-15
4P. G-BHC	ND(1.0)	UG/L	870-15
5P. D-BHC	ND(1.0)	UG/L	870-15
6P. CHLORDANE	ND(1.0)	UG/L	870-15
7P. 4,4'-DDT	ND(1.0)	UG/L	870-15
8P. 4,4'-DDE	ND91.0)	UG/L	870-15
9P. 4,4'-DDD	ND(1.0)]	UG/L	870-15
10P. DIELDRIN	ND(1.0)	UG/L	870-15
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-15
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-15
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-15
14P. ENDRIN	ND(1.0)	UG/L	870-15
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-15
16P. HEPTACHLOR	ND(1.0)	UG/L	870-15
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-15
18P. PCB-1242	ND(1.0)	UG/L	870-15
19P. PCB-1254	ND(1.0)	UG/L	870-15
20P. PCB-1221	ND(1.0)	UG/L	870-15
21P. PCB-1232	ND(1.0)	UG/L	870-15
22P. PCB-1248	ND(1.0)	UG/L	870-15
23P. PCB-1260	ND(1.0)	UG/L	870-15
24P. PCB-1016	ND(1.0)	UG/L	870-15
25P. TOXAPHENE	ND(1.0)	UG/L	870-15
26P. KEPONE	ND(1.0)	UG/L	870-15
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-15
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	790-59

DR 004138

LAB NUMBER: 86120720 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	790-59
3V. BENZENE	ND(5.0)	UG/L	790-59
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	790-59
5V. BROMOFORM	ND(5.0)	UG/L	790-59
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	790-59
7V. CHLOROBENZENE	ND(5.0)	UG/L	790-59
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	790-59
9V. CHLOROETHANE	ND(5.0)	UG/L	790-59
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	790-59
11V. CHLOROFORM	ND(5.0)	UG/L	790-59
12V. DICHLOROBROMOMETHANE	ND (5.0)	UG/L	790-59
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	790-59
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	790-59
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	790-59
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	790-59
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	790-59
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	790-59
19V. ETHYLBENZENE	ND(5.0)	UG/L	790-59
20V. METHYL BROMIDE	ND(5.0)	UG/L	790-59
21V. METHYL CHLORIDE	ND(5.0)	UG/L	790-59
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	790-59
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	790-59
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	790-59
25V. TOLUENE	ND(5.0)	UG/L	790-59
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	790-59
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	790-59
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	790-59
29V. TRICHLOROETHENE	ND(5.0)	UG/L	790-59
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	790-59
31V. VINYL CHLORIDE	ND(5.0)	UG/L	790-59
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-93
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-93
3B. ANTHRACENE	ND(5.0)	UG/L	830-93
4B. BENZIDINE	ND(50)	UG/L	830-93
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-93
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-93
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-93
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-93
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-93
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-93
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-93

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120720 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-93
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-93
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-93
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-93
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93
18B. CHRYSENE	ND(5.0)	UG/L	830-93
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-93
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-93
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-93
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-93
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-93
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-93
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-93
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-93
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-93
31B. FLUORANTHENE	ND(5.0)	UG/L	830-93
32B. FLUORENE	ND(5.0)	UG/L	830-93
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-93
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-93
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-93
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-93
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-93
38B. ISOPHORONE	ND(5.0)	UG/L	830-93
39B. NAPHTHALENE	ND(5.0)	UG/L	830-93
40B. NITROBENZENE	ND(5.0)	UG/L	830-93
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-93
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-93
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-93
44B. PHENANTHRENE	ND(5.0)	UG/L	830-93
45B. PYRENE	ND(5.0)	UG/L	830-93
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-93
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-23
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-23
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-23
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-23
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-23
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-23

LAB NUMBER: 86120720 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-23
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-23
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-23
10A. PHENOL	ND(5.0)	UG/L	832-23
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-23
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	113.	% REC. @ 30 UG/L	790-60
BENZENE-D6	99.6	% REC. @ 30 UG/L	790-60
ETHYLBENZENE-D10	103.	% REC. @ 30 UG/L	790-60
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	76.6	% REC. @ 100 UG/L	832-23
PHENOL-D6	26.4	% REC. @ 100 UG/L	832-23
2,4,6-TRIBROMOPHENOL	42.6	% REC. @ 100 UG/L	832-23
PENTAFLUOROPHENOL	38.6	% REC. @ 100 UG/L	832-23
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	115.	% REC. @ 100 UG/L	830-94
2-FLUOROBIPHENYL	92.8	% REC. @ 100 UG/L	830-94
TERPHENYL-D14	81.8	% REC. @ 100 UG/L	830-94
DI-N-OCTYLPHALATE-D4	38.2	% REC. @ 100 UG/L	830-94
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	884-102
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	ND(3)	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	ND(0.1)	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-109
MAGNESIUM, TOTAL	ND(2)	MG/L	884-5
MANGANESE, TOTAL	ND(0.2)	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-221
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	ND(2)	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	884-104
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-155

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120720 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	0.05	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120720 RINSE BLANK

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120729
SAMPLE DESCRIPTION: RINSE BLANK

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1715

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	ND(0.1)	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	ND(3)	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	ND(0.1)	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	ND(2)	MG/L	884-5
MANGANESE, TOTAL	ND(0.2)	MG/L	884-5
MERCURY, TOTAL	ND(0.0001)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	ND(2)	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	ND(0.02)	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120729 RINSE BLANK

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5023

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5023

LAB NUMBER: 86120721
SAMPLE DESCRIPTION: TRIP BLANK

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1715

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	790-59
2V. ACRYLONITRILE	ND(25)	UG/L	790-59
3V. BENZENE	ND(5.0)	UG/L	790-59
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	790-59
5V. BROMOFORM	ND(5.0)	UG/L	790-59
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	790-59
7V. CHLOROBENZENE	ND(5.0)	UG/L	790-59
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	790-59
9V. CHLOROETHANE	ND(5.0)	UG/L	790-59
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	790-59
11V. CHLOROFORM	ND(5.0)	UG/L	790-59
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	790-59
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	790-59
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	790-59
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	790-59
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	790-59
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	790-59
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	790-59
19V. ETHYLBENZENE	ND(5.0)	UG/L	790-59
20V. METHYL BROMIDE	ND(5.0)	UG/L	790-59
21V. METHYL CHLORIDE	ND(5.0)	UG/L	790-59
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	790-59
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	790-59
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	790-59
25V. TOLUENE	ND(5.0)	UG/L	790-59
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	790-59
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	790-59
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	790-59
29V. TRICHLOROETHENE	ND(5.0)	UG/L	790-59
30V. TRICHLOROFLUOROMETHANE	NOT ANALYZED	UG/L	790-59
31V. VINYL CHLORIDE	ND(5.0)	UG/L	790-59
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	109.	% REC. @ 30 UG/L	790-60
BENZENE-D6	103.	% REC. @ 30 UG/L	790-60

DR -004145

LAB NUMBER: 86120721 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ETHYLBENZENE-D10	102.	% REC. @ 30 UG/L	790-60
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120721 TRIP BLANK

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120731
SAMPLE DESCRIPTION: X-1I - DUPLICATE

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-15
2P. A-BHC	ND(1.0)	UG/L	870-15
3P. B-BHC	ND(1.0)	UG/L	870-15
4P. G-BHC	ND(1.0)	UG/L	870-15
5P. D-BHC	ND(1.0)	UG/L	870-15
6P. CHLORDANE	ND(1.0)	UG/L	870-15
7P. 4,4'-DDT	ND(1.0)	UG/L	870-15
8P. 4,4'-DDE	ND(1.0)	UG/L	870-15
9P. 4,4'-DDD	ND(1.0)	UG/L	870-15
10P. DIELDRIN	ND(1.0)	UG/L	870-15
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-15
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-15
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-15
14P. ENDRIN	ND(1.0)	UG/L	870-15
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-15
16P. HEPTACHLOR	ND(1.0)	UG/L	870-15
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-15
18P. PCB-1242	ND(1.0)	UG/L	870-15
19P. PCB-1254	ND(1.0)	UG/L	870-15
20P. PCB-1221	ND(1.0)	UG/L	870-15
21P. PCB-1232	ND(1.0)	UG/L	870-15
22P. PCB-1248	ND(1.0)	UG/L	870-15
23P. PCB-1260	ND(1.0)	UG/L	870-15
24P. PCB-1016	ND(1.0)	UG/L	870-15
25P. TOXAPHENE	ND(1.0)	UG/L	870-15
26P. KEPONE	ND(1.0)	UG/L	870-15
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-15
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	0.009	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-3
2V. ACRYLONITRILE	ND(25)	UG/L	791-3
3V. BENZENE	ND(5.0)	UG/L	791-3
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-3

DR 004147

LAB NUMBER: 86120731 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
5V. BROMOFORM	ND(5.0)	UG/L	791-3
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-3
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-3
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-3
9V. CHLOROETHANE	ND(5.0)	UG/L	791-3
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-3
11V. CHLOROFORM	ND(5.0)	UG/L	791-3
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-3
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-3
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-3
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-3
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-3
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-3
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-3
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-3
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-3
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-3
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-3
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-3
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-3
25V. TOLUENE	ND(5.0)	UG/L	791-3
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-3
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-3
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-3
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-3
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-93
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-93
3B. ANTHRACENE	ND(5.0)	UG/L	830-93
4B. BENZIDINE	ND(50)	UG/L	830-93
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-93
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-93
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-93
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-93
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-93
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-93
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-93
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-93
13B. BIS(2-ETHYLHEXYL)PHTHALATE	50.	UG/L	830-93
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93

LAB NUMBER: 86120731 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-93
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-93
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-93
18B. CHRYSENE	ND(5.0)	UG/L	830-93
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-93
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-93
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-93
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-93
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-93
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-93
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-93
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-93
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-93
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-93
31B. FLUORANTHENE	ND(5.0)	UG/L	830-93
32B. FLUORENE	ND(5.0)	UG/L	830-93
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-93
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-93
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-93
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-93
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-93
38B. ISOPHORONE	ND(5.0)	UG/L	830-93
39B. NAPHTHALENE	ND(5.0)	UG/L	830-93
40B. NITROBENZENE	ND(5.0)	UG/L	830-93
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-93
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-93
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-93
44B. PHENANTHRENE	ND(5.0)	UG/L	830-93
45B. PYRENE	ND(5.0)	UG/L	830-93
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-93
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-23
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-23
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-23
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-23
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-23
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-23
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-23
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-23
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-23

LAB NUMBER: 86120731 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
10A. PHENOL	ND(5.0)	UG/L	832-23
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-23
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	83.9	% RECOVERY AT 30UG/L	791-4
BENZENE-D6	109.	% RECOVERY AT 30UG/L	791-4
ETHYLBENZENE-D10	90.0	% RECOVERY AT 30UG/L	791-4
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	54.4	% REC. @ 100 UG/L	832-23
PHENOL-D6	19.6	% REC. @ 100 UG/L	832-23
2,4,6-TRIBROMOPHENOL	31.2	% REC. @ 100 UG/L	832-23
PENTAFLUOROPHENOL	21.2	% REC. @ 100 UG/L	832-23
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	75.2	% REC. @ 100 UG/L	830-94
2-FLUOROBIPHENYL	68.4	% REC. @ 100 UG/L	830-94
TERPHENYL-D14	72.6	% REC. @ 100 UG/L	830-94
DI-N-OCTYLPHALATE-D4	29.4	% REC. @ 100 UG/L	830-94
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	890-66
BARIUM, TOTAL	0.1	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	7.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	0.4	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	890-18
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.05	MG/L	884-5
MERCURY, TOTAL	ND(0.0002)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120731 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ZINC, TOTAL	0.11	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

--CONCLUSION--LAB NUMBER: 86120731 X-1I - DUPLICATE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120733
SAMPLE DESCRIPTION: X-1I - DISSOLVED - DUPLICATE

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-75
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	0.1	MG/L	884-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	884-66
CALCIUM, TOTAL	6.	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	884-61
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	ND(0.1)	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	2.	MG/L	884-5
MANGANESE, TOTAL	0.04	MG/L	884-5
MERCURY, TOTAL	ND(0.0002)	MG/L	871-222
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	3.	MG/L	884-70
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320
TIN, TOTAL	ND(0.04)	MG/L	884-75
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5
ZINC, TOTAL	0.09	MG/L	884-1

—CONCLUSION—LAB NUMBER: 86120733 X-1I - DISSOLVED - DUPLICATE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

DR 004152

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

DR 004153

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120732
SAMPLE DESCRIPTION: X-1I - SPIKE

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
CYANIDE, TOTAL	58.	%	842-17
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	73.3	% REC. @ 40 UG/L	791-11
2V. ACRYLONITRILE	91.4	% REC. @ 40 UG/L	791-11
3V. BENZENE	98.4	% REC. @ 40 UG/L	791-11
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	% REC. @ 40 UG/L	791-11
5V. BROMOFORM	86.8	% REC. @ 40 UG/L	791-11
6V. CARBON TETRACHLORIDE	70.9	% REC. @ 40 UG/L	791-11
7V. CHLOROBENZENE	97.9	% REC. @ 40 UG/L	791-11
8V. CHLORODIBROMOMETHANE	116.	% REC. @ 40 UG/L	791-11
9V. CHLOROETHANE	101.	% REC. @ 40 UG/L	791-11
10V. 2-CHLOROETHYLVINYL ETHER	108.	% REC. @ 40 UG/L	791-11
11V. CHLOROFORM	89.2	% REC. @ 40 UG/L	791-11
12V. DICHLOROBROMOMETHANE	75.6	% REC. @ 40 UG/L	791-11
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	% REC. @ 40 UG/L	791-11
14V. 1,1-DICHLOROETHANE	93.3	% REC. @ 40 UG/L	791-11
15V. 1,2-DICHLOROETHANE	72.3	% REC. @ 40 UG/L	791-11
16V. 1,1-DICHLOROETHENE	118.	% REC. @ 40 UG/L	791-11
17V. 1,2-DICHLOROPROPANE	69.5	% REC. @ 40 UG/L	791-11
18V. 1,3-DICHLOROPROPYLENE	76.	% REC. @ 40 UG/L	791-11
19V. ETHYLBENZENE	110.	% REC. @ 40 UG/L	791-11
20V. METHYL BROMIDE	93.5	% REC. @ 40 UG/L	791-11
21V. METHYL CHLORIDE	89.	% REC. @ 40 UG/L	791-11
22V. METHYLENE CHLORIDE	78.5	% REC. @ 40 UG/L	791-11
23V. 1,1,2,2-TETRACHLOROETHANE	118.	% REC. @ 40 UG/L	791-11
24V. TETRACHLOROETHENE	102.	% REC. @ 40 UG/L	791-11
25V. TOLUENE	96.4	% REC. @ 40 UG/L	791-11
26V. TRANS-1,2-DICHLOROETHENE	110.	% REC. @ 40 UG/L	791-11
27V. 1,1,1-TRICHLOROETHANE	70.4	% REC. @ 40 UG/L	791-11
28V. 1,1,2-TRICHLOROETHANE	118.	% REC. @ 40 UG/L	791-11
29V. TRICHLOROETHENE	47.3	% REC. @ 40 UG/L	791-11
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	% REC. @ 40 UG/L	791-11
31V. VINYL CHLORIDE	90.3	% REC. @ 40 UG/L	791-11
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	98.1	% REC. @ 30 UG/L	791-12

DR 004154

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120732 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
BENZENE-D6	95.1	% REC. @ 30 UG/L	791-12
ETHYLBENZENE-D10	94.6	% REC. @ 30 UG/L	791-12
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
ALUMINUM, TOTAL	96.	%	884-3
ANTIMONY, TOTAL	78.	%	884-75
ARSENIC, TOTAL	80.	%	890-66
BARIUM, TOTAL	87.	%	884-3
BERYLLIUM, TOTAL	86.	%	884-7
CADMIUM, TOTAL	88.	%	884-66
CALCIUM, TOTAL	95.	%	884-7
CHROMIUM, TOTAL	79.	%	884-61
COBALT, TOTAL	82.	%	884-3
COPPER, TOTAL	92.	%	884-7
IRON, TOTAL	80.	%	884-5
LEAD, TOTAL	88.	%	890-19
MAGNESIUM, TOTAL	90.	%	884-5
MANGANESE, TOTAL	88.	%	884-5
MERCURY, TOTAL	90.	%	871-222
NICKEL, TOTAL	95.	%	884-3
POTASSIUM, TOTAL	99.	%	884-70
SELENIUM, TOTAL	88.	%	890-68
SILVER, TOTAL	90.	%	880-273
SODIUM, TOTAL	97.	%	884-7
THALLIUM, TOTAL	80.	%	890-63
TIN, TOTAL	76.	%	884-75
VANADIUM, TOTAL	90.	%	884-5
ZINC, TOTAL	85.	%	884-1

—CONCLUSION—LAB NUMBER: 86120732 X-1I - SPIKE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5027

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120734
SAMPLE DESCRIPTION: X-1I - DISSOLVED - SPIKE

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	99.	%	884-3
ANTIMONY, TOTAL	68.	%	884-75
ARSENIC, TOTAL	100.	%	871-254
BARIUM, TOTAL	89.	%	880-3
BERYLLIUM, TOTAL	88.	%	884-7
CADMIUM, TOTAL	72.	%	884-66
CALCIUM, TOTAL	95.	%	884-7
CHROMIUM, TOTAL	84.	%	884-61
COBALT, TOTAL	88.	%	884-3
COPPER, TOTAL	96.	%	884-7
IRON, TOTAL	90.	%	884-5
LEAD, TOTAL	100.	%	884-324
MAGNESIUM, TOTAL	92.	%	884-5
MANGANESE, TOTAL	88.	%	884-5
MERCURY, TOTAL	95.	%	871-223
NICKEL, TOTAL	95.	%	884-3
POTASSIUM, TOTAL	100.	%	884-70
SELENIUM, TOTAL	100.	%	871-251
SILVER, TOTAL	90.	%	880-273
SODIUM, TOTAL	99.	%	884-7
THALLIUM, TOTAL	100.	%	884-320
TIN, TOTAL	82.	%	884-75
VANADIUM, TOTAL	92.	%	884-5
ZINC, TOTAL	85.	%	884-1

—CONCLUSION—LAB NUMBER: 86120734 X-1I - DISSOLVED - SPIKE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

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W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120856
SAMPLE DESCRIPTION: X-1D - SPIKE

DATE SAMPLED: 11/12/86
TIME SAMPLED: 1355

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	NA	UG/L	870-25
2P. A-BHC	NA	UG/L	870-25
3P. B-BHC	NA	UG/L	870-25
4P. G-BHC	97.7% REC. @ 1.	UG/L	870-25
5P. D-BHC	NA	UG/L	870-25
6P. CHLORDANE	NA	UG/L	870-25
7P. 4,4'-DDT	NA	UG/L	870-25
8P. 4,4'-DDE	NA	UG/L	870-25
9P. 4,4'-DDD	NA	UG/L	870-25
10P. DIELDRIN	NA	UG/L	870-25
11P. A-ENDOSULFAN	NA	UG/L	870-25
12P. B-ENDOSULFAN	NA	UG/L	870-25
13P. ENDOSULFAN SULFATE	NA	UG/L	870-25
14P. ENDRIN	102 % REC. @ 1	UG/L	870-25
15P. ENDRIN ALDEHYDE	NA	UG/L	870-25
16P. HEPTACHLOR	NA	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	110 % REC. @ 1	UG/L	870-25
18P. PCB-1242	NA	UG/L	870-25
19P. PCB-1254	NA	UG/L	870-25
20P. PCB-1221	NA	UG/L	870-25
21P. PCB-1232	NA	UG/L	870-25
22P. PCB-1248	NA	UG/L	870-25
23P. PCB-1260	NA	UG/L	870-25
24P. PCB-1016	NA	UG/L	870-25
25P. TOXAPHENE	78 % REC. @ 1	UG/L	870-25
26P. KEPONE	NA	UG/L	870-25
27P. METHOXYCHLOR	78 % REC. @ 1	UG/L	870-25
PHENOLIC COMPOUNDS	100	%	233-89
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	74.0	% REC. @ 50 UG/L	830-97
2B. ACENAPHTHYLENE	73.6	% REC. @ 50 UG/L	830-97
3B. ANTHRACENE	76.4	% REC. @ 50 UG/L	830-97
4B. BENZIDINE	39.6	% REC. @ 30 UG/L	830-97
5B. BENZO(A)ANTHRACENE	83.6	% REC. @ 50 UG/L	830-97

DR 004159

LAB NUMBER: 86120856 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
6B. BENZO(A)PYRENE	87.2	% REC. @ 50 UG/L	830-97
7B. BENZO(B)FLUORANTHENE	84.0 ++	% REC. @ 50 UG/L	830-97
8B. BENZO(GHI)PERYLENE	82.0	% REC. @ 50 UG/L	830-97
9B. BENZO(K)FLUORANTHENE	++	% REC. @ 50 UG/L	830-97
10B. BIS(2-CHLOROETHOXY)METHANE	80.4	% REC. @ 50 UG/L	830-97
11B. BIS(2-CHLOROETHYL)ETHER	35.4	% REC. @ 50 UG/L	830-97
12B. BIS(2-CHLOROISOPROPYL)ETHER	74.0	% REC. @ 50 UG/L	830-97
13B. BIS(2-ETHYLHEXYL)PHTHALATE	240.	% REC. @ 50 UG/L	830-97
14B. 4-BROMOPHENYL PHENYL ETHER	77.2	% REC. @ 50 UG/L	830-97
15B. BUTYL BENZYL PHTHALATE	89.2	% REC. @ 50 UG/L	830-97
16B. 2-CHLORONAPHTHALENE	66.4	% REC. @ 50 UG/L	830-97
17B. 4-CHLOROPHENYL PHENYL ETHER	78.0	% REC. @ 50 UG/L	830-97
18B. CHRYSENE	84.8	% REC. @ 50 UG/L	830-97
19B. DIBENZO(A,H)ANTHRACENE	97.2	% REC. @ 50 UG/L	830-97
20B. 1,2-DICHLOROBENZENE	51.2	% REC. @ 50 UG/L	830-97
21B. 1,3-DICHLOROBENZENE	40.8	% REC. @ 50 UG/L	830-97
22B. 1,4-DICHLOROBENZENE	43.6	% REC. @ 50 UG/L	830-97
23B. 3,3-DICHLOROBENZIDINE	53.0	% REC. @ 50 UG/L	830-97
24B. DIETHYLPHTHALATE	66.4	% REC. @ 50 UG/L	830-97
25B. DIMETHYLPHTHALATE	36.8	% REC. @ 50 UG/L	830-97
26B. DI-N-BUTYLPHTHALATE	84.0	% REC. @ 50 UG/L	830-97
27B. 2,4-DINITROTOLUENE	80.8	% REC. @ 50 UG/L	830-97
28B. 2,6-DINITROTOLUENE	61.6	% REC. @ 50 UG/L	830-97
29B. DI-N-OCTYLPHTHALATE	72.8	% REC. @ 50 UG/L	830-97
30B. 1,2-DIPHENYLHYDRAZINE	67.6	% REC. @ 50 UG/L	830-97
31B. FLUORANTHENE	95.6	% REC. @ 50 UG/L	830-97
32B. FLUORENE	78.0	% REC. @ 50 UG/L	830-97
33B. HEXACHLOROBENZENE	70.4	% REC. @ 50 UG/L	830-97
34B. HEXACHLOROBUTADIENE	44.0	% REC. @ 50 UG/L	830-97
35B. HEXACHLOROCYCLOPENTADIENE	60.0	% REC. @ 50 UG/L	830-97
36B. HEXACHLOROETHANE	37.2	% REC. @ 50 UG/L	830-97
37B. INDENO(1,2,3-CD)PYRENE	108.	% REC. @ 50 UG/L	830-97
38B. ISOPHORONE	72.8	% REC. @ 50 UG/L	830-97
39B. NAPHTHALENE	68.0	% REC. @ 50 UG/L	830-97
40B. NITROBENZENE	72.0	% REC. @ 50 UG/L	830-97
41B. N-NITROSODIMETHYLAMINE	34.8	% REC. @ 50 UG/L	830-97
42B. N-NITROSODI-N-PROPYLAMINE	80.0	% REC. @ 50 UG/L	830-97
43B. N-NITROSODIPHENYLAMINE	77.6	% REC. @ 50 UG/L	830-97
44B. PHENANTHRENE	76.4	% REC. @ 50 UG/L	830-97
45B. PYRENE	81.6	% REC. @ 50 UG/L	830-97
46B. 1,2,4-TRICHLOROBENZENE	55.2	% REC. @ 50 UG/L	830-97
GC/MS ACID COMPOUNDS			

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120856 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
1A. 2-CHLOROPHENOL	62.6	% REC. @ 100 UG/L	832-25
2A. 2,4-DICHLOROPHENOL	77.6	% REC. @ 100 UG/L	832-25
3A. 2,4-DIMETHYLPHENOL	59.0	% REC. @ 100 UG/L	832-25
4A. 4,6-DINITRO-O-CRESOL	45.0	% REC. @ 100 UG/L	832-25
5A. 2,4-DINITROPHENOL	44.0	% REC. @ 100 UG/L	832-25
6A. 2-NITROPHENOL	82.0	% REC. @ 100 UG/L	832-25
7A. 4-NITROPHENOL	86.8	% REC. @ 100 UG/L	832-25
8A. P-CHLORO-M-CRESOL	56.0	% REC. @ 100 UG/L	832-25
9A. PENTACHLOROPHENOL	17.7	% REC. @ 100 UG/L	832-25
10A. PHENOL	24.0	% REC. @ 100 UG/L	832-25
11A. 2,4,6-TRICHLOROPHENOL	72.8	% REC. @ 100 UG/L	832-25
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	56.6	% REC. @ 100 UG/L	832-25
PHENOL-D6	23.2	% REC. @ 100 UG/L	832-25
2,4,6-TRIBROMOPHENOL	67.8	% REC. @ 100 UG/L	832-25
PENTAFLUOROPHENOL	58.2	% REC. @ 100 UG/L	832-25
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	74.0	% REC. @ 100 UG/L	830-98
2-FLUOROBIPHENYL	71.4	% REC. @ 100 UG/L	830-98
TERPHENYL-D14	56.6	% REC. @ 100 UG/L	830-98
DI-N-OCTYLPHALATE-D4	28.4	% REC. @ 100 UG/L	830-98
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75

COMMENTS: ++ISOMERS COELUTE.VALUES REPORTED ARE SUM OF BOTH.
SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120856 X-1D - SPIKE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120735
SAMPLE DESCRIPTION: LAB BLANK

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-15
2P. A-BHC	ND(1.0)	UG/L	870-15
3P. B-BHC	ND(1.0)	UG/L	870-15
4P. G-BHC	ND(1.0)	UG/L	870-15
5P. D-BHC	ND(1.0)	UG/L	870-15
6P. CHLORDANE	ND(1.0)	UG/L	870-15
7P. 4,4'-DDT	ND(1.0)	UG/L	870-15
8P. 4,4'-DDE	ND(1.0)	UG/L	870-15
9P. 4,4'-DDD	ND(1.0)	UG/L	870-15
10P. DIELDRIN	ND(1.0)	UG/L	870-15
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-15
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-15
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-15
14P. ENDRIN	ND(1.0)	UG/L	870-15
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-15
16P. HEPTACHLOR	ND(1.0)	UG/L	870-15
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-15
18P. PCB-1242	ND(1.0)	UG/L	870-15
19P. PCB-1254	ND(1.0)	UG/L	870-15
20P. PCB-1221	ND(1.0)	UG/L	870-15
21P. PCB-1232	ND(1.0)	UG/L	870-15
22P. PCB-1248	ND(1.0)	UG/L	870-15
23P. PCB-1260	ND(1.0)	UG/L	870-15
24P. PCB-1016	ND(1.0)	UG/L	870-15
25P. TOXAPHENE	ND(1.0)	UG/L	870-15
26P. KEPONE	ND(1.0)	UG/L	870-15
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-15
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-3
2V. ACRYLONITRILE	ND(25)	UG/L	791-3
3V. BENZENE	ND(5.0)	UG/L	791-3
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-3

LAB NUMBER: 86120735 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
5V. BROMOFORM	ND(5.0)	UG/L	791-3
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-3
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-3
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-3
9V. CHLOROETHANE	ND(5.0)	UG/L	791-3
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-3
11V. CHLOROFORM	ND(5.0)	UG/L	791-3
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-3
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-3
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-3
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-3
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-3
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-3
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-3
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-3
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-3
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-3
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-3
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-3
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-3
25V. TOLUENE	ND(5.0)	UG/L	791-3
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-3
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-3
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-3
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-3
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-3
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-91
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-91
3B. ANTHRACENE	ND(5.0)	UG/L	830-91
4B. BENZIDINE	ND(50)	UG/L	830-91
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-91
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-91
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-91
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-91
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-91
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-91
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-91
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-91
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-91
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91

LAB NUMBER: 86120735 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-91
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-91
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-91
18B. CHRYSENE	ND(5.0)	UG/L	830-91
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-91
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-91
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-91
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-91
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-91
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-91
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-91
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-91
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-91
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-91
31B. FLUORANTHENE	ND(5.0)	UG/L	830-91
32B. FLUORENE	ND(5.0)	UG/L	830-91
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-91
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-91
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-91
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-91
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-91
38B. ISOPHORONE	ND(5.0)	UG/L	830-91
39B. NAPHTHALENE	ND(5.0)	UG/L	830-91
40B. NITROBENZENE	ND(5.0)	UG/L	830-91
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-91
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-91
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-91
44B. PHENANTHRENE	ND(5.0)	UG/L	830-91
45B. PYRENE	ND(5.0)	UG/L	830-91
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-91
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-22
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-22
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-22
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-22
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-22
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-22
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-22
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-22
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-22

LAB NUMBER: 86120735 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
10A. PHENOL	ND(5.0)	UG/L	832-22
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-22
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	85.6	% REC. @ 30 UG/L	791-4
BENZENE-D6	96.7	% REC. @ 30 UG/L	791-4
ETHYLBENZENE-D10	99.1	% REC. @ 30 UG/L	791-4
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	71.4	% REC. @ 100 UG/L	832-22
PHENOL-D6	25.8	% REC. @ 100 UG/L	832-22
2,4,6-TRIBROMOPHENOL	55.8	% REC. @ 100 UG/L	832-22
PENTAFLUOROPHENOL	40.0	% REC. @ 100 UG/L	832-22
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	92.0	% REC. @ 100 UG/L	830-92
2-FLUOROBIPHENYL	72.2	% REC. @ 100 UG/L	830-92
TERPHENYL-D14	103.	% REC. @ 100 UG/L	830-92
DI-N-OCTYLPHALATE-D4	62.6	% REC. @ 100 UG/L	830-92
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-74
ALUMINUM, TOTAL	ND(0.2)	MG/L	884-3
ANTIMONY, TOTAL	ND(0.06)	MG/L	884-1
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	ND(0.1)	MG/L	880-3
BERYLLIUM, TOTAL	ND(0.005)	MG/L	884-7
CADMIUM, TOTAL	ND(0.005)	MG/L	890-90
CALCIUM, TOTAL	ND(3)	MG/L	884-7
CHROMIUM, TOTAL	ND(0.01)	MG/L	890-90
COBALT, TOTAL	ND(0.04)	MG/L	884-3
COPPER, TOTAL	ND(0.02)	MG/L	884-7
IRON, TOTAL	ND(0.1)	MG/L	884-5
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	ND(2)	MG/L	884-5
MANGANESE, TOTAL	ND(2)	MG/L	890-60
MERCURY, TOTAL	ND(0.0001)	MG/L	871-223
NICKEL, TOTAL	ND(0.04)	MG/L	884-3
POTASSIUM, TOTAL	ND(2)	MG/L	890-60
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	884-7
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	884-1
VANADIUM, TOTAL	ND(0.05)	MG/L	884-5

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120735 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ZINC, TOTAL	ND(0.02)	MG/L	884-1

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120735 LAB BLANK

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/13/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5027

LAB NUMBER: 86120736
SAMPLE DESCRIPTION: LAB BLANK - DISSOLVED

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	890-66
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	ND(3)	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	ND(0.1)	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	890-19
MAGNESIUM, TOTAL	ND(2)	MG/L	871-263
MANGANESE, TOTAL	ND(0.02)	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-223
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	ND(2)	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	890-68
SILVER, TOTAL	ND(0.01)	MG/L	880-273
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	ND(0.02)	MG/L	871-262

—CONCLUSION—LAB NUMBER: 86120736 LAB BLANK - DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

APPENDIX 3B-2-2

Residential Wells Analytical Results

Samples:

- RW-D
- RW-D (Dissolved Metals)
- RW-B
- RW-B (Dissolved Metals)
- RW-F
- RW-F (Dissolved Metals)
- RW-F DUP
- RW-F DUP (Dissolved Metals)

NARRATIVE

Wilson Laboratories Sample ID : 86120858
URS ID : LCH-1

EXTRACTABLE SURVEY SEARCH

Below are the compounds identified by GC/MS NBS Library. The analysis indicated that other compounds may be present but NBS Library survey search results have shown matches with "FITS" less than 850 which makes positive identification impossible. Concentration of compounds identified by the NBS Library were calculated based on the response of the internal standard 1,4-dichlorobenzene - d4.

Scan Number	Compound	Concentration (ug/l)
222 & 259	xylene (total)	1800.
464	dimethylpyridine	370.
492	unknown	560.
518	trimethylcyclohexanol	220.
545	unknown	100.
566	cresol	250.
783	1,2-bis(2-chloroethoxy)ethane	770.

Wilson Laboratories Sample ID : 86120859
URS ID : LCH-1 DUP

EXTRACTABLE SURVEY SEARCH

Below are the compounds identified by GC/MS NBS Library. The analysis indicated that other compounds may be present but NBS Library survey search results have shown matches with "FITS" less than 850 which makes positive identification impossible. Concentration of compounds identified by the NBS Library were calculated based on the response of the internal standard 1,4-dichlorobenzene - d4.

Scan Number	Compound	Concentration (ug/l)
222 & 259	xylene (total)	1700.
464	dimethylpyridine	360.
492	unknown	580.
518	trimethylcyclohexanol	230.
545	unknown	110.
566	cresol	280.
783	1,2-bis(2-chloroethoxy)ethane	740.

URS TOTAL PHOSPHORUS NARRATIVE

This is a step by step summary of all procedures performed to determine Total Phosphorous on URS leachate samples 86120858 through 86120866.

1) Samples were digested using Standard Method Procedure 424C III Persulfate digestion. A predigestion spike was added to sample 86120861.

2) Samples were pH adjusted as per method and analyzed using Standard Method 424G Automated Ascorbic Acid Reduction. Spike showed 0% recovery.

3) Sample 86120861 spike was redigested with predigestion spike with previous method and still showed no spike recovery. Post digestion spike indicated 90-95% recovery.

4) Samples 86120858 through 86120866 were redigested using Standard Method 424C I Perchloric Acid Method with predigestion spike added to sample 86120861 at a concentration 10 times the detection limit. After pH adjustment samples had a yellow coloration.

5) The samples were again analyzed by Standard Method 424G Automated Ascorbic Acid Reduction Method. There was no recovery on the spiked sample.

6) Samples were filtered through charcoal and all yellow coloring was removed. The samples were again analyzed showing no spike recovery.

With both digestion procedures an EPA check standard and a phosphorous standard were analyzed. The digestion did not affect their recovery thus indicating sample interference.

Joan L Binder

Joan L. Binder
Analyst
11/26/86

DR 004171

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120859
SAMPLE DESCRIPTION: LCH-1 DUP

DATE SAMPLED: 11/13/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	11.0	DEGREES C	
PH, FIELD ANALYSIS	6.30	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	2235.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
ACIDITY TO PH 8.3	315.	MG/L AS CACO3	386-15
ALKALINITY, TOTAL	172.	MG/L AS CACO3	405-97
AMMONIA, TOTAL	13.0	MG/L AS N	864-9
BOD5	368.	MG/L	391-80

DR 004172

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120859 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
CHLORIDE	530.	MG/L	639-251
COD	850.	MG/L	588-70
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
NITRATE/NITRITE	0.2	MG/L AS N	632-229
NITROGEN, KJELDAHL	34.	MG/L AS N	865-4
NITROGEN, ORGANIC	21.	MG/L AS N	865-4
OIL AND GREASE	16.	MG/L	588-74
ORTHOPHOSPHATE	ND(0.1)	MG/L AS P	636-203
PHENOLIC COMPOUNDS	1.08	MG/L	233-89
PHOSPHORUS, TOTAL	ND(0.2)	MG/L AS P	636-205
SOLIDS, DISSOLVED	1060.	MG/L	728-22
SOLIDS, SUSPENDED	610.	MG/L	728-22
SOLIDS, TOTAL	1840.	MG/L	728-22
SOLIDS, TOTAL SETTLEABLE	8.	ML/L	728-22
SOLIDS, TOTAL VOLATILE	320.	MG/L	728-22
SULFATE	15.	MG/L	635-216
SULFIDE	3.3	MG/L	845-2
SULFITE	2.	MG/L	845-1
TOTAL ORGANIC CARBON (SPARGED)	244.	MG/L	750-61
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(2500)	UG/L	790-71
2V. ACRYLONITRILE	ND(2500)	UG/L	790-71
3V. BENZENE	1600.	UG/L	790-71
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	790-71
5V. BROMOFORM	ND(200)	UG/L	790-71
6V. CARBON TETRACHLORIDE	ND(200)	UG/L	790-71
7V. CHLOROBENZENE	ND(200)	UG/L	790-71
8V. CHLORODIBROMOMETHANE	ND(200)	UG/L	790-71
9V. CHLOROETHANE	ND(200)	UG/L	790-71
10V. 2-CHLOROETHYLVINYL ETHER	ND(200)	UG/L	790-71
11V. CHLOROFORM	510.	UG/L	790-71
12V. DICHLOROBROMOMETHANE	ND(200)	UG/L	790-71
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	790-71
14V. 1,1-DICHLOROETHANE	250.	UG/L	790-71
15V. 1,2-DICHLOROETHANE	2600.	UG/L	790-71
16V. 1,1-DICHLOROETHENE	ND(200)	UG/L	790-71
17V. 1,2-DICHLOROPROPANE	ND(200)	UG/L	790-71
18V. 1,3-DICHLOROPROPYLENE	ND(200)	UG/L	790-71
19V. ETHYLBENZENE	1500.	UG/L	790-71
20V. METHYL BROMIDE	ND(200)	UG/L	790-71
21V. METHYL CHLORIDE	ND(200)	UG/L	790-71
22V. METHYLENE CHLORIDE	910.	UG/L	790-71

LAB NUMBER: 86120859 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
23V. 1,1,2,2-TETRACHLOROETHANE	4000.	UG/L	790-71
24V. TETRACHLOROETHENE	420.	UG/L	790-71
25V. TOLUENE	27000.	UG/L	790-71
26V. TRANS-1,2-DICHLOROETHENE	4800.	UG/L	790-71
27V. 1,1,1-TRICHLOROETHANE	720.	UG/L	790-71
28V. 1,1,2-TRICHLOROETHANE	ND(200)	UG/L	790-71
29V. TRICHLOROETHENE	1200.	UG/L	790-71
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	790-71
31V. VINYL CHLORIDE	430.	UG/L	790-71
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-97
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-97
3B. ANTHRACENE	ND(5.0)	UG/L	830-97
4B. BENZIDINE	ND(50)	UG/L	830-97
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-97
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-97
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-97
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-97
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-97
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-97
11B. BIS(2-CHLOROETHYL)ETHER	750.	UG/L	830-97
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-97
13B. BIS(2-ETHYLHEXYL)PHTHALATE	11.	UG/L	830-97
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-97
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-97
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
18B. CHRYSENE	ND(5.0)	UG/L	830-97
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-97
20B. 1,2-DICHLOROBENZENE	82.	UG/L	830-97
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
22B. 1,4-DICHLOROBENZENE	5.6	UG/L	830-97
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-97
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-97
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-97
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-97
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-97
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-97
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-97
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-97
31B. FLUORANTHENE	ND(5.0)	UG/L	830-97
32B. FLUORENE	ND(5.0)	UG/L	830-97

LAB NUMBER: 86120859 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-97
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-97
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-97
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-97
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-97
38B. ISOPHORONE	220.	UG/L	830-97
39B. NAPHTHALENE	36.	UG/L	830-97
40B. NITROBENZENE	ND(5.0)	UG/L	830-97
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-97
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-97
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-97
44B. PHENANTHRENE	ND(5.0)	UG/L	830-97
45B. PYRENE	ND(5.0)	UG/L	830-97
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-97
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-25
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-25
3A. 2,4-DIMETHYLPHENOL	32.	UG/L	832-25
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-25
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-25
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-25
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-25
8A. P-CHLORO-M-CRESOL	5.6	UG/L	832-25
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-25
10A. PHENOL	690.	UG/L	832-25
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-25
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	105.	% REC. @ 30 UG/L	
BENZENE-D6	93.8	% REC. @ 30 UG/L	
ETHYLBENZENE-D10	101.	% REC. @ 30 UG/L	
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	61.0	% REC. @ 100 UG/L	832-25
PHENOL-D6	34.0	% REC. @ 100 UG/L	832-25
2,4,6-TRIBROMOPHENOL	60.2	% REC. @ 100 UG/L	832-25
PENTAFLUOROPHENOL	118.	% REC. @ 100 UG/L	832-25
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	2.4	% REC. @ 100 UG/L	830-98
2-FLUOROBIPHENYL	75.8	% REC. @ 100 UG/L	830-98
TERPHENYL-D14	50.8	% REC. @ 100 UG/L	830-98
DI-N-OCTYLPHALATE-D4	24.8	% REC. @ 100 UG/L	830-98
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE NARRATIVE		786-76

LAB NUMBER: 86120859 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
HAZARDOUS SUBSTANCE LIST METALS			
ALUMINUM, TOTAL	21.1	MG/L	890-120
ANTIMONY, TOTAL	ND(0.06)	MG/L	890-120
ARSENIC, TOTAL	0.18	MG/L	890-120
BARIUM, TOTAL	0.3	MG/L	890-120
BERYLLIUM, TOTAL	ND(0.005)	MG/L	890-120
CADMIUM, TOTAL	0.043	MG/L	890-120
CALCIUM, TOTAL	85.	MG/L	890-120
CHROMIUM, TOTAL	0.12	MG/L	890-120
COBALT, TOTAL	0.10	MG/L	890-120
COPPER, TOTAL	0.03	MG/L	890-120
IRON, TOTAL	580.	MG/L	890-120
LEAD, TOTAL	0.033	MG/L	890-120
MAGNESIUM, TOTAL	37.	MG/L	890-120
MANGANESE, TOTAL	2.61	MG/L	890-120
MERCURY, TOTAL	ND(0.0002)	MG/L	890-120
NICKEL, TOTAL	0.12	MG/L	890-120
POTASSIUM, TOTAL	15.	MG/L	890-120
SELENIUM, TOTAL	ND(0.005)	MG/L	890-120
SILVER, TOTAL	ND(0.01)	MG/L	890-120
SODIUM, TOTAL	207.	MG/L	890-120
THALLIUM, TOTAL	ND(0.01)	MG/L	890-120
TIN, TOTAL	ND(0.04)	MG/L	890-120
VANADIUM, TOTAL	0.17	MG/L	890-120
ZINC, TOTAL	0.64	MG/L	890-120
SILICA, TOTAL	18.	MG/L	890-120

—CONCLUSION—LAB NUMBER: 86120859 LCH-1 DUP

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120862
SAMPLE DESCRIPTION: TRIP BLANK #2

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-11
2V. ACRYLONITRILE	ND(25)	UG/L	791-11
3V. BENZENE	ND(5.0)	UG/L	791-11
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-11
5V. BROMOFORM	ND(5.0)	UG/L	791-11
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-11
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-11
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-11
9V. CHLOROETHANE	ND(5.0)	UG/L	791-11
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-11
11V. CHLOROFORM	ND(5.0)	UG/L	791-11
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-11
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-11
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-11
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-11
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-11
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-11
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-11
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-11
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-11
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-11
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-11
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-11
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-11
25V. TOLUENE	ND(5.0)	UG/L	791-11
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-11
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-11
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-11
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-11
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-11
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-11

DR 004177

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120862 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
—CONCLUSION—LAB NUMBER: 86120862	TRIP BLANK #2		

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/14/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120860 DATE SAMPLED: 11/13/86
SAMPLE DESCRIPTION: LCH-1 DUPLICATE

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
ACIDITY TO PH 8.3	310.	MG/L AS CACO3	386-15
ALKALINITY, TOTAL	180.	MG/L AS CACO3	405-97
AMMONIA, TOTAL	12.4	MG/L AS N	864-9
BOD5	325.	MG/L	391-80
CHLORIDE	490.	MG/L	639-251
COD	770.	MG/L	588-70
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17

LAB NUMBER: 86120860 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
NITRATE/NITRITE	0.3	MG/L AS N	632-229
NITROGEN, KJELDAHL	30.	MG/L AS N	865-4
NITROGEN, ORGANIC	18.	MG/L AS N	865-4
OIL AND GREASE	17.	MG/L	588-74
ORTHOPHOSPHATE	ND(0.1)	MG/L AS P	636-203
PHENOLIC COMPOUNDS	1.16	MG/L	233-89
PHOSPHORUS, TOTAL	ND(0.2)	MG/L AS P	636-205
SOLIDS, DISSOLVED	1620.	MG/L	728-22
SOLIDS, SUSPENDED	670.	MG/L	728-22
SOLIDS, TOTAL	2210.	MG/L	728-22
SOLIDS, TOTAL SETTLEABLE	7.	ML/L	728-22
SOLIDS, TOTAL VOLATILE	440.	MG/L	728-22
SULFATE	16.	MG/L	635-216
SULFIDE	3.7	MG/L	845-2
SULFITE	3.	MG/L	845-1
TOTAL ORGANIC CARBON (SPARGED)	206.	MG/L	750-61
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(2500)	UG/L	790-71
2V. ACRYLONITRILE	ND(2500)	UG/L	790-71
3V. BENZENE	1700.	UG/L	790-71
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	790-71
5V. BROMOFORM	ND(200)	UG/L	790-71
6V. CARBON TETRACHLORIDE	ND(200)	UG/L	790-71
7V. CHLOROBENZENE	ND(200)	UG/L	790-71
8V. CHLORODIBROMOMETHANE	ND(200)	UG/L	790-71
9V. CHLOROETHANE	ND(200)	UG/L	790-71
10V. 2-CHLOROETHYLVINYL ETHER	ND(200)	UG/L	790-71
11V. CHLOROFORM	540.	UG/L	790-71
12V. DICHLOROBROMOMETHANE	ND(200)	UG/L	790-71
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	790-71
14V. 1,1-DICHLOROETHANE	240.	UG/L	790-71
15V. 1,2-DICHLOROETHANE	3000.	UG/L	790-71
16V. 1,1-DICHLOROETHENE	ND(200)	UG/L	790-71
17V. 1,2-DICHLOROPROPANE	ND(200)	UG/L	790-71
18V. 1,3-DICHLOROPROPYLENE	ND(200)	UG/L	790-71
19V. ETHYLBENZENE	1400.	UG/L	790-71
20V. METHYL BROMIDE	ND(200)	UG/L	790-71
21V. METHYL CHLORIDE	ND(200)	UG/L	790-71
22V. METHYLENE CHLORIDE	940.	UG/L	790-71
23V. 1,1,2,2-TETRACHLOROETHANE	4400.	UG/L	790-71
24V. TETRACHLOROETHENE	380.	UG/L	790-71
25V. TOLUENE	26000.	UG/L	790-71

LAB NUMBER: 86120860 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
26V. TRANS-1,2-DICHLOROETHENE	4700.	UG/L	790-71
27V. 1,1,1-TRICHLOROETHANE	720.	UG/L	790-71
28V. 1,1,2-TRICHLOROETHANE	ND(200)	UG/L	790-71
29V. TRICHLOROETHENE	1300.	UG/L	790-71
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	790-71
31V. VINYL CHLORIDE	450.	UG/L	790-71
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	832-99
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	832-99
3B. ANTHRACENE	ND(5.0)	UG/L	832-99
4B. BENZIDINE	ND(50)	UG/L	832-99
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	832-99
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	832-99
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	832-99
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	832-99
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	832-99
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	832-99
11B. BIS(2-CHLOROETHYL)ETHER	610.	UG/L	832-99
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	832-99
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	832-99
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	832-99
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	832-99
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	832-99
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	832-99
18B. CHRYSENE	ND(5.0)	UG/L	832-99
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	832-99
20B. 1,2-DICHLOROBENZENE	64.	UG/L	832-99
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	832-99
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	832-99
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	832-99
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	832-99
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	832-99
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	832-99
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	832-99
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	832-99
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	832-99
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	832-99
31B. FLUORANTHENE	ND(5.0)	UG/L	832-99
32B. FLUORENE	ND(5.0)	UG/L	832-99
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	832-99
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	832-99
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	832-99

NARRATIVE

Wilson Laboratories Sample ID : 86120860
URS ID : LCH-1 DUPLICATE

EXTRACTABLE SURVEY SEARCH

Below are the compounds identified by GC/MS NBS Library. The analysis indicated that other compounds may be present but NBS Library survey search results have shown matches with "FITS" less than 850 which makes positive identification impossible. Concentration of compounds identified by the NBS Library were calculated based on the response of the internal standard 1,4-dichlorobenzene - d4.

Scan Number	Compound	Concentration (ug/l)
222 & 259	xylene (total)	1500.
464	dimethylpyridine	280.
492	unknown	460.
518	trimethylcyclohexanol	180.
545	unknown	84.
566	cresol	220.
783	1,2-bis(2-chloroethoxy)ethane	640.

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

A M E N D E D LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/17/86
DATE RCVD: 11/14/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120861 DATE SAMPLED: 11/13/86
SAMPLE DESCRIPTION: LCH-1 DUP SPIKE

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	NOT SPIKED		870-25
2P. A-BHC	NOT SPIKED		870-25
3P. B-BHC	NOT SPIKED		870-25
4P. G-BHC	179% REC. @ 1 UG/L		870-25
5P. D-BHC	NOT SPIKED		870-25
6P. CHLORDANE	NOT SPIKED		870-25
7P. 4,4'-DDT	NOT SPIKED		870-25
8P. 4,4'-DDE	NOT SPIKED		870-25
9P. 4,4'-DDD	NOT SPIKED		870-25
10P. DIELDRIN	NOT SPIKED		870-25
11P. A-ENDOSULFAN	NOT SPIKED		870-25
12P. B-ENDOSULFAN	NOT SPIKED		870-25
13P. ENDOSULFAN SULFATE	NOT SPIKED		870-25
14P. ENDRIN	75% REC. @ 1 UG/L		870-25
15P. ENDRIN ALDEHYDE	NOT SPIKED		870-25
16P. HEPTACHLOR	NOT SPIKED		870-25
17P. HEPTACHLOR EPOXIDE	73% REC. @ 1 UG/L		870-25
18P. PCB-1242	NOT SPIKED		870-25
19P. PCB-1254	NOT SPIKED		870-25
20P. PCB-1221	NOT SPIKED		870-25
21P. PCB-1232	NOT SPIKED		870-25
22P. PCB-1248	NOT SPIKED		870-25
23P. PCB-1260	NOT SPIKED		870-25
24P. PCB-1016	NOT SPIKED		870-25
25P. TOXAPHENE	NOT SPIKED		870-25
26P. KEPONE	NOT SPIKED		870-25
27P. METHOXYCHLOR	82% REC. @ 1 UG/L		870-25
AMMONIA, TOTAL	110.	%	864-9
CHLORIDE	89.	%	639-251
COD	90.	%	588-70
CYANIDE, TOTAL	61.	%	842-17
NITRATE/NITRITE	110.	%	632-229
NITROGEN, KJELDAHL	112.	%	865-4
OIL AND GREASE	53.	%	588-74

DR 004183

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120861 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ORTHOPHOSPHATE	80.	%	636-203
PHENOLIC COMPOUNDS	91	%	233-89
PHOSPHORUS, TOTAL	0.	%	636-205
SULFATE	93.	%	635-216
SULFIDE	114.	%	845-2
SULFITE	100.	%	845-1
TOTAL ORGANIC CARBON (SPARGED)	94.	%	750-61
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	84.6	% REC. @ 20000 UG/L	790-71
2V. ACRYLONITRILE	36.6	% REC. @ 20000 UG/L	790-71
3V. BENZENE	99.5	% REC. @ 20000 UG/L	790-71
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	% REC. @ 20000 UG/L	790-71
5V. BROMOFORM	130.	% REC. @ 20000 UG/L	790-71
6V. CARBON TETRACHLORIDE	124.	% REC. @ 20000 UG/L	790-71
7V. CHLOROBENZENE	154.	% REC. @ 20000 UG/L	790-71
8V. CHLORODIBROMOMETHANE	116.	% REC. @ 20000 UG/L	790-71
9V. CHLOROETHANE	117.	% REC. @ 20000 UG/L	790-71
10V. 2-CHLOROETHYLVINYL ETHER	65.1	% REC. @ 20000 UG/L	790-71
11V. CHLOROFORM	116.	% REC. @ 20000 UG/L	790-71
12V. DICHLOROBROMOMETHANE	105.	% REC. @ 20000 UG/L	790-71
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	% REC. @ 20000 UG/L	790-71
14V. 1,1-DICHLOROETHANE	124.	% REC. @ 20000 UG/L	790-71
15V. 1,2-DICHLOROETHANE	103.	% REC. @ 20000 UG/L	790-71
16V. 1,1-DICHLOROETHENE	128.	% REC. @ 20000 UG/L	790-71
17V. 1,2-DICHLOROPROPANE	98.0	% REC. @ 20000 UG/L	790-71
18V. 1,3-DICHLOROPROPYLENE	141.	% REC. @ 20000 UG/L	790-71
19V. ETHYLBENZENE	140.	% REC. @ 20000 UG/L	790-71
20V. METHYL BROMIDE	123.	% REC. @ 20000 UG/L	790-71
21V. METHYL CHLORIDE	113.	% REC. @ 20000 UG/L	790-71
22V. METHYLENE CHLORIDE	89.0	% REC. @ 20000 UG/L	790-71
23V. 1,1,2,2-TETRACHLOROETHANE	122.	% REC. @ 20000 UG/L	790-71
24V. TETRACHLOROETHENE	135.	% REC. @ 20000 UG/L	790-71
25V. TOLUENE	130.	% REC. @ 20000 UG/L	790-71
26V. TRANS-1,2-DICHLOROETHENE	118.	% REC. @ 20000 UG/L	790-71
27V. 1,1,1-TRICHLOROETHANE	101.	% REC. @ 20000 UG/L	790-71
28V. 1,1,2-TRICHLOROETHANE	112.	% REC. @ 20000 UG/L	790-71
29V. TRICHLOROETHENE	110.	% REC. @ 20000 UG/L	790-71
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	% REC. @ 20000 UG/L	790-71
31V. VINYL CHLORIDE	125.	% REC. @ 20000 UG/L	790-71
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	71.2	% REC. @ 50 UG/L	830-99
2B. ACENAPHTHYLENE	80.0	% REC. @ 50 UG/L	830-99

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120861 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
3B. ANTHRACENE	83.2	% REC. @ 50 UG/L	830-99
4B. BENZIDINE	4.0	% REC. @ 50 UG/L	830-99
5B. BENZO(A)ANTHRACENE	79.6	% REC. @ 50 UG/L	830-99
6B. BENZO(A)PYRENE	84.4	% REC. @ 50 UG/L	830-99
7B. BENZO(B)FLUORANTHENE	75.6 ++	% REC. @ 50 UG/L	830-99
8B. BENZO(GHI)PERYLENE	63.2	% REC. @ 50 UG/L	830-99
9B. BENZO(K)FLUORANTHENE	++	% REC. @ 50 UG/L	830-99
10B. BIS(2-CHLOROETHOXY)METHANE	85.6	% REC. @ 50 UG/L	830-99
11B. BIS(2-CHLOROETHYL)ETHER	48.0	% REC. @ 50 UG/L	830-99
12B. BIS(2-CHLOROISOPROPYL)ETHER	147.	% REC. @ 50 UG/L	830-99
13B. BIS(2-ETHYLHEXYL)PHTHALATE	81.2	% REC. @ 50 UG/L	830-99
14B. 4-BROMOPHENYL PHENYL ETHER	80.0	% REC. @ 50 UG/L	830-99
15B. BUTYL BENZYL PHTHALATE	86.8	% REC. @ 50 UG/L	830-99
16B. 2-CHLORONAPHTHALENE	71.6	% REC. @ 50 UG/L	830-99
17B. 4-CHLOROPHENYL PHENYL ETHER	73.6	% REC. @ 50 UG/L	830-99
18B. CHRYSENE	79.2	% REC. @ 50 UG/L	830-99
19B. DIBENZO(A,H)ANTHRACENE	75.6	% REC. @ 50 UG/L	830-99
20B. 1,2-DICHLOROBENZENE	88.4	% REC. @ 50 UG/L	830-99
21B. 1,3-DICHLOROBENZENE	50.0	% REC. @ 50 UG/L	830-99
22B. 1,4-DICHLOROBENZENE	58.0	% REC. @ 50 UG/L	830-99
23B. 3,3-DICHLOROBENZIDINE	7.6	% REC. @ 50 UG/L	830-99
24B. DIETHYLPHTHALATE	66.0	% REC. @ 50 UG/L	830-99
25B. DIMETHYLPHTHALATE	44.4	% REC. @ 50 UG/L	830-99
26B. DI-N-BUTYLPHTHALATE	101.	% REC. @ 50 UG/L	830-99
27B. 2,4-DINITROTOLUENE	6.8	% REC. @ 50 UG/L	830-99
28B. 2,6-DINITROTOLUENE	32.2	% REC. @ 50 UG/L	830-99
29B. DI-N-OCTYLPHTHALATE	68.0	% REC. @ 50 UG/L	830-99
30B. 1,2-DIPHENYLHYDRAZINE	65.2	% REC. @ 50 UG/L	830-99
31B. FLUORANTHENE	111.	% REC. @ 50 UG/L	830-99
32B. FLUORENE	73.6	% REC. @ 50 UG/L	830-99
33B. HEXACHLOROBENZENE	68.0	% REC. @ 50 UG/L	830-99
34B. HEXACHLOROBUTADIENE	59.6	% REC. @ 50 UG/L	830-99
35B. HEXACHLOROCYCLOPENTADIENE	34.0	% REC. @ 50 UG/L	830-99
36B. HEXACHLOROETHANE	47.6	% REC. @ 50 UG/L	830-99
37B. INDENO(1,2,3-CD)PYRENE	92.0	% REC. @ 50 UG/L	830-99
38B. ISOPHORONE	72.3	% REC. @ 50 UG/L	830-99
39B. NAPHTHALENE	62.5	% REC. @ 50 UG/L	830-99
40B. NITROBENZENE	104.	% REC. @ 50 UG/L	830-99
41B. N-NITROSODIMETHYLAMINE	20.4	% REC. @ 50 UG/L	830-99
42B. N-NITROSODI-N-PROPYLAMINE	76.0	% REC. @ 50 UG/L	830-99
43B. N-NITROSODIPHENYLAMINE	75.6	% REC. @ 50 UG/L	830-99
44B. PHENANTHRENE	83.2	% REC. @ 50 UG/L	830-99

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120861 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
45B. PYRENE	79.6	% REC. @ 50 UG/L	830-99
46B. 1,2,4-TRICHLOROBENZENE	64.8	% REC. @ 50 UG/L	830-99
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	94.8	% REC. @ 100 UG/L	832-26
2A. 2,4-DICHLOROPHENOL	103.	% REC. @ 100 UG/L	832-26
3A. 2,4-DIMETHYLPHENOL	119.	% REC. @ 100 UG/L	832-26
4A. 4,6-DINITRO-O-CRESOL	63.8	% REC. @ 100 UG/L	832-26
5A. 2,4-DINITROPHENOL	26.0	% REC. @ 100 UG/L	832-26
6A. 2-NITROPHENOL	35.6	% REC. @ 100 UG/L	832-26
7A. 4-NITROPHENOL	83.0	% REC. @ 100 UG/L	832-26
8A. P-CHLORO-M-CRESOL	106.	% REC. @ 100 UG/L	832-26
9A. PENTACHLOROPHENOL	145.	% REC. @ 100 UG/L	832-26
10A. PHENOL	98.0	% REC. @ 100 UG/L	832-26
11A. 2,4,6-TRICHLOROPHENOL	111.	% REC. @ 100 UG/L	832-26
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	129.	% REC. @ 30 UG/L	790-72
BENZENE-D6	98.0	% REC. @ 30 UG/L	790-72
ETHYLBENZENE-D10	112.	% REC. @ 30 UG/L	790-72
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	76.8	% REC. @ 100 UG/L	832-26
PHENOL-D6	43.0	% REC. @ 100 UG/L	832-26
2,4,6-TRIBROMOPHENOL	69.8	% REC. @ 100 UG/L	832-26
PENTAFLUOROPHENOL	100.	% REC. @ 100 UG/L	832-26
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	3.7	% REC. @ 100 UG/L	830-100
2-FLUOROBIPHENYL	79.2	% REC. @ 100 UG/L	830-100
TERPHENYL-D14	51.8	% REC. @ 100 UG/L	830-100
DI-N-OCTYLPHALATE-D4	28.2	% REC. @ 100 UG/L	830-100
ALUMINUM, TOTAL	NA	%	871-265
ANTIMONY, TOTAL	46.	%	871-278
ARSENIC, TOTAL	100.	%	890-105
BARIUM, TOTAL	85.	%	871-265
BERYLLIUM, TOTAL	96.	%	871-264
CADMIUM, TOTAL	62.	%	871-262
CALCIUM, TOTAL	95.	%	871-264
CHROMIUM, TOTAL	80.	%	890-90
COBALT, TOTAL	88.	%	871-262
COPPER, TOTAL	92.	%	871-264
IRON, TOTAL	NA		890-39
LEAD, TOTAL	116.	%	890-111
MAGNESIUM, TOTAL	123.	%	871-309
MANGANESE, TOTAL	NA	%	890-60

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120861 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
MERCURY, TOTAL	85.	%	871-228
NICKEL, TOTAL	95.	%	871-265
POTASSIUM, TOTAL	103.	%	890-60
SELENIUM, TOTAL	92.	%	890-115
SILICA, TOTAL	80.	%	890-87
SILVER, TOTAL	100.	%	884-122
SODIUM, TOTAL	95.	%	871-264
THALLIUM, TOTAL	100.	%	890-113
TIN, TOTAL	76.	%	871-258
VANADIUM, TOTAL	90.	%	871-263
ZINC, TOTAL	85.	%	871-262

COMMENTS: ++ISOMERS COELUTED. VALUE SHOWN IS SUM OF BOTH ISO
NA-SPIKE INSIGNIFICANT DUE TO SAMPLE CONCENTRATION

—CONCLUSION—LAB NUMBER: 86120861 LCH-1 DUP SPIKE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/14/86
PURCHASE AUTH:
FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120866
SAMPLE DESCRIPTION: LAB BLANK

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
ACIDITY TO PH 8.3	ND(5)	MG/L AS CACO3	386-15
ALKALINITY, TOTAL	ND(2)	MG/L AS CACO3	405-97
AMMONIA, TOTAL	ND(0.1)	MG/L AS N	864-9
BOD5	ND(5)	MG/L	391-80
CHLORIDE	ND(2)	MG/L	639-251
COD	ND(25)	MG/L	588-70
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17

DR 004188

LAB NUMBER: 86120866 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
NITRATE/NITRITE	ND(0.1)	MG/L AS N	632-229
NITROGEN, KJELDAHL	ND(1)	MG/L AS N	865-4
NITROGEN, ORGANIC	ND(1)	MG/L AS N	865-4
OIL AND GREASE	ND(1)	MG/L	588-74
ORTHOPHOSPHATE	ND(0.1)	MG/L AS P	636-203
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
PHOSPHORUS, TOTAL	ND(0.2)	MG/L AS P	636-205
SOLIDS, DISSOLVED	ND(1)	MG/L	728-22
SOLIDS, SUSPENDED	ND(1)	MG/L	728-22
SOLIDS, TOTAL	ND(1)	MG/L	728-22
SOLIDS, TOTAL SETTLEABLE	ND(1)	ML/L	728-22
SOLIDS, TOTAL VOLATILE	ND(1)	MG/L	728-22
SULFATE	ND(10)	MG/L	635-216
SULFIDE	ND(0.1)	MG/L	845-2
SULFITE	ND(1)	MG/L	845-1
TOTAL ORGANIC CARBON (SPARGED)	ND(1)	MG/L	750-61
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-23
2V. ACRYLONITRILE	ND(25)	UG/L	791-23
3V. BENZENE	ND(5.0)	UG/L	791-23
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-23
5V. BROMOFORM	ND(5.0)	UG/L	791-23
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-23
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-23
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-23
9V. CHLOROETHANE	ND(5.0)	UG/L	791-23
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-23
11V. CHLOROFORM	ND(5.0)	UG/L	791-23
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-23
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-23
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-23
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-23
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-23
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-23
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-23
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-23
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-23
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-23
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-23
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-23
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-23
25V. TOLUENE	ND(5.0)	UG/L	791-23

LAB NUMBER: 86120866 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-23
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-23
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-23
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-23
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-23
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-23
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-95
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-95
3B. ANTHRACENE	ND(5.0)	UG/L	830-95
4B. BENZIDINE	ND(50)	UG/L	830-95
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-95
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-95
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-95
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-95
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-95
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-95
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-95
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-95
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-95
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-95
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-95
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
18B. CHRYSENE	ND(5.0)	UG/L	830-95
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-95
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-95
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-95
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-95
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-95
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-95
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-95
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-95
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-95
31B. FLUORANTHENE	ND(5.0)	UG/L	830-95
32B. FLUORENE	ND(5.0)	UG/L	830-95
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-95
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-95
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-95

CLIENT: URS COMPANY, INC.

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LAB NUMBER: 86120866 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-95
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-95
38B. ISOPHORONE	ND(5.0)	UG/L	830-95
39B. NAPHTHALENE	ND(5.0)	UG/L	830-95
40B. NITROBENZENE	ND(5.0)	UG/L	830-95
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-95
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-95
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-95
44B. PHENANTHRENE	ND(5.0)	UG/L	830-95
45B. PYRENE	ND(5.0)	UG/L	830-95
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-95
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-24
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-24
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-24
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-24
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-24
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-24
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-24
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-24
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-24
10A. PHENOL	ND(5.0)	UG/L	832-24
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-24
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	99.6	% REC. @ 30 UG/L	791-24
BENZENE-D6	115.	% REC. @ 30 UG/L	791-24
ETHYLBENZENE-D10	84.	% REC. @ 30 UG/L	791-24
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	59.2	% REC @ 100 UG/L	832-24
PHENOL-D6	31.2	% REC @ 100 UG/L	832-24
2,4,6-TRIBROMOPHENOL	37.8	% REC @ 100 UG/L	832-24
PENTAFLUOROPHENOL	56.8	% REC @ 100 UG/L	832-24
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	60.3	% REC. @ 100 UG/L	830-96
2-FLUOROBIPHENYL	56.8	% REC. @ 100 UG/L	830-96
TERPHENYL-D14	59.0	% REC. @ 100 UG/L	830-96
DI-N-OCTYLPHALATE-D4	25.4	% REC. @ 100 UG/L	830-96
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
HAZARDOUS SUBSTANCE LIST METALS			
ALUMINUM, TOTAL	ND(0.2)	MG/L	890-122
ANTIMONY, TOTAL	ND(0.06)	MG/L	890-122

LAB NUMBER: 86120860 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	832-99
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	832-99
38B. ISOPHORONE	180.	UG/L	832-99
39B. NAPHTHALENE	30.	UG/L	832-99
40B. NITROBENZENE	ND(5.0)	UG/L	832-99
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	832-99
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	832-99
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	832-99
44B. PHENANTHRENE	ND(5.0)	UG/L	832-99
45B. PYRENE	ND(5.0)	UG/L	832-99
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	832-99
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-26
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-26
3A. 2,4-DIMETHYLPHENOL	25.	UG/L	832-26
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-26
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-26
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-26
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-26
8A. P-CHLORO-M-CRESOL	12.	UG/L	832-26
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-26
10A. PHENOL	550.	UG/L	832-26
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-26
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	104.	@ REC. @ 30 UG/L	790-72
BENZENE-D6	82.5	@ REC. @ 30 UG/L	790-72
ETHYLBENZENE-D10	101.	@ REC. @ 30 UG/L	790-72
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	60.8	% REC. @ 100 UG/L	832-26
PHENOL-D6	31.2	% REC. @ 100 UG/L	832-26
2,4,6-TRIBROMOPHENOL	56.2	% REC. @ 100 UG/L	832-26
PENTAFLUOROPHENOL	111.	% REC. @ 100 UG/L	832-26
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	0.7	% REC. @ 50 UG/L	830-99
2-FLUOROBIPHENYL	58.6	% REC. @ 50 UG/L	830-99
TERPHENYL-D14	42.2	% REC. @ 50 UG/L	830-99
DI-N-OCTYLPHALATE-D4	19.8	% REC. @ 50 UG/L	830-99
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE NARRATIVE		786-76
HAZARDOUS SUBSTANCE LIST METALS			
ALUMINUM, TOTAL	22.7	MG/L	890-121
ANTIMONY, TOTAL	ND(0.06)	MG/L	890-121

CLIENT: URS COMPANY, INC.

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LAB NUMBER: 86120860 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ARSENIC, TOTAL	0.15	MG/L	890-121
BARIUM, TOTAL	0.3	MG/L	890-121
BERYLLIUM, TOTAL	ND(0.005)	MG/L	890-121
CADMIUM, TOTAL	0.041	MG/L	890-121
CALCIUM, TOTAL	82.	MG/L	890-121
CHROMIUM, TOTAL	0.12	MG/L	890-121
COBALT, TOTAL	0.10	MG/L	890-121
COPPER, TOTAL	0.03	MG/L	890-121
IRON, TOTAL	611.	MG/L	890-121
LEAD, TOTAL	0.035	MG/L	890-121
MAGNESIUM, TOTAL	36.	MG/L	890-121
MANGANESE, TOTAL	2.50	MG/L	890-121
MERCURY, TOTAL	ND(0.0002)	MG/L	890-121
NICKEL, TOTAL	0.11	MG/L	890-121
POTASSIUM, TOTAL	16.	MG/L	890-121
SELENIUM, TOTAL	ND(0.005)	MG/L	890-121
SILVER, TOTAL	ND(0.01)	MG/L	890-121
SODIUM, TOTAL	196.	MG/L	890-121
THALLIUM, TOTAL	ND(0.01)	MG/L	890-121
TIN, TOTAL	ND(0.04)	MG/L	890-121
VANADIUM, TOTAL	0.17	MG/L	890-121
ZINC, TOTAL	0.72	MG/L	890-121
SILICA, TOTAL	19.	MG/L	890-121

—CONCLUSION—LAB NUMBER: 86120860 LCH-1 DUPLICATE

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120838
SAMPLE DESCRIPTION: RW-B

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	15.	DEGREES C	
PH, FIELD ANALYSIS	4.64	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	220.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-13

DR 004195

LAB NUMBER: 86120838 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-13
3V. BENZENE	ND(5.0)	UG/L	791-13
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-13
5V. BROMOFORM	ND(5.0)	UG/L	791-13
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-13
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-13
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-13
9V. CHLOROETHANE	ND(5.0)	UG/L	791-13
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-13
11V. CHLOROFORM	ND(5.0)	UG/L	791-13
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-13
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-13
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-13
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-13
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-13
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-13
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-13
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-13
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-13
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-13
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-13
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-13
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-13
25V. TOLUENE	ND(5.0)	UG/L	791-13
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-13
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-13
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-13
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-13
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-95
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-95
3B. ANTHRACENE	ND(5.0)	UG/L	830-95
4B. BENZIDINE	ND(50)	UG/L	830-95
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-95
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-95
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-95
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-95
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-95
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-95
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-95

LAB NUMBER: 86120838 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-95
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-95
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-95
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-95
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
18B. CHRYSENE	ND(5.0)	UG/L	830-95
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-95
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-95
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-95
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-95
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-95
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-95
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-95
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-95
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-95
31B. FLUORANTHENE	ND(5.0)	UG/L	830-95
32B. FLUORENE	ND(5.0)	UG/L	830-95
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-95
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-95
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-95
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-95
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-95
38B. ISOPHORONE	ND(5.0)	UG/L	830-95
39B. NAPHTHALENE	ND(5.0)	UG/L	830-95
40B. NITROBENZENE	ND(5.0)	UG/L	830-95
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-95
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-95
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-95
44B. PHENANTHRENE	ND(5.0)	UG/L	830-95
45B. PYRENE	ND(5.0)	UG/L	830-95
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-95
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-24
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-24
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-24
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-24
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-24
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-24

LAB NUMBER: 86120838 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-24
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-24
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-24
10A. PHENOL	ND(5.0)	UG/L	832-24
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-24
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	87.9	% REC. @ 30 UG/L	791-14
BENZENE-D6	96.2	% REC. @ 30 UG/L	791-14
ETHYLBENZENE-D10	98.0	% REC. @ 30 UG/L	791-14
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	24.4	% REC. @ 100 UG/L	832-24
PHENOL-D6	15.8	% REC. @ 100 UG/L	832-24
2,4,6-TRIBROMOPHENOL	28.8	% REC. @ 100 UG/L	832-24
PENTAFLUOROPHENOL	70.0	% REC. @ 100 UG/L	832-24
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	95.6	% REC. @ 100 UG/L	830-96
2-FLUOROBIPHENYL	72.6	% REC. @ 100 UG/L	830-96
TERPHENYL-D14	75.6	% REC. @ 100 UG/L	830-96
DI-N-OCTYLPHALATE-D4	36.0	% REC. @ 100 UG/L	830-96
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	0.6	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	871-255
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	19.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	0.02	MG/L	871-264
IRON, TOTAL	ND(0.1)	MG/L	871-263
LEAD, TOTAL	0.007	MG/L	884-325
MAGNESIUM, TOTAL	7.	MG/L	871-263
MANGANESE, TOTAL	0.13	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	7.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	871-252
SILVER, TOTAL	ND(0.01)	MG/L	890-47
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	884-321

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120838 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.11	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120838 RW-B

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120844 DATE SAMPLED: 11/14/86
SAMPLE DESCRIPTION: RW-B DISSOLVED

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	0.7	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	884-97
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	19.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	0.03	MG/L	871-264
IRON, TOTAL	0.2	MG/L	871-263
LEAD, TOTAL	0.009	MG/L	884-94
MAGNESIUM, TOTAL	7.	MG/L	871-263
MANGANESE, TOTAL	0.13	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-228
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	7.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	884-99
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.17	MG/L	871-262

—CONCLUSION—LAB NUMBER: 86120844 RW-B DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120835
SAMPLE DESCRIPTION: RW-F

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	15.0	DEGREES C	
PH, FIELD ANALYSIS	7.14	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	170.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-11

DR 004202

LAB NUMBER: 86120835 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-11
3V. BENZENE	ND(5.0)	UG/L	791-11
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-11
5V. BROMOFORM	ND(5.0)	UG/L	791-11
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-11
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-11
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-11
9V. CHLOROETHANE	ND(5.0)	UG/L	791-11
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-11
11V. CHLOROFORM	ND(5.0)	UG/L	791-11
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-11
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-11
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-11
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-11
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-11
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-11
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-11
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-11
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-11
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-11
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-11
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-11
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-11
25V. TOLUENE	ND(5.0)	UG/L	791-11
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-11
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-11
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-11
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-11
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-11
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-11
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-95
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-95
3B. ANTHRACENE	ND(5.0)	UG/L	830-95
4B. BENZIDINE	ND(50)	UG/L	830-95
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-95
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-95
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-95
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-95
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-95
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-95
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-95

LAB NUMBER: 86120835 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-95
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-95
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-95
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-95
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
18B. CHRYSENE	ND(5.0)	UG/L	830-95
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-95
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-95
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-95
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-95
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-95
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-95
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-95
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-95
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-95
31B. FLUORANTHENE	ND(5.0)	UG/L	830-95
32B. FLUORENE	ND(5.0)	UG/L	830-95
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-95
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-95
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-95
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-95
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-95
38B. ISOPHORONE	ND(5.0)	UG/L	830-95
39B. NAPHTHALENE	ND(5.0)	UG/L	830-95
40B. NITROBENZENE	ND(5.0)	UG/L	830-95
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-95
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-95
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-95
44B. PHENANTHRENE	ND(5.0)	UG/L	830-95
45B. PYRENE	ND(5.0)	UG/L	830-95
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-95
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-24
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-24
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-24
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-24
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-24
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-24

LAB NUMBER: 86120835 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-24
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-24
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-24
10A. PHENOL	ND(5.0)	UG/L	832-24
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-24
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	88.9	% REC. @ 30 UG/L	791-12
BENZENE-D6	95.2	% REC. @ 30 UG/L	791-12
ETHYLBENZENE-D10	101.	% REC. @ 30 UG/L	791-12
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	66.2	% REC. @ 100 UG/L	832-24
PHENOL-D6	35.2	% REC. @ 100 UG/L	832-24
2,4,6-TRIBROMOPHENOL	47.2	% REC. @ 100 UG/L	832-24
PENTAFLUOROPHENOL	36.6	% REC. @ 100 UG/L	832-24
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	66.8	% REC. @ 100 UG/L	830-96
2-FLUOROBIPHENYL	60.0	% REC. @ 100 UG/L	830-96
TERPHENYL-D14	70.7	% REC. @ 100 UG/L	830-96
DI-N-OCTYLPHALATE-D4	30.8	% REC. @ 100 UG/L	830-96
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	871-254
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	27.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	0.02	MG/L	871-264
IRON, TOTAL	0.6	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-324
MAGNESIUM, TOTAL	ND(2)	MG/L	871-263
MANGANESE, TOTAL	0.03	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	3.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	871-251
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120835 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.02	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120835 RW-F

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

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WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120841 DATE SAMPLED: 11/14/86
SAMPLE DESCRIPTION: RW-F DISSOLVED

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	884-97
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	27.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	0.5	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-94
MAGNESIUM, TOTAL	ND(2)	MG/L	871-263
MANGANESE, TOTAL	0.03	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	3.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	884-99
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	ND(0.02)	MG/L	871-262

—CONCLUSION—LAB NUMBER: 86120841 RW-F DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

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W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120836 DATE SAMPLED: 11/14/86
SAMPLE DESCRIPTION: RW-F DUP

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	15.0	DEGREES C	
PH, FIELD ANALYSIS	7.18	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	180.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-13

LAB NUMBER: 86120836 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-13
3V. BENZENE	ND(5.0)	UG/L	791-13
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-13
5V. BROMOFORM	ND(5.0)	UG/L	791-13
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-13
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-13
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-13
9V. CHLOROETHANE	ND(5.0)	UG/L	791-13
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-13
11V. CHLOROFORM	ND(5.0)	UG/L	791-13
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-13
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-13
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-13
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-13
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-13
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-13
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-13
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-13
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-13
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-13
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-13
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-13
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-13
25V. TOLUENE	ND(5.0)	UG/L	791-13
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-13
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-13
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-13
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-13
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-95
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-95
3B. ANTHRACENE	ND(5.0)	UG/L	830-95
4B. BENZIDINE	ND(50)	UG/L	830-95
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-95
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-95
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-95
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-95
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-95
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-95
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-95

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120836 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-95
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-95
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-95
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-95
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
18B. CHRYSENE	ND(5.0)	UG/L	830-95
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-95
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-95
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-95
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-95
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-95
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-95
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-95
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-95
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-95
31B. FLUORANTHENE	ND(5.0)	UG/L	830-95
32B. FLUORENE	ND(5.0)	UG/L	830-95
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-95
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-95
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-95
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-95
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-95
38B. ISOPHORONE	ND(5.0)	UG/L	830-95
39B. NAPHTHALENE	ND(5.0)	UG/L	830-95
40B. NITROBENZENE	ND(5.0)	UG/L	830-95
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-95
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-95
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-95
44B. PHENANTHRENE	ND(5.0)	UG/L	830-95
45B. PYRENE	ND(5.0)	UG/L	830-95
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-95
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-24
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-24
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-24
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-24
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-24
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-24

LAB NUMBER: 86120836 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-24
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-24
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-24
10A. PHENOL	ND(5.0)	UG/L	832-24
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-24
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	90.6	% REC. @ 30 UG/L	791-14
BENZENE-D6	96.6	% REC. @ 30 UG/L	791-14
ETHYLBENZENE-D10	99.4	% REC. @ 30 UG/L	791-14
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	61.0	% REC. @ 100 UG/L	832-24
PHENOL-D6	29.4	% REC. @ 100 UG/L	832-24
2,4,6-TRIBROMOPHENOL	72.4	% REC. @ 100 UG/L	832-24
PENTAFLUOROPHENOL	40.8	% REC. @ 100 UG/L	832-24
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	85.2	% REC. @ 100 UG/L	830-96
2-FLUOROBIPHENYL	68.2	% REC. @ 100 UG/L	830-96
TERPHENYL-D14	88.1	% REC. @ 100 UG/L	830-96
DI-N-OCTYLPHALATE-D4	38.4	% REC. @ 100 UG/L	830-96
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	871-255
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	27.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	0.7	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-325
MAGNESIUM, TOTAL	ND(2)	MG/L	871-263
MANGANESE, TOTAL	0.03	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	2.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	871-252
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	884-320

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120836 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.02	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120836 RW-F DUP

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATIN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120842 DATE SAMPLED: 11/14/86
SAMPLE DESCRIPTION: RW-F DUP DISSOLVED

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	884-97
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	27.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	0.8	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-94
MAGNESIUM, TOTAL	ND(2)	MG/L	871-263
MANGANESE, TOTAL	0.03	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	3.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	884-99
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.04	MG/L	871-262

—CONCLUSION—LAB NUMBER: 86120842 RW-F DUP DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120840 4 GCM 12-17
SAMPLE DESCRIPTION: TRIP BLANK #2

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-13
2V. ACRYLONITRILE	ND(25)	UG/L	791-13
3V. BENZENE	ND(5.0)	UG/L	791-13
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-13
5V. BROMOFORM	ND(5.0)	UG/L	791-13
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-13
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-13
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-13
9V. CHLOROETHANE	ND(5.0)	UG/L	791-13
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-13
11V. CHLOROFORM	ND(5.0)	UG/L	791-13
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-13
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-13
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-13
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-13
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-13
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-13
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-13
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-13
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-13
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-13
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-13
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-13
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-13
25V. TOLUENE	ND(5.0)	UG/L	791-13
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-13
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-13
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-13
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-13
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	97.1	% REC. @ 30 UG/L	791-14
BENZENE-D6	80.4	% REC. @ 30 UG/L	791-14

DR 004216

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120840 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ETHYLBENZENE-D10	91.8	% REC. @ 30 UG/L	791-14
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

GCM 12-17

—CONCLUSION—LAB NUMBER: 86120840 TRIP BLANK #2

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120837
SAMPLE DESCRIPTION: RW-D

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	15.	DEGREES C	
PH, FIELD ANALYSIS	8.05	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	500.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	ND(0.005)	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-17

DR 004218

LAB NUMBER: 86120837 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-17
3V. BENZENE	ND(5.0)	UG/L	791-17
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-17
5V. BROMOFORM	ND(5.0)	UG/L	791-17
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-17
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-17
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-17
9V. CHLOROETHANE	ND(5.0)	UG/L	791-17
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-17
11V. CHLOROFORM	ND(5.0)	UG/L	791-17
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-17
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-17
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-17
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-17
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-17
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-17
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-17
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-17
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-17
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-17
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-17
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-17
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-17
25V. TOLUENE	ND(5.0)	UG/L	791-17
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-17
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-17
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-17
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-17
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-17
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-17
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-95
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-95
3B. ANTHRACENE	ND(5.0)	UG/L	830-95
4B. BENZIDINE	ND(50)	UG/L	830-95
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-95
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-95
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-95
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-95
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-95
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-95
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-95

LAB NUMBER: 86120837 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-95
13B. BIS(2-ETHYLHEXYL)PHTHALATE	120.	UG/L	830-95
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-95
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-95
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-95
18B. CHRYSENE	ND(5.0)	UG/L	830-95
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-95
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-95
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-95
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-95
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-95
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-95
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-95
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-95
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-95
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-95
31B. FLUORANTHENE	ND(5.0)	UG/L	830-95
32B. FLUORENE	ND(5.0)	UG/L	830-95
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-95
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-95
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-95
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-95
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-95
38B. ISOPHORONE	ND(5.0)	UG/L	830-95
39B. NAPHTHALENE	ND(5.0)	UG/L	830-95
40B. NITROBENZENE	ND(5.0)	UG/L	830-95
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-95
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-95
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-95
44B. PHENANTHRENE	ND(5.0)	UG/L	830-95
45B. PYRENE	ND(5.0)	UG/L	830-95
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-95
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-24
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-24
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-24
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-24
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-24
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-24

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120837 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-24
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-24
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-24
10A. PHENOL	ND(5.0)	UG/L	832-24
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-24
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	94.6	% REC. @ 30 UG/L	791-18
BENZENE-D6	90.4	% REC. @ 30 UG/L	791-18
ETHYLBENZENE-D10	95.4	% REC. @ 30 UG/L	791-18
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	34.0	% REC. @ 100 UG/L	832-24
PHENOL-D6	17.8	% REC. @ 100 UG/L	832-24
2,4,6-TRIBROMOPHENOL	49.0	% REC. @ 100 UG/L	832-24
PENTAFLUOROPHENOL	108.	% REC. @ 100 UG/L	832-24
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	76.4	% REC. @ 100 UG/L	830-96
2-FLUOROBIPHENYL	64.4	% REC. @ 100 UG/L	830-96
TERPHENYL-D14	66.4	% REC. @ 100 UG/L	830-96
DI-N-OCTYLPHALATE-D4	32.8	% REC. @ 100 UG/L	830-96
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	871-255
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	8.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	0.3	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-325
MAGNESIUM, TOTAL	2.	MG/L	871-263
MANGANESE, TOTAL	ND(0.02)	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	5.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	871-252
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	97.	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	884-321

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120837 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.06	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120837 RW-D

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120843 DATE SAMPLED: 11/14/86
SAMPLE DESCRIPTION: RW-D DISSOLVED

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
ALUMINUM, TOTAL	ND(0.2)	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	ND(0.01)	MG/L	884-97
BARIUM, TOTAL	ND(0.1)	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	ND(0.005)	MG/L	871-262
CALCIUM, TOTAL	8.	MG/L	871-264
CHROMIUM, TOTAL	ND(0.01)	MG/L	871-262
COBALT, TOTAL	ND(0.04)	MG/L	871-262
COPPER, TOTAL	ND(0.02)	MG/L	871-264
IRON, TOTAL	0.1	MG/L	871-263
LEAD, TOTAL	ND(0.005)	MG/L	884-94
MAGNESIUM, TOTAL	2.	MG/L	871-263
MANGANESE, TOTAL	ND(0.02)	MG/L	871-265
MERCURY, TOTAL	ND(0.0001)	MG/L	871-227
NICKEL, TOTAL	ND(0.04)	MG/L	871-265
POTASSIUM, TOTAL	5.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	884-99
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	95.	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	ND(0.05)	MG/L	871-263
ZINC, TOTAL	0.02	MG/L	871-262

--CONCLUSION--LAB NUMBER: 86120843 RW-D DISSOLVED

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

APPENDIX 3B-2-3

LEACHATE COMPOSITE ANALYTICAL RESULTS

Samples: LCH-1

LCH-1 DUP

Laboratory Quality Control Results

LCH-1 Duplicate

LCH-1 DUP Spike

Lab Blank

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120858
SAMPLE DESCRIPTION: LCH-1

DATE SAMPLED: 11/13/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	10.0	DEGREES C	
PH, FIELD ANALYSIS	6.26	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	2230.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
ACIDITY TO PH 8.3	305.	MG/L AS CACO3	386-15
ALKALINITY, TOTAL	172.	MG/L AS CACO3	405-97
AMMONIA, TOTAL	12.4	MG/L AS N	864-9
BOD5	380.	MG/L	391-80

DR 004225

LAB NUMBER: 86120858 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
CHLORIDE	520.	MG/L	639-251
COD	770.	MG/L	588-70
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
NITRATE/NITRITE	0.2	MG/L AS N	632-229
NITROGEN, KJELDAHL	30.	MG/L AS N	865-4
NITROGEN, ORGANIC	18.	MG/L AS N	865-4
OIL AND GREASE	16.	MG/L	588-74
ORTHOPHOSPHATE	ND(0.1)	MG/L AS P	636-203
PHENOLIC COMPOUNDS	1.07	MG/L	233-89
PHOSPHORUS, TOTAL	ND(0.2)	MG/L AS P	636-205
SOLIDS, DISSOLVED	1430.	MG/L	728-22
SOLIDS, SUSPENDED	680.	MG/L	728-22
SOLIDS, TOTAL	2040.	MG/L	728-22
SOLIDS, TOTAL SETTLEABLE	6.	ML/L	728-22
SOLIDS, TOTAL VOLATILE	500.	MG/L	728-22
SULFATE	17.	MG/L	635-216
SULFIDE	3.8	MG/L	845-2
SULFITE	2.	MG/L	845-1
TOTAL ORGANIC CARBON (SPARGED)	249.	MG/L	750-61
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(2500)	UG/L	790-71
2V. ACRYLONITRILE	ND(2500)	UG/L	790-71
3V. BENZENE	1600.	UG/L	790-71
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	790-71
5V. BROMOFORM	ND(200)	UG/L	790-71
6V. CARBON TETRACHLORIDE	ND(200)	UG/L	790-71
7V. CHLOROBENZENE	ND(200)	UG/L	790-71
8V. CHLORODIBROMOMETHANE	ND(200)	UG/L	790-71
9V. CHLOROETHANE	ND(200)	UG/L	790-71
10V. 2-CHLOROETHYLVINYL ETHER	ND(200)	UG/L	790-71
11V. CHLOROFORM	520.	UG/L	790-71
12V. DICHLOROBROMOMETHANE	ND(200)	UG/L	790-71
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	790-71
14V. 1,1-DICHLOROETHANE	250.	UG/L	790-71
15V. 1,2-DICHLOROETHANE	2900.	UG/L	790-71
16V. 1,1-DICHLOROETHENE	ND(200)	UG/L	790-71
17V. 1,2-DICHLOROPROPANE	ND(200)	UG/L	790-71
18V. 1,3-DICHLOROPROPYLENE	ND(200)	UG/L	790-71
19V. ETHYLBENZENE	1400.	UG/L	790-71
20V. METHYL BROMIDE	ND(200)	UG/L	790-71
21V. METHYL CHLORIDE	ND(200)	UG/L	790-71
22V. METHYLENE CHLORIDE	910.	UG/L	790-71

LAB NUMBER: 86120858 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
23V. 1,1,2,2-TETRACHLOROETHANE	4400.	UG/L	790-71
24V. TETRACHLOROETHENE	380.	UG/L	790-71
25V. TOLUENE	25000.	UG/L	790-71
26V. TRANS-1,2-DICHLOROETHENE	4500.	UG/L	790-71
27V. 1,1,1-TRICHLOROETHANE	710.	UG/L	790-71
28V. 1,1,2-TRICHLOROETHANE	ND(200)	UG/L	790-71
29V. TRICHLOROETHENE	1200.	UG/L	790-71
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	790-71
31V. VINYL CHLORIDE	420.	UG/L	790-71
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-96
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-96
3B. ANTHRACENE	ND(5.0)	UG/L	830-96
4B. BENZIDINE	ND(50)	UG/L	830-96
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-96
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-96
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-96
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-96
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-96
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-96
11B. BIS(2-CHLOROETHYL)ETHER	690.	UG/L	830-96
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-96
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-96
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-96
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-96
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-96
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-96
18B. CHRYSENE	ND(5.0)	UG/L	830-96
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-96
20B. 1,2-DICHLOROBENZENE	82.	UG/L	830-96
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-96
22B. 1,4-DICHLOROBENZENE	5.6	UG/L	830-96
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-96
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-96
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-96
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-96
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-96
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-96
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-96
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-96
31B. FLUORANTHENE	ND(5.0)	UG/L	830-96
32B. FLUORENE	ND(5.0)	UG/L	830-96

LAB NUMBER: 86120858 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-96
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-96
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-96
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-96
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-96
38B. ISOPHORONE	220.	UG/L	830-96
39B. NAPHTHALENE	38.	UG/L	830-96
40B. NITROBENZENE	ND(5.0)	UG/L	830-96
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-96
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-96
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-96
44B. PHENANTHRENE	ND(5.0)	UG/L	830-96
45B. PYRENE	ND(5.0)	UG/L	830-96
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-96
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-25
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-25
3A. 2,4-DIMETHYLPHENOL	25.	UG/L	832-25
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-25
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-25
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-25
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-25
8A. P-CHLORO-M-CRESOL	6.0	UG/L	832-25
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-25
10A. PHENOL	580.	UG/L	832-25
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-25
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	101.	% REC. @ 30 UG/L	DES
BENZENE-D6	93.6	% REC. @ 30 UG/L	DES
ETHYLBENZENE-D10	94.1	% REC. @ 30 UG/L	DES
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	78.6	% REC. @ 100 UG/L	832-25
PHENOL-D6	47.2	% REC. @ 100 UG/L	832-25
2,4,6-TRIBROMOPHENOL	57.0	% REC. @ 100 UG/L	832-25
PENTAFLUOROPHENOL	103.	% REC. @ 100 UG/L	832-25
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	1.0	% REC. @ 100 UG/L	830-98
2-FLUOROBIPHENYL	76.8	% REC. @ 100 UG/L	830-98
TERPHENYL-D14	46.0	% REC. @ 100 UG/L	830-98
DI-N-OCTYLPHALATE-D4	22.6	% REC. @ 100 UG/L	830-98
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE NARRATIVE		786-75

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120858 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
HAZARDOUS SUBSTANCE LIST METALS			
ALUMINUM, TOTAL	22.6	MG/L	890-119
ANTIMONY, TOTAL	ND(0.06)	MG/L	890-119
ARSENIC, TOTAL	0.20	MG/L	890-119
BARIUM, TOTAL	0.3	MG/L	890-119
BERYLLIUM, TOTAL	ND(0.005)	MG/L	890-119
CADMIUM, TOTAL	0.039	MG/L	890-119
CALCIUM, TOTAL	81.	MG/L	890-119
CHROMIUM, TOTAL	0.20	MG/L	890-119
COBALT, TOTAL	0.11	MG/L	890-119
COPPER, TOTAL	0.03	MG/L	890-119
IRON, TOTAL	574.	MG/L	890-119
LEAD, TOTAL	0.036	MG/L	890-119
MAGNESIUM, TOTAL	36.	MG/L	890-119
MANGANESE, TOTAL	2.45	MG/L	890-119
MERCURY, TOTAL	ND(0.0002)	MG/L	890-119
NICKEL, TOTAL	0.11	MG/L	890-119
POTASSIUM, TOTAL	15.	MG/L	890-119
SELENIUM, TOTAL	ND(0.005)	MG/L	890-119
SILVER, TOTAL	ND(0.01)	MG/L	890-119
SODIUM, TOTAL	196.	MG/L	890-119
THALLIUM, TOTAL	ND(0.01)	MG/L	890-119
TIN, TOTAL	ND(0.04)	MG/L	890-119
VANADIUM, TOTAL	0.17	MG/L	890-119
ZINC, TOTAL	0.71	MG/L	890-119
SILICA, TOTAL	20.	MG/L	890-119

—CONCLUSION—LAB NUMBER: 86120858 LCH-1

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

DR 004229

CLIENT: URS COMPANY, INC.

FILE NO.: 86-990
ORDER NO.: 5051

LAB NUMBER: 86120866 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ARSENIC, TOTAL	ND(0.01)	MG/L	890-122
BARIUM, TOTAL	ND(0.1)	MG/L	890-122
BERYLLIUM, TOTAL	ND(0.005)	MG/L	890-122
CADMIUM, TOTAL	ND(0.005)	MG/L	890-122
CALCIUM, TOTAL	ND(3)	MG/L	890-122
CHROMIUM, TOTAL	ND(0.01)	MG/L	890-122
COBALT, TOTAL	ND(0.04)	MG/L	890-122
COPPER, TOTAL	ND(0.02)	MG/L	890-122
IRON, TOTAL	ND(0.1)	MG/L	890-122
LEAD, TOTAL	ND(0.005)	MG/L	890-122
MAGNESIUM, TOTAL	ND(2)	MG/L	890-122
MANGANESE, TOTAL	ND(0.02)	MG/L	890-122
MERCURY, TOTAL	ND(0.0001)	MG/L	890-122
NICKEL, TOTAL	ND(0.04)	MG/L	890-122
POTASSIUM, TOTAL	ND(2)	MG/L	890-122
SELENIUM, TOTAL	ND(0.005)	MG/L	890-122
SILVER, TOTAL	ND(0.01)	MG/L	890-122
SODIUM, TOTAL	ND(5)	MG/L	890-122
THALLIUM, TOTAL	ND(0.01)	MG/L	890-122
TIN, TOTAL	ND(0.04)	MG/L	890-122
VANADIUM, TOTAL	ND(0.05)	MG/L	890-122
ZINC, TOTAL	ND(0.02)	MG/L	890-122
SILICA, TOTAL	ND(1)	MG/L	890-122

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120866 LAB BLANK

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

APPENDIX 3B-2-4

SURFACE SEEP ANALYTICAL RESULTS

Samples: SS-1

SS-1 DUP

Trip Blank #3

WILSON LABORATORIES

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120839
SAMPLE DESCRIPTION: SS-1

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	11.8	DEGREES C	
PH, FIELD ANALYSIS	6.17	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	240.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	3	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	ND(0.01)	MG/L	842-17
PHENOLIC COMPOUNDS	0.011	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-15

LAB NUMBER: 86120839 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-15
3V. BENZENE	ND(5.0)	UG/L	791-15
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-15
5V. BROMOFORM	ND(5.0)	UG/L	791-15
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-15
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-15
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-15
9V. CHLOROETHANE	ND(5.0)	UG/L	791-15
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-15
11V. CHLOROFORM	ND(5.0)	UG/L	791-15
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-15
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-15
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-15
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-15
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-15
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-15
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-15
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-15
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-15
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-15
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-15
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-15
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-15
25V. TOLUENE	ND(5.0)	UG/L	791-15
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-15
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-15
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-15
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-15
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-15
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-15
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-97
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-97
3B. ANTHRACENE	ND(5.0)	UG/L	830-97
4B. BENZIDINE	ND(50)	UG/L	830-97
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-97
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-97
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-97
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-97
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-97
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-97
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-97

LAB NUMBER: 86120839 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-97
13B. BIS(2-ETHYLHEXYL)PHTHALATE	6.4	UG/L	830-97
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-97
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-97
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
18B. CHRYSENE	ND(5.0)	UG/L	830-97
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-97
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-97
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-97
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-97
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-97
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-97
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-97
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-97
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-97
31B. FLUORANTHENE	ND(5.0)	UG/L	830-97
32B. FLUORENE	ND(5.0)	UG/L	830-97
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-97
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-97
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-97
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-97
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-97
38B. ISOPHORONE	ND(5.0)	UG/L	830-97
39B. NAPHTHALENE	ND(5.0)	UG/L	830-97
40B. NITROBENZENE	ND(5.0)	UG/L	830-97
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-97
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-97
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-97
44B. PHENANTHRENE	ND(5.0)	UG/L	830-97
45B. PYRENE	ND(5.0)	UG/L	830-97
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-97
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-25
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-25
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-25
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-25
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-25
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-25

LAB NUMBER: 86120839 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-25
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-25
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-25
10A. PHENOL	ND(5.0)	UG/L	832-25
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-25
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	101.	% REC. @ 30 UG/L	791-16
BENZENE-D6	113.	% REC. @ 30 UG/L	791-16
ETHYLBENZENE-D10	97.5	% REC. @ 30 UG/L	791-16
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	35.4	% REC. @ 100 UG/L	832-25
PHENOL-D6	20.0	% REC. @ 100 UG/L	832-25
2,4,6-TRIBROMOPHENOL	18.0	% REC. @ 100 UG/L	832-25
PENTAFLUOROPHENOL	28.8	% REC. @ 100 UG/L	832-25
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	25.0	% REC. @ 100 UG/L	830-98
2-FLUOROBIPHENYL	22.3	% REC. @ 100 UG/L	830-98
TERPHENYL-D14	34.1	% REC. @ 100 UG/L	830-98
DI-N-OCTYLPHALATE-D4	15.0	% REC. @ 100 UG/L	830-98
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	15.0	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	0.03	MG/L	884-97
BARIUM, TOTAL	0.4	MG/L	871-265
BERYLLIUM, TOTAL	ND(0.005)	MG/L	871-264
CADMIUM, TOTAL	0.013	MG/L	871-262
CALCIUM, TOTAL	22.	MG/L	871-264
CHROMIUM, TOTAL	0.07	MG/L	871-262
COBALT, TOTAL	0.13	MG/L	871-262
COPPER, TOTAL	0.04	MG/L	871-264
IRON, TOTAL	61.3	MG/L	871-263
LEAD, TOTAL	0.12	MG/L	890-19
MAGNESIUM, TOTAL	8.	MG/L	871-263
MANGANESE, TOTAL	3.35	MG/L	871-265
MERCURY, TOTAL	0.0003	MG/L	871-227
NICKEL, TOTAL	0.17	MG/L	871-265
POTASSIUM, TOTAL	8.	MG/L	871-302
SELENIUM, TOTAL	ND(0.005)	MG/L	884-99
SILVER, TOTAL	ND(0.01)	MG/L	884-122
SODIUM, TOTAL	5.	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-63

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120839 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	0.10	MG/L	871-263
ZINC, TOTAL	0.73	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120839 SS-1

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120857
SAMPLE DESCRIPTION: SS-1 DUP

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
TEMPERATURE	11.8	DEGREES C	
PH, FIELD ANALYSIS	6.18	STANDARD UNITS	
SPECIFIC CONDUCTANCE, FIELD ANALYSIS	240.	UMHOS/CM	
EPA METHOD 608/8080-PESTICIDES & PCB'S			
1P. ALDRIN	ND(1.0)	UG/L	870-25
2P. A-BHC	ND(1.0)	UG/L	870-25
3P. B-BHC	ND(1.0)	UG/L	870-25
4P. G-BHC	ND(1.0)	UG/L	870-25
5P. D-BHC	ND(1.0)	UG/L	870-25
6P. CHLORDANE	ND(1.0)	UG/L	870-25
7P. 4,4'-DDT	ND(1.0)	UG/L	870-25
8P. 4,4'-DDE	ND(1.0)	UG/L	870-25
9P. 4,4'-DDD	ND(1.0)	UG/L	870-25
10P. DIELDRIN	ND(1.0)	UG/L	870-25
11P. A-ENDOSULFAN	ND(1.0)	UG/L	870-25
12P. B-ENDOSULFAN	ND(1.0)	UG/L	870-25
13P. ENDOSULFAN SULFATE	ND(1.0)	UG/L	870-25
14P. ENDRIN	ND(1.0)	UG/L	870-25
15P. ENDRIN ALDEHYDE	ND(1.0)	UG/L	870-25
16P. HEPTACHLOR	ND(1.0)	UG/L	870-25
17P. HEPTACHLOR EPOXIDE	ND(1.0)	UG/L	870-25
18P. PCB-1242	ND(1.0)	UG/L	870-25
19P. PCB-1254	ND(1.0)	UG/L	870-25
20P. PCB-1221	ND(1.0)	UG/L	870-25
21P. PCB-1232	ND(1.0)	UG/L	870-25
22P. PCB-1248	ND(1.0)	UG/L	870-25
23P. PCB-1260	ND(1.0)	UG/L	870-25
24P. PCB-1016	ND(1.0)	UG/L	870-25
25P. TOXAPHENE	ND(1.0)	UG/L	870-25
26P. KEPONE	ND(1.0)	UG/L	870-25
27P. METHOXYCHLOR	ND(1.0)	UG/L	870-25
CYANIDE, TOTAL	0.02	MG/L	842-17
PHENOLIC COMPOUNDS	0.017	MG/L	233-89
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-13

LAB NUMBER: 86120857 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
2V. ACRYLONITRILE	ND(25)	UG/L	791-13
3V. BENZENE	ND(5.0)	UG/L	791-13
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-13
5V. BROMOFORM	ND(5.0)	UG/L	791-13
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-13
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-13
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-13
9V. CHLOROETHANE	ND(5.0)	UG/L	791-13
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-13
11V. CHLOROFORM	ND(5.0)	UG/L	791-13
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-13
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-13
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-13
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-13
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-13
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-13
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-13
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-13
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-13
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-13
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-13
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-13
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-13
25V. TOLUENE	ND(5.0)	UG/L	791-13
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-13
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-13
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-13
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-13
GC/MS BASE NEUTRAL COMPOUNDS			
1B. ACENAPHTHENE	ND(5.0)	UG/L	830-97
2B. ACENAPHTHYLENE	ND(5.0)	UG/L	830-97
3B. ANTHRACENE	ND(5.0)	UG/L	830-97
4B. BENZIDINE	ND(50)	UG/L	830-97
5B. BENZO(A)ANTHRACENE	ND(5.0)	UG/L	830-97
6B. BENZO(A)PYRENE	ND(5.0)	UG/L	830-97
7B. BENZO(B)FLUORANTHENE	ND(5.0)	UG/L	830-97
8B. BENZO(GHI)PERYLENE	ND(5.0)	UG/L	830-97
9B. BENZO(K)FLUORANTHENE	ND(5.0)	UG/L	830-97
10B. BIS(2-CHLOROETHOXY)METHANE	ND(5.0)	UG/L	830-97
11B. BIS(2-CHLOROETHYL)ETHER	ND(5.0)	UG/L	830-97

LAB NUMBER: 86120857 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
12B. BIS(2-CHLOROISOPROPYL)ETHER	ND(5.0)	UG/L	830-97
13B. BIS(2-ETHYLHEXYL)PHTHALATE	ND(5.0)	UG/L	830-97
14B. 4-BROMOPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
15B. BUTYL BENZYL PHTHALATE	ND(5.0)	UG/L	830-97
16B. 2-CHLORONAPHTHALENE	ND(5.0)	UG/L	830-97
17B. 4-CHLOROPHENYL PHENYL ETHER	ND(5.0)	UG/L	830-97
18B. CHRYSENE	ND(5.0)	UG/L	830-97
19B. DIBENZO(A,H)ANTHRACENE	ND(5.0)	UG/L	830-97
20B. 1,2-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
21B. 1,3-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
22B. 1,4-DICHLOROBENZENE	ND(5.0)	UG/L	830-97
23B. 3,3-DICHLOROBENZIDINE	ND(50)	UG/L	830-97
24B. DIETHYLPHTHALATE	ND(5.0)	UG/L	830-97
25B. DIMETHYLPHTHALATE	ND(5.0)	UG/L	830-97
26B. DI-N-BUTYLPHTHALATE	ND(5.0)	UG/L	830-97
27B. 2,4-DINITROTOLUENE	ND(5.0)	UG/L	830-97
28B. 2,6-DINITROTOLUENE	ND(5.0)	UG/L	830-97
29B. DI-N-OCTYLPHTHALATE	ND(5.0)	UG/L	830-97
30B. 1,2-DIPHENYLHYDRAZINE	ND(5.0)	UG/L	830-97
31B. FLUORANTHENE	ND(5.0)	UG/L	830-97
32B. FLUORENE	ND(5.0)	UG/L	830-97
33B. HEXACHLOROBENZENE	ND(5.0)	UG/L	830-97
34B. HEXACHLOROBUTADIENE	ND(5.0)	UG/L	830-97
35B. HEXACHLOROCYCLOPENTADIENE	ND(5.0)	UG/L	830-97
36B. HEXACHLOROETHANE	ND(5.0)	UG/L	830-97
37B. INDENO(1,2,3-CD)PYRENE	ND(5.0)	UG/L	830-97
38B. ISOPHORONE	ND(5.0)	UG/L	830-97
39B. NAPHTHALENE	ND(5.0)	UG/L	830-97
40B. NITROBENZENE	ND(5.0)	UG/L	830-97
41B. N-NITROSODIMETHYLAMINE	ND(5.0)	UG/L	830-97
42B. N-NITROSODI-N-PROPYLAMINE	ND(5.0)	UG/L	830-97
43B. N-NITROSODIPHENYLAMINE	ND(5.0)	UG/L	830-97
44B. PHENANTHRENE	ND(5.0)	UG/L	830-97
45B. PYRENE	ND(5.0)	UG/L	830-97
46B. 1,2,4-TRICHLOROBENZENE	ND(5.0)	UG/L	830-97
GC/MS ACID COMPOUNDS			
1A. 2-CHLOROPHENOL	ND(5.0)	UG/L	832-25
2A. 2,4-DICHLOROPHENOL	ND(5.0)	UG/L	832-25
3A. 2,4-DIMETHYLPHENOL	ND(5.0)	UG/L	832-25
4A. 4,6-DINITRO-O-CRESOL	ND(50)	UG/L	832-25
5A. 2,4-DINITROPHENOL	ND(50)	UG/L	832-25
6A. 2-NITROPHENOL	ND(5.0)	UG/L	832-25

LAB NUMBER: 86120857 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
7A. 4-NITROPHENOL	ND(5.0)	UG/L	832-25
8A. P-CHLORO-M-CRESOL	ND(5.0)	UG/L	832-25
9A. PENTACHLOROPHENOL	ND(5.0)	UG/L	832-25
10A. PHENOL	ND(5.0)	UG/L	832-25
11A. 2,4,6-TRICHLOROPHENOL	ND(5.0)	UG/L	832-25
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	100.	% REC. @ 30 UG/L	791-14
BENZENE-D6	95.4	% REC. @ 30 UG/L	791-14
ETHYLBENZENE-D10	87.9	% REC. @ 30 UG/L	791-14
GC/MS ACID SURROGATE RECOVERY			
2-FLUOROPHENOL	62.0	% REC. @ 100 UG/L	832-25
PHENOL-D6	26.6	% REC. @ 100 UG/L	832-25
2,4,6-TRIBROMOPHENOL	47.0	% REC. @ 100 UG/L	832-25
PENTAFLUOROPHENOL	36.0	% REC. @ 100 UG/L	832-25
GC/MS BASE NEUTRAL SURROGATE RECOVERY			
NITROBENZENE-D5	12.6	% REC @ 100 UG/L	830-98
2-FLUOROBIPHENYL	14.4	% REC @ 100 UG/L	830-98
TERPHENYL-D14	14.8	% REC @ 100 UG/L	830-98
DI-N-OCTYLPHALATE-D4	8.0	% REC @ 100 UG/L	830-98
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41
GC/MS EXTRACTABLE SURVEY SEARCH	SEE BELOW		786-75
ALUMINUM, TOTAL	69.5	MG/L	871-265
ANTIMONY, TOTAL	ND(0.06)	MG/L	871-278
ARSENIC, TOTAL	0.08	MG/L	890-66
BARIUM, TOTAL	2.1	MG/L	871-265
BERYLLIUM, TOTAL	0.019	MG/L	871-264
CADMIUM, TOTAL	0.062	MG/L	871-262
CALCIUM, TOTAL	76.	MG/L	871-264
CHROMIUM, TOTAL	0.30	MG/L	871-262
COBALT, TOTAL	0.86	MG/L	871-262
COPPER, TOTAL	0.32	MG/L	871-264
IRON, TOTAL	329.	MG/L	871-297
LEAD, TOTAL	1.53	MG/L	890-117
MAGNESIUM, TOTAL	21.	MG/L	871-263
MANGANESE, TOTAL	28.7	MG/L	871-300
MERCURY, TOTAL	0.0012	MG/L	871-228
NICKEL, TOTAL	0.73	MG/L	871-265
POTASSIUM, TOTAL	21.	MG/L	871-302
SELENIUM, TOTAL	ND(0.025)	MG/L	890-107
SILVER, TOTAL	ND(0.01)	MG/L	890-47
SODIUM, TOTAL	ND(5)	MG/L	871-264
THALLIUM, TOTAL	ND(0.01)	MG/L	890-64

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120857 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
TIN, TOTAL	ND(0.04)	MG/L	871-258
VANADIUM, TOTAL	0.48	MG/L	871-263
ZINC, TOTAL	3.03	MG/L	871-262

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120857 SS-1 DUP

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

Lynn R. Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

W I L S O N L A B O R A T O R I E S

525 NORTH EIGHTH STREET - P.O. BOX 1884 - SALINA, KANSAS 67402-1884 - (913)825-7186

LABORATORY REPORT

CLIENT: URS COMPANY, INC.
ATTN: GEORGE MORETTI
570 DELAWARE
BUFFALO, NY 14202

DATE RPTD: 12/15/86
DATE RCVD: 11/15/86
PURCHASE AUTH:
FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120863
SAMPLE DESCRIPTION: TRIP BLANK #3

DATE SAMPLED: 11/14/86

ANALYSIS	CONCENTRATION	UNITS	BOOK-PAGE
GC/MS VOLATILE COMPOUNDS			
1V. ACROLEIN	ND(25)	UG/L	791-13
2V. ACRYLONITRILE	ND(25)	UG/L	791-13
3V. BENZENE	ND(5.0)	UG/L	791-13
4V. BIS(CHLOROMETHYL)ETHER	NOT ANALYZED	UG/L	791-13
5V. BROMOFORM	ND(5.0)	UG/L	791-13
6V. CARBON TETRACHLORIDE	ND(5.0)	UG/L	791-13
7V. CHLOROBENZENE	ND(5.0)	UG/L	791-13
8V. CHLORODIBROMOMETHANE	ND(5.0)	UG/L	791-13
9V. CHLOROETHANE	ND(5.0)	UG/L	791-13
10V. 2-CHLOROETHYLVINYL ETHER	ND(5.0)	UG/L	791-13
11V. CHLOROFORM	ND(5.0)	UG/L	791-13
12V. DICHLOROBROMOMETHANE	ND(5.0)	UG/L	791-13
13V. DICHLORODIFLUOROMETHANE	NOT ANALYZED	UG/L	791-13
14V. 1,1-DICHLOROETHANE	ND(5.0)	UG/L	791-13
15V. 1,2-DICHLOROETHANE	ND(5.0)	UG/L	791-13
16V. 1,1-DICHLOROETHENE	ND(5.0)	UG/L	791-13
17V. 1,2-DICHLOROPROPANE	ND(5.0)	UG/L	791-13
18V. 1,3-DICHLOROPROPYLENE	ND(5.0)	UG/L	791-13
19V. ETHYLBENZENE	ND(5.0)	UG/L	791-13
20V. METHYL BROMIDE	ND(5.0)	UG/L	791-13
21V. METHYL CHLORIDE	ND(5.0)	UG/L	791-13
22V. METHYLENE CHLORIDE	ND(5.0)	UG/L	791-13
23V. 1,1,2,2-TETRACHLOROETHANE	ND(5.0)	UG/L	791-13
24V. TETRACHLOROETHENE	ND(5.0)	UG/L	791-13
25V. TOLUENE	ND(5.0)	UG/L	791-13
26V. TRANS-1,2-DICHLOROETHENE	ND(5.0)	UG/L	791-13
27V. 1,1,1-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
28V. 1,1,2-TRICHLOROETHANE	ND(5.0)	UG/L	791-13
29V. TRICHLOROETHENE	ND(5.0)	UG/L	791-13
30V. TRICHLOROFLUORMETHANE	NOT ANALYZED	UG/L	791-13
31V. VINYL CHLORIDE	ND(5.0)	UG/L	791-13
GC/MS VOLATILE SURROGATE RECOVERY			
1,2-DICHLOROETHANE-D4	90.6	% REC. @ 30 UG/L	791-14
BENZENE-D6	81.5	% REC. @ 30 UG/L	791-14

DR 004242

CLIENT: URS COMPANY, INC.

FILE NO.: 86-9802
ORDER NO.: 5045

LAB NUMBER: 86120863 (CONT.)

ANALYSIS	CONCENTRATION	UNITS	BOOK/PAGE
ETHYLBENZENE-D10	94.3	% REC. @ 30 UG/L	791-14
GC/MS VOLATILE SURVEY SEARCH	SEE BELOW	.	849-41

COMMENTS: SURVEY SEARCH: UNIDENTIFIED COMPOUNDS NOT DETECTED

—CONCLUSION—LAB NUMBER: 86120863 TRIP BLANK #3

ND(), WHERE NOTED, INDICATES NONE DETECTED WITH THE DETECTION LIMIT IN PARENTHESES.

ANALYSES WERE PERFORMED ON SAMPLES AS RECEIVED IN ACCORDANCE WITH PROCEDURES PUBLISHED IN THE FEDERAL REGISTER, VOL. 49, NO. 209, OCT. 26, 1984 OR IN EPA PUBLICATION, SW 846, 2ND EDITION, JULY 1982 AND IN THE PROPOSED ADDITION TO SW 846, 1984.

SAMPLES WILL BE RETAINED FOR 30 DAYS UNLESS OTHERWISE NOTIFIED.

WILSON LABORATORIES

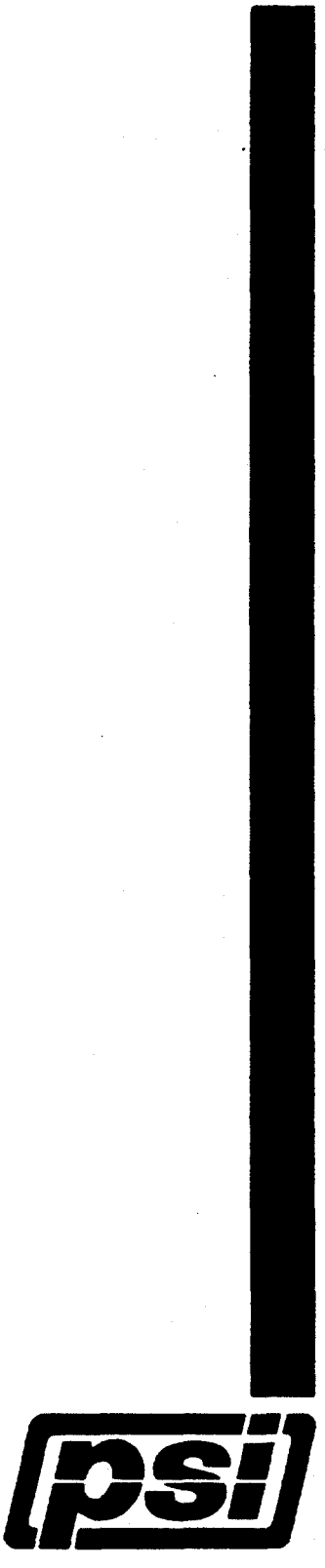
Lynn R Newcomer

LYNN R. NEWCOMER
CHIEF CHEMIST

DESIGN ANALYSIS REPORT

APPENDIX 3C

COUPON TEST ON CONSTRUCTION MATERIAL



Professional Service Industries, Inc.
Pittsburgh Testing Laboratory Division

DR 004245

Professional Service Industries, Inc.
Pittsburgh Testing Laboratory Division

850 Poplar Street
Pittsburgh, Pennsylvania 15220
412/922-4000

REPORT

Project #825-82425
Laboratory #894478
March 28, 1988
*Revised 4/25/88

Rep Of: Immersion Testing (EPA Method 1110) Of Different Materials In Leachates Collected And Submitted By URS Company, Inc.

Report To: URS Company, Inc.
570 Delaware Avenue
Buffalo, NY 14202

Attention: Mr. James Lanzo

Introduction

The purpose of this final report, as of the preliminary one (March 9, 1988) is to report the corrosion rate results for a variety of materials which might be used in the pretreatment facility which is under design. The leachates (lot #1 and lot #2) were collected from The Helen Kramer Landfill site. Coupons to be tested according to EPA Test Method (1110) for evaluating liquid waste were:

Carbon Steel
304 Stainless Steel
316 Stainless Steel
Bronze
Ductile Cast Iron
Polyvinyl Chloride (PVC)
Fiberglass Reinforced Plastic (FRP)
Polypropylene (PP)

Photographs of the as received coupons are shown in Figures 1 through 16.

Investigation

The test program was designed to evaluate corrosivity of two liquid waste samples. The test exposes coupons to the liquid waste to be evaluated and, by measuring the degree to which the coupon has been dissolved, determine the corrosivity of waste.

Immersion test is used for the purpose of evaluating uniform corrosion rates. It is considered to be most useful in estimating the relative behaviour of metallic specimens in solutions, since it simulates the basic conditions.

The apparatus required for immersion testing consists of:

1. Flask
2. Reflux Condenser
3. Specimen Supports
4. Heating source with a temperature regulating device

The coupons were prepared conforming to section 4.5 in Specification 1110. Exposure periods of 14 days were used.

Procedure: Base on EPA methods for evaluating Waste-Method 1110.

Temperature: 35°C

Duration: Fourteen days
The specimens were carefully removed, inspected weighed after 2, 10 and 14 days and photographed after 14 days.

Results

The following summarizes the average corrosion rates (2, 3, 10 and 14 days results) on the Lot #1 (Table 1) and lot #2 (Table 2) leachate liquid samples submitted for immersion tests:

Table 1

Determination	Results (mpy) 2	10	14
Carbon Steel	-	2.84	3.27
304 Stainless Steel	-	-	$\ll 1$
316 Stainless Steel	-	-	$\ll 1$
Bronze	0.23	0.26	0.36
Ductile Cast Iron	0.75	3.10	3.39
Polyvinyl Chloride		Slight Staining	
Fiberglass Reinforced Plastic		Slight Staining	
Polypropylene		Heavy Stained Appearance	

Table 2

Determination	Results (mpy) 3	10	14
Carbon Steel	0.73	1.25	1.20
304 Stainless Steel	-	-	$\ll 1$
316 Stainless Steel	-	-	$\ll 1$
Bronze	0.18	0.16	0.23
Ductile Cast Iron	1.07	1.37	1.40
Polyvinyl Chloride	Slight Staining		
Fiberglass Reinforced Plastic	Slight Staining		
Polypropylene	Heavy Stained Appearance		

mm/y = 0.254 x mpy

Discussion

Weight loss is used as principal measure of corrosion. Weight loss is frequently expressed as loss in weight per unit area per unit time. Penetration is commonly expressed in mpy (mils per year). A change in appearance can be an important result of corrosion. Please note that this test is designed to investigate uniform corrosion.

The information presented in Table 1 and Table 2 illustrate the corrosion behaviour of specimens in leachate #1 and leachate #2. Method 1110 indicates a maximum corrosion rate of 6.35 mm per year.

Figures 1 through 16 show the appearance of coupons after 14 days of immersion testing. Discoloration, or change in specularity can be visible evidence of corrosion. The visual observation, confirmed the presence of deterioration in polypropylene and to a much lesser degree in PVC and FRP.

According to the specification (Method 1110), an accurate rate of corrosion is not required but only a determination as to whether the rate of corrosion is less than or greater than 6.35 mm per year. The immersion tests showed that all the metallic coupons conform to the specification (section 7.5 method 1110) requirements under conditions studied. Non metallic coupons do not show extensive deterioration except polypropylene samples.

Prepared By:

Mehrooz Zamanzadeh, Ph.D.
Senior Corrosion Specialist

Reviewed And Approved By:

Kenneth M. O'Connor, Manager
Metallurgical Department

MZ/dla
Attachments
Distribution: 3 - Client

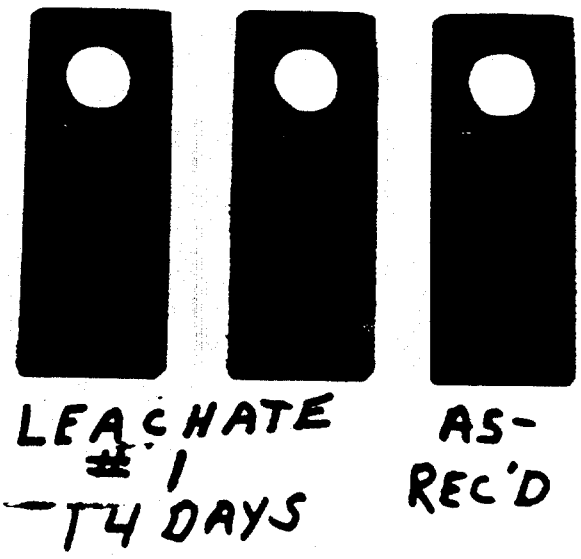


Figure 1: Photograph of carbon steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

Figure 2: Photograph of 304 stainless steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

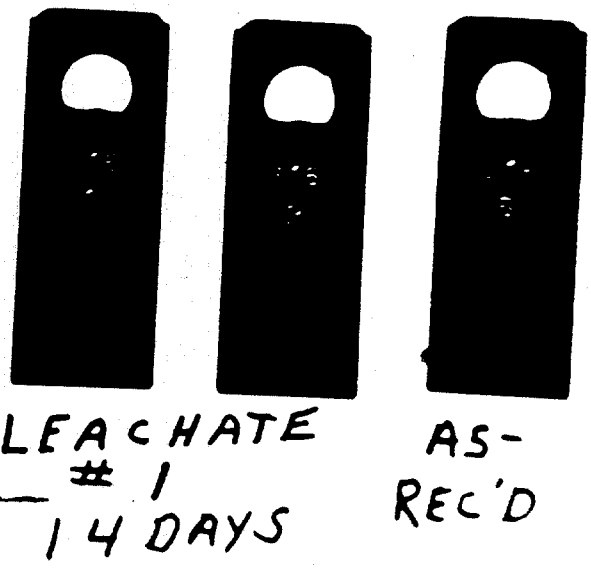


Figure 3: Photograph of 316 stainless steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

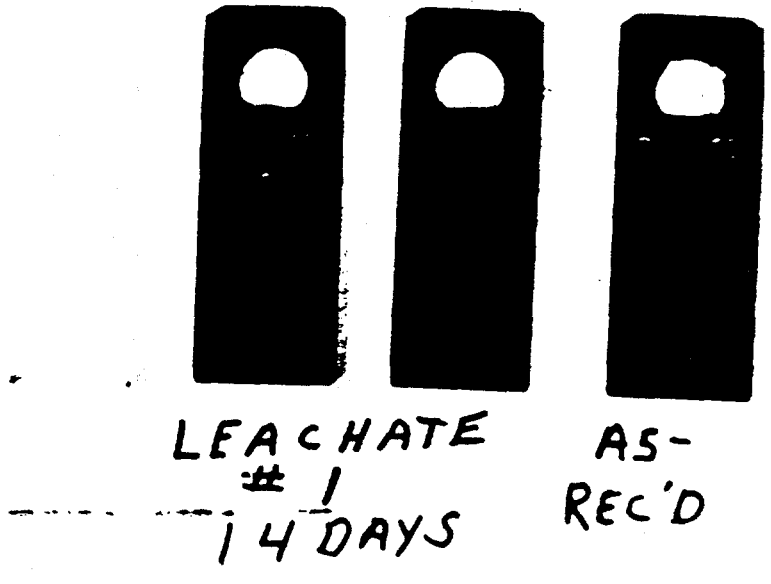


Figure 4: Photograph of bronze coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

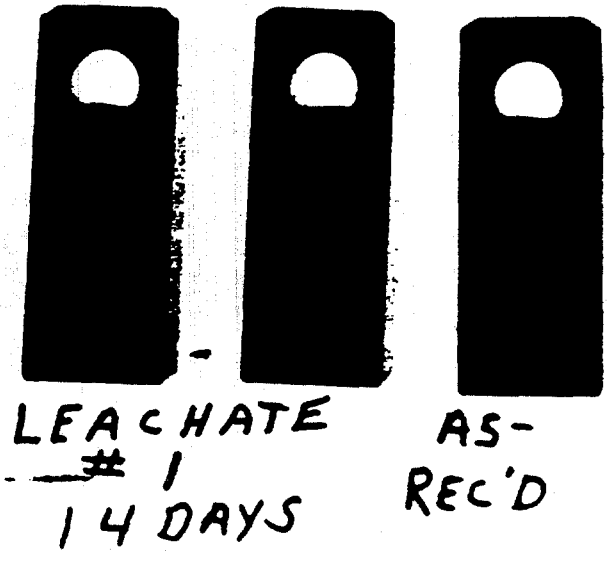


Figure 5: Photograph of ductile cast iron coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

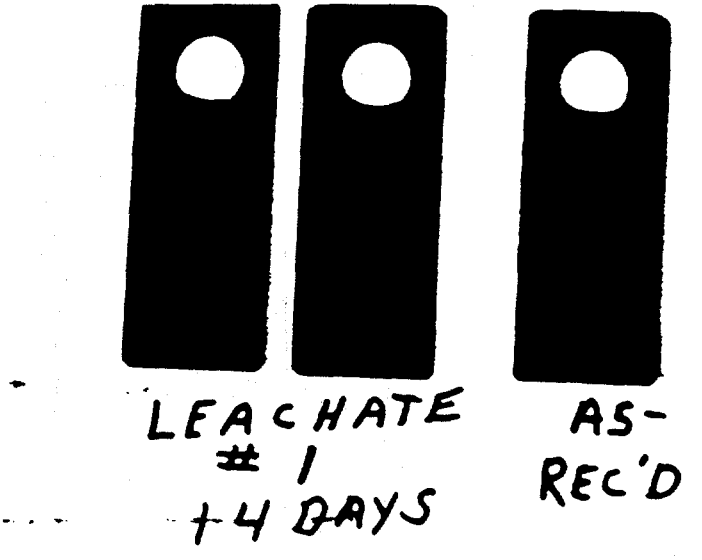


Figure 6: Photograph of PVC coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

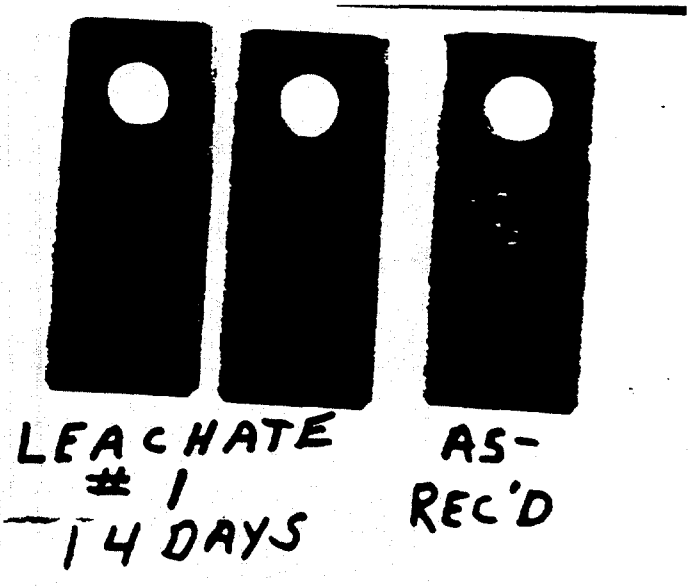


Figure 7: Photograph of FRP coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

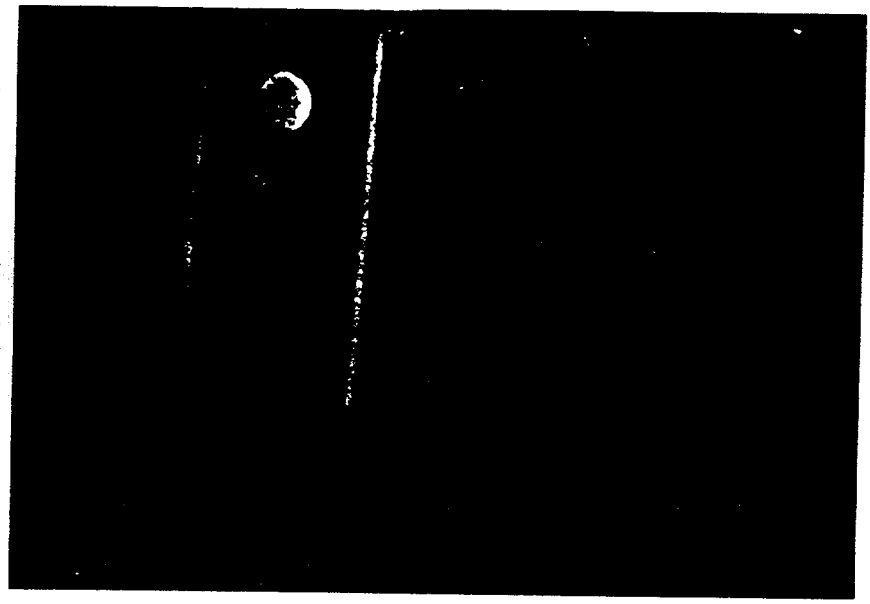


Figure 8: Photograph of polypropylene coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #1 leachate for 14 days.

Project #825-82425, Laboratory #894478

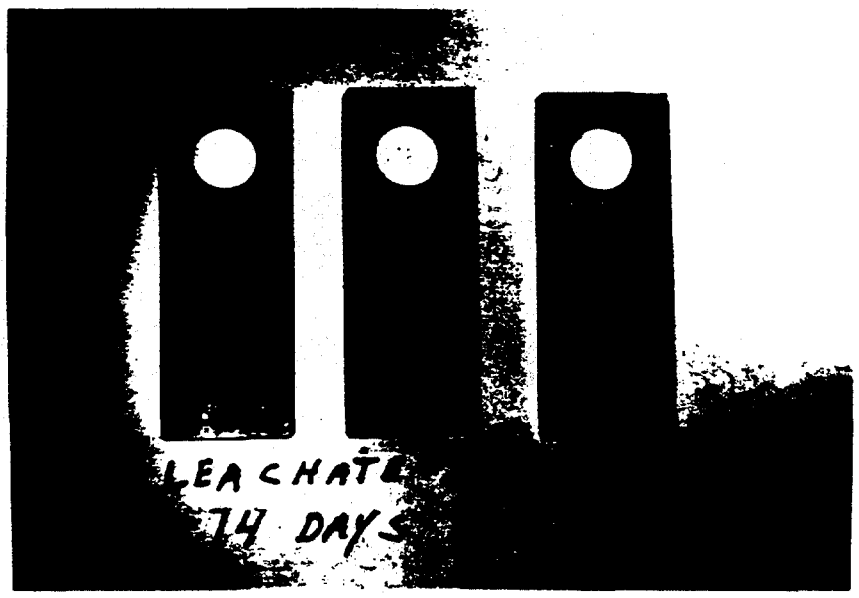


Figure 9: Photograph of carbon steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

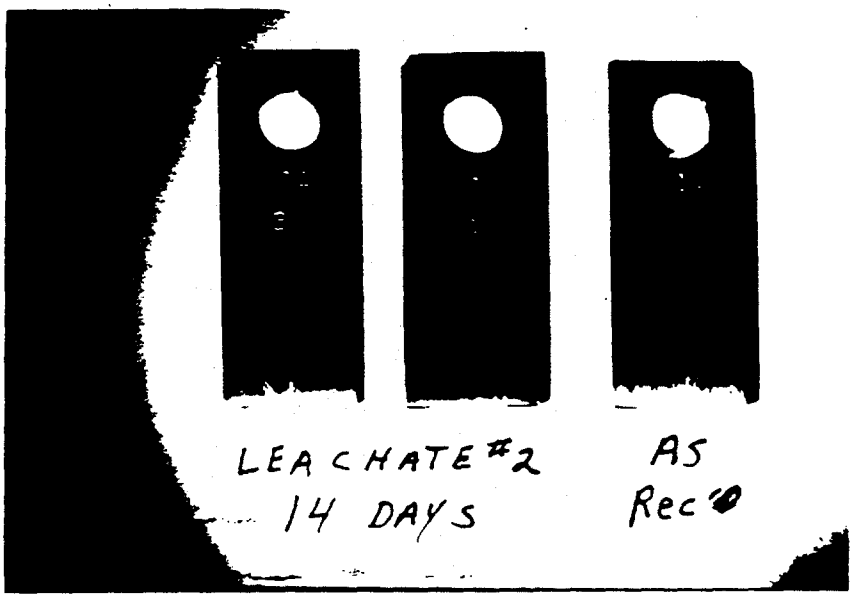


Figure 10: Photograph of 304 stainless steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

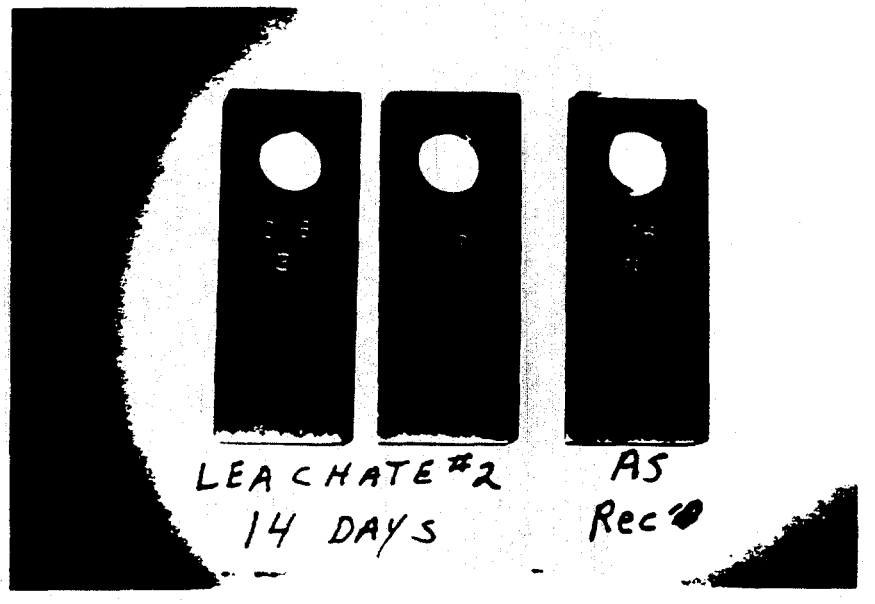


Figure 11: Photograph of 316 stainless steel coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

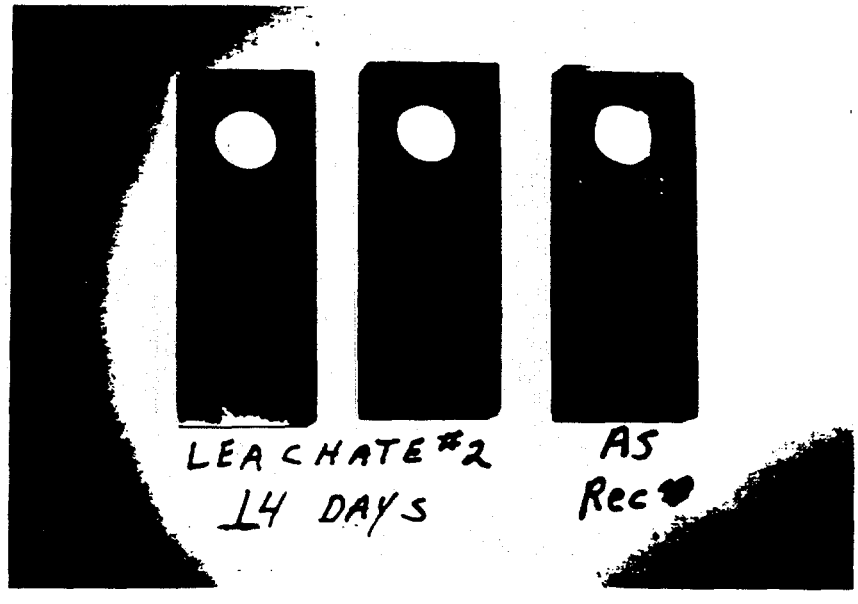


Figure 12: Photograph of bronze coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

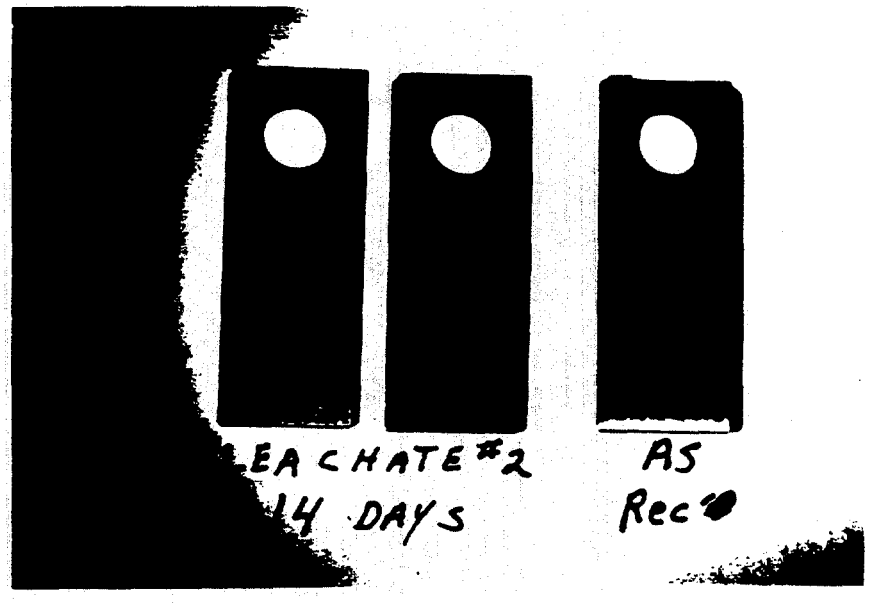


Figure 13: Photograph of ductile cast iron coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

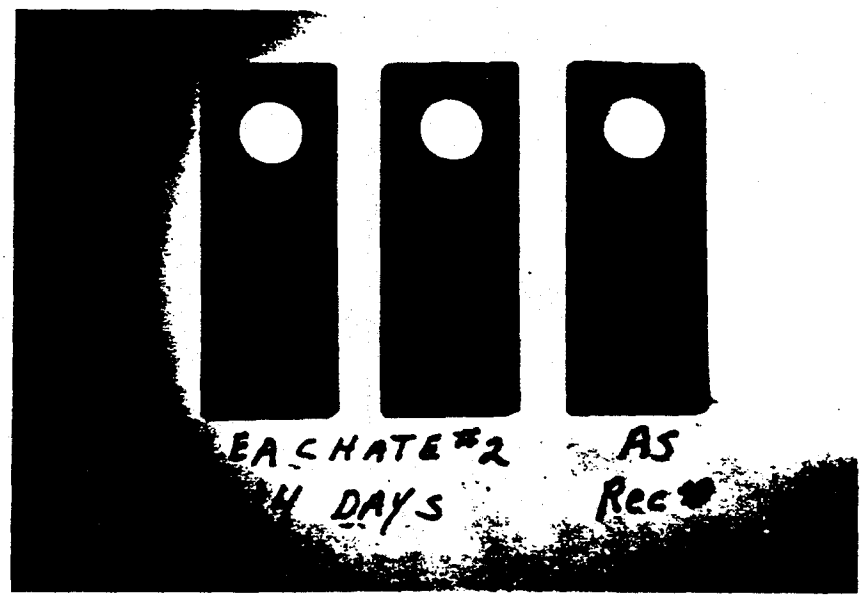


Figure 14: Photograph of PVC coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

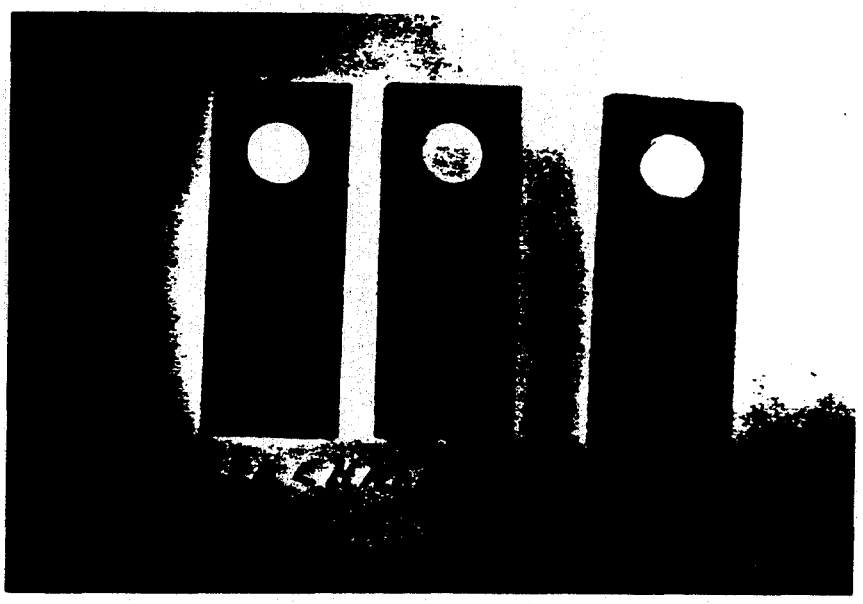


Figure 15: Photograph of FRP coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

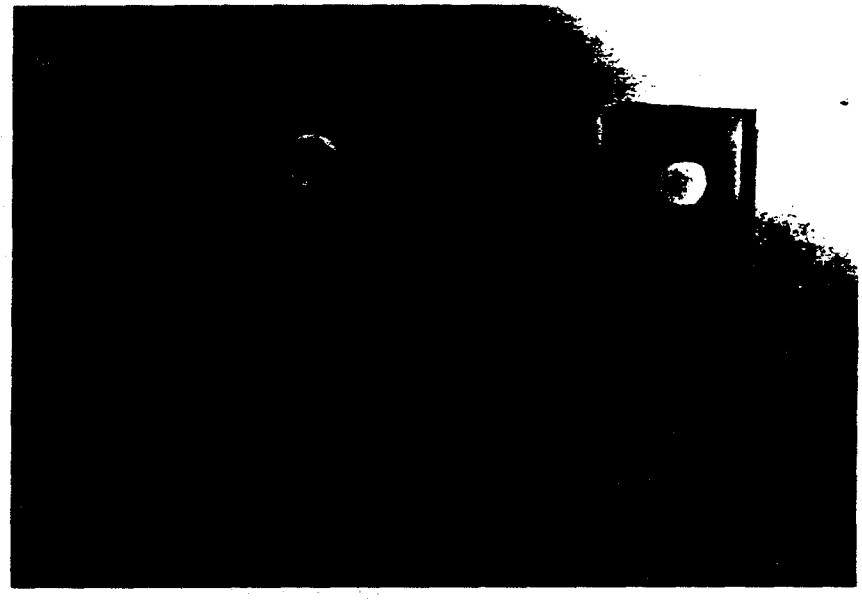


Figure 16: Photograph of Polypropylene coupons: before (identified as 5) and after (identified as 1 and 2) exposure to lot #2 leachate for 14 days.

Project #825-82425, Laboratory #894478

DESIGN ANALYSIS REPORT

APPENDIX 4

DR 004265

DESIGN ANALYSIS REPORT

APPENDIX 4A

EXISTING
U.S. ARMY CORP OF ENGINEERS
SURVEY CONTROL MONUMENTS
BENCH LEVEL RUN
ADJUSTMENT SUMMARY

URS CO. INC.

CONTROL SURVEY RECORD

NAME OF STATION M-1
PROJECT NUMBER [illegible]

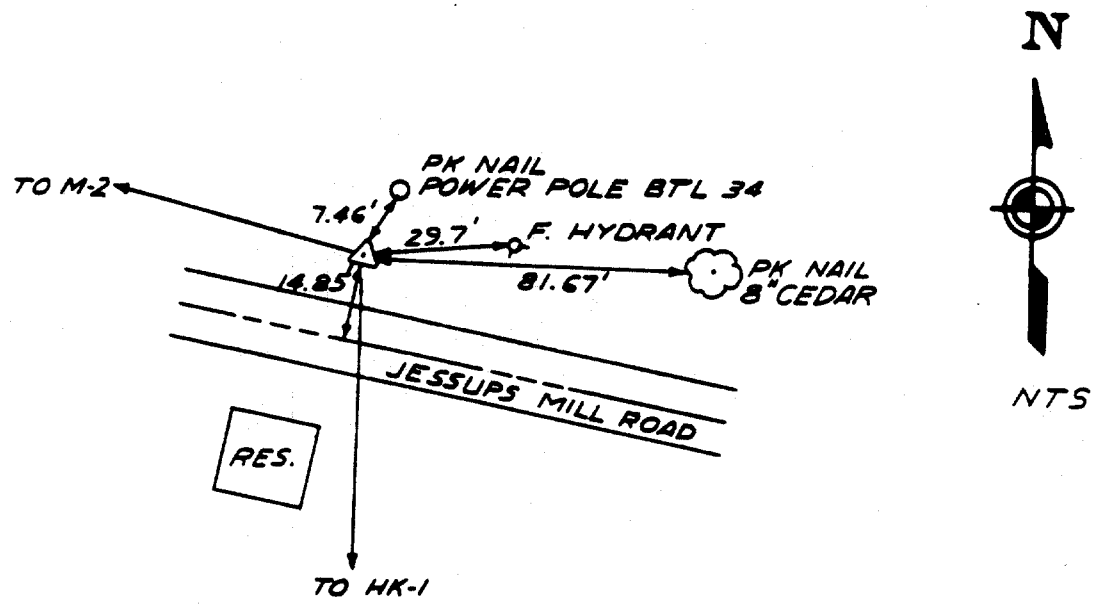
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY U.S. Army C.O.E.
YEAR 1985
ELEVATION 62.76 C.O.E. 62.65 URS FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X 1849512.87 Y 347548.76
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
M-2	2850-25'-05"		363.80
HK-1	1810-01'-58"		1039.906

SKETCH



DETAILED DESCRIPTION

Recovery information from 50 scale mapping sheet 3 of 3; prepared for USEPA under Contract No. DACW 43-85-D-0084 and project No. 2NJ 394 645 751 205.

DR 004267

URS CO. INC.

NAME OF STATION M-2

PROJECT NUMBER [illegible]

CONTROL SURVEY RECORD

HORIZONTAL CONTROL Second ORDER ACCURACY

HORIZONTAL CONTROL 1927 G.A. DATUM

VERTICAL CONTROL Second ORDER ACCURACY

VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester

SET BY U.S. Army C.O.E.

YEAR 1985

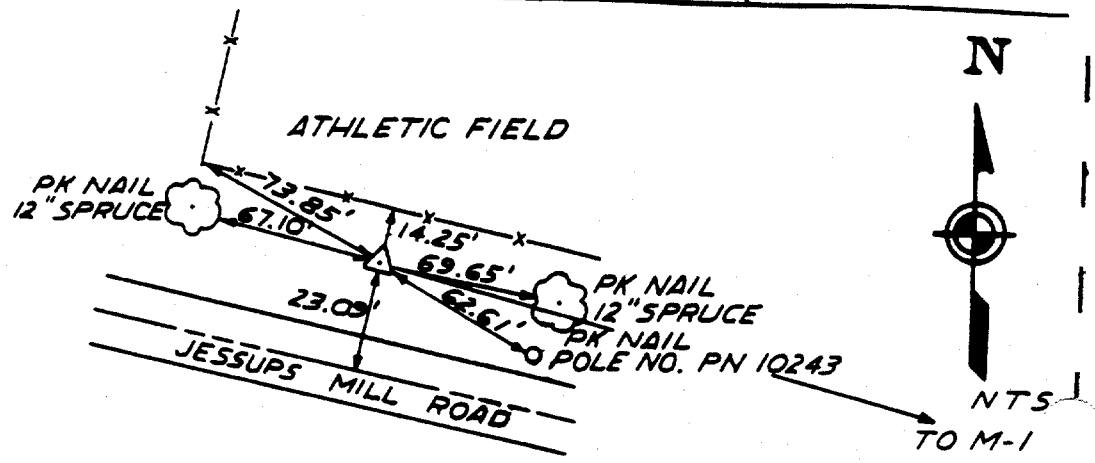
ELEVATION 60.63 C.O.E. 60.51 URS FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X 1849162.16 Y 347645.48

New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
M-1	105°-25'-05"		363.80

SKETCH



DETAILED DESCRIPTION

Recovery Information from 50 scale mapping, sheet 3 of 3; prepared for USEPA under Contract No. 43-85-D-0084 & Project No. 2NJ 394 645 751 205.

DR 004268

URS CO. INC.

NAME OF STATION M-3
PROJECT NUMBER 3512

CONTROL SURVEY RECORD

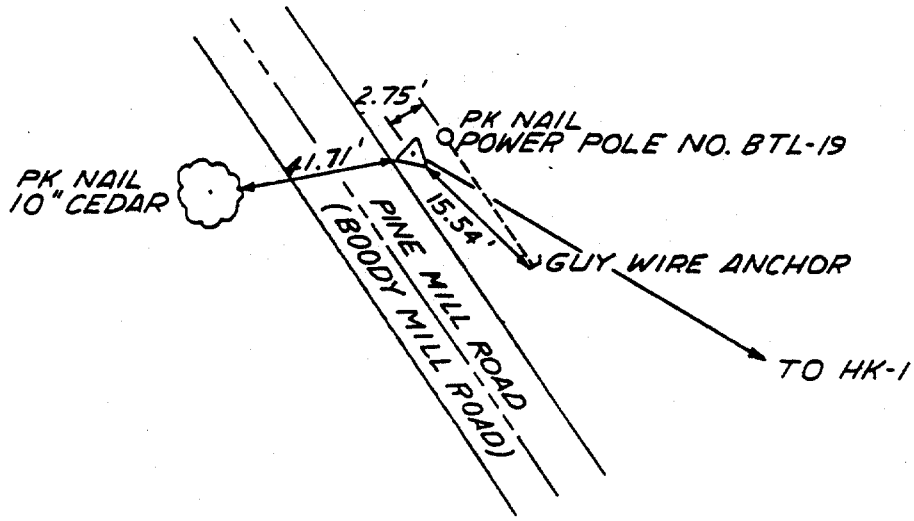
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY U.S. Army C.O.E.
YEAR 1985
ELEVATION 81.68 C.O.E. 81.60 URS FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X 1848141.51 Y 344687.41
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-7	120°-21" - 17"		637.858

SKETCH



DETAILED DESCRIPTION

Recovery information from 50 scale mapping, sheet 3 of 3; prepared for USEPA under Contract No. 43-85-D-0084 & Project No. 2NJ 394 645 751 205.

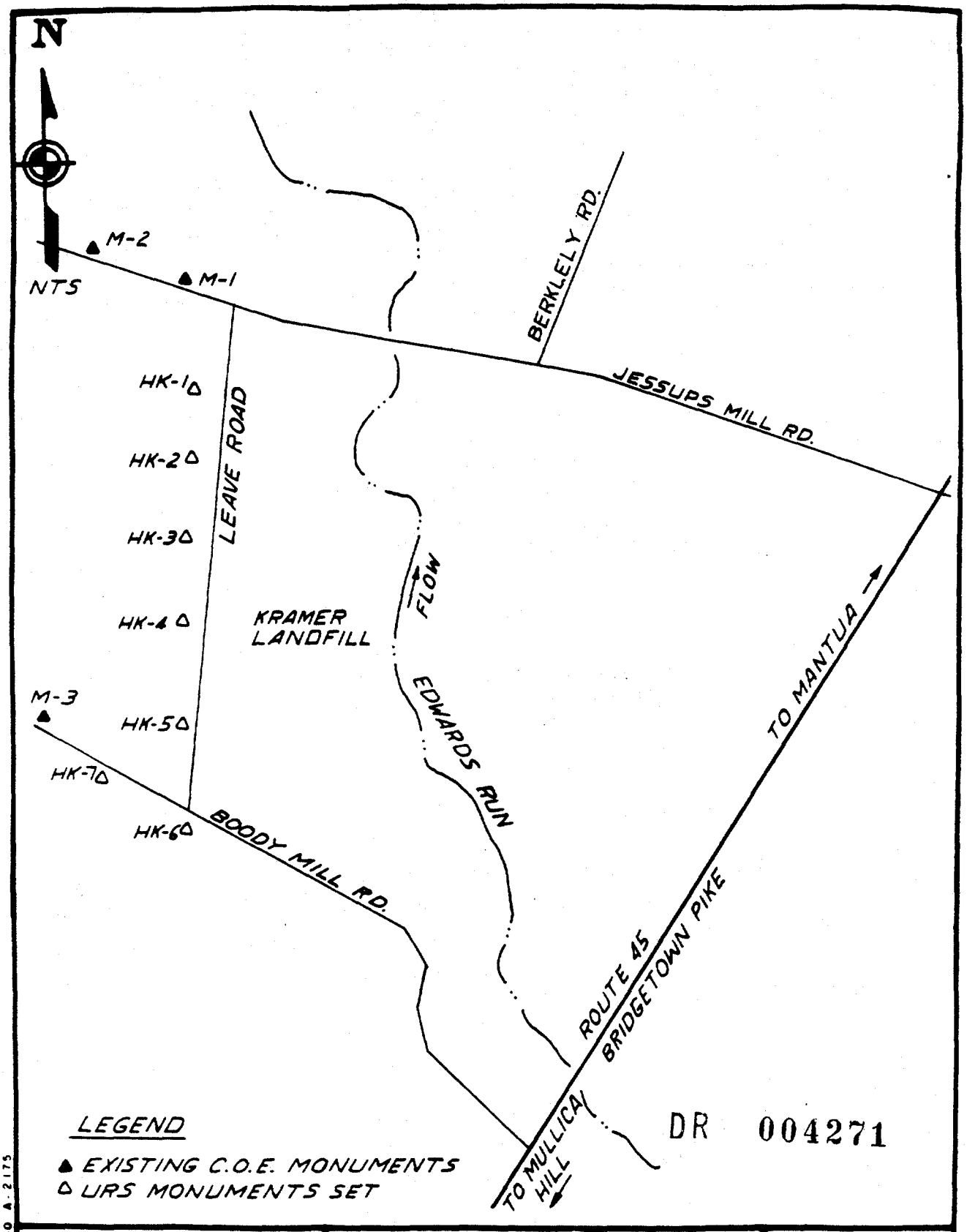
DR 004269

DESIGN ANALYSIS REPORT

APPENDIX 4B

HORIZONTAL CONTROL POINT DESCRIPTIONS, RECOVERY SKETCHES, AND LAYOUT MAP

(ESTABLISHED BY URS COMPANY, INC.)


N
M-2
M-1
NTS
BERKLELY RD.
JESSUPS MILL RD.
HK-1
HK-2
HK-3
HK-4
HK-5
HK-7
HK-6
LEAVE ROAD
KRAMER LANDFILL
FLOW
EDWARDS RUN
M-3
BOODY MILL RD.
TO MANTUA
ROUTE 45
BRIDGETOWN PIKE
TO MULLICA HILL
LEGEND
EXISTING C.O.E. MONUMENTS
URS MONUMENTS SET
DR 004271
REQ NO A-2175
URS
URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY
HELEN KRAMER LANDFILL
HORIZONTAL CONTROL POINT LAYOUT
FIGURE 4.1

URS CO. INC.

NAME OF STATION HK - 1
PROJECT NUMBER 3512?

CONTROL SURVEY RECORD

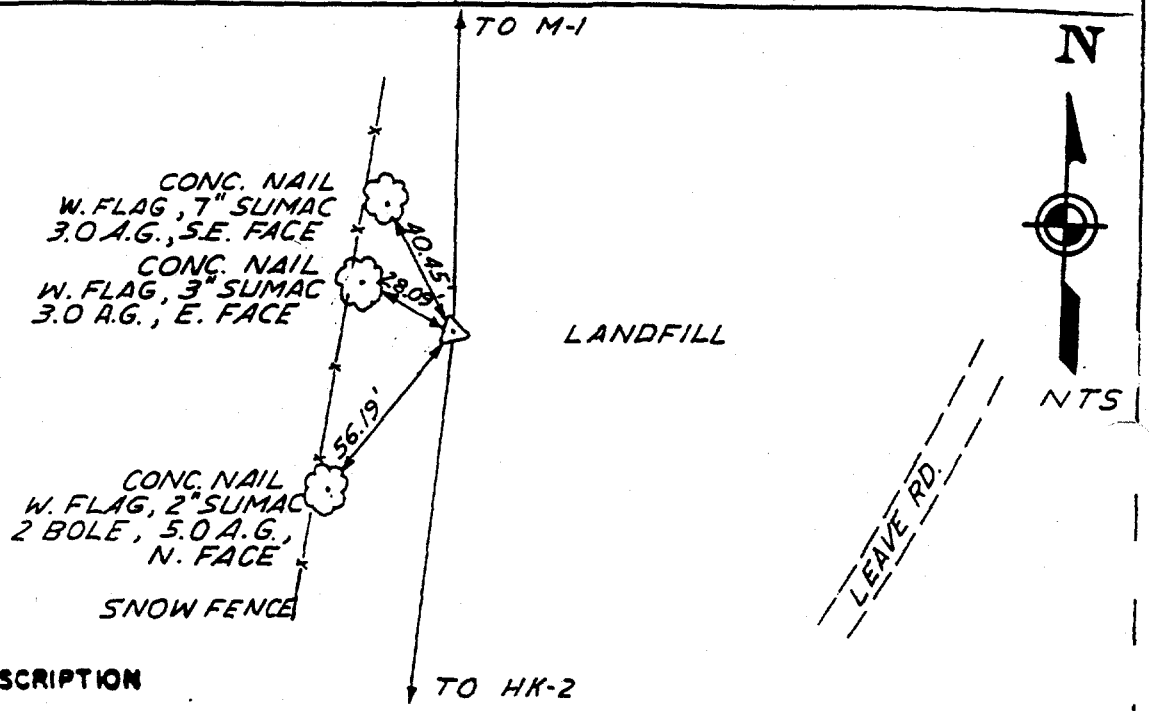
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL _____ ORDER ACCURACY
VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Glouceste
SET BY URS Co., Inc.
YEAR 1986
ELEVATION _____ FE

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X 1849494.125 Y 346509.025
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
M-1	01°-01'-58"		1039.906
HK-2	185°-43'-10"		634.436

SKETCH



DETAILED DESCRIPTION

Station HK-1(also being BM "R") is a 24" x 5/8" diameter iron rod with a URS Co. Inc. 2" diameter aluminum cap marked "HK-1" set in concrete 3± inches below ground and is 150± feet northwesterly of the centerline of Leave Road and 1050± feet southwesterly from the intersection of Leave Road and Jessups Mill Road.

DR 004272

URS CO. INC.

NAME OF STATION HK - 2
PROJECT NUMBER 3517

CONTROL SURVEY RECORD

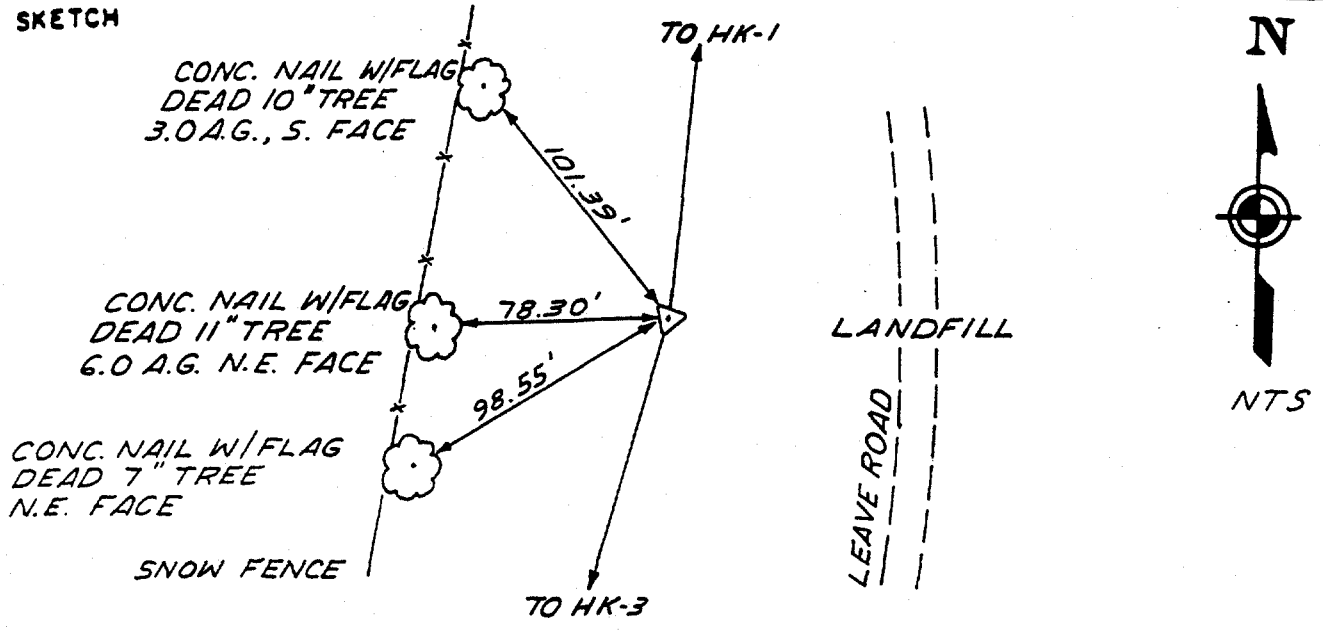
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL _____ ORDER ACCURACY
VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc.
YEAR 1986
ELEVATION _____ FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X 1849430.900 Y 345877.749
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK - 1	5°-43'-10"		634.436
HK - 3	195°-23'-05"		583.545

SKETCH



DETAILED DESCRIPTION

Station HK-2(Also being BM "S") is a 24" x 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap marked "HK-2" set in concrete 3± inches below ground and is 70± feet westerly of the centerline of Leave Road and 1760 ± feet southwesterly from the intersection of Leave Road and Jessups Mill Road.

DR 004273

URS CO. INC.

NAME OF STATION HK-3

PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL Second ORDER ACCURACY

HORIZONTAL CONTROL 1927 G.A. DATUM

VERTICAL CONTROL _____ ORDER ACCURACY

VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Glouceste

SET BY URS Co., Inc.

YEAR 1986

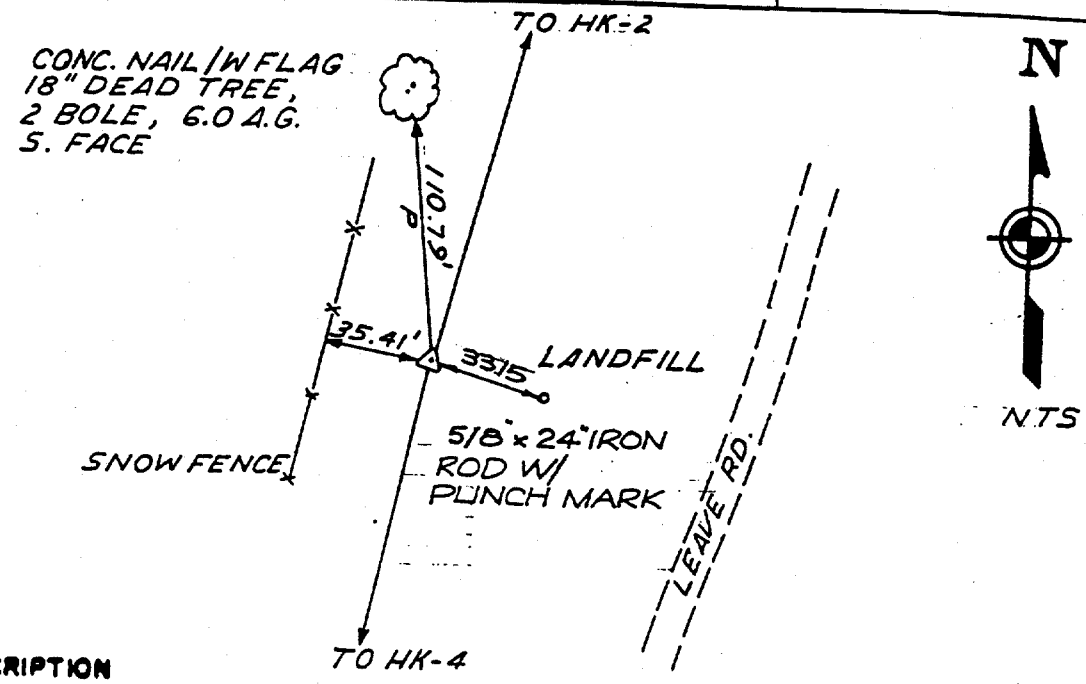
ELEVATION _____ FE

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X 1849276.085 Y 345315.116

New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-2	150-23'-05"		583.545
HK-4	1920-31'-50"		444.865

SKETCH



DETAILED DESCRIPTION

Station HK-3 (also being BM "T") is a 24" x 5/8" Diameter iron rod with a URS Co. Inc. 2" diameter aluminum cap marked "HK-3" set in concrete 3± inches below ground and is 87 ± feet westerly of the centerline of Leave Road and 1250 ± feet northeasterly from the intersection of Leave Road and Boody Mill Road.

DR 004274

URS CO. INC.

NAME OF STATION HK-4
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

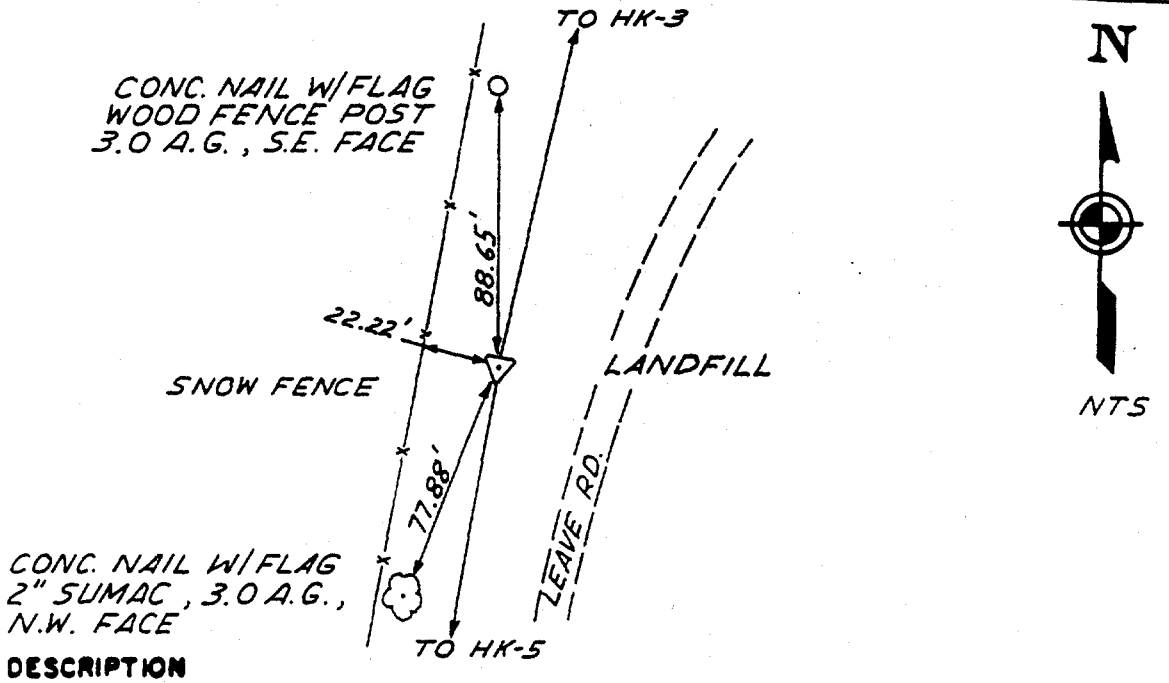
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL _____ ORDER ACCURACY
VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc.
YEAR 1986
ELEVATION _____ FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X 1849179.567 Y 344880.848
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-3	120-31'-50"		444.865
HK-5	189-31'-17"		488.188

SKETCH



DETAILED DESCRIPTION

Station HK-4 (Also being BM "U") is a 24" x 5/8" diameter iron rod with a URS Co. Inc. 2" diameter aluminum cap marked "HK-4" set in concrete 3 ± inches below ground and is 30 ± feet westerly of the centerline of Leave Road and is 815 ± feet northeasterly from the intersection of Leave Road and Boody Mill Road.

DR 004275

URS CO. INC.

NAME OF STATION HK-5
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

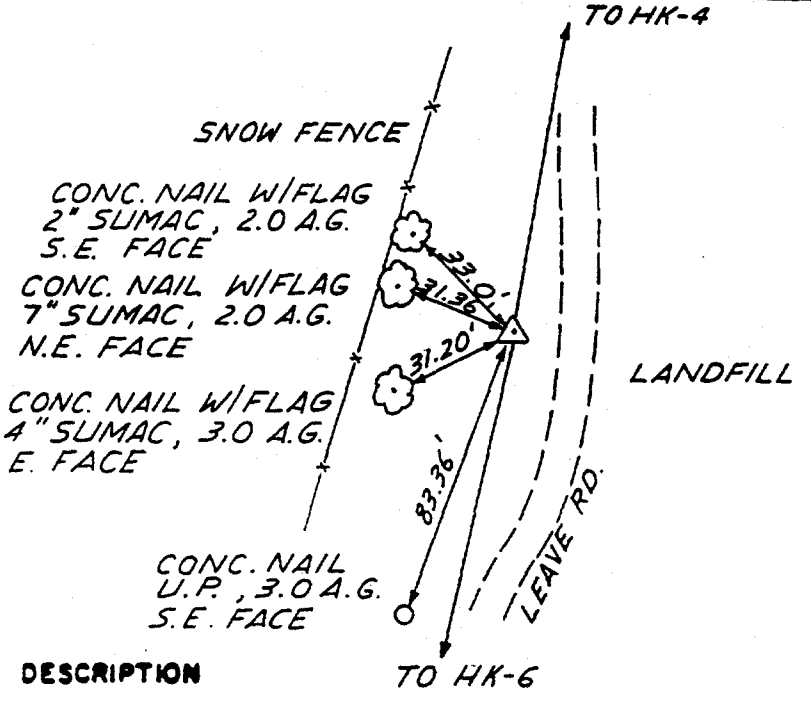
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL ORDER ACCURACY
VERTICAL CONTROL DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc.
YEAR 1986
ELEVATION FE

LATITUDE ° ' " LONGITUDE ° ' " X 1849098.812 Y 344399.386
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-4	90 -31' - 17"		488.188
HK-6	1920 -20'-12"		235.101

SKETCH



DETAILED DESCRIPTION

Station HK-5 (Also being BM "V") is a 24" x 5/8" iron rod with a URS Co. Inc. 2" diameter aluminum cap marked "HK-5" set in concrete 3 ± inches below ground and is 18 ± feet westerly of the centerline of Leave Road and 210 ± feet northeasterly from the intersection of Leave Road and Boody Mill Road.

DR 004276

URS CO. INC.

NAME OF STATION HK-6
PROJECT NUMBER 3512?

CONTROL SURVEY RECORD

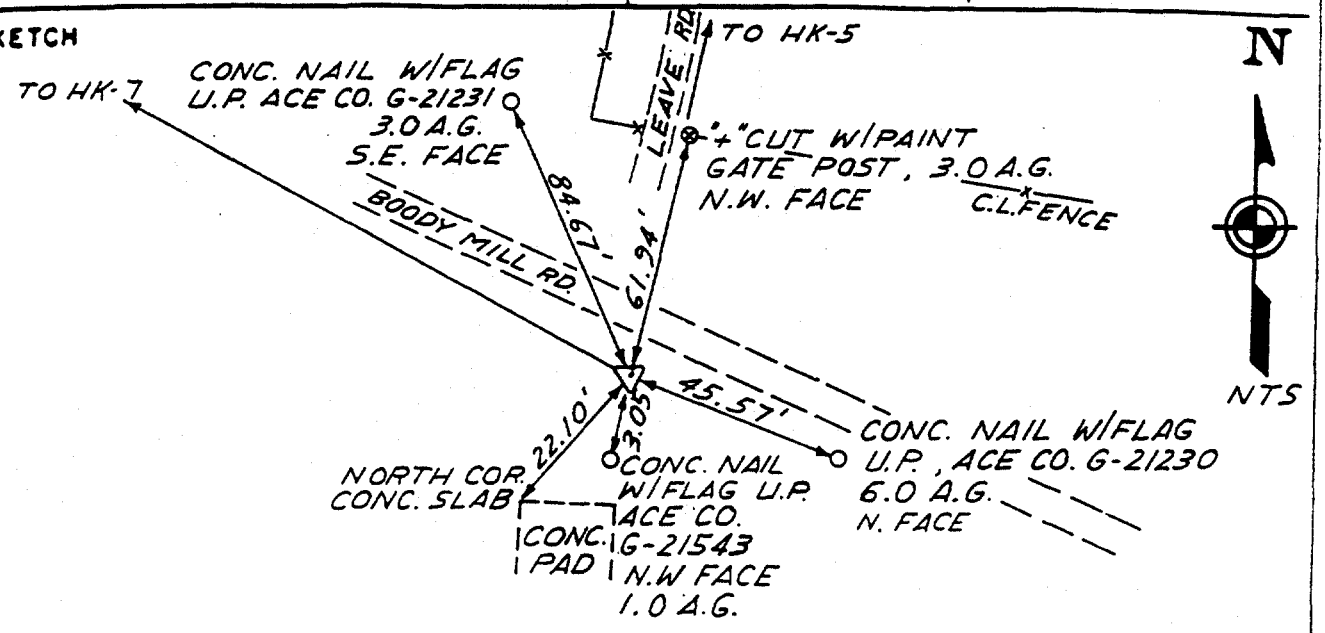
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL _____ ORDER ACCURACY
VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc.
YEAR 1986
ELEVATION _____ FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X 1849048.582 Y 344169.715
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-5	120-20'-12"		235.101
HK-7	298-42'-40"		406.654

SKETCH



DETAILED DESCRIPTION

Station HK-6 (also being BM "W") is a 24" x 5/8" diameter iron rod with a URS Co. Inc. 2" diameter aluminum cap marked "HK-6" set in concrete 3 ± inches below ground on the southerly side of Boody Mill Road 28 ± feet southerly from the intersection of the occupied centerlines of Boody Mill Road and Leave Road.

DR 004277

URS CO. INC.

NAME OF STATION HK-7
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

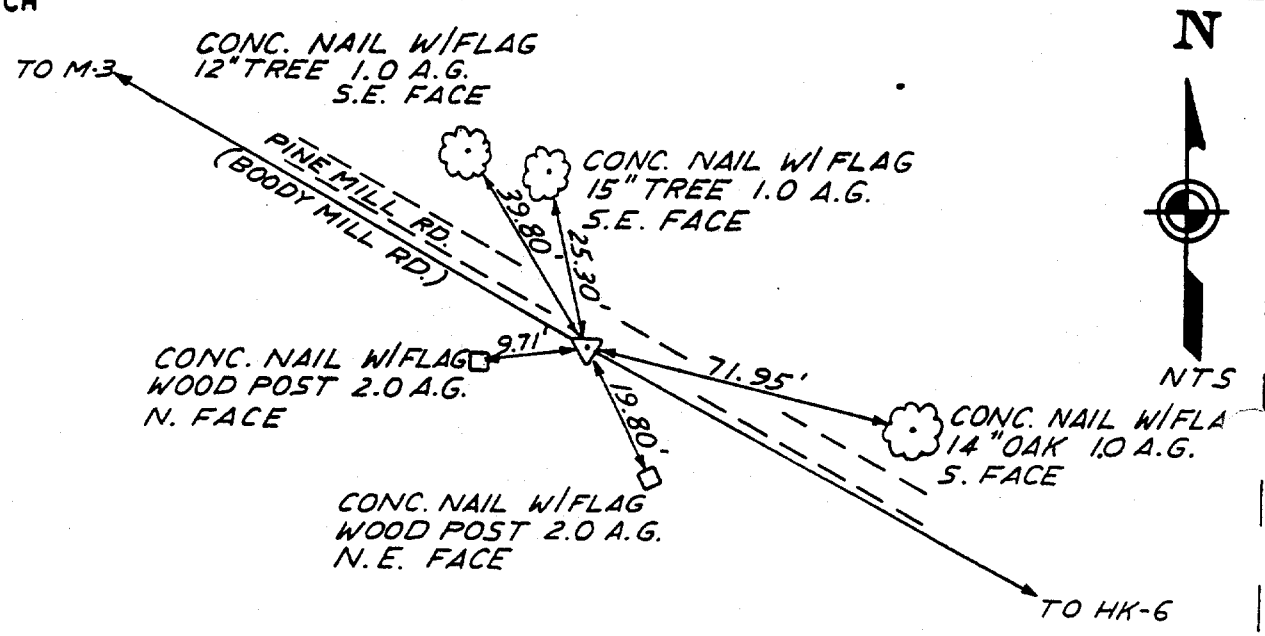
HORIZONTAL CONTROL Second ORDER ACCURACY
HORIZONTAL CONTROL 1927 G.A. DATUM
VERTICAL CONTROL _____ ORDER ACCURACY
VERTICAL CONTROL _____ DATUM

STATE New Jersey COUNTY Glouceste
SET BY URS Co., Inc.
YEAR 1986
ELEVATION _____ FE

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X 1848691.925 Y 344365.068
New Jersey SYSTEM OF PLANE COORDINATES **** ZONE. PROJECTION T.M.

To Station	Azimuth	Back Azimuth	Distance
HK-6	118°-42'-40"		406.654
M-3	300°-21'-17"		637.858

SKETCH



DETAILED DESCRIPTION

Station HK-7 (also being BM "X") is a 24" x 5/8" diameter iron rod with a URS Co. Inc. 2" diameter cap stamped "HK-7" set in concrete 3 ± inches below ground and is located on the southerly side of Pine Mill Road (Boody Mill Road) 400 ± feet westerly of its intersection with Leave Road.

DR 004278

TRAVERSE COMPUTATION SHEET

DR 004279

BY: ECN DATE 11-6-86

CHECK: ELB DATE 11-7-86

TRAVERSE COMPUTATION SHEET

HELEN KRAMER LANDFILL PRIMARY HORIZONTAL CONTROL

SHEET _____ OF _____

JOB NO 35127

STATION	BALANCED FIELD ANGLE	HORIZ. DIST.	GRID DIST.	UNADJUSTED AZ. OR BRG.	UNADJUSTED COORDINATES NORTHING (Y)	UNADJUSTED COORDINATES EASTING (X)	ADJUSTED AZ. OR BRG.	ADJUSTED DIST. GRID.	ADJUSTED DIST. HORIZ.	ADJUSTED COORDINATES NORTHING (Y)	ADJUSTED COORDINATES EASTING (X)
M-2					347645.48	1849162.16				347645.48	1849162.16
			363.80	S74°-34'-55"E			S74°-34'-55"E				
M-1	255°-36'-56"				347548.76	1849512.87				347548.76	1849512.87
		1039.948	1039.946	S01-02-01W			S01-01-58W	1039.904	1039.906		
HK-1	184-41-11				346508.983	1849494.110				346509.025	1849494.125
		634.462	634.461	S05-43-12W			S05-43-10W	634.435	634.436		
HK-2	189-39-54				345877.681	1849430.876				345877.749	1849430.900
		583.570	583.569	S15-23-06W			S15-23-05W	583.544	583.545		
HK-3	177-08-45				345315.025	1849276.053				345315.116	1849276.085
		444.884	444.883	S12-31-51W			S12-31-50W	444.864	444.865		
HK-4	176-59-28				344880.739	1849179.529				344880.848	1849179.567
		488.209	488.208	S09-31-19W			S09-31-17W	488.187	488.188		
HK-5	182-48-53				344399.257	1849098.767				344399.386	1849098.812
		235.111	235.110	S12-20-12W			S12-20-12W	235.100	235.101		
HK-6	286-22-19				344169.576	1849048.534				344169.715	1849048.582
		406.652	406.651	N61-17-29W			N61-17-20W	406.654	406.654		
HK-7	181°-38'-37"				344364.913	1848691.871				344365.068	1848691.925
		637.854	637.853	N59°-38'-52"W			N59°-38'-43"W	637.857	637.858		
M-3					344687.230	1848141.445				344687.41	1848141.51
				(M-3 Published)	(344687.41)	(1848141.51)					

Avg. Grid Factor = 0.999997849

ΣHD = 4470.681 Closure=0.192', N19°-46'-26"E Precision 1:23,000

4B-10

DR 004280

DESIGN ANALYSIS REPORT

APPENDIX 4C

BENCH LEVEL RUN ADJUSTMENT SUMMARY

BENCH LEVEL RUN
ADJUSTMENT SUMMARY

I. PRIMARY LEVEL RUN

A. Closure

Length (miles) = 4.45

Error of Closure = -0.07

Allowable Error = $0.035 \times \sqrt{4.45} = 0.07$

B. Adjustment

Benchmark	Observed Elevation (ft.)	Adjusted Elevation (ft.)
Z	98.45	98.46
Y *	81.59	81.60
X	88.53	88.55
W	79.65	79.67
V	82.08	82.10
U	82.80	82.82
T	78.42	78.44
S	87.39	87.44
R	69.91	69.94
Q **	62.62	62.65
P ***	60.48	60.51
M	71.90	71.94
L	61.20	61.25
K	53.37	53.42
J	40.21	40.27
I	57.57	57.60

* C.O.E. M-1 ** C.O.E. M-1 *** C.O.E. M-2

II. SECONDARY LEVEL RUN ONE

A. Closure

Length (miles) = 0.56

Error of closure +0.02

Allowable error = $0.05 \times \sqrt{0.56} = 0.04$

B. Adjustment

Benchmark	Observed Elevation (ft.)	Adjusted Elevation (ft.)
D	85.16	85.16
C	72.36	72.35

III. SECONDARY LEVEL RUN TWO

A. Closure

Length (miles) = 0.42

Error of closure = -0.01

Allowable error = $0.05 \times \sqrt{0.42} = 0.03$

B. Adjustment

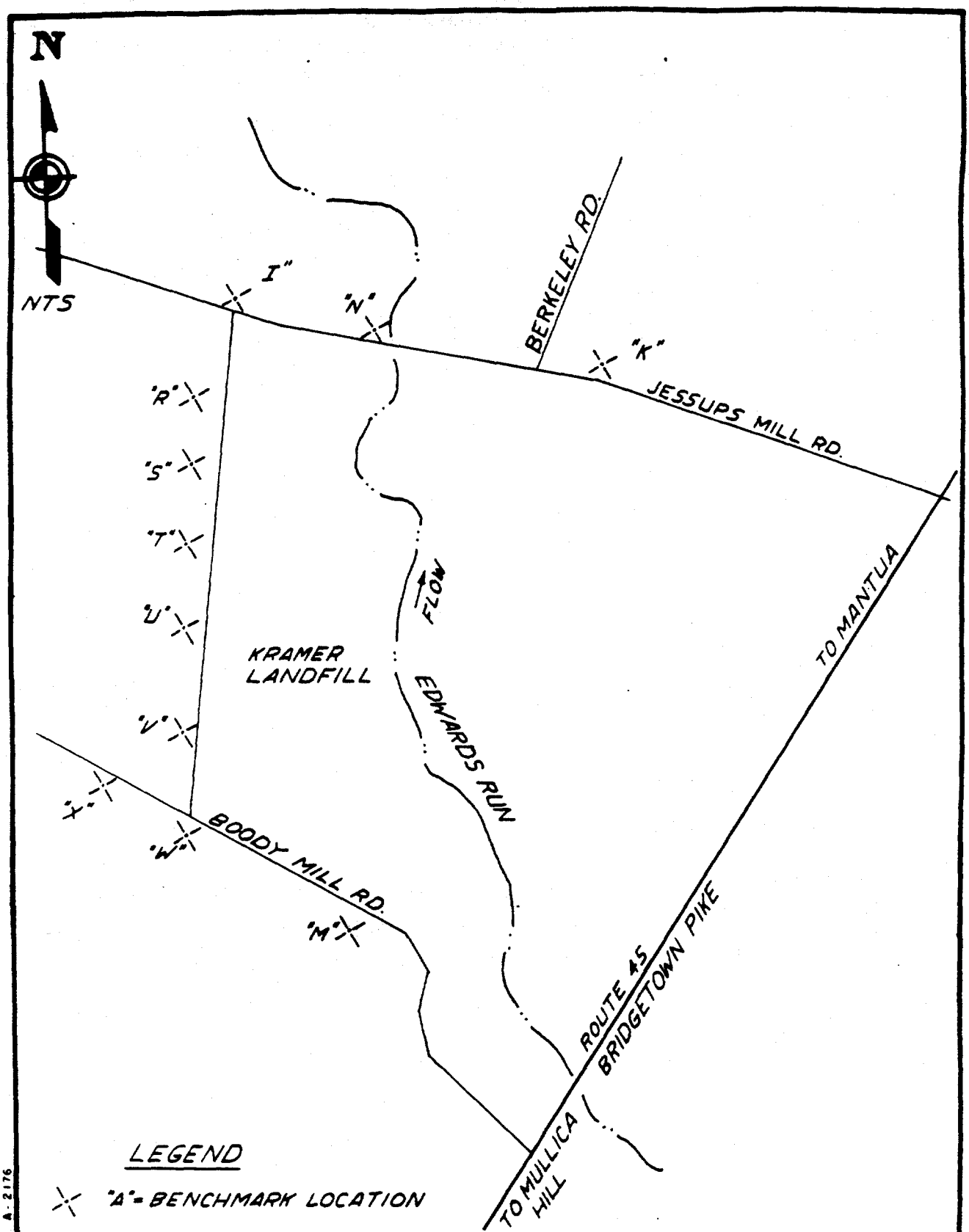
Benchmark	Observed Elevation (ft.)	Adjusted Elevation (ft.)
N	23.17	23.17
O	23.36	23.37

DESIGN ANALYSIS REPORT

APPENDIX 4D

VERTICAL CONTROL BENCHMARK DESCRIPTIONS, RECOVERY SKETCHES, AND LAYOUT MAP

(ESTABLISHED BY URS COMPANY, INC.)



DWG NO A-2176

URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

HELEN KRAMER LANDFILL

VERTICAL CONTROL POINT LAYOUT

FIGURE 4.2

URS CO. INC.

NAME OF STATION "I"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 57.60 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

No Sketch

DETAILED DESCRIPTION

BM "I" is the highest point on a R.R. spike set on the southerly side of a utility pole marked "25 AMP" located on the northerly side of Jessups Mill Road at its "T" intersection with Leave Road, 15± feet northerly of the occupied centerline of Jessups Mill Road. The spike is set 1± foot above ground.

DR 004286

URS CO. INC.

NAME OF STATION "K"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY _____ STATE New Jersey COUNTY Gloucester
HORIZONTAL CONTROL _____ DATUM _____ SET BY URS Co., Inc
VERTICAL CONTROL Second ORDER ACCURACY _____ YEAR 1986
VERTICAL CONTROL NGVD DATUM _____ ELEVATION 53.42 FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

No Sketch

DETAILED DESCRIPTION

BM "K" is the highest point on a R.R. spike set on the southerly side of a utility pole (no markings) located on the northerly side of Boody Mill Road 2000± feet easterly of the intersection of Leave Road and Boody Mill Road and 1600 ± feet westerly from the intersection of Boody Mill Road and Route 45. The spike is set 1± foot above ground.

DR 004287

URS CO. INC.

NAME OF STATION "M"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 71.94 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

No Sketch

DETAILED DESCRIPTION

BM "M" is the highest point on a R.R. Spike set on the northerly side of utility pole marked "ACE Co. 39293" located on the southerly side of Boody Mill Road 1500± feet easterly of the intersection of Leave Road and Boody Mill Road and 2100± feet westerly from the intersection of Boody Mill Road and Route 45. The spike is set 1± foot above ground.

DR 004288

URS CO. INC.

NAME OF STATION "N"
PROJECT NUMBER 3512?

CONTROL SURVEY RECORD

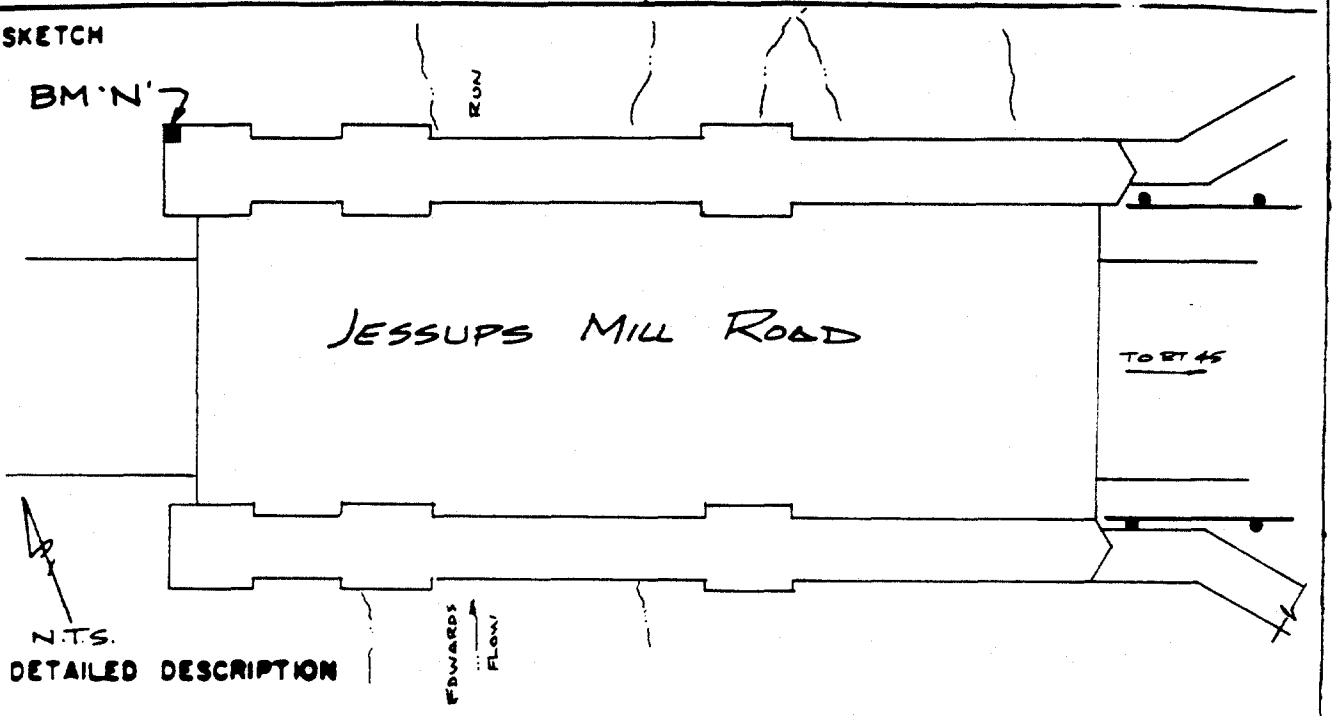
HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 23.37 FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH



DETAILED DESCRIPTION

BM "N" is the highest point in a chiseled square located on the northwesterly corner of the bridge abutment for the Jessups Mill Road Bridge over Edwards Run. The chiseled square is located 1± mile west of the intersection of Jessups Mill Road and Rt. 45, 0.15 ± mile west of Berkley Road, 12.5± feet north of the centerline of Jessups Mill Road and is 1± feet above ground.

DR 004289

URS CO. INC.

NAME OF STATION "R"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 69.94 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
For HK-1

DETAILED DESCRIPTION

BM "R" (also being horizontal control point HK-1) is the highest point on a URS Co., Inc. 2" diameter aluminum cap,marked "HK-1",mounted on a 5/8" iron rod and is set in concrete. It is located 150 ± feet northwesterly of the centerline Leave Road and 1050± feet southwesterly from the intersection of Leave Road and Jessups Mill Road. The cap is set 3± inches below ground.

URS CO. INC.

NAME OF STATION "S"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY _____ STATE New Jersey COUNTY Gloucester
HORIZONTAL CONTROL _____ DATUM _____ SET BY URS Co., Inc
VERTICAL CONTROL Second ORDER ACCURACY _____ YEAR 1986
VERTICAL CONTROL NGVD DATUM _____ ELEVATION 87.41 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
For HK - 2

DETAILED DESCRIPTION

BM "S" (also being horizontal control point HK - 2) is the highest point on a URS Co., Inc. 2" diameter aluminum cap, marked "HK - 2", mounted on a 5/8" iron rod and is set in concrete. It is located 70± feet westerly of the centerline Leave Road and 1760 ± feet southwesterly from the intersection of Leave Road and Jessups Mill Road. The cap is set 3± inches below ground.

DR 004291

URS CO. INC.

NAME OF STATION "T"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 78.44 FEE

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
for HK - 3

DETAILED DESCRIPTION

BM "T" (also being horizontal control point HK-3) is the highest point on a URS Co., Inc. 2" diameter aluminum cap,marked "HK-3", mounted on a 5/8" iron rod and is set in concrete. It is located 87± feet westerly of the center line of Leave Road and is 1250± feet northeasterly from the intersection of Leave Road and Boody Mill Road. The cap is set 3± inches below ground.

DR 004292

URS CO. INC.

NAME OF STATION "U"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 82.82 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
For HK-4

DETAILED DESCRIPTION

BM "U" (also being horzontal control point HK-4) is the highest point on a URS Co. Inc. 2" diameter aluminum cap,marked "HK-4",mounted on a 5/8 " iron rod and is set in concrete. It is located 30± feet westerly of the centerline of Leave Road and is 815± feet northeasterly from the intersection of Leave Road and Boody Mill Road. The cap is set 3± inches below ground.

DR 004293

URS CO. INC.

NAME OF STATION "V"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 82.10 FEET

LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____" X _____ Y _____
SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
For HK-5

DETAILED DESCRIPTION

BM "V" (also being horizontal control point HK-5) is the highest point on a URS Co. Inc. 2", diameter aluminum cap, marked "HK-5", mounted on a 5/8" iron rod and is set in concrete. It is located 18± feet westerly of the centerline of Leave Road and is 210± feet northeasterly from the intersection of Leave Road and Boody Mill Road. The cap is set 3± inches below ground.

DR 004294

URS CO. INC.

NAME OF STATION "W"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 79.67 FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X _____ Y _____
SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
for HK - 6

DETAILED DESCRIPTION

BM "W" (also being horizontal control point HK-6) is the highest point on a URS Co., Inc. 2" diameter aluminum cap, marked "HK-6", mounted on a 5/8" iron rod and is set in concrete. It is located on the southerly side of Boody Mill Road 28 ± southerly from the intersection of the occupied centerlines of Boody Mill Road and Leave Road and is also 3 ± feet northerly of a utility poll marked "Ace Co. G 21548." The cap is set 3± inches below ground

DR 004295

URS CO. INC.

NAME OF STATION "X"
PROJECT NUMBER 35127

CONTROL SURVEY RECORD

HORIZONTAL CONTROL _____ ORDER ACCURACY
HORIZONTAL CONTROL _____ DATUM
VERTICAL CONTROL Second ORDER ACCURACY
VERTICAL CONTROL NGVD DATUM

STATE New Jersey COUNTY Gloucester
SET BY URS Co., Inc
YEAR 1986
ELEVATION 88.55 FEET

LATITUDE ___° ___' ___" LONGITUDE ___° ___' ___" X _____ Y _____
_____ SYSTEM OF PLANE COORDINATES _____ ZONE. PROJECTION _____

To Station	Azimuth	Back Azimuth	Distance

SKETCH

See Recovery Sketch
For HK - 7

DETAILED DESCRIPTION

BM "X" (Also seing horizontal control point HK - 7) is the highest point on a URS Co., Inc. 2" diameter aluminum cap, marked "HK - 7", mounted on a 5/8" iron rod and is set in concrete. It is located on the southerly side of Pine Mill Rd. (Boody Mill Rd) 400± feet westerly of its intersection with Leave Road and is 9± feet south of the occupied centerline of Pine Mill Road. The cap is set 3± inches below ground.

DR 004296

DESIGN ANALYSIS REPORT

APPENDIX 4E

NEW JERSEY GEODETIC SURVEY
MONUMENT DESCRIPTIONS

Gloucester County (2)

1962 Year

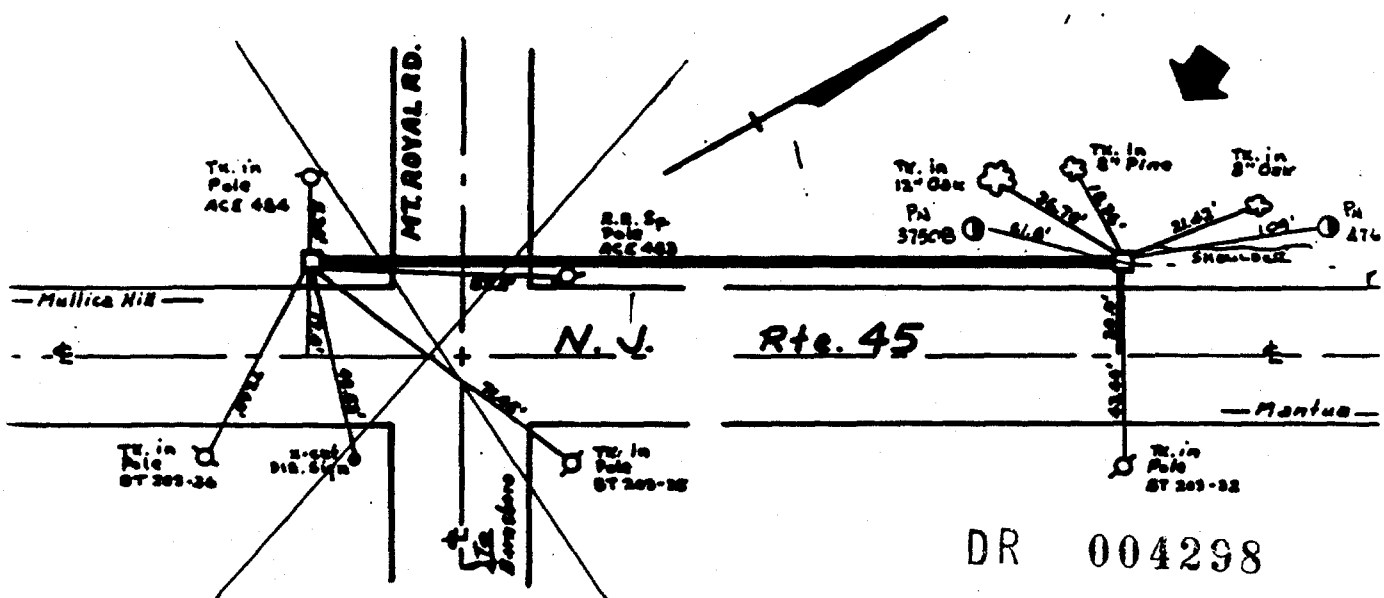
Map 54

N. J. GEODETIC CONTROL SURVEY
DESCRIPTION OF MONUMENTS

Monument No. 1018	Monument No. 1017
County Gloucester	County Gloucester
Township Mantua	Township Mantua
Road N.J. Rte. 45	Road N.J. Rte. 45
Location about 1.8 mile southwest of Mantua and adjacent to the intersection of Rte. 45 and the Barnsboro-Mt. Royal Road.	Location about 0.6 miles southwest of State Rte. 45 and the Mantua-Pitman Road at Mantua
Type Mark standard U.S.C.+G.S.+S.S. disk.	Type Mark standard U.S.C.+G.S.+S.S. disk.
Set in concrete	Set in concrete
Set 0.6 feet below Ground	Set 0.6 feet below SHOULDER PAVING Ground
Remarks the monument is 77.60 feet north of Pole BT-203-36.	Remarks the monument is 36.70 feet northwest of a 12 inch Oak tree.
Elevation 80.894	Elevation 48.386
X-coord. (east) 1,854,928.12	X-coord. (east) 1,855,866.44
Y-coord. (north) 346,016.68	Y-coord. (north) 347,437.77
Last Recovery 1949 Last Revision 1962	Last Recovery 1982 Last Revision 1982

Distance between monuments is 1,702.96 feet

N. J. Grid Bearing: Mon. 1017 to Mon. 1018 : S 33°26'09.8"W



DR 004298

MON. 1018

MON. 1017

54-C-2

Gloucester County
1939

NEW JERSEY

GEODETIC CONTROL SURVEY

DESCRIPTION OF MONUMENTS

Map 54

Mon. 1059: East Greenwich Twp., Gloucester Co., N.J. A standard U.S.C.&G.S.&S.S. disk, set in concrete, on the east side of the Paulsboro-Jefferson Road about 1.8 miles north of Jefferson, 0.2 ft. below the surface.

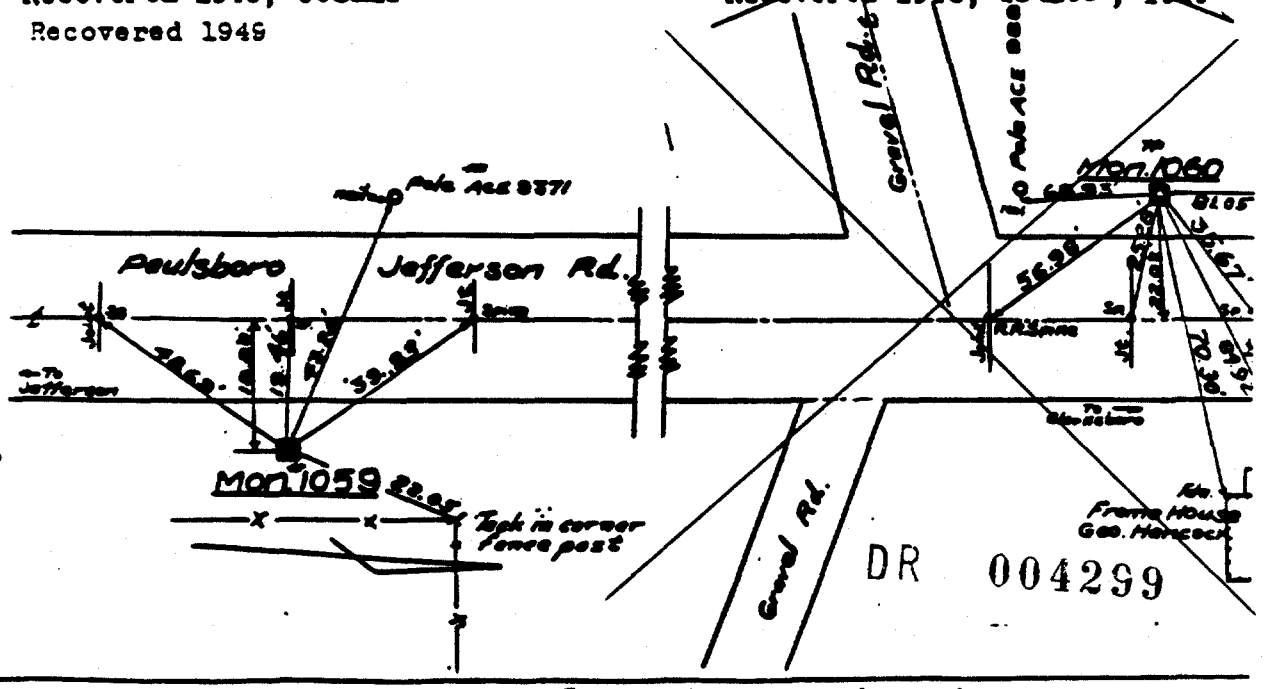
The monument is 43.84 ft. southeast of a nail in Pole #ACE 9371; 39.83 ft. southeast, 19.46 ft. east and 48.69 ft. northeast respectively of three RR spikes in the middle paving joint of the Paulsboro-Jefferson Road. Companion monument 1060 is 2381.44 ft. northwest.

Mon. 1060: East Greenwich Twp., Gloucester Co., N.J. A standard U.S.C.&G.S.&S.S. disk, set in concrete, on the west side of the Paulsboro-Jefferson Road about 2.1 miles north of Jefferson, flush with the surface.

The monument is 68.93 ft. north of a nail in pole #ACE 9887; 35.67 ft. southwest, 25.28 ft. west and 56.98 ft. northwest respectively of three RR spikes in the middle paving joint of the Paulsboro-Jefferson Road. Companion Mon. 1059 is 2381.44 ft. southeast.

N.J. Grid Bearing: Mon. 1059 to Mon. 1060: N 1°30'59.0" W ✓

Mon. 1059:	feet	Mon. 1060:	feet
Elevation:	105.510 ✓	Elevation:	107.720 ✓
x-coord:(east)	1,844,766.66 ✓	x-coord:(east)	1,844,703.64
y-coord:(north)	344,656.40 ✓	y-coord:(north)	347,037.01
Recovered 1946, USC&GS		Recovered 1946, USC&GS, 1949	
Recovered 1949			



DESIGN ANALYSIS REPORT

APPENDIX 4F

SURVEY PLAT AND LEGAL DESCRIPTION

LEGAL DESCRIPTION OF LANDS OF HELEN KRAMER

All that certain parcel or tract of land situate partly in the Township of East Greenwich and principally in the Township of Mantua, County of Gloucester, and State of New Jersey, bounded and described as follows:

BEGINNING at a point in the center of the right of way of Jessups Mill Road (50 feet wide), said point being distant westerly 1960.13 feet (1925.94 feet called) from a nail found at the intersection of the centerline of Berkley Road (50 feet wide) with the centerline of said Jessups Mill Road; said point of beginning also being North 10-51'-00" East 25.02 feet from a found 3" x 3" concrete monument with a brass rod in the southerly right of way of said Jessups Mill Road; said point of beginning further being the northeasterly corner of lands conveyed to Joseph Leone and Rosalie Leone, his wife, in Book 1025 of Deeds, page 282 and recorded on November 27, 1961 in the Clerk's Office of Gloucester County and also being the northwesterly corner of lands conveyed to Helen Kramer in Book 913 of Deeds, page 246, et. al. and recorded on August 6, 1958 in said Clerk's Office.

THENCE South 10-51'-00" West a total distance of 3350.16 feet with the following passing calls:

at 25.02 feet passing said found 3" x 3" concrete monument with a brass rod;

at 33.03 feet passing the northeasterly corner of lands conveyed to Rosalie Leone in Book 1321 of Deeds, page 664 and recorded on February 28, 1977 in said Clerk's Office;

at 365.93 feet passing the southeasterly corner of said lands conveyed to Rosalie Leone;

at 3332.94 feet passing a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "COR 17.22 SW" set in the northerly line of Boody Mill Road, also known as Pine Mill Road (33 feet wide);

and continuing said total distance to a point for corner in the centerline of Boody Mill Road (Pine Mill Road); said point being the southwesterly corner of said lands conveyed to Kramer and also being the southeasterly corner of said lands conveyed to Joseph Leone and Rosalie Leone, his wife.

THENCE South 62-30'-19" East, 504.24 feet to a point for corner in the centerline of the right of way of Boody Mill Road (33 feet wide), said point being a southerly corner of said lands conveyed to Kramer and also being the northwesterly corner of lands conveyed to Paul A. Robbins and Myrtle M. Robbins, his wife, in Book 1208 of Deeds, page 671 and recorded on September 30, 1971 in said Clerk's Office.

THENCE North 71-40'-47" East a total distance of 1075.46 feet with the following passing calls:

at 23.01 feet passing a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "COR 23.01 SW" set in the northerly line of Boody Mill Road (33 feet wide);

and continuing said total distance to a 3" x 3" concrete monument with a brass rod found for an interior corner of said lands conveyed to Kramer and

the northeasterly corner of said lands conveyed to Robbins.

THENCE South 12-03'-18" East a total distance of 613.80 feet with the following passing calls:

at 497.05 feet passing a found 1©" pinched top pipe;

and continuing said total distance to a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "PROP COR" set for an angle point in the said lands conveyed to Kramer.

THENCE South 11-16'-37" East a total distance of 278.34 feet with the following passing calls:

at 205.01 feet passing the southeasterly corner of said lands conveyed to Robbins, also being an interior corner of lands conveyed to Frank V. Federico and Mary E. Federico, his wife, in Book 1467 of Deeds, page 904 and recorded on May 12, 1983 in said Clerk's Office;

and continuing said total distance to a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "PROP COR" set for corner of said lands conveyed to Kramer and also being an interior corner of said lands conveyed to Federico.

THENCE North 64-13'-23" East 272.44 feet along the common line of said lands conveyed to Kramer and said lands conveyed to Federico to its intersection with "the westerly edge of the Mill Pond at the line of a full head of water" as described in said Kramer Deed (approximately elevation 20 NGVD), said point being an interior corner of the said lands conveyed to Kramer and also being the southwesterly corner

of lands conveyed to Matthew D. Dehnhard in Book 1511 of Deeds, page 186 and recorded on March 12, 1985 in said Clerk's Office.

THENCE generally in a northerly and westerly direction along the said "westerly edge of the Mill Pond.....", being the common line of said lands conveyed to Kramer and said lands conveyed to Dehnhard, to a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "PROP COR" set for corner, said point being an interior corner of said lands conveyed to Kramer and lying in the westerly line of said lands conveyed to Dehnhard and also being the southeasterly corner of lands conveyed to Herbert Frazier and Anna Frazier, his wife, in Book 1260 of Deeds, page 571 and recorded on April 15, 1974 in said Clerk's Office.

THENCE North 76-21'-30" West 191.41 feet to a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "PROP COR" set at an interior corner of said land conveyed to Kramer and being the southwesterly corner of said lands conveyed to Frazier.

THENCE North 13-38'-30" East a total distance of 567.60 feet with the following passing calls:

at 542.60 feet passing a 5/8" iron rod with a URS Co., Inc. 2" diameter aluminum cap stamped "COR 25.00 NE" set in the southerly right of way line of Jessups Mill Road (50 feet wide);

and continuing said total distance to a point for corner in the center of the right of way of Jessups Mill Road (50 feet wide), said point being the northeasterly corner of said lands conveyed to Kramer

and also being the northwesterly corner of said lands conveyed to Frazier.

THENCE North 76-36'-30" West 506.22 feet along the center line of Jessups Mill Road to the point of place of beginning.

CONTAINING 89.85 acres of land, more or less and commonly being known as Lot 1 Block 6, Plat 4 on the Tax Map of the Township of Mantua.

All bearings referred to grid north.

This description is based upon an actual field survey performed by URS Company, Inc., Buffalo, New York.

DR 004305

SURVEY PLAT

REFER TO SK-402-4

(ALSO DWG R-1)

DR 004306

DESIGN ANALYSIS REPORT

APPENDIX 4G

GEOPHYSICAL AND DRILLING
POINT LOCATIONS AND ELEVATIONS

SUMMARY OF GEOPHYSICAL AND DRILLING POINT
LOCATIONS THROUGH 12/18/86
HELEN KRAMER LANDFILL

OBJECT	N	E	ELEVATION
SB-1	346862.4012	1849529.442	68.11
SB-2	346567.0777	1849470.130	69.57
SB-3	345845.2198	1849331.179	76.74
SB-4	345440.4317	1849260.206	74.23
SB-5	344919.0428	1849159.186	79.75
SB-6	344263.0853	1849007.292	84.07
SB-7	343998.3119	1850012.563	76.44
SB-8	344067.2006	1850451.498	77.65
SB-9	343956.7381	1850538.664	60.67
SB-10	344433.0688	1850880.698	21.85
SB-11	344935.3913	1850425.570	34.05
SB-12	345361.0163	1850615.075	23.34
SB-13	345881.6607	1850731.219	25.12
SB-14	346290.7016	1850332.621	25.68
SB-15	344084.4431	1849843.845	80.18
SB-16	344919.7594	1850319.206	41.19
SB-17	344106.7470	1850121.086	79.21
SB-18	344195.4844	1850295.529	78.50
SB-19	343804.7243	1851078.213	18.68
GW-1	344244.8999	1849486.903	80.20 GND 83.66 FITTING 83.76 CASING

OBJECT	N	E	ELEVATION
GW-2	344142.3979	1849278.852	76.44 GND 79.79 FITTING 79.89 CASING
GW-3	344513.9169	1849099.123	80.87 GND 84.35 FITTING 84.43 CASING
GW-4	345363.6376	1849274.412	76.28 GND 79.96 FITTING 80.03 CASING
GW-5	346631.3089	1849499.046	68.75 GND 72.68 FITTING 72.74 CASING
GW-6	346732.0403	1849815.108	59.85 GND 62.50 FITTING 62.57 CASING
GW-7	346211.3240	1849706.509	89.53 GND 91.13 FITTING 91.23 CASING
GW-8	345619.1629	1849963.772	107.31 GND 110.58 FITTING 110.65 CASING
GW-9	345278.5425	1849639.715	101.79 GND 104.16 FITTING 104.46 CASING
GW-10	344866.9955	1849750.218	110.66 GND 113.57 FITTING 113.65 CASING
GW-11	344311.3957	1850501.452	85.86 GND 89.37 FITTING 89.43 CASING
GW-12	344295.7093	1849964.502	72.13 GND 75.42 FITTING 75.49 CASING
SMW-1	346737.3786	1849808.560	60.85

OBJECT	N	E	ELEVATION
SMW-2	346372.6714	184935.693	75.92 GND 78.38 TOP PVC 78.55 CASING
SMW-3	344585.1870	1849092.276	81.04
SMW-4	344083.3215	1849331.307	76.28 GND 78.33 TOP PVC 78.49 CASING
SMW-5	344035.7556	1850248.706	77.02 GND 79.55 TOP PVC 79.68 CASING
SMW-6	345273.7667	1850574.506	24.50 GND 27.29 TOP PVC 27.41 CASING
GP-1*	344211.4435	1849155.220	
GP-4*	344182.036	1849280.128	
GP-10*	344180.048	1849973.309	
GP-16*	344175.375	1850446.782	
GP-17*	344328.764	1849078.290	
GP-26*	345260.668	1849248.332	
GP-33A*	346039.786	1849393.007	
GP-41*	346844.497	1849591.866	
GP-1	344129.0780	1850469.333	
GP-2	344046.9561	1850503.983	
GP-3	343972.3626	1850530.671	
GP-4	343906.4968	1850592.582	
GP-5	343984.8194	1850656.993	
GP-6	344092.0472	1850730.228	
GP-7	344186.9940	1850761.116	
GP-8	344327.1739	1850804.494	

OBJECT	N	E	ELEVATION
GP-9	344477.3012	1850825.527	
GP-10	344563.1449	1850757.210	
GP-11	344619.4061	1850618.230	
GP-12	344654.0869	1850558.155	
GP-13	344745.4968	1850504.535	
GP-14	344846.7954	1850459.287	
GP-15	344908.7976	1850388.560	
GP-16	345072.0249	1850338.069	
GP-17	345108.2307	1850421.566	
GP-18	345239.3391	1850481.340	
GP-19	345361.4658	1850518.428	
GP-20	395419.4149	1850603.679	
GP-21	345499.8188	1850658.811	
GP-21A	345504.3408	1850599.113	
GP-21B	345553.4644	1850473.516	
GP-22	345601.8824	1850631.823	
GP-23A	345751.7596	1850663.893	
GP-23B	345712.2928	1850481.649	
GP-24	345791.9915	1850472.941	
GP-25	345910.4149	1850516.336	
GP-26	346044.0238	1850469.345	
GP-27	346127.7566	1850377.013	
GP-28	346236.8398	1850334.055	
GP-29	346298.8414	1850235.723	
GP-30	346387.6781	1850109.669	

OBJECT	N	E	ELEVATION
GP-31	346387.5625	1850011.653	
GP-32	346472.8289	1849969.373	
GP-33	346580.8367	1849947.323	
PW-1	346208.603	1850440.103	25.07
PW-2 & 2A	345878.294	1850624.175	36.16
PW-3	344840.536	1850455.943	32.07
PW-4	344539.053	1850864.783	22.27
FB-1	346730.032	1849984.206	50.56
FB-2	346880.4124	1850019.660	53.28
FB-3	347001.352	1850047.321	52.23
FB-4	346709.112	1850104.503	40.37
FB-5	346876.121	1850092.089	53.69
FB-6	346990.230	1850135.785	51.07
FB-7	344108.2348	1850343.118	83.81
FB-8	344014.2205	1850375.454	76.15
FB-9	343943.0203	1850397.652	72.72
FB-10	344040.5320	1850290.432	77.47
FB-11	343944.9892	1850329.270	72.03
FB-12	343992.5810	1850291.187	73.88
FB-13	344076.5106	1850238.019	80.12
FB-14	343952.4633	1850266.617	72.74
FB-15	344000.6484	1850142.906	75.57

* Geophysical Points Surveyed November 1986

DR 004312

DESIGN ANALYSIS REPORT

APPENDIX 4H

LOCATION OF STREAM CROSS SECTIONS ALONG EDWARDS RUN

DESIGN ANALYSIS REPORT

APPENDIX 5

DESIGN ANALYSIS REPORT

APPENDIX 5A

STUDY OF LEACHATE/GROUNDWATER FLOW INTO

THE LEACHATE/GROUNDWATER COLLECTION DRAIN

* *

THIS APPENDIX IS NO LONGER RELEVANT
AND HAS BEEN DELETED BASED UPON
RESULTS OF THE VALUE ENGINEERING STUDY

* *

DESIGN ANALYSIS REPORT

APPENDIX 5B

STUDY OF GROUNDWATER FLOW FROM EDWARDS RUN INTO

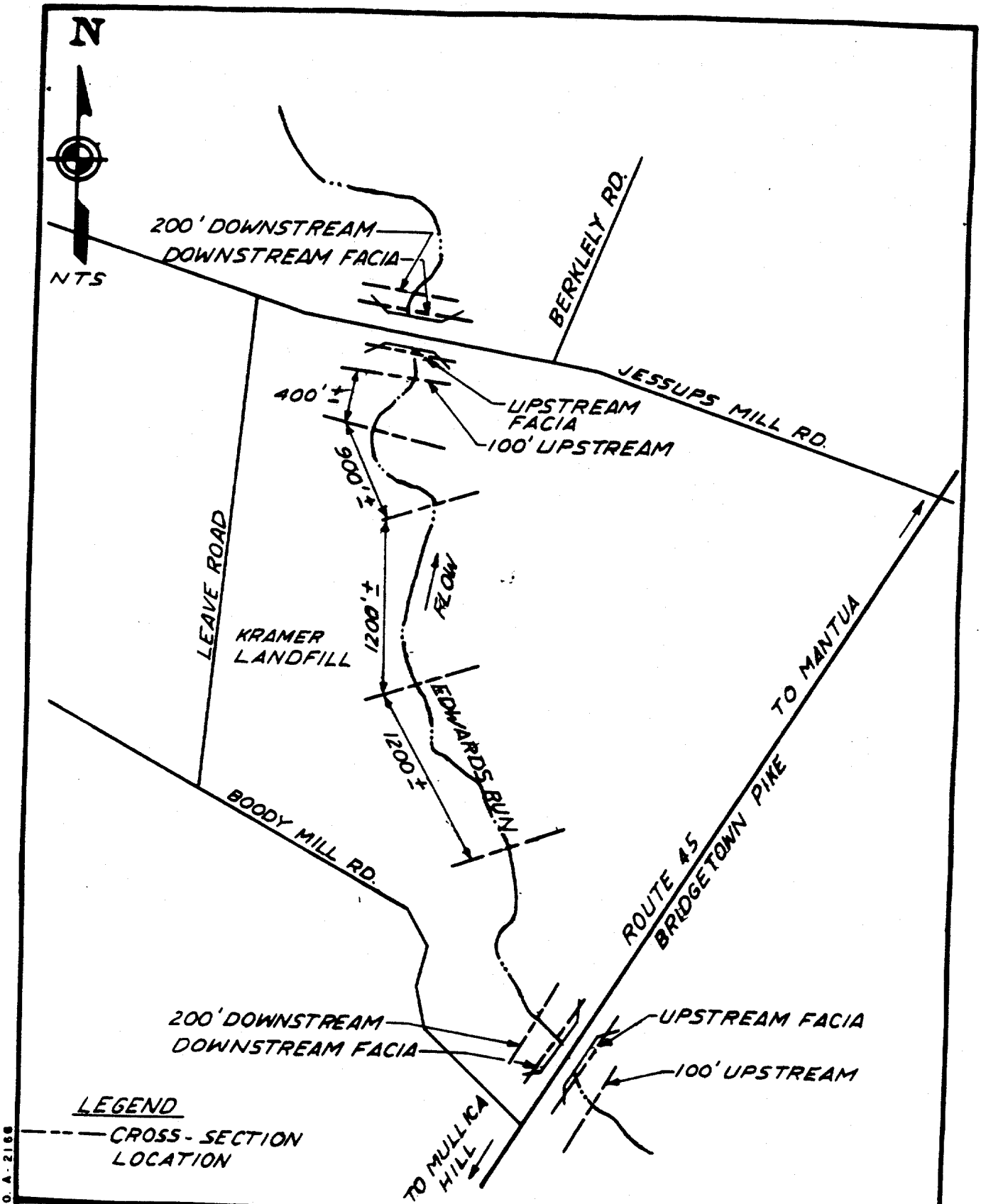
THE LEACHATE/GROUNDWATER COLLECTION DRAIN

AND PRELIMINARY DRAIN LAYOUT

* *

THIS APPENDIX IS NO LONGER RELEVANT
AND HAS BEEN DELETED BASED UPON
RESULTS OF THE VALUE ENGINEERING STUDY

* *



DWG NO. A-2168

URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

HELEN KRAMER LANDFILL

HYDRAULIC CROSS-SECTION LOCATIONS

FIGURE 4.3

DESIGN ANALYSIS REPORT

APPENDIX 5C

LEACHATE COLLECTION

DRAIN DESIGN PARAMETERS

APPENDIX 5C

LEACHATE COLLECTION DRAIN DESIGN

1.0 INTRODUCTION

The leachate collection drain is placed inside the down gradient slurry wall to collect leachate and to maintain a leachate level at 20 ft. MSL to minimize production.

2.0 METHODOLOGY

The groundwater leachate flow rate was developed and presented in the Value Engineer Study Report (Ref.). Based upon the results of modeling the flow to the collection drain (when the leachate level is maintained at 20 ft. MSL) is 30 gpm (see Table 6-2, V.E. Study). The following additional criteria were used to define the layout:

- The drain centerline is located 20 feet from the slurry wall centerline and runs the length of the landfill's east side (see Sheets #5 and 6). This drain is designed to intercept all the down gradient leachate flow.

- Design leachate elevation is 20 ft. MSL, as established in the V E Study.

- Pipe and trench slope is set at 1%. This will minimize cuts and maximize velocity.

- Three pumping locations are proposed. Three stations will be used to balance the collection into approximately 3-1000 ft. long drain

segments. Each segment have a centrally located pump station, which means that the longest drain segment draining to a pump station will be 500'. At a slope of 1%, this means that the ~~inverts~~ INVERTS of the pump stations will be five feet lower that each high point separating the three segments.

- Pump sizing is based upon each pump being able to discharge the total drain design of 30 gpm. A duplex system will be used to add capacity at each pump station of about another 30 gpm. In addition a duplex system will offer 100% redundancy if the lead pump fails. Since the pretreatment facility is not manned round-the-clock, this is necessary.

- Clean out accesses will be located at a maximum of 300' and at points of inflection in the drain. A 4' diameter manhole will serve as a cleanout so that 2 people can easily have access to the pipe and that, in case of emergency, or heavy flow the cleanout could be used as a backup pump station.

- The drain design is a filter fabric rapped stone envelope with a 6" ϕ corrugated perforated polyethylene pipe for unobstructed flow extending the entire length of the drain. The stone is placed one foot under the pipe invert and EXTENDS to rough grade or at least elevation +30 MSL.

- The controls are locally operated since operation depends upon production of leachate. Lead/lag pump controls would even out the useful pump

life. Duplex system would also double the capacity, if necessary.

3.0 PUMP SELECTION

The three pump stations shall house complete duplex submersible pump systems. A single pump is sized to deliver 30 gpm at 100 feet of total dynamic lead. The pumps will be coated with acid resistant paint.

4.0 DESIGN

The system will have three duplex pump systems, local controls and mercury float switches. The length of drain is 2,945 feet with a 3' x 20' stone envelope, fabric filter and a 6" diameter corregated perforated PE pipe. There are 11 cleanouts for access to the pipe for cleaning out solids. A 4" diameter PVC forcemain will connect the farthest PS to the middle PS, and change to 6" diameter PVC to the treatment plant. Cleanouts and pressure/vacuum relief valves will be strategically located a least every three hundred feet and at high points and low points respectively in The Forcemain.

BY DHS DATE 2/12/88 | **URS COMPANY, INC.** | SHEET NO. 1 OF 10

CHKD. BY ____ DATE ____ | *CONSULTING ENGINEERS* | JOB NO. 35127

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN

DESIGN OF THE LEACHATE COLLECTION DRAIN IS BASED ON THE FOLLOWING.

① TOTAL FLOW TO DRAIN : 30 GPM FROM VE STUDY

② LENGTH OF DRAIN IS ABOUT 3000 LF.

③ DRAIN WILL BE A 3'x (VARIES) STONE DRAIN WITH A PIPE TO FACILITATE CLEANING AND ALLOW UNOBSTRUCTED FLOW.

④ COE SPEC's ALLOW FLEXIBLE PE PIPE. THIS MATERIAL IS EASILY HANDLED, PLACED AND IS ONE OF THE MATERIALS CURRENTLY BEING COUPON TESTED WITH RAW LEACHATE.

⑤ MAX LEACHATE LEVEL = 20' MSL (UE)

⑥ ORIGINAL ROD STATED 3 PUMP STATIONS BASED UPON DESIRE TO PROMOTE FLOW FROM EDWARDS RUN TO DRAIN.

WITH SW, WE DO NOT NEED TO PROMOTE FLOW FROM EDWARDS RUN. THE LENGTH OF DRAIN PLUS THE NEED TO KEEP DRAIN INTERCEPTING LEACHATE FLOWS, HOWEVER, DEMANDS A SYSTEM WHICH CAN BEST CONTROL THE LEACHATE LEVEL.

THE 3 PUMP STATION SYSTEM WILL BE MAINTAINED SINCE IT WILL:

Ⓐ TO KEEP DRAIN ~~LENGTH~~ (AMOUNT OF DRAIN FEEDIN EACH PS) TO ABOUT 1000'.

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN

(B) THIS LENGTH, COUPLED WITH PIPE SLOPE, KEEPS THE INVERT OF THE PS AT A REASONABLE DEPTH.

(C) DRAIN WILL BE CONTINUOUS WITHOUT ISOLATION MANHOLES AS PRESENTED IN PHASE II. THE IS NO LONGER ANY REASON TO KEEP SECTIONS SEPARATE. IF ONE PS FAILS, LEACHATE WILL FLOW TO THE NEXT PS, THUS MAINTAINING THE 20' MSL REQUIREMENT.

(7) PUMP SIZING - SINCE LEACHATE PRODUCTION PER LF OF DRAIN IS NOT CONSTANT, EACH PS WILL BE SIZED TO HANDLE THE FULL 30 GPM FLOW. IT IS ASSUMED EACH PIPE TO THE PS WOULD CARRY 1/2 OF THE 30GPM. THE PS WILL BE A 6' DIAMETER P.CAST CONCRETE MH. THE 6' Ø WILL ALLOW ABOUT 200 G/VERTICAL FT OF RISER. IN ORDER TO HANDLE THE 30 GPM A DUPLEX SYSTEM would OFFER THE FOLLOWING:

(A) BE ABLE TO PUMP IN EXCESS OF 30 GPM.

(B) BE HOOKED UP IN A LEAD/LAG

5C-5

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN

ALTERNATING MODE TO KEEP Both pumps ON AN EQUAL OPERATING Schedule.

(B) OFFER ABOUT 2 times THE POSSIBLE INFLOW CAPACITY, IF NEEDED.

(C) PROVIDE INSTANT BACKUP IF LEAD PUMP FAILS, KEEPING LEACHATE PUMPING FROM BEING INTERUPTED.

(D.) MIN. ON-OFF CYCLE WOULD BE 1 MINUTE ON FOR ± EVERY 2 MINUTES OFF. (IN @ 30 GPM AND POSSIBLE OUTFLOW @ 60 GPM)

(8) PS WILL HAVE THE FOLLOWING CONTROLS:

(A) LOCAL ON/OFF
(B) MERCURY FLOAT SWITCHS
(C) LOCAL ALARM LIGHT
(D) TIMED LEAD/LAG SWITCH

(9) PUMPS WILL BE SUBMERSIBLE VERTICAL CENT.

(10) FORCE MAIN TO BE RIGID PVC SCH 40 (W) PUSH ON JOINTS

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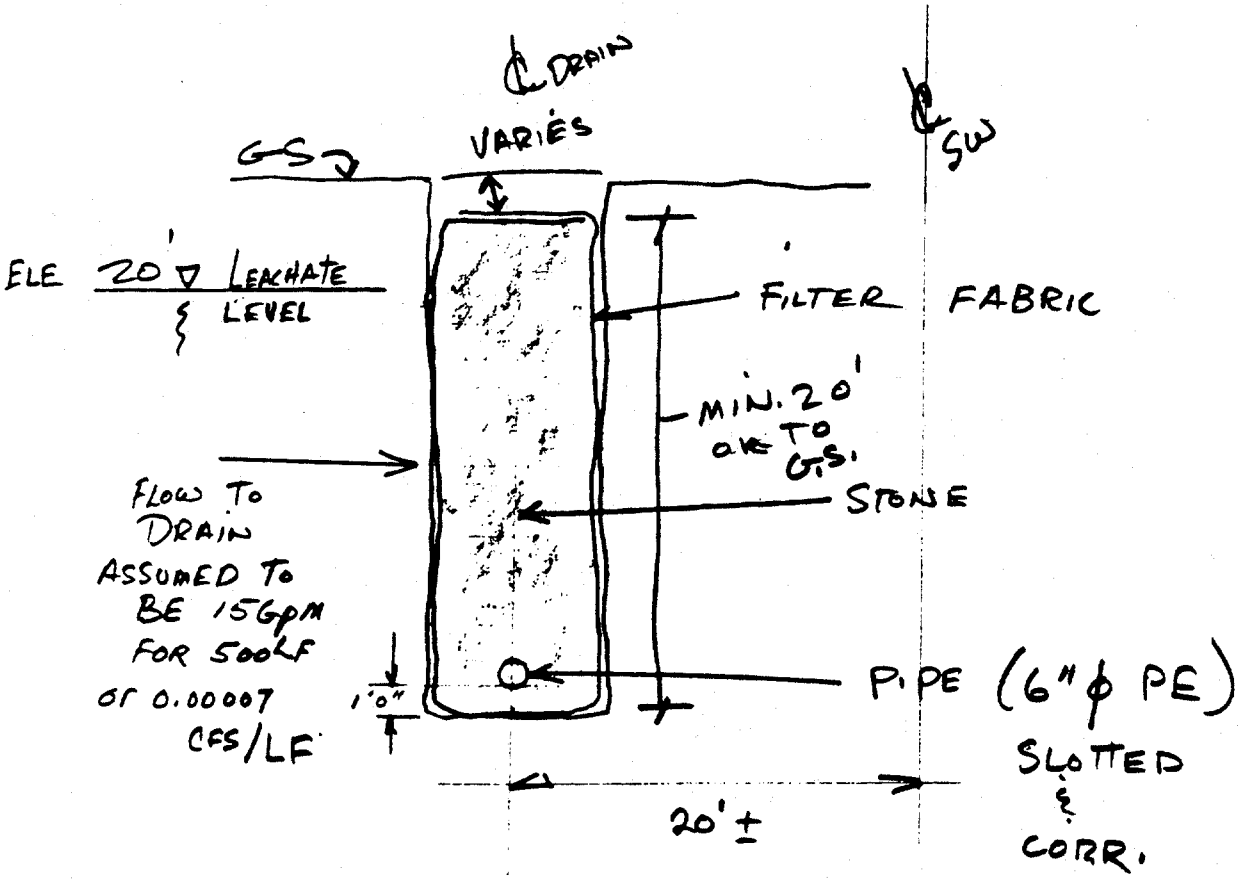
SHEET NO. 4 OF 10
JOB NO. 35127

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN

FLOW CALCS:

- 500 LF TO PS FROM HIGH POINT
- MAX FLOW FROM ONE SIDE OF COLLECTION DRAIN TO PS = 15 GPM
- 30 GPM = 0.07 CFS ∴ 15 GPM = 0.035 CFS
- DRAIN @ ~~HAVE~~ STONE ENVELOPE @ DRAIN PIPE.



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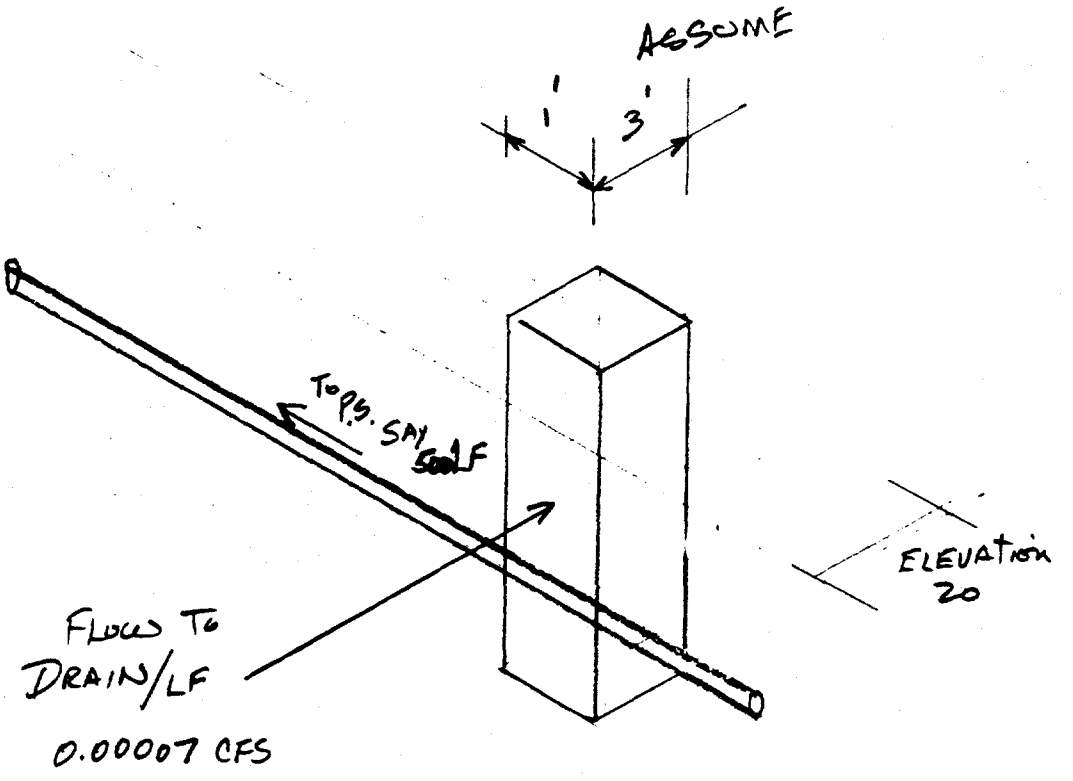
SHEET NO. 5 OF 10

JOB NO. 35127

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN



① PIPE TO CARRY LEACHATE @ MIN HEAD LOSS

② STONE TO HAVE $K \geq 1.0 \times 10^{-2}$ CM/SEC OR PER CLEAN GRAVEL pg 55 OF T. + PECK. SOIL MECHANICS IN ENG. PRACTICE

LIMITING FACTOR: HEAD DIFF BETWEEN PS & 500' LENGTH OF DRAIN END.

ASSUME: 5' H DIFF. ≅ 1% SLOPE

NOW CALC PIPE CAPACITY @ 15 GPM @ 500' LENGTH.

DR 004326

BY DHS DATE 2/15/89

CHKD. BY ____ DATE ____

URS CORPORATION
CONSULTING ENGINEERS

SHEET NO. 6 OF 10

JOB NO. 35127

SUBJECT: LEACHATE COLLECTION DRAIN DESIGN

USING "HANCOR" DESIGN

THE FOLLOWING EQUATION WAS USED:

MANNINGS $Q = \frac{1.486}{n} R^{2/3} S^{1/2} A$

WHERE: $n = .015$ (4" or 6")

$R = 0.0825\ ft^2$ (4") / $0.1254\ ft^2$ (6") (PIPE IS SUBMERGED ASSUME FULL FLOW.

$\frac{1.486}{n} R^{2/3} A = 1.605$ (4")
4.906 (6")

For Slopes →	0.001	0.01	0.02	
4"	0.0016	0.016	0.032	Q (CFS)
6"	0.0049	0.049	0.098	

$Q = 0.035$ DESIGN USE 6" @ 0.01 slope

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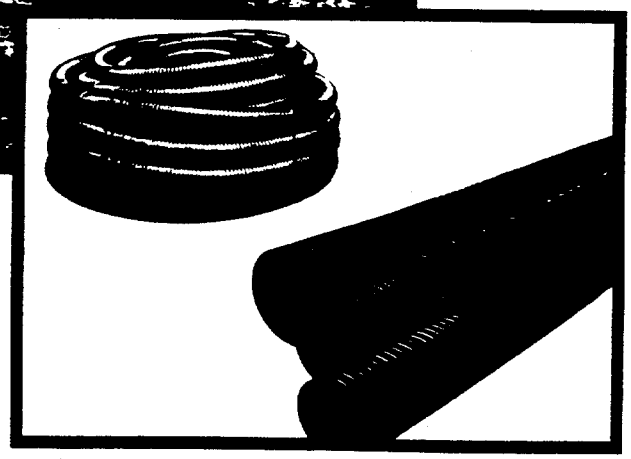
HANCOR

Highway and Culvert Drainage Products



- Lightweight Plastic Pipe
- Easy Installation
- Corrosion Free
- Strong

DR 004328

5c-10

8 of 10

Fast, easy, inexpensive installation for

1 *Digging trench for highway berm drainage.*

2 *Preparing gravel bedding and grading for highway pipe. Gravel is preferred for optimum performance.*

3 *Man easily carries pipe to trench. No additional heavy equipment required.*

Culvert Pipe Here's the culvert pipe that has all the features you need for heavy duty applications—Hancor Culvert Pipe!

Durable because it's made of high density polyethylene plastic. It won't rust, corrode, crack, or crumble. Resists thawing and freezing temperatures.

Lightweight so that sections handle easily and install in minutes. Unlike clay, concrete, or corrugated metal pipe, Hancor Culvert Pipe requires no special handling equipment. Your labor costs are reduced dramatically.

Strong because it has deeply corrugated ribs in an extra thick wall. It will handle the heaviest loads with ease, and it meets or exceeds AASHTO Materials Specifications, ASTM F-405 and ASTM F-667 for corrugated polyethylene tubing.

Flexible and workable so that it shifts with the movement of the ground. There are no failures due to misalignment in unstable soil. Can be easily cut to length with hand saw...no welding torches or power equipment needed.

Hancor Culvert Pipe is available in 8, 10, 12, and 15-inch diameters in 20-foot sections and 18, and 24-inch diameters in self-coupling 10-foot sections.

Highway Pipe The other half of the Hancor heavy duty team is Hancor corrugated Highway Pipe. Under highways and berms, it collects and drains excessive groundwater. Proper subsurface drainage of highways dramatically reduces highway repair costs and gives highways longer life with less maintenance.

With continually rising costs of repair materials and labor, the relatively small investment in drainage will pay for itself many times over.

Like Hancor Culvert Pipe, Hancor Highway Pipe is also made of high density polyethylene plastic for rust, rot, chemical, and temperature resistance. Its light weight and flexibility speed up installation and reduce installation cost, as never before. And its original cost is about 50% to 70% less than steel pipe to save you even more money.

Hancor Highway Pipe meets all applicable AASHTO and ASTM requirements and state DOT specifications.

Pipe diameters 3, 4, and 6-inch are available in straight lengths, rolls, and on large jobs for faster installation, maxi-coils are available. Highway drainage jobs requiring larger than 6-inch diameter, use Hancor Culvert Pipe.

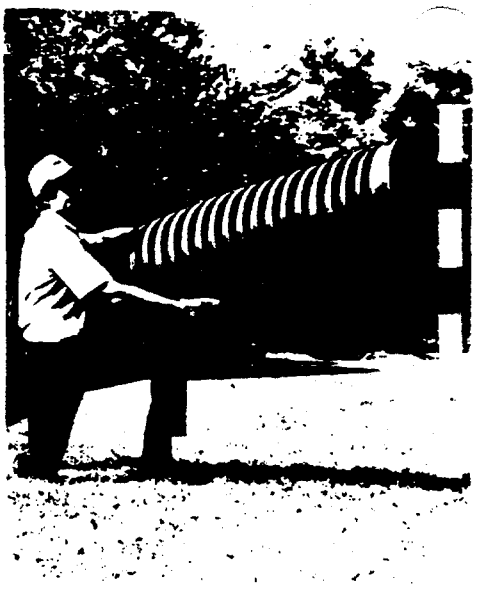
↑ USE FOR HK.

HANCOR

5C-11

DR 004329

highway and culvert drainage systems.



4 Flexible corrugated pipe is easily placed in trench bottom without specialized equipment.

5 Backfilling trench with gravel for optimum support of pipe sidewall.

6 18" and 24" pipe in self-coupling, 10 foot lengths allows easy handling and installation.

Technical and Installation Data

Hancor corrugated Highway and Culvert Pipe has the strength to stand up to the toughest load requirements of heavy-duty highway and culvert drain applications. And it meets the following applicable specifications:

ASTM F-405, Standard Specification for Corrugated Polyethylene Tubing and Fittings.

ASTM F-667, Standard Specification for Large Diameter Corrugated Polyethylene Pipe.

AASHTO M-252, Specification for Corrugated Polyethylene Drainage Tubing.

AASHTO M-294, Specification for Corrugated Polyethylene Pipe, 12 to 24-inch diameters.

Filter Wrap Hancor Highway and Culvert Pipe is also available upon request with filter wrap preapplied. Filter wrap is specified by certain Federal, State, and Local specifications for highway drainage. For detailed information about filter wrap materials available from Hancor consult Hancor Product Information Bulletin, PIB-02-83. A copy can be obtained from your Hancor distributor or by writing or calling any of the Hancor locations shown on the back page.

1/3 to 1/4 the Weight of Steel

Weight Comparison*

Pipe ID	8"	10"	12"	15"	18"	24"
Hancor Plastic	1.3	1.7	2.8	4.7	5.8	9.5
Concrete C76	35	55	93	127	168	264
Corrugated Metal	5.1	6.3	8.9	11.0	15.0	19.0

*Approx Wt (lbs/ft)

Installation As with any underground conduit, proper installation is essential with corrugated polyethylene pipe. Particular attention must be given to correct sizing of the trench, selection and compaction of backfill material and proper grade or slope of the pipe. This will give maximum performance and long service life.

Hancor Highway and Culvert drainage products are flexible conduits. Therefore, much of their load-bearing capability comes from the stability and non-compressibility of the bedding and backfill materials.

Dense gravel envelopes are recommended for best results in all applications and are a must wherever heavy loads are used such as roads, highways, parking lots and airports.

For installations with less load, such as private driveways or drainfield mains leading away from roadway edge drains, dense gravel is still the preferred envelope material, but sand or some soils may be used if properly compacted (to at least 90% AASHTO Standard Density).

For detailed and specific installation recommendations for Hancor Culvert Pipe, consult Hancor Product Information Bulletins. A copy can be obtained from your Hancor distributor or by writing or calling any of the Hancor locations shown on the back page.

DR 004330

A complete line of Hancor fittings makes installation a snap

Hancor Highway and Culvert Pipe use snap-type fittings to make connections. A full range of these fittings is available from Hancor.

A COMPLETE LINE OF CORRUGATED FITTINGS

Item	Nominal Size	Product Code
Reducer	4x2	FC-R02-04
	4x3	FC-R03-04
	5x4	FC-R04-05
	6x4	FC-R04-06
	6x5	FC-R05-06
	8x6*	FC-R06-08
*Female hub on both ends	10x8*	FC-R08-10
	12x10*	FC-R01-12
	15x12*	FC-R15-12

Item	Nominal Size	Product Code
Adapter	3"	FC-A03-03
	4"	FC-A03-04
	5"	FC-A03-05
	6"	FC-A03-06

Item	Nominal Size	Product Code
End Cap	2"	FC-E06-02
	3"	FC-E06-03
	4"	FC-E06-04
	5"	FC-E06-05
	6"	FC-E06-06
	8"	FC-E06-08
	10"	FC-E06-10
	12"	FC-E06-12
	15	FC-E06-15

Item	Nominal Size	Product Code
Internal End Cap	3"	FC-EZB-03
	4"	FC-EZB-04
	5"	FC-EZB-05
	6"	FC-EZB-06
	8	FC-EZB-08

Item	Nominal Size	Product Code
Split Coupler	3"	FC-CPB-03
	4"	FC-CPB-04
	5"	FC-CPB-05
	6"	FC-CPB-06
	8" Reg.	FC-CPS-08
	8" Long	FC-CPL-08
	10"	FC-CPB-10
	12"	FC-CPB-12
	15"	FC-CPB-15

Item	Nominal Size	Product Code
Internal Coupler U.S. Patent No. 4,247,138	3" Black	FC-CZB-03
	3" White	FC-CZW-03
	4" Black	FC-CZB-04
	4" White	FC-CZW-04
	5" Black	FC-CZB-05
	5" White	FC-CZW-05
	6" Black	FC-CZB-06
	6" White	FC-CZW-06
	8" Black	FC-CZB-08

Item	Nominal Size	Product Code
Plastl Plug End Cap	3"	FC-PZD-03
	4"	FC-PZD-04
	5"	FC-PZD-05
	6"	FC-PZD-06

Item	Nominal Size	Product Code
Perforated Plastl Plug End Cap	4"	FC-EOB-04

Item	Nominal Size	Product Code
Snap Coupler	2"	FC-CLB-02
	4"	FC-CLB-04
	5"	FC-CLB-05
	6"	FC-CLB-06

Item	Nominal Size	Product Code
Yee	3x3x3	FC-Y06-03
	4x4x4	FC-Y06-04
	5x5x5	FC-Y06-05
	6x6x6	FC-Y06-06

Item	Nominal Size	Product Code
Tee	2x2x2	FC-T6B-02
	3x3x3	FC-T06-03
	4x4x4	FC-T06-04
	5x5x5/4	FC-TR4-05
	6x6x6	FC-T06-06
	6x6x5/4	FC-TR4-06

Item	Nominal Size	Product Code
Double Tee	5x5x5x5	FC-TD6-05
	6x6x6x6	FC-TD6-06
	8x8x8x8	FC-TD6-08

Item	Nominal Size	Product Code
Reducing T	6x6x4	FC-TR4-06
	8x8x6	FC-TR6-08
	10x10x6*	FC-TR6-10
	12x12x6*	FC-TR6-12
*Requires coupler on main ends.		

Item	Nominal Size	Product Code
Stopdown Tee	12x10x6*	FC-TR8-12
*All three ends the same		

Item	Nominal Size	Product Code
Top Tee	4x6*	FC-TT6-04
*4" Spur for 6" Tubing		

Item	Nominal Size	Product Code
Ell	2x2*	FC-T6B-02
	3x3	FC-L06-03
	4x4	FC-L06-04
	5x5*	FC-T6B-05
	6x6*	FC-T6B-06
	8x8*	FC-T6B-08
*Blind Tee Ell		

Item	Nominal Size	Product Code
Downspout Adapter	2x3x3 Black	FC-D5B-03
	2x3x4 White	FC-D5W-04
	2x3x4 Black	FC-D5B-04
	3x4x4 White	FC-D7W-04
	3x4x4 Black	FC-D7B-04

Item	Nominal Size	Product Code
Stopdown Spur Tee	8x6x6/6/4	FC-TSD-06
	15Mx15M x15/12/10	FC-TSD-15

for fast, easy system installation

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