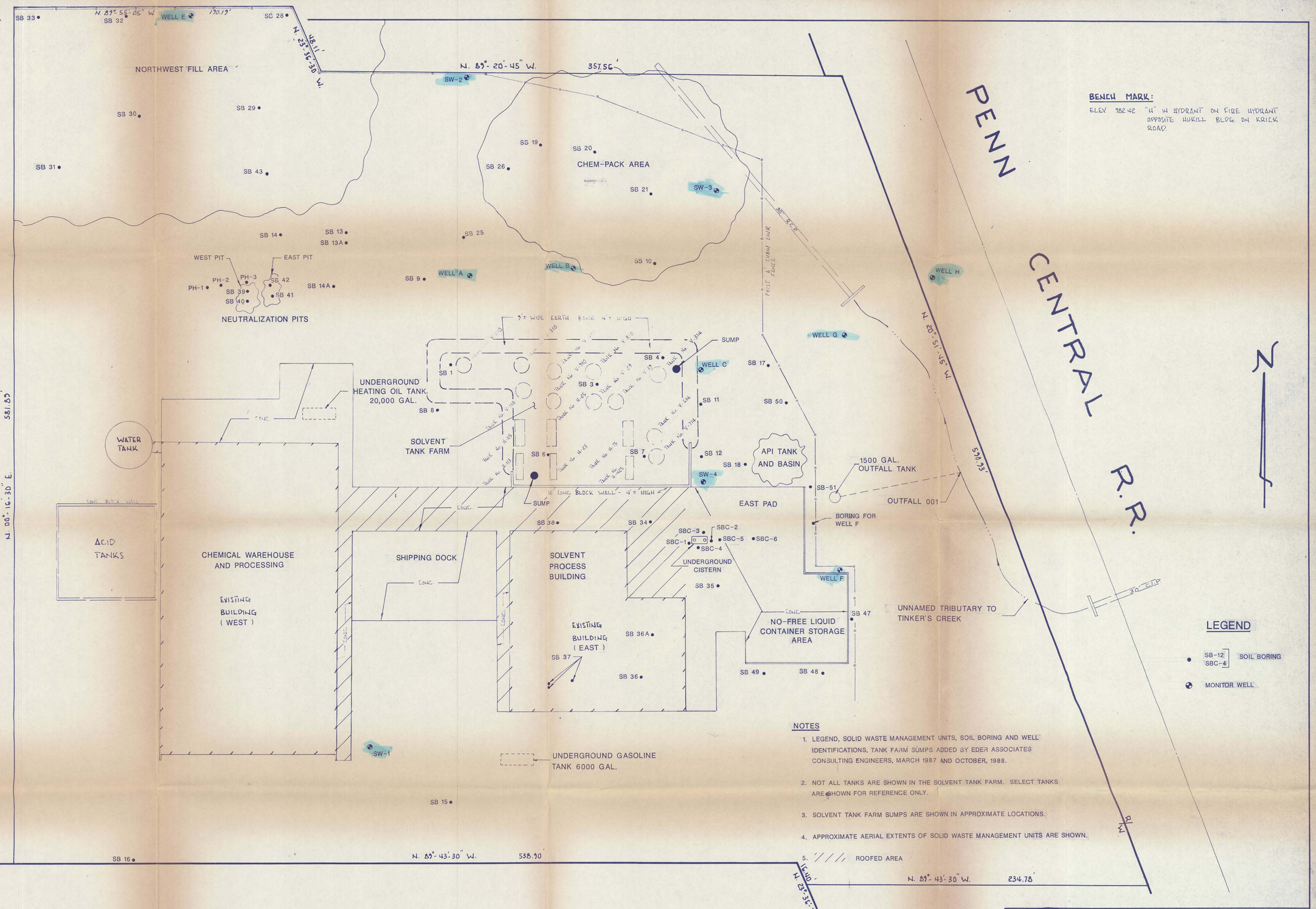


NOTES

1. LEGEND, SOLID WASTE MANAGEMENT UNITS, SOIL BORING AND WELL IDENTIFICATIONS, TANK FARM SUMPS ADDED BY EDER ASSOCIATES CONSULTING ENGINEERS, MARCH 1987 AND OCTOBER, 1988.
2. NOT ALL TANKS ARE SHOWN IN THE SOLVENT TANK FARM. SELECT TANKS ARE SHOWN FOR REFERENCE ONLY.
3. SOLVENT TANK FARM SUMPS ARE SHOWN IN APPROXIMATE LOCATIONS.
4. APPROXIMATE AERIAL EXTENTS OF SOLID WASTE MANAGEMENT UNITS ARE SHOWN.
5. ////, ROOFED AREA

No.	DESCRIPTION	DATE	BY
2	Add Well H	10/88	NAA
1	General Revisions	9/87	NAA
0	Draft Submittal	4/87	NAA

REVISIONS

Richard R. Krause
REV. 10/15/86 - LOC. ADDITIONAL BORINGS

SEAL: STATE OF OHIO — RICHARD R. KRAUSE 4753 — REGISTERED SURVEYOR

LOCATION MAP FOR:
HUKILL CHEMICAL CORPORATION
PREPARED AT THE INSTANCE OF:
EDER ASSOCIATES, CONSULTING ENGINEERS
OF PART OF ORIGINAL BEDFORD TOWNSHIP LOT No. 66, NOW SITUATED IN THE CITY OF BEDFORD, COUNTY OF CUYAHOGA AND STATE OF OHIO.

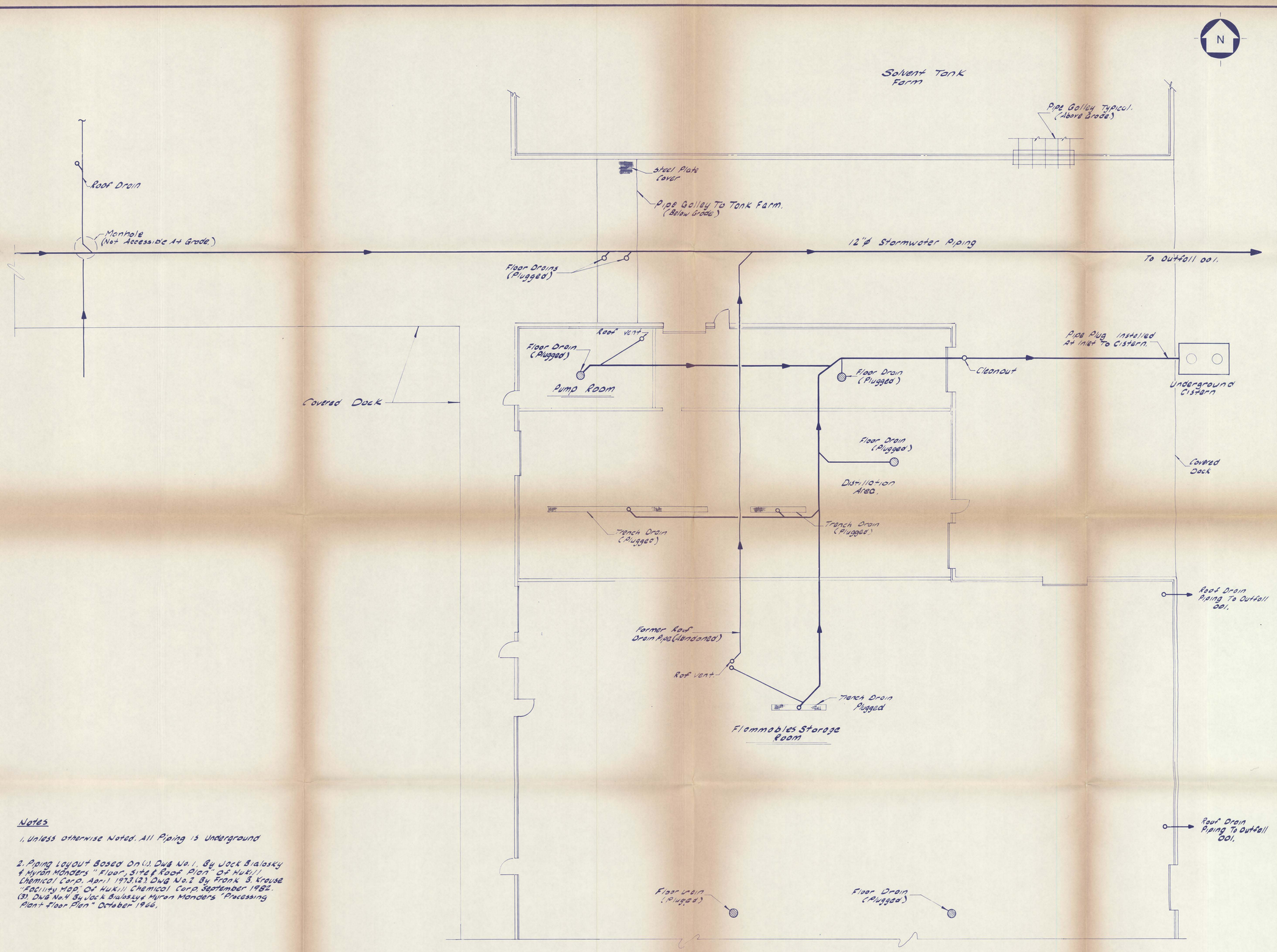
FRANK B. KRAUSE & ASSOCIATES
17021 BROADWAY MAPLE HEIGHTS OHIO 44137

FB.&PG.	PRTY.CH.	DSGD.	DWN.	CHKD.	ORD. NO.	SH. NO.	OF
355-77	D.M.		D.M.	R.R.K.	9361	1	1

SCALE: 1" = 30' DATE: MAY 23, 1986

D-9418

BRUNING 40-21 45093



Notes

1. Unless otherwise Noted. All Piping is Underground

2. Piping Layout Based On (1). DWG No. 1. By Jack Bialosky & Myron Monders "Floor, Site & Roof Plan" Of Hukill Chemical Corp. April 1973. (2). DWG No. 2 By Frank B. Krause "Facility Map" Of Hukill Chemical Corp. September 1982. (3). DWG No. 4 By Jack Bialosky & Myron Monders "Processing Plant Floor Plan" October 1966.

Nº	REVISIONS	DATE	BY
0	Draft Submittal	2/87	NAA

HUKILL CHEMICAL CORP.

BEDFORD, OHIO

eder associates consulting engineers, p.c.

PROJECT

HUKILL CHEMICAL CORP.

BEDFORD, OHIO

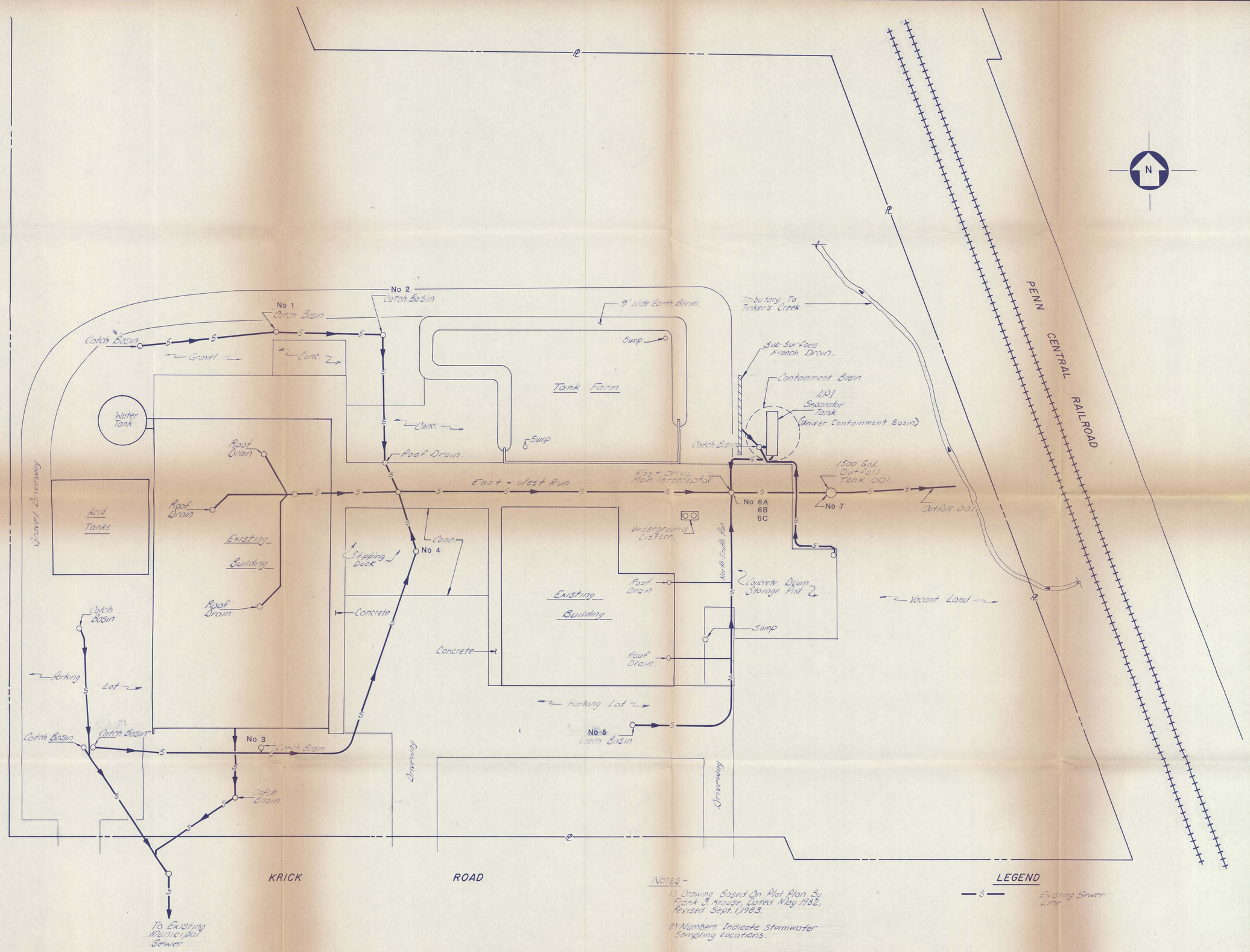
TITLE

PARTIAL PLAN
PROCESS BUILDING
DRAIN PIPING

eder associates consulting engineers, p.c.

85 FOREST AVENUE, LOCUST VALLEY, NEW YORK, 11560

DRAWN BY JLP	SCALE 1/8"=1'-0"
DESIGNED BY NAA	PROJECT Nº 495-1
APPROVED BY GAR	DWG. Nº 2
DATE February 1987	



NOTES -

1) Drawing Based On Plot Plan By Frank J. Krause, Dated May 1982, Revised Sept. 1, 1983.

2) Numbers Indicate Stormwater Sampling Locations.

LEGEND

—S— Existing Sewer Line

№	REVISIONS	DATE	BY
1	General Revisions	3/87	NAA
2	Draft Submittal	4/87	NAA

STORMWATER SAMPLING

HUKILL CHEMICAL CORP.

BEDFORD, OHIO

eder associates consulting engineers, p.c.

PROJECT
STORMWATER SAMPLING
HUKILL CHEMICAL CORP.
BEDFORD, OHIO

TITLE
STORMWATER DRAINAGE SYSTEM
OUTFALL 001

eder associates consulting engineers, p.c.
85 FOREST AVENUE, LOCUST VALLEY, NEW YORK, 11560

DRAWN BY FAO	SCALE 1" = 30'
DESIGNED BY NAA	PROJECT № 495-1
APPROVED BY GAR	DWG. № 3
DATE July 1985	

53377

HUKILL CHEMICAL CORPORATION

BEDFORD, OHIO

SITE INVESTIGATION REPORT

ADDENDUM NO. 1

8-88

US EPA RECORDS CENTER REGION 5

1008299

PROJECT #495-1

AUGUST 1988

EDER ASSOCIATES

CONSULTING ENGINEERS, P.C.

Locust Valley, New York

Madison, Wisconsin

Ann Arbor, Michigan

#4224C

081688

eder associates
consulting engineers, p.c.

August 16, 1988
File #495-1

Mr. William E. Muno, Chief
United States Environmental
Protection Agency
RCRA Enforcement Section
Region V - 5HE-12
230 South Dearborn Street
Chicago, Illinois 60604

Re: Hukill Chemical Corporation
Bedford, Ohio
EPA I.D. No.: OHD 001926740

Dear Mr. Muno:

We are pleased to submit three copies of our engineering report entitled, "Site Investigation Report, Addendum No. 1" for your review.

This report presents the results of the additional site work conducted in April 1988 at Hukill Chemical in response to the United States Environmental Protection Agency's (USEPA) and Ohio Environmental Protection Agency's (OEPA) comments on our April 1987 "Draft Site Investigation Report". We plan to incorporate the results of this report into our "Final Site Investigation Report" with the consent of the USEPA and OEPA.

If you have any questions, please feel free to contact our office.

Very truly yours,

EDER ASSOCIATES CONSULTING ENGINEERS, P.C.

Gary A. Rozmus, P.E.
Vice President

GAR/tg
Enc.

#4224C

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JORGE MOLINA, ING. • WILLIAM J. CUNNINGHAM, P.E. • JOSEPH B. HELLMANN, P.E. • NICHOLAS A. ANDRIANAS, P.E. • WILLIAM M. WARREN

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1.0 INTRODUCTION

In April 1988, Eder Associates Consulting Engineers, P.C. (EA) conducted additional field work at the Hukill Chemical Corporation (HCC) facility in response to the United States Environmental Protection Agency's (USEPA) and Ohio Environmental Protection Agency's (OEPA) comments on EA's April 1987 "Draft Site Investigation Report". This field work was described in EA's January 1988, "Work Plan for Additional Site Work". The scope of work included the installation of an additional monitoring well, sampling all monitoring wells and collecting and analyzing sediment and surface water samples from an on-site stream.

The groundwater data base was used to identify, develop and describe a proposed semiannual groundwater monitoring program which would be implemented until a formal groundwater monitoring program is developed as part of the corrective action plan.

2.0 SUMMARY OF FIELD WORK AND RESULTS

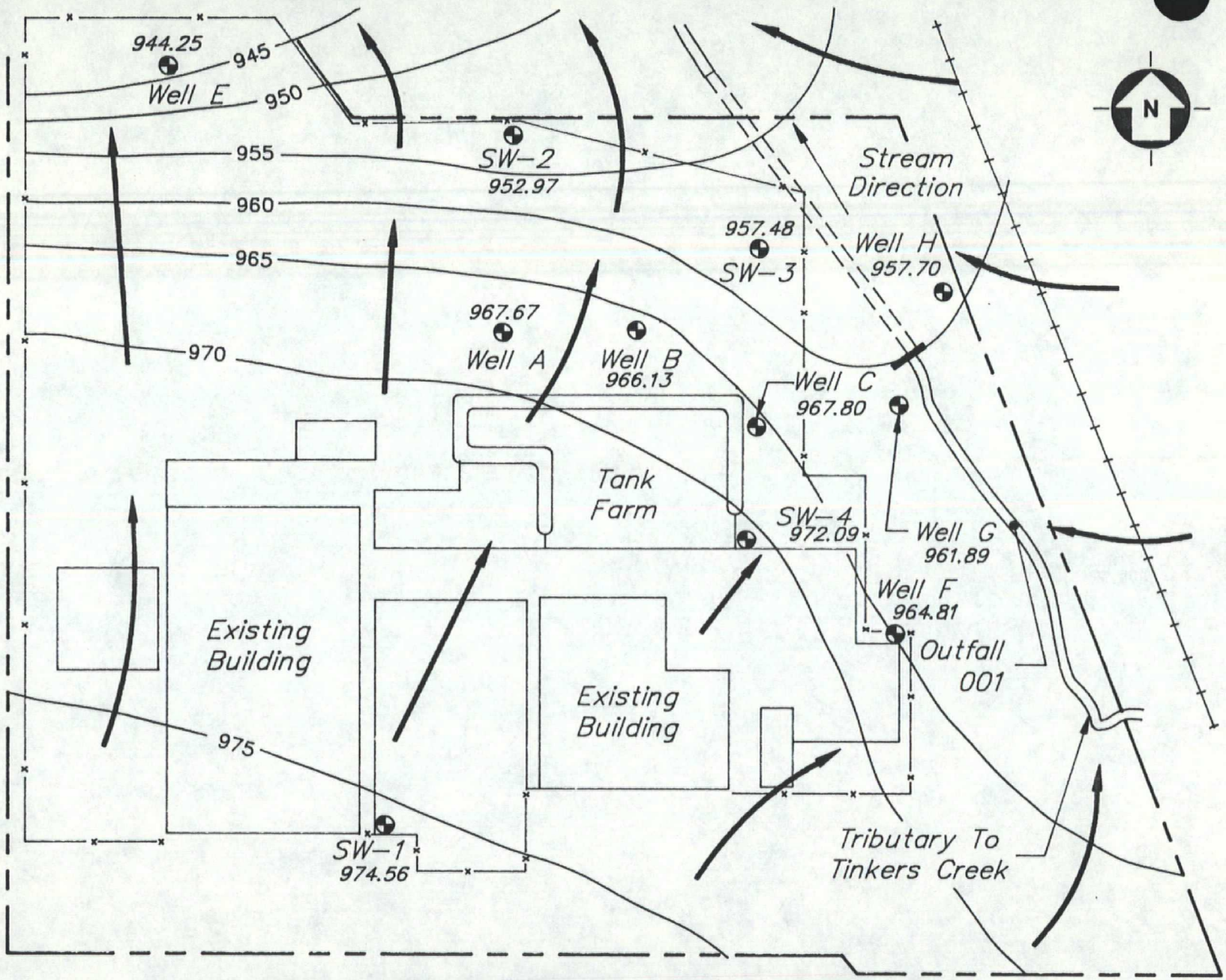
2.1 Groundwater Monitoring

An additional well (H) was installed to supplement the groundwater data base and all of the monitoring wells were sampled for inorganic parameters and VOCs. Water level measurements in each well were obtained. Well locations and the direction of lateral groundwater flow are shown in Figure 1. The boring log for Well H is presented in Appendix A.

The installation of Well H and all groundwater sampling was done in accord with the Quality Assurance Project Plan (QAPP) as amended and approved by USEPA and the OEPA.

Laboratory analysis data for groundwater samples are shown in Tables 1 and 2. SW-1 is the upgradient well at the Hukill site. Samples analyzed for inorganic constituents were below USEPA primary drinking water standards. VOCs were identified primarily in Wells MW-B, MW-C and MW-G with methylene chloride predominating. These results are similar to previous sampling events which are summarized in Appendix C.

Arsenic was identified in Wells SW-4 and B at 0.030 and 0.012 mg/l respectively and barium was identified in Wells B, C and H at 0.359, 0.090 and 0.071 mg/l respectively. The primary drinking water standards for these metals are 0.050 and 1.0 mg/l respectively. Cadmium was found in samples from Wells G and H at 0.009 and 0.005 mg/l respectively and chromium was identified in samples from Wells A and H at 0.001 and 0.025 mg/l respectively. The primary drinking water standards for chromium and cadmium are 0.01 and 0.05 mg/l respectively.



LEGEND

MONITORING WELL

FLOW DIRECTION

GROUNDWATER FLOW & CONTOUR MAP
(APRIL 1988)

HUKILL CHEMICAL CORP.
BEDFORD, OHIO

0 100'

REF.# SK495-1C

eder associates consulting engineers, p.c.
FIGURE 1

HUKILL CHEMICAL CORPORATION

BEDFORD, OHIO

TABLE 1

GROUNDWATER MONITORING RESULTS

INORGANIC ANALYSIS

APRIL 1988

Sample Location	SW-1	SW-2	SW-3	SW-3(Dup)	SW-4	A	B	C	E	E, Blank	F	G	H
Sample ID	MWSW1	MWSW2	MWSW3	MWSW3D	MWSW4	MWA	MWB	MWC	MWE	MWEFB	MWF	MWG	MWH
Sample Date	4/13/88	4/13/88	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88	4/13/88	4/13/88	4/13/88	4/15/88	4/15/88
Parameter (mg/l)													
Arsenic	LD	LD	LD	LD	0.030	LD	0.012	LD	LD	LD	LD	LD	LD
Barium	LD	LD	LD	LD	LD	LD	0.359	0.090	LD	LD	LD	LD	0.071
Cadmium	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	0.009	0.005
Chromium	LD	LD	LD	LD	LD	0.001	LD	LD	LD	LD	LD	LD	0.025
Copper	0.029	0.031	LD	LD	LD	LD	LD	LD	LD	0.024	LD	LD	LD
Iron	LD	LD	0.313	0.196	45.80	45.6	LD	74.7	1.82	LD	LD	131.0	131.0
Lead (1)	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Mercury	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Zinc	0.058	0.023	LD	0.013	LD	0.032	0.018	0.032	0.013	LD	LD	0.034	0.028

NOTES:

1. Spike sample recovery was not within the control limits.
2. LD indicates less than the detection limit. Detection limits are provided in the laboratory reports in Appendix B.
3. Dup: Indicates Duplicate Samples.

eder associates consulting engineers, p.c.

HUKILL CHEMICAL CORPORATION

BEDFORD, OHIO

TABLE 2

GROUNDWATER MONITORING RESULTS

ORGANIC ANALYSIS

APRIL 1988

Sample Location	SW-1	SW-2	SW-3	SW-4	A	B	C	E	F	G	G, Dup	G, Blank	H
Sample ID	MW-SW-1	MW-SW-2	MW-SW-3	MW-SW-4	MW-A	MW-B	MW-C	MW-E	MW-F	MW-G	MW-G Dup	MWG-FB	MW-H
Sample Date	4/13/14	4/13/88	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88	4/13/88	4/13/88	4/15/88	4/15/88	4/15/88	4/15/88
Parameter (mg/l)													
Chloromethane	0.011	LD	LD	LD	LD	0.025	LD	LD	LD	LD	LD	LD	LD
Vinyl Chloride	LD	LD	LD	0.014	LD	0.019	LD	LD	LD	LD	LD	LD	LD
Chloroethane	LD	LD	LD	0.005(J)	LD	0.042	LD	LD	LD	LD	LD	LD	LD
Methylene Chloride (1)	LD	0.010	LD	LD	0.011	330.0	7400.0	LD	LD	280.0	250.0	LD	LD
Acetone (1)	0.030	0.021	0.012	0.013	0.009(J)	LD	LD	LD	0.008(J)	LD	LD	0.011	0.006(J)
Carbon Disulfide	LD	LD	LD	LD	LD	0.008	LD	LD	LD	LD	LD	LD	LD
1,1-Dichloroethene (1)	0.006	LD	0.004(J)	0.005	0.007	0.025	41.0(J)	0.005	0.005	LD	LD	LD	0.004(J)
1,1-Dichloroethane	LD	LD	LD	0.012	0.029	(Note 5)	LD	LD	LD	LD	LD	LD	LD
1,2-Dichloroethene	LD	LD	LD	0.070	LD	(Note 5)	LD	LD	0.260	LD	LD	LD	LD
1,2-Dichloroethane	LD	LD	LD	LD	LD	0.009	LD	LD	LD	LD	LD	LD	LD
2-Butanone (1)	0.007(J)	0.006(J)	0.007(J)	LD	0.006(J)	LD	420.0	0.004(J)	0.006(J)	7.20(J)	LD	0.011	0.007(J)
1,1,1-Trichloroethane	LD	0.005	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Vinyl Acetate (1)	0.007(J)	0.006(J)	LD	LD	0.006(J)	20.0	LD	0.004(J)	0.006(J)	LD	LD	LD	LD
Trichloroethene	LD	LD	LD	LD	LD	(Note 5)	LD	LD	LD	LD	LD	LD	LD
4-Methyl-2-Pentanone (1)	LD	LD	LD	0.030	LD	0.070	LD	LD	LD	LD	LD	0.023	LD
2-Hexanone (1)	LD	LD	0.008(J)	LD	LD	LD	LD	LD	LD	LD	LD	0.093	LD

eder associates consulting engineers, p.c.

Table 2 continued . . .

Sample Location	SW-1	SW-2	SW-3	SW-4	A	B	C	E	F	G	G, Dup	G, Blank	H
Sample ID	MW-SW-1	MW-SW-2	MW-SW-3	MW-SW-4	MW-A	MW-B	MW-C	MW-E	MW-F	MW-G	MW-G Dup	MWG-FB	MW-H
Sample Date	4/13/14	4/13/88	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88	4/13/88	4/13/88	4/15/88	4/15/88	4/15/88	4/15/88
Parameter (mg/l)													
Tetrachloroethene	LD	LD	LD	LD	0.010	0.150	LD	LD	LD	LD	LD	LD	LD
Toluene	LD	LD	LD	LD	LD	0.850	LD	LD	LD	LD	LD	LD	LD
Ethylbenzene	LD	LD	LD	LD	LD	0.033	LD	LD	LD	LD	LD	LD	LD
Total Xylenes	LD	LD	LD	LD	LD	0.062	LD	LD	LD	LD	LD	LD	LD
Ethane, 1,1,2-Trichloro-1,2,	LD	LD	0.005(J)	LD	0.022(J)	LD	LD	LD	LD	9.10(J)	1.9(J)	LD	LD
7,10-Methanofluoranthen-11-0	LD	LD	LD	0.001(J)	LD	LD	LD	LD	LD	LD	LD	LD	LD
Diisopropyl Ether (DOT)	LD	LD	LD	0.120(J)	LD	LD	LD	LD	LD	LD	LD	LD	LD
Ethane, 1,2-Dichloro-1,1,2-T	LD	LD	LD	LD	0.071(J)	LD	LD	LD	LD	LD	LD	LD	LD

NOTES:

1. Compounds identified in blank samples.
2. LD indicats less than the detection limit.
3. Detection limits are sample specific due to concentration ranges of organics in samples. For the detection limit of a specific sample refer to the laboratory reports in Appendix B.
4. J indicates compound identified and concentration estimated below the detection limit.
5. Compound was detected but the concentration exceeded the calibration range of the GC/MS and in accord with CLP protocol the sample was diluted and reanalyzed. The concentration of this compound was below the detection limit of the diluted sample and therefore could not be quantified.
6. Dup: Indicates duplicate analysis.

Copper concentrations in samples from Wells SW-1, SW-2 and in the field blank were 0.029, 0.031 and 0.024 mg/l respectively. Identification of copper in the field blank makes these results questionable. Iron concentrations in samples from Wells SW-3, SW-4, A, C, E, G and H ranged from 0.196 to 131. mg/l. Zinc was found in samples from Wells SW-1, SW-2, SW-3, A, B, C, E, G and H ranging from 0.013 to 0.058 in the upgradient well (SW-1). Lead and mercury were not identified in any of the groundwater samples.

As in previous sampling events, methylene chloride was the most concentrated VOC identified in the groundwater. Highest VOC concentrations were found in Wells B, C and G and include chloroethane, 1,1-Dichloroethene, 1,1-dichloroethane, 1,2-dichloroethene, vinyl acetate, trichloroethene and toluene.

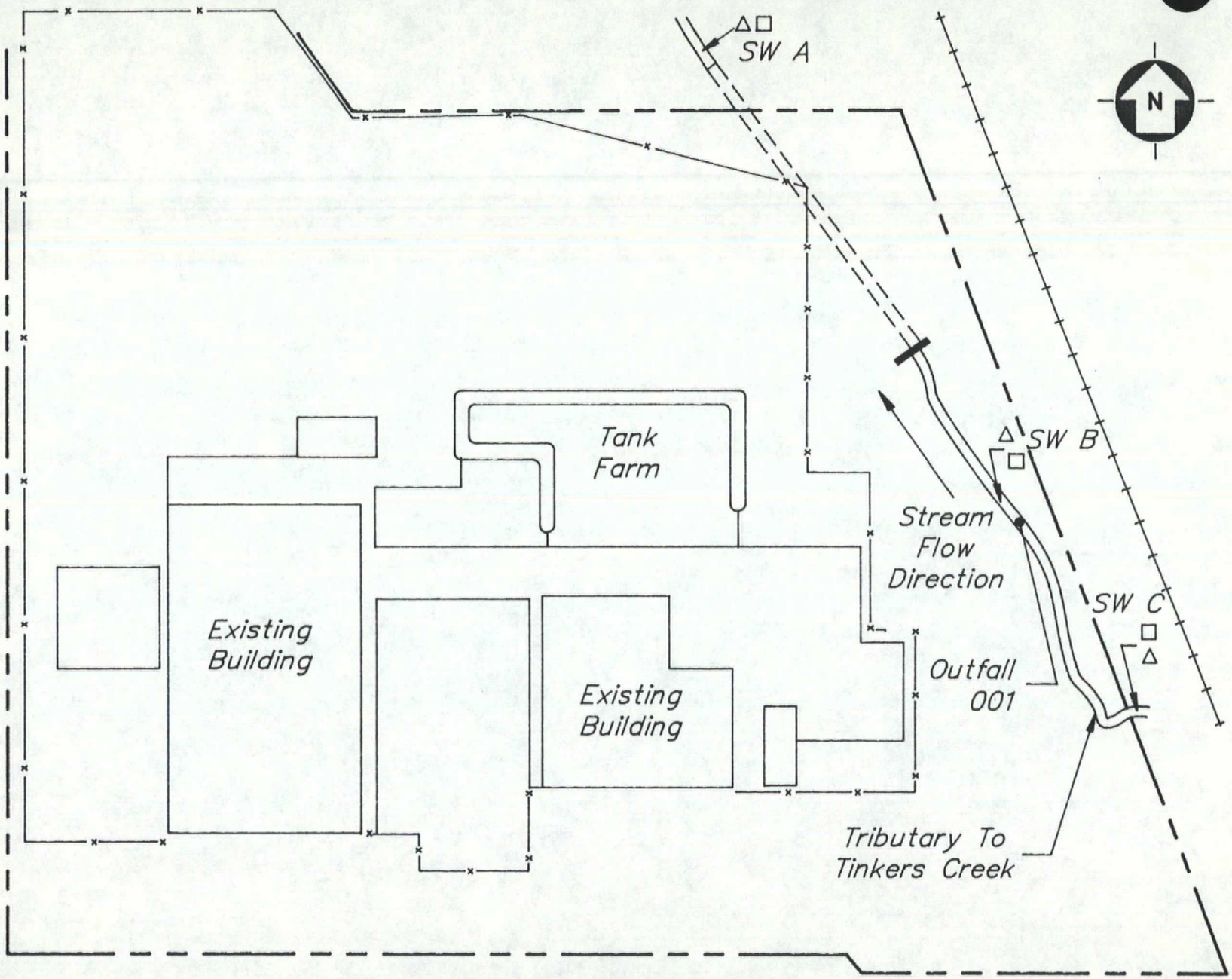
The sample from Well H, located east of the on-site tributary, did not contain any significant VOC concentrations, indicating that the VOC plume originating in the tank farm area discharges to the on-site tributary and is not migrating beyond the tributary.

Methylene chloride was detected in Wells MW-B, MW-C and MW-G at 330, 7,400 and 265 mg/l respectively. Within an expected range of variability, these concentrations were distributed in a pattern similar to previous sampling events.

2-Butanone was identified in Wells MW-B, MW-C and MW-G at concentrations of 20, 420 and 3.60 mg/l respectively. These results show a concentration gradient similar to methylene chloride.

2.2 Surface Water, Outfall and Sediment Sampling

Surface water, outfall and sediment samples were collected to determine the facility impact on an on-site tributary to Tinkers Creek. Samples were collected at locations shown in Figure 2.



LEGEND

□ SURFACE WATER SAMPLING LOCATION

△ SEDIMENT SAMPLING LOCATION

SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

HUKILL CHEMICAL CORP.
BEDFORD, OHIO

0 100'

REF.# SK495-1B

eder associates consulting engineers, p.c.
FIGURE 2

All surface water and sediment samples were collected and analyzed in accord with the QAPP including all amendments approved by USEPA and OEPA.

The surface water and outfall samples were analyzed for inorganic parameters and VOCs. Sediment samples were analyzed for these constituents as well as for base neutral and acid extractable organics.

Tables 3 and 4 present the analytical data for the outfall and surface water sampling. The inorganic constituents found in the outfall and surface water samples are all below the USEPA primary drinking water standards. No significant concentrations of VOCs were identified upstream, however VOCs identified in the outfall at higher concentration were also found in SW-B, the sample downstream of the outfall mixing zone and in SW-A, the sample downstream of Hukill prior to mixing with other tributaries.

Copper was found in the downstream sample at a concentration of 0.025 mg/l, but was not detected in other surface water or outfall samples. Iron was found in the outfall, SW-A, SW-B and SW-C samples at 6.22, .872, .414 and 0.267 mg/l respectively. Zinc concentrations in the outfall, SW-A, SW-B and SW-C samples were 0.01, 0.043, 0.037 and 0.035 mg/l respectively. Barium was identified in the outfall sample at 0.075 mg/l and the primary drinking water standard is 1.0 mg/l. No lead or mercury was found in any sample.

VOCs were found in the outfall and surface water samples but many were identified at levels below or near their detection limit. The upstream sample contained low levels of VOCs.

The outfall sample contained concentrations of methylene chloride (6.50 mg/l), acetone (21.0 mg/l), 1,2-dichloroethene (0.490 mg/l), 2-butanone (23.5 mg/l), 1,1,1-trichloroethane (0.23 mg/l), vinyl acetate (23.0 mg/l), trichloroethene (0.170 mg/l), 4-methyl-2-pentanone (120 mg/l), toluene (2.30 mg/l), ethylbenzene (0.160 mg/l) and xylenes (0.430 mg/l).

HUKILL CHEMICAL CORPORATION

BEDFORD, OHIO

TABLE 3

OUTFALL 001 AND SURFACE WATER RESULTS

INORGANIC ANALYSIS

APRIL 1988

Sample Location	Outfall	Outfall(Dup)	Upstream	Downstream of Outfall Mixing Zone	Downstream
Sample ID	OF001	OF001D	SWC	SWB	SWA
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/l)					
Arsenic	LD	LD	LD	LD	LD
Barium	0.078	0.073	LD	LD	LD
Cadmium	LD	LD	LD	LD	LD
Chromium	LD	LD	LD	LD	LD
Copper	LD	LD	LD	LD	0.025
Iron	6.20	6.25	0.267	0.414	0.872
Lead (1)	LD	LD	LD	LD	LD
Mercury	LD	LD	LD	LD	LD
Zinc	0.020	LD	0.035	0.037	0.043

NOTES:

1. Spike sample recovery was not within the control limits.
2. LD indicates less than the detection limit.
3. Detection limits are provided in laboratory reports in Appendix B.
4. Outfall 001 flow rate was approximately 19 gal/ hr. and stream flow rate was estimated at 0.33 cfs.
5. Dup: Duplicate Sample.

HUKILL CHEMICAL CORPORATION
BEDFORD, OHIO

TABLE 4

OUTFALL AND SURFACE WATER RESULTS
ORGANIC ANALYSIS
APRIL 1988

Sample Location	Outfall	Outfall(Dup)	Outfall Field Blank	Upstream	Downstream of Outfall Mixing Zone	Downstream
Sample ID	OF001	OF001D	OF001FB	SWC	SWB	SWA
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/l)						
Vinyl Chloride	LD	LD	LD	LD	LD	0.005(J)
Methylene Chloride (1)	6.50	LD	LD	LD	0.016	0.076
Acetone (1)	21.0	LD	0.014	0.005(J)	0.040	0.020
1,1-Dichloroethene (1)	0.072	4.50(J)	0.007	0.006	0.007	0.007
1,1-Dichloroethane	0.110	LD	LD	LD	LD	0.006
1,2-Dichloroethane	0.490	LD	LD	LD	LD	0.048
Chloroform	LD	LD	LD	0.008	0.007	0.005
2-Butanone (1)	24.0	23.0	0.008(J)	0.005(J)	0.049	0.026
1,1,1-Trichloroethane	0.230	LD	LD	LD	LD	LD
Vinyl Acetate (1)	23.0	LD	0.008(J)	0.005(J)	0.049	0.026
Trichloroethene	0.170	LD	LD	LD	LD	LD
4-Methyl-2-Pentanone(1)	120.0	120.0	LD	LD	0.380	0.120
Toluene	2.30	LD	LD	LD	LD	0.024
Ethylbenzene	160	LD	LD	LD	LD	LD
Total Xylenes	0.430	LD	LD	LD	LD	0.004(J)
7,10-Methanofloranthen -11-o (1)	0.520(J)	LD	LD	LD	LD	LD
2-Heptanone, 6-Methyl -5-Nitr	0.240(J)	LD	LD	LD	LD	LD
1,1,2-Trichloroethane	4.50(J)	LD	LD	LD	LD	LD
Tetrahydrofuran	LD	LD	LD	LD	LD	0.013(J)

NOTES:

1. Compounds identified in blank sample(s).
2. J indicates compound identified and concentration estimated below the detection limit.
3. LD indicates less than the detection limit. Detection limits are sample specific due to concentration ranges of organics in samples. For the detection limit of a specific sample, refer to the laboratory results in Appendix B.

The sample taken just downstream of the outfall mixing zone (SW-B) showed concentrations of methylene chloride (0.016 mg/l), acetone (0.040 mg/l), 2-butanone (0.049 mg/l), vinyl acetate (0.049 mg/l) and 4-methyl-2-pentanone (0.380 mg/l). These compounds were the most concentrated compounds identified in the outfall sample.

The downstream sample (SW-A) had concentrations of methylene chloride (0.076 mg/l), acetone (0.020 mg/l), 1,2-dichloroethene (0.048 mg/l), 2-butanone (0.026 mg/l), vinyl acetate (0.026 mg/l), 4-methyl-2-pentanone (0.120 mg/l) and toluene (0.024 mg/l). These compounds were also identified in the outfall sample.

Analytical results of sediment sampling are presented in Tables 5, 6 and 7 and sampling locations are shown in Figure 2. Sediment contamination in the tributary to Tinkers Creek due to inorganic constituents is insignificant.

Arsenic was found in sediment samples at concentrations ranging from 0.007 to 0.008 mg/kg. USEPA criteria for Great Lakes sediment considers levels less than 3.0 mg/kg as non-contaminated. Concentrations of barium were found between 0.054 and 0.113 mg/kg however, the mean ambient background level for barium in soils in the eastern half of the United States is approximately 500 mg/kg.

Cadmium was identified in sediments at concentrations ranging from 0.002 to 0.008 mg/kg. The mean ambient background level for cadmium in the eastern United States is approximately 1.0 mg/kg.

Chromium, copper and leads were found in sediments in ranges from 0.018, 0.053, 0.055 to 1.37 and 0.02 to 1.59 mg/kg respectively. USEPA criteria for Great Lakes sediment considers concentrations of 25.0, 25.0 and 40.0 mg/kg respectively as non-contaminated.

Iron is identified in all sample locations but only varied from 17.50 to 25.70 mg/kg and the mean ambient background level for iron in the eastern United States is approximately 15,000 mg/kg.

HUKILL CHEMICAL CORPORATION
BEDFORD, OHIO

TABLE 5

STREAM SEDIMENT RESULTS
INORGANIC ANALYSIS
APRIL 1988

Sample Location	Upstream	Upstream(Dup)	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWCSOIL	SWCSOIL	SWBSOIL	SWASOIL
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)				
Arsenic	0.008	0.007	0.008	0.008
Barium	0.104	0.100	0.054	0.113
Cadmium	0.007	0.006	0.002	0.008
Chromium	0.052	0.053	0.018	0.046
Copper	0.966	0.867	0.055	1.370
Iron	24.5	22.6	25.7	17.5
Lead (1)	0.378	0.316	0.020	1.59
Mercury	0.022	0.023	0.011	0.023
Zinc	1.770	1.750	0.184	4.98
% Moisture	34.4	33.5	34.4	33.5

NOTES:

1. Spike sample recovery was not within the control limits.
2. Detection limits are provided in the laboratory reports in Appendix B.
3. Dup: Duplicate Sample

HUKILL CHEMICAL CORPORATION
BEDFORD, OHIO

TABLE 6

STREAM SEDIMENT RESULTS
ORGANIC ANALYSIS (VOCs)
APRIL 1988

Sample Location	Upstream	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWC	SWB	SWC
Sample Date	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)			
Vinyl Chloride	LD	0.035	0.022
Methylene Chloride (1)	LD	LD	0.052
Carbon Disulfide	LD	LD	0.011
1,2-Dichloroethene	LD	0.007(J)	0.042
2-Butanone (1)	0.022	0.014(J)	0.057
Vinyl Acetate (1)	0.022	0.014(J)	0.057
Trichloroethene	LD	0.012	LD
4-Methyl-2-Pentanone (1)	LD	LD	0.038
Tetrachloroethene	0.016	LD	0.013
Toluene	0.007(J)	LD	0.034
Ethylbenzene	LD	LD	0.037
Total Xylenes	LD	LD	0.071
Disulfide, Dimethyl	LD	LD	0.300(J)

Table 6 Continued . . .

Sample Location	Upstream	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWC	SWB	SWC
Sample Date	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)			
Heptane (DOT)	LD	LD	0.120(J)
Cyclohexane, Ethyl-	LD	LD	0.280(J)
Cyclohexane, 1,3-Dimethyl-,	LD	LD	0.120(J)
Cyclohexane, 1,1,3-Trimethyl	LD	LD	0.290(J)
1-Hexene, 2,5,5-Trimethyl-	LD	LD	0.120(J)
Cyclohexane, 1,2,3-Trimethyl	LD	LD	0.400(J)
Cyclohexanone, 4-Ethyl-	LD	LD	0.094(J)
Cyclohexane, 1-Ethyl-4-Methy	LD	LD	0.480(J)
Cyclohexane, 1,3,5-Trimethyl	LD	LD	0.210(J)
1,4-Heptadiene, 3,3,6-Trimet	LD	0.018(J)	LD

NOTES:

1. Compounds identified in blank sample(s).
2. J indicates compound identified and concentration estimated below the detection limit.
3. LD indicates less than the detection limit. Detection limits are sample specific due to concentration ranges of organics in samples. For the detection limit of a specific sample, refer to the laboratory results in Appendix B.

HUKILL CHEMICAL CORPORATION

BEDFORD, OHIO

TABLE 7

STREAM SEDIMENT RESULTS

ORGANIC ANALYSIS

APRIL 1988

(BASE NEUTRAL/ACID EXTRACTABLE)

Sample Location	Upstream	Upstream Matrix Spike	Upstream Duplicate Matrix Spike	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWCSOIL	SWCSMSOIL	SWCSOILMSD	SWBSOIL	SWASOIL
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)					
1,2-Dichlorobenzene	LD	LD	LD	LD	0.250(J)
Benzoic Acid	LD	LD	0.490(J)	LD	LD
3-Nitroaniline	LD	LD	LD	LD	2.20(J)
N-Nitrosodiphenylamine (1)	LD	LD	LD	LD	0.42(J)
Phenanthrene	12.0	11.0	LD	LD	0.43(J)
Anthracene	10.0	10.0	LD	LD	LD
Fluoranthene	16.0	18.0	LD	LD	0.90(J)
Pyrene	11.0	LD	LD	LD	0.690(J)
Butylbenzylphthalate	LD	LD	LD	0.280(J)	LD
Benzo(a)Anthracene	4.90(J)	4.80(J)	3.10(J)	LD	0.530(J)
Chrysene	6.40(J)	6.50(J)	3.40(J)	LD	0.450(J)
bis(2-Ethylhexyl)Phthalate	3.40(J)	4.10(J)	2.70(J)	1.50	4.10

Table 7 Continued . . .

Sample Location	Upstream	Upstream Matrix Spike	Upstream Duplicate Matrix Spike	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWCSOIL	SWCSMSOIL	SWCSOILMSD	SWBSOIL	SWASOIL
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)					
Benzo(b)Fluoranthene	10.0	LD	6.30(J)	LD	LD
Benzo(k)Fluoranthene	9.50(J)	LD	6.0(J)	LD	LD
Benzo(a)Pyrene	5.10(J)	4.80(J)	3.30(J)	LD	LD
Indeno(1,2,3-cd)Pyrene	3.30(J)	3.30(J)	LD	LD	0.350(J)
Benzo(g,h,i)Perylene	2.90(J)	2.70(J)	LD	LD	3.30(J)
4-Hexenoic Acid, 3-Methyl-2,	LD	LD	LD	LD	0.53(J)
4-Octenoic Acid, 6-Ethyl-3-H	LD	LD	LD	LD	0.710(J)
1,2-Benzenedicarboxylic Acid	LD	LD	LD	LD	13.0(J)
Pentalene, Octahydro-1-(2-OC)	LD	LD	LD	LD	1.80(J)
2H-Pyran-2-One, Tetrahydro-6	LD	LD	LD	LD	0.390(J)
Silane, Trichloroeicosyl-	LD	LD	LD	LD	2.20(J)
Decane, 1-Fluoro-	LD	LD	LD	LD	5.0(J)
1-Heptanol, 2-Propyl-	LD	LD	LD	LD	6.70(J)
2H-Pyran-2-Carboxylic Acid,	LD	LD	LD	LD	0.860(J)
1-Nonene, 4,6,8-Trimethyl-	LD	LD	LD	LD	3.0(J)
Bicyclo[3.1.1]Heptane,2,6,6	LD	LD	LD	LD	0.350(J)
1-Undecyne	LD	LD	LD	LD	0.540(J)
Naphthalene, Decahydro-2-Met	LD	LD	LD	LD	0.90(J)

Table 7 Continued . . .

Sample Location	Upstream	Upstream Matrix Spike	Upstream Duplicate Matrix Spike	Downstream of Outfall Mixing Zone	Downstream
Sample ID	SWCSOIL	SWCSMSOIL	SWCSOILMSD	SWBSOIL	SWASOIL
Sample Date	4/14/88	4/14/88	4/14/88	4/14/88	4/14/88
Parameter (mg/kg)					
Hexane, 2,3,4-Trimethyl-	LD	LD	LD	LD	1.50(J)
Octane, 3,5-Dimethyl-	LD	LD	LD	LD	0.93(J)
Hydroxlamine, O-(2-Methylpr	5.50(J)	LD	LD	LD	LD
Heptane, 2,6-Dimethyl-	9.20(J)	LD	LD	LD	LD
Ether, Heptyl Hexyl	5.10(J)	LD	LD	LD	LD
9H-Fluorene, 9-Methylene-	3.20(J)	LD	LD	LD	LD

NOTES:

1. J indicates compound identified and concentration estimated below the detection limit.
2. LD indicates less than the detection limit. Detection limits are sample specific due to concentration ranges of organics in samples. For the detection limit of a specific sample, refer to the laboratory results in Appendix B.

Sediment samples contained low levels of mercury (0.001 to 0.002 mg/kg) and zinc (0.184 to 4.98 mg/kg). The mean ambient background mercury level for the eastern United States is approximately 0.096 mg/kg and the USEPA criteria for Great Lakes sediment considers less than 90 mg/kg of zinc as non-contaminated.

VOCs were found in the sediment samples in low concentrations and in general, the upstream and outfall mixing zone samples contained fewer VOCs and at lower concentrations than found in the downstream sample. Four VOCs were found in the upstream sample at concentrations ranging from 0.007 to 0.022 mg/kg. Five VOCs with concentrations ranging from 0.007 to 0.035 mg/kg were found in the outfall mixing zone sample. The downstream sample contained 11 VOCs at concentrations ranging from 0.011 to 0.057 mg/kg and these VOCs included compounds similar to those found in the discharge from outfall 001.

The base neutral and acid extractable organic analyses of sediment showed generally higher concentrations of organics in the upstream sample than in the outfall mixing zone and downstream samples. The principal compounds were a variety of polynuclear aromatics (PNA).

Upstream concentrations of the PNA compounds were found in the low mg/kg range and downstream concentrations were typically one to two orders of magnitude lower.

Several compounds including 1,2-dichlorobenzene, benzoic acid, 3-nitroaniline, N-nitrosodiphenylamine and butylbenzylphthalate were found in the downstream sediment samples but were not found in upstream sediment. Levels in downstream sediment were below detection limits.

3.0 DISCUSSION OF RESULTS

The April 1988 sampling results support the findings of the April 1987 Site Investigation Report. Groundwater contamination is concentrated near the northwest corner of the tank farm. VOCs were not found at Well H confirming that groundwater discharges to the on-site tributary of Tinkers Creek and that the downgradient extent of the plume is the tributary.

VOCs were found in the 001 discharge and in samples downstream of the outfall, however the impact on the surface water appears to be minimal and would probably not constitute a public health hazard or threat to the environment during the flow conditions sampled.

Inorganic constituents were found in sediment samples at concentrations generally considered background and non-contaminated. VOCs were found at concentrations which would not be expected to pose a hazard to public health or the environment. PNAs were found in stream sediments and appear to originate at an upstream source and are probably attributable to storm water runoff of asphalt paved roads off-site.

Sampling results indicate that the HCC facility has not impacted the groundwater, surface water, soils and stream sediments in a way which would threaten public health or the environment and a detailed health and environmental assessment will be conducted to identify any potential or actual threats to public health, welfare and the environment due to the presence of contaminants. This assessment will be included in the final "Site Investigation Report".

4.0 PROPOSED GROUNDWATER MONITORING PROGRAM

This proposed groundwater monitoring program was developed from information collected during all previous site investigation efforts and is designed to monitor site conditions until a formal groundwater monitoring program is developed as part of the corrective action plan.

The proposed plan would sample selected wells on a semiannual basis with sampling and analytical procedures following those specified in the QAPP including all subsequent amendments approved by USEPA and OEPA. This monitoring plan is designed to identify any significant changes in groundwater quality leaving the site which might require interim remediation.

Monitoring Wells SW-1, SW-2, SW-3, E and H would be sampled, since these wells bound the extent of significant VOC distribution. SW-1 would continue as the background, upgradient well to monitor contaminants entering the site from upgradient source(s). Wells E, SW-2 and SW-3 would provide detection monitoring in the event that VOCs begin to migrate off site in a northernly direction. Well H would provide detection monitoring in the event that groundwater begins to migrate past the on-site tributary.

VOCs would be analyzed under this interim monitoring program since other compounds have not been identified at the facility at concentrations of concern. The VOC scan will include all VOCs previously identified in groundwater at the site. The analyses would not include a library search for tentatively identified compounds (TICs).

APPENDIX A

WELL H BORING LOG

BORING REPORT

eder associates, consulting engineers p. c.
85 FOREST AVENUE LOCUST VALLEY, N.Y. 11560
2317 INTERNATIONAL LANE MADISON, WI. 53704

SHEET 1 OF 2

DATE STARTED : 4-15-88
DATE FINISHED : 4-15-88
BORING No. WELL H

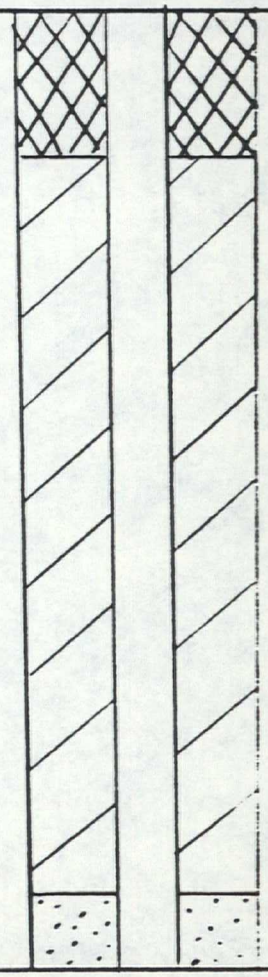
CLIENT : Hukill Chemical Corporation
PROJECT NAME & LOCATION : Site Investigation Bedford, Ohio
PROJECT No : 495-1
DRILLING CONTRACTOR : EDP/Triggs Consultants
DRILLER : Rich

EQUIPMENT :	CASING :	SOIL SAMPLER : SPLIT SPOON	SOIL SAMPLER :	CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE :		STANDARD			HSA	STAINLESS	LOCKING	CME 55
SIZE :		2" x 24"			6 1/4 ϕ	2" ϕ	4" ϕ	HSA
HAMMER WT / FALL		140/30		BIT				

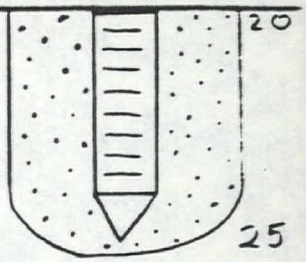
SURFACE ELEVATION : 975.50 Ft
SURFACE CONDITIONS : Across tributary on slope
GROUNDWATER AT 17.40 FT. AFTER 2 HRS. 17.40 FT. AFTER 4 HRS.

DEPTH BELOW GRADE	OVA READINGS	TYPE AND No.	DEPTH FROM - TO	BLOW / 6" OR CORE TIME	STRATA DEPTH / ELEV.	DESCRIPTION AND REMARKS TRACE =0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0						Rd/Brn CLAY FILL MATERIAL
	30	S-1	3-4.5	3 2 3		Rd/Brn SILTY CLAY FILL
5						
	2	S-2	6-7.5	3 5 6		As above
10	—	S-3	9-10.5	2 2 2		Ash No Recovery
	2	S-4	12-13.5	1 3 5		Blk Cinders & Slag Material?
15	3	S-5	15-16.5	2 4 4	16	
	2	S-6	18-19.5	8 16 28	19	Rd/Brn/Gry Silty Till
20						Fractured Gry Shale

MONITORING WELL CONSTRUCTION



PROJECT NAME : Site Investigation/HCC BORING No. WELL H PROJECT No. 495-1 SHEET 2 OF 2

DEPTH BELOW GRADE	OVA READINGS	TYPE AND No.	DEPTH FROM - TO	BLOW / 6" OR CORE TIME	STRATA DEPTH / ELEV.	DESCRIPTION AND REMARKS TRACE =0-10% LITTLE=10-20% SOME=20-30% AND=35-50%	MONITORING WELL CONSTRUCTION
	6	S-7	21-22.5	13 48 48		GRY FRACTURED/ WEATHERED SHALE - WATER BEARING -	
25						EOB @ 25 Ft	

APPENDIX B

LABORATORY ANALYSES DATA SHEETS

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

SOW No.: 7/87

EPA Sample No.		Lab Sample ID.
116	MWF	88050116
117	MWE	88050117
118	MWEFB	88050118
119	MWSW1	88050119
119D	MWSW1D	88050675
119S	MWSW1S	88050676
120	MWSW2	88050120
121	MWA	88050121
122	MWB	88050122
123	MWC	88050123
124	MWSW3	88050124
125	MWSW4	88050125
126	MWSW3D	88050126
127	MWG	88050127
128	MW H	88050128
129	OF001	88050129
130	OF001D	88050130
131	SWA H_2O	88050131
132	SWB H_2O	88050132
133	SWC H_2O	88050133

Were ICP interelement corrections applied? Yes/No NO

Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: Katie A. Mitchell

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

SOW No.: 7/87

EPA Sample No.	Lab Sample ID.
677 SWA soil	88050677
678 SWB soil	88050678
XXX679 SWC soil	88050679
XXX679D SWC dup	88050680
XXX679S SWC spike	88050681

Were ICP interelement corrections applied? Yes/No NO

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: Karen A. Mitchell

Date: 5 [illegible]

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

116

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050116

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	80.0	U		P
7439-92-1	Lead	3.7	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.0	U		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
[illegible]R ID = MWF

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

117

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050117

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	1820			P
7439-92-1	Lead	3.7	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.8	B		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
LAB ID = MWE

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

118

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050118

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	B		P
7439-89-6	Iron	80.0	U		P
7439-92-1	Lead	3.7	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.0	U		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

WELL ID = MWEFB

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

119

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050119

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	29.3			P
7439-89-6	Iron	80.0	U		P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	57.6			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
ER ID = MWSW1

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

120

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050120

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	31.2			P
7439-89-6	Iron	80.0	U		P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.5			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
[illegible]R ID = MWSW2

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

121

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050121

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.8	B		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	45600			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	32.2			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

R ID = MWA

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

122

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050122

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	12.0			F
7440-39-3	Barium	359			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	69300			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	17.8	B		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:
CR ID = MWB

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

123

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050123

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U	W	F
7440-39-3	Barium	90.2	B		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	74700			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	32.0			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:
[illegible]R ID = MWC

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

124

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050124

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	313			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.0	U		P
	Cyanide				

Color Before: YELLOW Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:
[illegible]R ID = MWSW3

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

125

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050125

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	30.0			F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	45800			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.0	U		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:
R ID = MWSW4

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

126

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050126

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	196			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	13.3	B		P
	Cyanide				

Color Before: YELLOW Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

[illegible] ID = MWSW3D

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

127

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050127

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	8.6			P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	131000			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	33.5			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:
R ID = MWG

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

128

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050128

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	71.4	B		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.2			P
7440-70-2	Calcium				
7440-47-3	Chromium	25.1			P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	131000			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	28.2			P
	Cyanide				

Color Before: YELLOW Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

[illegible] ID = MWH

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

129

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050129

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	77.7	B		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	6200			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	19.6	B		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
WATER ID = OF001

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

130

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050130

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	73.1	B		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	6250			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.0	U		P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

ER ID = OF001D

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

131

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050131

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.6	B		P
7439-89-6	Iron	872			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	43.1			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
[illegible]R ID = SWAH20

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

132

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050132

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	414			P
7439-92-1	Lead	3.7	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	36.7			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

R ID = SWBH20

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

133

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER1 SAS No.: SDG No.: EDER1

Matrix (soil/water): WATER Lab Sample ID: 88050133

Level (low/med): LOW Date Received: 04/19/88

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	9.6	U		F
7440-39-3	Barium	60.0	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				
7440-47-3	Chromium	9.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	24.0	U		P
7439-89-6	Iron	267			P
7439-92-1	Lead	3.7	U	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	34.6			P
	Cyanide				

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

ID = SWCH20

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

677

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

Matrix (soil/water): SOIL Lab Sample ID: 88050677

Level (low/med): LOW Date Received: 04/19/88

% Solids: 60.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	8.2			F
7440-39-3	Barium	113			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	8.0			P
7440-70-2	Calcium				
7440-47-3	Chromium	46.4			P
7440-48-4	Cobalt				
7440-50-8	Copper	1370			P
7439-89-6	Iron	17500		E	P
7439-92-1	Lead	1590			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.23			CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	4980		E	P
	Cyanide				

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts: YES

Comments:

[illegible]ER ID = SWASOIL. CONTAINS STONES.

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

678

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

Matrix (soil/water): SOIL Lab Sample ID: 88050678

Level (low/med): LOW Date Received: 04/19/88

% Solids: 63.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	7.9			F
7440-39-3	Barium	54.2			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.4			P
7440-70-2	Calcium				
7440-47-3	Chromium	18.4			P
7440-48-4	Cobalt				
7440-50-8	Copper	54.9			P
7439-89-6	Iron	25700		E	P
7439-92-1	Lead	20.4			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.11			CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	184		E	P
	Cyanide				

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ER ID = SWBSOIL. CONTAINS PLANT MATTER.

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

XXX679

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

Matrix (soil/water): SOIL Lab Sample ID: 88050679

Level (low/med): LOW Date Received: 04/19/88

% Solids: 61.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	7.5			F
7440-39-3	Barium	104			P
7440-41-7	Beryllium				
7440-43-9	Cadmium	6.6			P
7440-70-2	Calcium				
7440-47-3	Chromium	52.1			P
7440-48-4	Cobalt				
7440-50-8	Copper	966			P
7439-89-6	Iron	24500		E	P
7439-92-1	Lead	378			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.22			CV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	1770		E	P
	Cyanide				

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:
[illegible]ER ID = SWCSOIL.

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6
DUPLICATES

EPA SAMPLE NO.

XXX679D

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 61.3 % Solids for Duplicate: 62.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic	3.3	7.5041		6.4516		15.1		F
Barium	65.3	104.1540		100.3010		3.8		P
Beryllium								
Cadmium	1.6	6.6075		5.7732		13.5		P
Calcium								
Chromium		52.1471		53.3671		2.3		P
Cobalt								
Copper		966.4861		867.4194		10.8		P
Iron		24528.2870		22558.2900		8.4		P
Lead		378.4666		316.1290		17.9		F
Magnesium								
Manganese								
Mercury	0.1	0.2161		0.2301		6.3		CV
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc		1773.6737		1753.2613		1.2		P
Cyanide								

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

XXX679S

Lab Name: WILSON LABORATORIES Contract: 68-W8-0027

Lab Code: WILSON Case No.: EDER2 SAS No.: SDG No.: EDER2

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									NR
Arsenic	75-125	18.2708		7.5041		13.1	82.2		NR
Barium	75-125	722.7276		104.1540		652.5	94.8		F
Beryllium									P
Cadmium	75-125	20.9729		6.6075		16.3	88.1		NR
Calcium									P
Chromium	75-125	115.0264		52.1471		65.3	96.3		NR
Cobalt									P
Copper		912.0261		966.4861		81.6	-66.7		NR
Iron									P
Lead		354.3230		378.4666		6.5	-371.4		NR
Magnesium									F
Manganese									NR
Mercury	75-125	0.7700		0.2161		0.6	92.3		NR
Nickel									CV
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc		2473.6542		1773.6737		163.1	429.2		NR
Cyanide									P
									NR

Comments:

TODAY'S DATE
MM/DD/YY: 05/24/88

********** ENTIRE PACKAGE MUST BE COMPLETED

NUS SAMPLE #	EPA/CLIENT I.D.	DATE SAMPLED MM/DD/YY	DATE RECEIVED MM/DD/YY	pH	% H2O	DAYS LEFT	GC/MS VOA REQUIRED MM/DD/YY	GC/MS VOA COMPLETED MM/DD/YY	NUS SAMPLE #
28041062	MWA	04/14/88	04/16/88	NR	NR	0	04/28/88	04/26/88	28041062
28041063	MWB	04/14/88	04/16/88	NR	NR	0	04/28/88	04/26/88	28041063
28041064	MWC	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041064
28041065	MWC(MS)	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041065
28041066	MWC(MSD)	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041066
28041059	MWE	04/13/88	04/16/88	NR	NR	0	04/27/88	04/22/88	28041059
28041058	MWF	04/13/88	04/16/88	NR	NR	0	04/27/88	04/22/88	28041058
28041069	MWG	04/15/88	04/16/88	NR	NR	0	04/29/88	04/29/88	28041069
28041070	MWG(DUP)	04/15/88	04/16/88	NR	NR	0	04/29/88	04/29/88	28041070
28041071	MWGFB	04/15/88	04/16/88	NR	NR	0	04/29/88	04/29/88	28041071
28041072	MWH	04/15/88	04/16/88	NR	NR	0	04/29/88	04/29/88	28041072
28041060	MWSW1	04/13/88	04/16/88	NR	NR	0	04/27/88	04/25/88	28041060
28041061	MWSW2	04/13/88	04/16/88	NR	NR	0	04/27/88	04/25/88	28041061
28041067	MWSW3	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041067
28041068	MWSW4	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041068
28041073	OF001	04/14/88	04/16/88	NR	NR	0	04/28/88	04/29/88	28041073
28041074	OF001(DUP)	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041074
28041075	OF001FB	04/14/88	04/16/88	NR	NR	0	04/28/88	04/27/88	28041075
28041076	SWA-S	04/14/88	04/16/88	10.2	42.09	0	04/28/88	04/27/88	28041076
28041077	SWB-S	04/14/88	04/16/88	6.9	41.91	0	04/28/88	04/27/88	28041077
28041078	SWC-S	04/14/88	04/16/88	7.3	34.36	0	04/28/88	04/27/88	28041078
28041079	SWC-S(MS)	04/14/88	04/16/88	7.3	34.45	0	04/28/88	04/27/88	28041079
28041080	SWC-S(MSD)	04/14/88	04/16/88	7.3	33.54	0	04/28/88	04/27/88	28041080
28041081	SWA-W	04/14/88	04/16/88	NR	NR	0	04/28/88	04/27/88	28041081
28041082	SWB-W	04/14/88	04/16/88	NR	NR	0	04/28/88	04/28/88	28041082
28041083	SWC-W	04/14/88	04/16/88	NR	NR	0	04/28/88	04/27/88	28041083

Data reporting Qualifiers used in column "Q" of the attached report are defined as follows:

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to:

$$\frac{(330\ U)}{D} \times df \text{ where } D = \frac{100 - \%\ moisutre}{100}$$

and df = dilution factor

$$\text{at 24\% moisture, } D = \frac{100-24}{100} = 0.76$$

$$\frac{(330\ U)}{.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures.

For soil samples subjected to GPC clean-up procedures, the CRQL is also multiplied by 2, to account for the fact that only half of the extract is recovered.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 µg/L, but a concentration 3 µg/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for both dilution and percent moisture as discussed for the U flag so that if a sample with 24% moisture and a 1 to 10 dilution factor has a calculated concentration of 300 µg/L and a sample quantitation limit of 430 µg/kg, report the concentration as 300J on Form I.

C - The flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/µl in the final extract shall be confirmed by GC/MS.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration ranges of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract cause any components identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate Forms I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the Sample Data Summary Package and the Case Narrative. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HOLDINGBLANK

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: HOLDINGBLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 6VP05178801

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 05/17/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	4	J
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	6	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	6	J
591-78-6	2-Hexanone	27	
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HOLDINGBLANK

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: HOLDINGBLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 6VP05178801

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 05/17/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.55	42	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-A

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041062

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268801

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	11	B
67-64-1	Acetone	9	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	7	B
75-35-3	1,1-Dichloroethane	29	
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	6	BJ
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	6	BJ
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-A

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041062

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268801

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/25/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	ETHANE, 1,1,2-TRICHLORO-1,2,	13.05	22	BJ
2. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	10.92	71	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-B

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041063

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268802

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	25	
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	19	
75-00-3	Chloroethane	42	
75-09-2	Methylene Chloride	670	BE
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	8	
75-35-4	1,1-Dichloroethene	25	B
75-35-3	1,1-Dichloroethane	430	E
540-59-0	1,2-Dichloroethene (total)	770	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	9	
78-93-3	2-Butanone	3200	BE
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	3200	BE
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	340	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	70	
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	150	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	850	E
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	33	
100-42-5	Styrene	5	U
	Total Xylenes	62	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-B

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041063

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268802

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/25/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-BDL

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041063

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268807

Level: (low/med) LOW Date Received: 04/16/88

Moisture: not dec. ____ Date Analyzed: 04/26/88

Column: (pack/cap) PACK Dilution Factor: 2000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20000	U
74-83-9	Bromomethane	20000	U
75-01-4	Vinyl Chloride	20000	U
75-00-3	Chloroethane	20000	U
75-09-2	Methylene Chloride	330000	BD
67-64-1	Acetone	21000	B
75-15-0	Carbon Disulfide	10000	U
75-35-4	1,1-Dichloroethene	13000	BD
75-35-3	1,1-Dichloroethane	10000	U
540-59-0	1,2-Dichloroethene (total)	10000	U
67-66-3	Chloroform	10000	U
107-06-2	1,2-Dichloroethane	10000	U
78-93-3	2-Butanone	20000	BD
71-55-6	1,1,1-Trichloroethane	10000	U
56-23-5	Carbon Tetrachloride	10000	U
108-05-4	Vinyl Acetate	20000	BD
75-27-4	Bromodichloromethane	10000	U
78-87-5	1,2-Dichloropropane	10000	U
10061-01-5	cis-1,3-Dichloropropene	10000	U
79-01-6	Trichloroethene	10000	U
124-48-1	Dibromochloromethane	10000	U
79-00-5	1,1,2-Trichloroethane	10000	U
71-43-2	Benzene	10000	U
10061-02-6	Trans-1,3-Dichloropropene	10000	U
75-25-2	Bromoform	10000	U
108-10-1	4-Methyl-2-Pentanone	20000	U
591-78-6	2-Hexanone	20000	U
127-18-4	Tetrachloroethene	10000	U
79-34-5	1,1,2,2-Tetrachloroethane	20000	U
108-88-3	Toluene	10000	U
108-90-7	Chlorobenzene	10000	U
100-41-4	Ethylbenzene	10000	U
100-42-5	Styrene	10000	U
	Total Xylenes	10000	U

S. Schmidt 5/25/88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-BDL

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041063

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04268807

Level: (low/med) LOW Date Received: 04/16/88

Moisture: not dec. ____ Date Analyzed: 04/26/88

Column (pack/cap) PACK Dilution Factor: 2000

Number TICs found: ~~2~~ Ø

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. ~~545783-80-8~~	~~C110 1,4-DIFLUOROBENZENE~~ x	~~21.02~~	~~100000~~	~~BJ~~
2.	~~METHANE, DICHLORO~~	~~7.10~~	~~280000~~	~~J~~

SL Schmidt
5/22/88

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MWC

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041064

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04288802

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/28/88

Column: (pack/cap) PACK Dilution Factor: 20000

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	200000	U
74-83-9	Bromomethane	200000	U
75-01-4	Vinyl Chloride	200000	U
75-00-3	Chloroethane	200000	U
75-09-2	Methylene Chloride	7700000	E
67-64-1	Acetone	200000	U
75-15-0	Carbon Disulfide	100000	U
75-35-4	1,1-Dichloroethene	80000	J
75-35-3	1,1-Dichloroethane	100000	U
540-59-0	1,2-Dichloroethene (total)	100000	U
67-66-3	Chloroform	100000	U
107-06-2	1,2-Dichloroethane	100000	U
78-93-3	2-Butanone	420000	B
71-55-6	1,1,1-Trichloroethane	100000	U
56-23-5	Carbon Tetrachloride	100000	U
108-05-4	Vinyl Acetate	200000	U
75-27-4	Bromodichloromethane	100000	U
78-87-5	1,2-Dichloropropane	100000	U
10061-01-5	cis-1,3-Dichloropropene	100000	U
79-01-6	Trichloroethene	100000	U
124-48-1	Dibromochloromethane	100000	U
79-00-5	1,1,2-Trichloroethane	100000	U
71-43-2	Benzene	100000	U
10061-02-6	Trans-1,3-Dichloropropene	100000	U
75-25-2	Bromoform	100000	U
108-10-1	4-Methyl-2-Pentanone	200000	U
591-78-6	2-Hexanone	200000	U
127-18-4	Tetrachloroethene	100000	U
79-34-5	1,1,2,2-Tetrachloroethane	200000	U
108-88-3	Toluene	100000	U
108-90-7	Chlorobenzene	100000	U
100-41-4	Ethylbenzene	100000	U
100-42-5	Styrene	100000	U
	Total Xylenes	100000	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MWC

Lab Name: NUS HOUSTON Contract: EDER ASSOCS

Lab Code: CLC Case No.: 5 SAS No.: _____ SDG No.: 4-16

Matrix: (soil/water) WATER Lab Sample ID: 28041064

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 5VP04288802

Level: (low/med) LOW Date Received: 04/16/88

% Moisture: not dec. ____ Date Analyzed: 04/28/88

Column (pack/cap) PACK Dilution Factor: 20000

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q