FINAL REPORT

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK

PHASE II INVESTIGATIONS

Volume II- Appendices

Tri-Cities Barrel | **Site No. 704005**

Town of Fenton | **Broome County**

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233-0001

Henry G. Williams, *Commissioner*

Division of Solid and Hazardous Waste

Norman H. Nosenchuck, P.E., *Director*

By:

ENGINEERING-SCIENCE

In Association With

DAMES & MOORE

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ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK PHASE II INVESTIGATIONS

VOLUME II

TRI-CITIES BARREL
NYS SITE NUMBER 704005
TOWN OF FENTON
BROOME COUNTY
NEW YORK STATE

Prepared For

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

Prepared By

ENGINEERING-SCIENCE
290 ELWOOD DAVIS ROAD
LIVERPOOL, NEW YORK 13088

In Association With

DAMES & MOORE
2996 BELGIUM ROAD
BALDWINSVILLE, NEW YORK 13027

APPENDIX A

FIELD PROCEDURES

APPENDIX A

PHASE II FIELD PROCEDURES

The following procedures have been used by Engineering Science/ Dames & Moore field teams during the Phase II field investigations.

These procedures have been developed from the standard practices of the companies and, in some instances, reflect specific procedural requests from the NYSDEC.

GEOPHYSICAL SURVEY PROCEDURES

Electrical Resistivity Survey

The electrical resistivity survey provides a method for shallow subsurface investigations by means of electrical measurements taken at the surface of the earth. Two electrode arrangements were used for the electrical resistivity survey, the standard Wenner and the "Modified" Wenner electrode arrays.

The standard Wenner electrode configuration (Bison, 1975), is one in which four electrodes are spaced at equal intervals along a line. This method is known as electrical resistivity profiling, where electrode spacing is approximately equal to depth below ground surface and used to investigate a particular subsurface zone.

The "Modified" Wenner electrode configuration (Carrington and Watson, 1981) for depth sounding was used to determine the variation in electrical subsurface conditions with depth. The sounding procedure consists of moving the two potential electrodes at one foot increments, along a line, away from the geoelectrical center while the two current

electrodes remain stationary. Successive readings are taken and the apparent resistivity values are plotted against electrode spacing. The potential electrode spacings closely approximate depth below ground surface with this electrode configuration.

Both vertical electrical soundings and horizontal electrical profiles were conducted at selected depths and locations in the immediate vicinity of the site.

SURFACE WATER, SEDIMENT, AND SOIL SAMPLING

Surface water, sediment, and soil sampling bottles were provided by the laboratory. At soil collection points only dry samples were taken. At all other points both water and sediment samples were taken. When no preservatives were present in the bottle, the bottle was directly submerged into the surface water and allowed to fill; when preservatives were used, the sample was initially collected in a teflon beaker and decanted into a sampling jar with the appropriate preservative. Care was taken not to overfill the sampling jars, so as to avoid loss of the sample preservative. The teflon beaker was washed with hexane followed by methanol and rinsed with distilled water between each sample. Samples were wrapped, packaged on ice and shipped according to the same quality assurance procedures as described in the section on Monitoring Well Sampling.

DRILLING, WELL INSTALLATION AND WELL DEVELOPMENT DRILLING

After an evaluation of geophysical survey results, and existing site conditions, the drilling program was reevaluated, and implemented. Drilling was performed by Parratt-Wolff, Inc. with a truck mounted CME drill rig. An 8-1/4 inch I.D. hollow-stemmed auger was used for all borings. All down-hole tools were steam-cleaned between borings to prevent cross-containation during drilling. An attempt was made to keep tools, rods, etc. as clean as possible during drilling by frequently cleaning the equipment and using plastic tarps and pallets to cover the ground.

Soil samples were taken by an open-drive split-spoon sampler. The upgradient boring was sampled continuously, while in all other boreholes, the sampling method was standard sampling at 5-foot intervals. Glass sample jars were provided by the drilling subcontractor.

All cuttings and drilling fluids were monitored with an HNu meter to assess potential for air contamination. If volatile organics had been detected in excess of 5 ppm, material would have been containerized.

Well Installation

Well installation took place immediately after drilling. For all wells, except CW-2B, a 10-foot long 2-inch Johnson PVC wound continuous slot (0.010 inch) screen was used. In CW-2B, two 5-foot sections of 2-inch PVC slotted (0.010 inch) screen were threaded together to make a 10-foot screen section. Two inch I.D. PVC riser pipe was used in all wells. All riser pipe sections were 10-feet long and flush-jointed; all joints were additionally secured with teflon tape. All screen and pipe sections were steam-cleaned prior to installation.

Upon completing the PVC emplacement, a sand filter was tremmied into the annulus to a height of 2 to 4 feet above the top of the screened interval. No. 4 Q-rok was used in CW-1, while No. 2 Q-rok was used in all other wells. Approximately 2-feet of bentonite was tremmied on top of the sand pack. Following the emplacement of the bentonite seal, grout was tremmied to the ground surface while the augers were gradually withdrawn and a 4-inch I.D. steel protective casing with a locking cap was installed.

An additional downgradient well was drilled to replace CW-2. It was believed that a small amount of PVC glue was present on the screen section of the well casing in CW-2, rendering the well unacceptable. PVC glue contains organic solvents that may affect the chemical analysis of groundwater samples drawn from the well. The well was abandoned, cut off at ground level and sealed in with a cement-bentonite grout mixture.

A new well (CW-2B) was drilled and installed according to the above procedures about 15 feet from CW-2.

Well Development

Each well was developed by pumping with either a double-line air-lift system or the pump on the drill rig in order to evacuate the well and allow normal inflow of groundwater through the sand pack. Evacuation continued until discharge water was free of fines, typically 4 to 6 hours. If HNu meter readings in excess of 5 ppm had been measured, the discharge water would have been containerized.

Monitoring Well Sampling

The sampling of monitoring wells consists of three parts: well evacuation, well sampling, and analytical field tests. Each of these procedures is described below.

Well Evacuation

Prior to sampling a monitoring well, the static water level was recorded and at least two well volumes of water were removed to assure that the water in the well was truly representative of the groundwater. Evacuation was accomplished by using either a teflon bailer, stainless steel bailer, centrifugal pump, or an airlift system. The method used was dictated by each well, (i.e., volume of water to evacuate and depth to static water level). If HNu meter readings in excess of 5 ppm had been measured, the discharge water would have been containerized.

Sampling Procedure

Following recovery from final evacuation, groundwater samples were collected according to the procedures summarized on Table A.1. The samples were collected using a positive displacement device with a check valve at its lower end. The advantage of a positive displacement pump is that it limits degassing and volatilization of contamination when a

sample is removed from a deep well. All samples were removed from a depth just above the well screen to further assure a representative groundwater sample. After sampling, the sampling apparatus was cleaned with hexane, methanol, and then rinsed with distilled deionized water.

In addition to water samples collected from the monitoring wells, three types of "blanks" were collected and submitted to the chemical laboratory for analyses:

a. Trip Blank - One Trip Blank was prepared by the chemical laboratory. It consisted of distilled, deionized water in a sample bottle which remained capped during the shipment of sample bottles and sampling effort.

   The Trip Blank accompanied the set of sample bottles to be used in the sampling program. It was a check on the chemical laboratory's analysis.

b. Field Blank - One Field Blank sample was prepared ahead of time by the laboratory. The sample consisted of distilled deionized water in a sample bottle, labeled and capped. The procedure was to open the blank when the wells were uncapped, keep the Field Blank opened until sampling effort was finished at the well, and cap the Field Blank when groundwater sample bottles were capped. The Field Blank was a check on the contribution of atmospheric contamination to the water samples.

c. Equipment/Wash Blank - Taken between selected wells. Procedures were as follows:

   - Sampling equipment (pump or bailer) washed with hexane followed by methanol, collecting solvent rinse. Rinsed with distilled water.
   - Sample taken of "clean" distilled deionized water.
   - Sample refrigerated.

The analytical results from the groundwater sampling effort are presented in Section IV and Appendix D.

Analytical Field Tests

Prior to filling the sample bottles, two 250-ml beakers of groundwater were filled. The sample in one beaker was immediately analyzed for temperature (°C), specific conductance (umhos/cm), and pH. The sample in the other beaker was analyzed for dissolved oxygen (ppm). Specific conductance, pH, and dissolved oxygen were measured by electronic probe. Temperature was measured by probe and double-checked with a thermometer. All equipment was cleaned and calibrated between each sample. During the sampling and field testing, sampling records were kept. Results of these analytical field tests are compiled in Appendix D.

AIR QUALITY MONITORING

Air quality monitoring for organic vapors with an HNu photoionization meter was implemented during site investigations before, during, and after sampling, and at the time of drilling. The meter was calibrated in the laboratory before use with a benzene standard. The first reading that was taken was an upwind position. The wand on the meter was held at head height for 30 seconds and the reading was recorded. Readings with the wand at head height were continually taken during site reconnaissance. Organic vapors emanating from surface water and leachate seeps were determined by holding the wand 6" to 12" above the water for 30 seconds. During the drilling procedure, the split-spoon soil samples were held at approximately 1" from the wand to test for organic constituents emanating from the soil samples. The air in the drilled well was also analyzed by dangling the wand at a depth of approximately 1 foot.

GAMMA AND ELECTRIC LOGGING

Each well was logged using a Mt. Sopris 1000-C portable logging instrument to record the natural gamma activity of the formations. All logs were run from the bottom of the hole to the surface. The instrument depth meter was initialized with the Probe Electrode at ground surface at each well. The logging probe was cleaned with distilled water between wells. At all wells the surface electrode was pushed into adjacent soil. Copies of the resulting logs are shown as figures in Appendix B.

The interpretations of these logs are based on relative changes of all three logs, not necessarily the actual values of displacement. The logs were utilized in conjunction with the drilling logs in formulating a basic understanding of the subsurface strata.

IN-SITU PERMEABILITY TESTS

An in-situ variable head permeability test (slug test) was performed in each well. This test provides an estimate of permeability calculated from the rate at which the water level inside a well will equilibrate with the hydraulic head in the surrounding aquifer. The test procedure is as follows: the initial change in water level is accomplished by inserting or withdrawing a solid "slug" of known volume into or out of the well. The slug test data is analyzed by the Hvorslev (1951) method for data reduction. For the well geometries used at this site, the method calculates horizontal hydraulic conductivity (K_h). K_h has the units of a velocity and is an estimate of the capability of a saturated soil to transmit groundwater in a horizontal direction. To use the Hvorslev method, a semi-log plot of recovery data (normalized to the initial change in water level) versus time (arithmetic scale) is prepared. K_h is calculated according to the following equation:

$$K = \frac{r^2 \ln (L/R)}{2 L T_o}$$

Where: K = horizontal hydraulic conductivity

r = radius of the well casing

L = length of the well screen

R = radius of the well intake (well casing plus sand pack)

T_o = basic time lag (=value of t at recovery of 0.37)

In all cases, two tests were done on each well; one where the water level was initially lowered in the well (rising head) and the other where the water level was initially raised in the well (falling head). The results of both analyses for each well are summarized in the text.

TABLE A.1
SAMPLING PROCEDURE FOR MONITORING WELLS

1. Well and field blanks were opened; initial static water level recorded with an electric sounder.

2. Sampling device lowered into well.

   - o Positive displacement device lowered by the attached stainless steel guide cable.
   - o Bailer was lowered by a stainless steel cable.

3. Sample taken.

   - o From positive displacement discharge tube.
     - The discharge tube was inserted to the bottom of the sample bottle and withdrawn ahead of the sample so tht aeration and turbulence were minimized.
   - o From bailer.
     - Sample was poured slowly from the open end of the bailer and the sample bottle tilted so that aeration and turbulence were minimized.

4. Samples were capped, labeled and placed in ice filled coolers provided by the chemical laboratory.

5. Well and field blanks were capped and locked.

6. Chain-of-Custody forms were completed in triplicate.

   - o The original and a copy were put into a zip-lock bag and placed into the cooler.
   - o A copy was kept for files.

7. Cooler was sealed with strapping tape and custody labels to assure integrity and provide security against tampering.

8. Sampling device washed.

   - o Sampling device was washed with hexane, followed by methanol and finally distilled water.
   - o Solvents and distilled water rinse were collected into a large funnel which emptied into a 5-gallon container.

APPENDIX B

BORING LOGS, WELL SCHEMATICS, GRAIN SIZE ANALYSIS, AND PERMEABILITY TEST DATA

Boring Logs and Well Schematics

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITIES BARREL

BORING NO.: CW-1
SURFACE ELEV: 1024.2'

DRILLING METHOD: 4 1/4" Augers

SAMPLING METHOD: 2" Split spoon

DATE STARTED: 9/10/85
DATE FINISHED: 9/10/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	19	SS	0		Tan, slightly moist silt, trace of gravel
			1		
2	55	SS	2		grading to brown in color
			3		
3	34	SS	4		fragmented rock
			5		
4	63	SS	6		olive brown, moist silt with little to trace of gravel, occasional cobble
			7		
5	45	SS	8		
			9		
6	16	SS	10	ML	Hnu=0.4ppm
			11		
7	42	SS	12		
			13		
8	22	SS	14		grading to light brown soil
			15		
9	21	SS	16		olive gray , moist to very moist silt, little fine gravel, trace of clay
			17		
10	17	SS	18		
			19		
			20		

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITY BARREL

BORING NO.: CW-1

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
11	16	SS	20		Olive gray, moist to extremely moist silt, little cobble, little fine gravel
			21	ML	
12	24	SS	22		grading without cobble
			23		
13	16	SS	24	SM	Olive gray, wet fine sand with some gravel and coarse sand, little to trace of silt Hnu=0.3ppm
			25		
14	27	SS	26		Olive gray, moist silt, some fine sand, little gravel
			27		
15	19	SS	28		
			29	ML	
16	21	SS	30		
			31		
17	27	SS	32		
			33		
18	80	SS	34	SM	Olive gray, moist fine sand and silt, little coarse sand and gravel
			35		Wet, cobble and gravel, some olive gray fine sand, some silt
19	95	SS	36	GM	
			37		
20		SS	38		moist, shale and gravel, little gray silt
			39		Continuous sampling completed at 38.5 ft.; auger refusal (Bedrock core)
			40		
			41		Dark gray , thinly bedded shale grading from highly fractured at 38.5 to 41.5 ft. to moterately fractured 41.5 to 43.5 ft. Upper portion of core contains thin lenses (1/2 to 1 inch thick) of silty clay with traces of fine gravel. Lower 2 to 3 feet appeared fresh. (showed little to no signs of weathering)
			42		
			43		
			44		
			45		Coring terminated at a depth of 43.5 feet on 9/10/85.

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITIES BARREL

BORING NO.: CW-2B
SURFACE ELEV: 1001.3'

DRILLING METHOD: 4 1/4" Hollow stem auger

SAMPLING METHOD: Standard split spoon

DATE STARTED: 10/9/85
DATE FINISHED: 10/9/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	16	SS	0	ML	Light brown, mottled, slightly moist silt, some fine sand, little fine to medium gravel, few organics
			1		
			2		
			3		
			4	SM -- ML	Brown and gray, mottled, slightly moist sand and silt, fine to medium gravel, few organics Hnu=0ppm
2	29	SS	5		
			6		
			7		
			8		
			9	ML	Light brown and gray, slightly moist silt with little fine to medium gravel, little fine sand Hnu=1ppm
3	33	SS	10		
			11		
			12		
			13		
			14		
4	35	SS	15		grading brown with some fine to medium gravel
			16		
			17		
			18		
			19		
			20		

CLIENT: NYSDEC
LOCATION: BINGHAMTON, NY

BORING NO.: CW-2B

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
5	34	SS	20		Hnu=0ppm in auger brown mud oozing from hole with some gas bubbles
			21		
			22		
			23		
			24		
6	17	SS	25		grading gray, trace of gravel
			26		
			27	ML	
			28		
			29		
7	12	SS	30		grading moist
			31		
			32		
			33		
			34		Light brown, slightly moist, fine sand, some silt, little gravel
8	54	SS	35		
			36	SM	
			37		
			38		
			39		Brown and gray, slightly moist, silt with some fine to medium gravel and sand
			40		

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: BINGHAMTON, NY

BORING NO.: CW-2B

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
9	63	SS	40		Hnu=0
			41	ML	
			42		
			43		
			44		Gray, moist, fine to coarse gravel, sand and silt
10	30	SS	45		Hnu=2ppm
			46	GM	
			47		
			48		
			49		
11	50	SS	50		Wet gravel and sand, little silt
			51		Boring terminated at a depth of 50.0 feet on 10/9/85.

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITIES BARREL

BORING NO.: CW-3
SURFACE ELEV: 1001.8'

DRILLING METHOD: 4 1/4" Augers

SAMPLING METHOD: 2" Standard split spoon

DATE STARTED: 9/17/85
DATE FINISHED: 9/17/85

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
1	32	SS	0	SM	Olive tan, slightly moist to dry fine sand silt, some pieces of cobble, little fine gravel Hnu=0.3ppm
			1		
			2		
			3		
			4		Greenish gray, slightly moist, silt and clay, little fine gravel, trace of fine sand Hnu=22ppm wood chips in cuttings at 4.0 feet
2	7	SS	5		
			6		
			7		
			8		
			9		
3	27	SS	10		grayish brown, moist, fine sand and silt, little gravel, trace of clay (strong chemical odor) Hnu=180ppm
			11		
			12		
			13		
			14	ML	
4	33	SS	15		grading slightly moist, medium tan in color Hnu=0.8ppm
			16		
			17		
			18		
			19		
			20		

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITY BARREL

BORING NO.: CW-3

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
5	22	SS	20		grading to brown in color Hnu=2.2ppm
			21		
			22		
			23		
			24		
6	12	SS	25		grading to olive gray in color Hnu=0.8ppm
			26		
			27		
			28		
			29	ML	
7	20	SS	30		grading moist, no fine sand
			31		
			32		
			33		
			34		
8	21	SS	35		grading to very moist with some fine sand, trace clay Hnu=0.4ppm
			36		
			37		
			38		
			39	SM	Olive gray fine sand, silt, fine gravel, wet
9	19	SS	40		

DAMES & MOORE
BORING LOG

CLIENT: NYSDEC
LOCATION: TRI-CITY BARREL

BORING NO.: CW-3

SAMPLE NO.	BLOWS/FT	SAMPLE TYPE	DEPTH IN FT.	SOIL GRAPH	MATERIAL DESCRIPTION
			40		
			41		
			42		
			43		
			44		
10	36	SS	45		grading moist, some gravel
			46		
			47		
11	28	SS	48		grading to very moist
			49		
			50		Boring terminated at a depth of 50.0 feet on 9/17/85. Hnu=0.4ppm

In-Situ Permeability Test Results

SLUG TESTS

FILE CW3T.DO

WELL NUMBER & LOCATION CW-3 13305-008-19 DATE 10/17/85

DEPTH TO STATIC WATER LEVEL 26.09 TIME 2:00 pm

TOP OF PROT. CASING

TOTAL DEPTH OF WELL FROM TOP OF CASING _____

VOLUME OF SLUG ~~0.045~~ 0.0473 Ft^3

NOTE: ALL MEASUREMENTS ARE FROM TOP OF CASING

FALLING HEAD		RISING HEAD	
WATER LEVEL	ELAPSED TIME	WATER LEVEL	ELAPSED TIME

HNU: BACKGROUND: 0.0

WELL: 0.0

SLUG TEST ANALYSIS

CW-3 TRI-CITY BHORREC

13305-008-19

$$K = \frac{r^2 \ln\left(\frac{L}{R}\right)}{2 L T_0}$$

$r = 0.083'$

$L = 10'$

$R = 0.33'$

RISING HEAD:

$T_0 = 20$ sec

$$K = \frac{(0.083)^2 \ln\left(\frac{10}{0.33}\right)}{(2)(10)(20)} = 5.86 \times 10^{-5} \text{ ft/sec}$$

$$= 1.79 \times 10^{-3} \text{ cm/sec}$$

FALLING HEAD

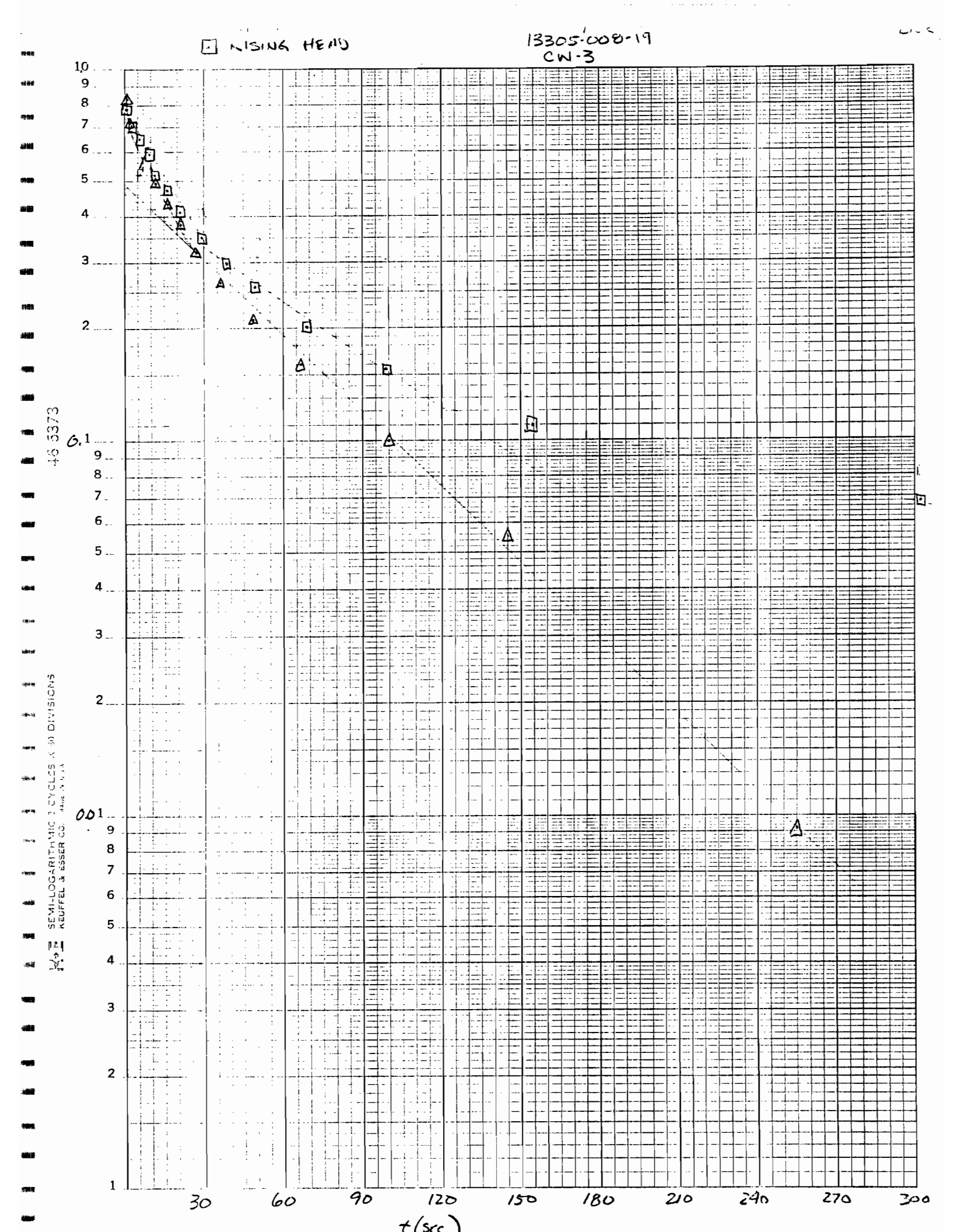
$T_0 = 18$ sec

$$K = \frac{(0.083)^2 \ln\left(\frac{10}{0.33}\right)}{(2)(10)(18)} = 6.53 \times 10^{-5} \text{ ft/sec}$$

$$= 1.99 \times 10^{-3} \text{ cm/sec}$$

AVG $= 1.89 \times 10^{-3}$ cm/sec

LK 10/29/85


RISING HEAD
13305-008-19
CW-3
46 3373
SEMI-LOGARITHMIC 2 CYCLES X 90 DIVISIONS
KEUFFEL & ESSER CO.
10
9
8
7
6
5
4
3
2
0.1
9
8
7
6
5
4
3
2
0.01
9
8
7
6
5
4
3
2
1
30
60
90
120
150
180
210
240
270
300
t (sec)

STATIC HEAD= 26.09 MAX CHANGE= 23.92

T(SEC)	H	H-H	H-H/H-HO
1	24.28	1.81	.834101382488 48
2	24.51	1.58	.72811059907834
3	24.95	1.14	.52534562211981
8	24.87	1.22	.56221198156682
12	25.02	1.07	.49308755760368
16	25.14	.95	.43778801843318
22	25.26	.83	.38248847926267
28	25.38	.71	.32718894009216
37	25.51	.58	.26728110599078
49	25.63	.46	.21198156682027
68	25.74	.35	.16129032258064
100	25.87	.22	.10138248847926
146	25.97	.12	.055299539170507
255	26.07	.02	9.2165898617511E-03

STATIC HEAD= 26.09 MAX CHANGE= 28.24

T(SEC)	H	H-H	H-H/H-H0
1	27.79	-1.7	.78341013824885
3	27.65	-1.56	.71889400921659
6	27.52	-1.43	.6589861751152
9	27.38	-1.29	.59447004608295
12	27.23	-1.14	.525345622211981
17	27.11	-1.02	.4700460829493
21	26.99	-.9	.4147465437788
29	26.87	-.78	.35944700460829
38	26.74	-.65	.29953917050691
49	26.65	-.56	.25806451612903
68	26.53	-.44	.20276497695852
98	26.43	-.34	.15668202764977
154	26.33	-.24	.11059907834101
305	26.24	-.15	.069124423963133

13305-008-1 #OW-3
SWL=26.09'
FALLING HEAD

~~14:18:03~~	~~24.805725806451~~
14:18:04	24.289731182795
14:18:05	24.508682795699
14:18:06	24.946586021505
14:18:11	24.873602150537
14:18:15	25.019569892473
14:18:19	25.141209677419
14:18:25	25.262849462365
14:18:31	25.384489247312
14:18:40	25.506129032258
14:18:52	25.627768817204
14:19:11	25.74940860215
14:19:43	25.871048387097
14:20:29	25.968360215054
14:22:18	26.065672043011
RISING HEAD	
14:25:38	27.938924731183
14:25:39	27.792956989247
14:25:41	27.646989247312
14:25:44	27.525349462365
14:25:47	27.37938172043
14:25:50	27.233413978494
14:25:55	27.111774193548
14:25:59	26.990134408602
14:26:07	26.868494623656
14:26:16	26.746854838709
14:26:27	26.649543010752
14:26:46	26.527903225806
14:27:16	26.430591397849
14:28:12	26.333279569892
14:30:43	26.235967741935

SLUG TESTS FILE CW2BT.DO

WELL NUMBER & LOCATION CW-2B 13305-008-19 DATE 10/17/85

DEPTH TO STATIC WATER LEVEL 28.21 TIME 3:30p

TOTAL DEPTH OF WELL FROM TOP OF CASING _____

VOLUME OF SLUG 0.047 ft3

NOTE: ALL MEASUREMENTS ARE FROM TOP OF CASING

FALLING HEAD		RISING HEAD	
WATER LEVEL	ELAPSED TIME	WATER LEVEL	ELAPSED TIME

HNU: BACKGROUND.
WELL.

SLUG TEST ANALYSIS

CW-2B TRI-CITY BARREL

13305-008-19

$$K = \frac{r^2 \ln\left(\frac{L}{R}\right)}{2 L T_0}$$

$r = 0.083'$

$L = 10'$

$R = 0.33'$

RISING HEAD

$T_0 = 2$ sec

$$K = \frac{(0.083)^2 \ln\left(\frac{10}{0.33}\right)}{(2)(10)(2)} = 5.86 \times 10^{-4} \text{ Ft/sec} = 1.79 \times 10^{-2} \text{ cm/sec}$$

FALLING HEAD

$T_0 \approx 2$ sec

$\therefore K = 1.79 \times 10^{-2}$ cm/sec

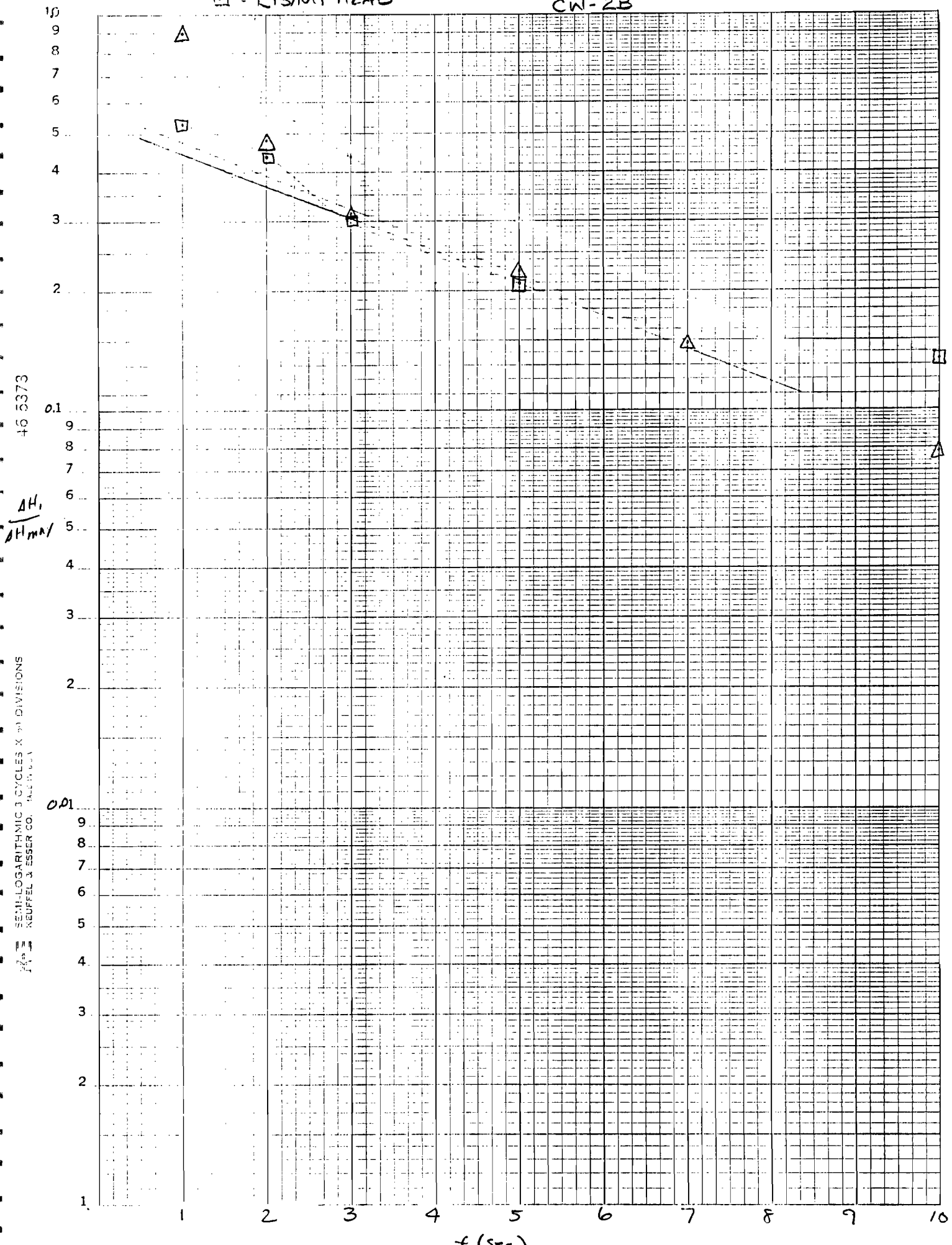
LK 10/24/85

△ = FALLING HEAD

□ = RISING HEAD

13305-008-19
CW-2B

LEK



46 5373

SEMI-LOGARITHMIC 3 CYCLES X 10 DIVISIONS
KEUFFEL & ESSER CO.

TRI-CITY BARREL CW-2B RISING 13305-008-19

STATIC HEAD= 28.21 MAX CHANGE= 30.38

T(SEC)	H	H-H	H-H/H-HO
1	29.36	-1.15	.52995391705069
2	29.16	-.95	.43778801843318
3	28.89	-.68	.31336405529954
5	28.67	-.46	.21198156682027
7	28.5	-.29	.13364055299539
10	28.36	-.15	.069124423963133
31	28.21	0	0

TRI-CITY BARREL CW-2B FALLING 13305-008-19

STATIC HEAD= 28.21 MAX CHANGE= 26.04

T(SEC)	H	H-H	H-H/H-HO
1	26.26	1.95	.89861751152074
2	27.16	1.05	.48387096774193
3	27.53	.68	.31336405529954
5	27.72	.49	.225806451613
7	27.89	.32	.14746543778802
10	28.04	.17	.078341013824885

13305-008-19#CW2B
SWL =28.21'
FALLING HEAD
15:27:04 25.941707317073
15:27:05 26.258780487805
15:27:06 27.161219512195
15:27:07 27.527073170732
15:27:09 27.722195121952
15:27:11 27.892926829269
15:27:14 28.039268292683
15:27:24 28.161219512195
RISING HEAD
15:29:46 29.770975609756
15:29:47 29.356341463415
15:29:48 29.161219512195
15:29:49 28.892926829269
15:29:51 28.673414634147
15:29:53 28.50268292683
15:29:56 28.356341463415
15:30:17 28.21

SLUG TESTS FILE CWITSDO

WELL NUMBER & LOCATION CW-1 TRI-CITY DATE 10/17/85

DEPTH TO STATIC WATER LEVEL 15.70' TIME 12:30p

TOTAL DEPTH OF WELL FROM TOP OF CASING ~~15~~

VOLUME OF SLUG 0.0473 (NOTE FULL-LENGTH NOTE IN ONLY ~30' IN WATER)

NOTE: ALL MEASUREMENTS ARE FROM TOP OF CASING

FALLING HEAD		RISING HEAD	
WATER LEVEL	ELAPSED TIME	WATER LEVEL	ELAPSED TIME

SLUG TEST ANALYSIS

CW-1 TRI-CITY/BARREL

13305-008-19

$$K = \frac{r^2 \ln\left(\frac{L}{R}\right)}{2LT_0}$$

$r = 0.083'$

$L = 10'$

$R = 0.33'$

RISING HEAD

$T_0 = 3$ sec

$$K = \frac{(0.083)^2 \ln\left(\frac{10}{0.33}\right)}{(2)(10)(3)} = 391 \times 10^{-4} \text{ ft/sec}$$

$$= 1.19 \times 10^{-2} \text{ cm/sec}$$

FALLING HEAD

$T_0 = 6$ secs

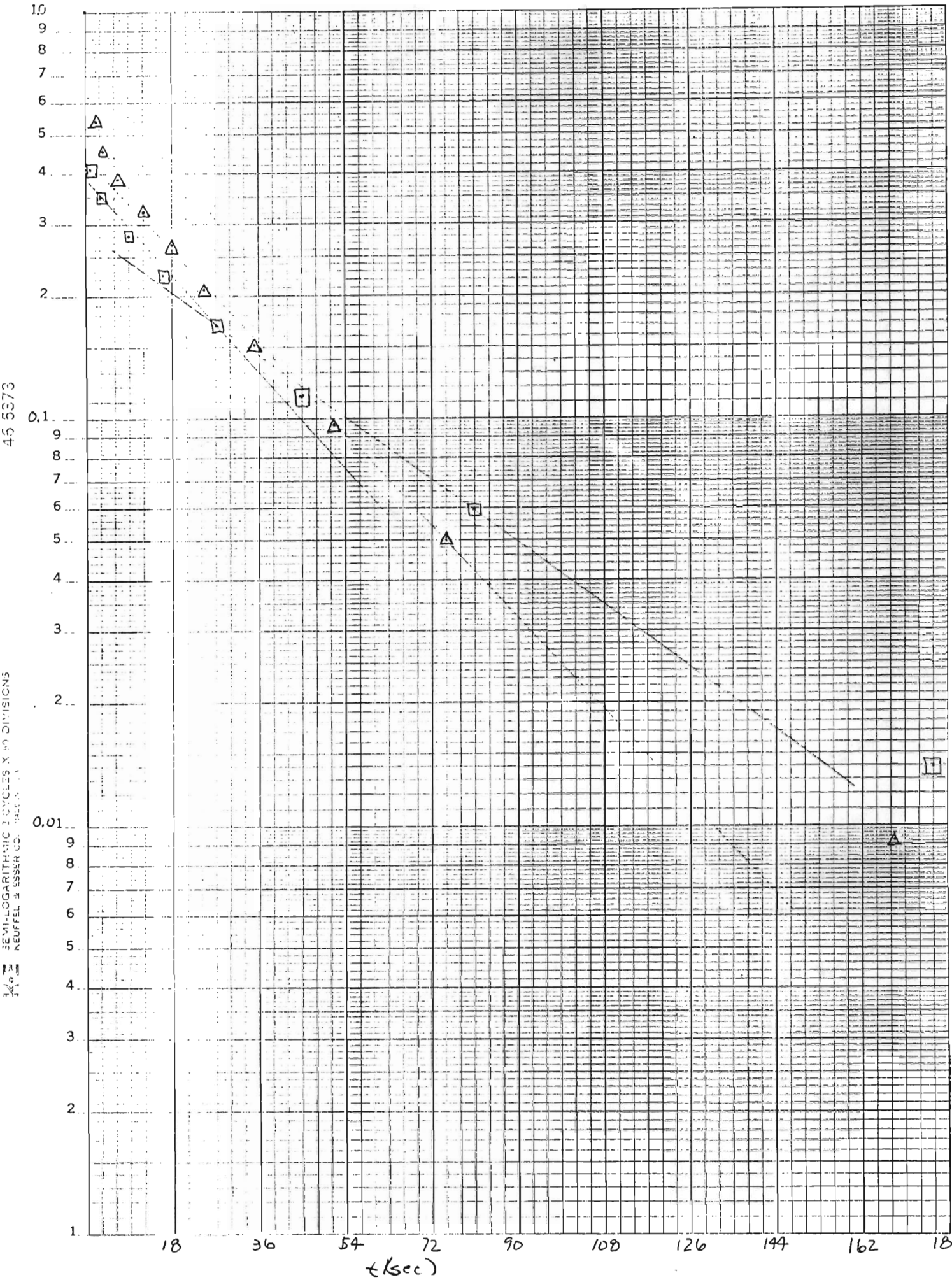
$$K = \frac{(0.083)^2 \ln\left(\frac{10}{0.33}\right)}{(2)(10)(6)} = 1.95 \times 10^{-4} \text{ ft/sec}$$

$$= 5.95 \times 10^{-3} \text{ cm/sec}$$

LK 10/29/85

△ = RISING HEAD

13305-008-19



46 5373

SEMI-LOGARITHMIC 3 CYCLES X 10 DIVISIONS
KEUFFEL & ESSER CO.

DAMES & MOORE

FIELD MEMORANDUM

JOB 13305-008
CLIENT NYSDEC
LOCATION Tri-City Barrel - East Syracuse NY

To:

Date: 11/25/85

From:

Subject: WATER LEVEL RECORD

	ELEVATION		DEPTH OF CASING	DEPTH TO WATER	DEPTH TO BOTTOM	BY
CW-1				13.8'		GAM
CW-3				24.05'		GHM

DATUM:

REMARKS:

Figure 3-65. Water Level Record Form

STATIC HEAD= 15.7 MAX CHANGE= 17.87

T(SEC)	H	H-H	H-H/H-HO
1	16.58	-.88	.40552995391705
3	16.46	-.76	.35023041474654
9	16.31	-.61	.28110599078341
16	16.19	-.49	.2258064516129
27	16.07	-.37	.17050691244239
45	15.95	-.25	.11520737327189
81	15.83	-.13	.059907834101382
178	15.73	-.03	.013824884792626

STATIC HEAD= 15.7 MAX CHANGE= 13.53

T(SEC)	H	H-H	H-H/H-HO
2	14.52	1.18	.543778801843311
4	14.71	.99	.45622119815668
7	14.86	.84	.38709677419355
12	15	.7	.32258064516129
18	15.12	.58	.26728110599078
25	15.25	.45	.2073732718894
35	15.37	.33	.15207373271889
52	15.49	.21	.096774193548387
75	15.59	.11	.050691244239631
169	15.68	.02	9.2165898617511E-03

22:22:54	13.475
22:22:56	14.518315789474
22:22:58	14.712421052632
22:23:01	14.858
22:23:06	15.003578947369
22:23:12	15.124894736842
22:23:19	15.246210526316
22:23:29	15.36752631579
22:23:46	15.488842105263
22:24:09	15.585894736842
22:25:33	15.682947368421
####	
22:30:23	15.925578947369
22:30:24	16.799052631579
22:30:25	16.580684210527
22:30:27	16.459368421053
22:30:33	16.313789473685
22:30:40	16.192473684211
22:30:51	16.071157894737
22:31:09	15.949842105263
22:31:45	15.82852631579
22:33:22	15.731473684211

13305-008-19#CW-1T
SWL =15.70
FALLING HEAD

22:22:54	13.475
22:22:56	14.518315789474
22:22:58	14.712421052632
22:23:01	14.858
22:23:06	15.003578947369
22:23:12	15.124894736842
22:23:19	15.246210526316
22:23:29	15.36752631579
22:23:46	15.488842105263
22:24:09	15.585894736842
22:25:33	15.682947368421

RISING HEAD

22:30:24	16.799052631579
22:30:25	16.580684210527
22:30:27	16.459368421053
22:30:33	16.313789473685
22:30:40	16.192473684211
22:30:51	16.071157894737
22:31:09	15.949842105263
22:31:45	15.82852631579
22:33:22	15.731473684211

Gamma Logs

13305-008
10/17/85
TRI-CITY BARREL
CW-2B
3:45 pm
JCBrod

WELL DEPTH:
SWL: 28.21' TOC

γ: 5 CPS/DIV
DISPLACEMENT: 0 CPS X CPS/DIV

NOTES: TOP TAPE ON PROBE @ G.S.
GROUND ELECTRODE PLACED
IN MUD & CUTTINGS NEAR WELL.

0.0m

13.3m

MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO, U.S.A.

CHART NO. BP-10

13305-008
10/17/85
CW-1
1:20 pm
JCBrod

Well Depth: 34.15' GS.
SWL: 16.80' TOC 1.5' STICK-UP

γ: 5 CPS/DIV
Displacement: 0 CPS X CPS/DIV

NOTES: Top tape on probe @ G.S.
Ground electrode placed in
cuttings next to well.

0.0m

9.3m

CHART NO. BP-10

PRINTED IN U.S.A.

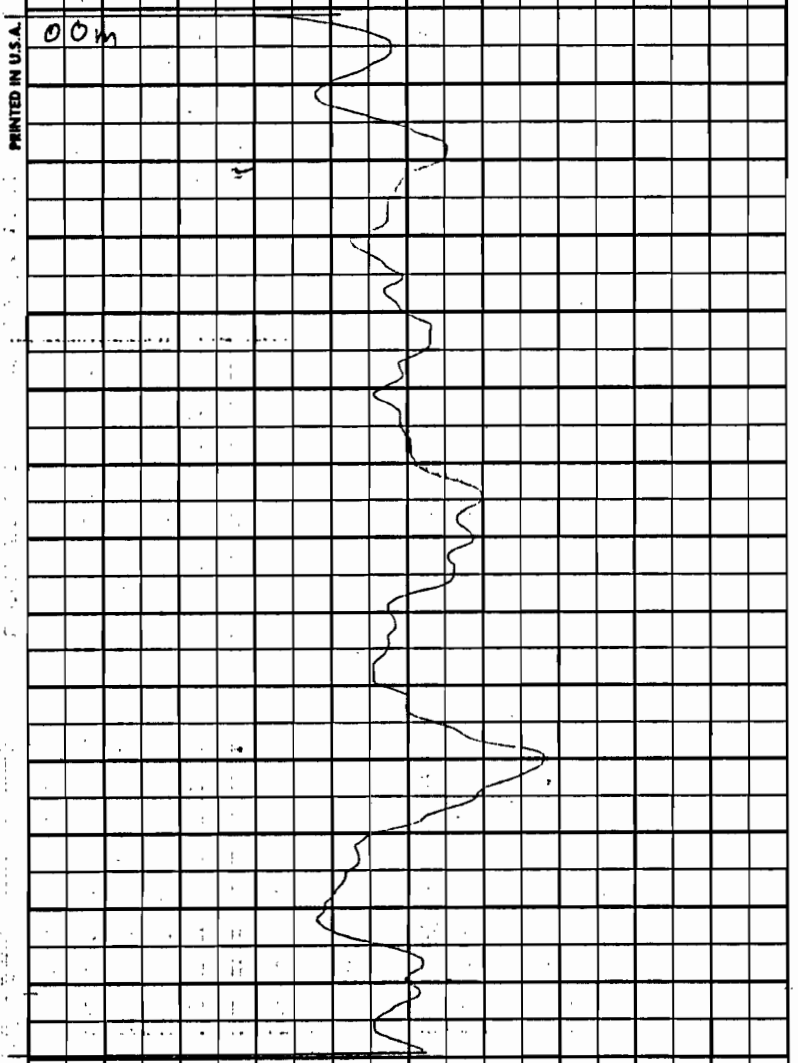
13305-00B
TRI-CITY BARREL
CW-3

10-17-85
3:00 pm
JOBROD

WELL DEPTH:
SWL: 26.09 TOC

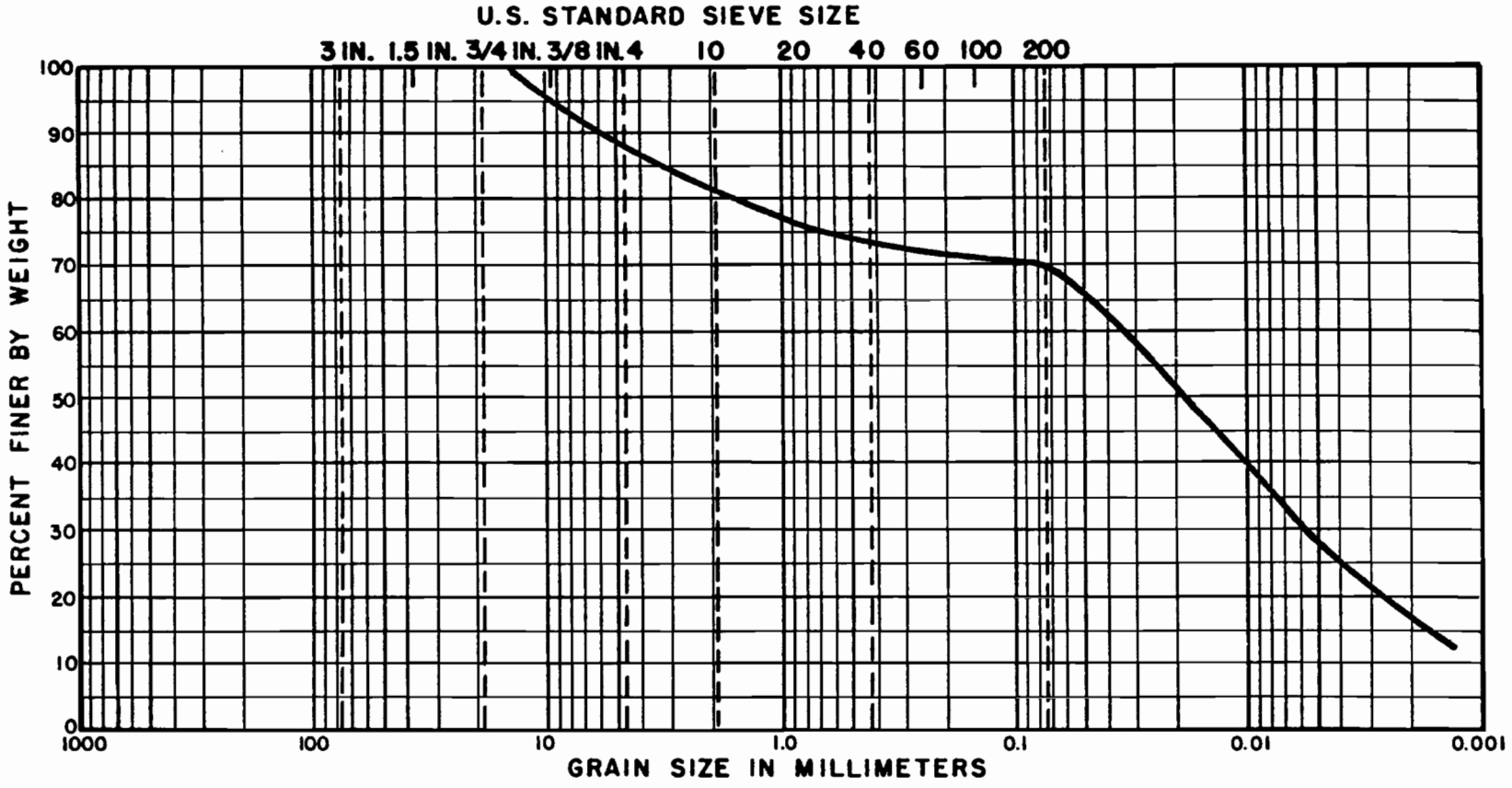
X: 5 CPS/DIV
DISPLACEMENT: 0 CPS x CPS/DIV

NOTES: TOP TAPE ON PROBE @ G.S.
GROUND ELECTRODE PLATE IN
CUTTINGS AND MUD NEAR HOLE,



PRINTED IN U.S.A.

Grain Size Analysis



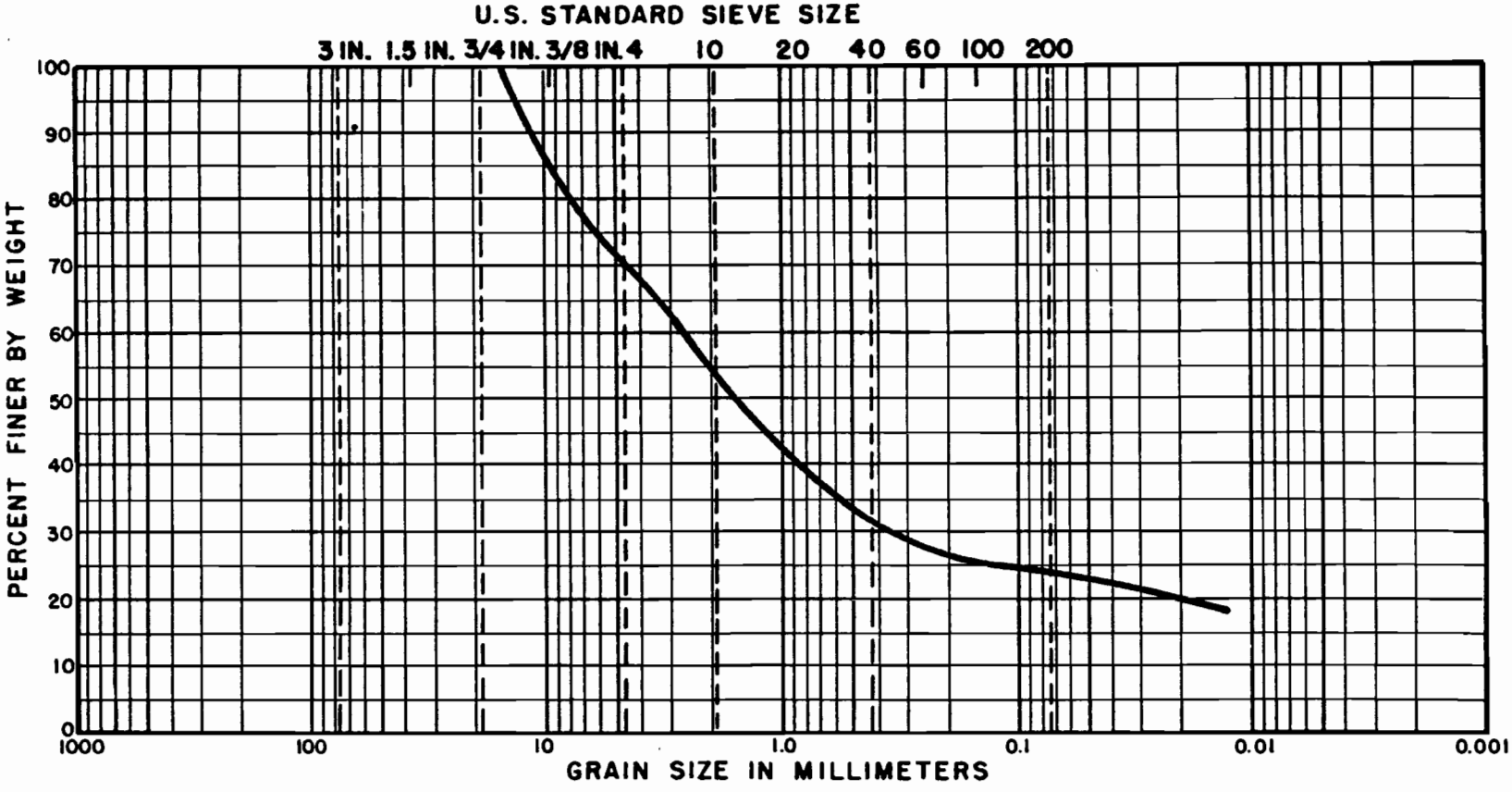
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

SAMPLE No.	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
10	45-47'	ML	Sandy silt					

DAMES & MOORE

GRADATION CURVE

BORING CW-3



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

SAMPLE No.	DEPTH	CLASSIFICATION		NAT. WC	LL	PL	PI	
10	45-47'	SM	Silty sand					

DAMES & MOORE

GRADATION CURVE

BORING CW-2

APPENDIX C

GEOPHYSICAL SURVEY DATA

APPENDIX C

GEOPHYSICAL SURVEY DATA

A geophysical survey was conducted at the Tri-Cities Barrel facility to evaluate the continuity of subsurface conditions, identify any contaminant plume which may exist and locate any buried drums present on the site. In order to evaluate these conditions, a geophysical investigation consisting of electrical resistivity and magnetometer surveys was performed at the site.

The electrical resistivity survey was performed at select locations around the site perimeter as well as within the site boundary to confirm the continuity of site geologic units, locate major discontinuties or map a contaminant plume should one exist. The magnetometer survey was performed on a tightly spaced grid pattern using a site coordinate system 10-by-10 foot grid as station locations. The tightly spaced grid pattern was employed in the area of the three abandoned lagoons to delineate lagoon boundaries and locate any buried ferromagnetic objects that may be present.

ELECTRICAL RESISTIVITY SURVEY

Vertical soundings and horizontal electrical profiles were conducted using a Bison 2350B Earth Resistivity Meter.

The electrical soundings obtained apparent resistivity values of the subsurface at selected depths and locations in the immediate vicinity of the Tri-Cities Barrel facility. The sounding locations are shown in Figure C-1 while the sounding graphs are plotted in Figures C-2 through C-5. Electrode spacing as shown in Figures C-2 through C-5 is a close approximation of depth below ground surface. The "Modified"

Wenner Electrode Array was used for the soundings (Carrington and Watson, 1981). Correlations and geologic interpretations of the soundings are somewhat difficult due to the absence of nearby wells with geologic logs. Soundings 1 through 4 (Figures C-2 through C-5), which were conducted to a depth of 100 feet, indicate the top of weathered or fractured bedrock to range from 48 to 52 feet below ground surface. The anticipated top of competent rock is between 66 to 88 feet below ground surface. Bedrock is overlain by a thick till unit consisting of interbedded silts, gravels, sands, and glaciolacustrine clays.

An important hydrogeologic feature that may exist on-site is the relatively impermeable fragipan layer associated with Volusia soils in this area. According to geophysical soundings and Soil Conservation Service (SCS) data, the Tri-Cities Barrel site may have a fragipan layer present between 5 and 12 feet below the ground surface.

Electrical resistivity (ER) profiles were conducted using electrode spacings of 10, 25, 50, and 100 feet (electrode spacing is approximately depth below ground). The ER Profiles are found on Figures C-6 through C-9. The standard Wenner Electrode Array (Bison, 1975) was used for the profiles. The apparent resistivity profile station locations are shown on Figure C-1. Information gathered during earlier stages of this project (Phase I) formed the basis for electrical resistivity profile locations. These locations were chosen to best represent upgradient (background) apparent resistivity values and downgradient locations where off-site contaminant migration might exist. Once anomalous areas were identified, additional profile stations were located in order to better delineate the boundaries of the anomalous areas.

The profile readings at the 10-foot spacing (Figure C-6) suggest background apparent resistivity values ranging from 310 ohm-feet to 945 ohm-feet at profile stations 16, 22, and 23 on the southern edge of the site. Similar results were observed at profile stations 3, 8, 10, 24, and 25 along the northwest boundary of the site. A large anomalous area at the 10-foot spacing is located directly to the north of the main buildings in the center of the Tri-Cities Barrel site. This area

extends northwest to profile station 9 with the eastern edge reaching nearly to profile station 21. The southern extent of this anomaly appears to encompass the original Tri-Cities Barrel building. This anomaly trends northwest and has apparent resistivity values ranging from 62 ohm-feet (profile station 20) to 99 ohm-feet (profile station 7). This anomalous area coincides with the original Tri-Cities Barrel building and portions of the waste disposal ponds.

A second area with apparent resistivity values less than background is located further north along what is now Interstate 88. This area has apparent resistivity values ranging from 155 ohm-feet at profile station 19 to 159 ohm-feet at profile station 26. These low values may be related to the interstate highway construction activities (roadway reinforcement) and not believed to be associated with past activities at the Tri-Cities Barrel site. These two anomalous areas are separated by a band of intermediate apparent resistivity values at profile stations 1, 2, 12, 14, and 18. These locations have apparent resistivity values ranging from 250 ohm-feet to 277 ohm-feet. This band coincides with surface drainage features leaving the site.

The profile values at the 25-foot (Figure C-7) spacing also indicates an anomalous area to the north of the Tri-Cities Barrel buildings. The anomalous area again trends northwest, however, the areal extent of the anomaly is smaller. The apparent resistivity values here are below 150 ohm-feet and encompasses profile station 7 with an apparent resistivity value of 66 ohm-feet. In general, the low apparent resistivity anomaly suggests a groundwater flow direction in the shallow aquifer to the north toward Osborne Creek. The anomaly to the north of the site along I-88 at profile station 19 is still apparent at 25-foot spacings. This area is interpreted as an isolated low (possibly a clay lens) apparent resistivity area at the 25-foot depth.

The areas along the northwest and southeast portions of the site exhibited apparent resistivity values well above 300 ohm-feet and considered to be background values. A small anomalous area located northeast of the site at profile station 15 had an apparent resistivity

of 229 ohm-feet. This area is considered to be associated with high moisture levels adjacent to the drainage ditch paralleling I-88.

The profile readings at the 50-foot spacing (Figure C-8) show that the small anomalous area located at profile station 7 has disappeared. Apparent resistivity values at almost all the profile stations have reached background levels. A localized apparent resistivity value of 210 ohm-feet at profile station 7 is interpreted as the remnent of the anomalous area previously present at the 10 and 25-foot spacings. A band of apparent resistivity values ranging from 210 ohm-feet at profile station 7 to 295 ohm-feet at profile station 17 trending north-south, suggesting groundwater flow to the north, exists in the center of the site. A reading of 205 ohm-feet was attained at profile station 15 in the northeast corner of the site along I-88. This low value is thought to be associated with the drainage ditch which travels under the interstate in the vicinity of this profile station. All other profile location apparent resistivity values are approaching background levels (300 ohm-feet to 650 ohm-feet).

The 100-foot profile spacing (Figure C-9) values show a single anomalous point of 200 ohm-feet at profile station 3. The apparent resistivity values on the rest of the site are considered background levels ranging from 320 ohm-feet to 546 ohm-feet. There were three profile station locations where apparent resistivity values at the 100-foot spacing could not be obtained due to electrode spacing limitations (300 foot electrode spread required) at profile stations 8, 22, and 25. The apparent resistivity values at these locations could not be considered at the 100-foot spacing when the interpretation of the data were being drawn.

MAGNETOMETER SURVEY

A magnetometer survey was conducted at the Tri-Cities Barrel site using a Geometrics Model G816/826A magnetometer. The initial survey was conducted on a tightly spaced grid pattern using a 10-by-10 foot grid as station locations. A tightly spaced grid pattern was chosen to aid in

delineating the lagoon boundaries and locate any buried ferromagnetic objects which may have been deposited in the lagoons when they were closed. The magnetic contour map for the area of interest is presented in Figure C-10.

Background magnetic values were established by setting up a magnetometer base station in a clean area and recording the values at the beginning and end of the survey. The background values at the Tri-Cities Barrel site were considered to be between 56414 to 56421 gammas.

There were four areas of ferromagnetic highs found within the survey grid. These are labeled 1, 2, 3, and 4 on the Magnetometer Contour Map (Figure C-10). Areas 1, 2, and 3 are associated with drum piles located on the site. Area 4 represents a truck trailer parked on the site. The Magnetometer Contour Map also illustrates the location of three relatively distinct anomaly patterns believed to be the location of the closed lagoons on the site. These anomalous areas correlated with areas where low apparent resistivity data was obtained at the 10 and 25-foot spacings. An aerial photograph from 1973 (provided by Broome County) confirmed the location of these lagoons in the area where the anomalies were identified.

Another north-south linear feature is also illustrated on Figure C-6 at the survey grid's western edge. This coincides with a pre-existing road which can be seen on aerial photographs.

The magnetic survey did not detect any ferromagnetic material buried in the survey area.

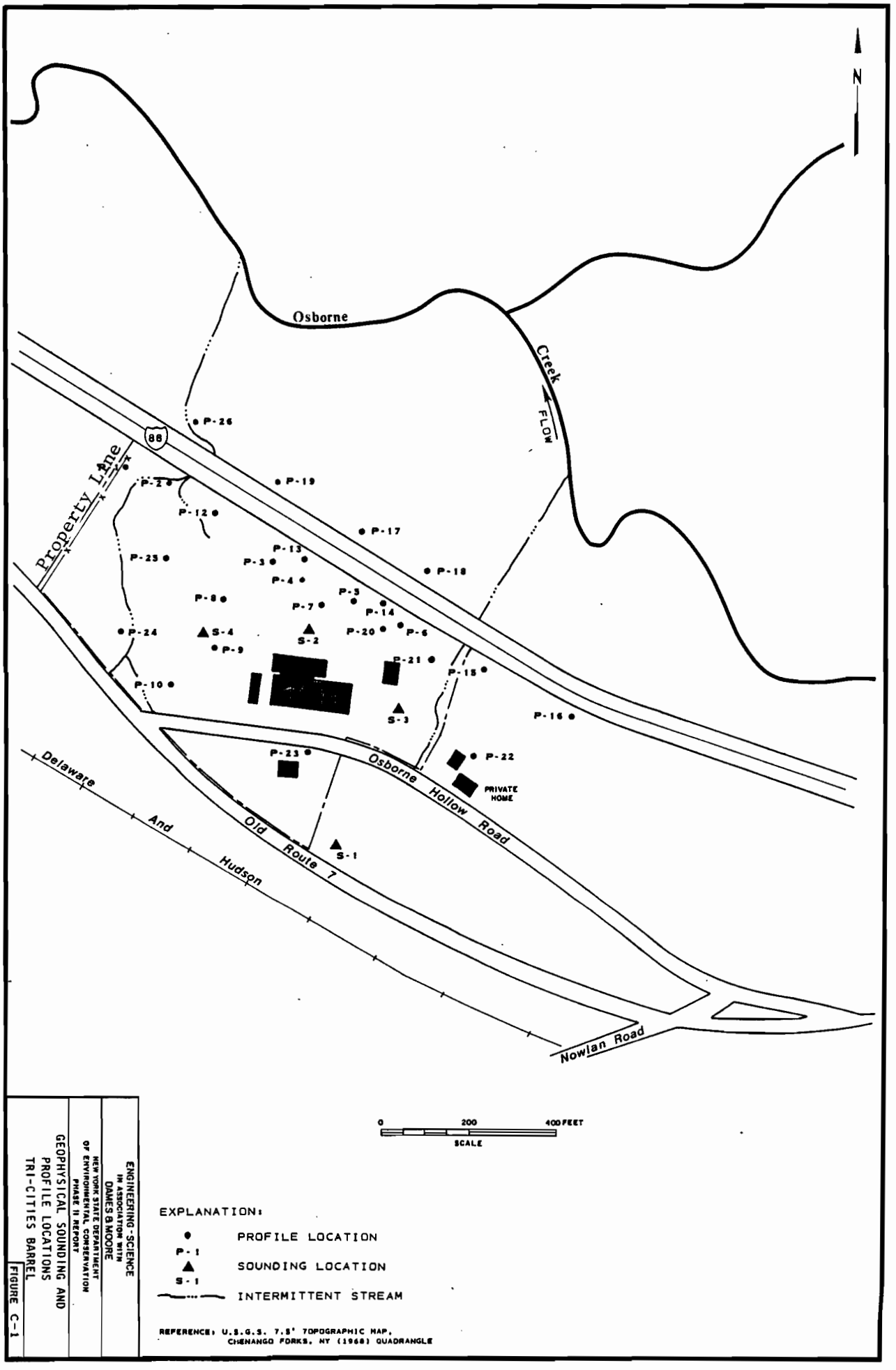
It should be mentioned that numerous above surface drum piles may have biased the magnetometer survey results. High ferromagnetic values that exist near these drum piles were not considered when analyzing this data.

SUMMARY OF FINDINGS

The inferred groundwater flow direction within the site is north toward Osborne Creek. Due to a lack of sufficient well log and water level data in the area, exact direction of groundwater movement can only be inferred. In general, the water table is a subdued subsurface expression of local topography. Groundwater is usually found at greater depths on hill tops and closer to the surface in valley bottoms. Thus, groundwater flow directions are normally thought to move from higher to lower elevations, perpendicular to the contour lines on a topographic map. This, of course, assumes no geologic or subsurface discontinuities that may inhibit or direct water movement in another fashion. This idea, in conjunction with the geophysical data collected at the Tri-Cities Barrel site, suggests that groundwater flows from the southern boundary of the site in a northerly direction. The flow directions may change slightly at shallow depths due to site disturbances associated with the operation of the previously existing waste lagoons and backfill material.

The geophysical study predicted the weathered or fractured bedrock to be found at a depth of 42 to 52 feet below the ground surface, while top of solid bedrock is expected to be from 66 to 88 feet below ground surface. The approximate vertical extent of the anomalies identified at the site is 50 feet (approximate depth of bedrock). This data correlates reasonably well with the boring logs generated during subsequent site activities.

The magnetometer survey confirmed the presence of anomalous areas, to the north of the Tri-Cities Barrel buildings, which coincide with the three lagoons that previously existed on the site.



ENGINEERING-SCIENCE
IN ASSOCIATION WITH
DAMES & MOORE

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
PHASE II REPORT

GEOPHYSICAL SOUNDING AND
PROFILE LOCATIONS
TRI-CITIES BARREL

FIGURE C-1

Geophysical Investigation Analysis

Electrical Resistivity Soundings

SOUNDING 1 TRI CITY BARREL SITE
ELECTRODE SPACING (FT)
APP. RES. (OHM-FT.)
CUM. RES. (OHM-FT.)
10'— PERMEABLE ZONE?
ANTICIPATED ZONE OF COMPACT SILTS AND CLAY.
33'
SILTS AND GRAVEL
44'
SILTS AND GRAVELS
60'
ANTICIPATED DEPTH TO FRACTURED BEDROCK (SHALE)
68'
ANTICIPATED DEPTH TO TOP OF COMPETENT BEDROCK. (SHALE)
MINOR FRACTURE? 80'
MINOR FRACTURE? 90'
MINOR FRACTURE? 98'

Figure C-2

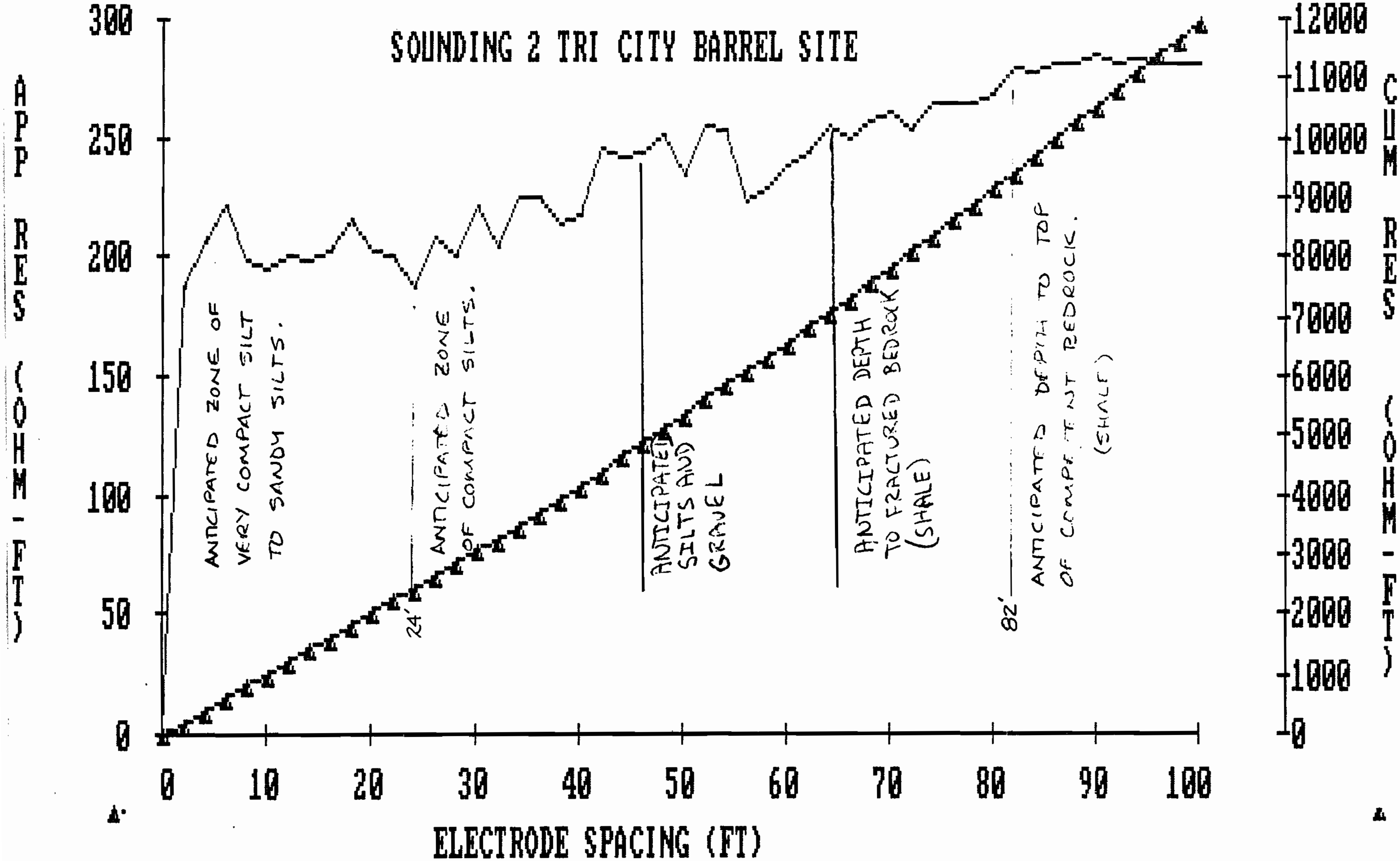

SOUNDING 2 TRI CITY BARREL SITE
APP RES (OHM-FT)
CUM RES (OHM-FT)
ELECTRODE SPACING (FT)
0
50
100
150
200
250
300
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
0
10
20
30
40
50
60
70
80
90
100
ANTICIPATED ZONE OF VERY COMPACT SILT TO SANDY SILTS.
24'
ANTICIPATED ZONE OF COMPACT SILTS.
ANTICIPATED SILTS AND GRAVEL
ANTICIPATED DEPTH TO FRACTURED BEDROCK (SHALE)
82'
ANTICIPATED DEPTH TO TOP OF COMPETENT BEDROCK. (SHALE)

Figure C-3

SOUNDING 3 TRI CITY BARREL SITE
ELECTRODE SPACING (FT)
APP. RES. (OHM - FT)
0
50
100
150
200
250
300
350
400
450
500
550
600
0
10
20
30
40
50
60
70
80
90
100
ANTICIPATED ZONE OF COMPACT SILT AND CLAY.
GRAVEL ZONE
SILTS AND CLAYS
ANTICIPATED DEPTH TO FRACTURED BEDROCK (SHALE)
88'
ANTICIPATED DEPTH TO TOP OF COMPETENT BEDROCK. (SHALE)
0
20000
40000
60000
80000
100000
120000
140000
160000
180000
200000
CUM RES (OHM - FT)

Figure C-4

SOUNDING 4 TRI CITY BARREL SITE
ELECTRODE SPACING (FT)
APPARENT RESISTIVITY (OHM - FT)
RESISTIVITY (OHM - FT)
ANTICIPATED ZONE OF HARDFILL AND MEDIUM COMPACT SILT AND CLAY.
20'
ANTICIPATED ZONE OF COMPACT SILT AND CLAY.
52'
ANTICIPATED DEPTH TO TOP OF WEATHERED OR FRACTURED BEDROCK ZONE. (SHALE)
66'
ANTICIPATED DEPTH TO TOP OF COMPETENT BEDROCK. (SHALE)
0
10
20
30
40
50
60
70
80
90
100
0
100
200
300
400
500
600
700
800
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
25000

Figure C-5

Electrical Resistivity Sounding Data

SOUNDING 1 TRI CIT BARREL

p-p1 spacing (feet)	dial reading (ohms)	scale multiplier	corrected reading (ohms)	*k (feet)	apparent resistivity (ohm-ft)	cumulative resistivity (ohm-ft)
2.00	15.00	0.010	0.1500	2499.80	374.97	374.97
4.00	28.50	0.010	0.2850	1249.50	356.11	731.08
6.00	36.00	0.010	0.3600	832.60	299.74	1030.81
8.00	47.50	0.010	0.4750	624.00	296.40	1327.21
10.00	44.50	0.010	0.4450	498.80	221.97	1549.18
12.00	77.00	0.010	0.7700	415.20	319.70	1868.88
14.00	87.00	0.010	0.8700	355.40	309.20	2178.08
16.00	97.00	0.010	0.9700	310.50	301.19	2479.27
18.00	110.50	0.010	1.1050	275.50	304.43	2783.69
20.00	124.00	0.010	1.2400	247.50	306.90	3090.59
22.00	135.00	0.010	1.3500	224.50	303.08	3393.67
24.00	146.50	0.010	1.4650	205.30	300.76	3694.43
26.00	159.00	0.010	1.5900	189.10	300.67	3995.10
28.00	172.00	0.010	1.7200	175.10	301.17	4296.27
30.00	185.50	0.010	1.8550	162.90	302.18	4598.45
32.00	204.00	0.010	2.0400	152.30	310.69	4909.15
34.00	219.00	0.010	2.1900	142.80	312.73	5221.88
36.00	233.50	0.010	2.3350	134.40	313.82	5535.70
38.00	245.00	0.010	2.4500	126.80	310.66	5846.36
40.00	26.00	0.100	2.6000	120.00	312.00	6158.36
42.00	27.00	0.100	2.7000	113.80	307.26	6465.62
44.00	29.00	0.100	2.9000	108.10	313.49	6779.11
46.00	30.00	0.100	3.0000	102.90	308.70	7087.81
48.00	27.50	0.100	2.7500	98.20	270.05	7357.86
50.00	31.50	0.100	3.1500	93.80	295.47	7653.33
52.00	34.50	0.100	3.4500	89.70	309.47	7962.80
54.00	29.50	0.100	2.9500	85.80	253.11	8215.91
56.00	33.50	0.100	3.3500	82.30	275.71	8491.61
58.00	36.00	0.100	3.6000	79.00	284.40	8776.01
60.00	38.50	0.100	3.8500	75.80	291.83	9067.84
62.00	40.00	0.100	4.0000	72.90	291.60	9359.44
64.00	41.50	0.100	4.1500	70.10	290.92	9650.36
66.00	44.00	0.100	4.4000	67.50	297.00	9947.36
68.00	46.00	0.100	4.6000	65.00	299.00	10246.36
70.00	44.00	0.100	4.4000	62.70	275.88	10522.24
72.00	48.00	0.100	4.8000	60.40	289.92	10812.16
74.00	50.00	0.100	5.0000	58.30	291.50	11103.66
76.00	52.50	0.100	5.2500	56.30	295.58	11399.23
78.00	54.00	0.100	5.4000	54.40	293.76	11692.99
80.00	56.50	0.100	5.6500	52.50	296.63	11989.62
82.00	55.00	0.100	5.5000	50.70	278.85	12268.47
84.00	61.00	0.100	6.1000	49.00	298.90	12567.37
86.00	63.00	0.100	6.3000	47.40	298.62	12865.99
88.00	65.00	0.100	6.5000	45.80	297.70	13163.69
90.00	64.00	0.100	6.4000	44.30	283.52	13447.21
92.00	69.50	0.100	6.9500	42.80	297.46	13744.67
94.00	73.50	0.100	7.3500	41.40	304.29	14048.96
96.00	75.00	0.100	7.5000	40.10	300.75	14349.71
98.00	74.00	0.100	7.4000	38.80	287.12	14636.83
100.00	80.00	0.100	8.0000	37.50	300.00	14936.83

* APPARENT RESISTIVITY=(2iiR)[1/1/r1-1/r2-1/r3+1/r4]
WHERE K=[] AND 2iiR=DIAL READING x SCALE MULTIPLIER

SOUNDING 2 TRI CITY BARREL

p-p1 spacing (feet)	dial reading (ohms)	scale multiplier	corrected reading (ohms)	*k (feet)	apparent resistivity (ohm-ft)	cumulative resistivity (ohm-ft)
2.00	7.50	0.010	0.0750	2499.80	187.49	187.49
4.00	16.50	0.010	0.1650	1249.50	206.17	393.65
6.00	26.50	0.010	0.2650	832.60	220.64	614.29
8.00	32.00	0.010	0.3200	624.00	199.68	813.97
10.00	39.00	0.010	0.3900	498.80	194.53	1008.50
12.00	48.50	0.010	0.4850	415.20	201.37	1209.88
14.00	56.00	0.010	0.5600	355.40	199.02	1408.90
16.00	65.50	0.010	0.6550	310.50	203.38	1612.28
18.00	78.00	0.010	0.7800	275.50	214.89	1827.17
20.00	81.50	0.010	0.8150	247.50	201.71	2028.88
22.00	89.00	0.010	0.8900	224.50	199.81	2228.68
24.00	91.00	0.010	0.9100	205.30	186.82	2415.51
26.00	110.00	0.010	1.1000	189.10	208.01	2623.52
28.00	115.00	0.010	1.1500	175.10	201.37	2824.88
30.00	135.50	0.010	1.3550	162.90	220.73	3045.61
32.00	134.50	0.010	1.3450	152.30	204.84	3250.46
34.00	157.00	0.010	1.5700	142.80	224.20	3474.65
36.00	167.00	0.010	1.6700	134.40	224.45	3699.10
38.00	168.50	0.010	1.6850	126.80	213.66	3912.76
40.00	182.00	0.010	1.8200	120.00	218.40	4131.16
42.00	215.50	0.010	2.1550	113.80	245.24	4376.40
44.00	224.50	0.010	2.2450	108.10	242.68	4619.08
46.00	237.50	0.010	2.3750	102.90	244.39	4863.47
48.00	25.50	0.100	2.5500	98.20	250.41	5113.88
50.00	25.00	0.100	2.5000	93.80	234.50	5348.38
52.00	28.50	0.100	2.8500	89.70	255.65	5604.02
54.00	29.50	0.100	2.9500	85.80	253.11	5857.13
56.00	27.00	0.100	2.7000	82.30	222.21	6079.34
58.00	29.00	0.100	2.9000	79.00	229.10	6308.44
60.00	31.50	0.100	3.1500	75.80	238.77	6547.21
62.00	33.50	0.100	3.3500	72.90	244.22	6791.43
64.00	36.50	0.100	3.6500	70.10	255.87	7047.29
66.00	37.00	0.100	3.7000	67.50	249.75	7297.04
68.00	39.50	0.100	3.9500	65.00	256.75	7553.79
70.00	41.50	0.100	4.1500	62.70	260.21	7814.00
72.00	42.00	0.100	4.2000	60.40	253.68	8067.68
74.00	45.50	0.100	4.5500	58.30	265.27	8332.94
76.00	47.00	0.100	4.7000	56.30	264.61	8597.55
78.00	48.50	0.100	4.8500	54.40	263.84	8861.39
80.00	51.00	0.100	5.1000	52.50	267.75	9129.14
82.00	55.00	0.100	5.5000	50.70	278.85	9407.99
84.00	56.50	0.100	5.6500	49.00	276.85	9684.84
86.00	59.50	0.100	5.9500	47.40	282.03	9966.87
88.00	61.50	0.100	6.1500	45.80	281.67	10248.54
90.00	64.50	0.100	6.4500	44.30	285.74	10534.28
92.00	65.50	0.100	6.5500	42.80	280.34	10814.62
94.00	68.50	0.100	6.8500	41.40	283.59	11098.21
96.00	70.00	0.100	7.0000	40.10	280.70	11378.91
98.00	72.50	0.100	7.2500	38.80	281.30	11660.21
100.00	75.00	0.100	7.5000	37.50	281.25	11941.46

* APPARENT RESISTIVITY=(2πR)[1/r1-1/r2-1/r3+1/r4]
WHERE K=6.3 AND 2πR=DIAL READING x SCALE MULTIPLIER

SOUNDING 3 TRI CITY BARREL

p-p1 spacing (feet)	dial reading (ohms)	scale multiplier	corrected reading (ohms)	*k (feet)	apparent resistivity (ohm-ft)	cumulative resistivity (ohm-ft)
2.00	18.50	0.010	0.1850	2499.80	462.46	462.46
4.00	32.00	0.010	0.3200	1249.50	399.84	862.30
6.00	70.00	0.010	0.7000	832.60	582.82	1445.12
8.00	58.00	0.010	0.5800	624.00	361.92	1807.04
10.00	73.50	0.010	0.7350	498.80	366.62	2173.66
12.00	82.00	0.010	0.8200	415.20	340.46	2514.13
14.00	92.00	0.010	0.9200	355.40	326.97	2841.09
16.00	103.00	0.010	1.0300	310.50	319.82	3160.91
18.00	120.00	0.010	1.2000	275.50	330.60	3491.51
20.00	134.50	0.010	1.3450	247.50	332.89	3824.40
22.00	147.50	0.010	1.4750	224.50	331.14	4155.53
24.00	156.50	0.010	1.5650	205.30	321.29	4476.83
26.00	170.50	0.010	1.7050	189.10	322.42	4799.24
28.00	188.00	0.010	1.8800	175.10	329.19	5128.43
30.00	206.50	0.010	2.0650	162.90	336.39	5464.82
32.00	217.00	0.010	2.1700	152.30	330.49	5795.31
34.00	23.50	0.100	2.3500	142.80	335.58	6130.89
36.00	24.50	0.100	2.4500	134.40	329.28	6460.17
38.00	25.00	0.100	2.5000	126.80	317.00	6777.17
40.00	27.00	0.100	2.7000	120.00	324.00	7101.17
42.00	28.50	0.100	2.8500	113.80	324.33	7425.50
44.00	25.00	0.100	2.5000	108.10	270.25	7695.75
46.00	31.00	0.100	3.1000	102.90	318.99	8014.74
48.00	30.50	0.100	3.0500	98.20	299.51	8314.25
50.00	33.00	0.100	3.3000	93.80	309.54	8623.79
52.00	34.50	0.100	3.4500	89.70	309.47	8933.26
54.00	36.00	0.100	3.6000	85.80	308.88	9242.14
56.00	38.50	0.100	3.8500	82.30	316.86	9558.99
58.00	41.00	0.100	4.1000	79.00	323.90	9882.89
60.00	42.00	0.100	4.2000	75.80	318.36	10201.25
62.00	45.00	0.100	4.5000	72.90	328.05	10529.30
64.00	46.50	0.100	4.6500	70.10	325.97	10855.27
66.00	48.50	0.100	4.8500	67.50	327.38	11182.64
68.00	50.50	0.100	5.0500	65.00	328.25	11510.89
70.00	51.50	0.100	5.1500	62.70	322.91	11833.80
72.00	54.00	0.100	5.4000	60.40	326.16	12159.96
74.00	56.00	0.100	5.6000	58.30	326.48	12486.44
76.00	59.50	0.100	5.9500	56.30	334.99	12821.42
78.00	57.50	0.100	5.7500	54.40	312.80	13134.22
80.00	63.00	0.100	6.3000	52.50	330.75	13464.97
82.00	64.50	0.100	6.4500	50.70	327.02	13791.99
84.00	69.00	0.100	6.9000	49.00	338.10	14130.09
86.00	72.00	0.100	7.2000	47.40	341.28	14471.37
88.00	73.50	0.100	7.3500	45.80	336.63	14808.00
90.00	76.00	0.100	7.6000	44.30	336.68	15144.68
92.00	78.00	0.100	7.8000	42.80	333.84	15478.52
94.00	80.00	0.100	8.0000	41.40	331.20	15809.72
96.00	80.00	0.100	8.0000	40.10	320.80	16130.52
98.00	85.00	0.100	8.5000	38.80	329.80	16460.32
100.00	88.50	0.100	8.8500	37.50	331.88	16792.19

* APPARENT RESISTIVITY=(2ΠR)[1/1/r1-1/r2-1/r3+1/r4]
WHERE K=[] AND 2ΠR=DIAL READING x SCALE MULTIPLIER

p-p1 spacing (feet)	dial reading (ohms)	scale multiplier	corrected reading (ohms)	*k (feet)	apparent resistivity (ohm-ft)	cumulative resistivity (ohm-ft)
2.00	25.00	0.010	0.2500	2499.80	624.95	624.95
4.00	44.00	0.010	0.4400	1249.50	549.78	1174.73
6.00	70.50	0.010	0.7050	832.60	586.98	1761.71
8.00	100.00	0.010	1.0000	624.00	624.00	2385.71
10.00	120.50	0.010	1.2050	498.80	601.05	2986.77
12.00	143.50	0.010	1.4350	415.20	595.81	3582.58
14.00	164.50	0.010	1.6450	355.40	584.63	4167.21
16.00	187.00	0.010	1.8700	310.50	580.64	4747.85
18.00	211.00	0.010	2.1100	275.50	581.31	5329.15
20.00	24.50	0.100	2.4500	247.50	606.38	5935.53
22.00	27.00	0.100	2.7000	224.50	606.15	6541.68
24.00	29.00	0.100	2.9000	205.30	595.37	7137.05
26.00	31.00	0.100	3.1000	189.10	586.21	7723.26
28.00	33.00	0.100	3.3000	175.10	577.83	8301.09
30.00	35.00	0.100	3.5000	162.90	570.15	8871.24
32.00	38.00	0.100	3.8000	152.30	578.74	9449.98
34.00	39.50	0.100	3.9500	142.80	564.06	10014.04
36.00	40.50	0.100	4.0500	134.40	544.32	10558.36
38.00	42.50	0.100	4.2500	126.80	538.90	11097.26
40.00	44.00	0.100	4.4000	120.00	528.00	11625.26
42.00	46.00	0.100	4.6000	113.80	523.48	12148.74
44.00	46.50	0.100	4.6500	108.10	502.67	12651.40
46.00	46.50	0.100	4.6500	102.90	478.49	13129.89
48.00	48.50	0.100	4.8500	98.20	476.27	13606.16
50.00	49.00	0.100	4.9000	93.80	459.62	14065.78
52.00	50.50	0.100	5.0500	89.70	452.99	14518.76
54.00	50.50	0.100	5.0500	85.80	433.29	14952.05
56.00	53.50	0.100	5.3500	82.30	440.31	15392.36
58.00	54.00	0.100	5.4000	79.00	426.60	15818.96
60.00	56.50	0.100	5.6500	75.80	428.27	16247.23
62.00	57.50	0.100	5.7500	72.90	419.18	16666.40
64.00	60.00	0.100	6.0000	70.10	420.60	17087.00
66.00	57.50	0.100	5.7500	67.50	388.13	17475.13
68.00	60.00	0.100	6.0000	65.00	390.00	17865.13
70.00	62.00	0.100	6.2000	62.70	388.74	18253.87
72.00	65.00	0.100	6.5000	60.40	392.60	18646.47
74.00	66.50	0.100	6.6500	58.30	387.70	19034.16
76.00	69.00	0.100	6.9000	56.30	388.47	19422.63
78.00	72.50	0.100	7.2500	54.40	394.40	19817.03
80.00	73.50	0.100	7.3500	52.50	385.88	20202.91
82.00	75.50	0.100	7.5500	50.70	382.79	20585.69
84.00	77.00	0.100	7.7000	49.00	377.30	20962.99
86.00	79.00	0.100	7.9000	47.40	374.46	21337.45
88.00	81.00	0.100	8.1000	45.80	370.98	21708.43
90.00	82.50	0.100	8.2500	44.30	365.48	22073.91
92.00	84.00	0.100	8.4000	42.80	359.52	22433.43
94.00	88.50	0.100	8.8500	41.40	366.39	22799.82
96.00	93.00	0.100	9.3000	40.10	372.93	23172.75
98.00	92.00	0.100	9.2000	38.80	356.96	23529.71
100.00	96.00	0.100	9.6000	37.50	360.00	23889.71

* APPARENT RESISTIVITY=(2iiR)[1/1/r1-1/r2-1/r3+1/r4]
WHERE K=[] AND 2iiR=DIAL READING × SCALE MULTIPLIER

Electrical Resistivity Profile Contour Maps

10 FT ELECTRODE SPACING CONTOUR MAP

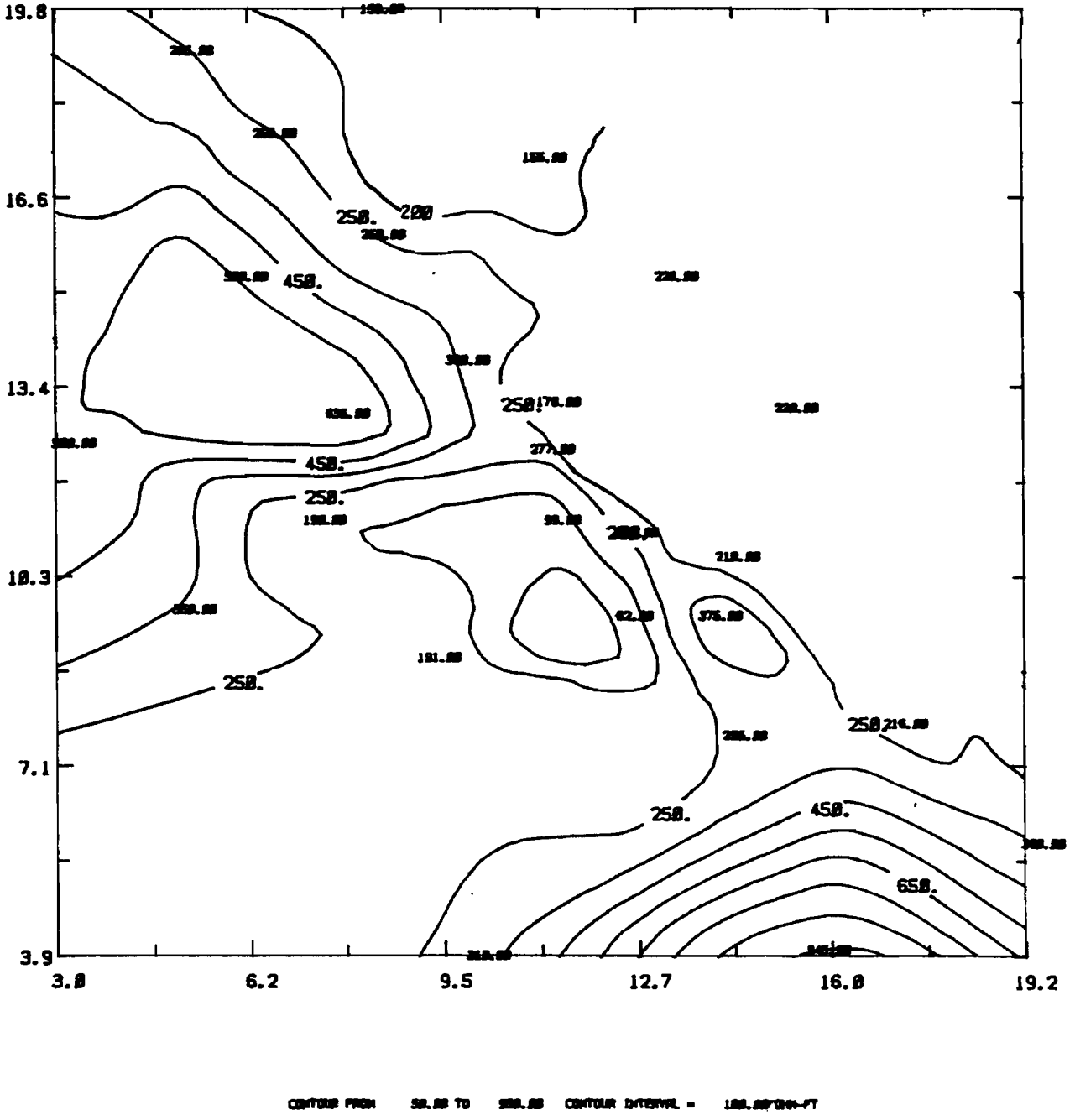


Figure C-6

25 FT ELECTRODE SPACING CONTOUR MAP

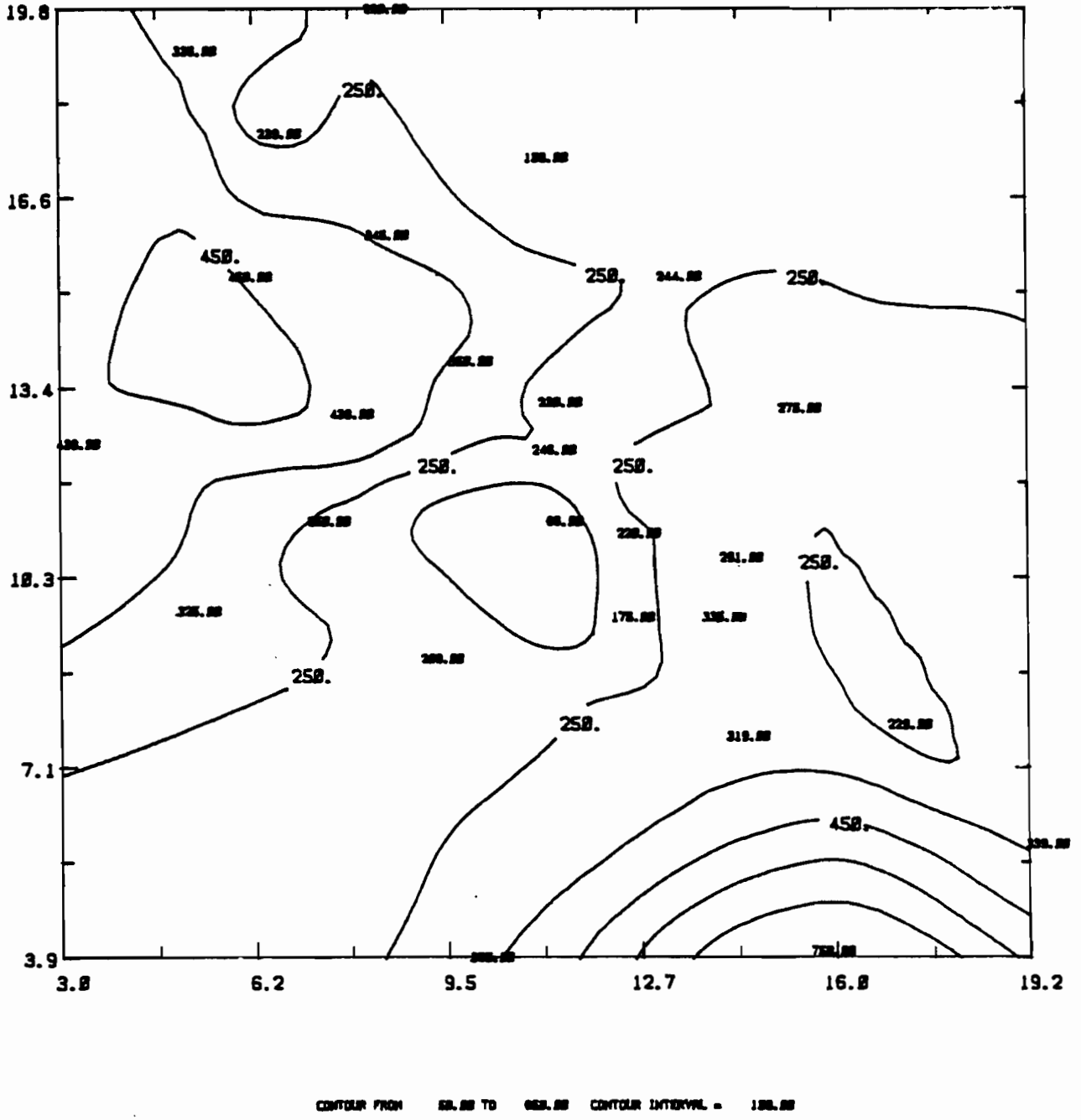


Figure C-7

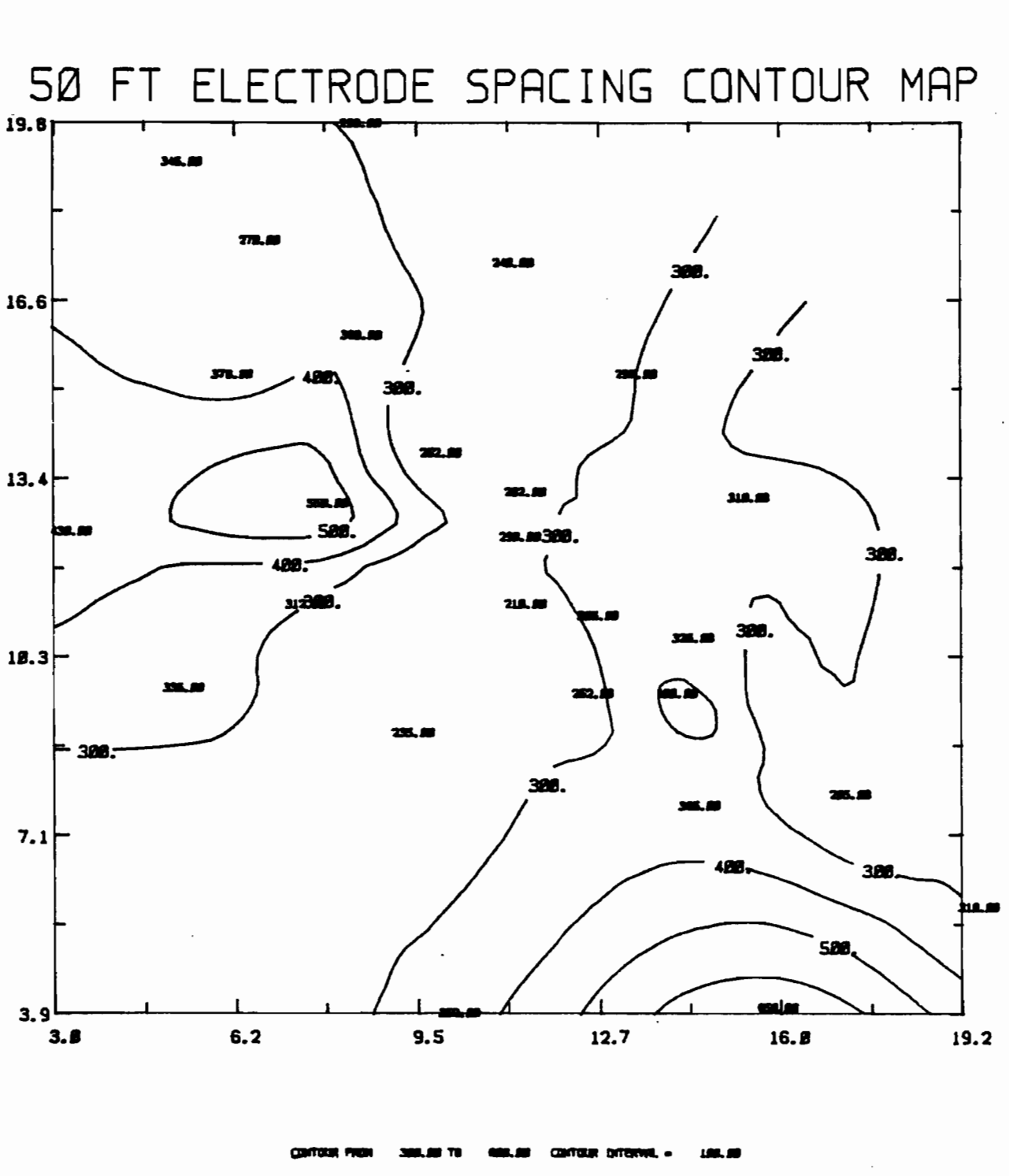

50 FT ELECTRODE SPACING CONTOUR MAP
19.8
16.6
13.4
10.3
7.1
3.9
3.8
6.2
9.5
12.7
16.0
19.2
300.
400.
500.

Figure C-8

100 FT ELECTRODE SPACING CONTOUR MAP

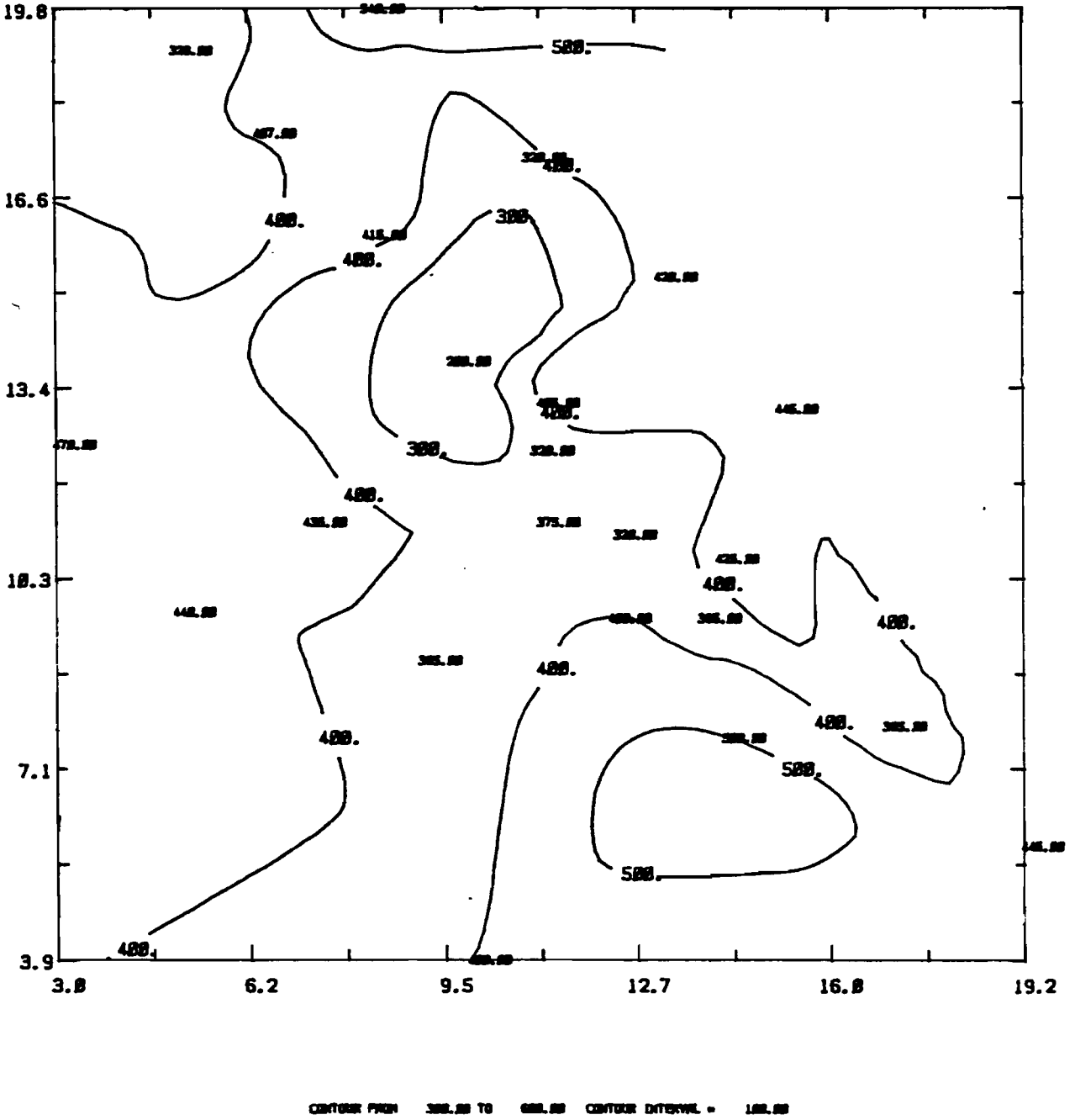


Figure C-9

Electrical Resistivity Profile Data

Test 318
AMP 28.5

ENGINEERING-SCIENCE, INC.
RESISTIVITY PROFILE DATA SHEET

Job No. 46314.03 Date August 14, 1985

Site Name TRI City Barrel Site Location Fenton, N.Y.

Observer(s) Baker / Goodman Comments (soil conditions, etc.) Moist

Equipment Used (name, serial #) _____ Electrode Array Method Used Wenner

Station Location	Electrode Spacing (feet)	2πV/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-1	10	25.5	1.0	25.5	255
P-1	25	134.5	0.1	13.45	336.25
P-1	50	69	0.1	6.9	345.0
P-1	100	328.5	0.01	3.285	328.5
P-2	10	25.5	1.0	25.5	255.0
P-2	25	95.5	0.1	9.55	238.75
P-2	50	54	0.1	5.4	270.0

Bison Unit: Apparent Resistivity = Electrode Spacing x (2πV/I x Scale Multiplier) where ( ) = Corrected Reading

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-2	100	4.07	0.01	4.07	407
P-3	10	36	1.0	36	360
P-3	25	14	1.0	14	350
P-3	50	50.5	0.1	5.05	252.50
P-3	100	20	0.1	2.0	200
P-4	10	27.7	0.1	27.7	277
P-4	25	98.5	0.1	9.85	246.25
P-4	50	58.0	0.1	5.80	290.0
P-4	100	32	0.1	3.2	320
P-5	10	25	1.0	25	250

August 14, 1985

Station Location	Electrode Spacing (feet)	2π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-5	25	88	0.1	8.8	220
P-5	50	61	0.1	6.1	305
P-5	100	32	0.1	3.2	320
P-6	10	374.5	0.1	37.45	374.5
P-6	25	134	0.1	13.4	335
P-6	50	80	0.1	8.	400
P-6	100	36.5	0.1	3.65	365
P-7	10	99	0.1	9.9	99
P-7	25	26.5	0.1	2.65	66.25
P-7	50	42	0.1	4.2	210
P-7	100	37.5	0.1	3.75	375

TEST 319
AMP 28.5

ENGINEERING-SCIENCE, INC.
RESISTIVITY PROFILE DATA SHEET

Job No. 46314.03 Date August 15, 1985

Site Name TRI CITY BARREL Site Location FENTON, N.Y.

Observer(s) BAKER/GOODMAN Comments (soil conditions, etc.) MOIST

Equipment Used (name, serial #) BISON 2350B Electrode Array Method Used WENNER

Station Location	Electrode Spacing (feet)	2πV/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-8	10	63.5	1	63.5	635
P-8	25	17.5	1	17.5	437.5
P-8	50	11	1	11	550
P-9	10	19	1	19	190
P-9	25	10	1	10	250
P-9	50	62.5	0.1	6.25	312.5
P-9	100	43.5	0.1	4.35	435

Bison Unit: Apparent Resistivity = Electrode Spacing x (2πV/I x Scale Multiplier) where ( ) = Corrected Reading

August 15, 1995

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-10	10	35	1	35	350
P-10	25	13	1	13	325
P-10	50	67	0.1	6.7	335
P-10	100	44	0.1	4.4	440
P-11	10	191	0.1	19.1	191
P-11	25	83.5	0.1	8.35	208.75
P-11	50	47	0.1	4.7	235
P-11	100	36.5	0.1	3.65	365
P-12	10	25	1	25	250
P-12	25	137.5	0.1	13.75	343.75

August 15, 1995

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-12	50	73.5	0.1	7.35	367.5
P-12	100	41.5	0.1	4.15	415
P-13	10	178	0.1	17.8	178
P-13	25	92	0.1	9.2	230
P-13	50	56.5	0.1	5.65	282.5
P-13	100	40.5	0.1	4.05	405
P-14	10	21	1.0	21	210
P-14	25	104.5	0.1	10.45	261.25
P-14	50	65	0.1	6.5	325
P-14	100	42.5	0.1	4.25	425

August 15, 1995

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-15	10	216.5	0.1	21.65	216.5
P-15	25	91.5	0.1	9.15	228.75
P-15	50	41	0.1	4.1	205
P-15	100	36.5	0.1	3.65	365
P-16	10	36	1.0	36	360
P-16	25	135.5	0.1	13.55	338.75
P-16	50	62	0.1	6.2	310
P-16	100	44.5	0.1	4.45	445
P-17	10	225.5	0.1	22.55	225.5
P-17	25	97.5	0.1	9.75	243.75

August 15, 1985

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-17	50	59	0.1	5.9	295
P-17	100	42	0.1	4.2	420
P-19	10	22	1.0	22	220
P-19	25	.11	1.0	11	275
P-19	50	62	0.1	6.2	310
P-19	100	44.5	0.1	4.45	445

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-19	10	15.5	1.0	1.55	155
P-19	25	63	0.1	6.3	157.5
P-19	50	48	0.1	4.8	240
P-19	100	32	0.1	3.2	320

TEST 319
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ENGINEERING-SCIENCE, INC.
RESISTIVITY PROFILE DATA SHEET

Job No. 46314.03 Date August 16, 1985

Site Name TRI-CITY BARREL Site Location FENTON, N.Y.

Observer(s) BAKER/GOODMAN Comments (soil conditions, etc.) MOIST – WET

Equipment Used (name, serial #) BISON 2350B Electrode Array Method Used WENNER

Station Location	Electrode Spacing (feet)	2π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-20	10	62.5	0.1	6.25	62.5
P-20	25	70	0.1	7.0	175
P-20	50	50.5	0.1	5.05	252.5
P-20	100	40	0.1	4.0	400
P-21	10	25.5	1.0	25.5	255
P-21	25	127.5	0.1	12.75	318.75
P-21	50	73	0.1	7.3	365

Bison Unit: Apparent Resistivity = Electrode Spacing x (2π V/I x Scale Multiplier) where ( ) = Corrected Reading

August 16, 1985

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-21	100	50	0.1	5	500
P-22	10	94.5	1.0	94.5	945
P-22	25	30	1.0	30	750
P-22	50	13	1.0	13	650
P-23	100	31	1.0	31	310
P-23	25	13	1.0	13	325
P-23	50	70.5	0.1	7.05	352.5
P-23	100	40	0.1	4.0	400
P-24	10	55	1.0	55	550
P-24	25	175	0.1	17.5	437.5

August 16, 1985

Station Location	Electrode Spacing (feet)	2 π V/I (ohms)	Scale Multiplier	Corrected Reading (ohms)	Apparent Resistivity (ohm - feet)
P-24	50	86	0.1	8.6	430
P-24	100	47	0.1	4.7	470
P-25	10	55	1.0	55	550
P-25	25	18	1.0	18	450
P-25	50	75.5	0.1	7.55	377.5
P-26	10	159	0.1	15.9	159
P-26	25	99	0.1	9.8	220
P-26	50	59.5	0.1	5.95	297.5
P-26	100	54	0.1	5.4	540

ENGINEERING-SCIENCE, INC.
RESISTIVITY DATA SHEET
MODIFIED WENNER ARRAY

Sanding #4

Job No. 46314.3 Date 8/16/95

Site Name Tri City Barrel C_1-C_2 Spacing 200 feet

Observers Goodyear / Baker Depth of Investigation 100 feet

Comments (soil conditions, etc.) Moist

Test Mode Dial Reading 319.5 Test Mode Current 28.5 milliamperes

P-P_1 Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
2	25	0.01	0.25	2499.8	624.95	
4	44	0.01	0.44	1249.5	549.78	
6	70.5	0.01	0.705	832.6	586.98	
8	100	0.01	1.00	624.0	624.0	
10	120.5	0.01	1.205	498.8	601.05	
12	143.5	0.01	1.435	415.2	595.81	
14	164.5	0.01	1.645	355.4	584.63	
16	187	0.01	1.87	310.5	580.64	
18	211	0.01	2.11	275.5	581.305	
20	24.5	0.1	2.45	247.5	606.38	
22	27.0	0.1	2.7	224.5	606.15	
24	29.0	0.1	2.9	205.3	595.37	

P-P$_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
26	31	0.1	3.1	189.1	586.21	
28	33	0.1	3.3	175.1	577.83	
30	35	0.1	3.5	162.9	570.15	
32	38	0.1	3.8	152.3	578.74	
34	39.5	0.1	3.95	142.8	564.06	
36	40.5	0.1	4.05	134.4	544.32	
38	42.5	0.1	4.25	126.8	538.9	
40	44	0.1	4.4	120.0	528	
42	46	0.1	4.6	113.8	523.48	
44	46.5	0.1	4.65	108.1	502.67	
46	46.5	0.1	4.65	102.9	478.49	
48	48.5	0.1	4.85	98.2	476.27	
50	49	0.1	~~5.05~~ 4.9	93.8	459.62	
52	50.5	0.1	5.05	89.7	452.99	
54	50.5	0.1	5.05	85.8	433.29	
56	53.5	0.1	~~5.40~~ 5.35	82.3	440.31	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
58	54	0.1	5.4	79.0	426.6	
60	56.5	0.1	5.65	75.8	428.27	
62	57.5	0.1	5.75	72.9	419.18	
64	60	0.1	6.0	70.1	420.6	
66	57.5	0.1	5.75	67.5	388.13	
68	60	0.1	6.0	65.0	390	
70	62	0.1	6.2	62.7	388.74	
72	65	0.1	6.5	60.4	392.6	
74	66.5	0.1	6.65	58.3	387.69	
76	69	0.1	6.9	56.3	388.47	
78	72.5	0.1	7.25	54.4	394.4	
80	73.5	0.1	7.35	52.5	385.88	
82	75.5	0.1	7.55	50.7	382.79	
84	77	0.1	7.7	49.0	377.3	
86	79	0.1	7.9	47.4	374.46	
88	81	0.1	8.1	45.8	370.98	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
90	82.5	0.1	8.25	44.3	365.48	
92	84	0.1	8.4	42.8	359.52	
94	88.5	0.1	8.85	41.4	366.39	
96	93	0.1	9.3	40.1	372.93	
98	92	0.1	9.2	38.8	356.96	
100	96	0.1	9.6	37.5	360	

*Apparent Resistivity $= (2\pi R) \left[\frac{1}{1/r_1 - 1/r_2 - 1/r_3 + 1/r_4} \right]$ where K = [ ]

and $2\pi R$ = Dial Reading x Scale Multiplier

ENGINEERING-SCIENCE, INC.
RESISTIVITY DATA SHEET
MODIFIED WENNER ARRAY

SOUNDING #3

Job No. 4631.4.3 Date 8/15/85

Site Name Tri City Barrel C_1-C_2 Spacing 200 feet

Observers Goodman/Baker Depth of Investigation 100 feet

Comments (soil conditions, etc.) Moist - Light Rain previous to measurment

Test Mode Dial Reading 318 Test Mode Current 28.5 milliamperes

P-P_1 Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
2	18.5	0.01	0.185	2499.8	462.46	
4	32	0.01	0.32	1249.5	399.84	
6	70	0.01	0.70	832.6	582.82	
8	58	0.01	0.58	624.0	361.92	
10	73.5	0.01	0.735	498.8	366.62	
12	82	0.01	0.82	415.2	340.46	
14	92	0.01	0.92	355.4	326.97	
16	103	0.01	1.03	310.5	319.82	
18	120	0.01	1.20	275.5	330.60	
20	134.5	0.01	1.345	247.5	332.88	
22	147.5	0.01	1.475	224.5	331.14	
24	156.5	0.01	1.565	205.3	321.29	

P-P Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
26	170.5	0.01	1.705	189.1	322.42	
28	188	0.01	1.88	175.1	329.19	
30	206.5	0.01	2.065	162.9	336.39	
32	217	0.01	2.17	152.3	330.49	
34	23.5	0.1	2.35	142.8	335.58	
36	24.5	0.1	2.45	134.4	329.28	
38	25	0.1	2.5	126.8	317.00	
40	27	0.1	2.7	120.0	324.00	
42	28.5	0.1	2.85	113.8	324.33	
44	25	0.1	2.5	108.1	270.25	
46	31	0.1	3.1	102.9	318.99	
48	20.5	0.1	2.05	98.2	299.51	
50	33	0.1	3.3	93.8	309.54	
52	34.5	0.1	3.45	89.7	309.46	
54	36	0.1	3.6	85.8	308.88	
56	38.5	0.1	3.85	82.3	316.86	

P-P$_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
58	41	0.1	4.1	79.0	323.90	
60	42	0.1	4.2	75.8	318.36	
62	45	0.1	4.5	72.9	328.05	
64	46.5	0.1	4.65	70.1	325.96	
66	48.5	0.1	4.85	67.5	327.38	
68	50.5	0.1	5.05	65.0	328.25	
70	51.5	0.1	5.15	62.7	322.90	
72	54	0.1	5.4	60.4	326.16	
74	56	0.1	5.6	58.3	326.48	
76	59.5	0.1	5.95	56.3	334.98	
78	57.5	0.1	5.75	54.4	312.80	
80	63	0.1	6.3	52.5	330.75	
82	64.5	0.1	6.45	50.7	327.12	
84	69	0.1	6.9	49.0	338.10	
86	72	0.1	7.2	47.4	341.28	
88	73.5	0.1	7.35	45.8	336.63	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
90	76	0.1	7.6	44.3	336.68	
92	78	0.1	7.8	42.8	333.84	
94	80	0.1	8.0	41.4	331.20	
96	80	0.1	8.0	40.1	320.80	
98	85	0.1	8.5	38.8	329.80	
100	88.5	0.1	8.85	37.5	331.88	

*Apparent Resistivity $= (2\pi R)\left[\frac{1}{1/r_1 - 1/r_2 - 1/r_3 + 1/r_4}\right]$ where K = [ ]

and $2\pi R$ = Dial Reading x Scale Multiplier

ENGINEERING-SCIENCE, INC.
RESISTIVITY DATA SHEET
MODIFIED WENNER ARRAY

SOUNDING # 2

Job No. 4314.03 Date August 14, 1985

Site Name TRI CITY BARREL C_1-C_2 Spacing 200 feet

Observers BAKER / GOODMAN Depth of Investigation 100 feet

Comments (soil conditions, etc.) DRY – MOIST

Test Mode Dial Reading _____ Test Mode Current _____ milliamperes

P-P_1 Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
2	7.5	0.01	0.075	2499.8	187.48	187.48
4	16.5	0.01	0.165	1249.5	206.17	
6	26.5	0.01	0.265	832.6	220.64	
8	32	0.01	0.32	624.0	199.68	
10	39	0.01	0.39	498.8	194.53	
12	48.5	0.01	0.485	415.2	201.37	
14	56	0.01	0.56	355.4	199.02	
16	65.5	0.01	0.655	310.5	203.38	
18	78	0.01	0.78	275.5	214.89	
20	81.5	0.01	0.815	247.5	201.71	
22	89	0.01	0.89	224.5	199.80	
24	91	0.01	0.91	205.3	186.82	

P-P Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
26	110	0.01	1.10	189.1	208,01	
28	115	0.01	1.15	175.1	201.36	
30	135.5	0.01	1.355	162.9	220.73	
32	134.5	0.01	1.345	152.3	204.84	
34	157	0.01	1.57	142.8	224.20	
36	167	0.01	1.67	134.4	224.45	
38	168.5	0.01	1.685	126.8	213.66	
40	182	0.01	1.82	120.0	218.4	
42	215.5	0.01	2.155	113.8	245.24	
44	224.5	0.01	2.245	108.1	242.68	
46	237.5	0.01	2.375	102.9	244.38	
48	25.5	0.1	2.55	98.2	250.4	
50	25	0.1	2.5	93.8	234.5	
52	28.5	0.1	2.85	89.7	255.64	
54	29.5	0.1	2.95	85.8	253,11	
56	~~19.5~~ 27	0.1	~~1.95~~ 2.7	82.3	222.21	

P-P$_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
58	29	X0.1	X29	79.0	229.1	
60	31.5	0.1	3.15	75.8	238.77	
62	33.5	0.1	3.35	72.9	244.22	
64	36.5	0.1	3.65	70.1	255.86	
66	37.0	0.1	3.7	67.5	249.75	
68	39.5	0.1	3.95	65.0	256.75	
70	41.5	0.1	4.15	62.7	260.20	
72	42	0.1	4.2	60.4	253.68	
74	45.5	0.1	4.55	58.3	265.26	
76	47	0.1	4.7	56.3	264.61	
78	48.5	0.1	4.85	54.4	263.84	
80	51	0.1	5.1	52.5	267.75	
82	55	0.1	5.5	50.7	278.85	
84	56.5	0.1	5.65	49.0	276.85	
86	59.5	0.1	5.95	47.4	282.03	
88	61.5	0.1	6.15	45.8	281.67	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
90	64.5	0.1	6.45	44.3	285.74	
92	65.5	0.1	6.55	42.8	280.34	
94	68.5	0.1	6.85	41.4	281.54	
96	70.0	0.1	7.0	40.1	280.7	
98	72.5	0.1	7.25	38.8	281.3	
100	75	0.1	7.5	37.5	281.25	

*Apparent Resistivity $= (2\pi R) \left[\frac{1}{1/r_1 - 1/r_2 - 1/r_3 + 1/r_4} \right]$ where K = [ ]

and $2\pi R$ = Dial Reading x Scale Multiplier

ENGINEERING-SCIENCE, INC.
RESISTIVITY DATA SHEET
MODIFIED WENNER ARRAY

SOUNDING #1

Job No. 46314.03 Date August, 14- 1985

Site Name TRI CITY BARREL C_1-C_2 Spacing 200 feet

Observers BAKER / GOODMAN Depth of Investigation 100 feet

Comments (soil conditions, etc.) MOIST

Test Mode Dial Reading 319 Test Mode Current 29 milliamperes

P-P_1 Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
2	15	.01	0.15	2499.8	374.97	
4	28.5	.01	0.285	1249.5	356.11	
6	36	.01	0.36	832.6	299.74	
8	47.5	.01	0.475	624.0	296.40	
10	44.5	.01	0.445	498.8	221.97	
12	77	.01	0.77	415.2	319.70	
14	87	.01	0.87	355.4	309.20	
16	97	.01	0.97	310.5	301.18	
18	110.5	.01	1.105	275.5	304.43	
20	124	.01	1.24	247.5	306.90	
22	135	.01	1.35	224.5	303.08	
24	146.5	.01	1.465	205.3	300.76	

P-P Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
26	159	.01	1.59	189.1	300.67	
28	172	.01	1.72	175.1	301.17	
30	185.5	.01	1.855	162.9	302.18	
32	204	.01	2.04	152.3	310.69	
34	219	.01	2.19	142.8	312.73	
36	233.5	.01	2.335	134.4	313.82	
38	245	.01	2.45	126.8	310.66	
40	26	0.1	2.6	120.0	312.00	
42	27	0.1	2.7	113.8	307.26	
44	29	0.1	2.9	108.1	313.49	
46	30	0.1	3.0	102.9	308.70	
48	27.5	0.1	2.75	98.2	270.05	
50	31.5	0.1	3.15	93.8	295.47	
52	34.5	0.1	3.45	89.7	309.46	
54	29.5	0.1	2.95	85.8	253.11	
56	33.5	0.1	3.35	82.3	275.70	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
58	36	0.1	3.6	79.0	284.40	
60	38.5	0.1	3.85	75.8	291.83	
62	40	0.1	4.0	72.9	291.60	
64	41.5	0.1	4.15	70.1	290.92	
66	44	0.1	4.4	67.5	297.00	
68	46	0.1	4.6	65.0	299.00	
70	44	0.1	4.4	62.7	275.88	
72	48	0.1	4.8	60.4	289.92	
74	50	0.1	5.0	58.3	291.50	
76	52.5	0.1	5.25	56.3	295.58	
78	54	0.1	5.4	54.4	293.76	
80	56.5	0.1	5.65	52.5	296.62	
82	55	0.1	5.5	50.7	278.85	
84	61	0.1	6.1	49.0	298.90	
86	63	0.1	6.3	47.4	298.62	
88	65	0.1	6.5	45.8	297.70	

$P\text{-}P_1$ Electrode Spacing (feet)	Dial Reading (ohm)	Scale Multiplier	Corrected Reading (ohm)	*K (feet)	Apparent Resistivity (ohm-feet)	Cumulative Resistivity (ohm-feet)
90	64	0.1	6.4	44.3	283.52	
92	69.5	0.1	6.95	42.8	297.46	
94	73.5	0.1	7.35	41.4	304.29	
96	75	0.1	7.5	40.1	300.75	
98	74	0.1	7.4	38.8	287.12	
100	80	0.1	8.0	37.5	300.00	

*Apparent Resistivity $= (2\pi R) \left[\frac{1}{1/r_1 - 1/r_2 - 1/r_3 + 1/r_4} \right]$ where K = [ ]

and $2\pi R$ = Dial Reading x Scale Multiplier

Magnetometer Survey Contour Map

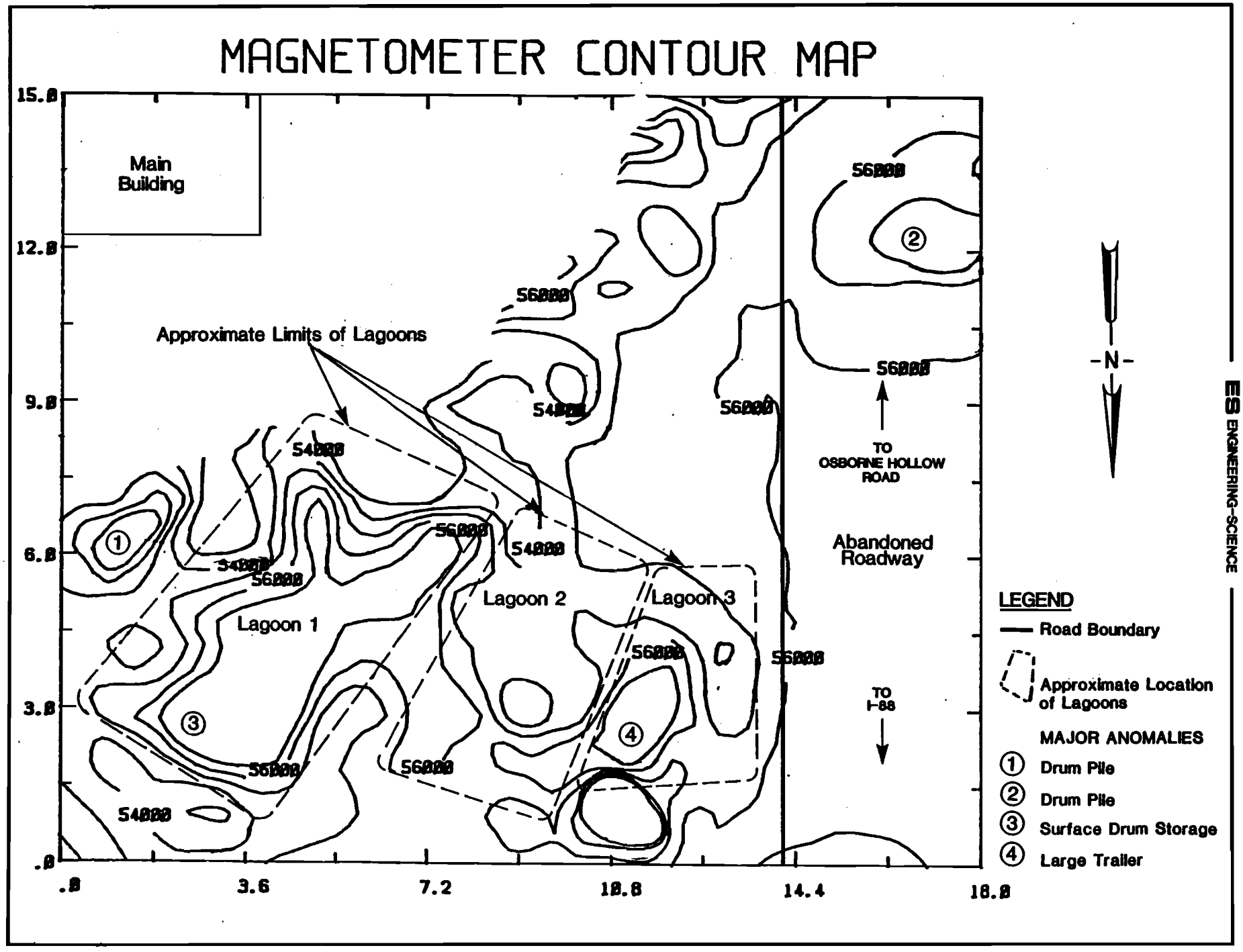
MAGNETOMETER CONTOUR MAP
Main Building
Approximate Limits of Lagoons
Lagoon 1
Lagoon 2
Lagoon 3
TO OSBORNE HOLLOW ROAD
Abandoned Roadway
TO I-88
N
LEGEND
Road Boundary
Approximate Location of Lagoons
MAJOR ANOMALIES
① Drum Pile
② Drum Pile
③ Surface Drum Storage
④ Large Trailer
15.0
12.0
9.0
6.0
3.0
.0
.0
3.6
7.2
10.8
14.4
18.0
ES ENGINEERING-SCIENCE

Figure C-10

Magnetometer Survey Data

ENGINEERING-SCIENCE
MAGNETOMETER DATA SHEET

Job No. 463A.03 Date August 16, 1985

Site Name and Location TRI CITY BARREL, FENTON, NY

Observer(s) BAKER / GOODMAN

Base Station Location

Battery Signal Blinks 10

Equipment Used (name, serial #) GEOMETRICS 816 / 826

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	N	MAG	1515	56415	
	S	BASE		56415	
	E	↓		56415	
	W	↓		56414	
	S40W	A-0		56508	
	↓	A+10		55457	0,1
		A+10		54720	0,2
		A+10		54464	0,3
		A+10		54558	0,4
		A+10		54740	0,5
		A+10		55479	0,6 near drum pile
		A+10		54373	0,7
	↓	A+10		54102	0,8 Near large storage tank
	S40W	B-0		55305	1,0
		B+10		54587	1,1

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	B+10		53481	(1,2) near drum pile
	↓	B+10		55519	(1,3) next to drum
		B+10		53906	(1,4) near drum pile
		B+10		54787	(1,5) next to drums
		B+10		58445	" (1,6) " "
		B+10		54598	(1,7)
	↓	B+10		53770	(1,8) near tank
	S40W	C-0		54418	(2,0)
	↓	C+10		53385	2,1
	↓	C+10		54882	(2,2) next to drums
	S40W	D-0		54367	(3,0)
	↓	D+10		52772	(3,1)
	↓	D+10		57355	(3,2) next to drum pile
	S40W	E-0		54990	(4,0)
	↓	E+10		54343	(4,1)
	↓	E+10		57561	(4,2) next to drum pile
	S40W	F-0		55314	(5,0)
	↓	F+10		54459	(5,1)
		F+10		54610	(5,2) near drums
	↓	F+10		52124	(5,3) near drums

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S 40 W	F+10		57558	(5,4) near drum pile
	↓	F+10		57252	(5,5) next to drum pile
	S 40 W	G-0		55542	(6,0)
		G+10		55081	(6,1) near drums
		G+10		55850	(6,2) near drums
		G+10		54362	(6,3) near drums
	↓	G+10		56200	(6,4) near drum pile
	S 40 W	H-0		55603	(7,0)
		H+10		55646	(7,1) near drums
		H+10		56218	(7,2) near drums
		H+10		56244	(7,3) next to barrel
		H+10		52308	(7,4) bermed up area
	↓	H+10		57164	7,5 next to drum pile
	S 40 W	I-0		55722	(8,0)
		I+10		55198	(8,1)
		I+10		55752	(8,2) near drums
		I+10		56232	(8,3) next to drum
		I+10		55140	(8,4) " " "
		I+10		54199	(8,5)
	↓	I+10		56674	(8,6) nex to drum pile

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	540W	J-0		55073	(9,0)
		J+10		54641	(9,1)
		J+10		56262	(9,2) near drums
		J+10		53228	(9,3)
		J+10		54643	(9,4)
		J+10		54422	(9,5) depression
		J+10		53633	(9,6)
		J+10		53489	(9,7) depression
		J+10		54074	(9,8)
		J+10		54327	(9,9)
		J+10		53413	(9,10) drainage ditch
		J+10		56679	(9,11) next to drum pile
	540W	K-0		55732	(10,0)
		K+10		54505	(10,1)
		K+10		56860	(10,2) next to drum wagon
		K+10		54161	(10,3)
		K+10		54850	(10,4)
		K+10		54932	(10,5) depression
		K+10		54923	(10,6) depression
		K+10		54965	(10,7),,

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	K+10		54995	(10,8)
	↓	K+10		52584	(10,9) ~~deep~~, drainage ditch
	S40W	L-0		55835	(11,0)
		L+10		44948	(11,1)
		L+10		57470	(11,2) next to metal trailer
		L+20		55630	(11,4) other side of trail skip 30
		L+10		54615	(11,5)
		L+10		55289	(11,6)
		L+10		55488	(11,7)
		L+10		55398	(11,8)
		L+10		55534	(11,9)
		L+10		55106	(11,10) on small mound
		L+10		53898	(11,11)
		L+10		54945	(11,12) storm drainage + drums
	↓	L+10		54424	(11,13) next to drum pile
	S40W	M-0		55999	(12,0)
		M+10		55391	(12,1)
		M+10		54864	(12,2)
		M+10		57414	(12,3) next to trailer
	↓	M+10		56772	(12,4) other side of trailer

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	M+10		54039	(12,5)
	↓	M+10		55360	(12,6)
		M+10		55580	(12,7)
		M+10		55565	(12,8)
		M+10		55687	(12,9)
		M+10		55512	(12,10)
		M+10		54684	(12,11) small mound
		M+10		52834	(12,12) on drainage - wet
	↓	M+10		54918	(12,13) next to barrels
	↓	M+10		56580	(12,14) next to pile (barrel)
	S40W	N+0		56128	(13,0) near edge of fill
	↑	N+10		55940	(13,1)
		N+10		55529	(13,2)
		N+10		54197	(13,3) near trailer
		N+10		53800	(13,4) " "
		N+10		54988	(13,5) near drum on ground
		N+10		55719	(13,6)
		N+10		55859	(13,7)
		N+10		55884	(13,8)
	↓	N+10		56033	(13,9)
				56030	double check

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	N+10		55944	(13,10)
	↓	N+10		55794	(13,11)
		N+10		55383	(13,12) next to drainage
		N+10		54864	(13,13)
		N+10		53731	(13,14)
	↓	N+10		52441	(13,15) next to barrels
	S40W	0+10		56207	moved in 10 feet from orig. line due to slope (14,1)
	↓	0+10		56085	(14,2)
		0+10		55919	14,3
		0+10		55794	(14,4)
		0+10		55829	(14,5)
		0+10		55957	(14,6)
		0+10		56019	(14,7) next to large tide
		0+10		55991	(14,8)
		0+10		56000	(14,9) Moving over a rise trending approx N 50W (14,10)
		0+10		56024	
		0+10		55986	(14,11)
		0+10		55803	(14,12)
		0+10		55499	In drainage (14,13)
	↓	0+10		55036	(14,14)

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	P+10		56302	same as O - moved over
		P+10		56268	
		P+10		56227	* mound and berm pile - edge of fill
		P+10		56178	*
		P+10		56148	
		P+10		56144	
		P+10		56133	
		P+10		56123	
		P+10		56051	small mound
		P+10		55968	moving across
		P+10		55967	small ridge as in O line
		P+10		56122	
		P+10		55935	on drainage - wet
		P+10		55619	wet
	S40W	Q+10		56339	as w/ O+P-
		Q+10		56334	
		Q+10		56321	
		Q+10		56298	
		Q+10		56264	up slope near small hole
		Q+10		56251	

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	Q+10		56223	
		Q+10		56197	up on mound
		Q+10		56114	in bare spot - little or no veg.
		Q+10		55903	another mound
		Q+10		55834	near Drum pile
		Q+10		57177	over mound other side of trees
		Q+10		56210	
		Q+10		55819	on drainage - wet
		Q+10		55447	
	S40W	R+10		56365	N of L/ D, P, Q +10 feet
		R+10		56357	
		R+10		56362	
		R+10		56364	
		R+10		56330	small mound
		R+10		56301	"
		R+10		56268	Moving over unveg - mound
		R+10		56245	
		R+10		56172	on unveg. area
		R+10		55910	
		R+10		55238	next to drums

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	R+10		58982	on drum pile in between drums
	↓	R+10		56616	
	↓	R+10		56015	on drainage
	↓	R+10		55699	
	S40W	S+10		56374	as per O, P, Q, R offset -
	↓	S+10		56368	
	↓	S+10		56372	
	↓	S+10		56413	
	↓	S+10		56356	
	↓	S+10		56319	
	↓	S+10		56289	approach in veg. spot on top
	↓	S+10		56268	In UNveg. area
	↓	S+10		56191	
	↓	S+10		55952	
	↓	S+10		55320	near barrel pile
	↓	S+10		57402	*skipped one on pile
	↓	S+10		56083	over drainage -
	↓	S+10		56009	edge of fill -

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Date _____

Traverse Identification	Orientation (Compass Heading)	Station I.D.	Time (24-hr. Clock)	Reading (Gamma)	Comments
	S40W	C+80		53787	off-set off of B-C to go around drums
	↓	D+80		52697	
		D+90		52938	
		E+80		54124	next to drums
	↓	F+80		52181	"
		G+80		52959	
		C+70		56236	next to pile
		D+70		52342	" "
		E+70		53493	" "
		F+70		56984	
	↓	G+70		52959	
		Mag. Base			
1423	N	"	1736	56421	
	S	↑		56420	
	E			56419	
	W	↓		56420	

APPENDIX D

CHEMICAL DATA

Analytical Results for Groundwater Samples

CASE NARRATIVE: ENGINEERING SCIENCE

NUS NO.	SMO NO.	MATRIX
15101181	CW-1	Water
15101182	CW-2B	Water
15101183	CW-3	Water
15101184 [1]	CW-4	Water
15101185	Wash Blank	Water
15101186	Field Blank	Water

[1] BNA & VOA MS/MSD

David A. Damen

Environmental Protection Agency
CLP Sample Management Office
P.O. Box 818
Alexandria, Virginia 22313 703/557-2490

Sample Number

CW-1

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15101181
Sample Matrix: Water
Data Release Authorized By:
****

Case No: ENG SCIENCE
QC Report No:
Contract No:
Date Sample Received: 10/17/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/21/85
Date Analyzed: 10/21/85
Conc/Dil Factor: 1.0 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l	
		**********	
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	4.0 J,B	
67-64-1	Acetone	4.7 ~~4~~ J,B	DAD 11/19/85
75-15-0	Carbon Disulfide	5	u
75-35-4	1,1-Dichloroethene	5	u
75-34-3	1,1-Dichloroethane	5	u
156-60-5	Trans-1,2-Dichloroethene	5	u
67-66-3	Chloroform	5	u
107-06-2	1,2-Dichloroethane	5	u
78-93-3	2-Butanone	10	u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
CW-1

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-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
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachloroethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

S - Spiked compound

NR - No value required

SAMPLE NUMBER
CW-1

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 11/06/85
Conc/Dil Factor: 1.0

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
CW-1

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l	
		**********	
83-32-9	Acenaphthene	10	u
51-28-5	2,4-Dinitrophenol	50	u
100-02-7	4-Nitrophenol	50	u
132-64-9	Dibenzofuran	10	u
121-14-2	2,4-Dinitrotoluene	10	u
606-20-2	2,6-Dinitrotoluene	10	u
84-66-2	Diethylphthalate	10	u
7005-72-3	4-Chlorophenyl-phenylether	10	u
86-73-7	Fluorene	10	u
100-01-6	4-Nitroaniline	50	u
534-52-1	4,6-Dinitro-2-Methylphenol	50	u
86-30-6	N-Nitrosodiphenylamine(1)	10	u
101-55-3	4-Bromophenyl-phenylether	10	u
118-74-1	Hexachlorobenzene	10	u
87-86-5	Pentachlorophenol	50	u
85-01-8	Phenanthrene	10	u
120-12-7	Anthracene	10	u
84-74-2	Di-n-Butylphthalate	1.7 J	
206-44-0	Fluoranthene	10	u
92-87-5	Benzidine	50	u
129-00-0	Pyrene	10	u
85-68-7	Butylbenzylphthalate	10	u
91-94-1	3,3 -Dichlorobenzidine	20	u
56-55-3	Benzo(a)Anthracene	10	u
117-81-7	bis(2-Ethylhexyl)Phthalate	10	u
218-01-9	Chrysene	10	u
117-84-0	Di-n-Octyl Phthalate	10	u
205-99-2	Benzo(b)Fluoranthene	10	u
207-08-9	Benzo(k)Fluoranthene	10	u
50-32-8	Benzo(a)Pyrene	10	u
193-39-5	Indeno(1,2,3-cd)Pyrene	10	u
53-70-3	Dibenzo(a,h)Anthracene	10	u
191-24-2	Benzo(g,h,i)Perylene	10	u

(1)-Cannot be separated from diphenylamine

Sample Number
CW-1

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 10/24/85
Conc/Dil Factor: 1

CAS Number		ug/l	
		**********	
319-84-6	Alpha-BHC	0.05	u
319-85-7	Beta-BHC	0.05	u
319-86-8	Delta-BHC	0.05	u
58-89-9	Gamma-BHC(lindane)	0.05	u
76-44-8	Heptachlor	0.05	u
309-00-2	Aldrin	0.05	u
1024-57-3	Heptachlor Epoxide	0.05	u
959-98-8	Endosulfan I	0.05	u
60-57-1	Dieldrin	0.10	u
72-55-9	4,4'-DDE	0.10	u
72-20-8	Endrin	0.10	u
33213-65-9	Endosulfan II	0.10	u
72-54-8	4,4'-DDD	0.10	u
7421-93-4	Endrin Aldehyde	0.10	u
1031-07-8	Endosulfan Sulfate	0.10	u
50-29-3	4,4'-DDT	0.10	u
72-43-5	Methoxychlor	0.50	u
53494-70-5	Endrin Ketone	0.10	u
57-74-9	Chlordane	0.50	u
8001-35-2	Toxaphene	1.00	u
12674-11-2	Aroclor-1016	0.50	u
11104-28-2	Aroclor-1221	0.50	u
11141-16-5	Aroclor-1232	0.50	u
53469-21-9	Aroclor-1242	0.50	u
12672-29-6	Aroclor-1248	0.50	u
11097-69-1	Aroclor-1254	1.00	u
11096-82-5	Aroclor-1260	1.00	u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
CW-1

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******

NO VOA COMPOUND FOUND
NO SEMI-VOLATILE COMPOUNDS FOUND

Environmental Protection Agency
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P.O.Box 818
Alexandria, Virginia 22313 703/557-2490

Sample Number

CW-2B

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15101182
Sample Matrix: Water
Data Release Authorized By:

Case No: ENG. SCIENCE
QC Report No:
Contract No:
Date Sample Received: 10/17/85

****

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/21/85
Date Analyzed: 10/21/85
Conc/Dil Factor: 1.0 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l	
74-87-3	Chloromethane	10	u
74-83-9	Bromomethane	10	u
75-01-4	Vinyl chloride	6.5 J	
75-00-3	Chloroethane	10	u
75-09-2	Methylene Chloride	4.1 B,J	
67-64-1	Acetone	6.4 B,J	
75-15-0	Carbon Disulfide	5	u
75-35-4	1,1-Dichloroethene	5	u
75-34-3	1,1-Dichloroethane	5	u
156-60-5	Trans-1,2-Dichloroethene	2.2 J	
67-66-3	Chloroform	5	u
107-06-2	1,2-Dichloroethane	5	u
78-93-3	2-Butanone	10	u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
CW-2B

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-1,3-Dichloropropene	5 u
79-01-6	Trichloroethene	5 5
124-48-1	Dibromochloromethane	5 u
79-00-5	1,1,2-Trichloroethane	5 u
71-43-2	Benzene	5 u
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachloroethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides >=10ng/ul in the final extract should be confirmed by GC/MS

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
CW-2B

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 11/06/85
Conc/Dil Factor: 1.0

CAS Number		ug/l	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
CW-2B

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l
		**********
83-32-9	Acenaphthene	10 u
51-28-5	2,4-Dinitrophenol	50 u
100-02-7	4-Nitrophenol	50 u
132-64-9	Dibenzofuran	10 u
121-14-2	2,4-Dinitrotoluene	10 u
606-20-2	2,6-Dinitrotoluene	10 u
84-66-2	Diethylphthalate	10 u
7005-72-3	4-Chlorophenyl-phenylether	10 u
86-73-7	Fluorene	10 u
100-01-6	4-Nitroaniline	50 u
534-52-1	4,6-Dinitro-2-Methylphenol	50 u
86-30-6	N-Nitrosodiphenylamine(1)	10 u
101-55-3	4-Bromophenyl-phenylether	10 u
118-74-1	Hexachlorobenzene	10 u
87-86-5	Pentachlorophenol	50 u
85-01-8	Phenanthrene	10 u
120-12-7	Anthracene	10 u
84-74-2	Di-n-Butylphthalate	10 u
206-44-0	Fluoranthene	10 u
92-87-5	Benzidine	50 u
129-00-0	Pyrene	10 u
85-68-7	Butylbenzylphthalate	10 u
91-94-1	3,3'-Dichlorobenzidine	20 u
56-55-3	Benzo(a)Anthracene	10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	7.6
218-01-9	Chrysene	10 u
117-84-0	Di-n-Octyl Phthalate	10 u
205-99-2	Benzo(b)Fluoranthene	10 u
207-08-9	Benzo(k)Fluoranthene	10 u
50-32-8	Benzo(a)Pyrene	10 u
193-39-5	Indeno(1,2,3-cd)Pyrene	10 u
53-70-3	Dibenzo(a,h)Anthracene	10 u
191-24-2	Benzo(g,h,i)Perylene	10 u

(1)-Cannot be separated from diphenylamine

Sample Number
CW-2B

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 10/24/85
Conc/Dil Factor: 1

CAS Number		ug/l	
319-84-6	Alpha-BHC	0.05	u
319-85-7	Beta-BHC	0.05	u
319-86-8	Delta-BHC	0.05	u
58-89-9	Gamma-BHC(lindane)	0.05	u
76-44-8	Heptachlor	0.05	u
309-00-2	Aldrin	0.05	u
1024-57-3	Heptachlor Epoxide	0.05	u
959-98-8	Endosulfan I	0.05	u
60-57-1	Dieldrin	0.10	u
72-55-9	4,4'-DDE	0.10	u
72-20-8	Endrin	0.10	u
33213-65-9	Endosulfan II	0.10	u
72-54-8	4,4'-DDD	0.10	u
7421-93-4	Endrin Aldehyde	0.10	u
1031-07-8	Endosulfan Sulfate	0.10	u
50-29-3	4,4'-DDT	0.10	u
72-43-5	Methoxychlor	0.50	u
53494-70-5	Endrin Ketone	0.10	u
57-74-9	Chlordane	0.50	u
8001-35-2	Toxaphene	1.00	u
12674-11-2	Aroclor-1016	0.50	u
11104-28-2	Aroclor-1221	0.50	u
11141-16-5	Aroclor-1232	0.50	u
53469-21-9	Aroclor-1242	0.50	u
12672-29-6	Aroclor-1248	0.50	u
11097-69-1	Aroclor-1254	1.00	u
11096-82-5	Aroclor-1260	1.00	u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
CW-2B

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******
	NO SEMI-VOLATILE COMPOUNDS FOUND			
110-82-7	CYCLOHEXANE	VOA	278	10 J
96-37-7	CYCLOPENTANE,METHYL-	VOA	292	100 J
79-29-8	BUTANE,2,3-DIMETHYL-	VOA	315	7 J
96-14-0	PENTANE, 3-METHYL-	VOA	330	80 J
107-83-5	PENTANE,2-METHYL-	VOA	337	80 J
110-54-3	HEXANE	VOA	367	200 J

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Alexandria, Virginia 22313 703/557-2490

Sample Number

CW-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15101183
Sample Matrix: Water
Data Release Authorized By:
****

Case No: ENG. SCIENCE
QC Report No:
Contract No:
Date Sample Received: 10/17/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/21/85
Date Analyzed: 10/21/85
Conc/Dil Factor: 1.0 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l	
74-87-3	Chloromethane		10 u
74-83-9	Bromomethane		10 u
75-01-4	Vinyl chloride	6.5 J	
75-00-3	Chloroethane		10 u
75-09-2	Methylene Chloride	17 B	
67-64-1	Acetone	28 B	
75-15-0	Carbon Disulfide		5 u
75-35-4	1,1-Dichloroethene	1.7 J	
75-34-3	1,1-Dichloroethane	9.2	
156-60-5	Trans-1,2-Dichloroethene	17	
67-66-3	Chloroform		5 u
107-06-2	1,2-Dichloroethane		5 u
78-93-3	2-Butanone		10 u
71-55-6	1,1,1-Trichloroethane	12	
56-23-5	Carbon Tetrachloride		5 u
108-05-4	Vinyl Acetate		10 u
75-27-4	Bromodichloromethane		5 u

Data reporting qualifiers are explained on Page 2
****

Sample Number
CW-3

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-1,3-Dichloropropene	5 u
79-01-6	Trichloroethene	10
124-48-1	Dibromochloromethane	5 u
79-00-5	1,1,2-Trichloroethane	5 u
71-43-2	Benzene	5 u
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachloroethene	3.4 J
108-88-3	Toluene	6.8
108-90-7	Chlorobenzene	5 u
100-41-4	Ethylbenzene	5 u
100-42-5	Styrene	5 u
	Total Xylenes	5 u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J)

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides>=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
CW-3

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 11/06/85
Conc/Dil Factor: 1.0

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	5.3	
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
CW-3

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l	
		**********	
83-32-9	Acenaphthene		10 u
51-28-5	2,4-Dinitrophenol		50 u
100-02-7	4-Nitrophenol		50 u
132-64-9	Dibenzofuran		10 u
121-14-2	2,4-Dinitrotoluene		10 u
606-20-2	2,6-Dinitrotoluene		10 u
84-66-2	Diethylphthalate		10 u
7005-72-3	4-Chlorophenyl-phenylether		10 u
86-73-7	Fluorene		10 u
100-01-6	4-Nitroaniline		50 u
534-52-1	4,6-Dinitro-2-Methylphenol		50 u
86-30-6	N-Nitrosodiphenylamine(1)		10 u
101-55-3	4-Bromophenyl-phenylether		10 u
118-74-1	Hexachlorobenzene		10 u
87-86-5	Pentachlorophenol		50 u
85-01-8	Phenanthrene		10 u
120-12-7	Anthracene		10 u
84-74-2	Di-n-Butylphthalate		10 u
206-44-0	Fluoranthene		10 u
92-87-5	Benzidine		50 u
129-00-0	Pyrene		10 u
85-68-7	Butylbenzylphthalate	4.6 J	
91-94-1	3,3 -Dichlorobenzidine		20 u
56-55-3	Benzo(a)Anthracene		10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	24	
218-01-9	Chrysene		10 u
117-84-0	Di-n-Octyl Phthalate		10 u
205-99-2	Benzo(b)Fluoranthene		10 u
207-08-9	Benzo(k)Fluoranthene		10 u
50-32-8	Benzo(a)Pyrene	1.9 J	
193-39-5	Indeno(1,2,3-cd)Pyrene		10 u
53-70-3	Dibenzo(a,h)Anthracene		10 u
191-24-2	Benzo(g,h,i)Perylene		10 u

(1)-Cannot be separated from diphenylamine

Sample Number
CW-3

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 10/24/85
Conc/Dil Factor: 1

CAS Number		ug/l	
		**********	
319-84-6	Alpha-BHC	0.05	u
319-85-7	Beta-BHC	0.05	u
319-86-8	Delta-BHC	0.05	u
58-89-9	Gamma-BHC(lindane)	0.05	u
76-44-8	Heptachlor	0.05	u
309-00-2	Aldrin	0.05	u
1024-57-3	Heptachlor Epoxide	0.05	u
959-98-8	Endosulfan I	0.05	u
60-57-1	Dieldrin	0.10	u
72-55-9	4,4'-DDE	0.10	u
72-20-8	Endrin	0.10	u
33213-65-9	Endosulfan II	0.10	u
72-54-8	4,4'-DDD	0.10	u
7421-93-4	Endrin Aldehyde	0.10	u
1031-07-8	Endosulfan Sulfate	0.10	u
50-29-3	4,4'-DDT	0.10	u
72-43-5	Methoxychlor	0.50	u
53494-70-5	Endrin Ketone	0.10	u
57-74-9	Chlordane	3.8	
8001-35-2	Toxaphene	1.00	u
12674-11-2	Aroclor-1016	0.50	u
11104-28-2	Aroclor-1221	0.50	u
11141-16-5	Aroclor-1232	0.50	u
53469-21-9	Aroclor-1242	2.9	
12672-29-6	Aroclor-1248	0.50	u
11097-69-1	Aroclor-1254	1.00	u
11096-82-5	Aroclor-1260	1.00	u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
CW-3

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l	
**********	**********	****	****	******	
	UNKNOWN	BNA	348	8	J
62016-37-9	OCTANE,2,4,6-TRIMETHYL-	BNA	913	9	J
96-37-7	CYCLOPENTANE,METHYL-	VOA	291	20	J
96-14-0	PENTANE, 3-METHYL-	VOA	329	30	J
107-83-5	PENTANE,2-METHYL-	VOA	336	20	J
110-54-3	HEXANE	VOA	366	60	J

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CLP Sample Management Office.
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Alexandria, Virginia 22313 703/557-2490

Sample Number

CW-4

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15101184
Sample Matrix: Water
Data Release Authorized By:
****

Case No: ENG. SCIENCE
QC Report No:
Contract No:
Date Sample Received: 10/17/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/21/85
Date Analyzed: 10/21/85
Conc/Dil Factor: 1.0 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l
		**********
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	5.8 B
67-64-1	Acetone	7.0 B,J
75-15-0	Carbon Disulfide	5 u
75-35-4	1,1-Dichloroethene	5 u
75-34-3	1,1-Dichloroethane	5 u
156-60-5	Trans-1,2-Dichloroethene	5 u
67-66-3	Chloroform	5 u
107-06-2	1,2-Dichloroethane	5 u
78-93-3	2-Butanone	10 u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
CW-4

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-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
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachlorethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J)

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides>=10ng/ul in the final extract should be confirmed by GC/MS

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
CW-4

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 11/07/85
Conc/Dil Factor: 1.0

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
CW-4

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l	
		**********	
83-32-9	Acenaphthene		10 u
51-28-5	2,4-Dinitrophenol		50 u
100-02-7	4-Nitrophenol		50 u
132-64-9	Dibenzofuran		10 u
121-14-2	2,4-Dinitrotoluene		10 u
606-20-2	2,6-Dinitrotoluene		10 u
84-66-2	Diethylphthalate		10 u
7005-72-3	4-Chlorophenyl-phenylether		10 u
86-73-7	Fluorene		10 u
100-01-6	4-Nitroaniline		50 u
534-52-1	4,6-Dinitro-2-Methylphenol		50 u
86-30-6	N-Nitrosodiphenylamine(1)		10 u
101-55-3	4-Bromophenyl-phenylether		10 u
118-74-1	Hexachlorobenzene		10 u
87-86-5	Pentachlorophenol		50 u
85-01-8	Phenanthrene		10 u
120-12-7	Anthracene		10 u
84-74-2	Di-n-Butylphthalate	3.0 J	
206-44-0	Fluoranthene		10 u
92-87-5	Benzidine		50 u
129-00-0	Pyrene		10 u
85-68-7	Butylbenzylphthalate		10 u
91-94-1	3,3 -Dichlorobenzidine		20 u
56-55-3	Benzo(a)Anthracene		10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	2 6 J	
218-01-9	Chrysene		10 u
117-84-0	Di-n-Octyl Phthalate		10 u
205-99-2	Benzo(b)Flucranthene		10 u
207-08-9	Benzo(k)Fluoranthene		10 u
50-32-8	Benzo(a)Pyrene		10 u
193-39-5	Indeno(1,2,3-cd)Pyrene		10 u
53-70-3	Dibenzo(a,h)Anthracene		10 u
191-24-2	Benzo(g,h,i)Perylene		10 u

(1)-Cannot be separated from diphenylamine

Sample Number
CW-4

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 10/18/85
Date Analyzed: 10/24/85
Conc/Dil Factor: 1

CAS Number		ug/l
		**********
319-84-6	Alpha-BHC	0.05 u
319-85-7	Beta-BHC	0.05 u
319-86-8	Delta-BHC	0.05 u
58-89-9	Gamma-BHC(lindane)	0.05 u
76-44-8	Heptachlor	0.05 u
309-00-2	Aldrin	0.05 u
1024-57-3	Heptachlor Epoxide	0.05 u
959-98-8	Endosulfan I	0.05 u
60-57-1	Dieldrin	0.10 u
72-55-9	4,4'-DDE	0.10 u
72-20-8	Endrin	0.10 u
33213-65-9	Endosulfan II	0.10 u
72-54-8	4,4'-DDD	0.10 u
7421-93-4	Endrin Aldehyde	0.10 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4,4'-DDT	0.10 u
72-43-5	Methoxychlor	0.50 u
53494-70-5	Endrin Ketone	0.10 u
57-74-9	Chlordane	0.50 u
8001-35-2	Toxaphene	1.00 u
12674-11-2	Aroclor-1016	0.50 u
11104-28-2	Aroclor-1221	0.50 u
11141-16-5	Aroclor-1232	0.50 u
53469-21-9	Aroclor-1242	0.50 u
12672-29-6	Aroclor-1248	0.50 u
11097-69-1	Aroclor-1254	1.00 u
11096-82-5	Aroclor-1260	1.00 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
CW-4

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******

NO VOA COMPOUND FOUND
NO SEMI-VOLATILE COMPOUNDS FOUND

Analytical Results for Surface Water Samples

NUS CORPORATION

5350 CAMPBELLS RUN ROAD • PITTSBURGH, PA. 15205
412-788-1080

LABORATORY SERVICES DIVISION

I certify that the analytical procedures used in the Engineering-Science, Tri City Barrel Site project are in accordance with USEPA Guidelines 44CFR46964, 40CFR136, or the NYSDEC Superfund and Contract Laboratory Protocol, January 1985.

Kathy Deldegnni
Inorganic Laboratory Supervisor

12-20 85
Date

David A. Danner
Organic Laboratory Supervisor

12/20/85
Date

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Surface Water
S 1230 AM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111536 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	[3280]	P
2.	Antimony	60 U	F	14.	Manganese	132	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	C
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5 U	P	17.	Potassium	[930]	P
6.	Cadmium	5 U	P	18.	Selenium	5 U	F
7.	Calcium	13600	P	19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	8000	P
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F
11.	Iron	220	P	23.	Vanadium	50 U	F
12.	Lead	[4]	F	24.	Zinc	20	P

Cyanide _____ Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Surface Water
S 130 PM

Date Decmeber 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111537 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	[3200]	P
2.	Antimony	60 U	F	14.	Manganese	118	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	C
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5 U	P	17.	Potassium	[810]	P
6.	Cadmium	5 U	P	18.	Selenium	5 U	F
7.	Calcium	13300	P	19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	13000	P
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F
11.	Iron	150	P	23.	Vanadium	50 U	F
12.	Lead	6	F	24.	Zinc	20 U	P

Cyanide _____ Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Surface Water
S 300 PM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111538 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	[110]	P	13.	Magnesium	[2120]	P
2.	Antimony	60 U	F	14.	Manganese	23	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	C
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5 U	P	17.	Potassium	[470]	P
6.	Cadmium	5 U	P	18.	Selenium	5 U	F
7.	Calcium	10200	P	19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	9000	P
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F
11.	Iron	210	P	23.	Vanadium	50 U	F
12.	Lead	17	F	24.	Zinc	20 U	P

Cyanide _____ Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager Kathy Christiansen

Environmental Protection Agency
CLP Sample Management Office
P.O.Box 818
Alexandria, Virginia 22313 703/557-2490

Sample Number

S-1

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111536
Sample Matrix: Water
Data Release Authorized By: David A Damer
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/26/85
Date Analyzed: 11/26/85
Conc/Dil Factor: 1 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l
		**********
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	3.3 J,B
67-64-1	Acetone	27 B
75-15-0	Carbon Disulfide	5 u
75-35-4	1,1-Dichloroethene	5 u
75-34-3	1,1-Dichloroethane	5 u
156-60-5	Trans-1,2-Dichloroethene	5 u
67-66-3	Chloroform	5 u
107-06-2	1,2-Dichloroethane	5 u
78-93-3	2-Butanone	10 u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
S-1

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-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
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachlorethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
S-1

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/09/85
Conc/Dil Factor: 1

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
S-1

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l
		**********
83-32-9	Acenaphthene	10 u
51-28-5	2,4-Dinitrophenol	50 u
100-02-7	4-Nitrophenol	50 u
132-64-9	Dibenzofuran	10 u
121-14-2	2,4-Dinitrotoluene	10 u
606-20-2	2,6-Dinitrotoluene	10 u
84-66-2	Diethylphthalate	10 u
7005-72-3	4-Chlorophenyl-phenylether	10 u
86-73-7	Fluorene	10 u
100-01-6	4-Nitroaniline	50 u
534-52-1	4,6-Dinitro-2-Methylphenol	50 u
86-30-6	N-Nitrosodiphenylamine(1)	10 u
101-55-3	4-Bromophenyl-phenylether	10 u
118-74-1	Hexachlorobenzene	10 u
87-86-5	Pentachlorophenol	50 u
85-01-8	Phenanthrene	10 u
120-12-7	Anthracene	10 u
84-74-2	Di-n-Butylphthalate	10 u
206-44-0	Fluoranthene	10 u
92-87-5	Benzidine	50 u
129-00-0	Pyrene	10 u
85-68-7	Butylbenzylphthalate	10 u
91-94-1	3,3 -Dichlorobenzidine	20 u
56-55-3	Benzo(a)Anthracene	10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	10 u
218-01-9	Chrysene	10 u
117-84-0	Di-n-Octyl Phthalate	10 u
205-99-2	Benzo(b)Fluoranthene	10 u
207-08-9	Benzo(k)Fluoranthene	10 u
50-32-8	Benzo(a)Pyrene	10 u
193-39-5	Indeno(1,2,3-cd)Pyrene	10 u
53-70-3	Dibenzo(a,h)Anthracene	10 u
191-24-2	Benzo(g,h,i)Perylene	10 u

(1)-Cannot be separated from diphenylamine

Sample Number
S-1

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/02/85
Conc/Dil Factor: 1

CAS Number		ug/l
		**********
319-84-6	Alpha-BHC	0.05 u
319-85-7	Beta-BHC	0.05 u
319-86-8	Delta-BHC	0.05 u
58-89-9	Gamma-BHC(lindane)	0.05 u
76-44-8	Heptachlor	0.05 u
309-00-2	Aldrin	0.05 u
1024-57-3	Heptachlor Epoxide	0.05 u
959-98-8	Endosulfan I	0.05 u
60-57-1	Dieldrin	0.10 u
72-55-9	4,4'-DDE	0.10 u
72-20-8	Endrin	0.10 u
33213-65-9	Endosulfan II	0.10 u
72-54-8	4,4'-DDD	0.10 u
7421-93-4	Endrin Aldehyde	0.10 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4,4'-DDT	0.10 u
72-43-5	Methoxychlor	0.50 u
53494-70-5	Endrin Ketone	0.10 u
57-74-9	Chlordane	0.50 u
8001-35-2	Toxaphene	1.00 u
12674-11-2	Aroclor-1016	0.50 u
11104-28-2	Aroclor-1221	0.50 u
11141-16-5	Aroclor-1232	0.50 u
53469-21-9	Aroclor-1242	0.50 u
12672-29-6	Aroclor-1248	0.50 u
11097-69-1	Aroclor-1254	1.00 u
11096-82-5	Aroclor-1260	1.00 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
S-1

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******

NO VOA COMPOUND FOUND
NO SEMI-VOLATILE COMPOUNDS FOUND

Environmental Protection Agency
CLP Sample Management Office.
P.O.Box 818
Alexandria, Virginia 22313 703/557-2490

Sample Number

S-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111537
Sample Matrix: Water
Data Release Authorized By: David A. Danner
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/26/85
Date Analyzed: 11/26/85
Conc/Dil Factor: 1 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l
		**********
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	3.4 J,B
67-64-1	Acetone	13 B
75-15-0	Carbon Disulfide	5 u
75-35-4	1,1-Dichloroethene	5 u
75-34-3	1,1-Dichloroethane	5 u
156-60-5	Trans-1,2-Dichloroethene	5 u
67-66-3	Chloroform	5 u
107-06-2	1,2-Dichloroethane	5 u
78-93-3	2-Butanone	10 u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
S-2

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-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
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachlorethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
S-2

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/09/85
Conc/Dil Factor: 1

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
S-2

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l
		**********
83-32-9	Acenaphthene	10 u
51-28-5	2,4-Dinitrophenol	50 u
100-02-7	4-Nitrophenol	50 u
132-64-9	Dibenzofuran	10 u
121-14-2	2,4-Dinitrotoluene	10 u
606-20-2	2,6-Dinitrotoluene	10 u
84-66-2	Diethylphthalate	10 u
7005-72-3	4-Chlorophenyl-phenylether	10 u
86-73-7	Fluorene	10 u
100-01-6	4-Nitroaniline	50 u
534-52-1	4,6-Dinitro-2-Methylphenol	50 u
86-30-6	N-Nitrosodiphenylamine(1)	10 u
101-55-3	4-Bromophenyl-phenylether	10 u
118-74-1	Hexachlorobenzene	10 u
87-86-5	Pentachlorophenol	50 u
85-01-8	Phenanthrene	10 u
120-12-7	Anthracene	10 u
84-74-2	Di-n-Butylphthalate	10 u
206-44-0	Fluoranthene	10 u
92-87-5	Benzidine	50 u
129-00-0	Pyrene	10 u
85-68-7	Butylbenzylphthalate	10 u
91-94-1	3,3 -Dichlorobenzidine	20 u
56-55-3	Benzo(a)Anthracene	10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	10 u
218-01-9	Chrysene	10 u
117-84-0	Di-n-Octyl Phthalate	10 u
205-99-2	Benzo(b)Fluoranthene	10 u
207-08-9	Benzo(k)Fluoranthene	10 u
50-32-8	Benzo(a)Pyrene	10 u
193-39-5	Indeno(1,2,3-cd)Pyrene	10 u
53-70-3	Dibenzo(a,h)Anthracene	10 u
191-24-2	Benzo(g,h,i)Perylene	10 u

(1)-Cannot be separated from diphenylamine

Sample Number
S-2

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/02/85
Conc/Dil Factor: 1

CAS Number		ug/l
		**********
319-84-6	Alpha-BHC	0.05 u
319-85-7	Beta-BHC	0.05 u
319-86-8	Delta-BHC	0.05 u
58-89-9	Gamma-BHC(lindane)	0.05 u
76-44-8	Heptachlor	0.05 u
309-00-2	Aldrin	0.05 u
1024-57-3	Heptachlor Epoxide	0.05 u
959-98-8	Endosulfan I	0.05 u
60-57-1	Dieldrin	0.10 u
72-55-9	4,4'-DDE	0.10 u
72-20-8	Endrin	0.10 u
33213-65-9	Endosulfan II	0.10 u
72-54-8	4,4'-DDD	0.10 u
7421-93-4	Endrin Aldehyde	0.10 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4,4'-DDT	0.10 u
72-43-5	Methoxychlor	0.50 u
53494-70-5	Endrin Ketone	0.10 u
57-74-9	Chlordane	0.50 u
8001-35-2	Toxaphene	1.00 u
12674-11-2	Aroclor-1016	0.50 u
11104-28-2	Aroclor-1221	0.50 u
11141-16-5	Aroclor-1232	0.50 u
53469-21-9	Aroclor-1242	0.50 u
12672-29-6	Aroclor-1248	0.50 u
11097-69-1	Aroclor-1254	1.00 u
11096-82-5	Aroclor-1260	1.00 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
S-2

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******

NO VOA COMPOUND FOUND
NO SEMI-VOLATILE COMPOUNDS FOUND

nvironmental Protection Agency
LP Sample Management Office.
P.O.Box 818
lexandria, Virginia 22313 703/557-2490

Sample Number

S-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111538
ample Matrix: Water
ata Release Authorized By:
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/26/85
Date Analyzed: 11/26/85
Conc/Dil Factor: 1 pH NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/l
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	2.9 J,B
67-64-1	Acetone	10 u
75-15-0	Carbon Disulfide	5 u
75-35-4	1,1-Dichloroethene	5 u
75-34-3	1,1-Dichloroethane	5 u
156-60-5	Trans-1,2-Dichloroethene	5 u
67-66-3	Chloroform	5 u
107-06-2	1,2-Dichloroethane	5 u
78-93-3	2-Butanone	10 u
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

Data reporting qualifiers are explained on Page 2.
****

Sample Number
S-3

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/l
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-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
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	10 u
108-10-1	4-Methyl-2-Pentanone	10 u
127-18-4	Tetrachlorethene	5 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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

alue - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

- This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

- This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

- Spiked compound.

NR - No value required.

SAMPLE NUMBER
S-3

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/09/85
Conc/Dil Factor: 1

CAS Number		ug/l	
		**********	
62-75-9	N-Nitrosodimethylamine	10	u
108-95-2	Phenol	10	u
62-53-3	Aniline	10	u
111-44-4	bis(2-Chloroethyl)Ether	10	u
95-57-8	2-Chlorophenol	10	u
541-73-1	1,3-Dichlorobenzene	10	u
106-46-7	1,4-Dichlorobenzene	10	u
100-51-6	Benzyl Alcohol	10	u
95-50-1	1,2-Dichlorobenzene	10	u
95-48-7	2-Methylphenol	10	u
39638-32-9	bis(2-chloroisopropyl)Ether	10	u
106-44-5	4-Methylphenol	10	u
621-64-7	N-Nitroso-Di-n-Propylamine	10	u
67-72-1	Hexachloroethane	10	u
98-95-3	Nitrobenzene	10	u
78-59-1	Isophorone	10	u
88-75-5	2-Nitrophenol	10	u
105-67-9	2,4-Dimethylphenol	10	u
65-85-0	Benzoic Acid	50	u
111-91-1	bis(2-Chloroethoxy)Methane	10	u
120-83-2	2,4-Dichlorophenol	10	u
120-82-1	1,2,4-Trichlorobenzene	10	u
91-20-3	Naphthalene	10	u
106-47-8	4-Chloroaniline	10	u
87-68-3	Hexachlorobutadiene	10	u
59-50-7	4-Chloro-3-Methylphenol	10	u
91-57-6	2-Methylnaphthalene	10	u
77-47-4	Hexachlorocyclopentadiene	10	u
88-06-2	2,4,6-Trichlorophenol	10	u
95-95-4	2,4,5-Trichlorophenol	50	u
91-58-7	2-Chloronaphthalene	10	u
88-74-4	2-Nitroaniline	50	u
131-11-3	Dimethyl Phthalate	10	u
208-96-8	Acenaphthylene	10	u
99-09-2	3-Nitroaniline	50	u

Sample Number
S-3

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/l
		**********
83-32-9	Acenaphthene	10 u
51-28-5	2,4-Dinitrophenol	50 u
100-02-7	4-Nitrophenol	50 u
132-64-9	Dibenzofuran	10 u
121-14-2	2,4-Dinitrotoluene	10 u
606-20-2	2,6-Dinitrotoluene	10 u
84-66-2	Diethylphthalate	10 u
7005-72-3	4-Chlorophenyl-phenylether	10 u
86-73-7	Fluorene	10 u
100-01-6	4-Nitroaniline	50 u
534-52-1	4,6-Dinitro-2-Methylphenol	50 u
86-30-6	N-Nitrosodiphenylamine(1)	10 u
101-55-3	4-Bromophenyl-phenylether	10 u
118-74-1	Hexachlorobenzene	10 u
87-86-5	Pentachlorophenol	50 u
85-01-8	Phenanthrene	10 u
120-12-7	Anthracene	10 u
84-74-2	Di-n-Butylphthalate	10 u
206-44-0	Fluoranthene	10 u
92-87-5	Benzidine	50 u
129-00-0	Pyrene	10 u
85-68-7	Butylbenzylphthalate	10 u
91-94-1	3,3 -Dichlorobenzidine	20 u
56-55-3	Benzo(a)Anthracene	10 u
117-81-7	bis(2-Ethylhexyl)Phthalate	10 u
218-01-9	Chrysene	10 u
117-84-0	Di-n-Octyl Phthalate	10 u
205-99-2	Benzo(b)Fluoranthene	10 u
207-08-9	Benzo(k)Fluoranthene	10 u
50-32-8	Benzo(a)Pyrene	10 u
193-39-5	Indeno(1,2,3-cd)Pyrene	10 u
53-70-3	Dibenzo(a,h)Anthracene	10 u
191-24-2	Benzo(g,h,i)Perylene	10 u

(1)-Cannot be separated from diphenylamine

Sample Number
S-3

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 11/29/85
Date Analyzed: 12/02/85
Conc/Dil Factor: 1

CAS Number		ug/l
		**********
319-84-6	Alpha-BHC	0.05 u
319-85-7	Beta-BHC	0.05 u
319-86-8	Delta-BHC	0.05 u
58-89-9	Gamma-BHC(lindane)	0.05 u
76-44-8	Heptachlor	0.05 u
309-00-2	Aldrin	0.05 u
1024-57-3	Heptachlor Epoxide	0.05 u
959-98-8	Endosulfan I	0.05 u
60-57-1	Dieldrin	0.10 u
72-55-9	4,4'-DDE	0.10 u
72-20-8	Endrin	0.10 u
33213-65-9	Endosulfan II	0.10 u
72-54-8	4,4'-DDD	0.10 u
7421-93-4	Endrin Aldehyde	0.10 u
1031-07-8	Endosulfan Sulfate	0.10 u
50-29-3	4,4'-DDT	0.10 u
72-43-5	Methoxychlor	0.50 u
53494-70-5	Endrin Ketone	0.10 u
57-74-9	Chlordane	0.50 u
8001-35-2	Toxaphene	1.00 u
12674-11-2	Aroclor-1016	0.50 u
11104-28-2	Aroclor-1221	0.50 u
11141-16-5	Aroclor-1232	0.50 u
53469-21-9	Aroclor-1242	0.50 u
12672-29-6	Aroclor-1248	0.50 u
11097-69-1	Aroclor-1254	1.00 u
11096-82-5	Aroclor-1260	1.00 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs 1000 or Ws Vt 10000 Vi 4

Sample Number
S-3

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/l
**********	**********	****	****	******

NO VOA COMPOUND FOUND
NO SEMI-VOLATILE COMPOUNDS FOUND

Analytical Results for Sediment Samples

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Sediment
SD-1-1230 PM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111544 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water _____ Soil X Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	13000	P	13.	Magnesium	3690	P
2.	Antimony	7.0 U	F	14.	Manganese	921	P
3.	Arsenic	10.7	F	15.	Mercury	0.11 U	C
4.	Barium	62.0	P	16.	Nickel	33.9	P
5.	Beryllium	0.58 U	P	17.	Potassium	[557]	P
6.	Cadmium	0.58 U	P	18.	Selenium	0.53 U	F
7.	Calcium	817	P	19.	Silver	1.0 U	P
8.	Chromium	15.7	P	20.	Sodium	585 U	P
9.	Cobalt	19.9	P	21.	Thallium	1.0 U	F
10.	Copper	23.4	P	22.	Tin	[3.3]	F
11.	Iron	39600	P	23.	Vanadium	19.8	F
12.	Lead	8.5	F	24.	Zinc	92.5	P
	Cyanide	_____			Percent Solids (%)	70.7	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Sediment
SD-2-130 PM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111545 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water _____ Soil X Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	13800	P	13.	Magnesium	3910	P
2.	Antimony	6.2 U	F	14.	Manganese	674	P
3.	Arsenic	9.5	F	15.	Mercury	0.16 U	C
4.	Barium	57.9	P	16.	Nickel	26.9	P
5.	Beryllium	0.52 U	P	17.	Potassium	650	P
6.	Cadmium	0.52 U	P	18.	Selenium	0.75 U	F
7.	Calcium	932	P	19.	Silver	1.5 U	P
8.	Chromium	15.7	P	20.	Sodium	517 U	P
9.	Cobalt	19.6	P	21.	Thallium	1.5 U	F
10.	Copper	21.8	P	22.	Tin	4.2	F
11.	Iron	36800	P	23.	Vanadium	19.7	F
12.	Lead	16.1	F	24.	Zinc	95.2	P

Cyanide _____ Percent Solids (%) 60.7

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Sediment
SD-3-300 PM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation

CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111546

QC REPORT NO. ______

Elements Identified and Measured

Concentration: Low ______ Medium ______

Matrix: Water ______ Soil X Sludge ______ Other ______

ug/L or [mg/kg dry weight] (Circle One)

1.	Aluminum	11700	P	13.	Magnesium	3820	P
2.	Antimony	6.0 U	F	14.	Manganese	1200	P
3.	Arsenic	8.2	F	15.	Mercury	0.13 U	C
4.	Barium	74.3	P	16.	Nickel	29.1	P
5.	Beryllium	0.70	P	17.	Potassium	547	P
6.	Cadmium	0.50 U	P	18.	Selenium	0.55 U	F
7.	Calcium	1630	P	19.	Silver	1.1 U	P
8.	Chromium	16.1	P	20.	Sodium	502 U	P
9.	Cobalt	20.1	P	21.	Thallium	1.1 U	F
10.	Copper	21.8	P	22.	Tin	7.8	F
11.	Iron	40000	P	23.	Vanadium	17.4	F
12.	Lead	34.8	F	24.	Zinc	130	P

Cyanide ______ Percent Solids (%) 68.1

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ______

Lab Manager [signature]

CASE NARRATIVE: ES-TRI CITY BARREL

NUS #		SMO #	MATRIX
15111536	1	S-1	Water
15111537	2	S-2	Water
15111538		S-3	Water
15111539		Trip Blank	Water
15111540	3	Field Blank	Water
15111541	4	SS-1	Soil
15111542		SS-2	Soil
15111543	6	SS-3	Soil
15111544		SD-1	Soil
15111545	5	SD-2	Soil
15111546		SD-3	Soil

1 Pesticide MS/MSD low level water
2 BNA MS/MSD low level water
3 VOA MS/MSD low level water
4 BNA, PEST MS/MSD low level soil
5 VOA MS/MSD low level soil
6 BNA, PEST MS/MSD medium level soil

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Sample Number

SD-1

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111544
Sample Matrix: Soil
Data Release Authorized By:

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

****

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 7
Percent Moisture: 29
Percent Moisture (Decanted): NR

CAS Number		ug/kg
74-87-3	Chloromethane	14 u
74-83-9	Bromomethane	14 u
75-01-4	Vinyl chloride	14 u
75-00-3	Chloroethane	14 u
75-09-2	Methylene Chloride	78 B
67-64-1	Acetone	210 B
75-15-0	Carbon Disulfide	7 u
75-35-4	1,1-Dichloroethene	7 u
75-34-3	1,1-Dichloroethane	7 u
156-60-5	Trans-1,2-Dichloroethene	7 u
67-66-3	Chloroform	5.3 J,B
107-06-2	1,2-Dichloroethane	7 u
78-93-3	2-Butanone	14 u
71-55-6	1,1,1-Trichloroethane	7 u
56-23-5	Carbon Tetrachloride	7 u
108-05-4	Vinyl Acetate	14 u
75-27-4	Bromodichloromethane	7 u

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SD-1

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg **********	
79-34-5	1,1,2,2-Tetrachloroethane	7 u	
78-87-5	1,2-Dichloropropane	7 u	
10061-02-6	Trans-1,3-Dichloropropene	7 u	
79-01-6	Trichloroethene	7 u	
124-48-1	Dibromochloromethane	7 u	
79-00-5	1,1,2-Trichloroethane	7 u	
71-43-2	Benzene	0.91 J,B	
10061-01-5	cis-1,3-Dichloropropene	7 u	
110-75-8	2-Chloroethylvinylether	14 u	
75-25-2	Bromoform	7 u	
591-78-6	2-Hexanone	14 u	
108-10-1	4-Methyl-2-Pentanone	14 u	
127-18-4	Tetrachlorethene	7 u	
108-88-3	Toluene	~~54~~ 5u	Cek 12/13/85
108-90-7	Chlorobenzene	7 u	
100-41-4	Ethylbenzene	7 u	
100-42-5	Styrene	7 u	
	Total Xylenes	7 u	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

alue – If the result is a value greater than or equal to the detection limit, report the value

U – Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

– This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides>=10ng/ul in the final extract should be confirmed by GC/MS.

– This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

– Spiked compound.

NR – No value required.

SAMPLE NUMBER
SD-1

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 2

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	924	u
108-95-2	Phenol	924	u
62-53-3	Aniline	924	u
111-44-4	bis(2-Chloroethyl)Ether	924	u
95-57-8	2-Chlorophenol	924	u
541-73-1	1,3-Dichlorobenzene	924	u
106-46-7	1,4-Dichlorobenzene	924	u
100-51-6	Benzyl Alcohol	924	u
95-50-1	1,2-Dichlorobenzene	924	u
95-48-7	2-Methylphenol	924	u
39638-32-9	bis(2-chloroisopropyl)Ether	924	u
106-44-5	4-Methylphenol	924	u
621-64-7	N-Nitroso-Di-n-Propylamine	924	u
67-72-1	Hexachloroethane	924	u
98-95-3	Nitrobenzene	924	u
78-59-1	Isophorone	924	u
88-75-5	2-Nitrophenol	924	u
105-67-9	2,4-Dimethylphenol	924	u
65-85-0	Benzoic Acid	4480	u
111-91-1	bis(2-Chloroethoxy)Methane	924	u
120-83-2	2,4-Dichlorophenol	924	u
120-82-1	1,2,4-Trichlorobenzene	924	u
91-20-3	Naphthalene	924	u
106-47-8	4-Chloroaniline	924	u
87-68-3	Hexachlorobutadiene	924	u
59-50-7	4-Chloro-3-Methylphenol	924	u
91-57-6	2-Methylnaphthalene	924	u
77-47-4	Hexachlorocyclopentadiene	924	u
88-06-2	2,4,6-Trichlorophenol	924	u
95-95-4	2,4,5-Trichlorophenol	4480	u
91-58-7	2-Chloronaphthalene	924	u
88-74-4	2-Nitroaniline	924	u
131-11-3	Dimethyl Phthalate	924	u
208-96-8	Acenaphthylene	924	u
99-09-2	3-Nitroaniline	4480	u

Sample Number
SD-1

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	924	u
51-28-5	2,4-Dinitrophenol	4480	u
100-02-7	4-Nitrophenol	4480	u
132-64-9	Dibenzofuran	924	u
121-14-2	2,4-Dinitrotoluene	924	u
606-20-2	2,6-Dinitrotoluene	924	u
84-66-2	Diethylphthalate	924	u
7005-72-3	4-Chlorophenyl-phenylether	924	u
86-73-7	Fluorene	924	u
100-01-6	4-Nitroaniline	4480	u
534-52-1	4,6-Dinitro-2-Methylphenol	4480	u
86-30-6	N-Nitrosodiphenylamine(1)	924	u
101-55-3	4-Bromophenyl-phenylether	924	u
118-74-1	Hexachlorobenzene	924	u
87-86-5	Pentachlorophenol	4480	u
85-01-8	Phenanthrene	924	u
120-12-7	Anthracene	924	u
84-74-2	Di-n-Butylphthalate	590 J	
206-44-0	Fluoranthene	924	u
92-87-5	Benzidine	4480	u
129-00-0	Pyrene	924	u
85-68-7	Butylbenzylphthalate	924	u
91-94-1	3,3 -Dichlorobenzidine	1848	u
56-55-3	Benzo(a)Anthracene	924	u
117-81-7	bis(2-Ethylhexyl)Phthalate	924	u
218-01-9	Chrysene	924	u
117-84-0	Di-n-Octyl Phthalate	924	u
205-99-2	Benzo(b)Fluoranthene	924	u
207-08-9	Benzo(k)Fluoranthene	924	u
50-32-8	Benzo(a)Pyrene	924	u
193-39-5	Indeno(1,2,3-cd)Pyrene	924	u
53-70-3	Dibenzo(a,h)Anthracene	924	u
191-24-2	Benzo(g,h,i)Perylene	924	u

(1)-Cannot be separated from diphenylamine

Sample Number
SD-1

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/09/85
Conc/Dil Factor: 1

CAS Number		ug/kg	
		**********	
319-84-6	Alpha-BHC	11.2	u
319-85-7	Beta-BHC	11.2	u
319-86-8	Delta-BHC	11.2	u
58-89-9	Gamma-BHC(lindane)	11.2	u
76-44-8	Heptachlor	11.2	u
309-00-2	Aldrin	11.2	u
1024-57-3	Heptachlor Epoxide	11.2	u
959-98-8	Endosulfan I	11.2	u
60-57-1	Dieldrin	22.4	u
72-55-9	4,4'-DDE	22.4	u
72-20-8	Endrin	22.4	u
33213-65-9	Endosulfan II	22.4	u
72-54-8	4,4'-DDD	22.4	u
7421-93-4	Endrin Aldehyde	22.4	u
1031-07-8	Endosulfan Sulfate	22.4	u
50-29-3	4,4'-DDT	22.4	u
72-43-5	Methoxychlor	112.0	u
53494-70-5	Endrin Ketone	22.4	u
57-74-9	Chlordane	112.0	u
8001-35-2	Toxaphene	224.0	u
12674-11-2	Aroclor-1016	112.0	u
11104-28-2	Aroclor-1221	112.0	u
11141-16-5	Aroclor-1232	112.0	u
53469-21-9	Aroclor-1242	112.0	u
12672-29-6	Aroclor-1248	112.0	u
11097-69-1	Aroclor-1254	224.0	u
11096-82-5	Aroclor-1260	224.0	u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 21.21 Vt 20000 Vi 4

Sample Number
SD-1

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
**********	**********	****	****	******
110-54-3	HEXANE	VOA	403	10 J
	UNKNOWN	BNA	194	10000 J
	ALDOL CONDENSATION PRODUCT	BNA	219	100000 J,B
	UNKNOWN	BNA	278	2000 J,B
10544-50-0	SULFUR,MOL. (S8)	BNA	1158	1000 J

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Sample Number

SD-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111545
ample Matrix: Soil
Data Release Authorized By:

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

****

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 7
Percent Moisture: 39
Percent Moisture (Decanted): NR

CAS Number		ug/kg
		**********
74-87-3	Chloromethane	16 u
74-83-9	Bromomethane	16 u
75-01-4	Vinyl chloride	16 u
75-00-3	Chloroethane	16 u
75-09-2	Methylene Chloride	63 B
67-64-1	Acetone	130 B
75-15-0	Carbon Disulfide	8 u
75-35-4	1,1-Dichloroethene	8 u
75-34-3	1,1-Dichloroethane	8 u
156-60-5	Trans-1,2-Dichloroethene	8 u
67-66-3	Chloroform	5.6 J,B
107-06-2	1,2-Dichloroethane	8 u
78-93-3	2-Butanone	16 u
71-55-6	1,1,1-Trichloroethane	8 u
56-23-5	Carbon Tetrachloride	8 u
108-05-4	Vinyl Acetate	16 u
75-27-4	Bromodichloromethane	8 u

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SD-2

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg
		**********
79-34-5	1,1,2,2-Tetrachloroethane	8 u
78-87-5	1,2-Dichloropropane	8 u
10061-02-6	Trans-1,3-Dichloropropene	8 u
79-01-6	Trichloroethene	8 u
124-48-1	Dibromochloromethane	8 u
79-00-5	1,1,2-Trichloroethane	8 u
71-43-2	Benzene	0.96 J,B
10061-01-5	cis-1,3-Dichloropropene	8 u
110-75-8	2-Chloroethylvinylether	16 u
75-25-2	Bromoform	8 u
591-78-6	2-Hexanone	16 u
108-10-1	4-Methyl-2-Pentanone	16 u
127-18-4	Tetrachlorethene	8 u
108-88-3	Toluene	8 u
108-90-7	Chlorobenzene	8 u
100-41-4	Ethylbenzene	8 u
100-42-5	Styrene	8 u
	Total Xylenes	8 u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
SD-2

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 2

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	1056	u
108-95-2	Phenol	1056	u
62-53-3	Aniline	1056	u
111-44-4	bis(2-Chloroethyl)Ether	1056	u
95-57-8	2-Chlorophenol	1056	u
541-73-1	1,3-Dichlorobenzene	1056	u
106-46-7	1,4-Dichlorobenzene	1056	u
100-51-6	Benzyl Alcohol	1056	u
95-50-1	1,2-Dichlorobenzene	1056	u
95-48-7	2-Methylphenol	1056	u
39638-32-9	bis(2-chloroisopropyl)Ether	1056	u
106-44-5	4-Methylphenol	1056	u
621-64-7	N-Nitroso-Di-n-Propylamine	1056	u
67-72-1	Hexachloroethane	1056	u
98-95-3	Nitrobenzene	1056	u
78-59-1	Isophorone	1056	u
88-75-5	2-Nitrophenol	1056	u
105-67-9	2,4-Dimethylphenol	1056	u
65-85-0	Benzoic Acid	5120	u
111-91-1	bis(2-Chloroethoxy)Methane	1056	u
120-83-2	2,4-Dichlorophenol	1056	u
120-82-1	1,2,4-Trichlorobenzene	1056	u
91-20-3	Naphthalene	1056	u
106-47-8	4-Chloroaniline	1056	u
87-68-3	Hexachlorobutadiene	1056	u
59-50-7	4-Chloro-3-Methylphenol	1056	u
91-57-6	2-Methylnaphthalene	1056	u
77-47-4	Hexachlorocyclopentadiene	1056	u
88-06-2	2,4,6-Trichlorophenol	1056	u
95-95-4	2,4,5-Trichlorophenol	5120	u
91-58-7	2-Chloronaphthalene	1056	u
88-74-4	2-Nitroaniline	1056	u
131-11-3	Dimethyl Phthalate	1056	u
208-96-8	Acenaphthylene	1056	u
99-09-2	3-Nitroaniline	5120	u

Sample Number
SD-2

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	1056	u
51-28-5	2,4-Dinitrophenol	5120	u
100-02-7	4-Nitrophenol	5120	u
132-64-9	Dibenzofuran	1056	u
121-14-2	2,4-Dinitrotoluene	1056	u
606-20-2	2,6-Dinitrotoluene	1056	u
84-66-2	Diethylphthalate	1056	u
7005-72-3	4-Chlorophenyl-phenylether	1056	u
86-73-7	Fluorene	1056	u
100-01-6	4-Nitroaniline	5120	u
534-52-1	4,6-Dinitro-2-Methylphenol	5120	u
86-30-6	N-Nitrosodiphenylamine(1)	1056	u
101-55-3	4-Bromophenyl-phenylether	1056	u
118-74-1	Hexachlorobenzene	1056	u
87-86-5	Pentachlorophenol	5120	u
85-01-8	Phenanthrene	1056	u
120-12-7	Anthracene	1056	u
84-74-2	Di-n-Butylphthalate	290 J,B	
206-44-0	Fluoranthene	1056	u
92-87-5	Benzidine	5120	u
129-00-0	Pyrene	1056	u
85-68-7	Butylbenzylphthalate	1056	u
91-94-1	3,3 -Dichlorobenzidine	2112	u
56-55-3	Benzo(a)Anthracene	1056	u
117-81-7	bis(2-Ethylhexyl)Phthalate	1056	u
218-01-9	Chrysene	1056	u
117-84-0	Di-n-Octyl Phthalate	1056	u
205-99-2	Benzo(b)Fluoranthene	1056	u
207-08-9	Benzo(k)Fluoranthene	1056	u
50-32-8	Benzo(a)Pyrene	1056	u
193-39-5	Indeno(1,2,3-cd)Pyrene	1056	u
53-70-3	Dibenzo(a,h)Anthracene	1056	u
191-24-2	Benzo(g,h,i)Perylene	1056	u

(1)-Cannot be separated from diphenylamine

Sample Number
SD-2

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 1

CAS Number		ug/kg
		**********
319-84-6	Alpha-BHC	12.8 u
319-85-7	Beta-BHC	12.8 u
319-86-8	Delta-BHC	12.8 u
58-89-9	Gamma-BHC(lindane)	12.8 u
76-44-8	Heptachlor	12.8 u
309-00-2	Aldrin	12.8 u
1024-57-3	Heptachlor Epoxide	12.8 u
959-98-8	Endosulfan I	12.8 u
60-57-1	Dieldrin	25.6 u
72-55-9	4,4'-DDE	25.6 u
72-20-8	Endrin	25.6 u
33213-65-9	Endosulfan II	25.6 u
72-54-8	4,4'-DDD	25.6 u
7421-93-4	Endrin Aldehyde	25.6 u
1031-07-8	Endosulfan Sulfate	25.6 u
50-29-3	4,4'-DDT	25.6 u
72-43-5	Methoxychlor	128.0 u
53494-70-5	Endrin Ketone	25.6 u
57-74-9	Chlordane	128.0 u
8001-35-2	Toxaphene	256.0 u
12674-11-2	Aroclor-1016	128.0 u
11104-28-2	Aroclor-1221	128.0 u
11141-16-5	Aroclor-1232	128.0 u
53469-21-9	Aroclor-1242	128.0 u
12672-29-6	Aroclor-1248	128.0 u
11097-69-1	Aroclor-1254	256.0 u
11096-82-5	Aroclor-1260	256.0 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 18.21 Vt 20000 Vi 4

Sample Number
SD-2

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
**********	**********	****	****	******
	NO VOA COMPOUND FOUND			
	UNKNOWN	BNA	217	10000 J
	ALDOL CONDENSATION PRODUCT	BNA	237	200000 J,B
	UNKNOWN	BNA	294	3000 J
10544-50-0	SULFUR,MOL. (S8)	BNA	1162	10000 J
	UNKNOWN	BNA	1597	600 J
	UNKNOWN	BNA	1685	500 J
	UNKNOWN	BNA	1786	3000 J

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Sample Number

SD-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111546
ample Matrix: Soil
Data Release Authorized By:
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 7
Percent Moisture: 32
Percent Moisture (Decanted): NR

CAS Number		ug/kg
		**********
74-87-3	Chloromethane	15 u
74-83-9	Bromomethane	15 u
75-01-4	Vinyl chloride	15 u
75-00-3	Chloroethane	15 u
75-09-2	Methylene Chloride	46 B
67-64-1	Acetone	42 B
75-15-0	Carbon Disulfide	7 u
75-35-4	1,1-Dichloroethene	7 u
75-34-3	1,1-Dichloroethane	7 u
156-60-5	Trans-1,2-Dichloroethene	7 u
67-66-3	Chloroform	4.7 J,B
107-06-2	1,2-Dichloroethane	7 u
78-93-3	2-Butanone	15 u
71-55-6	1,1,1-Trichloroethane	7 u
56-23-5	Carbon Tetrachloride	7 u
108-05-4	Vinyl Acetate	15 u
75-27-4	Bromodichloromethane	7 u

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SD-3

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg
		**********
79-34-5	1,1,2,2-Tetrachloroethane	7 u
78-87-5	1,2-Dichloropropane	7 u
10061-02-6	Trans-1,3-Dichloropropene	7 u
79-01-6	Trichloroethene	7 u
124-48-1	Dibromochloromethane	7 u
79-00-5	1,1,2-Trichloroethane	7 u
71-43-2	Benzene	0.84 J,B
10061-01-5	cis-1,3-Dichloropropene	7 u
110-75-8	2-Chloroethylvinylether	15 u
75-25-2	Bromoform	7 u
591-78-6	2-Hexanone	15 u
108-10-1	4-Methyl-2-Pentanone	15 u
127-18-4	Tetrachlorethene	7 u
108-88-3	Toluene	7 u
108-90-7	Chlorobenzene	7 u
100-41-4	Ethylbenzene	7 u
100-42-5	Styrene	7 u
	Total Xylenes	7 u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

lue - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

(- This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides>=10ng/ul in the final extract should be confirmed by GC/MS.

] - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

! - Spiked compound.

NR - No value required.

SAMPLE NUMBER
SD-3

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 2

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	990	u
108-95-2	Phenol	990	u
62-53-3	Aniline	990	u
111-44-4	bis(2-Chloroethyl)Ether	990	u
95-57-8	2-Chlorophenol	990	u
541-73-1	1,3-Dichlorobenzene	990	u
106-46-7	1,4-Dichlorobenzene	990	u
100-51-6	Benzyl Alcohol	990	u
95-50-1	1,2-Dichlorobenzene	990	u
95-48-7	2-Methylphenol	990	u
39638-32-9	bis(2-chloroisopropyl)Ether	990	u
106-44-5	4-Methylphenol	990	u
621-64-7	N-Nitroso-Di-n-Propylamine	990	u
67-72-1	Hexachloroethane	990	u
98-95-3	Nitrobenzene	990	u
78-59-1	Isophorone	990	u
88-75-5	2-Nitrophenol	990	u
105-67-9	2,4-Dimethylphenol	990	u
65-85-0	Benzoic Acid	4800	u
111-91-1	bis(2-Chloroethoxy)Methane	990	u
120-83-2	2,4-Dichlorophenol	990	u
120-82-1	1,2,4-Trichlorobenzene	990	u
91-20-3	Naphthalene	990	u
106-47-8	4-Chloroaniline	990	u
87-68-3	Hexachlorobutadiene	990	u
59-50-7	4-Chloro-3-Methylphenol	990	u
91-57-6	2-Methylnaphthalene	990	u
77-47-4	Hexachlorocyclopentadiene	990	u
88-06-2	2,4,6-Trichlorophenol	990	u
95-95-4	2,4,5-Trichlorophenol	4800	u
91-58-7	2-Chloronaphthalene	990	u
88-74-4	2-Nitroaniline	990	u
131-11-3	Dimethyl Phthalate	990	u
208-96-8	Acenaphthylene	990	u
99-09-2	3-Nitroaniline	4800	u

Sample Number
SD-3

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	990	u
51-28-5	2,4-Dinitrophenol	4800	u
100-02-7	4-Nitrophenol	4800	u
132-64-9	Dibenzofuran	990	u
121-14-2	2,4-Dinitrotoluene	990	u
606-20-2	2,6-Dinitrotoluene	990	u
84-66-2	Diethylphthalate	990	u
7005-72-3	4-Chlorophenyl-phenylether	990	u
86-73-7	Fluorene	990	u
100-01-6	4-Nitroaniline	4800	u
534-52-1	4,6-Dinitro-2-Methylphenol	4800	u
86-30-6	N-Nitrosodiphenylamine(1)	990	u
101-55-3	4-Bromophenyl-phenylether	990	u
118-74-1	Hexachlorobenzene	990	u
87-86-5	Pentachlorophenol	4800	u
85-01-8	Phenanthrene	290 J	
120-12-7	Anthracene	990	u
84-74-2	Di-n-Butylphthalate	280 J,B	
206-44-0	Fluoranthene	350 J	
92-87-5	Benzidine	4800	u
129-00-0	Pyrene	260 J	
85-68-7	Butylbenzylphthalate	990	u
91-94-1	3,3 -Dichlorobenzidine	1980	u
56-55-3	Benzo(a)Anthracene	990	u
117-81-7	bis(2-Ethylhexyl)Phthalate	990	u
218-01-9	Chrysene	990	u
117-84-0	Di-n-Octyl Phthalate	990	u
205-99-2	Benzo(b)Fluoranthene	990	u
207-08-9	Benzo(k)Fluoranthene	990	u
50-32-8	Benzo(a)Pyrene	990	u
193-39-5	Indeno(1,2,3-cd)Pyrene	990	u
53-70-3	Dibenzo(a,h)Anthracene	990	u
191-24-2	Benzo(g,h,i)Perylene	990	u

(1)-Cannot be separated from diphenylamine

Sample Number
SD-3

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 1

CAS Number		ug/kg
		**********
319-84-6	Alpha-BHC	12.0 u
319-85-7	Beta-BHC	12.0 u
319-86-8	Delta-BHC	12.0 u
58-89-9	Gamma-BHC(lindane)	12.0 u
76-44-8	Heptachlor	12.0 u
309-00-2	Aldrin	12.0 u
1024-57-3	Heptachlor Epoxide	12.0 u
959-98-8	Endosulfan I	12.0 u
60-57-1	Dieldrin	24.0 u
72-55-9	4,4 -DDE	24.0 u
72-20-8	Endrin	24.0 u
33213-65-9	Endosulfan II	24.0 u
72-54-8	4,4 -DDD	24.0 u
7421-93-4	Endrin Aldehyde	24.0 u
1031-07-8	Endosulfan Sulfate	24.0 u
50-29-3	4,4 -DDT	24.0 u
72-43-5	Methoxychlor	120.0 u
53494-70-5	Endrin Ketone	24.0 u
57-74-9	Chlordane	120.0 u
8001-35-2	Toxaphene	240.0 u
12674-11-2	Aroclor-1016	120.0 u
11104-28-2	Aroclor-1221	120.0 u
11141-16-5	Aroclor-1232	120.0 u
53469-21-9	Aroclor-1242	120.0 u
12672-29-6	Aroclor-1248	120.0 u
11097-69-1	Aroclor-1254	240.0 u
11096-82-5	Aroclor-1260	240.0 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 20.43 Vt 20000 Vi 4

Sample Number
SD-3

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
**********	**********	****	****	******
	NO VOA COMPOUND FOUND			
	~~UNKNOWN~~ UNKNOWN	BNA	186	10000 J
tak 12/18/85	~~UNKNOWN~~ aldol condensation product	BNA	213	100000 J,B
	UNKNOWN	BNA	274	2000 J,B
	UNKNOWN	BNA	1778	400 J

Analytical Results for Soil Samples

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Soil
SS-1 1015

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111541 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water _____ Soil X Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	16100	P	13.	Magnesium	3050	P
2.	Antimony	7.8 U	F	14.	Manganese	798	P
3.	Arsenic	14.0	F	15.	Mercury	0.12 U	C
4.	Barium	79.0	P	16.	Nickel	27.2	P
5.	Beryllium	0.65	P	17.	Potassium	732	P
6.	Cadmium	0.65 U	P	18.	Selenium	0.63 U	F
7.	Calcium	2150	P	19.	Silver	1.3 U	P
8.	Chromium	18.3	P	20.	Sodium	648 U	P
9.	Cobalt	15.6	P	21.	Thallium	1.3 U	F
10.	Copper	18.4	P	22.	Tin	6.0	F
11.	Iron	36000	P	23.	Vanadium	25.8	F
12.	Lead	45.5	F	24.	Zinc	127	P
Cyanide				Percent Solids (%)		76.9	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager _____

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Soil
SS-1 1035

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineering-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111542 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water _____ Soil X Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	12200	P	13.	Magnesium	3890	P
2.	Antimony	6.9 U	F	14.	Manganese	756	P
3.	Arsenic	10	F	15.	Mercury	0.10 U	C
4.	Barium	74.3	P	16.	Nickel	36.6	P
5.	Beryllium	1.1	P	17.	Potassium	760	P
6.	Cadmium	0.57 U	P	18.	Selenium	0.54 U	F
7.	Calcium	1220	P	19.	Silver	1.1 U	P
8.	Chromium	17.6	P	20.	Sodium	[343]	P
9.	Cobalt	22.9	P	21.	Thallium	1.1 U	F
10.	Copper	24.9	P	22.	Tin	6.0	F
11.	Iron	36500	P	23.	Vanadium	17.0	F
12.	Lead	27.6	F	24.	Zinc	97.2	P
Cyanide				Percent Solids (%)		87.0	

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
Soil
SS-3-530 PM

Date December 20, 1985

INORGANIC ANALYSIS DATA SHEET

LAB NAME NUS Corporation CASE NO. Engineernig-Science

SOW NO. 784

LAB SAMPLE ID. NO. 15111543 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water _____ Soil X Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	12400	P	13.	Magnesium	3700	P
2.	Antimony	6.5 U	F	14.	Manganese	1230	P
3.	Arsenic	8.9	F	15.	Mercury	0.09 U	C
4.	Barium	95.1	P	16.	Nickel	30.2	P
5.	Beryllium	0.65	P	17.	Potassium	704	P
6.	Cadmium	0.54 U	P	18.	Selenium	0.54 U	F
7.	Calcium	1110	P	19.	Silver	1.1 U	P
8.	Chromium	17.3	P	20.	Sodium	540 U	P
9.	Cobalt	19.4	P	21.	Thallium	1.1 U	F
10.	Copper	21.0	P	22.	Tin	[3.5]	F
11.	Iron	33900	P	23.	Vanadium	16.2	F
12.	Lead	12.3	F	24.	Zinc	109	P

Cyanide _____ Percent Solids (%) 88.2

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager _____

E vironmental Protection Agency
CuP Sample Management Office.
P.O.Box 818
Alexandria, Virginia 22313 703/557-2490

Sample Number

SS-1

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111541
Sample Matrix: Soil
Data Release Authorized By:

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

****

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 7
Percent Moisture: 23
Percent Moisture (Decanted): NR

CAS Number		ug/kg
		**********
74-87-3	Chloromethane	13 u
74-83-9	Bromomethane	13 u
75-01-4	Vinyl chloride	13 u
75-00-3	Chloroethane	13 u
75-09-2	Methylene Chloride	10 B
67-64-1	Acetone	18 B
75-15-0	Carbon Disulfide	6 u
75-35-4	1,1-Dichloroethene	6 u
75-34-3	1,1-Dichloroethane	6 u
156-60-5	Trans-1,2-Dichloroethene	6 u
67-66-3	Chloroform	23 B
107-06-2	1,2-Dichloroethane	6 u
78-93-3	2-Butanone	13 u
71-55-6	1,1,1-Trichloroethane	6 u
56-23-5	Carbon Tetrachloride	6 u
108-05-4	Vinyl Acetate	13 u
75-27-4	Bromodichloromethane	6 u

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SS-1

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg
		**********
79-34-5	1,1,2,2-Tetrachloroethane	6 u
78-87-5	1,2-Dichloropropane	6 u
10061-02-6	Trans-1,3-Dichloropropene	6 u
79-01-6	Trichloroethene	6 u
124-48-1	Dibromochloromethane	6 u
79-00-5	1,1,2-Trichloroethane	6 u
71-43-2	Benzene	0.55 J,B
10061-01-5	cis-1,3-Dichloropropene	6 u
110-75-8	2-Chloroethylvinylether	13 u
75-25-2	Bromoform	6 u
591-78-6	2-Hexanone	13 u
108-10-1	4-Methyl-2-Pentanone	13 u
127-18-4	Tetrachlorethene	6 u
108-88-3	Toluene	6 u
108-90-7	Chlorobenzene	6 u
100-41-4	Ethylbenzene	6 u
100-42-5	Styrene	6 u
	Total Xylenes	6 u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

V lue - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
SS-1

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 2

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	858	u
108-95-2	Phenol	858	u
62-53-3	Aniline	858	u
111-44-4	bis(2-Chloroethyl)Ether	858	u
95-57-8	2-Chlorophenol	858	u
541-73-1	1,3-Dichlorobenzene	858	u
106-46-7	1,4-Dichlorobenzene	858	u
100-51-6	Benzyl Alcohol	858	u
95-50-1	1,2-Dichlorobenzene	858	u
95-48-7	2-Methylphenol	858	u
39638-32-9	bis(2-chloroisopropyl)Ether	858	u
106-44-5	4-Methylphenol	858	u
621-64-7	N-Nitroso-Di-n-Propylamine	858	u
67-72-1	Hexachloroethane	858	u
98-95-3	Nitrobenzene	858	u
78-59-1	Isophorone	858	u
88-75-5	2-Nitrophenol	858	u
105-67-9	2,4-Dimethylphenol	858	u
65-85-0	Benzoic Acid	4160	u
111-91-1	bis(2-Chloroethoxy)Methane	858	u
120-83-2	2,4-Dichlorophenol	858	u
120-82-1	1,2,4-Trichlorobenzene	858	u
91-20-3	Naphthalene	858	u
106-47-8	4-Chloroaniline	858	u
87-68-3	Hexachlorobutadiene	858	u
59-50-7	4-Chloro-3-Methylphenol	858	u
91-57-6	2-Methylnaphthalene	858	u
77-47-4	Hexachlorocyclopentadiene	858	u
88-06-2	2,4,6-Trichlorophenol	858	u
95-95-4	2,4,5-Trichlorophenol	4160	u
91-58-7	2-Chloronaphthalene	858	u
88-74-4	2-Nitroaniline	858	u
131-11-3	Dimethyl Phthalate	858	u
208-96-8	Acenaphthylene	858	u
99-09-2	3-Nitroaniline	4160	u

Sample Number
3S-1

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	858	u
51-28-5	2,4-Dinitrophenol	4160	u
100-02-7	4-Nitrophenol	4160	u
132-64-9	Dibenzofuran	858	u
121-14-2	2,4-Dinitrotoluene	858	u
606-20-2	2,6-Dinitrotoluene	858	u
84-66-2	Diethylphthalate	858	u
7005-72-3	4-Chlorophenyl-phenylether	858	u
86-73-7	Fluorene	858	u
100-01-6	4-Nitroaniline	4160	u
534-52-1	4,6-Dinitro-2-Methylphenol	4160	u
86-30-6	N-Nitrosodiphenylamine(1)	858	u
101-55-3	4-Bromophenyl-phenylether	858	u
118-74-1	Hexachlorobenzene	858	u
87-86-5	Pentachlorophenol	4160	u
85-01-8	Phenanthrene	830 J	
120-12-7	Anthracene	858	u
84-74-2	Di-n-Butylphthalate	260 J,B	
206-44-0	Fluoranthene	1300	
92-87-5	Benzidine	4160	u
129-00-0	Pyrene	1300	
85-68-7	Butylbenzylphthalate	858	u
91-94-1	3,3 -Dichlorobenzidine	1716	u
56-55-3	Benzo(a)Anthracene	710 J	
117-81-7	bis(2-Ethylhexyl)Phthalate	858	u
218-01-9	Chrysene	890	
117-84-0	Di-n-Octyl Phthalate	858	u
205-99-2	Benzo(b)Fluoranthene	470 J	
207-08-9	Benzo(k)Fluoranthene	858	u
50-32-8	Benzo(a)Pyrene	430 J	
193-39-5	Indeno(1,2,3-cd)Pyrene	858	u
53-70-3	Dibenzo(a,h)Anthracene	858	u
191-24-2	Benzo(g,h,i)Perylene	858	u

(1)-Cannot be separated from diphenylamine

Sample Number
SS-1

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Low
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/09/85
Conc/Dil Factor: 1

CAS Number		ug/kg
		**********
319-84-6	Alpha-BHC	10.4 u
319-85-7	Beta-BHC	10.4 u
319-86-8	Delta-BHC	10.4 u
58-89-9	Gamma-BHC(lindane)	10.4 u
76-44-8	Heptachlor	10.4 u
309-00-2	Aldrin	10.4 u
1024-57-3	Heptachlor Epoxide	10.4 u
959-98-8	Endosulfan I	10.4 u
60-57-1	Dieldrin	20.8 u
72-55-9	4,4 -DDE	20.8 u
72-20-8	Endrin	20.8 u
33213-65-9	Endosulfan II	20.8 u
72-54-8	4,4 -DDD	20.8 u
7421-93-4	Endrin Aldehyde	20.8 u
1031-07-8	Endosulfan Sulfate	20.8 u
50-29-3	4,4 -DDT	20.8 u
72-43-5	Methoxychlor	104.0 u
53494-70-5	Endrin Ketone	20.8 u
57-74-9	Chlordane	104.0 u
8001-35-2	Toxaphene	208.0 u
12674-11-2	Aroclor-1016	104.0 u
11104-28-2	Aroclor-1221	104.0 u
11141-16-5	Aroclor-1232	104.0 u
53469-21-9	Aroclor-1242	104.0 u
12672-29-6	Aroclor-1248	104.0 u
11097-69-1	Aroclor-1254	208.0 u
11096-82-5	Aroclor-1260	208.0 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 23.07 Vt 20000 Vi 4

Sample Number
SS-1

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
**********	**********	****	****	******
7 -13-1	ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO-	VOA	271	100 J,B
	UNKNOWN	BNA	215	10000 J
	ALDOL CONDENSATION PRODUCT	BNA	238	100000 J,B
	UNKNOWN	BNA	293	2000 J
	UNKNOWN	BNA	1572	400 J
	UNKNOWN	BNA	1596	600 J

nvironmental Protection Agency
LP Sample Management Office.
P.O.Box 818
lexandria, Virginia 22313 703/557-2490

Sample Number

SS-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111542A
ample Matrix: Soil
Data Release Authorized By:
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 8
Percent Moisture: 13
Percent Moisture (Decanted): NR

CAS Number		ug/kg
		**********
74-87-3	Chloromethane	11 u
74-83-9	Bromomethane	11 u
75-01-4	Vinyl chloride	11 u
75-00-3	Chloroethane	11 u
75-09-2	Methylene Chloride	9.1 B
67-64-1	Acetone	11 B
75-15-0	Carbon Disulfide	5 u
75-35-4	1,1-Dichloroethene	5 u
75-34-3	1,1-Dichloroethane	5 u
156-60-5	Trans-1,2-Dichloroethene	4.2 J
67-66-3	Chloroform	5.0 J,B
107-06-2	1,2-Dichloroethane	5 u
78-93-3	2-Butanone	11 u
71-55-6	1,1,1-Trichloroethane	5 u
56-23-5	Carbon Tetrachloride	5 u
108-05-4	Vinyl Acetate	11 u
75-27-4	Bromodichloromethane	5 u

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SS-2

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-1,3-Dichloropropene	5 u
79-01-6	Trichloroethene	5.0 J
124-48-1	Dibromochloromethane	5 u
79-00-5	1,1,2-Trichloroethane	5 u
71-43-2	Benzene	0.53 J,B
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	11 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	11 u
108-10-1	4-Methyl-2-Pentanone	11 u
127-18-4	Tetrachlorethene	20
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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

! - Spiked compound.

NR - No value required.

Sample Number
SS-2

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg	
**********	**********	****	****	******	
76-13-1	ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO-	VOA	271	70	J,B

nvironmental Protection Agency
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Sample Number
SS-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111542B
ample Matrix: Soil
Data Release Authorized By:

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

****

pH: 8
Percent Moisture: 13
Percent Moisture (Decanted): NR

****

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

- Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

- Indicated 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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

NR - No value required.

SAMPLE NUMBER
SS-2

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Medium
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/11/85
Conc/Dil Factor: 1

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	22000	u
108-95-2	Phenol	22000	u
62-53-3	Aniline	22000	u
111-44-4	bis(2-Chloroethyl)Ether	22000	u
95-57-8	2-Chlorophenol	22000	u
541-73-1	1,3-Dichlorobenzene	22000	u
106-46-7	1,4-Dichlorobenzene	22000	u
100-51-6	Benzyl Alcohol	22000	u
95-50-1	1,2-Dichlorobenzene	22000	u
95-48-7	2-Methylphenol	22000	u
39638-32-9	bis(2-chloroisopropyl)Ether	22000	u
106-44-5	4-Methylphenol	22000	u
621-64-7	N-Nitroso-Di-n-Propylamine	22000	u
67-72-1	Hexachloroethane	22000	u
98-95-3	Nitrobenzene	22000	u
78-59-1	Isophorone	22000	u
88-75-5	2-Nitrophenol	22000	u
105-67-9	2,4-Dimethylphenol	22000	u
65-85-0	Benzoic Acid	105600	u
111-91-1	bis(2-Chloroethoxy)Methane	22000	u
120-83-2	2,4-Dichlorophenol	22000	u
120-82-1	1,2,4-Trichlorobenzene	22000	u
91-20-3	Naphthalene	22000	u
106-47-8	4-Chloroaniline	22000	u
87-68-3	Hexachlorobutadiene	22000	u
59-50-7	4-Chloro-3-Methylphenol	22000	u
91-57-6	2-Methylnaphthalene	22000	u
77-47-4	Hexachlorocyclopentadiene	22000	u
88-06-2	2,4,6-Trichlorophenol	22000	u
95-95-4	2,4,5-Trichlorophenol	105600	u
91-58-7	2-Chloronaphthalene	22000	u
88-74-4	2-Nitroaniline	105600	u
131-11-3	Dimethyl Phthalate	22000	u
208-96-8	Acenaphthylene	22000	u
99-09-2	3-Nitroaniline	105600	u

Sample Number
SS-2

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	22000	u
51-28-5	2,4-Dinitrophenol	105600	u
100-02-7	4-Nitrophenol	105600	u
132-64-9	Dibenzofuran	22000	u
121-14-2	2,4-Dinitrotoluene	22000	u
606-20-2	2,6-Dinitrotoluene	22000	u
84-66-2	Diethylphthalate	22000	u
7005-72-3	4-Chlorophenyl-phenylether	22000	u
86-73-7	Fluorene	22000	u
100-01-6	4-Nitroaniline	105600	u
534-52-1	4,6-Dinitro-2-Methylphenol	105600	u
86-30-6	N-Nitrosodiphenylamine(1)	22000	u
101-55-3	4-Bromophenyl-phenylether	22000	u
118-74-1	Hexachlorobenzene	22000	u
87-86-5	Pentachlorophenol	105600	u
85-01-8	Phenanthrene	22000	u
120-12-7	Anthracene	22000	u
84-74-2	Di-n-Butylphthalate	22000	u
206-44-0	Fluoranthene	22000	u
92-87-5	Benzidine	105600	u
129-00-0	Pyrene	22000	u
85-68-7	Butylbenzylphthalate	22000	u
91-94-1	3,3 -Dichlorobenzidine	44000	u
56-55-3	Benzo(a)Anthracene	22000	u
117-81-7	bis(2-Ethylhexyl)Phthalate	22000	u
218-01-9	Chrysene	22000	u
117-84-0	Di-n-Octyl Phthalate	22000	u
205-99-2	Benzo(b)Fluoranthene	22000	u
207-08-9	Benzo(k)Fluoranthene	22000	u
50-32-8	Benzo(a)Pyrene	22000	u
193-39-5	Indeno(1,2,3-cd)Pyrene	22000	u
53-70-3	Dibenzo(a,h)Anthracene	22000	u
191-24-2	Benzo(g,h,i)Perylene	22000	u

(1)-Cannot be separated from diphenylamine

Sample Number
SS-2

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Medium
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 1

CAS Number		ug/kg
		**********
319-84-6	Alpha-BHC	120 u
319-85-7	Beta-BHC	120 u
319-86-8	Delta-BHC	120 u
58-89-9	Gamma-BHC(lindane)	120 u
76-44-8	Heptachlor	120 u
309-00-2	Aldrin	120 u
1024-57-3	Heptachlor Epoxide	120 u
959-98-8	Endosulfan I	120 u
60-57-1	Dieldrin	240 u
72-55-9	4,4 -DDE	240 u
72-20-8	Endrin	240 u
33213-65-9	Endosulfan II	240 u
72-54-8	4,4 -DDD	240 u
7421-93-4	Endrin Aldehyde	240 u
1031-07-8	Endosulfan Sulfate	240 u
50-29-3	4,4 -DDT	240 u
72-43-5	Methoxychlor	1200 u
53494-70-5	Endrin Ketone	240 u
57-74-9	Chlordane	1200 u
8001-35-2	Toxaphene	2400 u
12674-11-2	Aroclor-1016	1200 u
11104-28-2	Aroclor-1221	1200 u
11141-16-5	Aroclor-1232	1200 u
53469-21-9	Aroclor-1242	1200 u
12672-29-6	Aroclor-1248	1200 u
11097-69-1	Aroclor-1254	2400 u
11096-82-5	Aroclor-1260	2400 u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 0.87 Vt 10000 Vi 4

Sample Number
SS-2

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
1	**********	**********	****	****	******

NO SEMI-VOLATILE COMPOUNDS FOUND

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uLP Sample Management Office.
P.O.Box 818
lexandria, Virginia 22313 703/557-2490

Sample Number

SS-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111543A
ımple Matrix: Soil
Data Release Authorized By:
****

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 12/03/85
Date Analyzed: 12/03/85
Conc/Dil Factor: 1 pH 7
Percent Moisture: 12
Percent Moisture (Decanted): NR

CAS Number		ug/kg	
		**********	
74-87-3	Chloromethane		11 u
74-83-9	Bromomethane		11 u
75-01-4	Vinyl chloride		11 u
75-00-3	Chloroethane		11 u
75-09-2	Methylene Chloride	60 B	
67-64-1	Acetone	37 B	
75-15-0	Carbon Disulfide		5 u
75-35-4	1,1-Dichloroethene	~~6.3~~	~~5 u~~
75-34-3	1,1-Dichloroethane	~~20~~ 6.3	
156-60-5	Trans-1,2-Dichloroethene	~~7.3 B 10~~	
67-66-3	Chloroform	7.3 B	~~5 u~~
107-06-2	1,2-Dichloroethane		5 u
78-93-3	2-Butanone		11 u
71-55-6	1,1,1-Trichloroethane	17	
56-23-5	Carbon Tetrachloride		5 u
108-05-4	Vinyl Acetate		11 u
75-27-4	Bromodichloromethane		5 u

Cnk 12/1

Data reporting qualifiers are explained on Page 2.
****

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 2)

Volatile Compounds (continued)

Case Number		ug/kg
		**********
79-34-5	1,1,2,2-Tetrachloroethane	5 u
78-87-5	1,2-Dichloropropane	5 u
10061-02-6	Trans-1,3-Dichloropropene	5 u
79-01-6	Trichloroethene	14
124-48-1	Dibromochloromethane	5 u
79-00-5	1,1,2-Trichloroethane	5 u
71-43-2	Benzene	0.73 J,B
10061-01-5	cis-1,3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	11 u
75-25-2	Bromoform	5 u
591-78-6	2-Hexanone	11 u
108-10-1	4-Methyl-2-Pentanone	11 u
127-18-4	Tetrachlorethene	76
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

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

alue - If the result is a value greater than or equal to the detection limit, report the value

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

- This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

- Spiked compound.

NR - No value required.

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg	
**********	**********	****	****	******	
6-13-1	ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO-	VOA	271	50	J,B

nvironmental Protection Agency
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lexandria, Virginia 22313 703/557-2490

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: NUS CORPORATION
Lab Sample ID No: 15111543B
ample Matrix: Soil
Data Release Authorized By:

Case No: TRI CITY BARREL
QC Report No:
Contract No:
Date Sample Received: 11/26/85

****

pH: 7
Percent Moisture: 12
Percent Moisture (Decanted): NR

****

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explained.

Value - If the result is a value greater than or equal to the detection limit, report the value

- Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- Indicated 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 indicates the presence of a compound that meets the identification criteria but the result is less than the indicated detection limit but greater than zero (e.g. 10J).

C - This flag applies to pesticide parameters where the identification has been comfirmed by GC/MS. Single component pesticides)=10ng/ul in the final extract should be confirmed by GC/MS.

B - This flag is used when the analyte is found in the blank as well a's a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S - Spiked compound.

R - No value required.

SAMPLE NUMBER
SS-3

Organics Analysis Data Sheet
(Page 3)

Semivolatile Compounds

Concentration: Medium
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/11/85
Conc/Dil Factor: 1

CAS Number		ug/kg	
		**********	
62-75-9	N-Nitrosodimethylamine	22000	u
108-95-2	Phenol	22000	u
62-53-3	Aniline	22000	u
111-44-4	bis(2-Chloroethyl)Ether	22000	u
95-57-8	2-Chlorophenol	22000	u
541-73-1	1,3-Dichlorobenzene	22000	u
106-46-7	1,4-Dichlorobenzene	22000	u
100-51-6	Benzyl Alcohol	22000	u
95-50-1	1,2-Dichlorobenzene	22000	u
95-48-7	2-Methylphenol	22000	u
39638-32-9	bis(2-chloroisopropyl)Ether	22000	u
106-44-5	4-Methylphenol	22000	u
621-64-7	N-Nitroso-Di-n-Propylamine	22000	u
67-72-1	Hexachloroethane	22000	u
98-95-3	Nitrobenzene	22000	u
78-59-1	Isophorone	22000	u
88-75-5	2-Nitrophenol	22000	u
105-67-9	2,4-Dimethylphenol	22000	u
65-85-0	Benzoic Acid	105600	u
111-91-1	bis(2-Chloroethoxy)Methane	22000	u
120-83-2	2,4-Dichlorophenol	22000	u
120-82-1	1,2,4-Trichlorobenzene	22000	u
91-20-3	Naphthalene	22000	u
106-47-8	4-Chloroaniline	22000	u
87-68-3	Hexachlorobutadiene	22000	u
59-50-7	4-Chloro-3-Methylphenol	22000	u
91-57-6	2-Methylnaphthalene	22000	u
77-47-4	Hexachlorocyclopentadiene	22000	u
88-06-2	2,4,6-Trichlorophenol	22000	u
95-95-4	2,4,5-Trichlorophenol	105600	u
91-58-7	2-Chloronaphthalene	22000	u
88-74-4	2-Nitroaniline	105600	u
131-11-3	Dimethyl Phthalate	22000	u
208-96-8	Acenaphthylene	22000	u
99-09-2	3-Nitroaniline	105600	u

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 4)

Semivolatile Compounds (continued)

Case Number		ug/kg	
		**********	
83-32-9	Acenaphthene	22000	u
51-28-5	2,4-Dinitrophenol	105600	u
100-02-7	4-Nitrophenol	105600	u
132-64-9	Dibenzofuran	22000	u
121-14-2	2,4-Dinitrotoluene	22000	u
606-20-2	2,6-Dinitrotoluene	22000	u
84-66-2	Diethylphthalate	22000	u
7005-72-3	4-Chlorophenyl-phenylether	22000	u
86-73-7	Fluorene	22000	u
100-01-6	4-Nitroaniline	105600	u
534-52-1	4,6-Dinitro-2-Methylphenol	105600	u
86-30-6	N-Nitrosodiphenylamine(1)	22000	u
101-55-3	4-Bromophenyl-phenylether	22000	u
118-74-1	Hexachlorobenzene	22000	u
87-86-5	Pentachlorophenol	105600	u
85-01-8	Phenanthrene	22000	u
120-12-7	Anthracene	22000	u
84-74-2	Di-n-Butylphthalate	22000	u
206-44-0	Fluoranthene	22000	u
92-87-5	Benzidine	105600	u
129-00-0	Pyrene	22000	u
85-68-7	Butylbenzylphthalate	22000	u
91-94-1	3,3 -Dichlorobenzidine	44000	u
56-55-3	Benzo(a)Anthracene	22000	u
117-81-7	bis(2-Ethylhexyl)Phthalate	10000 J	~~22000 u~~ DRB 12/19/85
218-01-9	Chrysene	22000	u
117-84-0	Di-n-Octyl Phthalate	22000	u
205-99-2	Benzo(b)Fluoranthene	22000	u
207-08-9	Benzo(k)Fluoranthene	22000	u
50-32-8	Benzo(a)Pyrene	22000	u
193-39-5	Indeno(1,2,3-cd)Pyrene	22000	u
53-70-3	Dibenzo(a,h)Anthracene	22000	u
191-24-2	Benzo(g,h,i)Perylene	22000	u

(1)-Cannot be separated from diphenylamine

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 5)

Pesticide/PCBs

Concentration: Medium
Date Extracted/Prepared: 12/05/85
Date Analyzed: 12/10/85
Conc/Dil Factor: 1

CAS Number		ug/kg	
		**********	
319-84-6	Alpha-BHC	120	u
319-85-7	Beta-BHC	120	u
319-86-8	Delta-BHC	120	u
58-89-9	Gamma-BHC(lindane)	120	u
76-44-8	Heptachlor	120	u
309-00-2	Aldrin	120	u
1024-57-3	Heptachlor Epoxide	120	u
959-98-8	Endosulfan I	120	u
60-57-1	Dieldrin	240	u
72-55-9	4,4 -DDE	240	u
72-20-8	Endrin	240	u
33213-65-9	Endosulfan II	240	u
72-54-8	4,4 -DDD	240	u
7421-93-4	Endrin Aldehyde	240	u
1031-07-8	Endosulfan Sulfate	240	u
50-29-3	4,4 -DDT	240	u
72-43-5	Methoxychlor	1200	u
53494-70-5	Endrin Ketone	240	u
57-74-9	Chlordane	1200	u
8001-35-2	Toxaphene	2400	u
12674-11-2	Aroclor-1016	1200	u
11104-28-2	Aroclor-1221	1200	u
11141-16-5	Aroclor-1232	1200	u
53469-21-9	Aroclor-1242	1200	u
12672-29-6	Aroclor-1248	1200	u
11097-69-1	Aroclor-1254	2400	u
11096-82-5	Aroclor-1260	2400	u

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs or Ws 0.88 Vt 10000 Vi 4

Sample Number
SS-3

Organics Analysis Data Sheet
(Page 6)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	Scan	Estimated concentration ug/kg
**********	**********	****	****	******

NO SEMI-VOLATILE COMPOUNDS FOUND

Field Sampling Records

FIELD SAMPLING RECORD

JOB N/S DEC TRI-CITY BARREL JOB NO. 13305-008-19 DATE 10/16/85
WELL CW-4

SAMPLERS: L. KEEFE OF DOM
J-BROD OF DOM

INITIAL STATIC WATER LEVEL. . . . . _____
(from top of well casing)

PUMPING:
USING: SUBMERSIBLE X - PLANT CENTRIFUGAL ___
NITROGEN ___ POSITIVE DISPLACEMENT ___
BAILED ___ _____ times

DEPTH TO INTAKE FROM TOP OF WELL CASING _____
PUMPED _____ MINUTES AT _____ GPM (> 2 EXCHANGES)

SAMPLING:
TIME 3:00 X a.m. p.m.

BAILER TYPE: KEMMERER ___
STAINLESS STEEL BUCKET BAILER ___
FROM POS. DIS. PUMP DISCHARGE TUBE ___
OTHER FROM FAUCET X

FIELD BLANK
TRIP BLANK I.D. . . . . FIELD BLANK
NO. CONTAINERS FILLED (PRIMARY LAB) 4
NO. CONTAINERS FILLED (REPLICATE SAMPLES) . . . . . _____

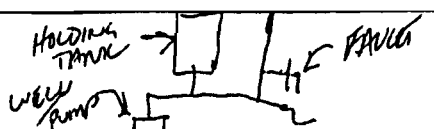
PHYSICAL APPEARANCE AND ODOR _____

REFRIGERATED: DATE 10/16/85 TIME 3:00P

FIELD TESTS:	BEFORE PUMPING ___	AFTER PUMPING X
TEMPERATURE (C°/°F)	_____	13.4 C°
pH	_____	8.29
SPEC. CONDUC (umhos/cm)	_____	475
DISSOLVED OXYGEN (mg/l)	_____	4

WEATHER OVERCAST - PARTLY CLOUDY 65° OF

COMMENTS IN-PLANT WELL - CURRENTLY IN SERVICE - ACTUAL VOL/DAY UNKNOWN BUT IS KNOWN TO FILL BOILER AT LEAST DAILY (500-600g)
FAUCET WAS RUN FOR ~15 MIN BEFORE SAMPLING



WASH BLANK

FIELD SAMPLING RECORD

JOB NAS DEC TRI-CITY BARREL JOB NO. 13305008-19 DATE 10/16/85
WELL WASH BLANK

SAMPLERS: L KEEFE OF DOM
J. BROD OF DOM

INITIAL STATIC WATER LEVEL. . . . . .
(from top of well casing)

PUMPING:
USING: SUBMERSIBLE ___ CENTRIFUGAL ___
NITROGEN ___ POSITIVE DISPLACEMENT ___
BAILED ___ ___ times

DEPTH TO INTAKE FROM TOP OF WELL CASING ___
PUMPED ___ MINUTES AT ___ GPM (> 2 EXCHANGES)

SAMPLING:
TIME 2:00 ___ a.m. X p.m.

BAILER TYPE: KEMMERER ___
STAINLESS STEEL BUCKET BAILER
FROM POS. DIS. PUMP DISCHARGE TUBE X
OTHER ___

FIELD
~~TRIP~~ BLANK I.D. . . . . FIELD BLANK
NO. CONTAINERS FILLED (PRIMARY LAB) 2
NO. CONTAINERS FILLED (REPLICATE SAMPLES) . . . . . ___

PHYSICAL APPEARANCE AND ODOR ___

REFRIGERATED: DATE 10/16/85 TIME 2:00 PM

FIELD TESTS: BEFORE PUMPING ___ AFTER PUMPING ~~XX~~

TEMPERATURE (C°/°F)		
pH		
SPEC. CONDUC (umhos/cm)	/	/
DISSOLVED OXYGEN (mg/l)	/	/

WEATHER OVERCAST / BREEZY / 65°F

COMMENTS ___

FIELD SAMPLING RECORD

JOB NYS DEC ~~CW TRICITY/BARRE~~ JOB NO. 13305-008-19 DATE 10/16/95
WELL CW-2B

SAMPLERS: L Keefe OF D&M
J Brod OF D&M

INITIAL STATIC WATER LEVEL. . . . . 27.96'
(from top of well casing)

PUMPING:
USING: SUBMERSIBLE ___ CENTRIFUGAL ~~X~~
NITROGEN ___ POSITIVE DISPLACEMENT ___
BAILED X 1 Gal ~~times~~

DEPTH TO INTAKE FROM TOP OF WELL CASING 40.4'
PUMPED _____ MINUTES AT _____ GPM (> 2 EXCHANGES)

SAMPLING:
TIME 1:30 X a.m. p.m.

BAILER TYPE: KEMMERER ___
STAINLESS STEEL BUCKET BAILER ___
FROM POS. DIS. PUMP DISCHARGE TUBE X
OTHER _____ ___

~~TRIP~~ FIELD BLANK I.D. . . . . FIELD BLANK
NO. CONTAINERS FILLED (PRIMARY LAB) 4
NO. CONTAINERS FILLED (REPLICATE SAMPLES) . . . . . _____

PHYSICAL APPEARANCE AND ODOR SLCTY / TAN - NO ODOR

REFRIGERATED: DATE 10/16/95 TIME 1:30 PM

FIELD TESTS:	BEFORE PUMPING ___	AFTER PUMPING X
TEMPERATURE (C°/°F)	_____	10.1 C°
pH	_____	7.63
SPEC. CONDUC (umhos/cm)	_____	421
DISSOLVED OXYGEN (mg/l)	_____	3.90

WEATHER OVERCAST BREEZY - 65 °F

COMMENTS INITIAL VOLUMES VERY SLCTY

WASH BLANK TAKEN AFTER CW-2B

FIELD SAMPLING RECORD

JOB NYS Dec TRI-CITY BARREL JOB NO. 13305-008-19 DATE 10/16/85
WELL CW-3

SAMPLERS: LARRY KEARE OF DEC
JOHN BROP OF DEC

INITIAL STATIC WATER LEVEL. . . . . 25.89'
(from top of well casing)

PUMPING:
USING: SUBMERSIBLE ___ CENTRIFUGAL X
NITROGEN ___ POSITIVE DISPLACEMENT ___
BAILED ___ _____ times

DEPTH TO INTAKE FROM TOP OF WELL CASING 40.14'
PUMPED 7ga ~~MINUTES AT _____~~ GPM (> 2 EXCHANGES)

SAMPLING: TIME 12:30 ___ a.m. X p.m.

BAILER TYPE: KEMMERER ___
STAINLESS STEEL BUCKET BAILER ___
FROM POS. DIS. PUMP DISCHARGE TUBE X
OTHER _____ ___

~~FIELD TRIP~~ BLANK I.D. . . . . FIELD BLANK
NO. CONTAINERS FILLED (PRIMARY LAB) 4
NO. CONTAINERS FILLED (REPLICATE SAMPLES) . . . . . _____

PHYSICAL APPEARANCE AND ODOR SILTY/TAN -NO ODOR

REFRIGERATED: DATE 10/16/85 TIME 12:30 P

FIELD TESTS:	BEFORE PUMPING ___	AFTER PUMPING X
TEMPERATURE (C°/°F)	_____	12.3C°
pH	_____	7.80
SPEC. CONDUC (umhos/cm)	_____	510
DISSOLVED OXYGEN (mg/l)	_____	3.76

WEATHER OVERCAST / 65°F

COMMENTS INITIAL VOLUMES VERY SILTY

FIELD SAMPLING RECORD

JOB ~~TRI-CITY BARREL~~ M/S DEC JOB NO. 13305-008-19 DATE 10/16/85

WELL GW-1

SAMPLERS: L. KEEFE OF DAM

S. BROD OF DAM

INITIAL STATIC WATER LEVEL. . . . . 15.34'
(from top of well casing)

PUMPING:

USING: SUBMERSIBLE ___ CENTRIFUGAL X

NITROGEN ___ POSITIVE DISPLACEMENT ___

BAILED ___ ______ times

DEPTH TO INTAKE FROM TOP OF WELL CASING 25.65'

PUMPED 10G ~~MINUTES~~ AT ______ GPM (> 2 EXCHANGES)

SAMPLING: TIME 10:30 X a.m. ___ p.m.

BAILER TYPE: KEMMERER ___

STAINLESS STEEL BUCKET BAILER X

FROM POS. DIS. PUMP DISCHARGE TUBE ___

OTHER ______ ___

~~TRIP~~ FIELD BLANK I.D. . . . . FIELD BLANK

NO. CONTAINERS FILLED (PRIMARY LAB) 4

NO. CONTAINERS FILLED (REPLICATE SAMPLES) . . . . ______

PHYSICAL APPEARANCE AND ODOR TAN / SILTY

REFRIGERATED: DATE 10/16/85 TIME 10:30 A

FIELD TESTS: BEFORE PUMPING ___ AFTER PUMPING X

	BEFORE PUMPING	AFTER PUMPING
TEMPERATURE (C°/°F)		11.7 C°
pH		7.50
SPEC. CONDUC (umhos/cm)		440
DISSOLVED OXYGEN (mg/l)		3.26

WEATHER CLEAR / 65°F

COMMENTS INITIAL VOLUMES VERY SILTY

1.5.3

SURFACE SAMPLING RECORD

SAMPLE ID NO. SS-3

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 5:30p

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY

SAMPLERS John C. Brael OF Dames and Moore

George Moreau OF " "

SAMPLE CLASSIFICATION: SURFACE WATER ☐ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☐ SOIL ☒ WASTE ☐ OTHER ☐

SAMPLE FROM: STREAM/RIVER ☐ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☒ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☐

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☐ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☒ STAINLESS SPOON/TROWEL ☐

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1, 2 FIELD ~~(WASH)~~ BLANK ID FB-1, 2

CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SS-3

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SS-3

TEST FOR Organics (GC/MS scan), Metals

FILTERED (LIST ID NOS.): NA

PHYSICAL APPEARANCE AND ODOR Slight to ~~mod~~ mild chemical odor, normal appearance

REFRIGERATED: DATE 11/25/85 TIME 5:30 pm DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	NA	NA
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (MG/L)		
OTHER:		UNITS

WEATHER Cold, (35°F), dark

COMMENTS Sample hand augered to ~4.0', HNu readings were 55-65 ppm.

7.5.3

SURFACE SAMPLING RECORD

SAMPLE ID NO. SD-1

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 12:30p

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY, Osborne Creek

SAMPLERS John C. Brod OF Dames and Moore

George Moreau OF " "

SAMPLE CLASSIFICATION: SURFACE WATER ☐ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☒ SOIL ☐ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☒ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☐ _____

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☐ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☒

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD (~~BLIGH~~) BLANK ID EB-1,2
CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SD-1

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SD-1
TEST FOR Organics (GC/MS Scan), Metals
FILTERED (LIST ID NOS.): NA
PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 12:30p DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	NA	NA
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (MG/L)		
OTHER: _____		UNITS

WEATHER Cold (35° F), Clear

COMMENTS Sampled upgradient of Tri-City Barrel Site.

1.5.5

SURFACE SAMPLING RECORD

SAMPLE ID NO. SS-2

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 10:35 AM

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY

SAMPLERS John Brod OF Dames and Moore
George Moreau OF " "

SAMPLE CLASSIFICATION: SURFACE WATER ☐ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☐ SOIL ☒ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☐ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☒ COMMERCIAL ☐ OTHER ~~☐~~ _____

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☐ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☒

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID FB-1, 2 FIELD (~~WASH~~) BLANK ID FB-1, 2
CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SS-2

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SS-2
TEST FOR Organics (GC/MS Scan), Metals
FILTERED (LIST ID NOS.): NA
PHYSICAL APPEARANCE AND ODOR Slight chemical odor, / Normal appearance.

REFRIGERATED: DATE 11/25/85 TIME 10:50 AM DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	NA	NA
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (MG/L)		
OTHER: _____		UNITS

WEATHER Cold (35°F), Clear

COMMENTS Sample taken from representative location in drum storage area.

1.5.3

SURFACE SAMPLING RECORD

SAMPLE ID NO. SS-1

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 10:15am

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY

SAMPLERS John Brod OF Dames and Moore

George Moraru OF Dames and Moore

SAMPLE CLASSIFICATION: SURFACE WATER ☐ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☐ SOIL ☒ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☐ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☒ Field

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☐ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☒

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD ~~(WASH)~~ BLANK ID FB-1,2

CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SS-1

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SS-1

TEST FOR Organics (GC/MS scan), Metals

FILTERED (LIST ID NOS.): _____

PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/ TIME 10:30AM DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	NA	NA
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (~~mg/l~~ ppm		
OTHER: _____		UNITS

WEATHER Cold (35° F), Clear

COMMENTS Sampled near up gradient well, CW-1

1.5.2

SURFACE SAMPLING RECORD

SAMPLE ID NO. SD-3

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 3:00 p

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY Drainage Ditch

SAMPLERS John Brod OF Dames + Moore

George Moran OF "

SAMPLE CLASSIFICATION: SURFACE WATER ☐ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☒ SOIL ☐ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☐ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☒ Drainage ditch

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☒ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: UI ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☒

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD (~~WASTE~~) BLANK ID FB-1,2

CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SD-3

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SD-3

TEST FOR Organics (GC/Mass Scan), Metals

FILTERED (LIST ID NOS.): N/A

PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 3:00 p.m. DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	N/A	N/A
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (MG/L)		
OTHER: _____		UNITS

WEATHER Cold 35°F Clear

COMMENTS Sampled from drainage ditch To east of Tri-City Site

1.5.2

SURFACE SAMPLING RECORD

SAMPLE ID NO. SD-2

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 1:30 pm

SITE INDENTIFICATION: Tri-City Barrel BAT Grove, NY Osborne Creek

SAMPLERS John Brod OF Dames & Moore

George Morran OF Dames & Moore

SAMPLE CLASSIFICATION: SURFACE WATER ☒ INFILTRATION WATER ☐

LEACHATE ☐ SEDIMENT ☒ SOIL ☐ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☒ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐

PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐

SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☐ _____

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐

DIRECT FILL CONTAINER ☐ REMOTE FILL ☐ DIPPER JAR/CAN ☐ BACON BOMB ☐

PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐

SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐

STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐

HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☒

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD ~~(WASH)~~ BLANK ID FB-1,2

CONTAINERS FILLED (PRIMARY): NO. 1 LIST ID NOS.: SD-2

CONTAINERS FILLED (REPLICATES): NO. 1 LIST ID NOS.: SD-2

TEST FOR Organics (GC/MS Scan), Metals

FILTERED (LIST ID NOS.): N/A

PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 1:30pm DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)	N/A	N/A
PH		
SPEC. CONDUCTIVITY (µMHOS/CM)		
DISSOLVED OXYGEN (MG/L)		
OTHER: _____		UNITS

WEATHER Cold (35°F) Clear

COMMENTS Sampled Downgradient of Tri-City Barrel Site

7.5.1

SURFACE SAMPLING RECORD

SAMPLE ID NO. S-3

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 3:00 pm
SITE INDENTIFICATION: Tri-City Barrel, Port Crane NY Drainage ditch
SAMPLERS John Boyd OF Dames & Moore
George Morrow OF "

SAMPLE CLASSIFICATION: SURFACE WATER ☒ INFILTRATION WATER ☐
LEACHATE ☐ SEDIMENT ☐ SOIL ☐ WASTE ☐ OTHER ☐

SAMPLE FROM: STREAM/RIVER ☐ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐
PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐
SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☒ Drainage Ditc

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐
DIRECT FILL CONTAINER ☒ REMOTE FILL ☐ DIPPER JAR/CAN ☒ BACON BOMB ☐
PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP
SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐
STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐
HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☐

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD (~~WASH~~) BLANK ID FB-1,2
CONTAINERS FILLED (PRIMARY): NO. 3 LIST ID NOS.: S-3

CONTAINERS FILLED (REPLICATES): NO. 2 LIST ID NOS.: S-3
TEST FOR Organics (GC/MS) Scan, Metals
FILTERED (LIST ID NOS.): N/A
PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 3:00 pm DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)		2.6°C
PH		6.85
SPEC. CONDUCTIVITY (µMHOS/CM)		78.8
DISSOLVED OXYGEN (MG/L)		10.76
OTHER:		UNITS

WEATHER Cold (35°F) clear

COMMENTS Sampled drainage ditch east of Tri-City site

1.5.1

SURFACE SAMPLING RECORD

SAMPLE ID NO. S-2

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 1:30pm

SITE INDENTIFICATION: Tri-City Barrel Port Crane NY Osborne Creek

SAMPLERS John Brod OF Dames & Moore

George Moreau OF "

SAMPLE CLASSIFICATION: SURFACE WATER ☒ INFILTRATION WATER ☐

LEACHATE ☐ SEDIMENT ☐ SOIL ☐ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER ☒ LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐

PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐

SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☐ _____

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐

DIRECT FILL CONTAINER ☒ REMOTE FILL ☐ DIPPER JAR/CAN ☒ BACON BOMB ☐

PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐

SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐

STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐

HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☐

SAMPLE TYPE: POINT ☐ GRAB ☒ COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD (~~WASH~~) BLANK ID FB-1,2

CONTAINERS FILLED (PRIMARY): NO. 3 LIST ID NOS.: S-2

CONTAINERS FILLED (REPLICATES): NO. 2 LIST ID NOS.: S-2

TEST FOR Organics (GC/MS Scan), Metals

FILTERED (LIST ID NOS.): NA

PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 1:30pm DRY ICE: YES ☐ NO ☒

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)		3.6°C
PH		6.95
SPEC. CONDUCTIVITY (µMHOS/CM)		115.2
DISSOLVED OXYGEN (MG/L)		8.60
OTHER: _____		UNITS

WEATHER Cold (35°F) clear

COMMENTS Sampled Downgradient of Tri-City Barrel Site

7.5.1

SURFACE SAMPLING RECORD

SAMPLE ID NO. S-1

JOB Tri-City Barrel JOB NO. 13305-008 DATE 11/25/85 TIME 12:30p

SITE INDENTIFICATION: Tri-City Barrel, Port Crane, NY Osborne Creek

SAMPLERS John C. Brod OF Dames and Moore

George Moreau OF " "

SAMPLE CLASSIFICATION: SURFACE WATER X INFILTRATION WATER ☐

LEACHATE ☐ SEDIMENT ☐ SOIL ☐ WASTE ☐ OTHER ☐ _____

SAMPLE FROM: STREAM/RIVER X LAKE/POND ☐ SEEP ☐ LAGOON ☐ TANK ☐

PIPE OUTFALL ☐ DRUM ☐ EXCAVATION ☐ BORING ☐ EMBANKMENT ☐

SURFACE: RESIDENTIAL ☐ INDUSTRIAL ☐ COMMERCIAL ☐ OTHER ☐ _____

SAMPLING METHOD: SAMPLING BOTTLE: KEMMERER ☐ ALPHA ☐ BETA ☐ SEWAGE ☐

DIRECT FILL CONTAINER X REMOTE FILL ☐ DIPPER JAR/CAN X BACON BOMB ☐

PIPETTE ☐ VACUUM JAR ☐ PERISTALTIC PUMP ☐ POSITIVE DISPLACEMENT PUMP ☐

SEEPAGE METER ☐ BAILER ☐ BOTTOM SAMPLER/DREDGE ☐ CORE SAMPLER ☐

STANDARD SPLIT SPOON ☐ D&M SAMPLER: U1 ☐ THIN-WALL ☐ PISTON TUBE ☐

HAND DRIVEN PISTON TUBE ☐ HAND AUGER ☐ STAINLESS SPOON/TROWEL ☐

SAMPLE TYPE: POINT ☐ GRAB X COMPOSITE ☐

~~ATMOSPHERIC~~ TRIP BLANK ID TB-1,2 FIELD ~~WASH~~ BLANK ID FB-1;2

CONTAINERS FILLED (PRIMARY): NO. 3 LIST ID NOS.: S-1

CONTAINERS FILLED (REPLICATES): NO. 2 LIST ID NOS.: S-1

TEST FOR Organics (GC/MS scan), Metals

FILTERED (LIST ID NOS.): NA

PHYSICAL APPEARANCE AND ODOR Normal

REFRIGERATED: DATE 11/25/85 TIME 12:30p DRY ICE: YES ☐ NO X

FIELD TESTS:	METER ID NO.	TEST VALUE
TEMPERATURE (°C/°F)		3.3° C
PH		6.72
SPEC. CONDUCTIVITY (µMHOS/CM)		115.8
DISSOLVED OXYGEN (MG/L)		10.10
OTHER:		UNITS

WEATHER Cold (35° F), Clear

COMMENTS Sampled up gradient of Tri-City Barrel site

HNu Air Quality Survey

FIELD MEMORANDUM

ACTION	INFO	
To:	AMS	File: 13305-00B
	EDG	TRI-CITY BARREL
		X-Ref:
		Date: 9-9-85 MON

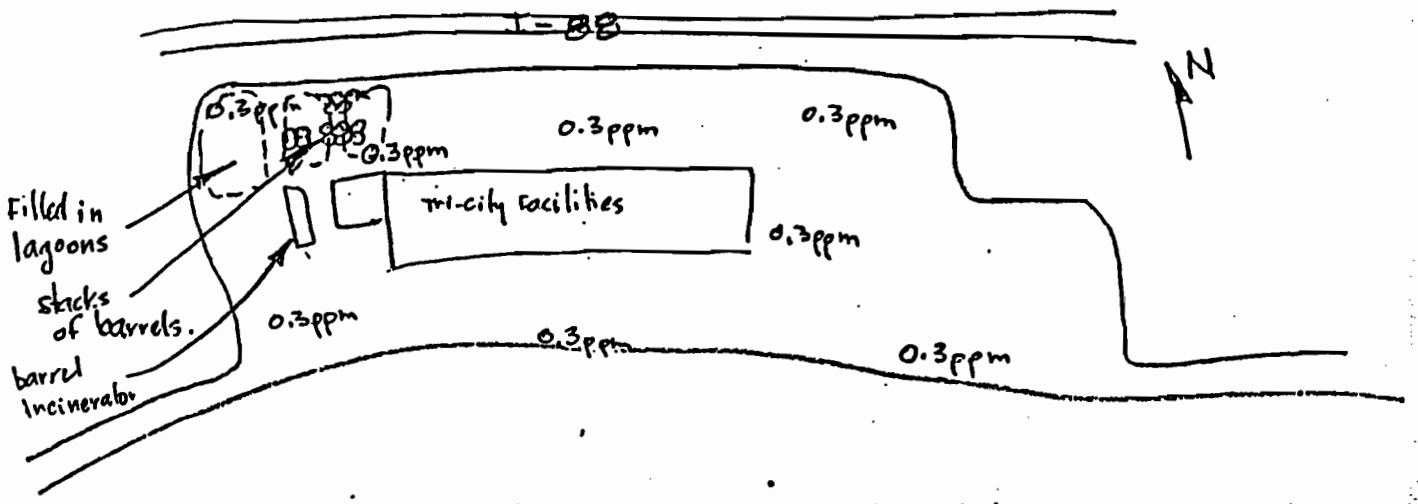
From: JCBrod — Reply Required By:

Subject: Daily Field Activities CW-1 — Page 1 of 2

Reference(s):

6:45AM: Leave Site. office.

9:30AM: Arrive site. Met by Tri-City employee. He pointed out where the lagoons were Walked site, noticed several full barrels - ran HNu over them, no reading. Upwind and downwind air survey was done as follows:



10:45AM George arrives. Walk site - select downgradient well locations.
Called Art about placement of upgradient well - said to go by geophysical maps. Located upgradient (CW-1) across the street to the south of the Tri-City facilities on Tri-City property.

12:00pm: Called Darrell Wolff - said drillers had left @ ~ 11:00AM.

12:00 - 12:30pm Lunch

12:30pm Drillers arrive site.
Set up staging area, started steam cleaning dirty equipment. I told drillers about tremying bentonite and sand. He said that they didn't get any special instructions from Stephan Wolff - Driller will call Stephan to clear up any problems.

ROUTING

APPENDIX E

UPDATED INACTIVE HAZARDOUS WASTE DISOSAL SITE REPORT

(47-15-11 (10/83)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

PRIORITY CODE: 2 SITE CODE: 704005

NAME OF SITE: Tri-Cities Barrel REGION: 7

STREET ADDRESS: Old Route 7

TOWN/CITY: Fenton COUNTY: Broome

NAME OF CURRENT OWNER OF SITE: Tri-Cities Barrel

ADDRESS OF CURRENT OWNER OF SITE: R.D. 1, Box 88, Port Crane, NY

TYPE OF SITE: OPEN DUMP ☐ STRUCTURE ☐ LAGOON ☒
LANDFILL ☐ TREATMENT POND ☐

ESTIMATED SIZE: 2 ACRES

SITE DESCRIPTION:

Tri-Cities Barrel is located adjacent to Route 7, Town of Fenton, Broome County, New York. The firm is in the business of reconditioning used barrels. The process basically involves cleaning the barrels by washing or burning out the interiors and repainting. Although wastewater from washing is currently discharged to a holding tank and hauled off-site for disposal, the wastewater was previously discharged to unlined lagoons and allowed to evaporate. The lagoons were pumped out and backfilled in 1980.

A Phase II investigation was completed in December 1985. Arochlor 1242 and Chlordane were detected in the downgradient well at concentrations higher than the NYSDEC Water Quality limits. Other organic compounds, including trans-1,2-dichloroethene, trichloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane, toluene, and bis-2ethyl-hexylphthalate were also detected in the groundwater. No contamination was found in the surface water. Several organic compounds were also found in a soil sample collected from an auger hole.

HAZARDOUS WASTE DISPOSED: CONFIRMED ☒ SUSPECTED ☐

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)
Methylene chloride, freon, dichloroethylene,	Unknown
toluene, xylene, styrene, various others,	
methyl ether, phenol, other assorted	
chemicals and sodium hydroxide	

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

_____, 19 73 TO _____, 19 80

OWNER(S) DURING PERIOD OF USE: Tri-Cities Barrel, Inc.

SITE OPERATOR DURING PERIOD OF USE: Gary & Francis Warner

ADDRESS OF SITE OPERATOR: R.D. 1, Box 88, Port Crane, NY

ANALYTICAL DATA AVAILABLE: AIR [ ] SURFACE WATER [x] GROUNDWATER [x]
SOIL [x] SEDIMENT [x] NONE [ ]

CONTRAVENTION OF STANDARDS: GROUNDWATER [x] DRINKING WATER [ ]
SURFACE WATER [ ] AIR [ ]

SOIL TYPE: Sandy silt mixtures, clay and gravel

DEPTH TO GROUNDWATER TABLE: 27 feet

LEGAL ACTION: TYPE: Consent Order STATE [x] FEDERAL [ ]
STATUS: IN PROGRESS [ ] COMPLETED [x]
REMEDIAL ACTION: PROPOSED [ ] UNDER DESIGN [ ]
IN PROGRESS [ ] COMPLETED [x]

NATURE OF ACTION: Lagoons filled in, 1980. Further action proposed in Phase II report.

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Groundwater and soil contamination with several organic compounds.

ASSESSMENT OF HEALTH PROBLEMS:

Potential contamination of nearby private drinking water wells with organic compounds.

PERSON(S) COMPLETING THIS FORM:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME Susan Powers (ES)
TITLE Environmental Engineer
NAME _____
TITLE _____
DATE: 5/30/86

NEW YORK STATE DEPARTMENT OF HEALTH

NAME _____
TITLE _____
NAME _____
TITLE _____
DATE: _____