2021 Hazardous Waste Scanning Project

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REMEDIAL INVESTIGATION (RI) REPORT
VOLUME II - APPENDICES A TO N

Niagara County Refuse Site
Wheatfield, New York

REMEDIAL INVESTIGATION (RI) REPORT
VOLUME II - APPENDICES A TO P

Niagara County Refuse Site
Wheatfield, New York

JULY 1992

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CONESTOGA-ROVERS & ASSOCIATES

LIST OF APPENDICES

APPENDIX A	SUMMARY OF PREVIOUS SUBSURFACE EXPLORATION PROGRAMS	Volume II
APPENDIX B	GEOPHYSICAL INVESTIGATION REPORT	Volume II
APPENDIX C	AMBIENT AIR SAMPLING REPORT	Volume II
APPENDIX D	VEGETATION AND FAUNAL SURVEY REPORT	Volume II
APPENDIX E	STRATIGRAPHIC AND INSTRUMENTATION LOGS	Volume II
APPENDIX F	POTABLE WATER TCL/TAL ANALYTICAL DATA REPORT	Volume II
APPENDIX G	GEOTECHNICAL SOILS TESTING DATA	Volume II
APPENDIX H	WELL DEVELOPMENT LOGS	Volume II
APPENDIX I	SLURRY TEST DATA AND HYDRAULIC CONDUCTIVITY CALCULATIONS	Volume II
APPENDIX J	PACKER INJECTION TEST DATA AND HYDRAULIC CONDUCTIVITY CALCULATIONS	Volume II
APPENDIX K	COMPLETE ANALYTICAL DATA SUMMARY	Volume II
APPENDIX L	DATA ASSESSMENT AND VALIDATION	Volume II
APPENDIX M	BASELINE RISK ASSESSMENT CALCULATIONS	Volume II
APPENDIX N	CONCENTRATIONS OF CONSTITUENTS IN LEACHATE FROM MUNICIPAL SOLID WASTE LANDFILLS	Volume II
FORM I LABORATORY DATA REPORTS		Volume III

APPENDIX A

SUMMARY OF PREVIOUS SUBSURFACE EXPLORATION PROGRAMS

TABLE 2-2

NIAGARA COUNTY REFUSE SITE
SUMMARY OF PREVIOUS SUBSURFACE EXPLORATION PROGRAMS

(Borehole locations shown in Figure 2-4)

EA SCIENCE AND TECHNOLOGY (1985)

Hole #	Total Depth	Interval	Description/Remarks
A	17′	0- 6	Sandy silt, w/asphalt and alum. debris
		6-10	Soft brown clay
		10-15	Silt w/ rock fragments, oil, ashpalt, paper, wire, etc.
B	27′	0- 2	Brown, dry, soft silt
		2-24	Fill: oily gray ash, sludge, wood
		24-27	Brown clay, very soft
C	43.5′	0- 5	Sandy silt with rock frags., fill cap
		5-43.5	Fill: Gray ash, paper, oil, wire, plastic, gray solids
		43.5	Weathered shale bedrock (refusal)
D	40′	0- 4	Sandy silt with rock frags., fill cap
		4-38	Fill: Dark gray solids, oil, black liquid, nails, scrap metal, etc.
		38-40	Soft clay

PVC monitoring wells installed in all borings. Groundwater sampling is planned for wells that are still operable.

NUS CORPORATION (1983)

Hole #	Total Depth	Interval	Description/Remarks
1	47′	0-31	Soft to moderately dense mottled clay
		31-35	Grayish brown till
		35-47	Gray limey shale, v. fractured
2	46′	0-5	Dense mottled clay
		5-38	Grayish brown till
		38-52	Gray dolostone, v. fractured
3	54′	0-17	Moderately dense clay
		17-42	Grayish brown till
		42-54	Gray dolostone

NUS CORPORATION (Cont.)

Hole #	Total Depth	Interval	Description/Remarks
4	58'	0-17	Moderately dense mottled clay
		17-46	Grayish brown till
		46-58	Gray dolostone, v. fractured
	65'	0-36	Moderately dense brown clay
		36-55	Grayish brown till
		55-65	Gray limey shale, fractured

Bedrock monitoring wells installed in all NUS borings. Groundwater sampling is planned for wells that are still operable.

RECRA RESEARCH SUMMIT PARK (1982)

Hole #	Total Depth	Interval	Description/Remarks
1	3'	0-2.5	Sandy silt and silty sand
		2.5-3.0	Orange clay and some sand
2	3'	0- 2	Sandy silt and sand
		2- 3	Sandy clay, moist , plastic
3	3.2'	0- 3	Clayey sand and sand
		3- 3.2	Red brown gray mottled clay, moist

USGEOLOGICAL SURVEY (1982)

Hole #	Total Depth	Interval	Description/Remarks
1	13.4	0- 1.6	Topsoil
		1.6- 2.6	Fill
		2.6-11.7	Clay, pink, tight, dry
		11.7-13.4	Clay, pink, wet
2	11.4	0- 1.5	Topsoil
		1.5-10.9	Clay, tan, tight
		10.9-11.4	Caly, tan, wet
3	9.5	0- 1.5	Topsoil
		1.5- 9.5	Clay, pink, dry
4	11.5	0-0.75	Clay, pink
		0.75- 3.5	Organic material, black, wet
		3.5- 4.5	Clay, green
		4.5-11.5	Clay, pink

TABLE 2-2 (Cont.)

US GEOLOGICAL SURVEY (Con't)

Hole #	Total Depth	Interval	Description/Remarks
5	?	?	May correspond to RR well 1 (1979)
6	?	?	May correspond to RR well 2 (1979)
6A	16.5	0- 3.5	Clay, buff, (location unknown)
		3.5-16.5	Clay, pink
7	7.0	0- 1.5	Topsoil
		1.5- 7.0	Clay, pink
8	11.5	0- 1.5	Topsoil
		1.5- 6.5	Clay, pink, dry
		6.5-11.5	Clay, pink, wet
9	11.5	0- 1.5	Road fill
		1.5- 6.5	Clay, pink, dry
		6.5-11.5	Clay, pink, wet
10	3.0	0- 1.5	Clay, sandy, gray
		1.5- 3.0	Clay, pink
11	3.0	0- 1.5	Clay, sandy, gray
		1.5- 3.0	Clay, pink
12	?	?	No log available

If wells in holes 5 & 6 are in an operable condition, groundwater level measurements will be taken in these wells.

RECRA RESEARCH (1979, FOR TOWN OF N. TONAWANDA)

Hole #	Total Depth	Interval	Description/Remarks
1	35 (?)	0- 2	Topsoil (from NCHD notes)
		2- 4	Silt and sand
		4-10	Clay with some gravel
		10-35	Silt with some clay and sand in lenses
2	35 (?)	0- 2	Topsoil (from NCHD notes)
		2- 4	Silt and sand
		4-10	Clay with some gravel
		10-35	Silt with some clay and sand in lenses

TABLE 2-2 (Cont.)

NIAGARA COUNTY REFUSE DISPOSAL DISTRICT (1969)

Hole #	Total Depth	Interval	Description/Remarks
10	15.5	0- 1.0	Topsoil
		1.0- 5.0	Sandy loam
		5.0-15.5	Hard clay
11	16.0	0- 1.0	Topsoil
		1.0- 3.5	Sandy loam
		3.5-16.0	Hard clay
12	15.0	0- 1.0	Topsoil
		1.0- 3.0	Sandy loam
		3.0-10.5	Hard clay
		10.5-15.0	Soft clay
13	12.5	0- 1.0	Topsoil (location unknown)
		1.0- 3.5	Sandy loam
		3.5- 9.5	Hard clay
		9.5-12.5	Soft clay
14	17.0	0- 1.0	Topsoil (location unknown)
		1.0- 4.0	Sandy loam
		4.0- 9.0	Hard clay
		9.0-17.0	Soft clay

Field activities will include a reconnaisance to identify previous soil boring locations, and to document the condition of any monitoring wells which may still be extant.

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APPENDIX B

GEOPHYSICAL INVESTIGATION REPORT

TABLE OF CONTENTS

Page

B.1.0 INTRODUCTION 1

B.2.0 FIELD METHODS 2
B.2.1 REFERENCE BASELINE SURVEY 2
B.2.2 INSTRUMENTATION 3
B.2.3 FIELD PROCEDURES 4
B.2.4 DATA PRESENTATION 5

B.3.0 ELECTROMAGNETIC TERRAIN CONDUCTIVITY RESULTS 6
B.3.1 HORIZONTAL DIPOLE RESULTS (10 METER COIL SEPARATION) 6
B.3.2 VERTICAL DIPOLE RESULTS (10 METER COIL SEPARATION) 8
B.3.3 HORIZONTAL DIPOLE RESULTS (20 METER COILSEPARATION) 10
B.3.4 VERTICAL DIPOLE RESULTS (20 METER COIL SEPARATION) 10

B.4.0 INTERPRETATION OF THE RESULTS 12
B.4.1 WESTERN SITE PERIMETER 12
B.4.2 NORTHERN SITE PERIMETER 13
B.4.3 EASTERN SITE PERIMETER 15
B.4.4 SOUTHERN SITE PERIMETER 16

B.5.0 CONCLUSION 18

LIST OF PLANS

PLAN 1	EM34-3 HORIZONTAL DIPOLES (10 METER COIL SEPARATION)	IN POCKET
PLAN 2	EM34-3 VERTICAL DIPOLES (10 METER COIL SEPARATION)	IN POCKET
PLAN 3	EM34-3 HORIZONTAL DIPOLES (20 METER COIL SEPARATION)	IN POCKET
PLAN 4	EM34-3 VERTICAL DIPOLES (20 METER COIL SEPARATION)	IN POCKET

B.1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) performed, as part of the RI at the Niagara County Refuse Site (Site), a geophysical investigation employing terrain conductivity instrumentation between June 5, 1990 and June 9, 1990. The objectives of the survey were to define the extent of the landfill cells; to aid in the determination of the distribution of any subsurface contamination at the Site; and to establish a basis for the relocation of the groundwater monitoring well installations proposed in the POP (CRA 1990a).

This report presents the results of the geophysical investigation. An interpretation of the results, addressing the above outlined objectives is also presented, with supporting plans in pockets, where appropriate.

B.2.0 FIELD METHODS

The geophysical investigation conducted at the Site consisted of electromagnetic conductivity profiling of the Site perimeter utilizing a Geonics EM-34-3 terrain conductivity meter. A description of the field methods employed is presented in the following subsections.

B.2.1 REFERENCE BASELINE SURVEY

Prior to commencing any geophysical surveys at the Site, a reference baseline was surveyed around the entire perimeter of the Site by Niagara Boundary and Mapping Services, between June 4 and June 8, 1990.

The origin for the baseline was established at an existing railroad (RR) spike located at the approximate centerline of the intersection of Warner Road and Boston Avenue. An assumed coordinate of 10000N, 10000E was assigned to this point.

Stations were established at 25-foot intervals along the baseline and marked with stakes driven into the ground. Survey hubs were established at turning points and key locations on the reference line, as permanent features, to ensure the reproducibility of the baseline. In total, 9,044 feet of reference baseline was surveyed.

B.2.2 INSTRUMENTATION

A Geonics EM-34-3 Terrain Conductivity Meter was utilized in order to conduct the electromagnetic survey at the Site. The instrument consists of a transmitter and a receiver coil connected by interchangeable cables of 10, 20 and 40 meters (33, 66 and 131 feet) length. A current is passed through the transmitter coil which induces secondary currents in the ground. These currents in turn induce a current in the receiver coil which is proportional to the strength of the secondary currents. Measures of terrain conductivity are read directly from the instrument as conductance in mmhos/meter (mmhos/m).

Measures of terrain conductivity utilizing the EM-34-3 instrument can be made in both the horizontal dipole orientation (coils positioned vertically) and the vertical dipole orientation (coils positioned horizontally). This fact along with the ability of the coil-to-coil separation to be varied effectively allows the depth of investigation to be varied. With a 10 meter (33 feet) coil separation, the effective depth of investigation is approximately 7.5 meters (24.5 feet) in the horizontal dipole orientation and 15 meters (49 feet) in the vertical dipole orientation. At a coil separation of 20 meters (66 feet), the effective depth of investigation is approximately 15 meters (49 feet) in the horizontal dipole orientation and 30 meters (98.5 feet) in the vertical dipole orientation.

B.2.3 FIELD PROCEDURES

Prior to initiating the field survey, the EM-34-3 unit was calibrated following the protocol outlined in the manufacturer's "EM-34-3 Operating Instruction Manual". Once properly calibrated, the survey was commenced.

An initial survey was conducted with a 10 meter (33 feet) coil separation. Measurements of terrain conductivity were recorded by aligning the midpoint of the intercoil separation with the presurveyed station markers. At each station, terrain conductivity was measured in both the horizontal and vertical dipole orientations. The survey proceeded in this fashion around the entire perimeter of the Site.

During the survey, if any anomalous readings of terrain conductivity were recorded over any appreciable length of survey line, an off-set line was established at a distance of 100 feet, parallel to the initial baseline, in an off-Site direction. Terrain conductivity measurements were recorded along the off-set line at 25-foot intervals which coincided with the presurveyed stations. This procedure of off-set line surveying was repeated until the extent of the anomalous conductivity zone was delineated.

All data collected was recorded in a hard-cover bound field logbook. Notes on any surficial cultural interference or noise or any observed field conditions which may affect or aid in the interpretation of the terrain conductivity survey were recorded. A total of 14,410 feet of line was surveyed at a coil separation of 10 meters (33 feet).

Upon completion of the initial survey, the data was examined and compiled. A second survey with an intercoil spacing of 20 meters (66 feet) was then conducted over areas which displayed anomalous terrain conductivity values in the 10-meter (33-foot) coil separation. Field procedures for the 20-meter (66-foot) intercoil spacing were similar to those employed for the 10-meter (33-foot) coil spacing, with the exception of the station spacing, which was at 100-foot intervals. A total of 5,200 feet of survey was conducted at an intercoil spacing of 20 meters (66 feet).

B.2.4 DATA PRESENTATION

The terrain conductivity data collected at the Site is presented on a series of four plans (Plans 1 to 4, inclusive).

- Plan 1 - Horizontal Dipole Results (10 meter separation)
- Plan 2 - Vertical Dipole Results (10 meter separation)
- Plan 3 - Horizontal Dipole Results (20 meter separation)
- Plan 4 - Vertical Dipole Results (20 meter separation)

Each plan presents data specific to the instrument configurations of intercoil spacing and dipole orientation. The survey stations are tied into and superimposed on a plan showing the existing Site conditions.

B.3.0 ELECTROMAGNETIC TERRAIN CONDUCTIVITY RESULTS

The following sections present and describe the results of the four survey components and an interpretation of the results.

Examination of the results of all four surveys indicate that background terrain conductivity values are approximately 20 mmhos/m. For the purpose of delineating any anomalous regions of terrain conductivity at the Site, a 'cut-off' value of 30 mmhos/m is considered to be background.

B.3.1 HORIZONTAL DIPOLE RESULTS (10 METER COIL SEPARATION)

Terrain conductivity readings recorded in the horizontal dipole orientation with a coil separation of 10 meters (33 feet) (Plan 1) indicate that conductivity values over a large portion of the Site perimeter are greater than background and that extremely conductive zones, as indicated by negative conductivity values were also located.

Terrain conductivity profiling along the western Site perimeter shows that greater than background conductivity values, ranging from 30 to approximately 50 mmhos/m were recorded from stations 11150N to 13770N. Anomalously high values of 110 to 135 mmhos/m were recorded on off-set line 9425E, east of the main profile line, between 12300N and 12500N. Another off-set line, 9300E, west of the main profile line, reflects background conductivity values.

Conductivity values for line 9575E and tie-line 11030N as well as the southern end of line 9365E are indicative of background values.

At the northern Site boundary along tie-line 13650N extremely conductive terrain readings were recorded as indicated by the strong negative values (-35 to -110 mmhos/m). Extreme conductivity values were also recorded on tie-line 13750N and above background values were recorded along the entire profile. Greater than background conductivity of 30 to 70 mmhos/m was recorded in the central segments of the tie-lines 13850N and 13950N.

Along the eastern Site perimeter, continuous high conductivity readings ranging up to 100 mmhos/m were recorded along lines 10100E, 10150E and 10200E. Two zones of anomalously high conductivity, as indicated by negative values, were also located along line 10150E between 12250N and 12350N and line 10200E between 12525N and 12600N. The southern segment of line 10100E displays conductive zones between 10025N and 10600N. Off-set lines 10250E and 10300E show conductivity readings the same as background values. Along tie-line 13000N, negative conductivity values indicating extremely high conductive zones were recorded at the end segments of the line, while in the central segment, conductivity values ranged from 40 to 80 mmhos/m. Values along tie-line 13100N, north of tie-line 13000N, are the same as background values. Line 9800E, located at the north end of the Site, along the eastern perimeter, displays conductivity values ranging from 40 to 80 mmhos/m between 13150N and 13475N. Along line 9900E, located to the east of line 9800E, values are the same as background levels.

At the southern Site boundary, three tie-lines, 9850N, 9750N and 9650N all display above background terrain conductance with segments of extremely high conductance.

B.3.2 VERTICAL DIPOLE RESULTS (10 METER COIL SEPARATION)

Results for the terrain conductivity survey conducted in a vertical dipole orientation with a coil separation of 10 meters (33 feet) (Plan 2) indicates that ground conductivity exceeds background values along the perimeter of the Site north of 11150N; at the southern Site boundary; and along the southern segment of the eastern Site perimeter between 10000N and 10575N.

Terrain conductivity profiling along the western perimeter of the Site indicates that a zone of conductance exists from 11200N, northward to the north Site limit. Terrain conductivity values here generally range from 30 to 40 mmhos/m. A segment of high ground conductivity, between 70 and 90 mmhos/m, was recorded on off-set line 9425E, east of the main profile line. General background values were found along the off-set line 9300E, west of the main profile line. To the south of 11200N terrain conductivity values ranged within background levels of 10 to 20 mmhos/m.

Tie-lines 13650N, 13750N, 13850N and 13950N all indicate that a zone of high conductivity exists at the northern Site boundary. Ground conductivity values in the range of 200 mmhos/m were recorded along

tie-line 13650N and the central segment of tie-line 13750N. This zone of anomalous conductivity can be extended northward to the central segment of tie-line 13850N where conductivity values decrease to 50 to 60 mmhos/m and to the western segment of tie-line 13950N where values range from 50 to 60 mmhos/m.

Anomalously high terrain conductivity values of 100 to 200 mmhos/m were recorded along lines 10100E and 10150E from 11375N to 12900N. These lines are located proximal to the landfilled area along the eastern Site perimeter. This zone of high values can be extended to line 10200E between 12475N and 12700N and to tie-line 12950N between 10025E and 10100E and tie-line 13000N between 9875E and 10175E. Off-set lines 10250E, 10300E and tie-line 13100N show conductivity values indicative of background. Along line 9800E high conductivity values ranging from 70 to 150 mmhos/m where recorded between 13375N and 13650N. This zone of high conductivity can be correlated to values recorded along the northern tie-lines. Conductivity values drop off to background levels east of line 9800E, along line 9900E.

Background conductivity values were recorded south of 11375N along line 10100E with the exception of a zone of conductance between 10175N and 10000N.

At the southern Site boundary a zone of high conductance was located within the central segment of tie-line 9850N where terrain conductivity values ranged from 50 mmhos/m to a peak of 260 mmhos/m. High conductance values were also recorded on lines 9750N and 9650N.

B.3.3 HORIZONTAL DIPOLE RESULTS (20 METER COILSEPARATION)

Electromagnetic terrain conductivity profiling in a horizontal dipole orientation with a coil separation of 20 meters (66 feet) (Plan 3) was conducted along the eastern and northern Site perimeters. The results indicate that a zone of anomalous conductivity is located along lines 10100E, 10150E and 10200E, between 11200N and 13000N. Conductivity values in this zone range from 40 to 70 mmhos/m. Readings of negative conductance were also recorded indicating areas of very strong conductivity. Tie-line 13000N also displays strong conductive values which correlate to this zone. Profiling along line 10300E, 100 feet east of line 10200E indicates that ground conductivity is of background levels and thereby limits the extent of the anomalous zone noted in line 10200E.

A single point anomaly, indicating extremely high conductance, was recorded on tie-line 13750N at station 9575E. A single point anomaly was also recorded on tie-line 13850N at station 9475E.

B.3.4 VERTICAL DIPOLE RESULTS (20 METER COIL SEPARATION)

Electric terrain conductivity profiling in a vertical dipole orientation with a coil separation of 20 meters (66 feet) (Plan 4) was conducted along the eastern Site perimeter. The results indicate that a zone of high

conductance exists between 11200N and 13000N on lines 10100E, 10150E and 10200E. Conductivity values in this zone range from 60 to 200 mmhos/m. The conductive zone also extends to tie-line 13000N. Background conductivity values were recorded on line 10300E, limiting the extent of the zone of anomalous ground conductivity to the east.

At the northern Site perimeter, two anomalous values of conductivity were recorded on tie-line 13750N at Stations 9575E and 9675E. Background conductivity was noted on tie-line 13850N, 100 feet to the north.

B.4.0 INTERPRETATION OF THE RESULTS

In order to present a sound interpretation of electromagnetic terrain conductivity survey results for the Site, the existing Site conditions and any observed cultural interference or noise must be considered and incorporated into the final interpretation. These factors aid in discerning the source of any anomalous terrain conductivity values and assist in the interpretation of the results. The depth of investigation for the various instrument configurations, as previously presented, must also be considered.

The following interpretation of the electromagnetic terrain conductivity results for the Site is presented with respect to the Site perimeters.

B.4.1 WESTERN SITE PERIMETER

Terrain conductivity results for the profile lines 9365E and 9400E along the western perimeter of the Site indicates that a zone of anomalous conductivity, in both the horizontal and vertical dipole orientations [10 meter (33-foot) coil spacing] is located between 11150N and 13770N. This zone is attributed to buried metallic objects within the refuse as the line runs proximal to the inferred landfill limits.

The data also indicates that an anomalously high zone of conductivity, in both the horizontal and vertical dipole orientations at a 10 meter (33-foot) coil separation is located along off-set line 9425E. These

high values are directly above the refuse disposal area and indicate the presence of buried metallic objects.

Along off-set line 9300E, located 100 feet west of profile line 9400E, background conductivity values were recorded in both the horizontal and vertical dipole orientations at an intercoil spacing of 10 meters (33 feet). This indicates that this area is unaffected by the presence of the landfilled area. Similarly, the background values recorded on off-set line 9300E, further to the north, indicate that this area is also unaffected by the presence of the landfilled area.

Terrain conductivity values of less than 30 mmhos/m recorded in both the horizontal and vertical dipole orientations [10-meter (33-foot) coil separation] along line 9575E and tie-line 11030N are considered at background levels, again indicating that this area has not been impacted.

B.4.2 NORTHERN SITE PERIMETER

Horizontal dipole [10 meter (33-foot) coil separation] terrain conductivity results at the northern site perimeter indicate that a zone of extreme conductance exists on tie-lines 13650N and 13750N, as indicated by negative values. These readings are the result of the line of profile being conducted directly over the landfilled area. Along the west-central segment tie-line 13850N anomalous conductivity readings may be the result of a buried watermain. Along tie-line 13950N, 100 feet to the north, horizontal dipole values, return to background levels.

Anomalously high terrain conductivity values for the vertical dipole orientation [10 meter (33-foot) separation], corresponding to those obtained in the horizontal dipole orientation, are found along tie-lines 13650N and 13750N. The reason for these anomalous value is, again, the location of the profile lines over landfilled areas.

On tie-line 13850N the horizontal dipole conductivity zone is also apparent in the vertical dipole orientation mode. The data also indicates that this zone is laterally more extensive along tie-line 13850N and can be delineated to encompass tie-line 13950N. This zone is the result of a change in soil type due to the presence of a swampy or marshy area traversed by tie-line 13850N and 13950N and extending northward from the northern Site perimeter.

Horizontal dipole results in a 20 meter (66-foot) coil separation configuration poorly delineate a zone of landfilling as indicated by the single station negative value on tie-line 13750N and the marshy area as indicated by the single station positive value on tie-line 13850N.

Similar results are noted in the vertical dipole orientation at a 20 meter (66-foot) coil separation as a two station anomaly located on tie-line 13750N.

B.4.3 EASTERN SITE PERIMETER

Along the eastern site perimeter, lines 10100E, 10150E and 10200E and tie-in 13000N display greater than background terrain conductivity values for both the horizontal and vertical dipole modes of operation with a 10 meter (33-foot) coil separation, from approximately 11200N to 13000N. Results for the horizontal and vertical dipole orientations at a 20 meter (66-foot) coil separation display similar conductivity readings. In the case of the horizontal dipole orientations, values of terrain conductivity are extremely high along segments of the lines as reflected by negative conductivity values.

The greater than background conductivity values indicate the presence of buried metallic objects within the refuse beneath or proximal to the profile lines. The negative terrain conductivity values noted in the horizontal dipole orientation indicates the presence of a plate-like zone of buried metal.

Background terrain conductivity values along lines 10300E and 10250E and tie-line 13100N, in both the horizontal and vertical dipole orientations [10 meter (33-foot) coil separation], and along line 10300E, in both the horizontal and vertical dipole orientations [20 meter (66-foot) coil separation], delineate the limits of the landfilled area and suggest that no subsurface contamination has occurred in this area.

Along the southern segment of line 10100E a zone of conductance is noted for the horizontal dipole results [10 meter (33-foot)

separation] extending southward from approximately 10600N. This zone is also reflected in the terrain conductivity results in the vertical dipole orientation [10-meter (33-foot) coil separation] and to a limited extent in the horizontal dipole results [20 meter (66-foot) coil separation]. This zone of conductance is attributed to buried refuse.

Terrain conductivity values of above background are also noted along tie-line 10000N and line 10075E in the horizontal dipole orientation with a 10 meter (33-foot) coil separation. In the vertical mode [10 meter (33-foot) separation] the above background readings are noted to occur along tie-line 10000N and the northern segment of line 10075E. These values indicate the presence of buried refuse in this area.

Greater than background conductivity values are also noted along line 9800E in both the horizontal and vertical dipole orientations at a 10-meter (33-foot) coil separation. These values also indicate the presence of buried refuse and correlate to the zone noted at the northern Site perimeter. Along line 9900E, 100 feet to the east, conductivity values drop to background indicating the limits of refuse.

B.4.4 SOUTHERN SITE PERIMETER

High terrain conductivity values were recorded along tie-lines 9850N, 9750N and 9650N, located near the southern property limits, in both the horizontal and vertical dipole orientations [10 meter (33-foot) coil separation]. In the case of the horizontal dipole orientation, segments of

negative terrain conductivity, indicating extreme terrain conductivity, were recorded on tie-lines 9850N and 9750N.

The results are as expected as these profiles lines cross the inferred southern landfill limits. The negative conductance values displayed in the horizontal dipole orientation is a phenomena noted to occur when profile lines intersect plate-like features of high conductance such as concentrated buried metallic objects.

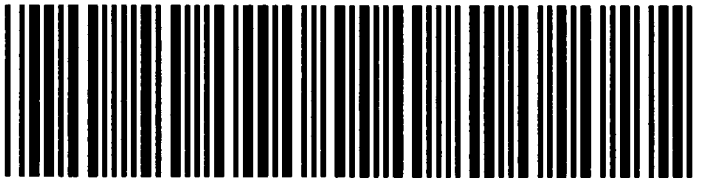
The greater response in the horizontal orientation indicates that the depth to the conductive zone is relatively shallow as the relative response from material near surface is large in this orientation, but the zone extends to some depth as indicated by the response in the vertical dipole orientation.

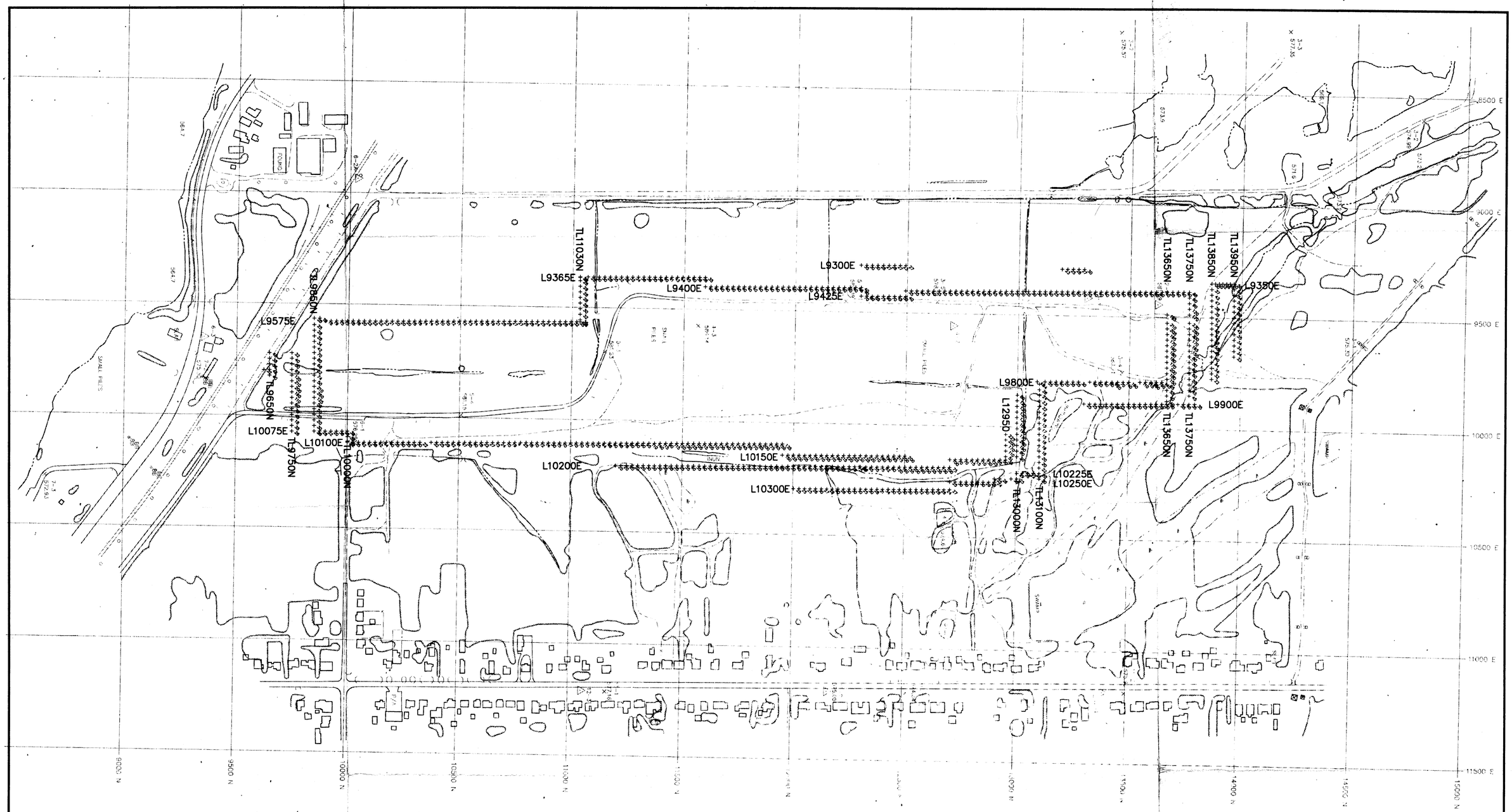
B.5.0 CONCLUSION

From the results of the electromagnetic terrain conductivity survey conducted at the Site, the following conclusions are made:

1. The terrain conductivity survey successfully delineated the landfill limits around the perimeter of the Site.
2. The survey results did not delineate any zones of subsurface contamination migrating from the Site.
3. The survey results do not indicate a need to relocate proposed groundwater monitoring wells in order to monitor potential contaminant migration from the Site.

WIDE 6022





NOTES CONCERNING SITE GRID

THE GRID SYSTEM IS BASED ON AN ASSUMED COORDINATE OF 10000N / 10000E ON AN EXISTING RR SPIKE IN THE APPROX. CENTERLINE OF WARNER RD. AT ITS INTERSECTION WITH THE APPROX. CENTERLINE OF BOSTON AVENUE.

THE DIRECTION OF THE FIRST GRID LINE WAS ESTABLISHED HOLDING AN EXISTING RR SPIKE IN THE APPROX. CENTERLINE INTERSECTION OF WARNER & WITMER RD.

ALL GRID LINES ARE REFERENCED PARALLEL OR PERPENDICULAR TO THE ABOVE DESCRIBED LINE.

0 100 200ft

SOURCE:
ABRAMS AERIAL SURVEY CORP.
124 NORTH LARCH, LANSING, MI 48933
A.A.S.C. #22886

№	Revision	Date	Initial

Approved

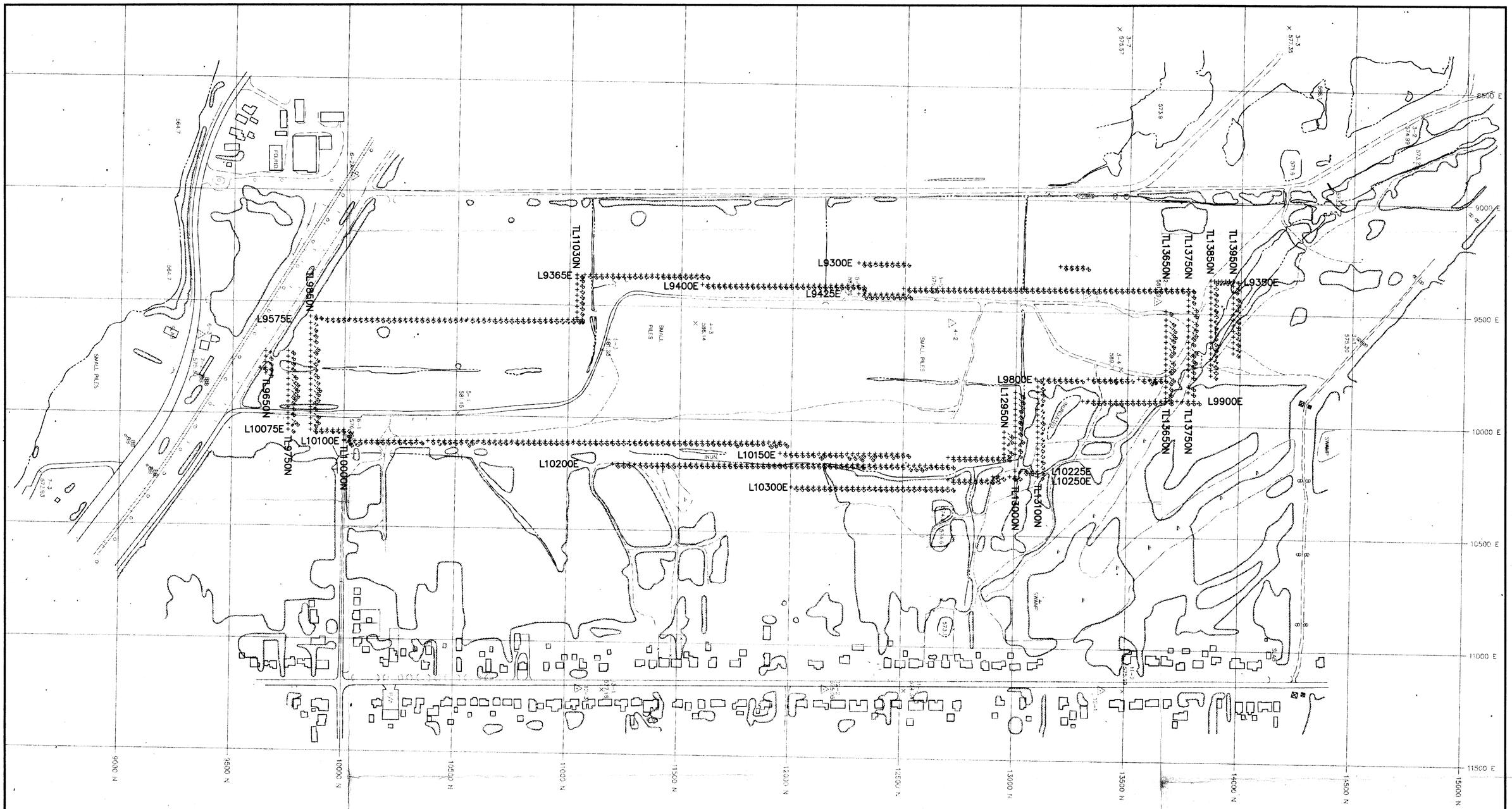
NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK

GEOPHYSICAL INVESTIGATION

EM34-3 VERTICAL DIPOLES (10 METRE COIL SEPARATION)

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by:	Scale:	Date:	File №:	Rev.№:
R.B.B	1"=200'	NOVEMBER 1990	3 (P-01)	-
Designed by: J.B.				
Checked by: E.R.	Field book:	Project №: 2677	Drawing №: 2	



NOTES CONCERNING SITE GRID

THE GRID SYSTEM IS BASED ON AN ASSUMED COORDINATE OF 10000N / 10000E ON AN EXISTING RR SPIKE IN THE APPROX. CENTERLINE OF WARNER RD. AT ITS INTERSECTION WITH THE APPROX. CENTERLINE OF BOSTON AVENUE.

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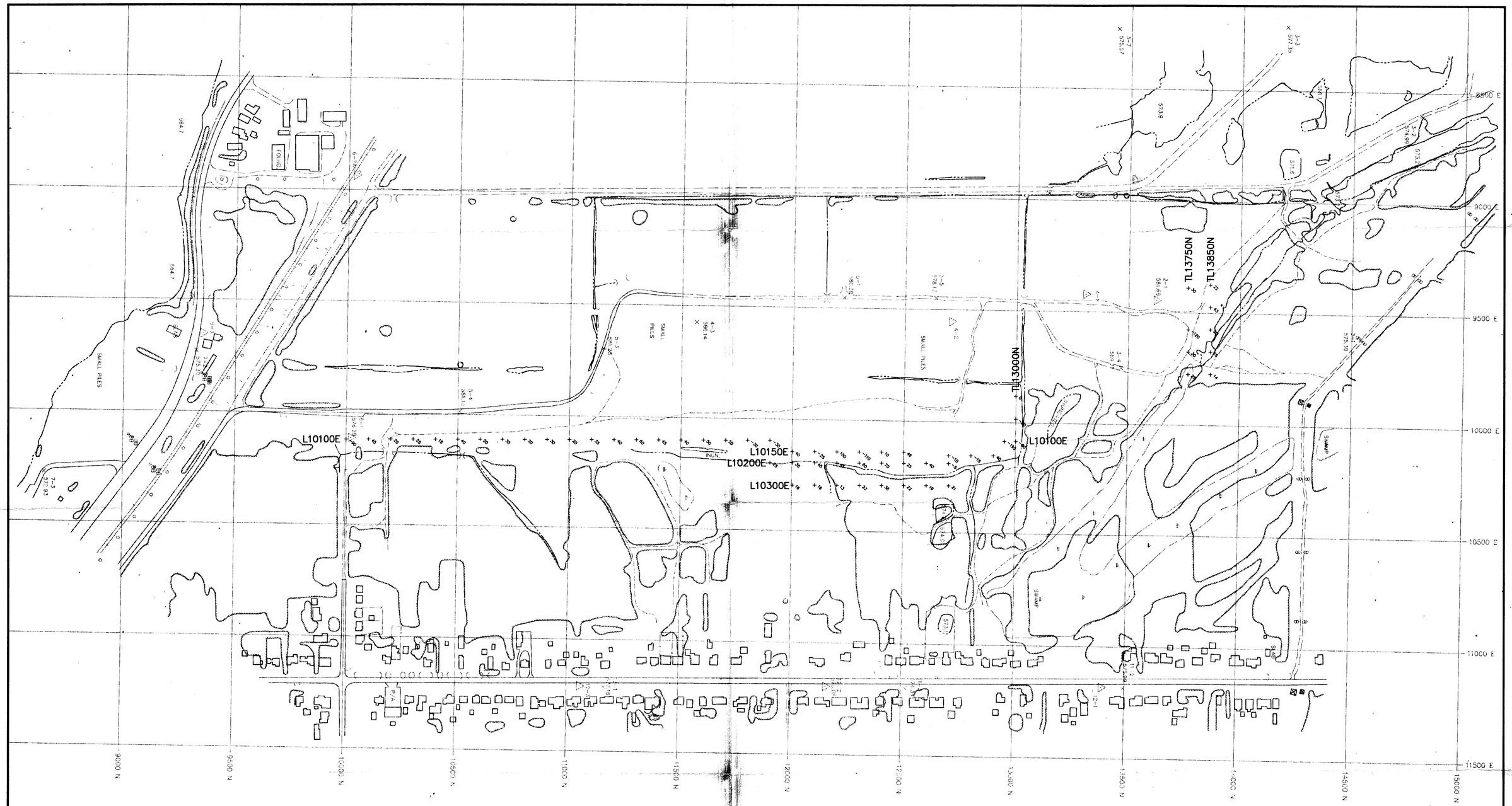
NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK

GEOPHYSICAL INVESTIGATION

EM34-3 HORIZONTAL DIPOLES (10 METRE COIL SEPARATION)

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: R.B.B.	Scale: 1"=200'	Date: NOVEMBER 1990	File Nº: 4 (P-02)	Rev.Nº: -	
Designed by: J.B.	Field book:	Project Nº: 2677	Drawing Nº: 1		
Checked by: E.R.					



NOTES CONCERNING SITE GRID

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0 100 200ft

SOURCE:
ABRAMS AERIAL SURVEY CORP.
124 NORTH LARCH, LANSING, MI 48933
A.A.S.C. #22886

Nº	Revision	Date	Initial

Approved

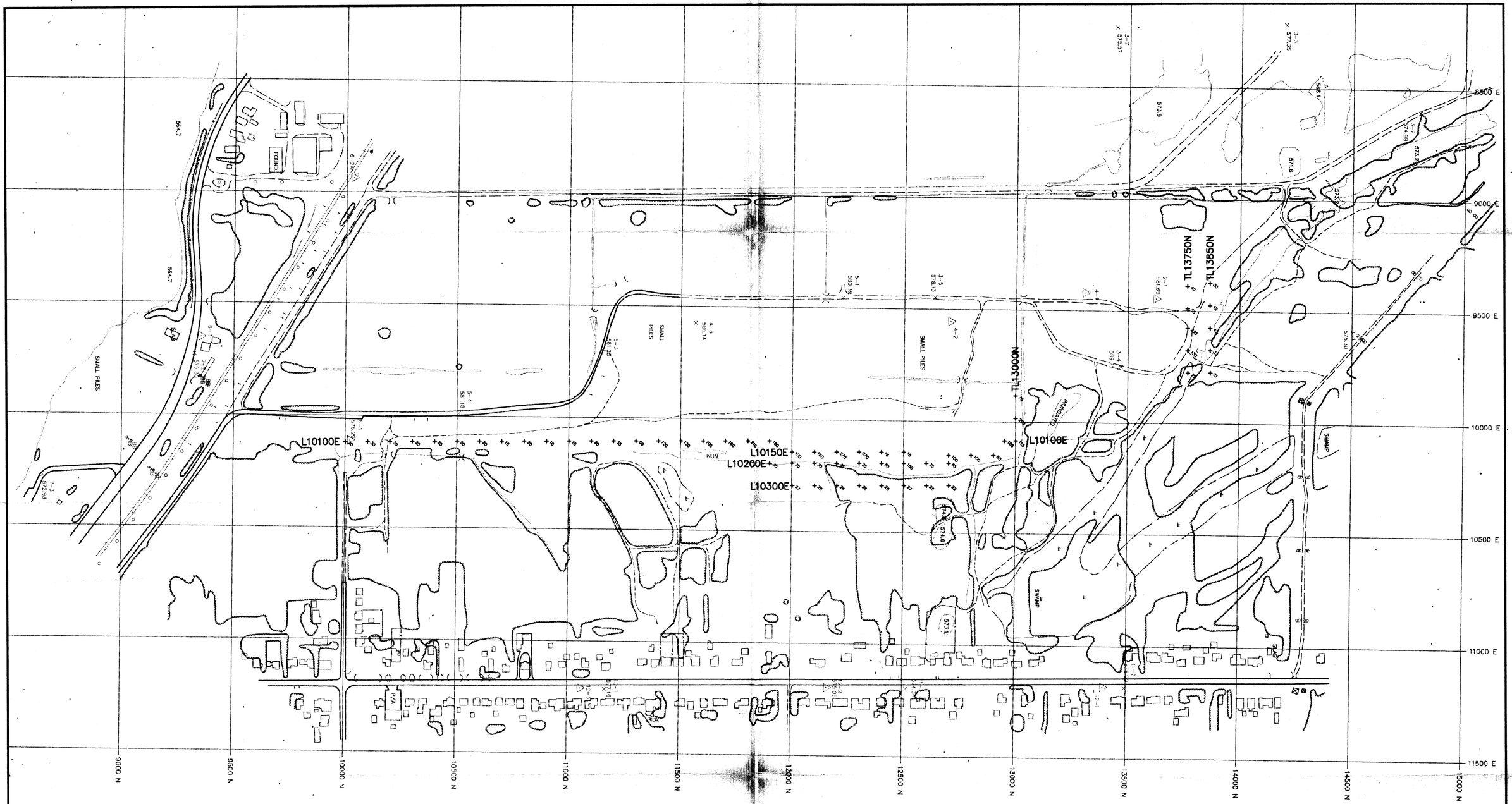
NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK

GEOPHYSICAL INVESTIGATION

EM34-3 HORIZONTAL DIPOLES (20 METRE COIL SEPARATION)

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by:	Scale:	Date:	File Nº:	Rev.Nº:
R.B.B.	1"=200'	NOVEMBER 1990	6 (P-04)	-
Designed by: J.B.				
Checked by: E.R.	Field book:	Project Nº: 2677	Drawing Nº: 3	



NOTES CONCERNING SITE GRID

THE GRID SYSTEM IS BASED ON AN ASSUMED COORDINATE OF 10000N / 10000E ON AN EXISTING RR SPIKE IN THE APPROX. CENTERLINE OF WARNER RD. AT ITS INTERSECTION WITH THE APPROX. CENTERLINE OF BOSTON AVENUE.

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ALL GRID LINES ARE REFERENCED PARALLEL OR PERPENDICULAR TO THE ABOVE DESCRIBED LINE.

0 100 200ft

SOURCE:
ABRAMS AERIAL SURVEY CORP.
124 NORTH LARCH, LANSING, MI 48933
A.A.S.C. #22886

№	Revision	Date	Initial

Approved

NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK

GEOPHYSICAL INVESTIGATION

EM34-3 VERTICAL DIPOLES (20 METRE COIL SEPARATION)

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: R.B.B.	Scale: 1"=200'	Date: NOVEMBER 1990	File №: 5 (P-03)	Rev.№: -
Designed by: J.B.				
Checked by: E.R.	Field book:	Project №: 2677	Drawing №: 4	

APPENDIX C

AMBIENT AIR QUALITY SAMPLING

TABLE OF CONTENTS

		Page
C.1.0	OVERVIEW	C-4
C.2.0	REAL-TIME INSTRUMENT RECONNAISSANCE	C-5
C.2.1	RESULTS AND CONCLUSIONS	C-7
C.3.0	ANALYTICAL QUANTIFICATION	C-9
C.3.1	OVERVIEW	C-9
C.3.2	METHODOLOGY	C-9

LIST OF TABLES

		Following Page
TABLE C.1	INSTRUMENT CALIBRATION DATA	C-3
TABLE C.2	INSTRUMENTAL RECONNAISSANCE DATA	C-4
TABLE C.3	FIELD BLANKS/TRIP BLANKS	C-7
TABLE C.4	NCR AMBIENT AIR SAMPLING ROUND 1	C-8
TABLE C.5	NCR AMBIENT AIR SAMPLING ROUND 2	C-8
TABLE C.6	NCR ATMOSPHERIC DATA CONVERSIONS	C-8

LIST OF FIGURES

FIGURE C.1	OVA CALIBRATION DATA	C-3
FIGURE C.2	WIND SPEED AND DIRECTION - ROUND 1	C-8
FIGURE C.3	WIND SPEED AND DIRECTION - ROUND 2	C-8

C.1.0 OVERVIEW

During the months of June and July 1990, an ambient air sampling program was conducted at the Site in accordance with the protocols outlined in the POP (CRA, 1990a) and the QAPP (CRA 1990b).

Air quality sampling was performed in two stages; the first stage was a Site reconnaissance with real-time monitoring instruments to assess potential emissions from sources such as leachate seeps and fissures in the cover of the landfill cells. The second stage was a chemical quantification of emissions from two selected sources using solid and liquid sorbent methods for Site specific parameters.

This report presents a discussion of the field sampling activities.

C.2.0 REAL-TIME INSTRUMENT RECONNAISSANCE

On June 19-20, 1990, the real-time instrument reconnaissance was performed at the Site. The protocol for this stage is outlined in the POP, Task 3, Field Investigations, Phase I, Section 4.3.13 (CRA, 1990a).

Prior to conducting the instrumental reconnaissance, a walk through was conducted by CRA personnel. During the Site reconnaissance, leachate seeps and fissures in the existing cap over the disposal cells were located on a drawing of the Site and assigned an identification number for future reference. All further air quality data acquisition references the identified seep or fissure by number. In general, those seeps that were active (i.e. wet), were surveyed; if a seep was dry, then size (area exhibiting obvious discoloration) became the factor for inclusion in the survey.

The following monitoring instrumentation was used to evaluate gaseous emissions:

Organic Vapors:	Foxboro Century OVA 128 employing flame ionization detection (FID)
	HNU Systems PI 101 employing photoionization detection (PID)
Hydrogen Sulfide:	Exotox 50 employing an electrochemical detection cell specific for hydrogen sulfide.

As the Exotox 50 is a multiple gas monitoring instrument which also acts an an explosimeter; explosimeter readings were recorded as further confirmation of the presence of methane.

Calibration of the instruments was performed in accordance with the instrument manufacturer's operating protocols outlined in Appendix D of the QAPP (CRA, 1990a). The Century OVA 128 was received from the vendor calibrated against methane; a calibration chart detailing span potentiometer linearity and indicated instrument linearity against a calibration gas of known concentration was provided. This chart is presented in Figure C.1. The HNU was calibrated prior to the initiation of the day's work, with calibration checks and readjustment performed in the afternoon. Calibration of the HNU was against a benzene surrogate (isobutylene) of known concentration; the instrument's span adjusted so that meter response matched the indicated concentration of isobutylene. HNU calibration data is presented in Table C.1. Calibration of the Exotox 50 was performed by the manufacturer prior to use for the instrumental survey. Calibration was performed by passing a stream of gas containing a known concentration of specific analyte (hydrogen sulfide, methane in air) across the electrochemical sensor, and adjusting the instrument's span setting so that the meter response matched the indicated concentration of analyte. Calibration data for the Exotox 50 is presented in Table C.1.

The following field survey protocol was established for assessing possible vapor emissions from each seep and/or fissure investigated at the Site. Prior to obtaining organic vapor readings, the upwind background for the area was noted. Emissions from the source were measured, and

Instrument Description OVA 128

Mfg. Serial #: 40530 Calibration Date: 6/15/90

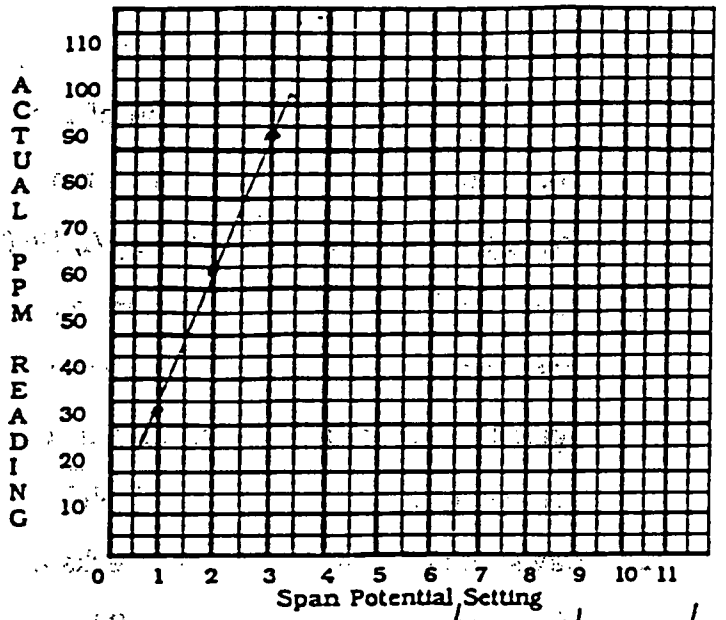
HAZCO Serial #: 801548 20 Technician: SK

	Yes	No
Instruction Manual	☑	☐
Battery Charger	☑	☐
Probe Extension ( )	☑	☐
Support Straps	☑	☐
Carrying Case	☑	☐
Loaner Regulator	☐	☑
Refill Hose (OVA)	☑	☐
Close Area Sampler (OVA)	☑	☐
Tubular Sampler (OVA)	☑	☐
Tool Kit	☑	☐
Calibration Cup	☐	☑
Tygon Tubing (Purchased)	☐	☑
Calibration Gases (Purchased)	☐	☑
Ignitor Cover (OVA)	☑	☐
Refill Cap (OVA)	☑	☐
Leather Case	☐	☑
Saturday Delivery	☐	☐
Hazardous	☐	☑

Packed By: SK Date: 6-15-90

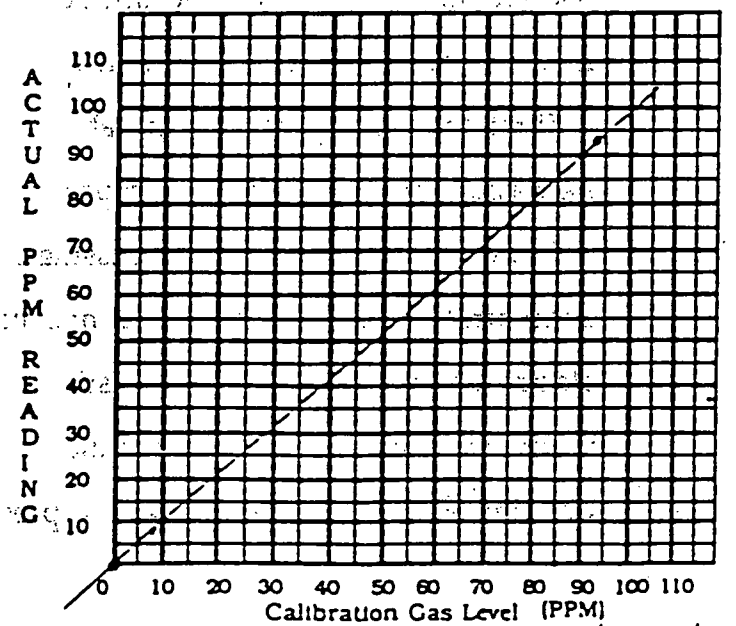
Misc. Equipment

Span Potentiometer Linearity



Calibration Points 30/94, 20/65, 10/34

Standard Calibration



Calibration Points 0/0 91/91 54/54 191/191

figure 1
OVA CALIBRATION DATA
NCR SITE
Wheatfield, New York

CRA

TABLE C.1

INSTRUMENT CALIBRATION DATA
NCR SITE RECONNAISSANCE

Instrument	*Detector Type*	*Calibration Data*
Foxboro Century OVA 128 S/N 40530	Flame Ionization (FID)	See Figure 1 Ionization Potential: ~15.3 ev
HNU Systems PI 101 S/N 901578	Photoionization (PID)	57 ppm (isobutylene) @ 78.4 span setting [a.m.] 57 ppm (isobutylene) @ 7.89 span setting [p.m.] Ionization Potential: 10.2 ev
Neotronics Exotox 50 OFCH	Electrochemical for: CO, H_2S, O_2, CH_4	CH_4 - 0, 30% LEL H_2S - 0, 50 ppm

corrected for background. Readings were obtained from inside fissures. In the case of an active seep; fresh, moist soil was exposed with a pointed lath and readings were obtained approximately four to six inches above the fresh cut. Hydrogen sulfide and explosimeter readings were obtained concurrently with, or immediately after, organic vapor readings. Readings obtained from the instrumental survey are presented in Table C.2.

A minor problem associated with the instrumental survey was due to methane emissions from some of the active seeps; due to the concentration of methane, the Century OVA's flame would extinguish causing instrument malfunction. This was after a rapid full scale response (i.e. 1000+ ppm indicated reading), and usually accompanied by a full scale explosimeter response (accompanied by an alarm) which would not allow for an accurate methane or hydrogen sulfide quantification.

C.2.1 RESULTS AND CONCLUSIONS

Of the 30 seeps or fissures surveyed at the Site, five exhibited organic vapor readings where the non-methane organic vapor component of total emissions was greater than that of the methane contribution. These were Seeps 2, 5, 11, 19 and 29. This may be concluded from the following: the ionization potential of methane is 12.6 ev, which is higher than the ionization potential of the HNU used for the survey (10.2 ev). The ionization potential of the Century OVA is approximately 15.3 ev, which will quantify methane, as well as other volatile organics. By subtracting the two values (FID-PID readings), an arbitrary value was obtained that could be

TABLE C.2

INSTRUMENTAL RECONNAISSANCE DATA
NCR SITE

Seep No.	*FID Reading (ppm)*	*PID Reading (ppm)*	*Explosimeter (percent)*	*H2S (ppm)*	*FID-PID*[1]
2	0-39	8.01	0	0	30.9
2	0	5.7	0	0	[5.7][2]
3	96+	4.4	0	0	91.6
4	56	4.7	0	0	51.3
5	1.6	5.4	0	0	[3.8]
6	28.5+	3.2	0	0	25.3
7	498	10	1	0	488
8	40	1.8	1	0	38.2
9 Dry	--	--	--	--	--
10	50	0	0	0	50
11	0.4	4.0	0	0	[3.6]
12	22	7.7	0	0	14.3
13	72(697)	9.6	0	0	62.4(687.4)
14	18(200)	3.4	0	0	14.6(196.6)
15	1000	7.2	95	0	992.8
16	27.5	--	0	0	27.5
	(1000+)	(3.4)[3]	100	0	996.6
17	1000+	--	100	--	
18	1000+	2.22	5+	--	997.8
19	3	8.1	0	0	[5.1]
20	1000+	0.6	0	0	1000+
21	699	1.4	23+	0	697.6
22	10	0.7	0	0	9.3
23	69	8.4	1	0	60.6
24	7	1.0	0	0	6.0
25	1000+	5.2	16	0	994.8
26	1000+	4.2	32+	0	995.8
27	1.5	1.2	--	--	0.3
28	1000+	7.8	--	--	992.2
29	--	2.4	2	0	[2.4]

Notes:

1 FID-PID is an arbitrary number used to estimate quantity of non-methane total organic vapor emissions.

2 [ ] = Negative Value (i.e. value may be assumed to be non-methane organic vapor emissions)

3 ( ) = Resurvey of source on following day

4 -- = Reading not obtained

5 Dates Performed: June 19-20, 1990

considered indicative of the non-methane organic vapor component as indicated in Table C.2. In no instance of the five seeps where the non-methane component was higher than the methane component, did this value exceed six.

C.3.0 ANALYTICAL QUANTIFICATION

C.3.1 OVERVIEW

After reviewing the instrumental reconnaissance data from the Site, two worst case seeps were selected for further chemical quantification of emissions. These were Seep #5, located in the northeast corner of the suspected industrial waste disposal cell, and Seep #16, located centrally on the east edge of the northeast municipal refuse cell. Seep #5 was selected due to the rather large, moist discolored area surrounding the seep, as well as the presence of a mild chemical odor in the area. Seep #16 was selected due to area as well, in conjunction with recommendations made by EPA oversight personnel.

C.3.2 METHODOLOGY

The chemical quantification sampling was conducted in accordance with the protocols outlined in the POP, Task 3, Field Investigations, Phase I, Section 4.3.13 (CRA, 1990a). Sampling took place on two successive weeks. Seep #5 was sampled on July 11-12, 1990, Seep #16 was sampled on July 18-19, 1990. Field quality assurance/quality control (QA/QC) (duplicate) samples were obtained on the later date.

Sampling was performed as outlined in Section 5.7 of the QAPP (CRA, 1990b), with each station set up to collect samples for analysis by Method TO-1 (chlorobenzenes on Tenax), TO-2 (benzene, toluene, methylene

chloride and vinyl chloride on Carbon Molecular Sieves), and TO-8 (phenols in 0.1 N NaOH). Due to the low breakthrough volume of vinyl chloride on the CMS, hence widely varying flow rates, two separate TO-2 samples were obtained at each station. To facilitate handling of the solid sorbent cartridges in the field (TO-1, Tenax; TO-2 CMS), stainless steel cartridges were specified from the analytical contractor (Radian Corporation) and joined using stainless steel swagelok unions. The midget impingers used with liquid sorbent for Method TO-8 were as specified for USEPA Federal Reference Method 6 (for sulfur dioxide) and connected using a short section of Tygon tubing. For all samples collected by each method, two sorbent cartridges or impingers were in series (primary and backup). Each cartridge or impinger was assigned a unique identification number, to be analyzed as a unique sample. After sampling, samples collected by method TO-8 were transferred to I-Chem series 300 40 ml VOA vials for shipment, solid sorbent cartridges capped with swagelok caps. All samples were subsequently shipped to Radian on ice and under chain of custody. Each shipment of samples was accompanied by appropriate field blanks (see Table C.3).

As specified in the QAPP (CRA, 1990b), industrial hygiene sampling pumps were employed to draw air through the sampling sorbent. An industrial hygiene pump combines the power source, precision pump, and critical flow orifice into one unit. Difficulty was experienced in obtaining a 24-hour duration sampling event utilizing the pump's internal batteries; necessitating the use of a portable gasoline powered AC generator to provide electrical power to the pump via its battery charger. Pumps were calibrated immediately prior to sampling against a primary standard, and immediately after sampling with the same calibrator. An average of three consecutive

TABLE C.3

FIELD BLANKS/TRIP BLANKS
NCR AMBIENT AIR SAMPLING

Date	*Time*	*Blank I.D.*	*Method*
ROUND 1			
7/12/90	1339	NCR-S50-127 m	TO-8 phenol
7/12/90	1339	NCR-S50-2514	TO-2 aromatics
7/12/90	1339	NCR-S50-2520	TO-2 vinyl chloride
7/12/90	1339	NCR-S50-2211	TO-1 chlorobenzene
ROUND 2			
7/18/90	1425	NCR-S51-80 m	TO-8 phenol
7/18/90	1445	NCR-S51-2706 m	TO-2 aromatics
7/18/90	1445	NCR-S51-2720 m	TO-2 vinyl chloride
7/18/90	1445	NCR-S51-2619 m	TO-1 chlorobenzene

flow readings was used to establish a flow rate value for pre- and post sampling flow rates. Pre- and post-sampling calibration was performed as specified in Appendix D, Item 7 of the QAPP (CRA, 1990b), with the exception that tap water was used in the midget impingers instead of 0.1 N NaOH (specific gravity of the liquids assumed to be equal for the purpose calibrating air pumps). An attempt was made to calibrate each pump to the flow rate specified for the method and parameter in Section 5.7 of the QAPP (CRA, 1990b), so as to achieve the specified overall sample volume. A unique sampling pump was used for each method at each location. Calibration data and collected sample volumes appear in Tables C.4 and C.5.

During the sampling event, meteorological data was obtained in the following fashion: a wind speed and direction recorder was set up on Site to record local conditions. Temperature, barometric pressure, and relative humidity were obtained once every two hours during the sampling event from National Oceanic and Atmospheric Administration radio broadcasts originating from the station at the Buffalo, New York International Airport. Atmospheric data was then used to correct sample volumes to standard temperature and pressure. The charts for wind speed and direction for July 11-12, 1990 and July 18-19, 1990 appear in Figures C.2 and C.3, respectively. Atmospheric data along with conversions appear in Table C.6.

During Round 1 (Figure C.2), wind speed at the Site averaged 5 miles per hour, with occasional gusts to 10 miles per hour. Wind direction during this sampling round was predominantly easterly. For the

TABLE C.4
NCR AMBIENT AIR SAMPLING ROUND 1

Date	Method	Sta. ID	Sample I.D.	Pump S/N (2)	Pre-Run Flow (cc/min.)	Post-Run Flow (cc/min.)	Avg. Flow Rate (cc/min.)	Sample Run Time (minutes)	Sample Volume (cubic meters)	Flow Rate (QA/QC) (percent variance)	Corrected Sample Volume (cubic meters)
07/12/90	TO-2 Aromatics	NCR-S1	NCR-S1-2505m NCR-S1-2506b	A 05056 (4)	72.160	71.600	71.880	832.000	0.060	0.776	0.061
07/12/90	TO-2 Aromatics	NCR-UW1	NCR-UW1-2501m NCR-UW1-2502b	A 12662	70.180	64.230	67.205	1481.000	0.100	8.478	0.102
07/12/90	TO-2 Aromatics	NCR-DW1	NCR-DW1-2509m NCR-DW1-2510b	A 06437	71.800	67.340	69.570	1466.000	0.102	6.212	0.104
07/12/90	TO-2 Vinyl Chloride	NCR-S1	NCR-S1-2511m NCR-S1-2512b	A 08417	21.900	18.770	20.335	1512.000	0.031	14.292	0.031
07/12/90	TO-2 Vinyl Chloride	NCR-UW1	NCR-UW1-2507m NCR-UW1-2508b	A 04142 (2) A 05224	17.580 19.340	20.040 19.550	18.810 19.445	105.000 1095.000	0.002 0.021 0.023	-13.993 -1.086	0.002 0.022 0.024
07/12/90	TO-2 Vinyl Chloride	NCR-DW1	NCR-DW1-2504m NCR-DW1-2503b	A 11105	23.740	20.280	22.010	1467.000	0.032	14.575	0.033
07/12/90	TO-1 Chlorobenzene	NCR-S1	NCR-S1-2214a m NCR-S1-2216a b	A 11055	72.600	72.030	72.315	1520.000	0.110	0.785	0.112
07/12/90	TO-1-Chlorobenzene	NCR-UW1	NCR-UW1-2201a m NCR-UW1-2207a b	A 08416	70.630	64.110	67.370	1481.000	0.100	9.231	0.102
07/12/90	TO-1 Chlorobenzene	NCR-DW1	NCR-DW1-2219a m NCR-DW1-2220a b	A 05231	71.660	79.180	75.420	1467.000	0.111	-10.494	0.113
07/12/90	TO-8 Phenol	NCR-S1	NCR-S1-56m NCR-S1-128b	G 9422 (5)	45.170	54.970	50.070	1173.000	0.059	-21.696	0.060
07/12/90	TO-8 Phenol	NCR-UW1	NCR-UW1-76m NCR-UW1-126b	G 9423 (3)	44.800	24.010	34.405	1214.000	0.042	46.406	0.043
07/12/90	TO-8 Phenol	NCR-DW1	NCR-DW1-129m NCR-DW1-591b	G 9421	47.800	35.770	41.785	1461.000	0.061	25.167	0.062

Footnotes:
(1) A = Dupont Alpha 1, G = Gilian HFS 513 AUP
(2) Pump S/N 04142 failed due to low flow, replaced with pump S/N 05224 for remainder of run.
(3) Pump faulted due to low flow at 602 minutes into sampling, restarted, ran for 62 minutes due to flow fault, restarted, ran for 34 minutes, restarted, and ran for 511 minutes.
(4) Pump faulted after 832 minutes, not replaced.
(5) Pump faulted after 1169 minutes, twice restarted, ran for one minute each time, restarted third time, ran for additional minute, not restarted.

TABLE C.5
NCR AMBIENT AIR SAMPLING ROUND 2

Date	Method	Sta. I.D.	Sample I.D.	Pump S/N (1)	Pre-Run Flow (cc/min.)	Post-Run Flow (cc/min.)	Avg. Flow Rate (cc/min.)	Sample Run Time (minutes)	Sample Volume (cubic meters)	Flow Rate QA/QC (percent variance)	Corrected Sample Volume (cubic meters)
07/19/90	TO-2 Aromatics	NCR-S2	NCR-S2-2705m NCR-S2-2713b	A 05056	71.990	64.840	68.415	1445.000	0.099	9.932	0.100
07/19/90	TO-2 Aromatics	NCR-S3 (S-2 Dup)	NCR-S3-2704m NCR-S3-2714b	A 12662	73.250	72.030	72.640	1446.000	0.105	1.666	0.106
07/19/90	TO-2 Aromatics	NCR-UW2	NCR-UW2-2715m NCR-UW2-2716b	A 05233	72.510	73.290	72.900	1487.000	0.108	-1.076	0.109
07/19/90	TO-2 Aromatics	NCR-DW2	NCR-DW2-2707m NCR-DW2-2708b	A 06437	74.670	71.830	73.250	1492.000	0.109	3.803	0.110
07/19/90	TO-2 Vinyl Chloride	NCR-S2	NCR-S2-2701m NCR-S2-2718b	A 04142	19.740	22.790	21.265	1445.000	0.031	-15.451	0.031
07/19/90	TO-2 Vinyl Chloride	NCR-S3 (S-2 Dup)	NCR-S3-2702m NCR-S3-2717b	A 11489	24.060	23.440	23.750	1446.000	0.034	2.577	0.035
07/19/90	TO-2 Vinyl Chloride	NCR-UW2	NCR-UW2-2711m NCR-UW2-2712b	A 08417	17.080	14.700	15.890	1487.000	0.024	13.934	0.024
07/19/90	TO-2 Vinyl Chloride	NCR-DW2	NCR-DW2-2719m NCR-DW2-2709b	A 11105	22.350	21.340	21.845	1492.000	0.033	4.519	0.033
07/19/90	TO-1 Chlorobenzene	NCR-S2	NCR-S2-2602m NCR-S2-2603b	A 05224 (2)	73.370	77.590	75.480	861.000	0.065	-5.752	0.066
07/19/90	TO-1 Chlorobenzene	NCR-S3 (S-2 Dup)	NCR-S3-2604m NCR-S3-2606b	A 05231	70.920	72.160	71.540	1446.000	0.103	-1.748	0.104
07/19/90	TO-1 Chlorobenzene	NCR-UW2	NCR-UW2-2609m NCR-UW2-2610b	A 11055	74.110	73.820	73.965	1488.000	0.110	0.391	0.111
07/19/90	TO-1 Chlorobenzene	NCR-DW2	NCR-DW2-2607m NCR-DW2-2608b	A 08416	70.960	70.390	70.675	1492.000	0.105	0.803	0.106
07/19/90	TO-8 Phenol	NCR-S2	NCR-S2-118m NCR-S2-128b	G 9422	37.210	39.830	38.520	1550.000	0.060	-7.041	0.060
07/19/90	TO-8 Phenol	NCR-S3 (S-2 Dup)	NCR-S3-129m NCR-S3-126b	A 08414	55.490	66.620	61.055	1448.000	0.088	-20.058	0.089
07/19/90	TO-8 Phenol	NCR-UW2	NCR-UW2-56m NCR-UW2-76b	A 11487	54.670	62.900	58.785	1488.000	0.087	-15.054	0.088
07/19/90	TO-8 Phenol	NCR-DW2	NCR-DW2-85m NCR-DW2-591b	G 9421	48.970	49.160	49.065	1472.000	0.072	-0.388	0.073

Footnotes:
(1) A = Dupont Alpha 1, G = Gilian HFS 513 AUP
(2) Pump failed after 861 minutes due to low battery.

TABLE C.6
NCR ATMOSPHERIC DATA CONVERSIONS

Date	*Time*	*B.P. (In/Hg)*	*B.P. (mm/Hg)*	*Temp. (deg. F.)*	*Temp. (deg. K)*	*Avg. Temp. (deg. K)*	*Avg. B.P. (mm/Hg)*	*Relative Humidity (percent)*
ROUND 1								
7/11/90	0800	30.090	764.256	59.000	288.004			89.000
	1000	30.100	764.510	67.000	292.452			67.000
	1200	30.090	764.256	77.000	298.012			46.000
	1400	30.060	763.494	75.000	296.900			44.000
	1600	30.080	764.002	76.000	297.456			36.000
	1800	30.030	762.732	76.000	297.456			27.000
	2000	30.040	762.986	71.000	294.676			55.000
	2200	30.050	763.240	67.000	292.452			56.000
7/12/90	2400	30.060	763.494	66.000	291.896			56.000
	0200							75.000
	0400	30.020	762.478	64.000	290.784			77.000
	0600	30.010	762.224	64.000	290.784			80.000
	0800	30.030	762.732	64.000	290.784			80.000
	1000	30.060	763.494	63.000	290.228			80.000
	1200	30.080	764.002	65.000	291.340			75.000
						293.087	763.421	
ROUND 2								
7/18/90	1400	30.170	766.288	82.000	300.792			48.000
	1600	30.120	765.018	84.000	301.904			46.000
	1800	30.110	764.764	84.000	301.904			44.000
	2000	30.110	764.764	78.000	298.568			60.000
	2200	30.090	764.256	77.000	298.012			64.000
7/19/90	2400	30.090	764.256	76.000	297.456			62.000
	0200	30.120	765.018	73.000	295.788			76.000
	0400	30.100	764.510	59.000	288.004			85.000
	0600	30.130	765.272	70.000	294.120			
	0800	30.160	766.034	72.000	295.232			79.000
	1000	30.150	765.780	77.000	298.012			62.000
	1200	30.140	765.526	81.000	300.236			54.000
	1400	30.140	765.526	82.000	300.792			61.000
						297.755	765.155	

first 6 1/2 hours of the sampling event, there were fluctuations around the east vector; east-northeast and east-southeast which average to easterly.

During Round 2 (Figure C.3), wind speed at the Site was variable. From 0925 to 1600 on July 18, 1990, winds were mostly calm, with a period of 5 mile per hour winds from 1130 to 1300. From 1600 to 2330 wind speed averaged 7 miles per hour and were steady. From 2330 on July 18, 1990 to 0815 on July 19, 1990 winds were again calm, picking up to 2 miles per hour around 0815. Wind speed remained steady from 0815 to 1300, when they increased to approximately 5 miles per hour and remained steady to the end of the sampling event at 1607 on July 19, 1990. Wind direction during the Round 2 sampling was predominantly west-southwest, with variations to directly southwest. Variations observed in wind direction from 0015 to 0715 on July 19, 1990 are attributable to thermal currents affecting the direction indicator during the calm period (occurring during the same time frame). These thermal currents are caused by unequal heating/cooling of the earth's surface; their velocity is much less than 1 mile per hour, and are nondirectional by nature.

Problems encountered during the chemical quantification sampling were due to internal failures of the sampling pump electronics or batteries. During Round 1 there were four failures, Round 2 had one. Pump failures are detailed in the footnotes for Tables C.3 and C.4. Flow rate quality control was performed on each sampling pump employed, and calculated as percent variation from the initial setting (plus or minus). During Round 1, the average variation was 13.3 percent, with a high of 46.4 percent and low of 0.77 percent (all variations are positive errors). During Round 2, average

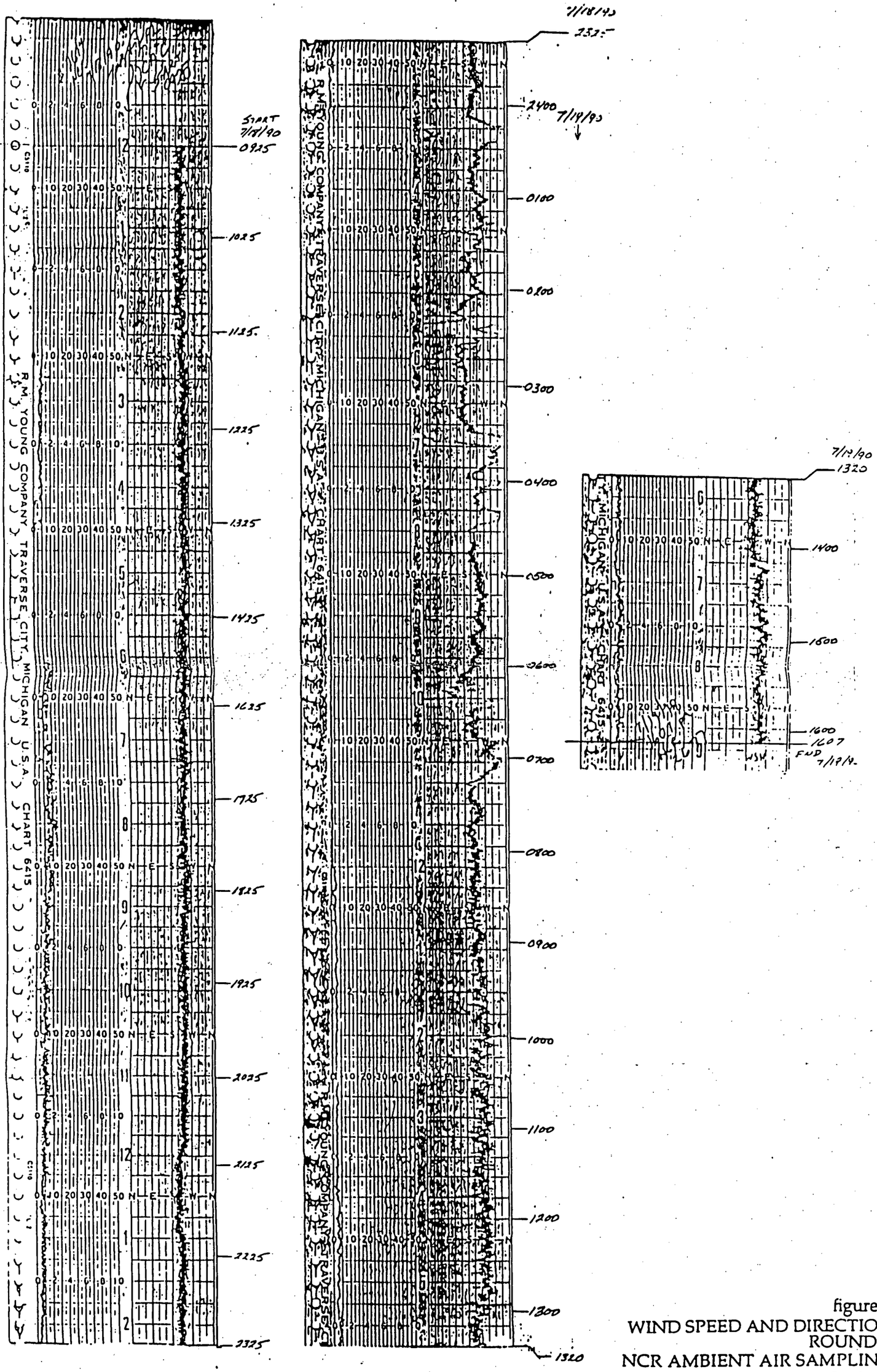


figure 3
WIND SPEED AND DIRECTION
ROUND 2
NCR AMBIENT AIR SAMPLING
NCR SITE
Wheatfield, New York

CRA

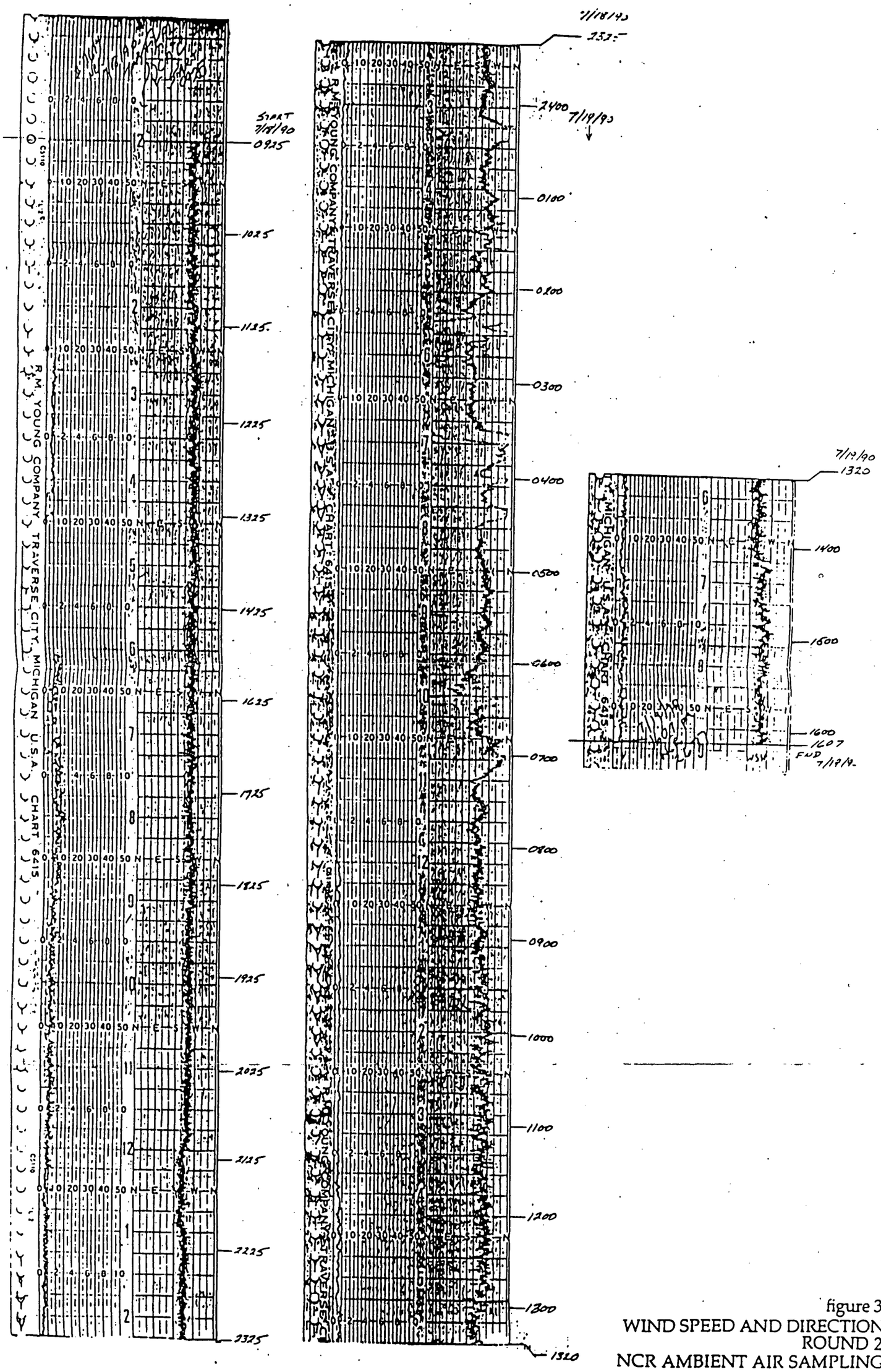


figure 3
WIND SPEED AND DIRECTION
ROUND 2
NCR AMBIENT AIR SAMPLING
NCR SITE
Wheatfield, New York

CRA

variation was 6.50 percent, with a low of 0.34 percent and a high of 20.01 percent. Individual pump flow rate QC appears in Tables C.3 and C.4 for the respective sample run.

APPENDIX D

VEGETATION AND FAUNAL SURVEY REPORT

2677

PROJECT REPORT

VEGETATION & FAUNAL SURVEY
Niagara County Refuse Disposal Site
Site Biological Characterization - 1990

Prepared For: Conestoga-Rovers & Associates, Inc.
7703 Niagara Falls Boulevard
Niagara Falls, New York 14303

Submitted By: Auld Environmental Associates
September, 1990

CRA Reference No. 2677

AEA Reference No. 3000

1.0 INTRODUCTION

At the request of Conestoga-Rovers & Associates, Incorporated, Auld Environmental Associates conducted a survey of the biota (flora & fauna) at the Niagara County Refuse Landfill located in the Town of Wheatfield, New York during the period of 17 July through 2 August 1990. This survey was conducted as a qualitative inventory of vegetation and wildlife occurring on and immediately adjacent to the landfill, and it is intended to be descriptive of the site and its environs, and is not necessarily exhaustive. There were no quantitative investigations conducted. The results of these observations are presented below.

2.0 VEGETATION

Vegetation of the Site is typical of that found on disturbed land of the Western New York Erie-Niagara Lake Plain. Historically this region supported northern hardwood forest dominated by American Elm and Red Maple. Significant alteration of the site by past agricultural practices and landfilling activity has resulted in the removal of native plant communities and replacement with secondary succession species such as Goldenrod, Queen Anne's Lace, White Clover, and Staghorn Sumac in the drier areas and establishment of facultative and obligate wetland species such as Dogwoods, Cattails, and Purple Loosestrife in wet areas.

It is probable that the wooded areas bordering the Site have also been disturbed by past timbering. Though no direct evidence of recent timbering is apparent, the occurrence of sun-tolerant trees such as White Ash and Hawthorns and the general lack of large numbers of mature stands of trees provide an indication of this type of past disturbance.

Communication with The New York State Department of Environmental Conservation, as detailed in Attachment A, indicates that no endangered, threatened, or special concern wildlife species, rare plant, animal or natural community occurrences, or other significant habitats have been identified in the project area.

A list of all plant species found on the Site are presented in Table 1. Based on initial site reconnaissance the study area was divided into six areas, each containing a different plant community type. These areas were intended to be generally descriptive based on dominant vegetative characteristics. Further delineation of boundaries between vegetative types was not attempted. The locations of areas supporting these plant communities are shown on Figure 1. Identified communities were as described below:

Area 1- Located on the landfill. This area consists of grassed upland habitat. Characteristic plants include annual and perennial grasses and pioneering herbs, shrubs, and trees associated with waste places. Plant species found in Area 1 are listed in Table 2.

Area 2- Drainage swales. Drainage swales bisect the five landfill cells and surround the entire perimeter of the landfill. The swales contain both obligate and facultative wetland plant species, and also plant species characteristic of drier upland areas. This mixed plant community is a result of both the seasonally wet condition of the swale bottoms and the availability of higher and drier growing locations for opportunistic plants on the banks of the swales. Plant species found in the drainage swales is listed in Table 3.

Area 3- Dry shrub-grassland. This area located on the west and northwest perimeter of the landfilled area supports annual and perennial herbs and grasses and a number of trees and shrubs. As on the landfill cover, many of these plants are characteristic of disturbed areas and waste places. Plant species found in Area 3 are listed in Table 4.

Area 4- Deciduous hardwood forest (<50 yr.) borders the East side of the landfilled area. Two areas separated by a farmed plot contain deciduous hardwood forest bordered by plants characteristic of transitional areas between open and forested areas. Plant species found in these two areas were found to be similar and are listed together in Table 5.

Area 5- Wet shrub grassland and farmed field border. This area bordering the landfill on the Eastern central perimeter contains a farmed field, a wet shrub-grassland plant community, and a young planting of Jack Pines. Plant species found in this area are listed in Table 6.

Area 6- Emergent freshwater marsh and wooded border. Located off the landfill at the Northeast boundary, this area is dominated by Cattails and Purple Loosestrife. The wooded border to the East of this emergent marsh contains Willow, Ash, Dogwood, and Arrowwood. This area is contiguous to NYSDEC designated wetland TW-4. Plant Species found in this area are listed in Table 7.

3.0 WILDLIFE

Wildlife species found on the project site generally reflect the habitats described in the vegetation section above. Table 8 lists wildlife species observed on-site during the study period and also species likely to occur in this habitat. All species observed and those likely resident on-site, but not directly observed as a part of this investigation, are typical of Western New York old-farm and woodland habitats. As noted previously, no rare, threatened or endangered species were observed.

REPTILES AND AMPHIBIANS

A variety of resident New York State reptiles and amphibians are likely to occur on the site, however, the lack of adequate wintering cover probably limits their numbers and diversity. Leopard frogs and toads were common in the drainage swales and other grassy areas in the landfill. In addition the Eastern Garter Snake is common in the site vicinity and can be expected to occur on-site along with the Eastern Milk Snake. No significant amount of likely turtle habitat exists on-site.

BIRDS

Breeding birds on-site appear to be limited primarily to a variety of sparrows and some warbler species. On the bulk of the site, these would represent species which commonly nest on or near the ground or in shrub and hedgerows, such as the Common yellowthroat, Field and Song Sparrows, Killdeer and Red-winged Blackbirds, in particular. In and near the wooded habitat areas, Catbirds, Robins and Eastern Kingbirds were commonly observed, along with the Black-capped Chickadee and Yellow Warbler.

Year-round resident raptor species observed were limited to Red-tail hawk, Northern Harrier (Marsh Hawk) and American Kestrel (Sparrow Hawk), although limited numbers of owls and other hawk species can be assumed to utilize the area occasionally given the proximity of larger wooded tracts. Additional raptors can be anticipated to visit the site area during migration, although this will decrease with additional development in this area of Niagara County.

MAMMALS

Mammals, either directly observed, or whose presence was confirmed by tracks or scat, during site inspections, included whitetail deer, raccoon, red fox, woodchuck, cottontail rabbit, voles and field mice.

Many of the species listed can be considered to be "site transient", in that they are occasionally present but are not supported by site habitat resources alone. These species and individuals would also utilize adjacent areas such as undeveloped woodland, wetland, and agricultural land. With the increasing residential and commercial development, and consequential loss of habitat in the vicinity of the site, it is anticipated the site species diversity will decrease with time.

Locally resident species that would be expected to occur on the site and in the vicinity include such species as whitetail deer, raccoon, gray squirrel, cottontail rabbit, red and gray fox, opossum, and muskrat. Animal species that would be true site residents include woodchuck, skunk, mice and voles. No endangered, threatened, special concern wildlife species, or significant or critical habitats were observed during the site investigation.

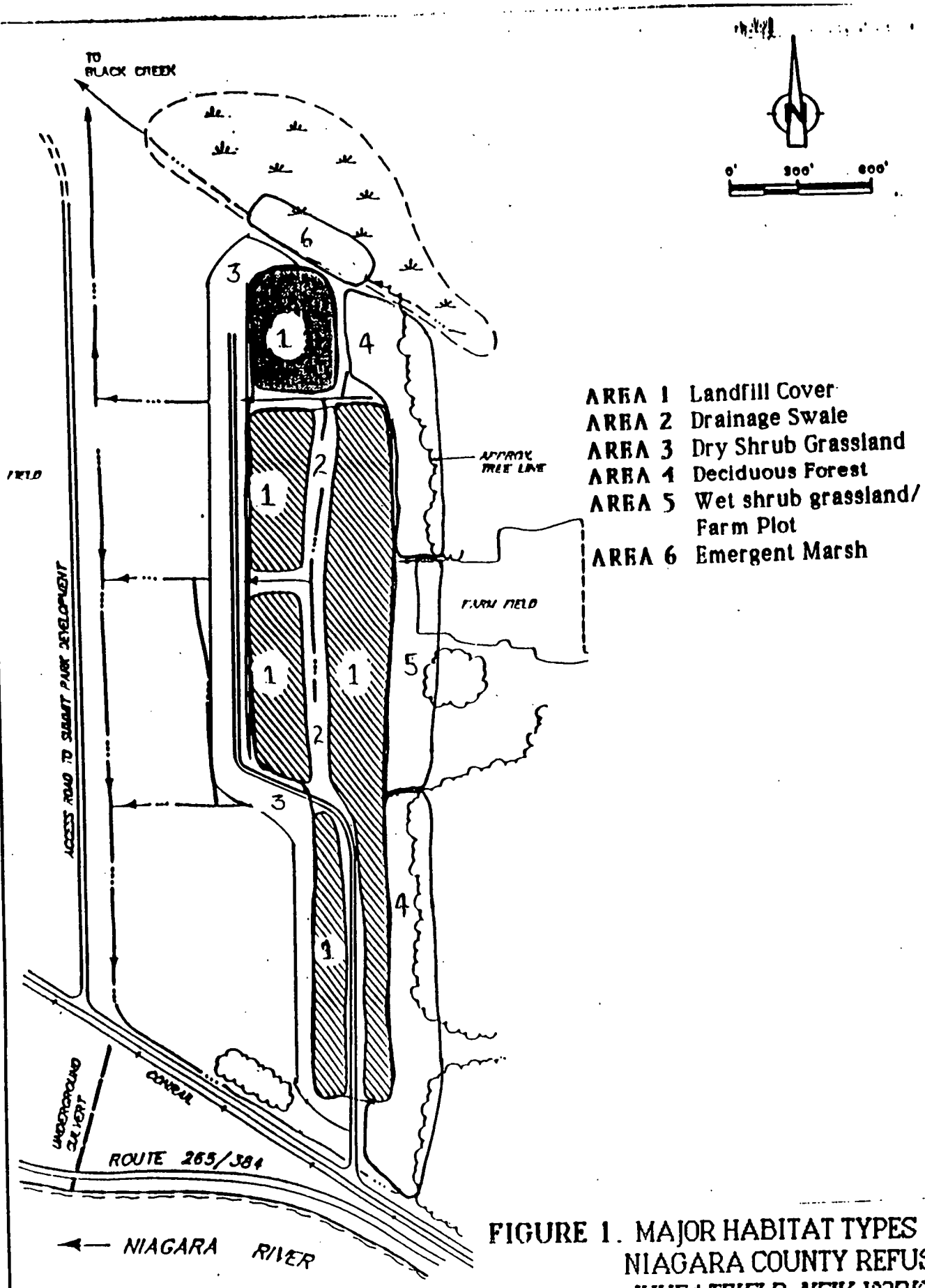


FIGURE 1. MAJOR HABITAT TYPES
NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK

CHA

2677-18/04/89-5-0

TABLE 1. Plant Species Found At The Niagara County Refuse District Landfill-Wheatfield, New York

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
American elm	*Ulmus americana*
White ash	*Fraxinus americana*
Green ash	*Fraxinus pennsylvanicum*
Red maple	*Acer rubrum*
Silver maple	*Acer saccharinum*
Black willow	*Salix nigra*
Weeping willow	*Salix babylonica*
Quaking aspen	*Populus tremuloides*
Eastern cottonwood	*Populus deltoides*
Box elder	*Acer negundo*
Pin oak	*Quercus palustris*
White oak	*Quercus alba*
Black cherry	*Prunus serotina*
Honey locust	*Gleditsia triacanthos*
Jack pine (introduced)	*Pinus banksiana*
Staghorn sumac	*Rhus typhina*
Hawthorn sp.	*Crataegus* sp.
Cockspur hawthorn	*Crataegus crus-galli*
Domestic pear	*Pyrus communis*
Silky dogwood	*Cornus amomum*
Red-osier dogwood	*Cornus stolonifera*
Tartarian honeysuckle	*Lonicera tatarica*
Arrow-wood	*Viburnum dentatum*
Virginia creeper	*Parthenocissus quinquefolia*
Multiflora rose	*Rosa multiflora*
Frost grape	*Vitis vulpina*
Winter grape	*Vitis cinerea*
Cat grape	*Vitis palmata*
Wild red raspberry	*Rubus idaeus*
Black raspberry	*Rubus occidentalis*
Wild strawberry	*Fragaria virginiana*
Poison-ivy	*Rhus radicans*
Herbs	
White sweet clover	*Melilotus alba*
Red clover	*Trifolium pratense*
Hop clover	*Trifolium agrarium*
Low hop clover	*Trifolium procumbens*
Yellow sweet clover	*Melilotus officinalis*
Purple loosestrife	*Lythrum salicaria*

TABLE 1 (Cont.). Plant Species Found At The Niagara County Refuse District Landfill-Wheatfield, New York

COMMON NAME	SCIENTIFIC NAME
Herbs (Cont.)	
Queen Anne's lace	*Daucus carota*
Common ragweed	*Ambrosia artemisiifolia*
Common milkweed	*Asclepias syriaca*
Swamp milkweed	*Asclepias incarnata*
Chicory	*Cichorium intybus*
Teasle	*Dipsacus sylvestris*
Curly dock	*Rumex crispus*
Bittersweet nightshade	*Solanum dulcamara*
Tansy ragwort	*Senecio jacobaea*
Common St. John's wort	*Hypericum perforatum*
Oxeye daisy	*Chrysanthemum leucanthemum*
Cow vetch	*Vicia cracca*
Heal-all	*Prunella vulgaris*
Common burdock	*Arctium minus*
English plantain	*Plantago lanceolata*
Common plantain	*Plantago major*
Spreading dogbane	*Apocynum androsaemifolium*
Pimpernel	*Anagallis arvensis*
Daisy fleabane	*Erigeron annuus*
Lamb's quarters	*Chenopodium album*
Black-eyed Susan	*Rudbeckia hirta*
Evening primrose	*Oenothera biennis*
Black mustard	*Brassica nigra*
Birdsfoot trefoil	*Lotus corniculatus*
Tiger lily	*Lilium tigrinum*
Catnip	*Nepeta cataria*
Tansy	*Tanacetum vulgare*
Dandelion	*Taraxacum officinale*
Butter-and-eggs	*Linaria vulgaris*
Beggar's lice	*Hackelia virginiana*
Cinnamon fern	*Osmunda cinnamomea*
Canada thistle	*Cirsium arvense*
Field sow thistle	*Sonchus arvensis*
Field thistle	*Cirsium discolor*
Common sow thistle	*Sonchus oleraceus*
Bull thistle	*Cirsium vulgare*
Common mullein	*Verbascum thapsus*
Common morning glory	*Ipomoea purpurea*
Bouncing bet	*Saponaria officinalis*
Field bindweed	*Convolvulus arvensis*

TABLE 1 (Cont.). Plant Species Found At The Niagara County Refuse District Landfill-Wheatfield, New York

COMMON NAME	SCIENTIFIC NAME
Herbs (Cont.)	
Water horehound	*Lycopus americanus*
Rough-fruited cinquefoil	*Potentilla recta*
Rough cinquefoil	*Potentilla norvegica*
Yellow wood sorrel	*Oxalis europaea*
Lily-of-the-valley	*Convallaria majalis*
Narrow-leafed bushy goldenrod	*Solidago microcephala*
Tall goldenrod	*Solidago altissima*
Lance-leaf goldenrod	*Solidago graminifolia*
Rough avens	*Geum laciniatum*
Jewelweed	*Impatiens capensis*
Purple-leaved willow herb	*Epilobium coloratum*
Grasses	
Broad-leaf cattail	*Typha latifolia*
Narrow-leaf cattail	*Typha angustifolia*
Common reed	*Phragmites australis*
Redtop	*Agrostis alba*
Squirreltail grass	*Hordeum jubatum*
Downy chess	*Bromus tectorum*
Quack grass	*Agropyron repens*
Red fescue	*Festuca rubra*
Panic grass	*Panicum lanuginosum*
Fox sedge	*Carex vulpinoidea*
Bristlebract sedge	*Carex tribuloides*
Timothy grass	*Phleum pratense*
Green bulrush	*Scirpus atrovirens*
Reed canary grass	*Phalaris arundinacea*
Horsetail	*Equisetum arvense*
Sphagnum moss	*Sphagnum spp.*

TABLE 2. Area 1 - Landfill Cover

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
White oak	*Quercus alba*
White ash	*Fraxinus americana*
Honey locust	*Gleditsia triacanthos*
Black willow	*Salix nigra*
Quaking aspen	*Populus tremuloides*
Box elder	*Acer negundo*
Staghorn sumac	*Rhus typhina*
Multiflora rose	*Rosa multiflora*
Red-osier dogwood	*Cornus stolonifera*
Tartarian honeysuckle	*Lonicera tatarica*
Frost grape	*Vitis vulpina*
Black raspberry	*Rubus occidentalis*
Wild strawberry	*Fragaria virginiana*
Virginia creeper	*Parthenocissus quinquefolia*
Herbs	
Lance leaf goldenrod	*Solidago graminifolia*
Narrow-leaved bushy goldenrod	*Solidago microcephala*
Tall goldenrod	*Solidago altissima*
Purple loosestrife	*Lythrum salicaria*
Canada thistle	*Cirsium arvense*
Common sow thistle	*Sonchus oleraceus*
Queen Anne's lace	*Daucus carota*
Common ragweed	*Ambrosia artemisiifolia*
Chicory	*Cichorium intybus*
Teasle	*Dipsacus sylvestris*
Curly dock	*Rumex crispus*
Bittersweet nightshade	*Solanum dulcamara*
Tansy ragwort	*Senecio jacobaea*
Lamb's quarters	*Chenopodium album*
White sweet clover	*Melilotus alba*
Yellow sweet clover	*Melilotus officinalis*
Red clover	*Trifolium pratense*
Low hop clover	*Trifolium procumbens*
Swamp milkweed	*Asclepias incarnata*
Common milkweed	*Asclepias syriaca*
Black-eyed Susan	*Rudbeckia hirta*
Common St. Johns wort	*Hypericum perforatum*
Spreading dogbane	*Apocynum androsaemifolium*
Tiger lily	*Lilium tigrinum*
Catnip	*Nepeta cataria*
Common burdock	*Arctium minus*

TABLE 2 (Cont.). Area 1 - Landfill Cover

COMMON NAME	SCIENTIFIC NAME
Herbs (cont.)	
Cow vetch	*Vicia cracca*
Birdsfoot trefoil	*Lotus corniculatus*
Evening primrose	*Oenothera biennis*
Common mullein	*Verbascum thapsus*
Common morning glory	*Ipomoea purpurea*
Bull thistle	*Cirsium vulgare*
Field bindweed	*Convolvulus arvensis*
Cinnamon fern	*Osmunda cinnamomea*
Dandelion	*Taraxacum officinale*
Bouncing bet	*Saponaria officinalis*
Oxeye daisy	*Chrysanthemum leucanthemum*
Grasses	
Squirreltail grass	*Hordeum jubatum*
Downy chess	*Bromus tectorum*
Red fescue	*Festuca rubra*
Quack grass	*Agropyron repens*
Redtop grass	*Agrostis alba*
Panic grass	*Panicum lanuginosum*
Timothy grass	*Phleum pratense*
Broad-leaf cattail	*Typha latifolia*
Narrow-leaf cattail	*Typha angustifolia*
Horsetail	*Equisetum arvense*

TABLE 3. Area 2 - Drainage Swale

Staghorn sumac	*Rhus typhina*
Narrow-leaf cattail	*Typha angustifolia*
Broad-leaf cattail	*Typha latifolia*
Purple loosestrife	*Lythrum salicaria*
Common reed	*Phragmites australis*
Wild strawberry	*Fragaria virginiana*
Frost grape	*Vitis vulpina*
Teasle	*Dipsacus sylvestris*
Oxeye daisy	*Chrysanthemum leucanthemum*

TABLE 4. AREA 3 - Dry Shrub Grassland

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
Honey locust	*Gleditsia triacanthos*
Box elder	*Acer negundo*
Quaking aspen	*Populus tremuloides*
White ash (sapling)	*Fraxinus americana*
Staghorn sumac	*Rhus typhina*
Red-osier dogwood	*Cornus stolonifera*
Winter grape	*Vitis cinerea*
Frost grape	*Vitis vulpina*
Wild strawberry	*Fragaria virginiana*
Herbs	
Common plantain	*Plantago major*
Cow vetch	*Vicia cracca*
Queen Anne's lace	*Daucus carota*
Canada thistle	*Cirsium arvense*
Oxeye daisy	*Chrysanthemum leucanthemum*
Common St. Johns wort	*Hypericum perforatum*
Common milkweed	*Asclepias syriaca*
Curly dock	*Rumex crispus*
Daisy fleabane	*Erigeron annuus*
Red clover	*Trifolium pratense*
Hop clover	*Trifolium agrarium*
Yellow sweet clover	*Melilotus officinalis*
Low hop clover	*Trifolium procumbens*
Rough-fruited cinquefoil	*Potentilla recta*
Field thistle	*Cirsium discolor*
Teasle	*Dipsacus sylvestris*
Tall goldenrod	*Solidago altissima*

TABLE 4 (Cont.). AREA 3 - Dry Shrub Grassland

COMMON NAME	SCIENTIFIC NAME
Herbs (cont.)	
Lance leaf goldenrod	*Solidago graminifolia*
Common ragweed	*Ambrosia artemisiifolia*
Evening primrose	*Oenothera biennis*
Common burdock	*Arctium minus*
Purple loosestrife	*Lythrum salicaria*
Black mustard	*Brassica nigra*
Birdsfoot trefoil	*Lotus corniculatus*
Bittersweet nightshade	*Solanum dulcamara*
Tiger lily	*Lilium tigrinum*
Catnip	*Nepeta cataria*
Chicory	*Cichorium intybus*
Tansy	*Tanacetum vulgare*
Dandelion	*Taraxacum officinale*
Butter-and-eggs	*Linaria vulgaris*
Common plantain	*Plantago major*
Pimpernel	*Anagallis arvensis*
Spreading dogbane	*Apocynum androsaemifolium*
Grasses	
Common reed	*Phragmites australis*
Downy chess	*Bromus tectorum*
Redtop	*Agrostis alba*
Reed canary grass	*Phalaris arundinacea*
Timothy grass	*Phleum pratense*
Panic grass	*Panicum lanuginosum*
Quack grass	*Agropyron repens*
Red fescue	*Festuca rubra*
Squirreltail grass	*Hordeum jubatum*
Broad-leaf cattail	*Typha latifolia*
Horsetail	*Equisetum arvense*

TABLE 5. Area 4 - Deciduous Forest and Transition Zone

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
White ash	*Fraxinus americana*
Green ash	*Fraxinus pennsylvanicum*
Black willow	*Salix nigra*
Weeping willow	*Salix babylonica*
American elm	*Ulmus americana*
Red maple	*Acer rubrum*
Silver maple	*Acer saccharinum*
Pin oak	*Quercus palustris*
Box elder	*Acer negundo*
Eastern cottonwood	*Populus deltoides*
Quaking aspen	*Populus tremuloides*
Staghorn sumac	*Rhus typhina*
Black cherry	*Prunus serotina*
Domestic pear	*Pyrus communis*
Cockspur hawthorn	*Crataegus crus-galli*
Hawthorn	*Crataegus spp.*
Red-osier dogwood	*Cornus stolonifera*
Silky dogwood	*Cornus amomum*
Arrow-wood	*Viburnum dentatum*
Tartarian honeysuckle	*Lonicera tatarica*
Wild red raspberry	*Rubus idaeus*
Wild strawberry	*Fragaria virginiana*
Poison-ivy	*Rhus radicans*
Cat grape	*Vitis palmata*
Frost grape	*Vitis vulpina*
Herbs	
Purple loosestrife	*Lythrum salicaria*
Tall goldenrod	*Solidago altissima*
Lance leaf goldenrod	*Solidago graminifolia*
Common St.Johns wort	*Hypericum perforatum*
Spreading dogbane	*Apocynum androsaemifolium*
Queen Anne's lace	*Daucus carota*
Heal-all	*Prunella vulgaris*
Rough avens	*Geum laciniatum*
Swamp milkweed	*Asclepias incarnata*
Common milkweed	*Asclepias syriaca*
Bittersweet nightshade	*Solanum dulcamara*
Lamb's quarters	*Chenopodium album*
Beggar's lice	*Hackelia virginiana*
Field sow thistle	*Sonchus arvensis*
Field thistle	*Cirsium discolor*

TABLE 5 (Cont.). Area 4 - Deciduous Forest and Transition Zone

COMMON NAME	SCIENTIFIC NAME
Herbs (cont.)	
Yellow sweet clover	*Melilotus officinalis*
White sweet clover	*Melilotus alba*
Red clover	*Trifolium pratense*
Low hop clover	*Trifolium procumbens*
Cow vetch	*Vicia cracca*
Common ragweed	*Ambrosia artemisiifolia*
Curly dock	*Rumex crispus*
Daisy fleabane	*Erigeron annuus*
Yellow wood sorrel	*Oxalis europaea*
Chicory	*Cichorium intybus*
Teasle	*Dipsacus sylvestris*
Common plantain	*Plantago major*
English plantain	*Plantago lanceolata*
Lily-of-the-valley	*Convallaria majalis*
Jewelweed	*Impatiens capensis*
Oxeye daisy	*Chrysanthemum leucanthemum*
Rough avens	*Geum laciniatum*
Cow vetch	*Vicia cracca*
Common burdock	*Arctium minus*
Purple-leaved willow herb	*Epilobium coloratum*
Grasses	
Common reed	*Phragmites australis*
Broad-leaf cattail	*Typha latifolia*
Redtop	*Agrostis alba*
Downy chess	*Bromus tectorum*
Squirreltail grass	*Hordeum jubatum*
Timothy grass	*Phleum pratense*
Quack grass	*Agropyron repens*
Panic grass	*Panicum lanuginosum*
Red fescue	*Festuca rubra*
Fox sedge	*Carex vulpinoidea*
Bristlebract sedge	*Carex tribuloides*
Green bulrush	*Scirpus atrovirens*
Horsetail	*Equisetum arvense*
Sphagnum moss	*Sphagnum spp.*

TABLE 6. Area 5 - Wet Shrub Grassland and Farmed Field

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
Green ash	*Fraxinus pennsylvanicum*
White ash	*Fraxinus americana*
Quaking aspen	*Populus tremuloides*
Jack pines (Introduced)	*Pinus banksiana*
Silky dogwood	*Cornus amomum*
Arrow-wood	*Viburnum dentatum*
Red-osier dogwood	*Cornus stolonifera*
Cat grape	*Vitis palmata*
Winter grape	*Vitis cinerea*
Frost grape	*Vitis rupina*
Herbs	
Purple loosestrife	*Lythrum salicaria*
Tall goldenrod	*Solidago altissima*
Lance leaf goldenrod	*Solidago graminifolia*
Queen Anne's lace	*Daucus carota*
Evening primrose	*Oenothera biennis*
Teasle	*Dipsacus sylvestris*
Common St. Johns wort	*Hypericum perforatum*
Heal-all	*Prunella vulgaris*
Common milkweed	*Asclepias syriaca*
Daisy fleabane	*Erigeron annuus*
Water horehound	*Lycopus americanus*
Oxeye daisy	*Chrysanthemum leucanthemum*
Yellow wood sorrel	*Oxalis europaea*
Rough cinquefoil	*Potentilla norvegica*
Grasses	
Broad-leaf cattail	*Typha latifolia*
Redtop	*Agrostis alba*
Downy chess	*Bromus tectorum*
Panic grass	*Panicum lanuginosum*
Red fescue	*Festuca rubra*
Quack grass	*Agropyron repens*
Timothy grass	*Phleum pratense*
Narrow-leaf cattail	*Typha angustifolia*
Common reed	*Phragmites australis*

TABLE 7. Area 6 - Emergent Marsh and Wet Border

COMMON NAME	SCIENTIFIC NAME
Trees and shrubs	
Black willow	*Salix nigra*
White ash	*Fraxinus americana*
Arrow-wood	*Viburnum dentatum*
Frost grape	*Vitis vulpina*
Broad-leaf cattail	*Typha latifolia*
Narrow-leaf cattail	*Typha angustifolia*
Purple loosestrife	*Lythrum salicaria*

Table 8. Wildlife observed or immediately adjacent to the site(*), or expected to be present on site.

COMMON NAME	SCIENTIFIC NAME
Mammals	
Whitetail deer*	*Odocoleus virginianus*
Raccoon*	*Procyon lotor*
Red fox*	*Vulpes fulva*
Woodchuck*	*Marmota monax*
Eastern Cottontail*	*Sylvilagus floridanus*
Gray Squirrel	*Sciurus carolinensis*
Opossum	*Didelphis virginiana*
Muskrat	*Ondatra zibethica*
Striped skunk	*Mephitis mephitis*
Meadow vole*	*Microtus pennsylvanicus*
White-footed mouse*	*Peromyscus leucopus*

It is likely that several other mouse, mole and shrew species exist on-site, along with possibly weasel and Gray Fox.

Birds	
Great blue heron	*Ardea herodias*
Wood duck	*Aix sponsa*
Mallard duck	*Anas platyrhynchos*
Turkey Vulture	*Cathartes aura*
Redtail hawk*	*Buteo jamaicensis*
Harrier*	*Circus cyaneus*
American Kestrel*	*Falco sparverius*
Ring-necked pheasant	*Phasianus colchicus*
Killdeer*	*Charadrius vociferus*
Herring Gull*	*Larus argentatus*
Ring-billed Gull	*Larus delawarensis*
Mourning Dove*	*Zenaidura macroura*
Northern Flicker*	*Colaptes auratus*
Eastern Kingbird*	*Tyrannus tyrannus*
Horned Lark	*Eremophila alpestris*
Blue Jay*	*Cyanocitta cristata*
American Crow*	*Corvus brachyrhynchos*
Black-capped chickadee*	*Parus atricapillus*

Table 8 (Cont.). Wildlife observed or immediately adjacent to the site(*), or expected to be present on site.

COMMON NAME	SCIENTIFIC NAME
Birds (cont.)	
American Robin*	*Turdus migratorius*
Gray Catbird*	*Dumetella carolinensis*
Cedar waxwing*	*Bombycilla cedorum*
Yellow warbler*	*Dendroica petechia*
Common Yellowthroat*	*Geothlypis trichas*
Field Sparrow*	*Spizella pusilla*
Savanah sparrow*	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Redwing blackbird*	*Agelaius phoeniceus*
Brown-headed cowbird*	*Molothrus ater*
Common Grackle	*Quiscalus quiscula*
Starling*	*Sturnus vulgaris*
Northern Cardinal*	*Cardinalis cardinalis*
American goldfinch*	*Carduelistristis*
Purple finch*	*Carpodacus purpureus*
Reptiles and amphibians	
American Toad*	*Bufo americanus*
Northern Leopard Frog*	*Rana pipiens*
Common Garter Snake*	*Thanophis sirtalis*
Milk Snake	*Lampropeltis triangulum*

Attachment A

New York State Department of Environmental Conservation
Information Services
700 Troy-Schenectady Road
Latham, New York 12110-2400

Thomas C. Jorling
Commissioner

August 28, 1990

Mr. Mark A. Lindberg
Auld Environmental Associates
8171 Main Street
Williamsville, New York 14221

Dear Mr. Lindberg:

We have reviewed the Significant Habitat Program and the Natural Heritage Program files with respect to your request for biological information for the proposed Niagara County Refuse District Landfill in the Town of Wheatfield, Niagara County, New York.

We did not identify any potential impacts on endangered, threatened, or special concern wildlife species, rare plant, animal or natural community occurrences, or other significant habitats.

The absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates the presence of these. Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of species, habitats or communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office(s), Division of Regulatory Affairs, at the address(es) on the enclosed list for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under state law.

If this proposed project is still active one year from now we recommend that you contact us again so that we can update this response.

Sincerely,

B. Buffington

Burrell Buffington
Significant Habitat Unit

Enc.

PLEASE TAKE NOTE OF OUR ABOVE CHANGE OF ADDRESS

New York Heritage Program is supported in
part by The Nature Conservancy

APPENDIX E

STRATIGRAPHIC AND INSTRUMENTATION LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-25)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTH OF LANDFILL

HOLE DESIGNATION: NCR-11D
DATE COMPLETED: AUGUST 23, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BLOW COUNTS	RUN NUMBER	CORE RECOVERY	ROD	WATER RETURN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	574.49 572.5						
40.0	For overburden stratigraphy see NCR-11M	564.5	10"ø BOREHOLE CEMENT/ BENTONITE GROUT					
42.5	DOLOSTONE (Oak Orchard Formation): bituminous, fine grained, thinly bedded, gray to brown, some gypsum masses, medium to large, trace carbonaceous partings, gypsum lined fractures	530.5	4"ø STEEL CASING 6"ø PILOT HOLE					
45.0	Gray, thinly bedded, fine grained				1	55	44	100
47.5	Gray to brown, some medium to large gypsum masses, trace gypsum lined fractures, slightly weathered							
50.0			3"ø COREHOLE		2	100	76	100
52.5	Same, with some shaly fractures, platy structures, medium gypsum masses, weathered, trace carbonaceous partings							
55.0	Shaly fractures, fissile (52.7 to 53.7 ft. BGS)				3	98	62	100
57.5	Medium sized gypsum filled masses, weathered (56.7 to 57.7 ft. BGS) Medium sized gypsum mass connected to vertical gypsum filled fractures Lost water return				4	93	77	100
60.0	Slightly weathered, fine grained (59.4 to 59.6 ft. BGS)	511.8						
	END OF HOLE @ 60.7 FT. BGS							
62.5								
65.0								
67.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

(10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-26)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTH SLOPE OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-12D (Page 1 of 3)
DATE COMPLETED: AUGUST 21, 1990
DRILLING METHOD: 6 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH / A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	586.05 583.9					
	CL-CLAY, some silt, trace fine sand and fine round gravel, medium plasticity, gray and brown, moist	583.4	CONCRETE SEAL	1SS		>100	1
2.5	WASTE, red fibrous material, metal, moist, strong phenolic odor WASTE, assorted mixed refuse including wood, plastic, glass, metal, fibrous material, styrofoam, asphalt shingles, newspaper, moist to wet, strong odor.			2SS		22	2
5.0				3SS		28	1.6
				4SS		>50	1.6
7.5				5SS		>100	14
10.0				6SS		81	43
	- gray-blue powdery material and rubber - sheen (12.0 to 14.0 ft. BGS)		10"ø BOREHOLE				
12.5				7SS		98	11
15.0			4"ø STAINLESS STEEL CASING	8SS		35	36
17.5				9SS		19	6
		564.4	CEMENT/ BENTONITE GROUT	10SS		>100	46
20.0				11SS		>100	20
		562.4					
22.5	ML-SILT(NATIVE), some fine sand, some clay, trace fine to coarse gravel, stiff, dense, red-brown, dry			12SS		>100	14
25.0				13SS		>100	150
				14SS		>100	200
27.5	Same, except more fine sand than silt, red-brown to brown, dry to moist			15SS		>100	
30.0				16SS		>100	9
32.5				17SS		>100	
	- boulder						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-15)

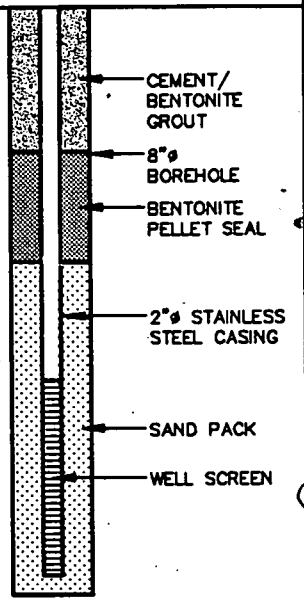
PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTHEAST CORNER OF LANDFILL

HOLE DESIGNATION: NCR-10M

DATE COMPLETED: AUGUST 14, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0		
37.5	MH-SILT, some clay, trace fine sand, trace fine gravel, well graded, stiff, brown to gray	538.7
40.0	SP-SAND, some fine to medium subround gravel, trace silt, poorly graded, medium to dry to moist (40.7 to 41.7 ft. BGS)	
42.5	- laminations, some fine to medium sand, dry to moist (43.0 to 43.8 ft. BGS)	
45.0	SC-SAND, fine grained, some to little clay and silt, trace fine subround gravel, soft, red-brown, moist	530.7
47.5	Bedrock END OF HOLE @ 47.5 FT. BGS NOTES: 1. Soil samples collected for chemical analysis from 2.0 to 4.0 ft. BGS, 26.0 to 28.0 ft. BGS and 44.0 to 46.0 ft. BGS 2. Monitoring well installed to 47.0 ft. BGS	528.2
50.0		
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
42.0 to 47.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
39.0 to 47.5' BGS
Material -# 4 Sand

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
17SS		63	
18SS		>100	
19SS		25	
20SS		75	
21SS		20	
(22SS)		0	
23SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

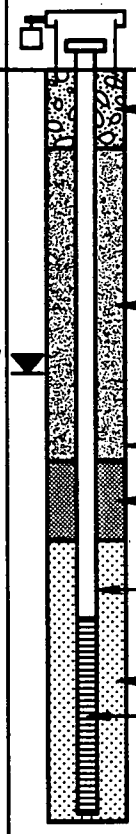
(L-16)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTH OF LANDFILL

HOLE DESIGNATION: NCR-11M
DATE COMPLETED: SEPTEMBER 11, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	575.58
	GROUND SURFACE	572.6
	SM-SAND(TOPSOIL), some silt, fine to medium grained, trace vegetation, firm, dark brown, dry to moist	572.0
2.5	ML-SILT(ALLUVIUM), some clay, little fine sand, medium plasticity, orange-brown and gray mottled, dry to moist Same, except red-brown	
5.0	CL-CLAY, some silt, trace fine to medium sand, very stiff, red-brown, dry to moist - sand filled vertical crack - strong laminations, clay, sand, moist	567.6
7.5	- trace fine rounded gravel, softer, red-brown, moist	564.9
10.0		
	SP-SAND(TILL) fine to medium grained, fine to medium round to subround gravel, soft to firm, red-brown, moist - becomes more dense, stiff to hard, dry to moist	561.9
12.5		
15.0		
17.5		
	Rock encountered - auger and spoon refusal	553.4
20.0	END OF HOLE @ 19.2 FT. BGS NOTES: 1. Soil samples collected for chemical analysis and duplicate sample from 0.0 to 3.2 ft. BGS) 2. Monitoring wells installed at NCR-11 location as follows : NCR-11M - Deep overburden NCR-11D - Bedrock 3. Multiple attempts to auger past 19.2 ft. BGS for installation of the NCR-11M well were unsuccessful due to auger and spoon refusal. Rock was encountered at a depth of 19 ft ±.	
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
14.0 to 19.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
12.0 to 19.2' BGS
Material -# 4 Sand

SAMPLE NUMBER	STATE	'N' VALUE	HNU (ppm)
1SS	X	8	0
2SS	X	13	0
3SS	X	21	0
4SS	X	27	0
5SS	X	7	0
6SS	X	8	0
7SS	X	89	0
8SS	X	>100	0
9SS	X	55	0
10SS	X	>100	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-14)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST OF LANDFILL

HOLE DESIGNATION: NCR-9M (Page 2 of 2)
DATE COMPLETED: AUGUST 09, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
35.0			BENTONITE PELLET SEAL	18SS		>100	
37.5			8"ø BOREHOLE	19SS		>100	
40.0			2"ø STAINLESS STEEL CASING	20SS		>100	
42.5			SAND PACK	21SS		>100	
45.0	END OF HOLE @ 43.7 FT. BGS	531.4	WELL SCREEN	22SS		>100	
47.5	NOTES: 1. Soil samples collected for chemical analysis from 2.0 to 6.0 ft. BGS 2. Monitoring well installed to 43.0 ft. BGS						
50.0			SCREEN DETAILS: Screened Interval: 38.0 to 43.0' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 35.0 to 43.7' BGS Material -# 4 sand				
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-15)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTHEAST CORNER OF LANDFILL

HOLE DESIGNATION: NCR-10M (Page 1 of 2)
DATE COMPLETED: AUGUST 14, 199
DRILLING METHOD: 4 1/4" ID. HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	578.05					
	GROUND SURFACE	575.7					
	OL-SILT(TOPSOIL), little sand, loose, dark brown, dry, vegetation		CONCRETE SEAL	1SS		19	0.5
2.5	ML-SILT, some fine sand, trace clay, medium plasticity, compact, mottled light brown, dry to moist			2SS		20	1
	- trace wire insulation, wet						
5.0	ML-SILT, little fine sand, some clay, high plasticity, hard, strongly laminated, red-brown, dry to moist, some mottling to 5.5 ft. BGS			3SS		20	0
7.5				4SS		53	0
				5SS		33	0
10.0		564.6		6SS		21	0
		563.9	8"ø BOREHOLE				
12.5	CL-CLAY, some silt, soft, low plasicity, some laminated red streaks, moist			1ST			
	CH-CLAY, trace to little silt, soft, sticky, low plasicity, gray with red-brown, moist			7SS		1	0
15.0			2"ø STAINLESS STEEL CASING				
17.5				8SS		4	0
			CEMENT/ BENTONITE GROUT	9SS		3	0
20.0							
	CL-CLAY, some silt, trace fine to medium round to subround gravel, low plasticity, gray, moist, clay lenses alternating with 3/8" thick silt lenses			10SS		1	0
22.5				11SS		3	0
25.0				12SS		0	0
		549.2					
27.5	SP-SAND(TILL), some fine to medium subround gravel, trace silt, poorly graded, dry to moist			13SS		75	
	- medium grained sand lense, poorly graded, wet (28.5 to 29.1 ft. BGS)			14SS		>100	
30.0				15SS		>100	
32.5				16SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-24)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST OF LANDFILL

HOLE DESIGNATION: NCR-8D
DATE COMPLETED: AUGUST 20, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	ROD	WATER RETURN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	581.70 579.4						
	For overburden stratigraphy see NCR-8D	564.7	10"ø BOREHOLE CEMENT/ BENTONITE GROUT 4"ø STEEL CASING					
45.0								
47.5								
	DOLOSTONE (Oak Orchard Formation): bituminous, light to medium gray and brown, fine to medium grained, thin to medium bedded some medium to large gypsum masses, trace FAVOSITES coral and gypsum lined fractures	530.9						
50.0								
52.5			6"ø PILOT HOLE					
55.0								
	Fine grained, thinly bedded, slightly weathered				1	100	28	100
57.5								
60.0	Medium grained, FAVOSITES coral, weathered (59.8 to 60.1 ft. BGS) Lost water return Thin bedded, green-gray, some large gypsum masses, trace gypsum lined fractures							
62.5	Some gypsum masses, weathered (62.0 to 63.4 ft. BGS)		3"ø COREHOLE					
	Gray-green, thinly bedded, shaly (64.3 to 65.2 ft. BGS)				2	91	15	0
65.0								
67.5	Some medium to large gypsum filled masses, brown, medium grained (67.9 to 68.7 ft. BGS) Gypsum lined fracture							
70.0	Brown, medium grained, grading to gray (68.7 to 70.6 ft. BGS)	508.8						
	END OF HOLE @ 70.6 FT. BGS							
72.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-14)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST OF LANDFILL

HOLE DESIGNATION: NCR-9M (Page 1 of 2)
DATE COMPLETED: AUGUST 09, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	578.43 575.1					
2.5	SM-SAND, and silt, roots to 0.5 ft. BGS, trace coarse gravel to 0.5 ft. BGS, brown to red-brown Same, except more silt, moist		CONCRETE SEAL	1SS		32	0.7
5.0				2SS		13	0.7
7.5				3SS		37	0.5
10.0	Same, except trace fine to coarse subround gravel, stiff, moist	564.5		4SS		73	0.5
12.5			2"ø STAINLESS STEEL CASING	5SS		65	0.5
15.0				6SS		86	0.4
17.5	ML-SILT(TILL), some clay, trace fine subround gravel, stiff, red-brown to brown, moist	559.1	CEMENT/ BENTONITE GROUT	7SS		98	0.4
20.0	ML-SILT, little to some very fine sand, trace to little fine subround gravel, little to some clay, stiff, brown, moist	557.1		8SS		38	0.3
22.5	GM-GRAVEL, fine to coarse angular shale, trace to little fine sand and silt, gray, wet, trace sof clay, coarse sand, gypsum, (Vernon Shale Member of the Camillus Formation of the Salina Group) No recovery	553.1	8"ø BOREHOLE	9SS		62	0.5
25.0				10SS		63	0.7
27.5				11SS		63	0.7
30.0				12SS		0.3	>100
32.5			BENTONITE PELLET SEAL	13SS		>100	
				14SS		>100	0.4
				15SS		>100	0.4
				16SS			
				17SS		>100	0.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-13)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-8M (Page 1 of 2)
DATE COMPLETED: AUGUST 15, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	582.56
	GROUND SURFACE	579.8
	SM-SAND(TOPSOIL), fine to medium grained, little silt, loose, dark brown, moist, trace vegetation	579.4 / 579.2
2.5	SM-SAND(FILL), some silt, trace clay, firm to soft, moist	577.3
5.0	CL-CLAY and SILT, trace fine sand, laminated, loose to medium dense, medium plasticity, red-brown to brown with some gray, dry to moist	
7.5	SP-SAND, fine grained, some fine round gravel, trace silt, loose to medium dense, moist	573.2
	SM-SAND, coarse, white (2.9 to 3.1 ft. BGS)	
10.0	SP-SAND(TILL), fine to medium grained, assorted angular to round gravel, some silt, stiff, red-brown, moist - dry and very stiff - rusty colored zone (10.5 to 10.8 ft. BGS)	
12.5	- auger through boulder	
15.0		564.8 ▼
17.5		
20.0	- auger through boulder	
22.5		
25.0		
27.5		
30.0	- auger through boulder	
32.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	N VALUE	HNU (ppm)
1SS		20	
2SS		54	
3SS		27	
4SS		36	
5SS		>100	
6SS		>100	
7SS		>100	
8SS		>100	
9SS		>100	
10SS		>100	
11SS		>100	
12SS		>100	
13SS		>100	
14SS		>100	
15SS		>100	
16SS		>100	
17SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-13)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-8M
(Page 2 of 2)
DATE COMPLETED: AUGUST 15, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0			CEMENT/ BENTONITE GROUT	18SS	⊠	>100	
	GM-GRAVEL, some fine sand, fine shaly pieces, gray to green gray, dry	543.8	BENTONITE PELLET SEAL				
37.5	No recovery		8"ø BOREHOLE	19SS			
			2"ø STAINLESS STEEL CASING	20SS	⊠	>100	
40.0			SAND PACK	21SS	⊠	100	
			WELL SCREEN				
42.5	Auger and spoon refusal	536.3					
	END OF HOLE @ 43.5 FT. BGS						
45.0	NOTES:		SCREEN DETAILS:				
	1. Soil samples collected for chemical analysis from 0.0 to 2.0 ft. BGS and from 3.0 to 5.0 ft. BGS)		Screened Interval: 38.0 to 43.0' BGS				
47.5	2. Monitoring wells installed at NCR-8 location as follows : NCR-8M - Deep overburden NCR-8D - Bedrock		Length -5.0'				
			Diameter -2.0"				
			Slot # 10				
			Material -Stainless Steel				
			Sand pack interval: 36.0 to 43.5' BGS				
50.0			Material -# 4 Sand				
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-12)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-7M (Page 1 of 2)
DATE COMPLETED: AUGUST 03, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	577.19					
	GROUND SURFACE	574.0					
	SM-SAND and SILT, fine grained, medium dense yellow and orange-brown, slightly moist	572.5		1SS		14	
2.5	CH-CLAY, very stiff, high plasticity, laminated fine beding, dark brown, thin red and orange bands, slight moisture			2SS		19	
5.0				3SS		20	
7.5	Moist			4SS		41	
	Trace sand, trace clay fragments	564.5 ▼		5SS		17	
10.0	Softer, moister		2"ø STAINLESS STEEL CASING	6SS		7	
12.5				7SS		11	
15.0				1ST			
17.5			CEMENT/ BENTONITE GROUT	8SS		0	
				9SS		0	
20.0				10SS		0	
22.5			8"ø BOREHOLE	11SS		1	
25.0		549.1		12SS		6	
	SM-SAND(TILL), some silt, little fine to coarse angular and subround gravel, stiff red-brown, moist	548.0		13SS		>100	
27.5	GC-GRAVEL, fine to medium angular shale, trace assorted fine round gravel, trace gray clay, moist to wet, (Vernon Shale Member of Camillus Formation of Salina Group)			14SS		>100	
30.0	Fine to medium sand lenses, gray and green shale, trace gypsum and gray clay			15SS		>100	
32.5				16SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/9)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

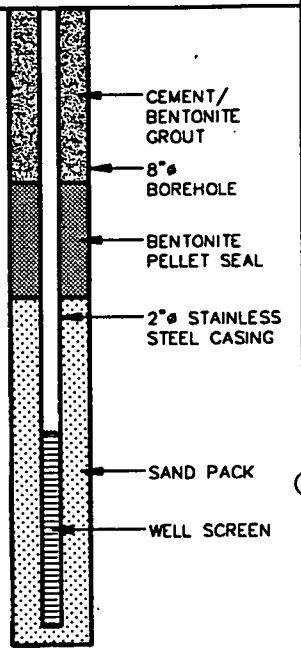
(L-12)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-7M (Page 2 of 2)
DATE COMPLETED: AUGUST 03, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0	Gray shale interbedded with buff and gray silty clays	
37.5	ML-SILT, and fine sand, some fine angular shale gravel, very hard, low plasticity, some shale interbedding, light brown, moist to wet	
40.0		
42.5	At 42.0 to 44.0 ft. BGS spoon contained 12" of red-brown clay and gravel, soft, very wet, no structure	
45.0		
47.5		
		525.0
50.0	END OF HOLE @ 49.0 FT. BGS NOTES: 1. At completion a 2" stainless steel monitoring well was installed to 48.5 ft. BGS. 2. Soil samples collected for chemical analysis from 0.0 to 2.0 ft. BGS and from 44.0 to 46.0 ft. BGS 3. Shelby tube sample taken from 14.0 to 16.0 ft. BGS.	
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
40.0 to 49.0' BGS
Material -# 4 Sand

SAMPLE NUMBER	STATE	N VALUE	HNu (ppm)
17SS		140	
18SS		>100	
19SS		>100	
20SS		39	
21SS		>100	
22SS		109	
23SS		>100	
24SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-11)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: FARM FIELD EAST OF LANDFILL

HOLE DESIGNATION: NCR-6M

DATE COMPLETED: AUGUST 16, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0				17SS		0	0
				18SS		0	0
37.5	SW-SAND(TILL), fine grained, trace gravel, trace silt, medium dense, red-brown, moist, gradational contact between clay and sand	537.9	CEMENT/ BENTONITE GROUT	19SS		15	0
40.0	SM-SAND(TILL), fine grained, some silt, little gravel, extremely dense, well graded, rusty brown, slightly moist	534.9	8"ø BOREHOLE 2"ø STAINLESS STEEL CASING	20SS		101	0
42.5	- some gravel, little silt			21SS		>100	0
45.0			BENTONITE PELLET SEAL	22SS		190	0
47.5	- little gravel, trace silt			23SS		77	0
50.0				24SS		74	0
52.5			SAND PACK WELL SCREEN	25SS		124	0
55.0	BEDROCK, chloritic green shale, extremely weathered and fractured, 50% fractures, fractures filled with calcite	520.4 519.4		26SS		37	0
57.5	END OF HOLE @ 56.0 FT. BGS						
60.0							
62.5							
65.0							

NOTES:
1. Soil samples collected for chemical analysis from 2.0 to 6.0 ft. BGS and from 38.0 to 40.0 ft. BGS
2. Monitoring wells installed at NCR-6 location as follows :
   NCR-6M - Deep overburden
   NCR-6D - Bedrock

SCREEN DETAILS:
Screened Interval:
49.0 to 54.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
46.0 to 56.0' BGS
Material -'# 4 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-23)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST OF LANDFILL

HOLE DESIGNATION: NCR-6D
DATE COMPLETED: AUGUST 23, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RNUUNMBER	CREORECOVERY	RQD	WREATTURRN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	576.93 575.4						
	For overburden stratigraphy see NCR-6M	564.7	10"ø BOREHOLE CEMENT/ BENTONITE GROUT 4"ø STEEL CASING					
52.5								
55.0								
	DOLOSTONE (Oak Orchard Formation): bituminous, light gray to gray, thin to medium bedded, fine grained, saccoroidal, carbonaceous partings, some gypsum lined fractures and gypsum filled small to medium sized vugs, trace FAVOSITES coral, solution pitting	518.7						
57.5			6"ø PILOT HOLE					
60.0	Numerous weathered fractures, fine grained, thinly bedded							
62.5	Small FAVOSITES coral Several longer core pieces, less weathered (63.0 to 64.2 ft. BGS)				1	66	9-	100
65.0			3"ø COREHOLE					
	Medium grained, some solution pitting, weathered fractures, brown-gray Small gypsum filled vug							
67.5								
70.0	Medium grained with some gypsum lined fractures, some small to medium gypsum filled vugs, numerous weathered fractures, some solution pitting				2	91	48	
72.5								
75.0	Several longer core pieces, less weathered, fractures inclined approximately 10° from horizontal (73.9 to 75.7 ft. BGS)							
	END OF HOLE @ 75.7 FT. BGS	499.7						
77.5								
80.0								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-22)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST OF LANDFILL

HOLE DESIGNATION: NCR-5D
DATE COMPLETED: AUGUST 08, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIT ENDRE ORCV KAL	RUN NUMBER	CORE RECOVERY	RQD	WATER RETURN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	577.74 576.0						
	For overburden statigraphy see NCR-5M	564.6	10"ø BOREHOLE CEMENT/ BENTONITE GROUT 4"ø STEEL CASING					
47.5								
50.0								
		524.1	6"ø PILOT HOLE					
52.5	DOLOSTONE (Oak Orchard Formation): Bituminous, light ot medium gray, light to medium bedded, fine grained, saccaroidal, trace carbonaceous partings, trace gypsum lined fractures and medium gypsum filled vugs trace solution pitting, trace FAVOSITES coral							
55.0	Numerous weathered breaks, run is mostly rubble, fine grained, fine to medium bedded				1	54	0	100
57.5	Fine grained, trace solution pitting, trace chert nodules Small to medium chert nodule Trace FAVOSITES coral (59.7 to 60.0 ft. BGS)		3"ø COREHOLE		2	79	11	100
60.0	Lost water circulation							
62.5	Fine grained, light gray, thinly bedded, slightly weathered fractures							
65.0	Medium grained, brown-gray, FAVOSITES coral, porous, reactive to HCl, highly fractured (63.8 to 65.0 ft. BGS)				3	99	48	0
67.5	Medium sized gypsum filled vug							
70.0		505.9						
	END OF HOLE @ 70.1 FT. BGS							
72.5								
75.0								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

(10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-11)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: FARM FIELD EAST OF LANDFILL

HOLE DESIGNATION: NCR-6M
(Page 1 of 2)
DATE COMPLETED: AUGUST 16, 199
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	578.69					
	GROUND SURFACE	575.4					
	OL–SILT AND CLAY(FILL), trace sand, firm, intermixed due to plowing, orange–brown		CONCRETE SEAL	1SS		8	0
		573.4					
2.5	SP–SAND, medium grained, trace silt, loose, poorly graded, orange–brown, moist			2SS		13	0
5.0	– black staining in sand seam (8")			3SS		9	0
		569.9					
	CH–CLAY, stiff, high plasticity, horizontal bedding, dark gray–brown, some orange–red laminations			4SS		14	0
7.5							
				5SS		10	0
10.0		564.7 ▼					
	– 6" seam of very soft clay without laminations		8"ø BOREHOLE	6SS		7	0
	– very soft						
12.5				7SS		6	0
15.0				8SS		2	0
			2"ø STAINLESS STEEL CASING	9SS		2	0
17.5			CEMENT/ BENTONITE GROUT				
				1ST			
20.0				10SS		2	0
22.5				11SS		4	0
25.0				12SS		0	0
27.5				13SS		2	0
				14SS		0	0
30.0				15SS		0	0
32.5				16SS		0	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-10)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-5M (Page 1 of 2)
DATE COMPLETED: JULY 30, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	577.93					
	GROUND SURFACE	576.4					
2.5	SM-SAND(FILL), some red-brown clay, little silt, trace gravel, medium dense, intermixed clay and sand (excavated from adjacent swale.)		CONCRETE SEAL	1SS		12	0
				2SS		21	0
5.0	– moist sand			3SS		23	0
				4SS		45	0
7.5		568.4		5SS		88	0
	SM-SAND(TILL), fine to medium grained, some silt, little gravel, extremely dense, red-brown, moist						
10.0				6SS		>100	0
		564.6	8"ø BOREHOLE				
12.5	– some rusty stains in fissures (0.5 pmm HNU reading at fissures)			7SS		>100	0.5
				8SS		>100	0.8
15.0			2"ø STAINLESS STEEL CASING				
				9SS		>100	0
17.5							
			CEMENT/ BENTONITE GROUT	10SS		>100	0
20.0							
				11SS		>100	1.3
22.5				12SS		53	0
	SW-SAND, some interstratified clay, hard red-brown and gray mottled, moist to wet, sharp contacts with sand						
25.0	SW-SAND, medium grained, medium dense			13SS		46	0
				14SS		43	0
27.5		548.4					
	SM-SAND, fine grained, little silt, little gravel, clay inclusions, dense, red-brown, moist			15SS		41	0
30.0	– laminar clay inclusions from porous bedding – no clay, 1" poorly graded medium sand seam, gray			16SS		55	0
	SW-SAND, medium grained, trace gravel, medium dense, grades from clean sand to gravelly sand, gray to tan and brown, wet			17SS		59	0
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (○) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

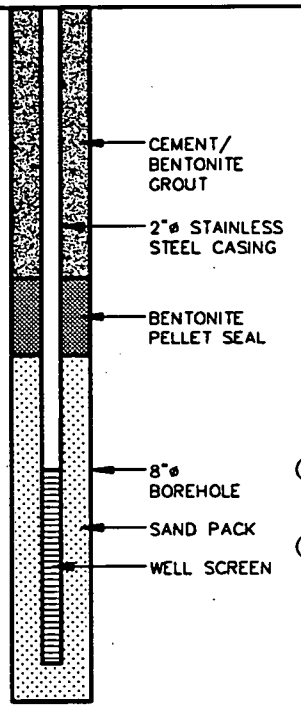
(L-10)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST SIDE OF LANDFILL

HOLE DESIGNATION: NCR-5M (Page 2 of 2)
DATE COMPLETED: JULY 30, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0		
37.5		
	SM-SAND(TILL), fine to medium grained, some silt, little gravel, extremely dense, red-brown, moist	537.9
40.0		
	SW-SAND, medium to coarse grained, some gravel, extremely dense, gray, fine particles light tan and brown, wet	534.9
42.5	- grades to clean medium sand - grades to fine sand with medium gravel	
45.0	- interstratified clean medium sands and silty fine sands - green-gray shale fragment (4" x 1/2")	
47.5	- grades finer and grayer	
50.0		525.9
	END OF HOLE @ 50.5 FT. BGS NOTES: 1. Soil samples collected for chemical analysis from 5.4 to 7.0 ft. BGS and from 44.0 to 47.0 ft. BGS) 2. Monitoring wells installed at NCR-5 location as follows : NCR-5S - Shallow overburden NCR-5M - Deep overburden NCR-5D - Bedrock	
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
44.5 to 49.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
41.5 to 50.5' BGS
Material -# 4 Sand

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
18SS		>100	
19SS		>100	
20SS		>100	
21SS		>100	
22SS		>100	
(23SS)		>100	
(24SS)		0.1	
25SS		>100	
26SS		>100	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-08)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST OF LANDFILL

HOLE DESIGNATION: NCR-4M (Page 2 of 2)
DATE COMPLETED: AUGUST 22, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
35.0	– extremely dense			17SS		>100	
				18SS		>100	
37.5			8"ø BOREHOLE				
				19SS		25	
40.0			CEMENT/ BENTONITE GROUT				
				20SS		51	
42.5				21SS		>100	
45.0			2"ø STAINLESS STEEL CASING	22SS		>100	
				23SS		>100	
47.5			BENTONITE PELLET SEAL				
				24SS		>100	
50.0				25SS		85	
52.5				26SS		>100	
			SAND PACK				
55.0	– trace silt			(27SS)		85	
			WELL SCREEN				
57.5				(28SS)		>100	
	END OF HOLE @ 58.1 FT. BGS	517.8					
60.0	NOTES: 1. Soil samples collected for chemical analysis from 1.0 to 3.0 ft. BGS and from 55.0 to 57.0 ft. BGS) 2. Monitoring wells installed at NCR-4 location as follows : NCR-4S – Shallow overburden NCR-4M – Deep overburden 3. Shelby tube samples attempted from 18.0 to 20.0 ft. BGS. No recovery.		SCREEN DETAILS: Screened Interval: 53.0 to 58.0' BGS Length –5.0' Diameter –2.0" Slot' # 10 Material –Stainless Steel Sand pack interval: 50.0 to 58.1' BGS Material –# 4 Sand				
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

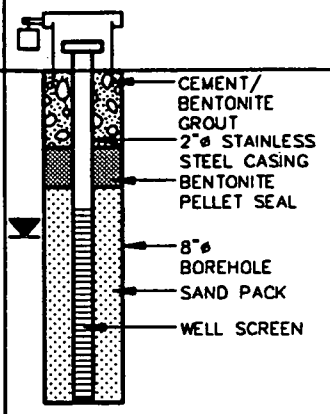
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-09)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: WEST OF LANDFILL

HOLE DESIGNATION: NCR-5S
DATE COMPLETED: JULY 30 , 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	579.34					
	GROUND SURFACE	576.2					
	For complete statigraphic description see NCR-5M						
2.5							
		571.9					
5.0							
7.5							
	END OF HOLE @ 8.6 FT. BGS	567.6					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
3.5 to 8.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
3.0 to 8.6' BGS
Material -#4 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

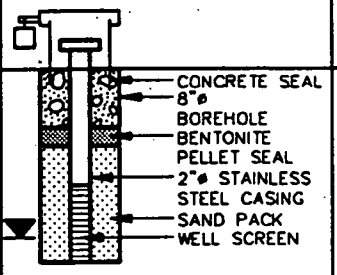
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-07)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST OF LANDFILL

HOLE DESIGNATION: NCR-4S
DATE COMPLETED: AUGUST 23, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	577.88					
	GROUND SURFACE	575.8					
	For complete statigraphic description see NCR-4M						
2.5							
		571.4					
5.0	END OF HOLE @ 5.0 FT. BGS	570.8					
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
3.0 to 5.0' BGS
Length -2.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
2.0 to 5.0' BGS
Material -# 4 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-08)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: EAST OF LANDFILL

HOLE DESIGNATION: NCR-4M (Page 1 of 2)
DATE COMPLETED: AUGUST 22, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	HNu (ppm)
	REFERENCE POINT (Top of Riser)	577.97					
	GROUND SURFACE	575.9					
	OL-SAND and SILT(TOPSOIL), trace clay, black rootlets	575.4		1SS		7	
2.5	SP-SAND, trace silt, loose, fine grained, orange-beige, orange staining grades to a gray sand with orange mottling, moist	572.9		2SS		9	
5.0	CH-CLAY, stiff, laminated, horizontal bedding, dark brown and red-brown laminations high plasticity, very soft, very moist			3SS		14	
				4SS		26	
7.5				5SS		11	
10.0		564.7	▼ 2"ø STAINLESS STEEL CASING	6SS		3	
12.5				7SS		4	
15.0				8SS		2	
	- gravel and coarse sand seam (6" thick), wet			9SS		10	
17.5			CEMENT/ BENTONITE GROUT				
				ST			
20.0				10SS		3	
	SW-SAND(TILL), little gravel, little coarse sand, trace silt, loose, dark brown, slightly red, very moist	554.9		11SS		7	
22.5			8"ø BOREHOLE				
25.0				12SS		6	
				13SS		16	
27.5				14SS		15	
30.0	- little silt			15SS		35	
32.5				16SS		22	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-06)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTHWEST CORNER OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-3M (Page 1 of 2)
DATE COMPLETED: AUGUST 02, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	N VALUE	HNu (ppm)
	REFERENCE POINT (Top of Riser)	579.22					
	GROUND SURFACE	576.1					
	OL-SAND(TOPSOIL), sandy, dark brown, rootlets	575.1	CONCRETE SEAL	1SS		10	0.5
2.5	SW-SAND, medium to fine grained, trace silt, loose, orange brown, moist			2SS		9	0.5
5.0	CH-CLAY, high plasticity, stratified bedding, gray brown, interstratified reds and oranges, moist	571.8		3SS		22	0
	- red orange interstratified clay			4SS		59	0
7.5	- gray sand in fissures			5SS		19	0
10.0		564.8 ▼	2"ø STAINLESS STEEL CASING	6SS		16	0
12.5				7SS		13	0
	- soft, massive, wet			8SS		3	0
15.0	- mottled soft clay, gray brown and orange brown (16.0 to 22.0 ft. BGS)		CEMENT/ BENTONITE GROUT	9SS		4	0
17.5				10SS		0	0
20.0				11SS		1	0
22.5	- grades from trace to little medium sand from 23.0 to 24.0 ft. BGS		8"ø BOREHOLE	12SS		9	0
	ML-SILT(TILL) and sand, trace gravel, very dense, grades from silty clay to silty sand, brown to red brown, moist	552.1					
25.0				13SS		61	0
				14SS		97	0
27.5	SW-SAND, fine to medium grained, trace gravel, dense, well graded, brown, moist	548.1		15SS		82	0
30.0				16SS		32	0
32.5	- 6" gray sand seam, medium grained, trace gravel, well graded - fine sand, trace gravel - some gravel in 6" seam of coarse sand		BENTONITE PELLET SEAL	17SS		50	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-06)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTHWEST CORNER OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-3M (Page 2 of 2)
DATE COMPLETED: AUGUST 02, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0	SM-SAND and silt, fine grained, trace gravel very dense, brown, moist		BENTONITE PELLET SEAL	18SS	X	64	0
37.5			2"ø STAINLESS STEEL CASING	19SS	X	39	0
40.0			SAND PACK	20SS	X	35	0
42.5			WELL SCREEN	21SS	X	62	0
45.0			8"ø BOREHOLE	22SS	X	92	0
47.5	- finer matrix, trace clay			23SS	X	73	0
50.0	END OF HOLE @ 49.3 FT. BGS	526.8	BENTONITE GROUT	24SS	X	>100	0
52.5	NOTES: 1. Soil samples collected for chemical analysis from 4.0 to 6.0 ft. BGS and from 24.0 to 26.0 ft. BGS) 2. Monitoring wells installed at NCR-3 location as follows : NCR-3S - Shallow overburden NCR-3M - Deep overburden		SCREEN DETAILS: Screened Interval: 37.5 to 42.5' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 34.0 to 43.0' BGS Material -# 4 Sand	25SS	X	>100	0
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-21)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTH OF LANDFILL

HOLE DESIGNATION: NCR-2D
DATE COMPLETED: AUGUST 02, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRERORCVKAL	RUNNUMBER	CORE RECOVERY	ROD	WATER RETURN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	577.39 575.4						
	For overburden stratigraphy see NCR-2M	564.5	10"ø BOREHOLE CEMENT/ BENTONITE GROUT 4"ø STEEL CASING 6"ø PILOT HOLE					
47.5								
50.0		525.3						
52.5	DOLOSTONE (Oak Orchard Formation): bituminous, light to medium gray with some brown; fine to medium grained, thin to medium bedded, saccharoidal, trace gypsum masses, small gypsum filled vugs, trace solution pitting, carbonaceous partings Medium grained, saccharoidal, weathered fractures, trace small gypsum filled vugs							
55.0	Gypsum mass, (53.1 to 53.3 ft. BGS) numerous weathered fractures, solution pitting (53.3 to 54.7 ft. BGS) Lost water circulation				1	91	27	70
57.5	Numerous weathered fractures, medium grained, solution pitting (55.8 to 58.3 ft. BGS) low water return		3"ø COREHOLE					
60.0	Trace small gypsum filled vugs (57.9 to 58.0 ft. BGS) Fine to medium grained, light gray to brown, weathered, numerous fractures, trace small gypsum filled vugs, gypsum lined fractures, carbonaceous partings							
62.5	Some inclined fractures, 15° from horizontal (62.3 to 62.7 ft. BGS)				2	100	23	0
65.0	Trace small gypsum filled vugs Trace gypsum lined fractures (66.0 to 66.4 ft. BGS)							
67.5		506.8						
	END OF HOLE @ 68.6 FT. BGS							
70.0								
72.5								
75.0								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-05)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTHEAST CORNER OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-3S
DATE COMPLETED: AUGUST 02, 199
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	579.60 576.1					
	For complete stratigraphic description see NCR 3M	574.9	CEMENT/ BENTONITE GROUT BENTONITE PELLET SEAL 2"ø STAINLESS STEEL CASING 8"ø BOREHOLE SAND PACK WELL SCREEN				
2.5							
5.0	END OF HOLE @ 5.0 FT. BGS	571.1					
7.5			SCREEN DETAILS: Screened Interval: 3.0 to 5.0' BGS Length -2.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 2.5 to 5.0' BGS Material -# 4 Sand				
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTH OF LANDFILL

HOLE DESIGNATION: NCR-2M (Page 1 of 2)
DATE COMPLETED: AUGUST 01, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	578.40					
	GROUND SURFACE	575.2					
	SM-SAND(TOPSOIL), some silt, vegetation, soft, brown, fine to medium grained, poorly graded, dry to moist		CONCRETE SEAL	1SS		7	0
2.5	Same, except moist to wet						
	ML-SILT, some clay, very stiff, fine grained, trace fine subround gravel, red-brown with gray mottling, dry to moist	572.2		2SS		11	0
5.0	CH-CLAY, trace to little silt, trace fine subround gravel, very stiff, red-brown, dry	569.9		3SS		18	0
				4SS		37	0
7.5							
				5SS		11	0
10.0	CH-CLAY, very soft, sticky, low plasticity, gray with red streaks, moist to wet	564.6 ▼		6SS		5	0.1
			8"ø BOREHOLE				
12.5				7SS		5	0
15.0				8SS		0	0
			2"ø STAINLESS STEEL CASING	9SS		1	0
17.5							
	– small subround gravel		CEMENT/ BENTONITE GROUT	10SS		0	0
20.0							
				11SS		1	0
22.5							
	– 1" thick medium grained sand lense			12SS		1	0
	– fine subround gravel	550.9					
25.0	ML-SILT(TILL), some fine to medium subround gravel, some little to fine sand, trace clay, very stiff, red-brown, moist	550.4		13SS		60	0.4
	* At 24.9 ft. BGS auger and spoon refusal encountered. Stratigraphy from 24.8 to 50.0 ft. BGS taken from adjacent borehole			15SS		77	0
27.5							
	SM-SAND and SILT, trace clay, little fine to medium round to subround gravel, very stiff to hard, poorly graded, red-brown, moist	545.7		16SS		43	0
30.0				17SS		65	0
	SP-SAND, trace silt, little fine to medium round to subround gravel, stiff, poorly graded, red-brown, moist to wet						
32.5	– wet (32.2 to 32.6 ft. BGS)			18SS		72	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTH OF LANDFILL

HOLE DESIGNATION: NCR-2M (Page 2 of 2)
DATE COMPLETED: AUGUST 01, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0	– wet (36.0 to 36.8 ft. BGS)		CEMENT/ BENTONITE GROUT	19SS		49	0
37.5			2"ø STAINLESS STEEL CASING	20SS		56	0
				21SS		45	0
40.0			BENTONITE PELLET SEAL	22SS		41	
42.5				23SS		50	
45.0	Same, with less gravel, softer		8"ø BOREHOLE	24SS		36	
			SAND PACK	25SS		46	
47.5			WELL SCREEN	26SS		58	
50.0	END OF HOLE @ 50.0 FT. BGS	525.2					
52.5	NOTES: 1. Soil samples collected for chemical analysis from 2.0 to 3.0 ft. BGS and from 24.0 to 24.7 ft. BGS) 2. Monitoring wells installed at NCR-2 location as follows : NCR-2S – Shallow overburden NCR-2I – Intermediate overburden NCR-2M – Deep overburden NCR-2D – Bedrock		SCREEN DETAILS: Screened Interval: 44.6 to 49.6' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 41.5 to 50.0' BGS Material –# 4 Sand				
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

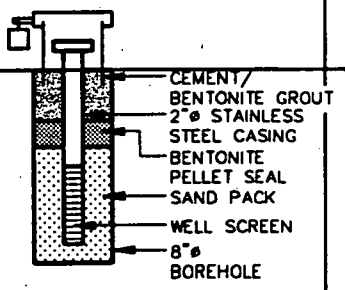
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-02)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTH OF LANDFILL

HOLE DESIGNATION: NCR-2S
DATE COMPLETED: JULY 27, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: / K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	578.42 575.3					
2.5	For complete statigraphic description see NCR 2M						
5.0	END OF HOLE @ 5.0 FT. BGS	570.3					
7.5			SCREEN DETAILS: Screened Interval: 2.5 to 4.5' BGS Length -2.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 2.0 to 5.0' BGS Material -# 4				
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

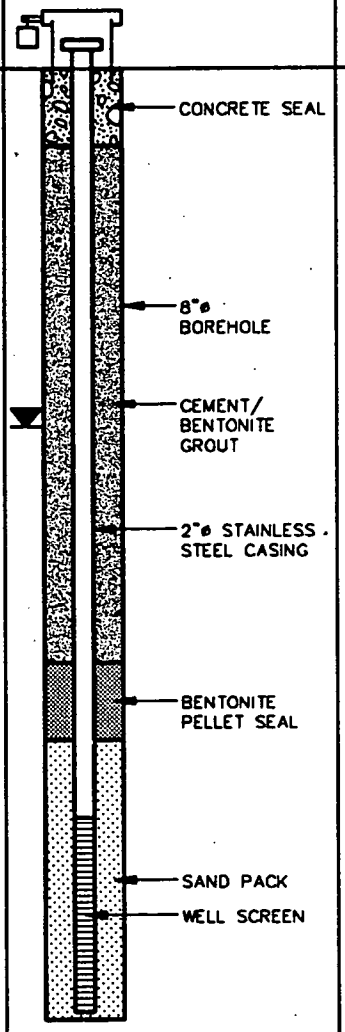
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-03)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTH OF LANDFILL

HOLE DESIGNATION: NCR-2I
DATE COMPLETED: JULY 25, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	578.84 575.5					
2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	For complete statigraphic description see NCR 2M						
25.0 27.5 30.0 32.5	END OF HOLE @ 24.6 FT. BGS	550.9					



SCREEN DETAILS:
Screened Interval:
19.4 to 24.4' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
17.4 to 24.6' BGS
Material -# 4 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: ~ 1500' NORTH OF LANDFILL

HOLE DESIGNATION: NCR-1M (Page 1 of 2)
DATE COMPLETED: AUGUST 30, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	577.37					
	GROUND SURFACE	574.3					
	SP-SAND, trace silt, loose, gray-brown, orange staining, moist		CONCRETE SEAL	1SS		7	0
2.5		571.3		2SS		26	0
	CH-CLAY, high plasticity, very stiff, dark brown, slightly moist			3SS		23	0
5.0				4SS		55	1
7.5				5SS		12	1
		564.5					
10.0	- firm, some silt layers, with some fine sand			6SS		6	2
			8"ø BOREHOLE				
12.5				7SS		5	1
15.0		559.3	2"ø STAINLESS STEEL CASING	ST			
	SM-SAND and SILT(TILL), trace clay and gravel, medium dense, tan to red-brown, wet						
	- 2" fine gravel seam			8SS		9	7
17.5	- 2" fine gravel seam						
			CEMENT/ BENTONITE GROUT	9SS		23	2
20.0				10SS		>100	2
22.5		551.8		11SS		>100	2
	SP-SAND, fine grained, very to extremely dense, poorly graded, red-brown, moist						
	3" fine gravel seam, wet	549.8		12SS		84	1
25.0	SM-SAND and SILT, trace gravel, extremely dense, tan to red-brown, moist						
				13SS		>100	
27.5							
				14SS		42	
30.0							
				15SS		68	
32.5				16SS		69	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼ (10/30/90)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: ~ 1500' NORTH OF LANDFILL

HOLE DESIGNATION: NCR-1M (Page 2 of 2)
DATE COMPLETED: AUGUST 30, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: E. SUNDIN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0			CEMENT/ BENTONITE GROUT; 8"ø BOREHOLE	16SS		69	
37.5				17SS		82	
40.0			BENTONITE PELLET SEAL	18SS		61	
42.5			2"ø STAINLESS STEEL CASING	19SS		45	
45.0			SAND PACK	20SS		44	
	SP-SAND, loose, coarse grained, grey, wet	528.8	WELL SCREEN	21SS		81	
		528.3		22SS		>100	
	END OF HOLE @ 46.0 FT. BGS			23SS		>100	
47.5	NOTES:						
	1. At completion a 2"ø stainless steel monitoring well was installed to 45.7ft. BGS.						
50.0	2. Soil samples collected for chemical analysis from 1.0 to 3.0ft. BGS. and 44.0 to 46.0ft. BGS.						
	3. Shellby tube sample taken from 14.0 16.0 ft. BGS.						
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

SCREEN DETAILS:
Screened Interval:
40.7 to 45.7' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
38.0 to 46.0' BGS
Material -# 4 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-26)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTH SLOPE OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-12D (Page 2 of 3)
DATE COMPLETED: AUGUST 21, 1990
DRILLING METHOD: 6 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH / A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0				18SS		>100	
37.5				19SS		>100	
				20SS		>100	
40.0	ML-SILT, some fine sand, trace clay, little fine to coarse subround gravel, stiff, lamiated, brown, dry to moist		10"ø BOREHOLE	21SS		>100	7.2
42.5				22SS		>100	4.2
45.0			CEMENT/ BENTONITE GROUT	23SS		>100	1.2
				24SS		>100	1.2
47.5			4"ø STAINLESS STEEL CASING	25SS		>100	1.2
	GW-GRAVEL, fine to coarse, angular, moist - roller bit through boulder	535.7		26SS		>50	1.2
50.0							
		532.4					
52.5	ML-SILT, some fine sand, trace clay, little fine to coarse subround gravel, stiff, lamiated, brown, dry to moist						
55.0	- roller bit through boulder						
	BEDROCK	526.9					
57.5	END OF HOLE @ 57.0 FT. BGS						
	NOTES: 1. Monitoring well installed after coring with open hole from 61.0 to 76.0 ft. BGS 2. Soil samples submitted for chemical analysis from 22.0 to 26.0 ft. and 44.0 to 46.0 ft. BGS 3. Duplicate soil sample submitted for chemical analysis as NCR-12A from 44.0 to 46.0 ft. BGS		6"ø PILOT HOLE				
60.0							
62.5							
			3"ø COREHOLE				
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

(L-27)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SOUTH END OF INDUSTRIAL CELL

HOLE DESIGNATION: NCR-12D (Page 3 of 3)
DATE COMPLETED: AUGUST 31, 1990
DRILLING METHOD: HSA / NX CORE
CRA SUPERVISOR: K. LYNCH

DEPTH	DESCRIPTION OF STRATA	ELEVATION	MONITOR INSTALLATION	BIENDTRREORCVKAL	RUNNUMBER	CORE RECOVERY	ROD	WATER RETURN
ft BGS		ft. AMSL				%	%	%
	REFERENCE POINT (Top Of Casing) GROUND SURFACE	586.05 583.9						
55.0	Overburden		10"ø BOREHOLE CEMENT/ BENTONITE GROUT					
57.5	DOLOSTONE (Oak Orchard Formation): bituminous, fine to medium grained, thin to medium bedded, saccharoidal, trace large gypsum mass, small gypsum filled vugs, carbonaceous partings	526.9	6"ø PILOT HOLE 4"ø STAINLESS STEEL CASING					
60.0	Fine grained, numerous fractures, slightly weathered (61.0 to 65.0 ft. BGS)							
62.5					1	58	20	100
65.0	Fine grained, thinly bedded, slightly weathered, trace FAVOSITES coral		3"ø COREHOLE		2	58.	20	0
67.5	Fine grained, very slight weathering, gypsum lined fractures, large gypsum mass, light to medium gray Gypsum lined fractures				3	100	94	0
70.0	Large gypsum mass							
72.5	Fine to medium grained, trace gypsum lined fractures, small gypsum filled vugs, small, tight vertical fractures, trace stylolites and carbonaceous partings Weathered, numerous fractures, medium grained grading to fine grained Trace small gypsum filled vugs				4	94	74	0
75.0	Tight vertical crack, fine grained rock, light gray							
	Stylolite Trace gypsum lined fractures, weathered	507.9						
77.5	END OF HOLE @ 76 FT. BGS							
80.0								
82.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

▽ WATER FOUND ▼ STATIC WATER LEVEL NM - NOT MEASURED

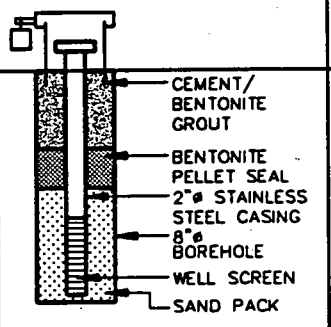
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-17)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: SWALE IN SOUTHWEST CORNER OF LANDFILL

HOLE DESIGNATION: NCR-13S
DATE COMPLETED: AUGUST 08, 1990
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser) 577.15 GROUND SURFACE 574.2						
	OL-SILT, some fine sand, trace red-brown clay, vegetation, firm, loose, dark brown, dry to moist	573.4		1SS		8	
2.5	SW-SAND(ALLUVIAL), fine to medium grained, well graded, firm, some structure, brown and gray mottled, some rusty staining, moist to wet	570.9		2SS		7	
5.0	Same, except medium to coarse, wet ML-SILT, some sand, firm, slightly plastic, gray with some brown, wet			3SS		18	
7.5	ML-SILT, some to little clay, trace fine sand, medium plasticity, hard to stiff, laminated, red-brown to brown, dry to moist.	568.2					
	END OF HOLE @ 6.0 FT. BGS						
10.0	NOTES: 1. Soil samples collected for chemical analysis from 0.0 to 0.8 ft. BGS and from 2.5 to 3.5 ft. BGS 2. Monitoring well installed to 5.8 ft. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
3.8 to 5.8' BGS
Length -2.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
3.0 to 6.0' BGS
Material -# 4 sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-18)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: FIELD WEST OF LANDFILL

HOLE DESIGNATION: TEST PIT 1
DATE COMPLETED: SEPTEMBER 20, 1990
DRILLING METHOD: BACKHOE
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	SM-SAND(TOPSOIL), some silt, trace clay, loose, disturbed, dry to moist, farmed interval	-0.7					0.7
1.0	ML-SILT, some clay, dense, hard, brown and gray, moist						0.7
	Same, with some fine sand, moist, worm burrows, roots						1
2.0			BACKFILL				1.2
	SP-SAND, fine to medium grained, compact, brown to gray, moist	-2.4					1
3.0	Cl-CLAY, little silt, trace fine sand, red-brown and gray, dry to moist						1
	END OF HOLE @ 3.5 FT. BGS	-3.5					
4.0	NOTES:						
	1. Test pit excavated to investigate presence of dessication cracks in confining layer.						
5.0	2. Test pit backfilled with excavated soil material.						
	3. Clay drainage tile present at 3.0 ft. BGS.						
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: IN N-S SWALE SOUTH OF LANDFILL ACCESS ROAD

HOLE DESIGNATION: TEST PIT 2
DATE COMPLETED: SEPTEMBER 20, 1990
DRILLING METHOD: BACKHOE
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE	SAMPLE HNU (ppm)
1.0	SM-SAND, some silt, vegetation, loose, brown dry to moist, (cover material)	-1.0					
2.0	CI-CLAY, some silt, trace fine sand, trace glass, stone, metal, red and brown-gray, (cover material)						
3.0		-3.0					
4.0	Fill material, assorted refuse including : metal, wire, glass, paper, plastic, 5 gallon metal bucket, black, moist to wet, slight odor						
5.0			BACKFILL				
6.0							
7.0							
8.0							
9.0		-9.0					
10.0	CL-CLAY(NATIVE), some silt, some fine sand, very stiff, red-brown, moist	-10.0					
11.0	END OF HOLE @ 10.0 FT. BGS NOTES: 1. Test pit excavated to locate abandoned water line and to evaluate potential for chemical migration along the waterline. 2. Test pit backfilled with excavated material.						
12.0							
13.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-20)

PROJECT NAME: NCR SITE
PROJECT NO.: 2677
CLIENT: NCR PRP GROUP
LOCATION: NORTHWEST CORNER OF INDUSTRIAL CELL

HOLE DESIGNATION: TEST PIT 3
DATE COMPLETED: SEPTEMBER 20, 1990
DRILLING METHOD: BACKHOE
CRA SUPERVISOR: K. LYNCH

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
1.0	CI-CLAY, some silt, some fine sand, trace refuse including : paper, plastic and glass, dense, stiff, red-brown, dry to moist, black were refuse is encountered, some odor CI-CLAY, some silt, some fine sand, dense, stiff, 8" diameter transite pipe located at 4.5 ft. BGS		BACKFILL				
2.0							
3.0							
4.0							
5.0							
6.0	END OF HOLE @ 5.5 FT. BGS NOTES: 1. Waterline backfill material is clay excavated to install waterline. 2. Soil sample taken for chemical analysis and EPA split from 5.3 to 5.5 ft. BGS (under water line)	-5.5					
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX F

POTABLE WATER TCL/TAL ANALYTICAL DATA REPORT

RADIAN
CORPORATION

Radian Work Order P0-07-093

Analytical Report
07/31/90

Conestoga Rovers and Asso.

Conestoga Rovers and Asso.
7703 Niagara Falls Blvd.
Niagara Falls, NY 14304

Tony Misercola

Customer Work Identification Wheatfield
Purchase Order Number CRA 2677

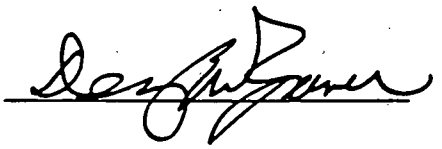
Contents:

1 Analytical Data Summary
2 Sample History
3 Comments Summary
4 Notes and Definitions

Radian Analytical Services
900 Perimeter Park
Morrisville, NC 27560

919-481-0212

Client Services Coordinator: WLBROWN

Certified by: 

Conestoga Rovers and Asso.
Radian Work Order: PO-07-093

Method:SW8080-Pesticides/PCBs (1)
List:CLP PEST/PCBs

Sample ID:	BJ HP WATER LOT# AX770	PBLK
Factor:	1	1
Results in:	ug/L 01C	ug/L 04A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Aldrin	ND	0.010	ND	0.010
alpha-BHC	ND	0.010	ND	0.010
beta-BHC	ND	0.010	ND	0.010
delta-BHC	ND	0.010	ND	0.010
gamma-BHC	ND	0.010	ND	0.010
Chlordane	ND	0.010	ND	0.010
alpha-Chlordane	ND	0.010	ND	0.010
gamma-Chlordane	ND	0.010	ND	0.010
4,4'-DDD	ND	0.010	ND	0.010
4,4'-DDE	ND	0.010	ND	0.010
4,4'-DDT	ND	0.020	ND	0.020
Dieldrin	ND	0.010	ND	0.010
Endosulfan I	ND	0.010	ND	0.010
Endosulfan II	ND	0.030	ND	0.030
Endosulfan Sulfate	ND	0.050	ND	0.050
Endrin	ND	0.010	ND	0.010
Endrin Aldehyde	ND	0.020	ND	0.020
Endrin Ketone	ND	0.050	ND	0.050
Heptachlor	ND	0.010	ND	0.010
Heptachlor epoxide	ND	0.010	ND	0.010
Isodrin	ND	0.010	ND	0.010
Kepone	ND	0.010	ND	0.010
Methoxychlor	ND	0.050	ND	0.050
PCB-1016	ND	0.10	ND	0.10
PCB-1221	ND	0.20	ND	0.20
PCB-1232	ND	0.20	ND	0.20
PCB-1242	ND	0.10	ND	0.10
PCB-1248	ND	0.10	ND	0.10
PCB-1254	ND	0.20	ND	0.20
PCB-1260	ND	0.20	ND	0.20

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

estoga Rovers and Asso.
dian Work Order: P0-07-093

Method:SW8080-Pesticides/PCBs (1)
List:CLP PEST/PCBs

Sample ID:	BJ HP WATER LOT# AX770	PBLK
Factor:	1	1
Results in:	ug/L 01C	ug/L 04A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Toxaphene	ND	0.50	ND	0.50
Surrogate Recovery(%)				
Dibutylchlorendate	94		92	
Control Limits: 24 to 154				
2,4,5,6-Tetrachloro-m-xylene	83		77	
Control Limits: 26 to 144				

ND Not detected at specified detection limit

For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Conestoga Rovers and Asso.
Radian Work Order: P0-07-093

Method:SW8240-Volatile Organics (1)
List:CLP VOLATILES Water

Sample ID:	BJ HP WATER LOT# AX770	VBLK
Factor:	1.0	1.0
Results in:	ug/L	ug/L
	01A	02A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Acetone	ND	100	ND	100
Benzene	ND	5.0	ND	5.0
Bromodichloromethane	ND	5.0	ND	5.0
Bromoform	ND	5.0	ND	5.0
Bromomethane	ND	10	ND	10
Carbon disulfide	ND	5.0	ND	5.0
Carbon tetrachloride	ND	5.0	ND	5.0
Chlorobenzene	ND	5.0	ND	5.0
Chloroethane	ND	10	ND	10
Chloroform	ND	5.0	ND	5.0
Chloromethane	ND	10	ND	10
Dibromochloromethane	ND	5.0	ND	5.0
1,1-Dichloroethane	ND	5.0	ND	5.0
1,2-Dichloroethene (total)	ND	5.0	ND	5.0
1,1-Dichloroethene	ND	5.0	ND	5.0
trans-1,2-Dichloroethene	ND	5.0	ND	5.0
1,2-Dichloropropane	ND	5.0	ND	5.0
cis-1,3-Dichloropropene	ND	5.0	ND	5.0
trans-1,3-Dichloropropene	ND	5.0	ND	5.0
Ethylbenzene	ND	5.0	ND	5.0
2-Hexanone	ND	50	ND	50
4-Methyl-2-pentanone	ND	50	ND	50
Methylene chloride	ND	5.0	ND	5.0
Styrene	ND	5.0	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0	ND	5.0
Tetrachloroethene	ND	5.0	ND	5.0
Toluene	ND	5.0	ND	5.0
Total xylenes	ND	5.0	ND	5.0
1,1,2-Trichloroethane	ND	5.0	ND	5.0
Trichloroethene	ND	5.0	ND	5.0

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

estoga Rovers and Asso.
ian Work Order: PO-07-093

Method:SW8240-Volatile Organics (1)
List:CLP VOLATILES Water

Sample ID:	BJ HP WATER LOT# AX770	VBLK
Factor:	1.0	1.0
Results in:	ug/L	ug/L
	01A	02A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Trichlorofluoromethane	ND	5.0	ND	5.0
Vinyl acetate	ND	5.0	ND	5.0
Vinyl chloride	ND	10	ND	10
Surrogate Recovery(%)				
1,4-Bromofluorobenzene	108		92	
Control Limits: 86 to 115				
1,2-Dichloroethane-d4	103		117 Q	
Control Limits: 76 to 114				
Toluene-d8	89		103	
ntrol Limits: 88 to 110				

ND Not detected at specified detection limit

Q Outside control limits

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Conestoga Rovers and Asso.
Radian Work Order: P0-07-093

Method:SW8270-Semi-Volatiles (1)
List:CLP SEMIVOLATILE LIST

Sample ID:	BJ HP WATER LOT# AX770	SBLK
Factor:	1.0	1.0
Results in:	ug/L	ug/L
	01B	03A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Acenaphthene	ND	10	ND	10
Acenaphthylene	ND	10	ND	10
Anthracene	ND	10	ND	10
Benzo(a)anthracene	ND	10	ND	10
Benzo(a)pyrene	ND	10	ND	10
Benzo(b)fluoranthene	ND	10	ND	10
Benzo(g,h,i)perylene	ND	10	ND	10
Benzo(k)fluoranthene	ND	10	ND	10
Benzoic acid	ND	10	ND	10
Benzyl alcohol	ND	20	ND	20
4-Bromophenyl phenyl ether	ND	10	ND	10
Butylbenzylphthalate	ND	10	ND	10
4-Chloro-3-methylphenol	ND	20	ND	20
p-Chloroaniline	ND	20	ND	20
bis(2-Chloroethoxy)methane	ND	10	ND	10
bis(2-Chloroethyl)ether	ND	10	ND	10
bis(2-Chloroisopropyl)ether	ND	10	ND	10
2-Chloronaphthalene	ND	10	ND	10
2-Chlorophenol	ND	10	ND	10
4-Chlorophenyl phenyl ether	ND	10	ND	10
Chrysene	ND	10	ND	10
Di-n-octylphthalate	ND	10	ND	10
Dibenz(a,h)anthracene	ND	10	ND	10
Dibenzofuran	ND	10	ND	10
Dibutylphthalate	ND	10	ND	10
1,2-Dichlorobenzene	ND	10	ND	10
1,3-Dichlorobenzene	ND	10	ND	10
1,4-Dichlorobenzene	ND	10	ND	10
3,3'-Dichlorobenzidine	ND	20	ND	20
2,4-Dichlorophenol	ND	10	ND	10

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.

[redacted]estoga Rovers and Asso.
[redacted]ian Work Order: P0-07-093

Method:SW8270-Semi-Volatiles (1)
List:CLP SEMIVOLATILE LIST

Sample ID:	BJ HP WATER LOT# AX770	SBLK
Factor:	1.0	1.0
Results in:	ug/L	ug/L
	01B	03A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Diethylphthalate	ND	10	ND	10
2,4-Dimethylphenol	ND	10	ND	10
Dimethylphthalate	ND	10	ND	10
4,6-Dinitro-2-methylphenol	ND	50	ND	50
2,4-Dinitrophenol	ND	50	ND	50
2,4-Dinitrotoluene	ND	10	ND	10
2,6-Dinitrotoluene	ND	10	ND	10
bis(2-Ethylhexyl)phthalate	ND	10	ND	10
Fluoranthene	ND	10	ND	10
Fluorene	ND	10	ND	10
[redacted]xachlorobenzene	ND	10	ND	10
[redacted]xachlorobutadiene	ND	10	ND	10
Hexachlorocyclopentadiene	ND	10	ND	10
Hexachloroethane	ND	10	ND	10
Indeno(1,2,3-cd)pyrene	ND	10	ND	10
Isophorone	ND	10	ND	10
2-Methylnaphthalene	ND	10	ND	10
4-Methylphenol(p-cresol)	ND	10	ND	10
N-Nitrosodiphenylamine	ND	10	ND	10
N-Nitrosodipropylamine	ND	10	ND	10
Naphthalene	ND	10	ND	10
2-Nitroaniline	ND	50	ND	50
3-Nitroaniline	ND	50	ND	50
4-Nitroaniline	ND	50	ND	50
Nitrobenzene	ND	10	ND	10
2-Nitrophenol	ND	20	ND	20
4-Nitrophenol	ND	50	ND	50
Pentachlorophenol	ND	50	ND	50
Phenanthrene	ND	10	ND	10
Phenol	ND	10	ND	10

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.

Conestoga Rovers and Asso.
Radian Work Order: PO-07-093

Method:SW8270-Semi-Volatiles (1)
List:CLP SEMIVOLATILE LIST

Sample ID:	BJ HP WATER LOT# AX770	SBLK
Factor:	1.0	1.0
Results in:	ug/L	ug/L
	01B	03A
Matrix:	water	water

	Result	Det. Limit	Result	Det. Limit
Pyrene	ND	10	ND	10
1,2,4-Trichlorobenzene	ND	10	ND	10
2,4,5-Trichlorophenol	ND	10	ND	10
2,4,6-Trichlorophenol	ND	10	ND	10
Surrogate Recovery(%)				
2-Fluorobiphenyl	79		79	
Control Limits: 43 to 116				
2-Fluorophenol	47		48	
Control Limits: 21 to 100				
Nitrobenzene-d5	74		76	
Control Limits: 35 to 114				
Phenol-d5	28		29	
Control Limits: 10 to 94				
Terphenyl-d14	94		95	
Control Limits: 33 to 141				
2,4,6-Tribromophenol	91		91	
Control Limits: 10 to 123				

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.

estoga Rovers and Asso.
ian Work Order: PO-07-093

Sample Identifications and Dates

Sample ID	BJ HP WATER LOT# AX770	VBLK	SBLK	PBLK		
Date Sampled	07/24/90					
Date Received	07/24/90	07/24/90	07/24/90	07/24/90		
Matrix	water	water	water	water		
	01	02	03	04		
SW8080-Pesticides/PCBs						
Prepared	07/26/90			07/26/90		
Analyzed	07/27/90			07/27/90		
Analyst	MGD			MGD		
File ID	A307275			A307274		
Blank ID	A307274			A307274		
Instrument	GC3			GC3		
Report as	received			received		
SW8240-Volatile Organics						
Prepared						
Analyzed	07/30/90	07/30/90				
Analyst	RH	RH				
File ID	45C3206	45C3203				
Blank ID	45C3203					
Instrument	4500C	4500C				
Report as	received	received				
SW8270-Semi-Volatiles						
Prepared	07/26/90		07/26/90			
Analyzed	07/31/90		07/31/90			
Analyst	MH		MH			
File ID	4584917		4584916			
Blank ID	4584916					
Instrument	4500B		4500B			
Report as	received		received			

RADIAN
CORPORATION

Appendix A

Comments, Notes and Definitions

Conestoga Rovers and Asso.
Radian Work Order: P0-07-093

ND ALL METHODS EXCEPT CLP

This flag is used to denote analytes which are not detected at or above the specified detection limit.

EXPLANATION

The value to the right of the < symbol is the method specified detection limit for the analyte.

Q ALL METHODS EXCEPT CLP

This quality control standard is outside method or laboratory specified control limits.

EXPLANATION

This flag is applied to matrix spike, analytical QC spike, and surrogate recoveries; and to RPD(relative percent difference) values for duplicate analyses and matrix spike/matrix spike duplicate result.

Conestoga Rovers and Asso.
Radian Work Order: PO-07-093

TERMS USED IN THIS REPORT:

Analyte - A chemical for which a sample is to be analyzed. The analysis will meet EPA method and QC specifications.

Compound - See Analyte.

Detection Limit - The method specified detection limit, which is the lower limit of quantitation specified by EPA for a method. Radian staff regularly assess their laboratories' method detection limits to verify that they meet or are lower than those specified by EPA. Detection limits which are higher than method limits are based on experimental values at the 99% confidence level. The detection limits for EPA CLP (Contract Laboratory Program) methods are CRQLs (contract required quantitation limits) for organics and CRDLs (contract required detection limits) for inorganics. Note, the detection limit may vary from that specified by EPA based on sample size, dilution or cleanup. (Refer to Factor, below)

EPA Method - The EPA specified method used to perform an analysis. EPA has specified standard methods for analysis of environmental samples. Radian will perform its analyses and accompanying QC tests in conformance with EPA methods unless otherwise specified.

Factor - Default method detection limits are based on analysis of clean water samples. A factor is required to calculate sample specific detection limits based on alternate matrices (soil or water), reporting units, use of cleanup procedures, or dilution of extracts/ digestates. For example, extraction or digestion of 10 grams of soil in contrast to 1 liter of water will result in a factor of 100.

Matrix - The sample material. Generally, it will be soil, water, air, oil, or solid waste.

Radian Work Order - The unique Radian identification code assigned to the samples reported in the analytical summary.

Units -	ug/L	micrograms per liter (parts per billion);liquids/water
	ug/kg	micrograms per kilogram (parts per billion); soils/solids
	ug/M3	micrograms per cubic meter; air samples
	mg/L	milligrams per liter (parts per million);liquids/water
	mg/kg	milligrams per kilogram (parts per million);soils/solids
	%	percent; usually used for percent recovery of QC standards
	uS/cm	conductance unit; microSiemans/centimeter
	mL/hr	milliliters per hour; rate of settlement of matter in water
	NTU	turbidity unit; nephelometric turbidity unit
	CU	color unit; equal to 1 mg/L of chloroplatinate salt

APPENDIX G

GEOTECHNICAL SOILS TESTING DATA

BUFFALO DRILLING COMPANY
INC.
955 NIAGARA STREET
BUFFALO, NEW YORK
14213
(716) 886-0375

February 27, 1991 JOB NO: 91-1216

Conestoga Rovers & Associates
7703 Niagara Falls Boulevard
Niagara Falls, New York 14304

ATTN: Ms. Carol F. Dunnigan

RE: Laboratory Soil Analysis Results
for CRA Project - NCR #2677.

Dear Ms. Dunnigan:

The enclosed tables, graphs and visual classification logs present laboratory soil testing results for samples provided by Conestoga-Rovers & Associates (CRA) for the above referenced project. All soil samples were tested for the following parameters.

A.) ASTM METHODS

- ASTM D2974 Moisture, ash and organic matter of peat and other organic soils.
- ASTM D4318 Liquid limit, plastic limit, and plasticity index of soils.
- ASTM D422 Particle size analysis of soils.
- ASTM D2216 Laboratory determination of water content of soil.

B.) GENERALLY ACCEPTED LABORATORY METHODS

- Bulk Density The total mass (solids plus water) per total volume.
- Permeability The rate of discharge of water under laminar flow conditions through a unit cross-sectional area of a porous medium under a unit hydraulic gradient and standard temperature conditions. Determination was completed using a fixed wall, constant head permeameter.

.	Porosity	The percentage of the total soil mass that is void of material.

Thank you for the opportunity to assist on this project. Please call if questions should arise.

Very truly yours,
BUFFALO DRILLING COMPANY, INC.

David M. Frazier
Senior Geologist

Encl.

LABORATORY TEST RESULTS
SUMMARY
TABLE NO. 1

Sample I.D.	Depth (ft.)	Moisture Content (%)	Atterberg Limits			Grain Size Analysis				Organic Matter (%)	Bulk Density (gcc)	Porosity (%)	Permeability @ 20 deg. C (cm/sec)
			LL (%)	PL (%)	PI (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)				
NCR #2	6-6.5'	22.5	45	24	21	0	0.8	14.2	85.0	2.2	1.99	43.8	1.4 E-08
	6.5-7'	25.7											
	7-7.3'	27.2											
NCR #6	18-18.5'	37.5	44	22	22	0	1.2	9.8	89.0	2.8	1.85	52.1	3.9 E-08
	18.5-19'	41.4											
	19-19.5'	42.8											
	19.5-20'	42.8											
NCR #7	14-14.5'	39.0	41	22	19	0	0.2	12.8	87.0	1.9	1.85	52.2	4.0 E-08
	14.5-15'	39.8											
	15-15.5'	42.0											
	15.5-16'	42.2											
NCR #10	12-12.5'	33.4	47	24	23	0	0.5	11.5	88.0	1.3	1.89	49.5	4.1 E-08
	12.5-13'	36.4											
	13-13.5'	38.8											
	13.5-14'	40.3											

APPENDIX A

Laboratory Soil Test Results

A.1 Plasticity Chart

A.2 Gradation Curves

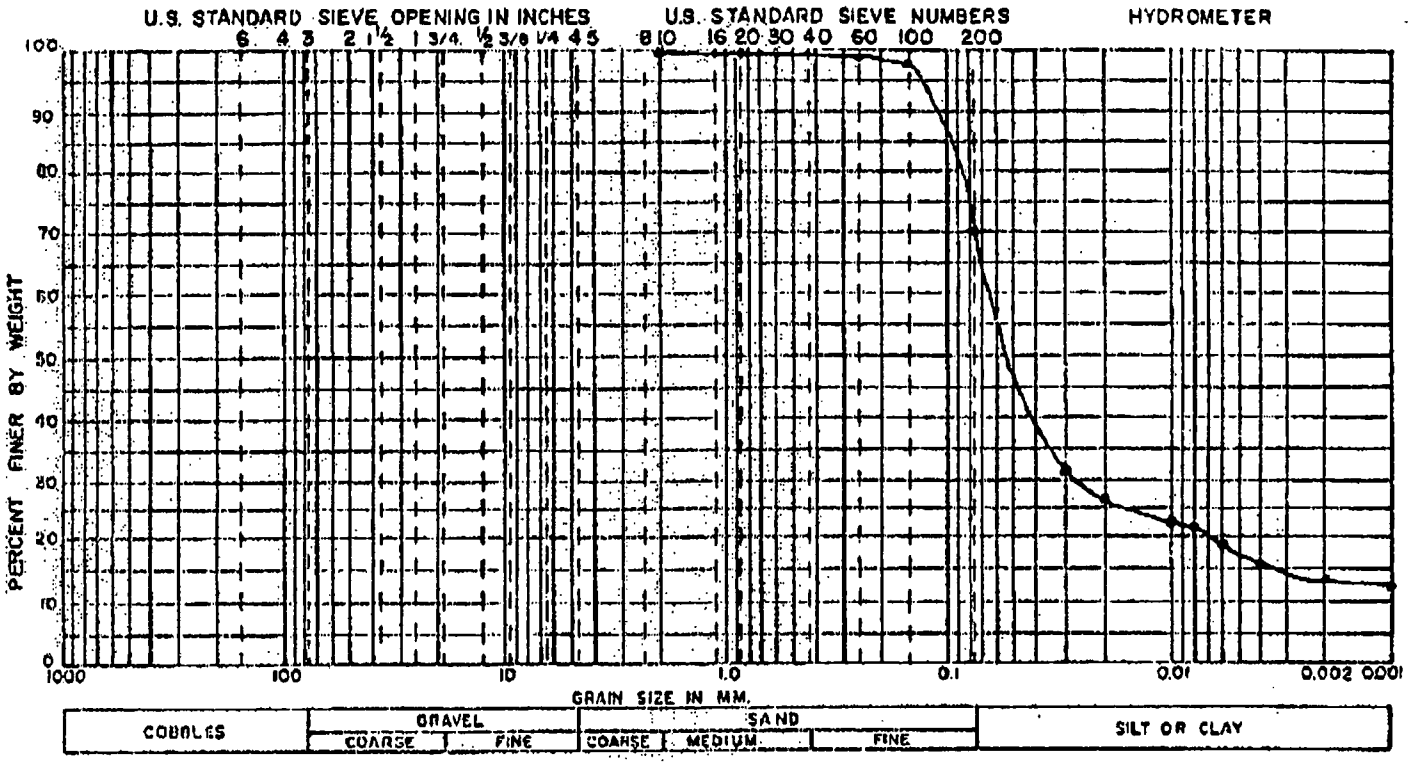
A.3 Laboratory Soil Testing Logs

Glynn Geotechnical Engineering
GEOTECHNICAL AND CIVIL ENGINEERING SERVICES

GRAIN SIZE ANALYSIS
ASTM D - 422

PROJECT: NCR SITE
LOCATION: WHEATFIELD, NEW YORK
CLIENT: CONASTOGA, ROVERS AND ASSOCIATES
DATE SAMPLED: AUGUST 8, 1990
SAMPLE DESCRIPTION: NCR 13
SAMPLE CLASSIFICATION: sandy SILT - ML

DATE REPORTED: JULY 20, 1992
PROJECT NO.: 92 - 1062
SAMPLE NO.: 92 - 05
DEPTH: 0' - 4'



SIEVE SIZE	% FINER	REQUIREMENT
# 10	100	
# 20	99	
# 40	99	
# 60	99	
# 100	98	
# 200	70	
0.002 mm	14	

PHYSICAL PROPERTIES

NATURAL MOISTURE 12.7 %

ATTERBERG LIMITS

LL P.L P.I.

COEFFICIENTS

D10 --- D30 0.027 D60 0.065

Cu (D60/D10) ---

Cc { (D30XD30) / (D10XD60) } ---

PROCTOR DATA

METHOD: A.S.T.M. D -

PCF @ %

NOTES:

REPORTED BY: Keith R Wieland
KEITH WIELAND

REVIEWED BY: ARH / Mark W. Glynn
ARH / MARK W. GLYNN, P.E.

COC FILE:GRAIN/HD

REV:04/92

6503 CAMPBELL BLVD. • LOCKPORT, N.Y. 14094 • 716 / 625-6933 • FAX: 716 / 625-6983

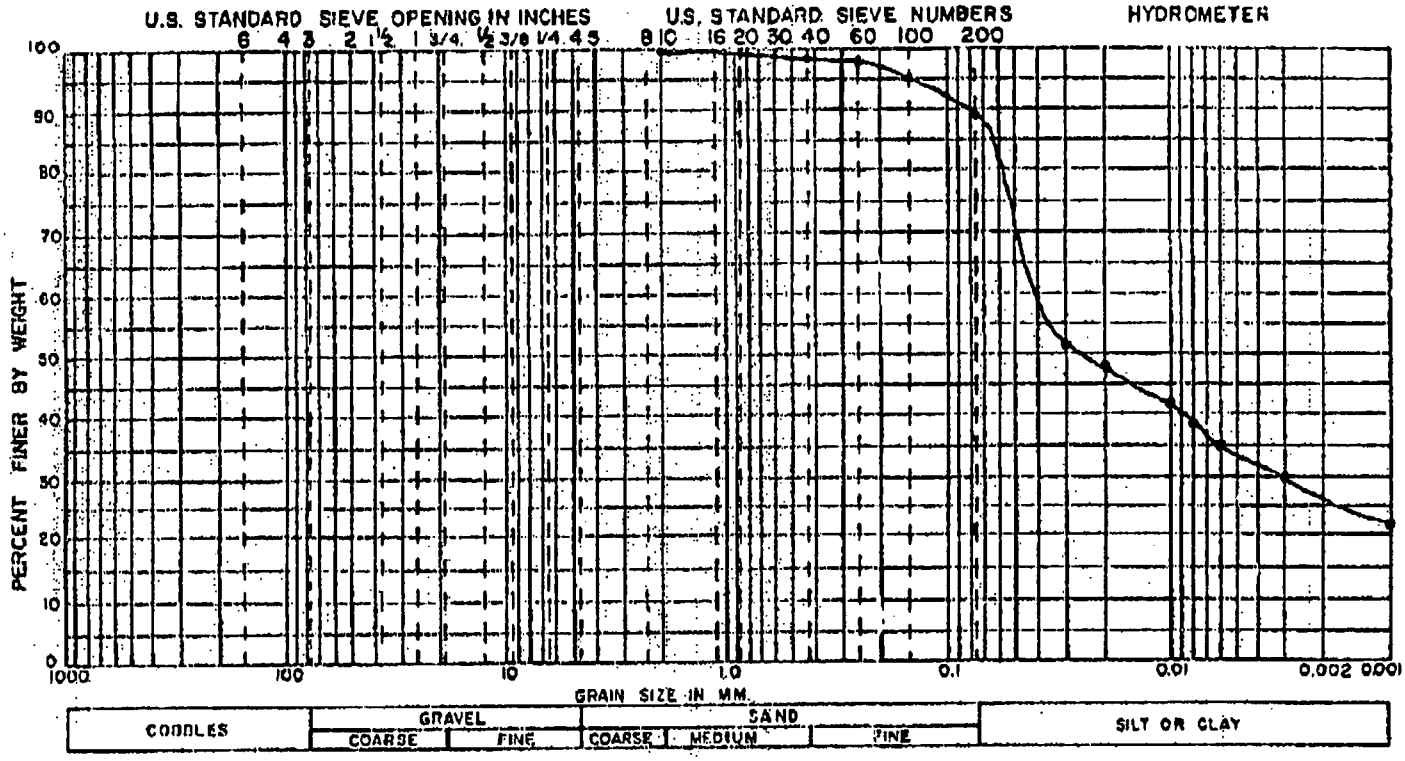
Glynn Geotechnical Engineering

GEOTECHNICAL AND CIVIL ENGINEERING SERVICES

GRAIN SIZE ANALYSIS
ASTM D - 422

PROJECT: NCR SITE
LOCATION: WHEATFIELD, NEW YORK
CLIENT: CONASTOGA, ROVERS AND ASSOCIATES
DATE SAMPLED: AUGUST 8, 1990
SAMPLE DESCRIPTION: NCR 8/10
SAMPLE CLASSIFICATION: sandy SILT - ML

DATE REPORTED: JULY 20, 1992
PROJECT NO.: 92 - 1062
SAMPLE NO.: 92 - 04
DEPTH: 0' - 4'



SIEVE SIZE	% FINER	REQUIREMENT
# 10	100	
# 20	99	
# 40	99	
# 60	98	
# 100	95	
# 200	89	
0.002 mm	26	

PHYSICAL PROPERTIES

NATURAL MOISTURE 13.2 %

ATTERBERG LIMITS

L.L P.L P.I.

COEFFICIENTS

D10 --- D30 0.003 D60 0.035

Cu (D60/D10) ---

Cc { (D30XD30) / (D10XD60) } ---

PROCTOR DATA

METHOD: A.S.T.M. D -

PCF @ %

NOTES:

REPORTED BY: KEITH WIELAND

REVIEWED BY: ARH / MARK W. GLYNN, P.E.

DOC FILE: GRAIN/HO

REV:04/92

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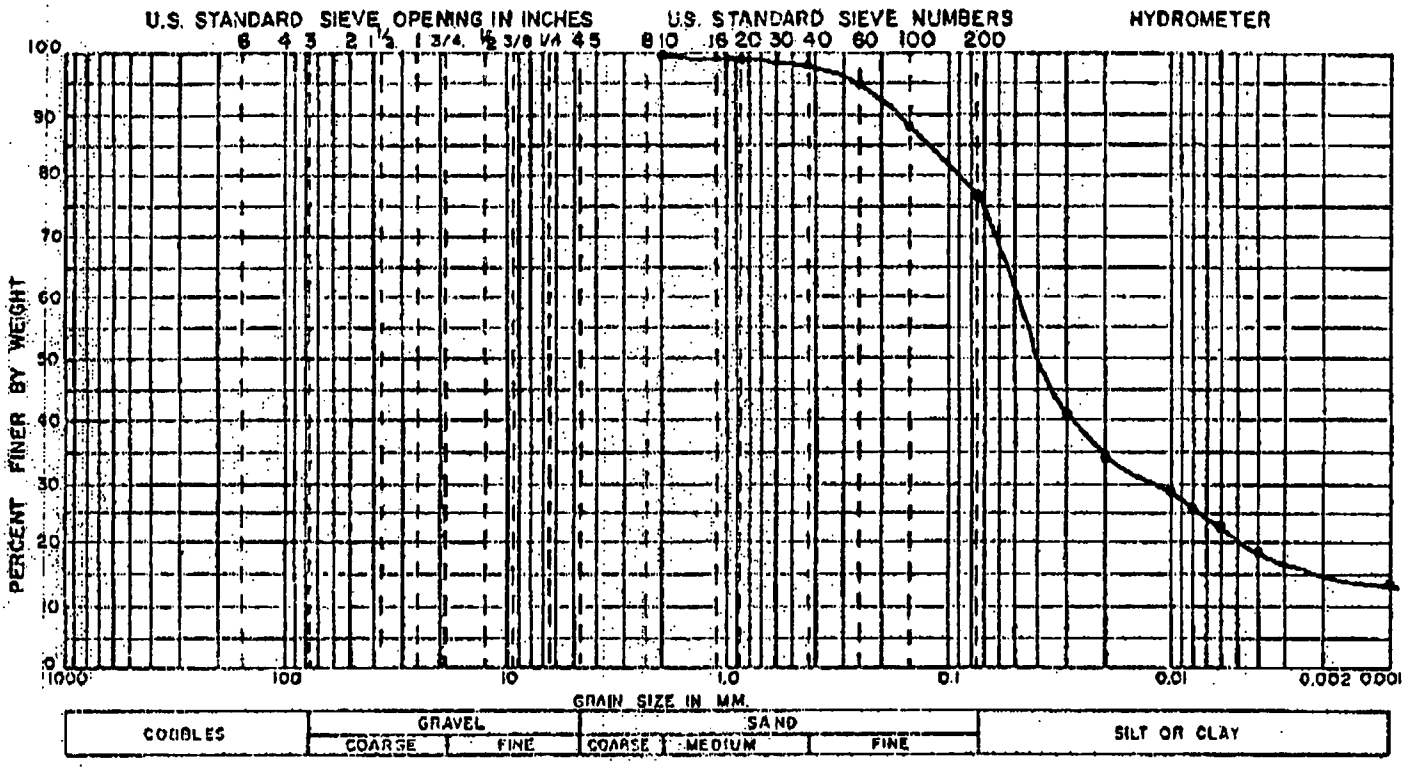
GEOTECHNICAL AND CIVIL ENGINEERING SERVICES

GRAIN SIZE ANALYSIS

ASTM D - 422

PROJECT: NCR SITE
LOCATION: WHEATFIELD, NEW YORK
CLIENT: CONASTOGA, ROVERS AND ASSOCIATES
DATE SAMPLED: AUGUST 8, 1990
SAMPLE DESCRIPTION: NCR 5
SAMPLE CLASSIFICATION: sandy SILT - ML

DATE REPORTED: JULY 20, 1992
PROJECT NO.: 92 - 1062
SAMPLE NO.: 92 - 03
DEPTH: 0' - 4'



SIEVE SIZE	% FINER	REQUIREMENT
# 10	100	
# 20	99	
# 40	98	
# 60	95	
# 100	88	
# 200	77	
0.002 mm	16	

PHYSICAL PROPERTIES

NATURAL MOISTURE 11.5 %

ATTERBERG LIMITS

LL P.L P.I.

COEFFICIENTS

D10 ---- D30 0.013 D60 0.05

Cu (D60/D10) ----

Cc { (D30XD30) / (D10XD60) } ----

PROCTOR DATA

METHOD: A.S.T.M. D -

PCF @ %

NOTES:

REPORTED BY: Keith R Wieland
KEITH WIELAND

REVIEWED BY: ARH / MARK W. GLYNN, P.E.

DOC FILE: GRAIN/HD

REV: 04/92

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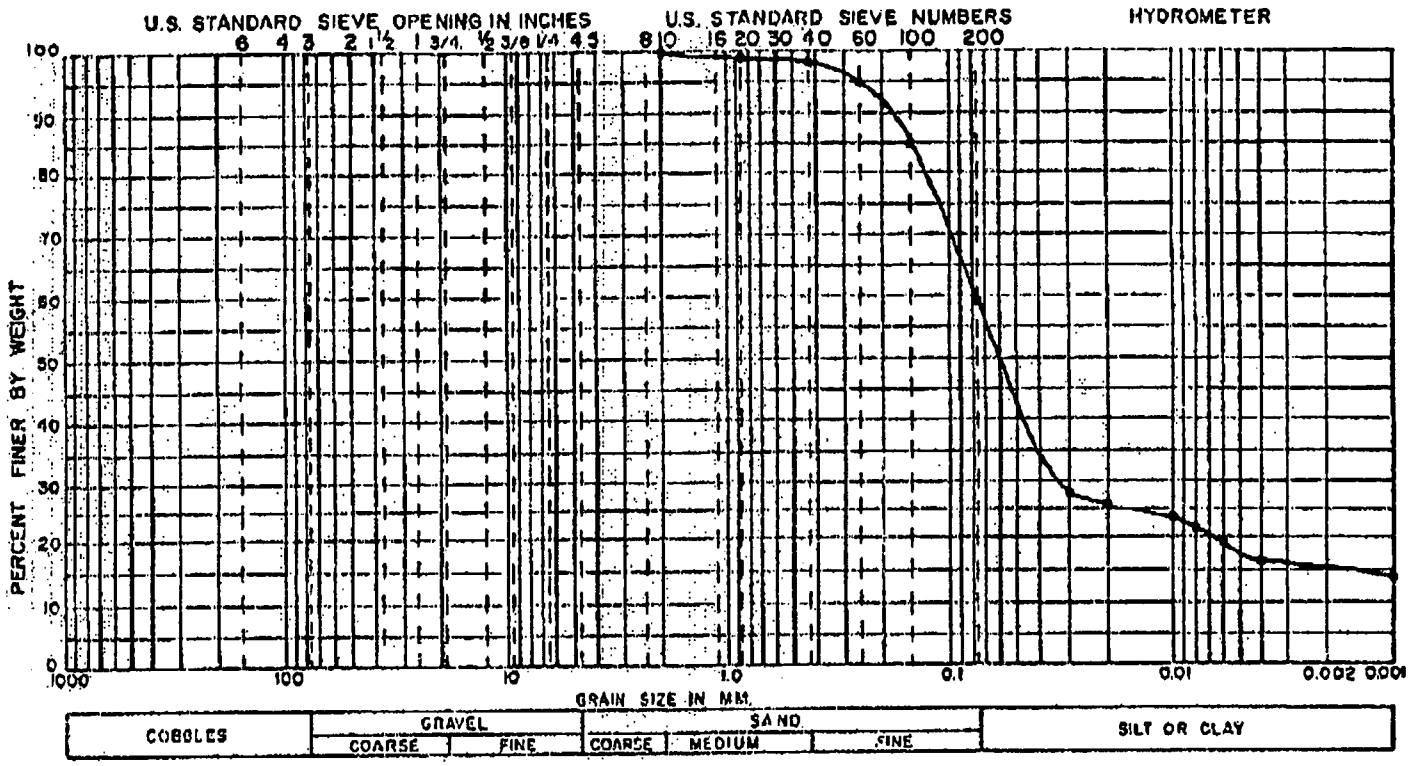
Glynn Geotechnical Engineering

GEOTECHNICAL AND CIVIL ENGINEERING SERVICES

GRAIN SIZE ANALYSIS
ASTM D - 422

PROJECT: NCR SITE
LOCATION: WHEATFIELD, NEW YORK
CLIENT: CONASTOGA, ROVERS AND ASSOCIATES
DATE SAMPLED: AUGUST 8, 1990
SAMPLE DESCRIPTION: NCR 4
SAMPLE CLASSIFICATION: sandy SILT - ML

DATE REPORTED: JULY 20, 1992
PROJECT NO.: 92 - 1062
SAMPLE NO.: 92 - 02
DEPTH: 0' - 4'



SIEVE SIZE	% FINER	REQUIREMENT
# 10	100	
# 20	99	
# 40	98	
# 60	95	
# 100	85	
# 200	59	
0.002 mm	16	

PHYSICAL PROPERTIES

NATURAL MOISTURE 12.7 %

ATTERBERG LIMITS

LL. P.L. P.I.

COEFFICIENTS

D10 ---- D30 0.03 D60 0.075

Cu (D60/D10) ----

Cc { (D30XD30) / (D10XD60) } ---

PROCTOR DATA

METHOD: A.S.T.M. D -

PCF @ %

NOTES:

REPORTED BY: KEITH WIELAND

REVIEWED BY: ARH / MARK W. GLYNN, P.E.

DOC FILE: GRAIN/HD

REV: 04/92

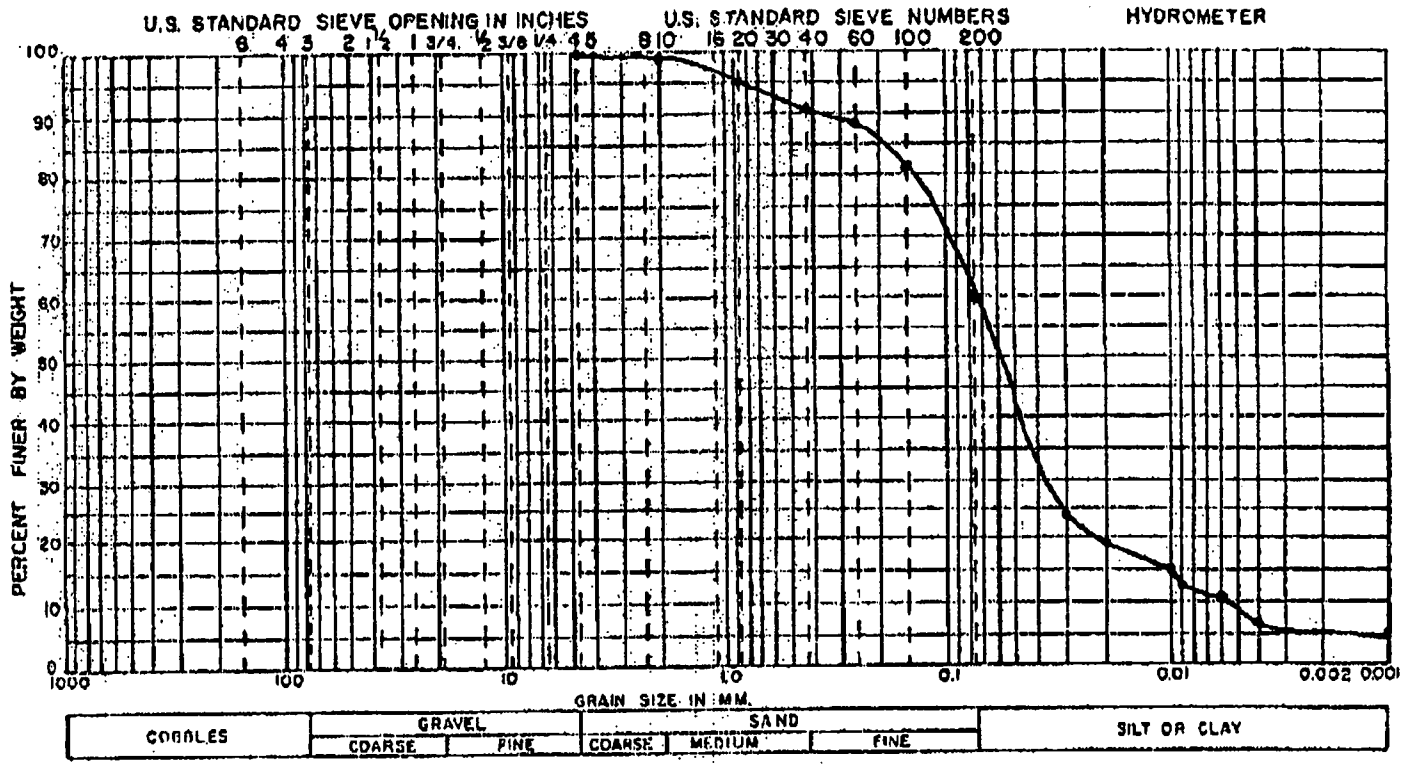
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GEOTECHNICAL AND CIVIL ENGINEERING SERVICES

GRAIN SIZE ANALYSIS
ASTM D-422

PROJECT: NCR SITE
LOCATION: WHEATFIELD, NEW YORK
CLIENT: CONASTOGA, ROVERS AND ASSOCIATES
DATE SAMPLED: AUGUST 8, 1990
SAMPLE DESCRIPTION: NCR 2
SAMPLE CLASSIFICATION: sandy SILT - ML

DATE REPORTED: JULY 20, 1992
PROJECT NO.: 92-1062
SAMPLE NO.: 92-01
DEPTH: 0'-4'



SIEVE SIZE	% FINER	REQUIREMENT
# 4	100	
# 10	99	
# 20	95	
# 40	91	
# 60	88	
# 100	82	
# 200	60	
0.002 mm	6	

PHYSICAL PROPERTIES

NATURAL MOISTURE 13.3 %

ATTERBERG LIMITS

L.L. P.L. P.I.

COEFFICIENTS

D10 0.006 D30 0.035 D60 0.077

Cu (D60/D10) 12.83

Cc ((D30XD30)/(D10XD60)) 2.65

PROCTOR DATA

METHOD: A.S.T.M. D-

PCF @ %

NOTES:

REPORTED BY: Keith R Wieland
KEITH WIELAND

REVIEWED BY: ARH / MARK W. GLYNN, P.E.

DOC FILE: GRAIN/HD

REV:04/92

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APPENDIX B

CRA: Chain of Custody Record

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): Buffalo Drilling

CHAIN OF CUSTODY RECORD

PROJECT Nº: 2677

PROJECT NAME: NCR

SAMPLER'S SIGNATURE: K. Lynch /cfd (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	NCR-2	7/26/90		6.0'-8.0'	Soil	1	
	NCR-6	8/15/90		18'-20'	Soil	1	
	NCR-7	7/26/90		14'-16'	Soil	1	
	NCR-10	8/10/90		12'-14'	Soil	1	
				TOTAL NUMBER OF CONTAINERS		4	

ANTICIPATED CHEMICAL HAZARDS: None

RELINQUISHED BY: [1] (SIGN)	DATE/TIME 2/1/91 5:00p	RECEIVED BY: [2] (SIGN)
RELINQUISHED BY: [2] (SIGN)	DATE/TIME	RECEIVED BY: [3] (SIGN)
RELINQUISHED BY: [3] (SIGN)	DATE/TIME	RECEIVED BY: [4] (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Auto	SHIPPED BY: CRA	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 011934

LABORATORY SOIL TESTING LOG

BUFFALO DRILLING COMPANY, INC
955 Niagara Street
Buffalo, New York 14213

Client: Conestoga-Rovers & Associates

Project: NCR - #2677

File No: 91-1216

Drilling Contractor:

Sampling Method: Shelby tube

Location: NCR #7

Sample Depth: 14.0 - 16.0'

Sample Date: 8/3/90 Sampler: E. Sundin

Depth (ft.)	Blows per .5 ft.	Sample No.	N	% REC (RQD)	SOIL/ROCK DESCRIPTION
14					Greenish-grey CLAY, some Silt tr. f. Sand, tr. Organic Fiber, moist, (CL)
15		NCR #7	-	100	Grey CLAY, little Silt, tr. f. Sand, wet (CL)
					...grade: Grey - Red/brown, mottled
16					

NOTES:

LABORATORY SOIL TESTING LOG

BUFFALO DRILLING COMPANY, INC
955 Niagara Street
Buffalo, New York 14213

Client: Conestoga-Rovers & Associates

Project: NCR - #2677

File No: 91-1216

Drilling Contractor:

Sampling Method: Shelby tube

Location: NCR #10

Sample Depth: 12.0 - 14.0'

Sample Date: 8/10/90 Sampler: K. Lynch

Depth (ft.)	Blows per .5 ft.		Sample No.	N	% REC (RQD)	SOIL/ROCK DESCRIPTION
14						Brown, mottled CLAY, little Silt tr. Organic Fiber, moist (CL)
15			NCR #7	-	100	Red/brown - grey, mottled CLAY, little Silt, tr. f. Sand, wet (CL) ... Silt partings
16						Grey CLAY, little Silt, tr. f. Sand, wet (CL)

NOTES:

LABORATORY SOIL TESTING LOG

BUFFALO DRILLING COMPANY, INC
955 Niagara Street
Buffalo, New York 14213

Client: Conestoga-Rovers & Associates

Project: NCR - #2677

File No: 91-1216

Drilling Contractor:

Sampling Method: Shelby tube

Location: NCR #2

Sample Depth: 6.0 - 8.0'

Sample Date: 7/26/90 Sampler: K. Lynch

Depth (ft.)	Blows per .5 ft.	Sample No.	N	% REC (RQD)	SOIL/ROCK DESCRIPTION
6					
7		NCR #2	-	65	Brown/grey, mottled CLAY, little Silt, tr. f. Sand, wet (CL)
8					

NOTES: 1.3 feet of sample in tube.

LABORATORY SOIL TESTING LOG

BUFFALO DRILLING COMPANY, INC
955 Niagara Street
Buffalo, New York 14213

Client: Conestoga-Rovers & Associates

Project: NCR - #2677

File No: 91-1216

Drilling Contractor:

Sampling Method: Shelby tube

Location: NCR #6

Sample Depth: 18.0 - 20.0'

Sample Date: 8/13/90 Sampler: E. Sundin

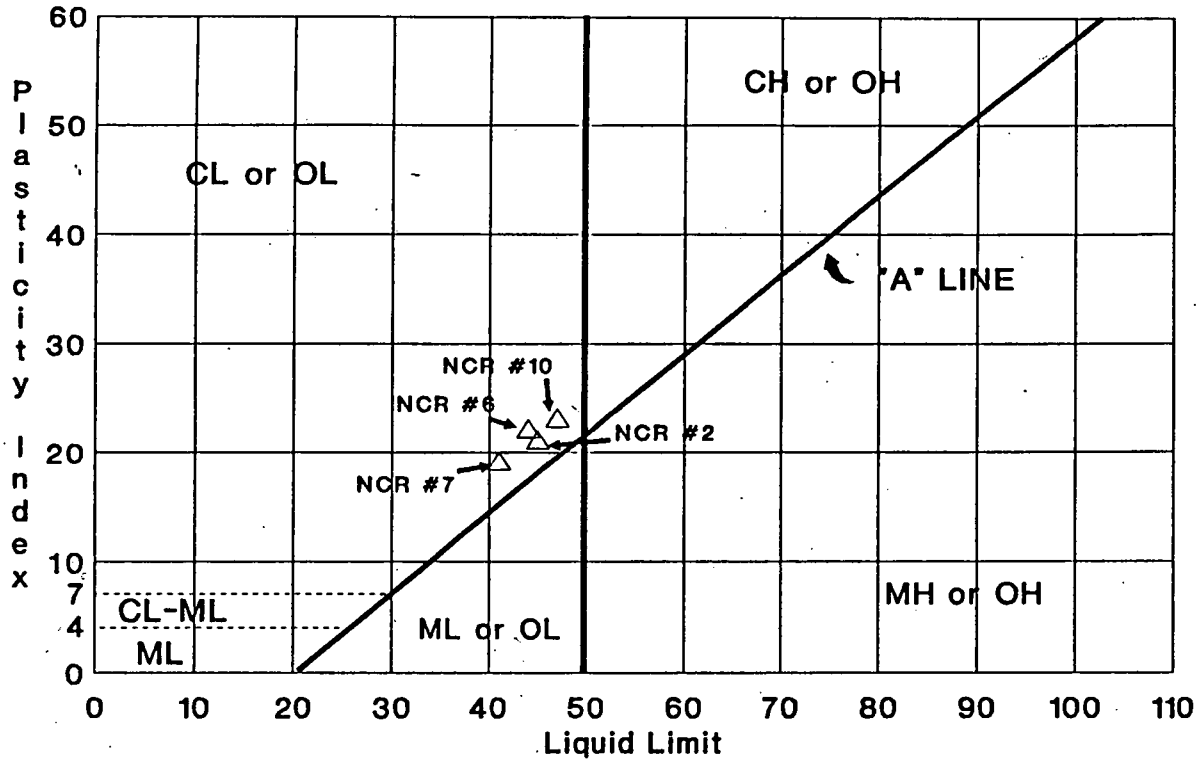
Depth (ft.)	Blows per .5 ft.		Sample No.	N	% REC (RQD)	SOIL/ROCK DESCRIPTION
18						
19			NCR #6	-	100	Brown CLAY, tr. Silt, tr. f. Sand, wet (CL)
20						

NOTES:

A.1 Plasticity Chart

PLASTICITY CHART

ASTM D4318



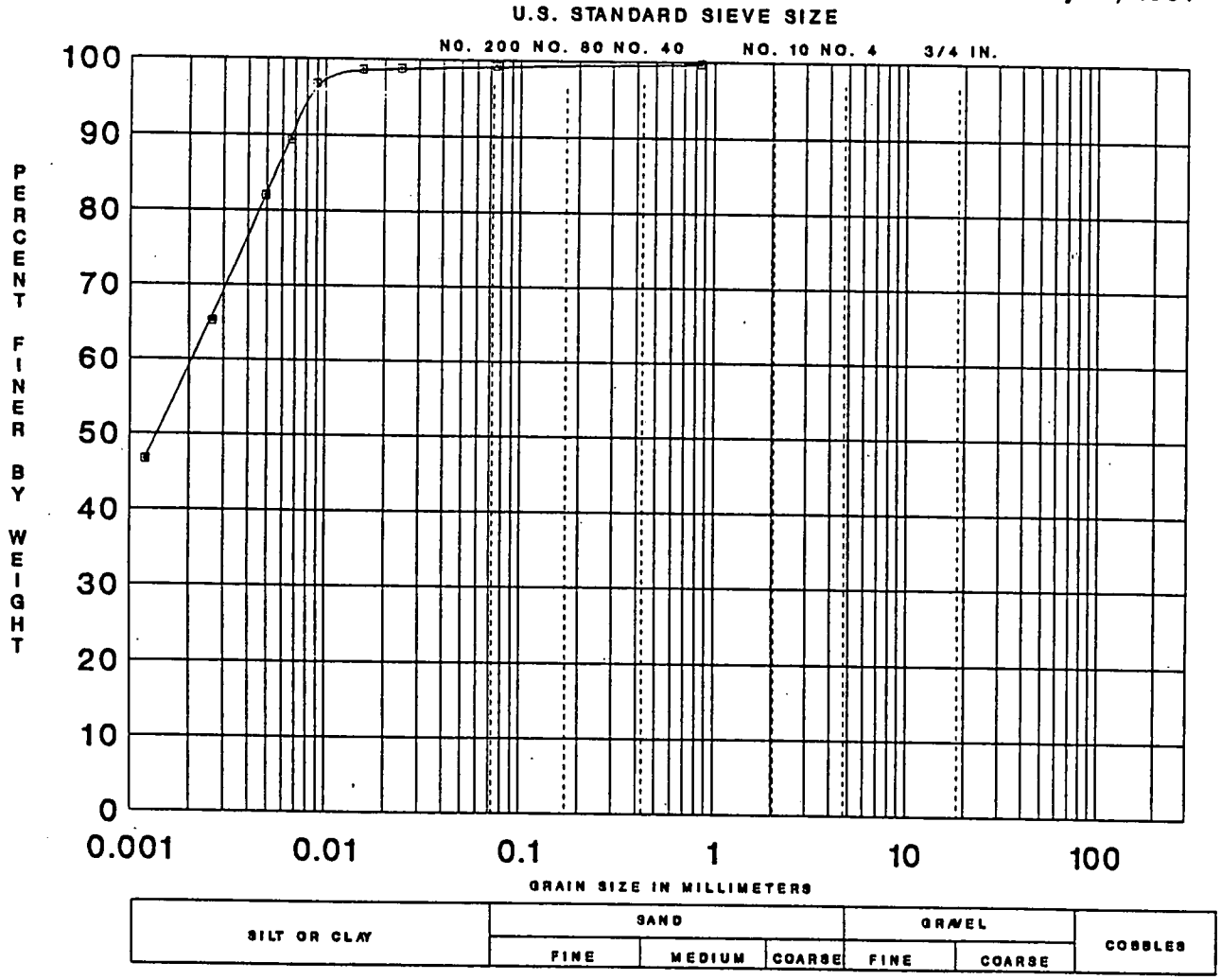
SAMPLE NO.	DEPTH (ft.)	LL (%)	PL (%)	PI (%)
NCR # 2	6'-8'	45	24	21
NCR # 6	18'-20'	44	22	22
NCR # 7	14'-16'	41	22	19
NCR # 10	12'-14'	47	24	23

BUFFALO DRILLING COMPANY, INC.

A.2 Gradation Curves

GRAIN SIZE ANALYSIS

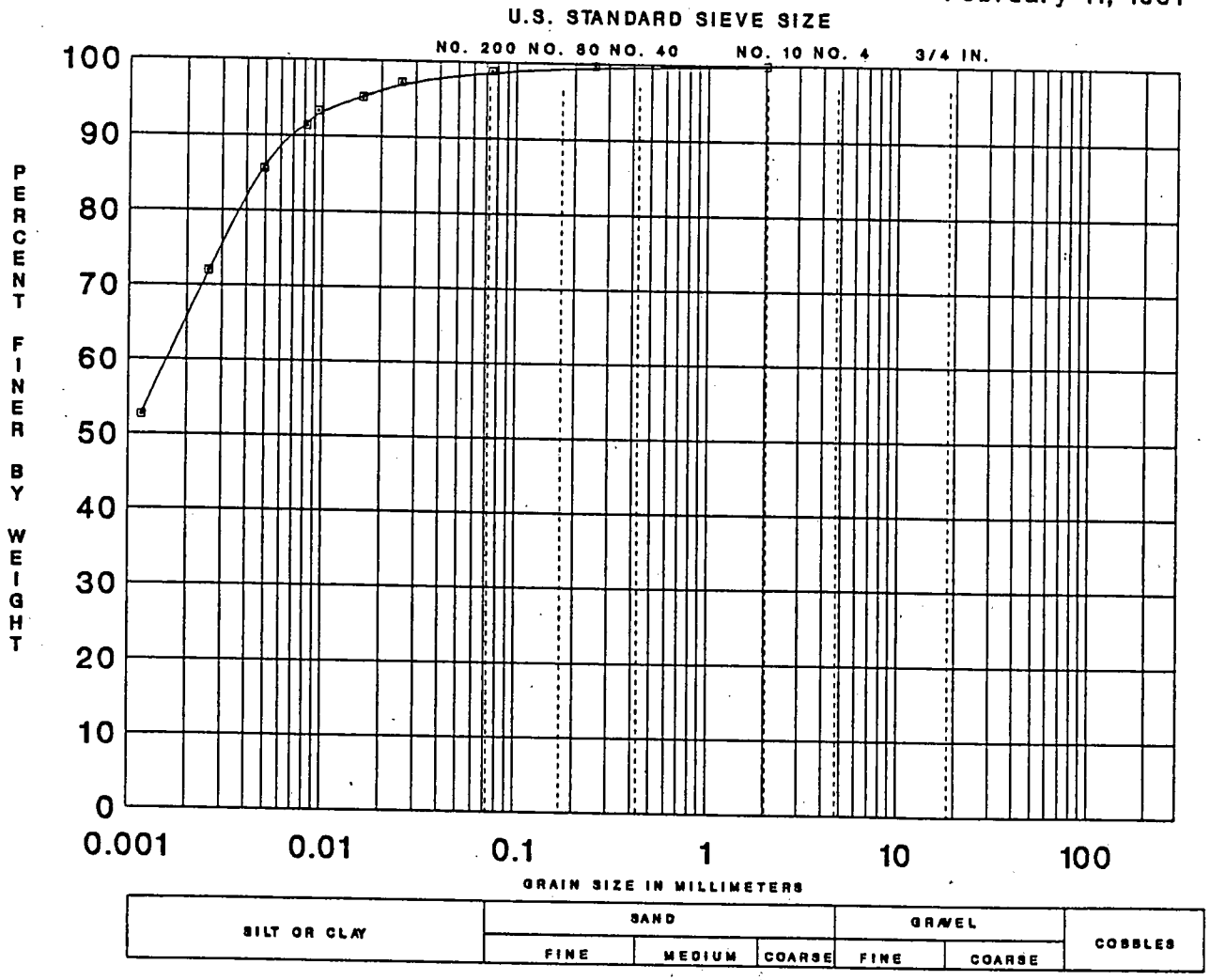
Sample I.D.: NCR #2
February 11, 1991



BUFFALO DRILLING COMPANY, INC.

GRAIN SIZE ANALYSIS

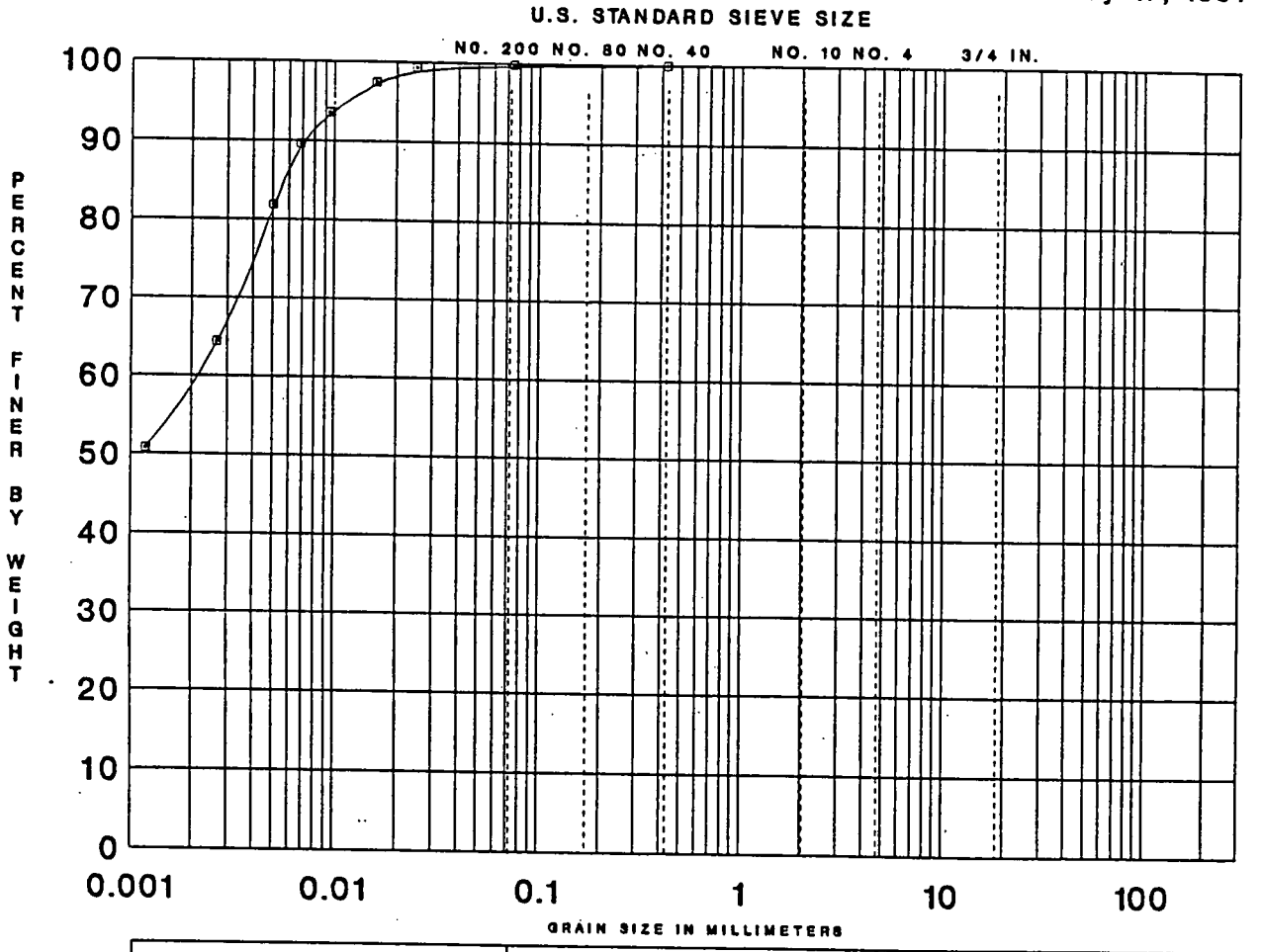
Sample I.D.: NCR #6
February 11, 1991



BUFFALO DRILLING COMPANY, INC.

GRAIN SIZE ANALYSIS

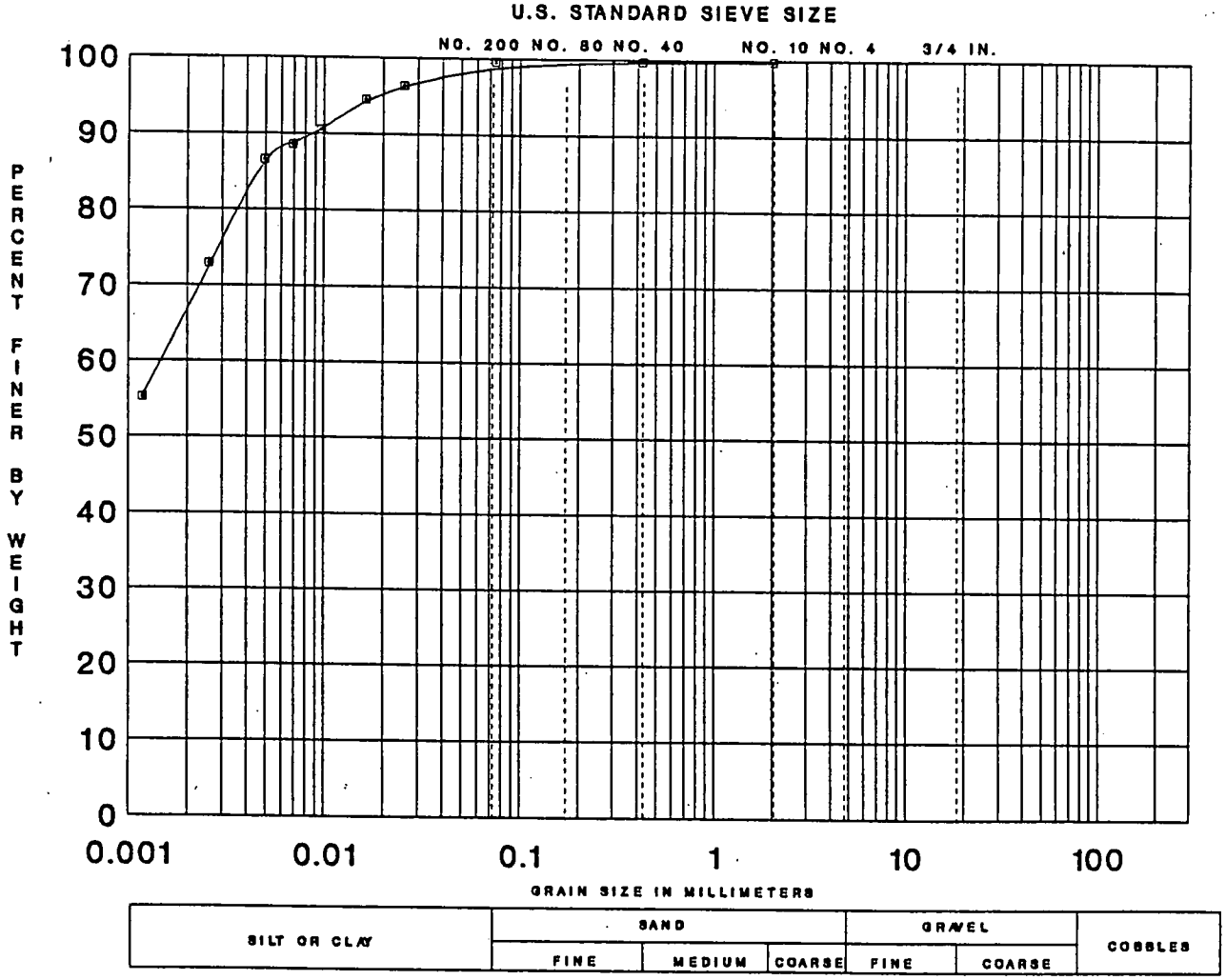
Sample I.D.: NCR #7
February 17, 1991



BUFFALO DRILLING COMPANY, INC.

GRAIN SIZE ANALYSIS

Sample I.D.: NCR #10
February 15, 1991



BUFFALO DRILLING COMPANY, INC.

A.3 Laboratory Soil Testing Logs

APPENDIX H

WELL DEVELOPMENT LOGS

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR 1M

Date of Development: 9/25/90

Well Type: Overburden X Bedrock ____

Development Crew Members: R. Fisher

WELL DEVELOPMENT INFORMATION

Ground Elevation 574.3' (TOC = 577.37')

Initial Depth to Water: 12.63 BTOC feet

Well Depth: 48.8' BTOC feet

Well Diameter: 2" inches

One Well Volume: 5.8 gallons

Required Number of Well Volumes: 10

Required Development Volume: 58 gallons

Development Method: Peristaltic Pump & SS Bailer

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER Date	Vol	COM GAL	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/25	1	6	9:15	670	NM	Lt. Brown Some fine sands.
	2	12	7.72	840		Same
	3	18	7.86	840		Same
	4	24	7.69	840		Same
	5	30	7.73	850		Same
	6	36	7.70	860		Same
	7	42	7.70	800		Cleaner, Trace Sed
	8	48	7.65	890		Clear
	9	54	7.68	860		Clear
	10	60	7.60	880		Clear

COMMENTS: Stability achieved

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-25

Date of Development: 9/12/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.3' (578.42' = TOC)

Initial Depth to Water: DRY feet

Well Depth: 76' BTOC feet

Well Diameter: 2" inches

One Well Volume: 0 gallons

Required Number of Well Volumes: 10

Required Development Volume: 0 gallons

Development Method: None

COMMENTS: Monitoring well dry on 9/12/90

ANALYTICAL INFORMATION

WELL VOLUME NUMBER	REQUIRED FIELD MEASUREMENTS			
	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER

COMMENTS:

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-2I

Date of Development: 9/12/90 to 9/17/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation ~~578.5~~ (TOC = 578.84')

Initial Depth to Water: 10.82' BTOC feet

Well Depth: 26.5' BTOC feet

Well Diameter: 2" inches

One Well Volume: 2.5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 25 gallons

Development Method: Peristaltic Pump & SS Bailer

COMMENTS: Dry well development protocol used.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOLUME	CUM. GAS.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/12	1	2.5	7.69	1300	16.1°	Brown, Heavy Sods
	2	5.0	7.57	1400	20.4°	Same
9/13	3	7.5	7.10	1400	15.5°	Same
9/14	4	10.0	7.28	1060	—	Same

COMMENTS: Bailed well dry over 3 days. Stability not acheived

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: 2M

Date of Development: 9/12/90 TO 9/17/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.2' (TOC = 578.40')

Initial Depth to Water: 12.12' BTOC feet

Well Depth: 52.8' feet

Well Diameter: 2" inches

One Well Volume: 6.5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 65 gallons

Development Method: Peristaltic & Bladder Pump

COMMENTS: Dry-well development protocol used for this well.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL	CUM GAL.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/12	1	6.5	8.38	1530	NM	Clear, Colorless
	2	13	7.08	1240	NM	Lt. Brn, Cloudy - Some Sediments
9/14	3	19.5	7.04	1140	NM	Clear, Colorless
9/17	4	26	6.96	1090	NM	Lt. brown, trace sediments

COMMENTS: Developed to dryness over 3 days. Stability achieved

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-2D

Date of Development: 9/12/90

Well Type: Overburden _____ Bedrock X

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.4' (TOC = 577.39')

Initial Depth to Water: BTOC 12.94 feet

Well Depth: 4" = 53.1' 3" = 16.5' feet

Well Diameter: 4" and 3" inches

One Well Volume: 32.3 gallons

Required Number of Well Volumes: 10

Required Development Volume: 323 gallons

Development Method: Purge Pump

COMMENTS: W/Q start - Very cloudy, lt. gray, heavy suspended sediment load, no odor

ANALYTICAL INFORMATION

WELL VOLUME NUMBER 9/12	COM. GAL.	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
①	36 gal	6.23	3500	9.4°	Clear, Colorless
②	72 gal	6.83	3400	NM	"
③	108 gal	6.76	3400	NM	"

COMMENTS: Stability Achieved.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-3S

Date of Development: 9/5/90

Well Type: Overburden X Bedrock ____

Development Crew Members: TMW

WELL DEVELOPMENT INFORMATION

Ground Elevation 576.1 FT.

Initial Depth to Water: DRY feet

Well Depth: 8.5' BTOC feet

Well Diameter: 2" inches

One Well Volume: 0 gallons

Required Number of Well Volumes: 10

Required Development Volume: 0 gallons

Development Method: ____

COMMENTS: Well was dry using water level indicator.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER	REQUIRED FIELD MEASUREMENTS			
	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER

COMMENTS: ____

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-3M

Date of Development: 9/5/90 TO 9/11/90

Well Type: Overburden X Bedrock ____

Development Crew Members: TMW

WELL DEVELOPMENT INFORMATION

Ground Elevation 576.1' (579.22' TOC)

Initial Depth to Water: 14.18' BTOC feet

Well Depth: 45.'+/- BTOC feet

Well Diameter: 2" inches

One Well Volume: 5.0 gallons

Required Number of Well Volumes: 10 MAX

Required Development Volume: ____ gallons

Development Method: SS Bottom loading Bailer

COMMENTS: Use Dry-well development protocol as well bails dry.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL.	Cum. GAL.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/5	1	5	7.70	800	15.1	RED-BROWN, SILTY
	2	10	7.30	770	14.4	Same
9/6	3	15	7.36	750	16.0	Same-less Silt
	4	20	7.25	730	16.0	Same
9/11	5	25	7.64	700	10.0	Brown-silty
	6	30	7.59	700	10.3	Same

COMMENTS: Well stabilization within POP Specifications over last 3 volumes removed.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-4S

Date of Development: 9/17/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.8 (TOC = 577.88')

Initial Depth to Water: DRY feet

Well Depth: 7.0' BTOC feet

Well Diameter: 2" inches

One Well Volume: 0 gallons

Required Number of Well Volumes: 10

Required Development Volume: 0 gallons

Development Method: None

COMMENTS: WELL DRY ON 9/17/90

ANALYTICAL INFORMATION

WELL VOLUME NUMBER	REQUIRED FIELD MEASUREMENTS			
	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER

COMMENTS:

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-4M

Date of Development: 9/17/90 TO 9/19/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC/TMW/RB

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.9' (TOC = 577.97')

Initial Depth to Water: 13.39' feet

Well Depth: 60.1' feet

Well Diameter: 2" inches

One Well Volume: 7.5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 75 gallons

Development Method: Bladder Pump

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol	Cum GALS	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/17	1	7.5	9.79	1470	—	Cloudy-brown-suspended sed's
	2	15	8.30	1450	—	Same
9/18	3	22.5	8.22	1780	10.8	Lt. Red-brown, sl. Cloudy
	4	30	8.72	1620	11.6	Cleaning
	5	37.5	7.83	1790	11.7	Clear - trace sed's
9/19	6	45	7.28	1900	11.4	Clear - trace sed's
	7	52.5	7.75	1900	11.1	Clear - trace sed's

COMMENTS: Stability Achieved. Bladder pump stuck in well.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR - RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-5S

Date of Development: 9/5/90 TO 9/13/90

Well Type: Overburden X Bedrock ____

Development Crew Members: TMW / BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 576.2' (579.34' TOC)

Initial Depth to Water: 11.07' BTOC feet

Well Depth: 11.6' BTOC feet

Well Diameter: 2" inches

One Well Volume: 0.1 gallons

Required Number of Well Volumes: 10

Required Development Volume: 1.0 gallons

Development Method: Peristaltic Pump

COMMENTS: 1/2" OD Teflon Tubing used.
Use dry-well development protocol as well pumps dry and recovers very slowly.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL	CUM. GALS	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/5	1	0.1	7.35	1530	17.8°	Lt. Yellow - f/m seds.
	2	0.2	7.75	1130	26.1°	Gray - Turbid, f/m seds
9/11	3	0.3	7.46	1400	18.5°	Lt. Yellow - f/m seds
	4	0.4	7.33	1500	17.0°	Same
9/13	5	0.5	6.96	2080	21.1°	Same
		0.6	DRY	-	-	-

COMMENTS: Well did not recover after removal of 5TH volume on 9/13. Parameters did not stabilize.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR - RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-5M

Date of Development: 9/6/90 to 9/7/90

Well Type: Overburden X Bedrock ____

Development Crew Members: TMW/BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 576.4' (TOC = 577.93')

Initial Depth to Water: 12.86' feet

Well Depth: 50.6" BTOC feet

Well Diameter: 2" inches

One Well Volume: 6.3 gallons

Required Number of Well Volumes: 10

Required Development Volume: 63.0 gallons

Development Method: Bottom loading SS Bailer

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL	CUM GAL	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/6	1	6.3	7.81	890	13.5°	Red-brown, f/m seds
	2	12.6	7.02	870	12.4°	Same
	3	18.9	7.34	800	13.5°	Same
	4	25.2	7.07	900	16.0°	Same
	5	31.5	7.26	930	16.8°	Same
9/7	6	37.8	6.87	1000	12.8°	Red-brown, f/m seds
	7	44.1	6.90	800	15.5°	Same
	8	50.4	7.09	800	15.6°	Red-brown, fine seds
	9	56.7	7.09	700	9.9° ?	Lt. Brown, Trace fines
	10	63.0	7.22	600	12.9°	Same

COMMENTS: Maximum of 10 volumes removed - Stability not achieved however parameters are close.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-5D

Date of Development: 9/13 and 9/14/90

Well Type: Overburden _____ Bedrock X

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 576.0 (TOC = 577.74')

Initial Depth to Water: 13.15' BTOC feet

Well Depth: 4" = 53.1' 3" = 16' feet

Well Diameter: 4" & 3" inches

One Well Volume: 32 gallons

Required Number of Well Volumes: 10

Required Development Volume: 320 gallons

Development Method: Purge Pump

COMMENTS: Note volume of well calculated at 4" ϕ for entire well. W/Q start = light brown, very cloudy Heavy sediment load, Slight H_2S odor

ANALYTICAL INFORMATION

WELL VOLUME NUMBER	Cum Vol.	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/13 ①	37 gal	6.80	4250	NM	Clear, Colorless
②	74 gal	7.04	4250	NM	Same
③	111 gal	6.87	3390	NM	Same

COMMENTS: Stability not achieved. Development halted because of incorrect calculation that field parameters were acceptable.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-6M

Date of Development: 9/19/90

Well Type: Overburden X Bedrock ____

Development Crew Members: RB/JMW

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.4' (TOC = 578.69')

Initial Depth to Water: 14.02' BTOC feet

Well Depth: 57.3' BTOC feet

Well Diameter: 2" inches

One Well Volume: 6.9 gallons

Required Number of Well Volumes: 10

Required Development Volume: 69 gallons

Development Method: Peristaltic Pump / SS Bailer

COMMENTS: Well volume incorrectly calculated for development as being 1.6 gallons less than shown above.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL	CUM GAL	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/19	1	5.6	12.04	7280	10.9°	Clear, trace fines
	2	11.2	11.85	4880	10.9°	Cloudy - heavy f. Sed
	3	16.8	10.75	2750	10.7°	Sl. Cldy - sl. fines
	4	22.4	10.58	2830	10.8°	Red-Brn, turbid
	5-6	28.0-33.6	NO	MEASUREMENTS	TAKEN	Pumped & Surged
	7	39.2	8.30	3060	—	Clear to Sl. Cldy -
	8	44.8	8.71	3180	—	Turbid, gray, silty
	9	50.4	9.80	3070	—	Turbid, red-brown
	10	56.0	9.08	3060	—	Same
	11	61.6	8.46	3000	—	Clear with Lt. gray fint

COMMENTS: 10+ 2 es removed - Stability not achieved for pH.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-6D

Date of Development: 9/20/90 to 9/24/91

Well Type: Overburden _____ Bedrock X

Development Crew Members: RPB/TMW

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.4 (TOC = 576.93')

Initial Depth to Water: 12.20' feet

Well Depth: 4" = 60.1' 3" = 17.1' feet

Well Diameter: 4" & 3" inches

One Well Volume: 37.5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 375 gallons

Development Method: Bladder Pump

COMMENTS: _____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol	Cum. Gal.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/20	1	37.5	7.12	4250	11.8°	Gray-green color, heavy sed. load, H_2S odor
9/21	2	75	7.93	3950	15.2°	Lt. gray, h. Sed's, H_2S
9	3	112.5	7.12	4180	15.8°	Same
9/24	4	150	7.06	4720	11.7°	Same

COMMENTS: Stability Achieved. Very strong H_2S odor.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-7M

Date of Development: 9/11/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 574.0' (TOC = 577.19')

Initial Depth to Water: 12.60' feet

Well Depth: 51.3' BTOC feet

Well Diameter: 2" inches

One Well Volume: 6.0 gallons

Required Number of Well Volumes: 10

Required Development Volume: 60 gallons

Development Method: Peristaltic Pump / bailer

COMMENTS: 1/2" OD Teflon tubing used.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol	Cum Gal	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/11	1	6	7.34	2900	4.3°	Brown, Heavy f/m Sed's
	2	12	7.40	3000	5.5°	Same
	3	18	7.40	2800	9.1°	Same
	4	24	7.40	2900	8.4°	Same
9/13	5	30	6.19	3030	13.1°	Red Brown, Heavy f/m Sed's
	6	36	6.73	3150	12.8°	Same
	7	42	6.66	3010	13.1°	Clearing, Sl. odor
	8	48	7.22	3060	13.4°	Clearing
	9	54	7.54	3500	12.8°	Sl. Cldy-Brown
	10	60	7.74	3170	12.9°	Same.

COMMENTS: Maximum 10 well volumes removed. Stability achieved over last 3 well volumes.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR 8M

Date of Development: 9/13 and 9/14/90

Well Type: Overburden X Bedrock ____

Development Crew Members: BAC

WELL DEVELOPMENT INFORMATION

Ground Elevation 579.8 (582.56=TOC)

Initial Depth to Water: BTOC 17.66' feet

Well Depth: 45.8' feet

Well Diameter: 2" inches

One Well Volume: 4.5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 45 gallons

Development Method: bladder Pump

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
DATE	VOL	Cum. GALS.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/13	1	4.5	8.34	1440	NM	cloudy-gray. Some seds.
	2	9	9.41	1410	NM	Same
9/14	3	13.5	8.33	1120	NM	Same
	4	18	7.86	1190	NM	Sl. Cldy, Clear,
	5	22.5	8.01	1150	NM	Cloudy-gray
	6	27	7.69	1110	NM	Same
	7	31.5	7.54	1150	NM	Sl. Cldy-gray
	8	36	7.37	1150	NM	Same
	9	40.5	7.42	1150	NM	Clear Colorless
	10	45	7.55	1140	NM	Same

COMMENTS: Stability Achieved. 10 volumes removed.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-8D

Date of Development: 9/16/90 - 9/17/90

Well Type: Overburden _____ Bedrock X

Development Crew Members: BAC/TMW/RB

WELL DEVELOPMENT INFORMATION

Ground Elevation 579.4 (TOC = 581.70')

Initial Depth to Water: BTOC 16.90' feet

Well Depth: 4" = 57.3' 3" = 15.6' feet

Well Diameter: 4" and 3" inches

One Well Volume: 32 gallons

Required Number of Well Volumes: 10

Required Development Volume: 320 gallons

Development Method: Purge Pump

COMMENTS:

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol	Cum Vol	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/14	0	0	—	—	—	Very cloudy-dk, brown, heavy sed's.
9/17	1	35	8.07	2130	—	Clear, colorless
	2	70	7.65	2100	—	"
9/18	3	105	8.15	2490	11.9°	"
	4	140	7.59	2300	—	

COMMENTS: Stability Achieved

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR 9M

Date of Development: 9/13/90

Well Type: Overburden X Bedrock ____

Development Crew Members: KPL

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.1 (TOC = 578.43')

Initial Depth to Water: 13.85' feet

Well Depth: 46.3' feet

Well Diameter: 2" inches

One Well Volume: 5 gallons

Required Number of Well Volumes: 10

Required Development Volume: 50 gallons

Development Method: Peristaltic & Bailer

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER Date	Vol	CUM GAL	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/13	1	5	7.17	3470	12.6°	Cloudy-gray-some fine silts.
	2	10	9:38	3730	13.1°	Same
	3	15	6.74	3890	13.0°	Same
	4	20	7.26	3300	12.8°	Same
	5	25	7.32	3430	13.4°	Same
	6	30	7.19	2840	12.9°	Clearer - gray color
	7	35	7.09	3110	13.3°	Clear to Sl. Cldy
	8	40	7.16	3300	13.2°	Same
	9	45	6.86	2760	13.1°	Same
	10	50	6.80	2780	13.4°	Same

COMMENTS: Agitated well after every 2nd volume. Stability achieved (Conductance slightly out of range).

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-10M

Date of Development: 9/21/90 To 9/25/90

Well Type: Overburden X Bedrock ____

Development Crew Members: ____

WELL DEVELOPMENT INFORMATION

Ground Elevation 575.7' (TOC = 578.05')

Initial Depth to Water: 12.88' BTOC feet

Well Depth: ~~49.3~~ feet

Well Diameter: 2" inches

One Well Volume: 5.9 gallons

Required Number of Well Volumes: 10

Required Development Volume: 59 gallons

Development Method: SS Bailer & Peristaltic Pump

COMMENTS: ____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol	Cum. Vol.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/21	1	6.0	9.19	1860	15.6	Red-brown - very heavy fine sed load
	2	12	8.15	1900	14.4	Same
	3	18	7.67	1960	15.3	Same
	4	24	7.43	1920	13.6	Same
9/24	5	30	6.85	2330	15.6	Same
	6	36	7.06	2300	15.6	Same
	7	42	6.97	2250	12.7	Lt Red-brn - Cleaning
	8	48	7.03	2300	11.6	Lt. red-brown Clear - trace Seds
	9	54	7.40	2360	11.2	Same
9/25	10	60	7.21	2320	—	Cloudy - trace red-brown seds

COMMENTS: Well did not clear. 10 volumes removed - good Stability.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-11M

Date of Development: 9/25/90 TO 9/27/90

Well Type: Overburden _____ Bedrock _____

Development Crew Members: TMW

WELL DEVELOPMENT INFORMATION

Ground Elevation 572.6' (TOC = 575.58')

Initial Depth to Water: 10.46 feet

Well Depth: 22.0' feet

Well Diameter: 2" inches

One Well Volume: 1.84 gallons

Required Number of Well Volumes: 10

Required Development Volume: 18 gallons

Development Method: Peristaltic Pump & SS Bailer

COMMENTS: Well goes dry with pumping and bailing after ~ 3 well volumes removed. Dry Well development protocols used.

ANALYTICAL INFORMATION

WELL VOLUME NUMBER Date	Vol	Cum Gal	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/25	1	2	NM	NM	NM	Red-brown - heavy Sed. load.
	2	4	↓	↓	↓	
	3	6				Same - fewer sed.
9/26	4	8				Same
	5	10				Same
	6	12				Same
9/27	7	14				Same
	8	16				Same
	9	18+				Same

COMMENTS: Well recharged ~ 1 gallon in 30 minutes during development. Well did not clear.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-11D

Date of Development: 10/1/90 & 10/2/90

Well Type: Overburden _____ Bedrock X

Development Crew Members: _____

WELL DEVELOPMENT INFORMATION

Ground Elevation 572.5 (574.49 = TOC)

Initial Depth to Water: BTOC 10.0 feet

Well Depth: BTOC 4" = 46.9' 3" = 15.8' feet

Well Diameter: 4" & 3" inches

One Well Volume: 29.9 gal gallons

Required Number of Well Volumes: 10

Required Development Volume: 299 gallons

Development Method: Bladder Pump

COMMENTS: Well volume calculated for development assuming entire well is 4" diameter (33 gal/volume).

ANALYTICAL INFORMATION

WELL VOLUME NUMBER			REQUIRED FIELD MEASUREMENTS			
Date	Vol.	Cum. Vol.	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
10/1	1	30	7.39	3490	NM	Clear-green-blue color - H_2S odor.
	2	60	7.31	3550	"	Same, less H_2S odor
10/2	3	90	NM	NM	NM	NM
	4	120	7.35	3610	"	Clear/colorless H_2S odor

COMMENTS: Stability achieved over 4 volumes.

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR 12D

Date of Development: 9/26/90

Well Type: Overburden _____ Bedrock X

Development Crew Members: _____

WELL DEVELOPMENT INFORMATION

Ground Elevation 583.9' (TOC = 586.05')

Initial Depth to Water: BTOC 21.70' feet

Well Depth: 4" = 63.2' 3" = 15.0' feet

Well Diameter: 4" & 3" inches

One Well Volume: 32 gallons

Required Number of Well Volumes: 10

Required Development Volume: 320 gallons

Development Method: Purge Pump

COMMENTS: _____

ANALYTICAL INFORMATION

WELL VOLUME NUMBER Date	Vol	Cum. Gal.	REQUIRED FIELD MEASUREMENTS pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER
9/26	1	32	7.55	2380	NM	Clear-green blue colors-yellow scum
	2	64	7.55	2480	↓	Clear Colorless
	3	96	7.65	2570		Same
	4	128	7.38	2590	↓	Same

COMMENTS: Stability achieved

CRA

WELL DEVELOPMENT DATA SHEET

PROJECT NAME NCR RI PROJECT NUMBER 2677

Monitoring Well Number: NCR-13S

Date of Development: 9/14/90

Well Type: Overburden X Bedrock ____

Development Crew Members: KPL

WELL DEVELOPMENT INFORMATION

Ground Elevation 574.2 (TOC = 577.15')

Initial Depth to Water: DRY feet

Well Depth: 8.8' BTOC feet

Well Diameter: 2" inches

One Well Volume: 0 gallons

Required Number of Well Volumes: 10

Required Development Volume: 0 gallons

Development Method: None

COMMENTS: Well Dry

ANALYTICAL INFORMATION

WELL VOLUME NUMBER	REQUIRED FIELD MEASUREMENTS			
	pH	Specific Conductance (umhos/cm^3)	TEMPERATURE (°C)	OTHER

COMMENTS:

APPENDIX I

SLUG TEST DATA AND HYDRAULIC CONDUCTIVITY CALCULATIONS

APK
✓

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-1M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 8.0
R_e	= Effective radius over which y is dissipated	= —
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ BTOC	= 12.70'
H	= Difference from bottom of well screen to water table	= 36.07'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= —
y_o	= Determine off graph of ln y_t vs. t	= 0.7
y_t	= Change of y with time	= 0.35
t	= Time	= 11 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
C	=	= 1.8

$L/r_w = 24$

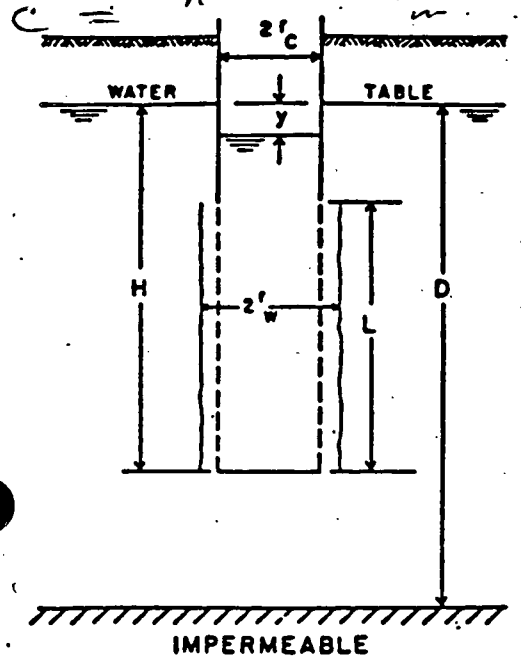


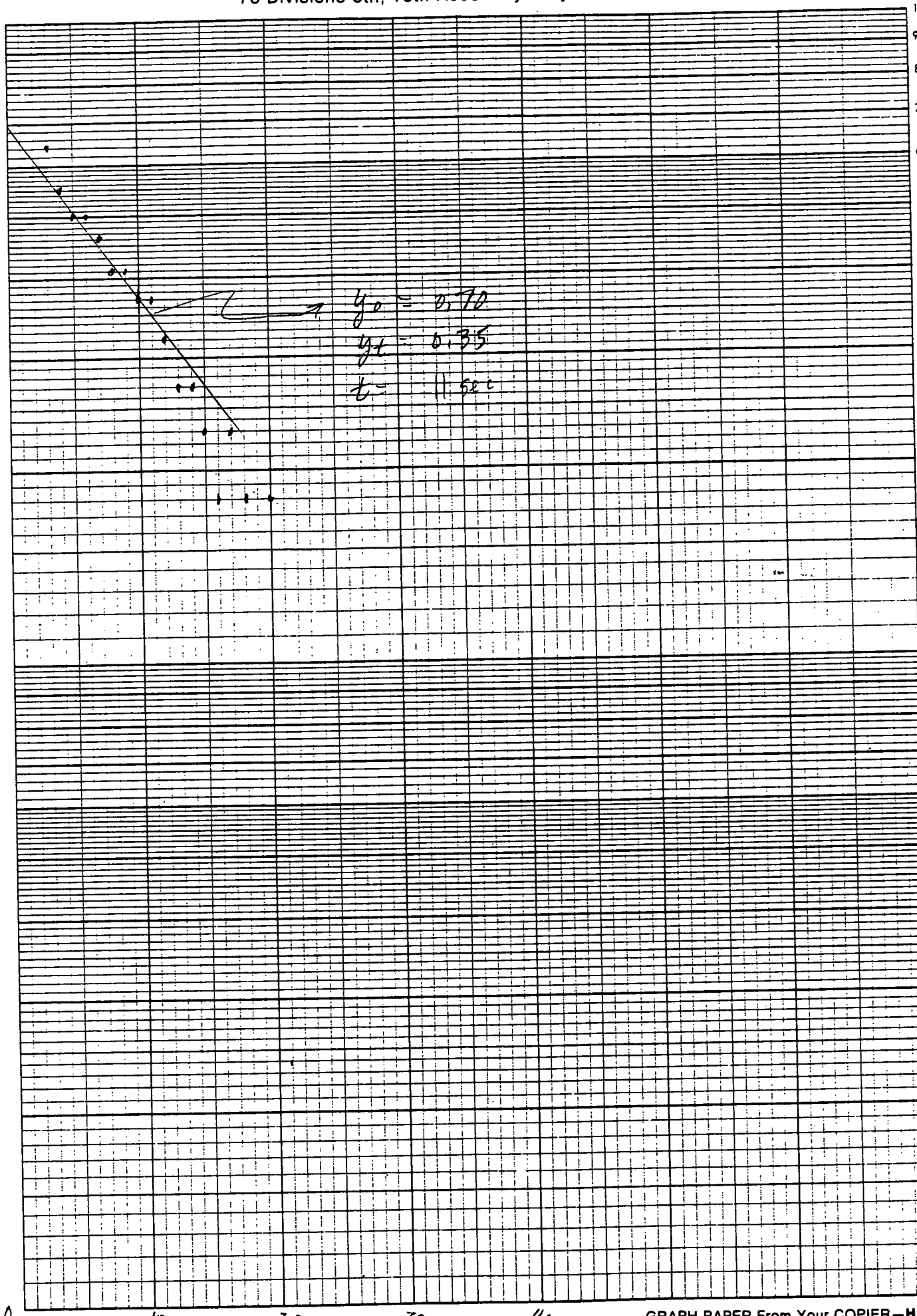
Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-1M
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC =	9.19 FT.				
3	8.55	0.64			
4	8.64	0.55			
5	8.69	0.50			
6	8.69	0.50			
7	8.73	0.46			
8	8.78	0.41			
9	8.78	0.41			
10	8.82	0.37			
11	8.82	0.37			
12	8.87	0.32			
13	8.92	0.27			
14	8.92	0.27			
15	8.96	0.23			
16	9.01	0.18			
17	8.96	0.23			
18	9.01	0.18			
19	9.06	0.13			
20	9.01	0.18			
21	9.06	0.13			
22	9.10	0.09			
23	9.06	0.13			
24	9.10	0.09			
25	9.10	009			



GRAPH PAPER From Your COPIER—HPBoo

NCR-1M
#2677

CALCULATION OF HYDRAULIC CONDUCTIVITY

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$$\ln \frac{Re}{r_w} = \left| \frac{1.1}{\ln(36.07/0.333)} + \frac{1.8}{(8/0.333')} \right|^{-1} = \left| 0.235 + 0.075 \right|^{-1} = 3.23$$

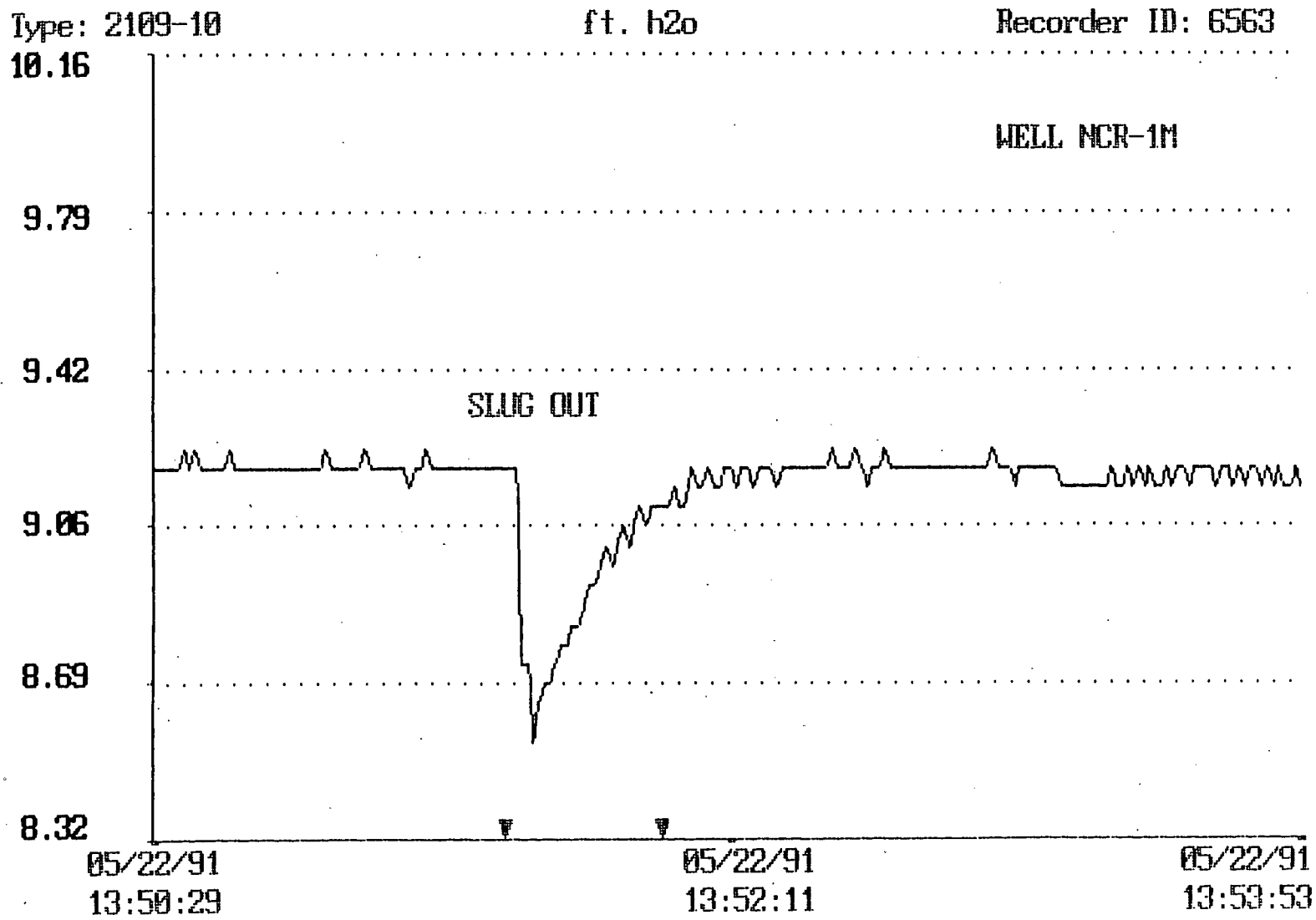
$$1/t \ln \frac{y_o}{y_t} = \frac{1}{11} \ln \frac{0.70}{0.35} = 0.0630 \text{ sec}^{-1}$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54 \text{ cm})^2 (3.23)(0.0630 \text{ sec}^{-1})}{2(8.0')(30.48 \text{ cm}/1')} = \frac{1.313}{487.68} = 2.7 \times 10^{-3} \text{ cm/sec}$$

7.4


Type: 2109-10
ft. h2o
Recorder ID: 6563
10.16
9.79
9.42
9.06
8.69
8.32
WELL NCR-1M
SLUG OUT
05/22/91
13:50:29
05/22/91
13:52:11
05/22/91
13:53:53

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. h2o Recorder ID: 6563

Time at Recorder: 05/22/91 13:53:53 Last Update: 05/03/91 11:27:48

Signal process: Not Applicable

Values being saved: averages

Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32

Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 1

Date	Time	Avg
05/22/91	13:51:31	9.19
05/22/91	13:51:32	9.19
05/22/91	13:51:33	9.19
05/22/91	13:51:34	8.73
05/22/91	13:51:35	8.73
05/22/91	13:51:36	8.55
05/22/91	13:51:37	8.64
05/22/91	13:51:38	8.69
05/22/91	13:51:39	8.69
05/22/91	13:51:40	8.73
05/22/91	13:51:41	8.78
05/22/91	13:51:42	8.78
05/22/91	13:51:43	8.82
05/22/91	13:51:44	8.82
05/22/91	13:51:45	8.87
05/22/91	13:51:46	8.92
05/22/91	13:51:47	8.92
05/22/91	13:51:48	8.96
05/22/91	13:51:49	9.01
05/22/91	13:51:50	8.96
05/22/91	13:51:51	9.01
05/22/91	13:51:52	9.06
05/22/91	13:51:53	9.01
05/22/91	13:51:54	9.06
05/22/91	13:51:55	9.10
05/22/91	13:51:56	9.06
05/22/91	13:51:57	9.10
05/22/91	13:51:58	9.10
05/22/91	13:51:59	9.10

JJ
5/0/

CALCULATION OF HYDRAULIC CONDUCTIVITY

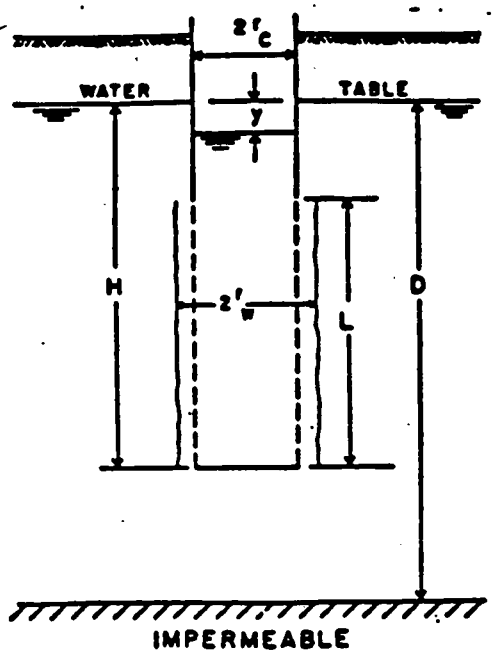
PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-25
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 3.0'
R_e	= Effective radius over which y is dissipated	= —
r_w	= Horizontal distance from well center to original aquifer	= .33'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= .053'
w_s	= Static water table ~~(BGS)~~ Brac	= 4.46'
H	= Difference from bottom of well screen to water table	= 3.16
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= .4 ✓
y_o	= Determine off graph of ln y_t vs. t	= .3 ✓
y_t	= Change of y with time	= 5000 ✓
t	= Time	=
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= 1.2

L/rw = 6 ✓

C 0.5 ✓



$L/r_w = 9.0$

Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

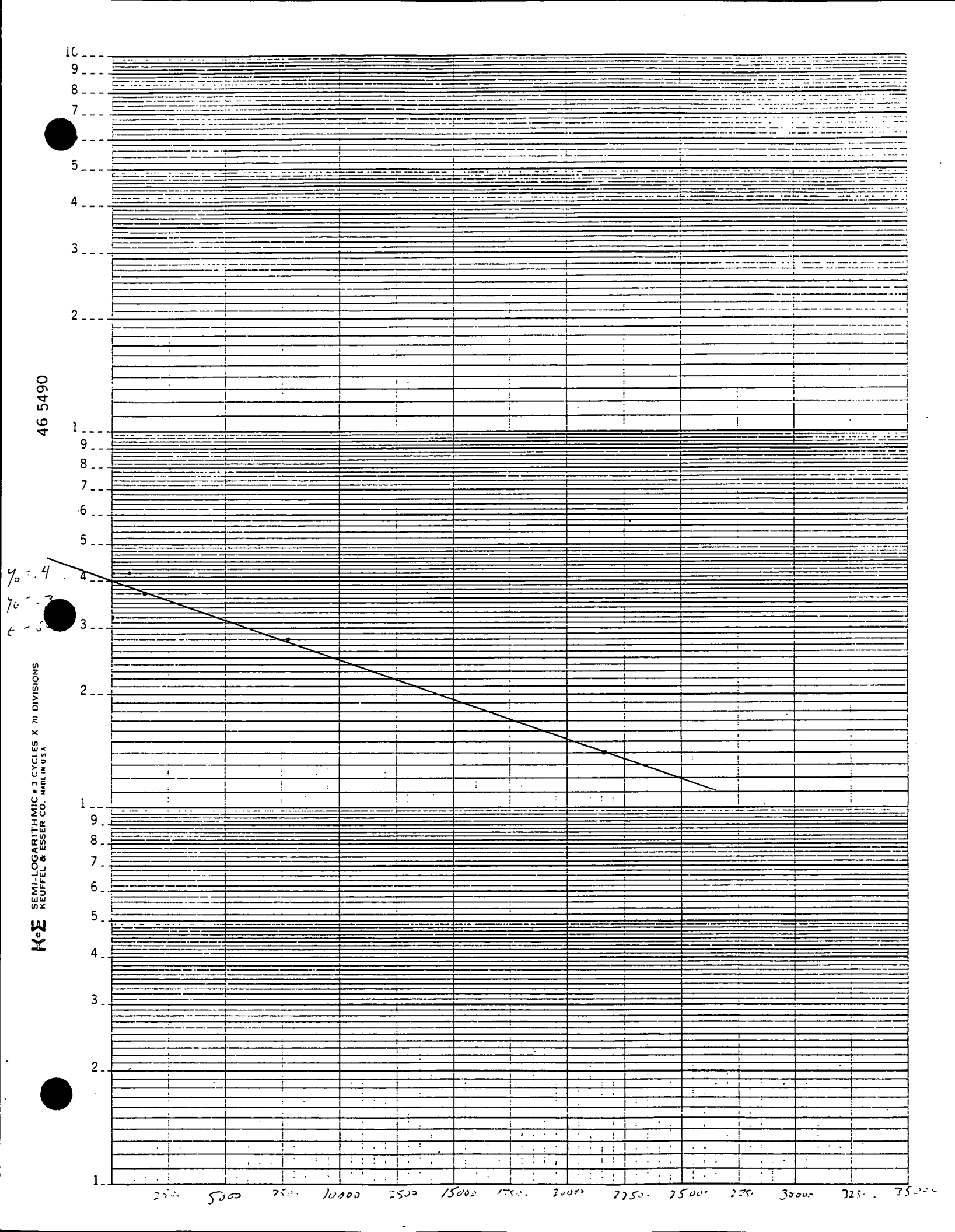
PROJECT NAME: _____ HOLE DESIGNATION: NCR-25

PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 2.91 FT.					
0	2.91	0.0			
15	3.23	-.32			
30	3.33	-.42			
45	3.33	-.42			
60	3.36	-.415			
240	3.33	-.42			
1500	3.28	-.37			
3300	3.28	-.37			
7800	3.19	-.28			
21760	3.05	-.14			
33960	2.91	.00			
46500	2.73	.18			
60780	2.63	.28			


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8
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6
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3
2
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9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
5000
10000
15000
20000
25000
30000
35000

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln \frac{3.16}{.33}} + \frac{.5}{6} \right|^{-1} = |.45 + .06|^{-1} = .87 \quad [1.75]$$

$$|.49 + 0.133|^{-1} = 1.61 \quad \text{APK}$$

$$\frac{1}{6000} \ln \frac{.4}{.3} = 4.8 \times 10^{-5}$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

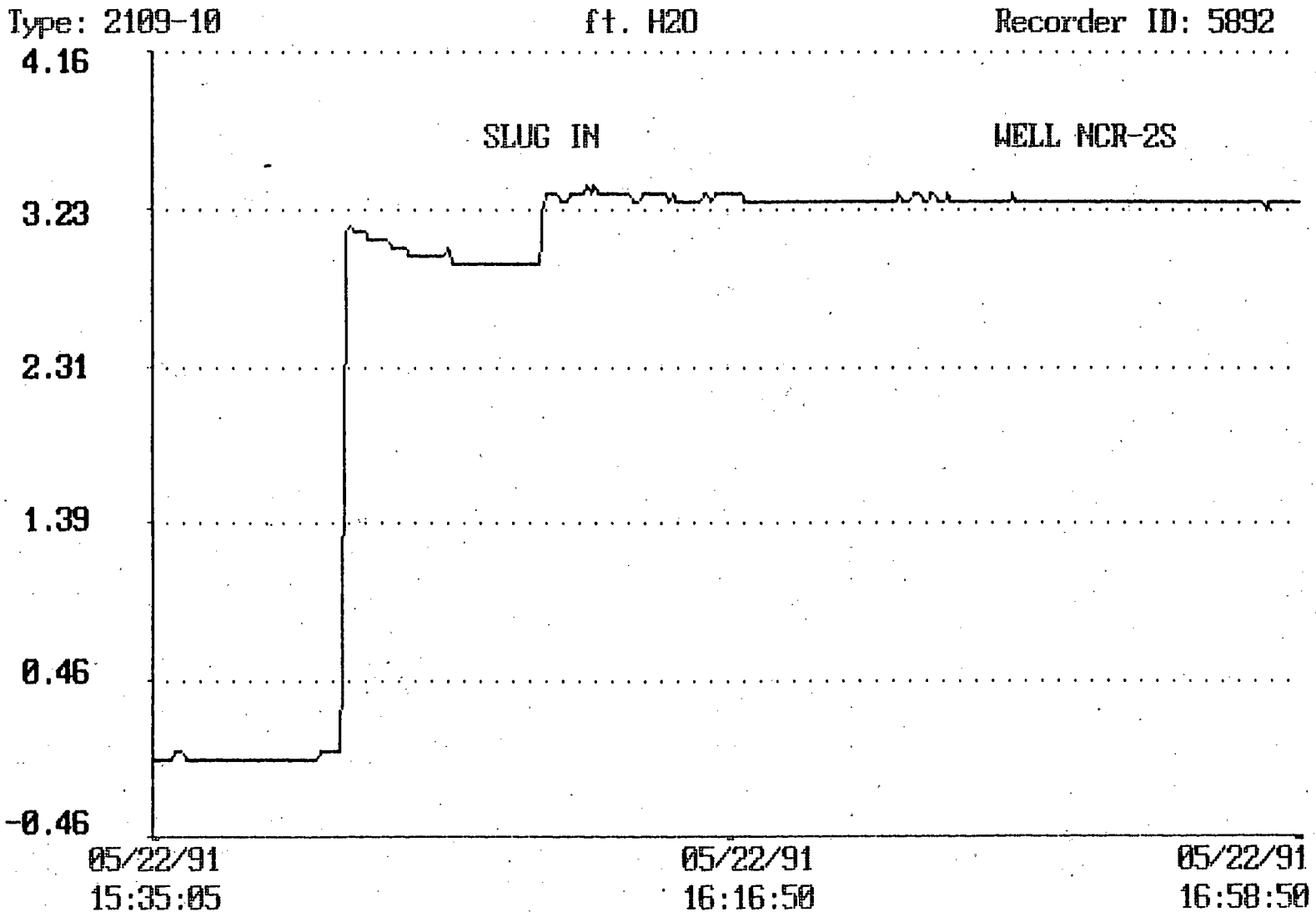
$$K = \frac{(2.54)^2 (.57)}{2(2)(30.48)} (4.8 \times 10^{-5}) = 1.45 \times 10^{-6} \text{ cm/sec.}$$

$$K = \frac{(2.54)^2 (.475)(4.8 \times 10^{-5})}{2(2.0)(30.48)} = 4.4 \times 10^{-6} \text{ cm/sec}$$

1.61 APK

3.0

$K = 2.7 \times 10^{-6}$ cm/sec APK


Type: 2109-10
ft. H2O
Recorder ID: 5892
4.16
3.23
2.31
1.39
0.46
-0.46
SLUG IN
WELL NCR-2S
05/22/91
15:35:05
05/22/91
16:16:50
05/22/91
16:58:50

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. H20 Recorder ID: 5892

Time at Recorder: 05/23/91 13:49:10 Last Update: 05/20/91 11:34:06

Signal process: Not Applicable

Values being saved: averages

Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:15 Amount of data recorded: 22:14:00

Storage Capacity: 6512 values records: 1 day 03:08:00

Output compressed by a factor of 4

Date	Time	Avg
05/22/91	16:00:05	2.91
05/22/91	16:01:05	2.91
05/22/91	16:02:05	2.91
05/22/91	16:03:05	3.20
05/22/91	16:04:05	3.30
05/22/91	16:05:05	3.31
05/22/91	16:06:05	3.34
05/22/91	16:07:05	3.34
05/22/91	16:08:05	3.33
05/22/91	16:09:05	3.31
05/22/91	16:10:05	3.30
05/22/91	16:11:05	3.33
05/22/91	16:12:05	3.31
05/22/91	16:13:05	3.28
05/22/91	16:14:05	3.28
05/22/91	16:15:05	3.31
05/22/91	16:16:05	3.33
05/22/91	16:17:05	3.33
05/22/91	16:18:05	3.28
05/22/91	16:19:05	3.28
05/22/91	16:20:05	3.28
05/22/91	16:21:05	3.28
05/22/91	16:22:05	3.28
05/22/91	16:23:05	3.28
05/22/91	16:24:05	3.28
05/22/91	16:25:05	3.28
05/22/91	16:26:05	3.28
05/22/91	16:27:05	3.28
05/22/91	16:28:05	3.28
05/22/91	16:29:05	3.29
05/22/91	16:30:05	3.31
05/22/91	16:31:05	3.30
05/22/91	16:32:05	3.29
05/22/91	16:33:05	3.28
05/22/91	16:34:05	3.28
05/22/91	16:35:05	3.28
05/22/91	16:36:05	3.28
05/22/91	16:37:05	3.29
05/22/91	16:38:05	3.28
05/22/91	16:39:05	3.28
05/22/91	16:40:05	3.28
05/22/91	16:41:05	3.28
05/22/91	16:42:05	3.28
05/22/91	16:43:05	3.28
05/22/91	16:44:05	3.28
05/22/91	16:45:05	3.28
05/22/91	16:46:05	3.28
05/22/91	16:47:05	3.28

05/22/91	16:50:05	3.28
05/22/91	16:51:05	3.28
05/22/91	16:52:05	3.28
05/22/91	16:53:05	3.28
05/22/91	16:54:05	3.28
05/22/91	16:55:05	3.28
05/22/91	16:56:05	3.27
05/22/91	16:57:05	3.28
05/22/91	16:58:05	3.28
05/22/91	16:59:05	3.28
05/22/91	17:00:05	3.27
05/22/91	17:01:05	3.26
05/22/91	17:02:05	3.26
05/22/91	17:03:05	3.28
05/22/91	17:04:05	3.27
05/22/91	17:05:05	3.26
05/22/91	17:06:05	3.26
05/22/91	17:07:05	3.27
05/22/91	17:08:05	3.26
05/22/91	17:09:05	3.28
05/22/91	17:10:05	3.28
05/22/91	17:11:05	3.26
05/22/91	17:12:05	3.26
05/22/91	17:13:05	3.25
05/22/91	17:14:05	3.25
05/22/91	17:15:05	3.25
05/22/91	17:16:05	3.23
05/22/91	17:17:05	3.23
05/22/91	17:18:05	3.23
05/22/91	17:19:05	3.23
05/22/91	17:20:05	3.25
05/22/91	17:21:05	3.25
05/22/91	17:22:05	3.23
05/22/91	17:23:05	3.23
05/22/91	17:24:05	3.23
05/22/91	17:25:05	3.23
05/22/91	17:26:05	3.23
05/22/91	17:27:05	3.26
05/22/91	17:28:05	3.23
05/22/91	17:29:05	3.23
05/22/91	17:30:05	3.23
05/22/91	17:31:05	3.23
05/22/91	17:32:05	3.23
05/22/91	17:33:05	3.23
05/22/91	17:34:05	3.23
05/22/91	17:35:05	3.23
05/22/91	17:36:05	3.23
05/22/91	17:37:05	3.23
05/22/91	17:38:05	3.23
05/22/91	17:39:05	3.23
05/22/91	17:40:05	3.26
05/22/91	17:41:05	3.23
05/22/91	17:42:05	3.23
05/22/91	17:43:05	3.21
05/22/91	17:44:05	3.23
05/22/91	17:45:05	3.21
05/22/91	17:46:05	3.25
05/22/91	17:47:05	3.26
05/22/91	17:48:05	3.25
05/22/91	17:49:05	3.23
05/22/91	17:50:05	3.27
05/22/91	17:51:05	3.25
05/22/91	17:52:05	3.26
05/22/91	17:53:05	3.27

05/22/91	17:56:05	3.21
05/22/91	17:57:05	3.20
05/22/91	17:58:05	3.16
05/22/91	17:59:05	3.16
05/22/91	18:00:05	3.16
05/22/91	18:01:05	3.16
05/22/91	18:02:05	3.16
05/22/91	18:03:05	3.19
05/22/91	18:04:05	3.19
05/22/91	18:05:05	3.19
05/22/91	18:06:05	3.19

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-2I
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

L	= Height of the portion of well through which water enters	= 7.2'
R_e	= Effective radius over which y is dissipated	= –
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ BTOC	= 9.66'
H	= Difference from bottom of well screen to water table	= 18.09
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= –
y_o	= Determine off graph of ln y_t vs. t	= 0.75 ✓
y_t	= Change of y with time	= 0.16 ✓
t	= Time	= 44,000 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
C	= " " " " " "	= 1.75 ✓

$L/r_w = 22$ ✓

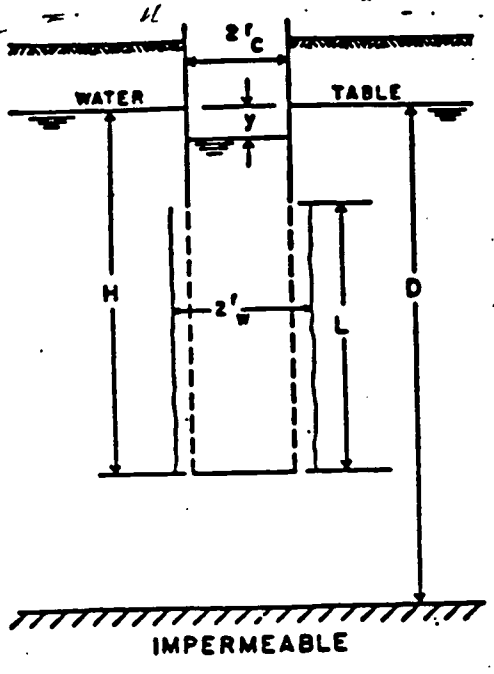


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NcR-2-I

PROJECT NO.: 2677 DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

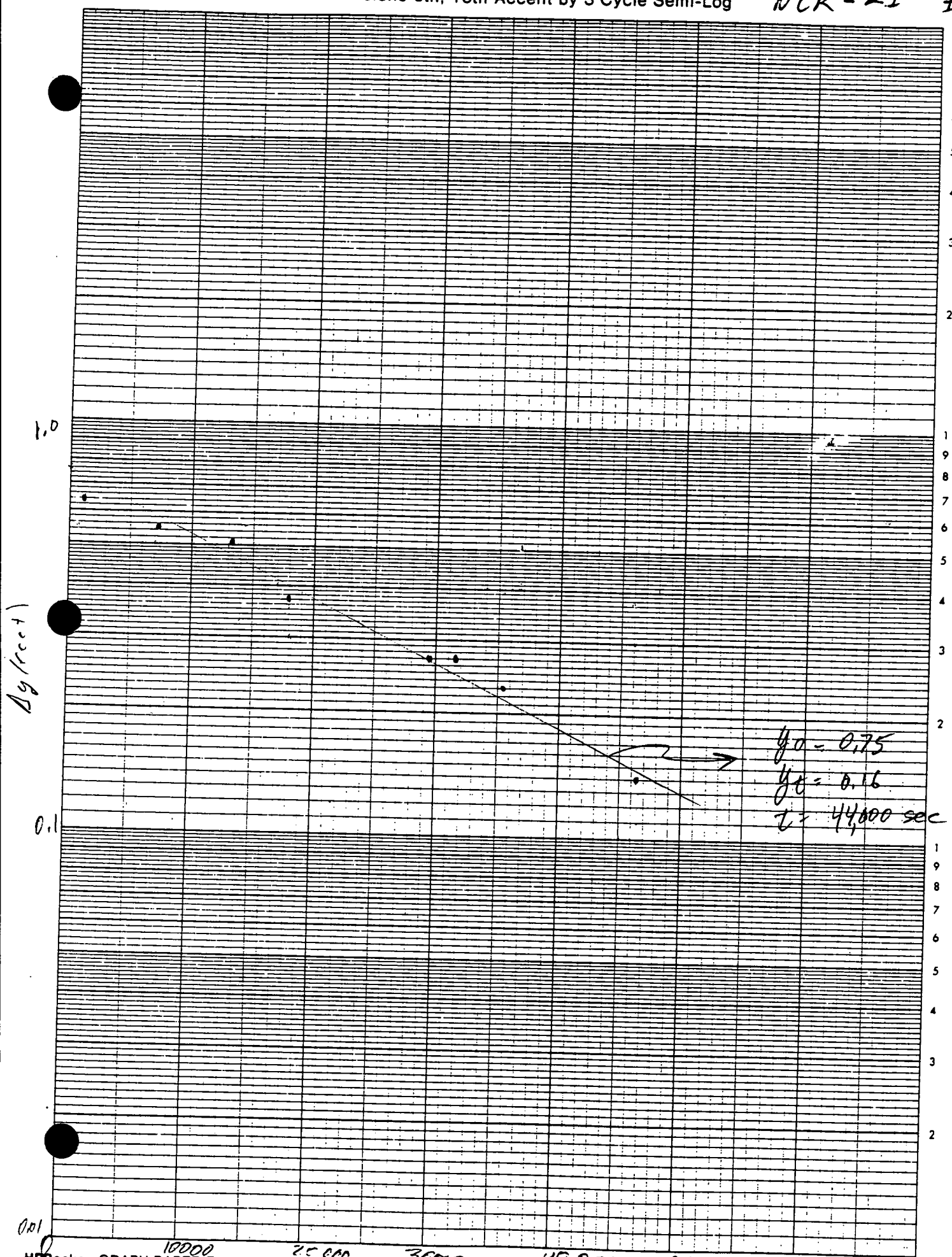
LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 12.80 FT.					
0	12.8	.0			
15	13.12	-.32			
30	13.4	-.6			
60	13.4	-.6			
120	13.44	-.64			
150	13.44	-.64			
1145	13.44	-.64			
1200	13.44	-.64			
7200	13.35	-.55			
13350	13.31	-.51			
17942	13.17	-.37			
29550	13.07	-.27			
31560	13.07	-.27			
5/23					
35520	13.03	-.23			
41380	12.94	-.14			
51240	12.84	-.04			
60240	12.80	.00			

SLUG IN - 15:08:31

70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log

NCR - 2I #267



HPBooks—GRAPH PAPER From Your COPIER

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

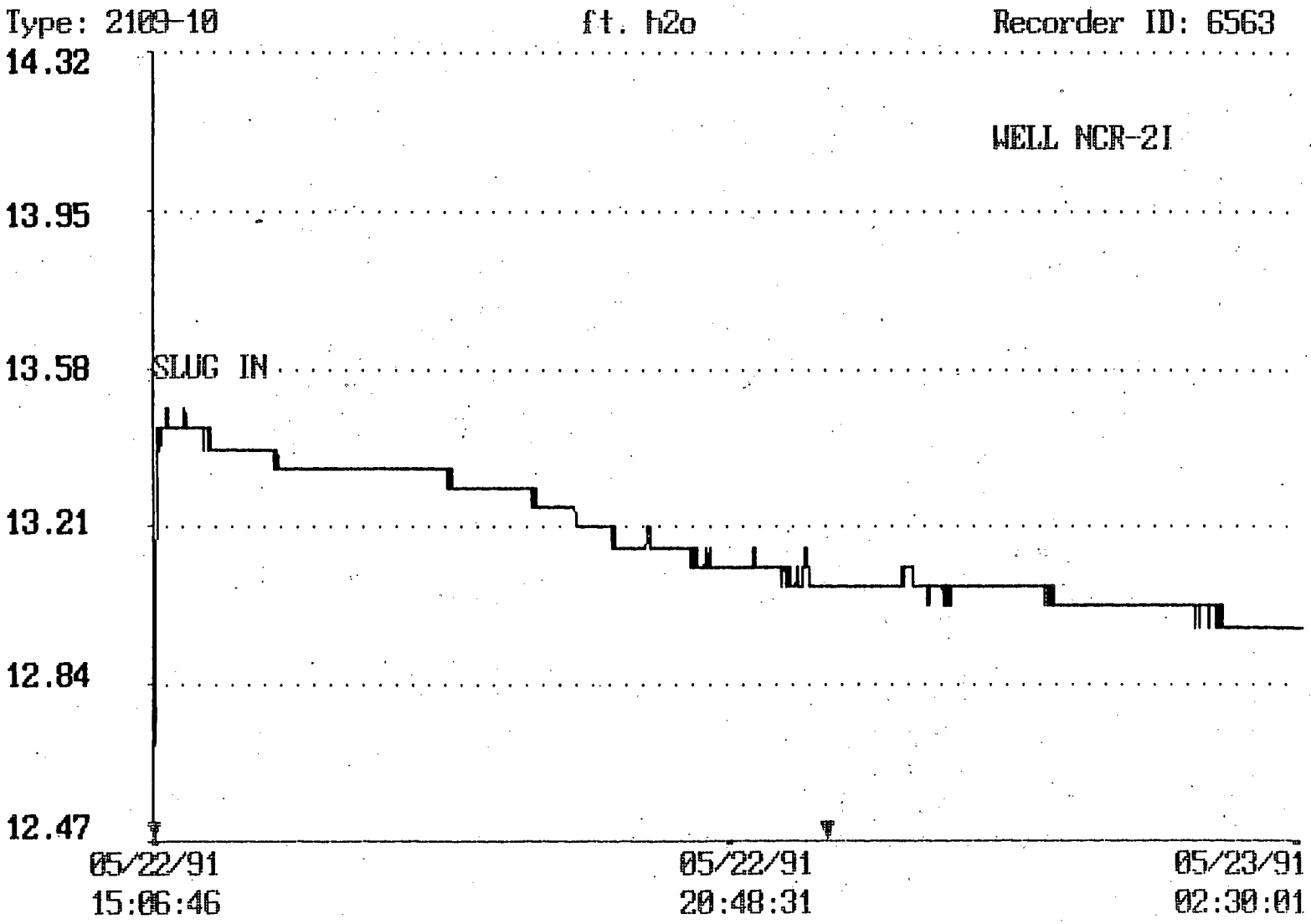
$$\ln \frac{Re}{rw} = \left| \frac{1.1}{\ln(18.09/0.333')} + \frac{1.75}{7.2/0.333} \right| = \left| 0.275 + 0.081 \right|^{-1} = 2.81 \quad \checkmark$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{44,000} \ln \frac{0.75}{0.16} = 0.000035 \text{ sec}^{-1} \quad \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54\text{cm})^2 (2.81)(0.000035 \text{ sec}^{-1})}{2(7.2')(30.45 \text{ cm/ft})} = \frac{0.000636}{438.912} = 1.4 \times 10^{-6} \text{ cm/sec} \quad \checkmark$$


Type: 2100-10
ft. h2o
Recorder ID: 6563
14.32
WELL MCR-2I
13.95
13.58
SLUG IN
13.21
12.84
12.47
05/22/91
15:06:46
05/22/91
20:48:31
05/23/91
02:30:01

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. h2o Recorder ID: 6563
Time at Recorder: 05/23/91 13:53:29 Last Update: 05/03/91 11:27:48
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:15 Amount of data recorded: 22:46:30
Storage Capacity: 6512 values records: 1 day 03:08:00
Output compressed by a factor of 4

Date	Time	Avg
05/22/91	15:07:01	12.76
05/22/91	15:08:01	12.98
05/22/91	15:09:01	13.42
05/22/91	15:10:01	13.42
05/22/91	15:11:01	13.43
05/22/91	15:12:01	13.44
05/22/91	15:13:01	13.46
05/22/91	15:14:01	13.49
05/22/91	15:15:01	13.47
05/22/91	15:16:01	13.44
05/22/91	15:17:01	13.44
05/22/91	15:18:01	13.44
05/22/91	15:19:01	13.44
05/22/91	15:20:01	13.44
05/22/91	15:21:01	13.44
05/22/91	15:22:01	13.44
05/22/91	15:23:01	13.44
05/22/91	15:24:01	13.44
05/22/91	15:25:01	13.48
05/22/91	15:26:01	13.44
05/22/91	15:27:01	13.44
05/22/91	15:28:01	13.44
05/22/91	15:29:01	13.44
05/22/91	15:30:01	13.44
05/22/91	15:31:01	13.44
05/22/91	15:32:01	13.44
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05/22/91	15:35:01	13.44
05/22/91	15:36:01	13.44
05/22/91	15:37:01	13.43
05/22/91	15:38:01	13.44
05/22/91	15:39:01	13.42
05/22/91	15:40:01	13.43
05/22/91	15:41:01	13.40
05/22/91	15:42:01	13.40
05/22/91	15:43:01	13.40
05/22/91	15:44:01	13.40
05/22/91	15:45:01	13.40
05/22/91	15:46:01	13.40
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05/22/91	15:49:01	13.40
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05/22/91	15:53:01	13.40
05/22/91	15:54:01	13.40

05/22/91	15:57:01	13.40	*
05/22/91	15:58:01	13.40	*
05/22/91	15:59:01	13.40	*
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05/22/91	18:49:01	13.31	*
05/22/91	18:50:01	13.31	*
05/22/91	18:51:01	13.31	*
05/22/91	18:52:01	13.29	*
05/22/91	18:53:01	13.31	*
05/22/91	18:54:01	13.28	*
05/22/91	18:55:01	13.28	*
05/22/91	18:56:01	13.26	*
05/22/91	18:57:01	13.26	*
05/22/91	18:58:01	13.26	*
05/22/91	18:59:01	13.26	*
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05/22/91	19:03:01	13.26	*
05/22/91	19:04:01	13.26	*
05/22/91	19:05:01	13.26	*
05/22/91	19:06:01	13.26	*
05/22/91	19:07:01	13.26	*
05/22/91	19:08:01	13.26	*
05/22/91	19:09:01	13.26	*
05/22/91	19:10:01	13.26	*
05/22/91	19:11:01	13.26	*
05/22/91	19:12:01	13.26	*

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05/22/91 19:15:01 13.26                                          *
05/22/91 19:16:01 13.26                                          *
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05/22/91 19:18:01 13.24                                          *
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05/22/91 19:57:01 13.17                                        *
05/22/91 19:58:01 13.17                                        *
05/22/91 19:59:01 13.17                                        *
05/22/91 20:00:01 13.20                                          *
05/22/91 20:01:01 13.21                                          *
05/22/91 20:02:01 13.21                                          *
05/22/91 20:03:01 13.17                                        *
05/22/91 20:04:01 13.17                                        *
05/22/91 20:05:01 13.17                                        *
05/22/91 20:06:01 13.17                                        *
05/22/91 20:07:01 13.17                                        *
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05/22/91 20:15:01 13.17                                        *
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05/22/91 20:18:01 13.17                                        *
```

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05/22/91 20:22:01 13.17                                          *
05/22/91 20:23:01 13.17                                          *
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05/22/91 20:25:01 13.17                                          *
05/22/91 20:26:01 13.16                                          *
05/[redacted]/91 20:27:01 13.14                                  *
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05/22/91 20:29:01 13.13                                         *
05/22/91 20:30:01 13.12                                         *
05/22/91 20:31:01 13.12                                         *
05/22/91 20:32:01 13.12                                         *
05/22/91 20:33:01 13.12                                         *
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05/22/91 20:45:01 13.12                                         *
05/22/91 20:46:01 13.12                                         *
05/22/91 20:47:01 13.12                                         *
05/22/91 20:48:01 13.12                                         *
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05/[redacted]/91 20:53:01 13.12                                 *
05/22/91 20:54:01 13.12                                         *
05/22/91 20:55:01 13.12                                         *
05/22/91 20:56:01 13.12                                         *
05/22/91 20:57:01 13.12                                         *
05/22/91 20:58:01 13.12                                         *
05/22/91 20:59:01 13.12                                         *
05/22/91 21:00:01 13.12                                         *
05/22/91 21:01:01 13.12                                         *
05/22/91 21:02:01 13.13                                         *
05/22/91 21:03:01 13.17                                          *
05/22/91 21:04:01 13.16                                          *
05/22/91 21:05:01 13.12                                         *
05/22/91 21:06:01 13.12                                         *
05/22/91 21:07:01 13.12                                         *
05/22/91 21:08:01 13.12                                         *
05/22/91 21:09:01 13.12                                         *
05/22/91 21:10:01 13.12                                         *
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05/22/91 21:15:01 13.12                                         *
05/22/91 21:16:01 13.12                                         *
05/22/91 21:17:01 13.12                                         *
05/[redacted]/91 21:18:01 13.12                                 *
05/22/91 21:19:01 13.12                                         *
05/22/91 21:20:01 13.11                                         *
05/22/91 21:21:01 13.12                                         *
05/22/91 21:22:01 13.10                                        *
05/22/91 21:23:01 13.12                                         *
05/22/91 21:24:01 13.07                                        *
```

```
05/22/91 21:27:01 13.07                                  *
05/22/91 21:28:01 13.09                                  *
05/22/91 21:29:01 13.07                                  *
05/22/91 21:30:01 13.09                                  *
05/22/91 21:31:01 13.07                                  *
05/22/91 21:32:01 13.11                                   *
05/22/91 21:33:01 13.12                                   *
05/22/91 21:34:01 13.16                                    *
05/22/91 21:35:01 13.14                                    *
05/22/91 21:36:01 13.09                                  *
05/22/91 21:37:01 13.07                                  *
05/22/91 21:38:01 13.07                                  *
05/22/91 21:39:01 13.07                                  *
05/22/91 21:40:01 13.07                                  *
05/22/91 21:41:01 13.07                                  *
05/22/91 21:42:01 13.07                                  *
05/22/91 21:43:01 13.07                                  *
05/22/91 21:44:01 13.07                                  *
05/22/91 21:45:01 13.07                                  *
05/22/91 21:46:01 13.07                                  *
```

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-2M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L = Height of the portion of well through which water enters = 8.5'

R_e = Effective radius over which y is dissipated =

r_w = Horizontal distance from well center to original aquifer = .33

r_c = Inside radius of casing if water level is above the perforated or otherwise open portion of the well = .083

w_s = Static water table ~~(BGS)~~ BTOC = 13.95'

H = Difference from bottom of well screen to water table = 38.85

D = Difference from impermeable zone to water table =

y = Vertical distance between water level in well and equilibrium water table in aquifer =

y_o = Determine off graph of ln y_t vs. t = .74 ✓

y_t = Change of y with time = .62 ✓

t = Time = 2000 ✓

$L/r_w = 15$

A = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) =

B = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) =

C =

$C = .74$ ✓

$C = 1.85$

$L/r_w = 25.5$

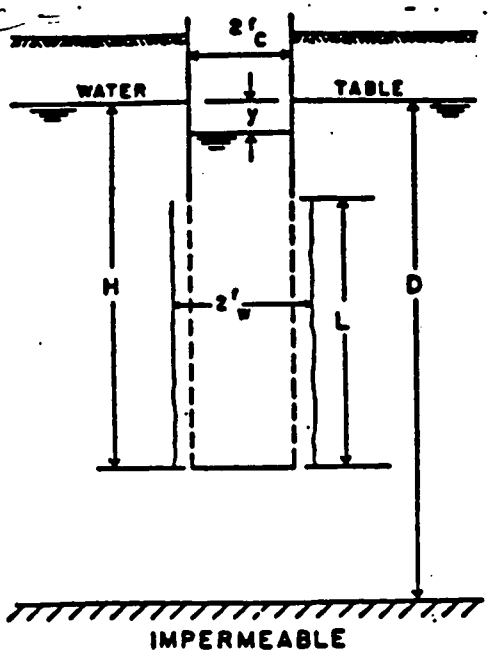


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-2M

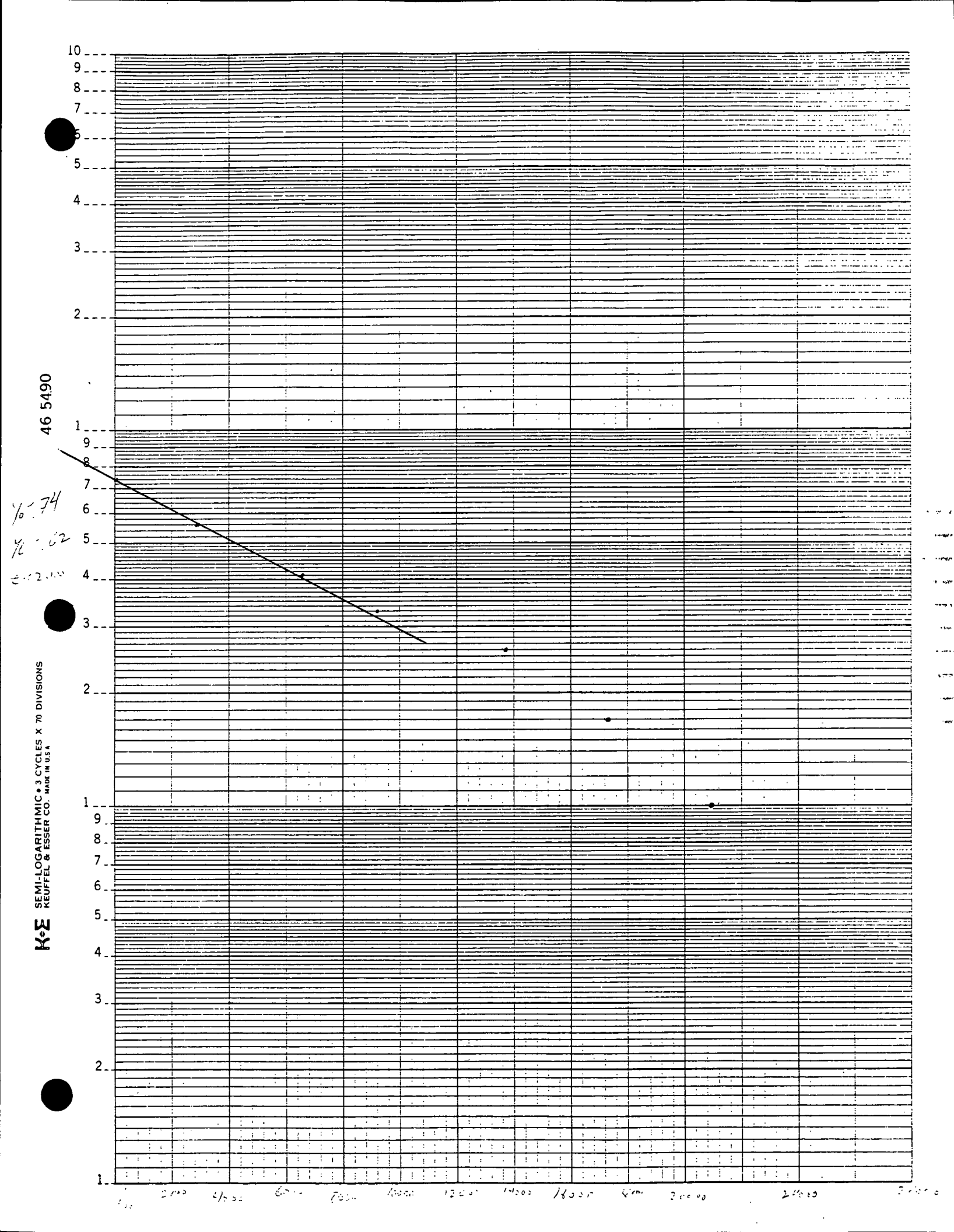
PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC =	9.66	FT.			
0	9.66	0.0			
15	9.4	.26			
30	8.92	.74			
45	8.92	.74			
60	8.92	.74			
	~~9.66~~				
2880	9.10	.56			
6600	9.24	.42			
9160	9.33	.33			
13800	9.40	.26			
17400	9.49	.17			
21180	9.56	.10			
27840	9.63	.03			
30420	9.66	.00			

9:12:06


46 5490
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
K+E

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln[(D-H)/r_w]}{L/r_w} \right|^{-1} = C$$

Where: $\ln[(D-H)/r_w]$ has a maximum value of 6

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln \frac{38.85}{.33}} + \frac{.74}{15} + \frac{1.85}{(2.5)(1.333)} \right|^{-1} = |.23 + .05|^{-1} = 3.57 \checkmark$$

$$|.23 + 0.07|^{-1} = 3.29 \quad \text{APK}$$

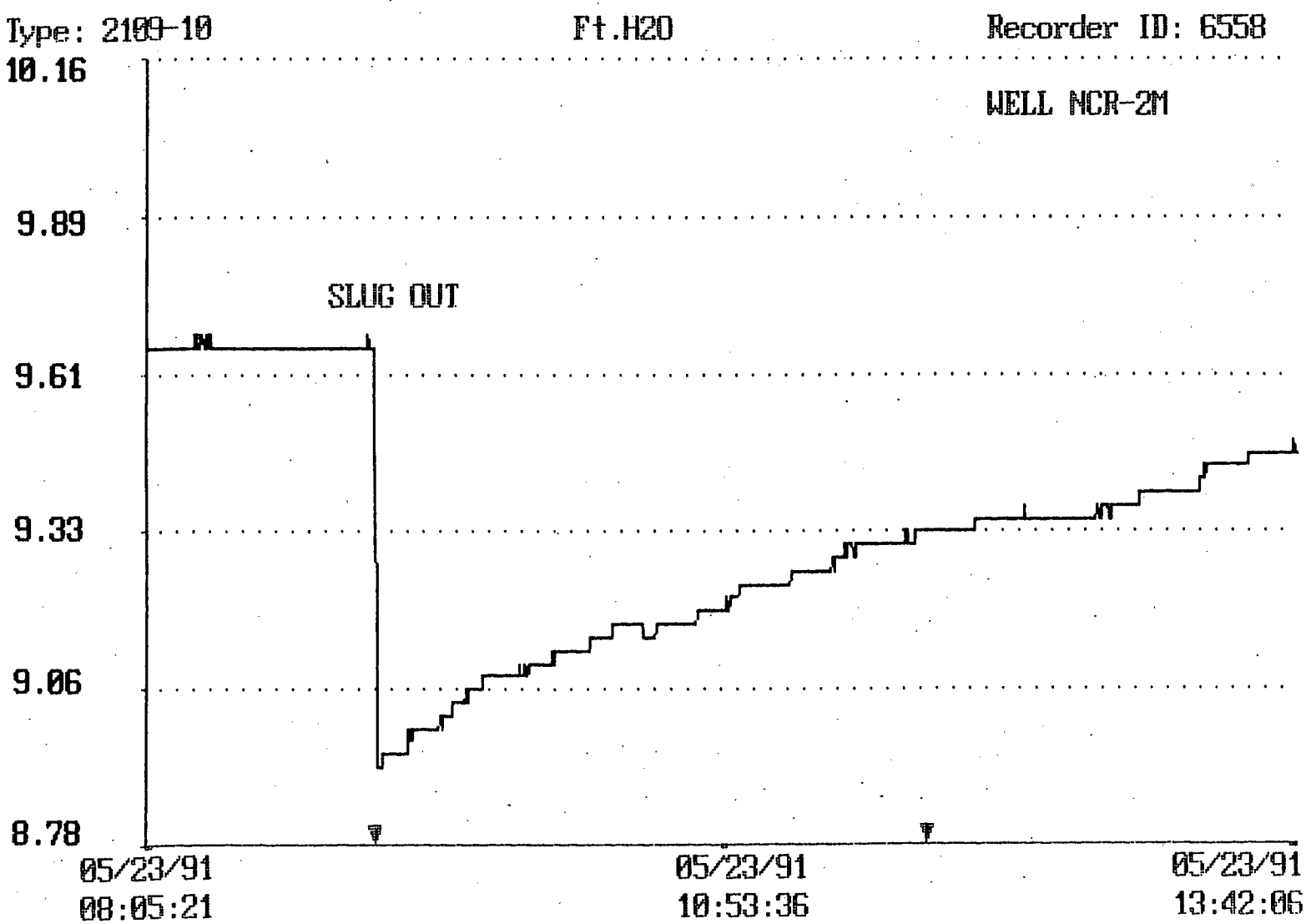
$$\frac{1}{2000} \ln \frac{.74}{.62} = 8.8 \times 10^{-5} \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54)^2 (3.57)^{3.29}}{2(5)(30.48)} (8.8 \times 10^{-5}) = 6.6 \times 10^{-6} \text{ cm/sec} \checkmark$$

$$K = 3.6 \times 10^{-6} \text{ cm/sec} \quad \text{APK}$$


Type: 2100-10
Ft.H2O
Recorder ID: 6558
WELL NCR-2M
10.16
9.89
9.61
9.33
9.06
8.78
SLUG OUT
05/23/91
08:05:21
05/23/91
10:53:36
05/23/91
13:42:06

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H2O Recorder ID: 6558

Time at Recorder: 05/23/91 13:42:31 Last Update: 05/20/91 10:34:29

Signal process: Not Applicable

Values being saved: averages

Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:15 Amount of data recorded: 22:26:30

Storage Capacity: 6512 values records: 1 day 03:08:00

Output compressed by a factor of 4

Date	Time	Avg	
05/23/91	09:11:36	9.22	*
05/23/91	09:12:36	8.92	*
05/23/91	09:13:36	8.92	*
05/23/91	09:14:36	8.94	*
05/23/91	09:15:36	8.94	*
05/23/91	09:16:36	8.94	*
05/23/91	09:17:36	8.94	*
05/23/91	09:18:36	8.94	*
05/23/91	09:19:36	8.94	*
05/23/91	09:20:36	8.95	*
05/23/91	09:21:36	8.98	*
05/23/91	09:22:36	8.97	*
05/23/91	09:23:36	8.99	*
05/23/91	09:24:36	8.99	*
05/23/91	09:25:36	8.99	*
05/23/91	09:26:36	8.99	*
05/23/91	09:27:36	8.99	*
05/23/91	09:28:36	8.99	*
05/23/91	09:29:36	8.99	*
05/23/91	09:30:36	9.00	*
05/23/91	09:31:36	9.00	*
05/23/91	09:32:36	9.01	*
05/23/91	09:33:36	9.01	*
05/23/91	09:34:36	9.03	*
05/23/91	09:35:36	9.03	*
05/23/91	09:36:36	9.03	*
05/23/91	09:37:36	9.03	*
05/23/91	09:38:36	9.04	*
05/23/91	09:39:36	9.06	*
05/23/91	09:40:36	9.06	*
05/23/91	09:41:36	9.06	*
05/23/91	09:42:36	9.06	*
05/23/91	09:43:36	9.07	*
05/23/91	09:44:36	9.08	*
05/23/91	09:45:36	9.08	*
05/23/91	09:46:36	9.08	*
05/23/91	09:47:36	9.08	*
05/23/91	09:48:36	9.08	*
05/23/91	09:49:36	9.08	*
05/23/91	09:50:36	9.08	*
05/23/91	09:51:36	9.08	*
05/23/91	09:52:36	9.08	*
05/23/91	09:53:36	9.08	*
05/23/91	09:54:36	9.08	*
05/23/91	09:55:36	9.08	*
05/23/91	09:56:36	9.08	*
05/23/91	09:57:36	9.10	*
05/23/91	09:58:36	9.10	*
05/23/91	09:59:36	9.10	*

05/23/91	10:02:36	9.10
05/23/91	10:03:36	9.11
05/23/91	10:04:36	9.12
05/23/91	10:05:36	9.12
05/23/91	10:06:36	9.12
05/23/91	10:07:36	9.12
05/23/91	10:08:36	9.12
05/23/91	10:09:36	9.12
05/23/91	10:10:36	9.12
05/23/91	10:11:36	9.12
05/23/91	10:12:36	9.12
05/23/91	10:13:36	9.12
05/23/91	10:14:36	9.13
05/23/91	10:15:36	9.15
05/23/91	10:16:36	9.15
05/23/91	10:17:36	9.15
05/23/91	10:18:36	9.15
05/23/91	10:19:36	9.15
05/23/91	10:20:36	9.15
05/23/91	10:21:36	9.16
05/23/91	10:22:36	9.17
05/23/91	10:23:36	9.17
05/23/91	10:24:36	9.17
05/23/91	10:25:36	9.17
05/23/91	10:26:36	9.17
05/23/91	10:27:36	9.17
05/23/91	10:28:36	9.17
05/23/91	10:29:36	9.17
05/23/91	10:30:36	9.15
05/23/91	10:31:36	9.15
05/23/91	10:32:36	9.15
05/23/91	10:33:36	9.15
05/23/91	10:34:36	9.17
05/23/91	10:35:36	9.17
05/23/91	10:36:36	9.17
05/23/91	10:37:36	9.17
05/23/91	10:38:36	9.17
05/23/91	10:39:36	9.17
05/23/91	10:40:36	9.17
05/23/91	10:41:36	9.17
05/23/91	10:42:36	9.17
05/23/91	10:43:36	9.17
05/23/91	10:44:36	9.17
05/23/91	10:45:36	9.18
05/23/91	10:46:36	9.19
05/23/91	10:47:36	9.19
05/23/91	10:48:36	9.19
05/23/91	10:49:36	9.19
05/23/91	10:50:36	9.19
05/23/91	10:51:36	9.19
05/23/91	10:52:36	9.19
05/23/91	10:53:36	9.19
05/23/91	10:54:36	9.20
05/23/91	10:55:36	9.21
05/23/91	10:56:36	9.22
05/23/91	10:57:36	9.22
05/23/91	10:58:36	9.24
05/23/91	10:59:36	9.24
05/23/91	11:00:36	9.24
05/23/91	11:01:36	9.24
05/23/91	11:02:36	9.24
05/23/91	11:03:36	9.24
05/23/91	11:04:36	9.24
05/23/91	11:05:36	9.24

05/23/91	11:08:36	9.24
05/23/91	11:09:36	9.24
05/23/91	11:10:36	9.24
05/23/91	11:11:36	9.24
05/23/91	11:12:36	9.25
05/23/91	11:13:36	9.26
05/23/91	11:14:36	9.26
05/23/91	11:15:36	9.26
05/23/91	11:16:36	9.26
05/23/91	11:17:36	9.26
05/23/91	11:18:36	9.26
05/23/91	11:19:36	9.26
05/23/91	11:20:36	9.26
05/23/91	11:21:36	9.26
05/23/91	11:22:36	9.26
05/23/91	11:23:36	9.26
05/23/91	11:24:36	9.26
05/23/91	11:25:36	9.28
05/23/91	11:26:36	9.29
05/23/91	11:27:36	9.29
05/23/91	11:28:36	9.29
05/23/91	11:29:36	9.30
05/23/91	11:30:36	9.31
05/23/91	11:31:36	9.29
05/23/91	11:32:36	9.31
05/23/91	11:33:36	9.31
05/23/91	11:34:36	9.31
05/23/91	11:35:36	9.31
05/23/91	11:36:36	9.31
05/23/91	11:37:36	9.31
05/23/91	11:38:36	9.31
05/23/91	11:39:36	9.31
05/23/91	11:40:36	9.31
05/23/91	11:41:36	9.31
05/23/91	11:42:36	9.31
05/23/91	11:43:36	9.31
05/23/91	11:44:36	9.31
05/23/91	11:45:36	9.31
05/23/91	11:46:36	9.33
05/23/91	11:47:36	9.31
05/23/91	11:48:36	9.31
05/23/91	11:49:36	9.32
05/23/91	11:50:36	9.33
05/23/91	11:51:36	9.33

SW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-35
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

L	= Height of the portion of well through which water enters	= 2.5'
R_e	= Effective radius over which y is dissipated	= —
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ Btoc	= 4.43'
H	= Difference from bottom of well screen to water table	= 4.07'
D	= Difference from impermeable zone to water table	= D=H-
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= ✓
y_o	= Determine off graph of ln y_t vs. t	= 0.40 ✓
y_t	= Change of y with time	= 0.14 ✓
t	= Time	= 2506 sec ✓
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
C	=	= 1.5 ✓

$4/r_w = 7.5$ ✓

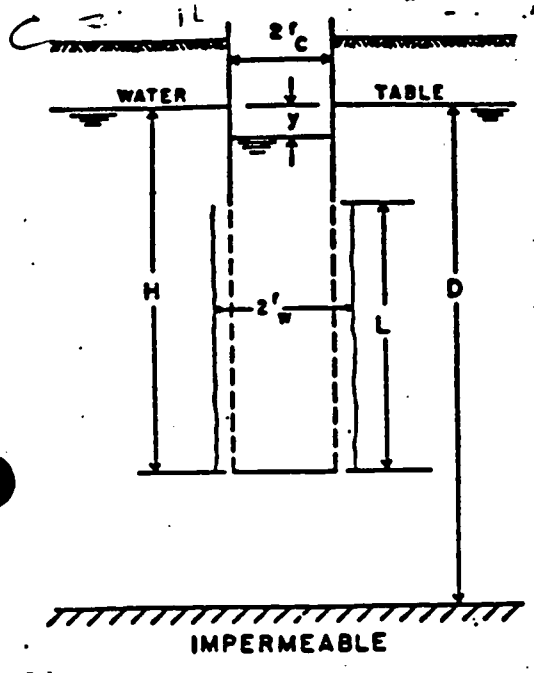


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-3S
DATE COMPLETED: 5/20/91
DRILLING METHOD: _____
CRA SUPERVISOR: _____

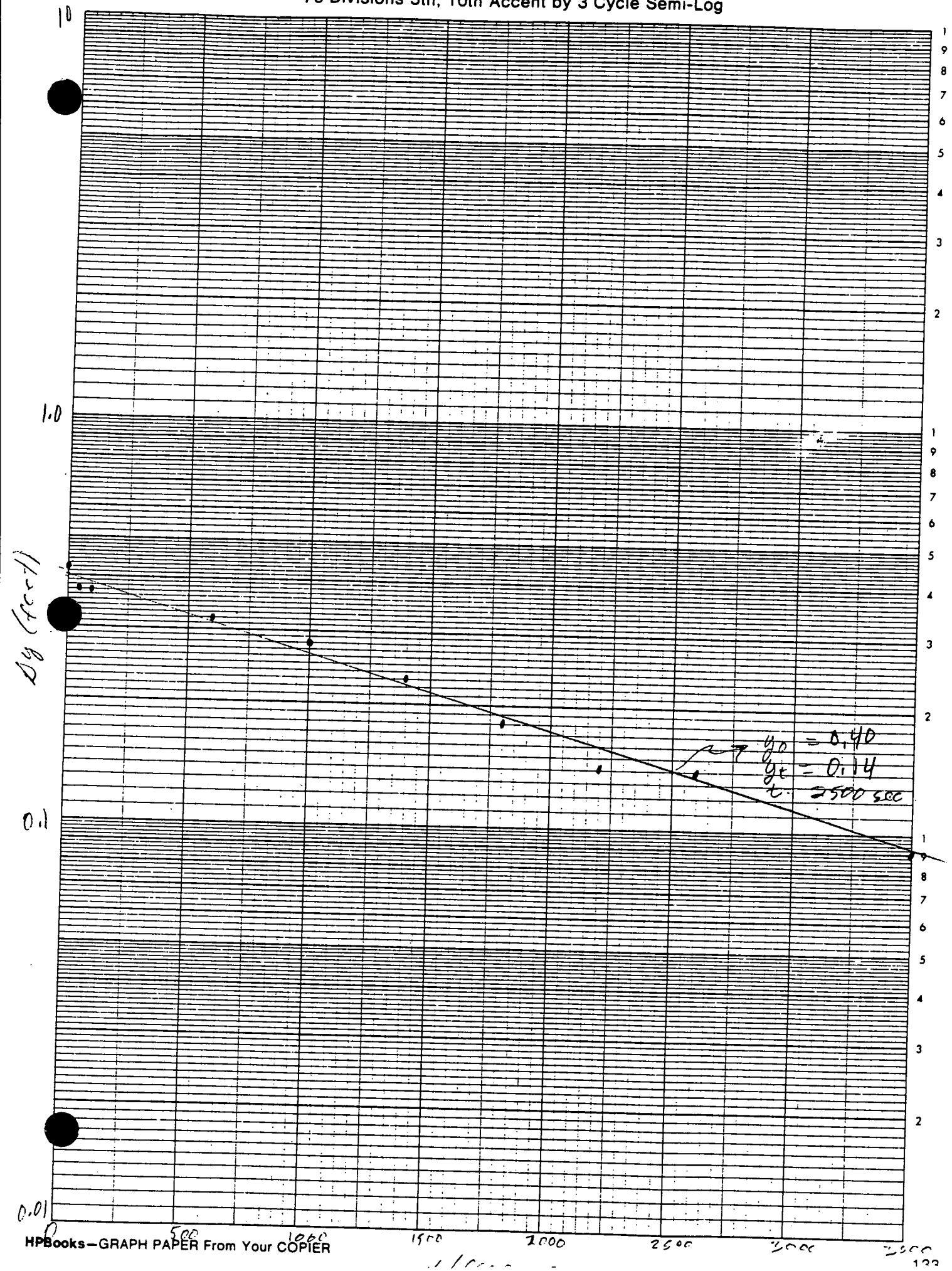
2

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 3.28 FT.					
			15	2.91	0.37
0	2.86	0.42	491	2.96	0.32
50	2.91	0.37	294	3.00	0.28
100	2.91	0.37			
600	2.96	0.32			
1000	3.00	0.28			
1400	3.05	0.23			
1800	3.10	0.18			
2200	3.14	0.14			
2600	3.14	0.14			
3500	3.19	0.09			

SLUG OUT @ 13:38:26

NCR-3S #2677

70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log



HPBooks—GRAPH PAPER From Your COPIER

CALCULATION OF HYDRAULIC CONDUCTIVITY

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

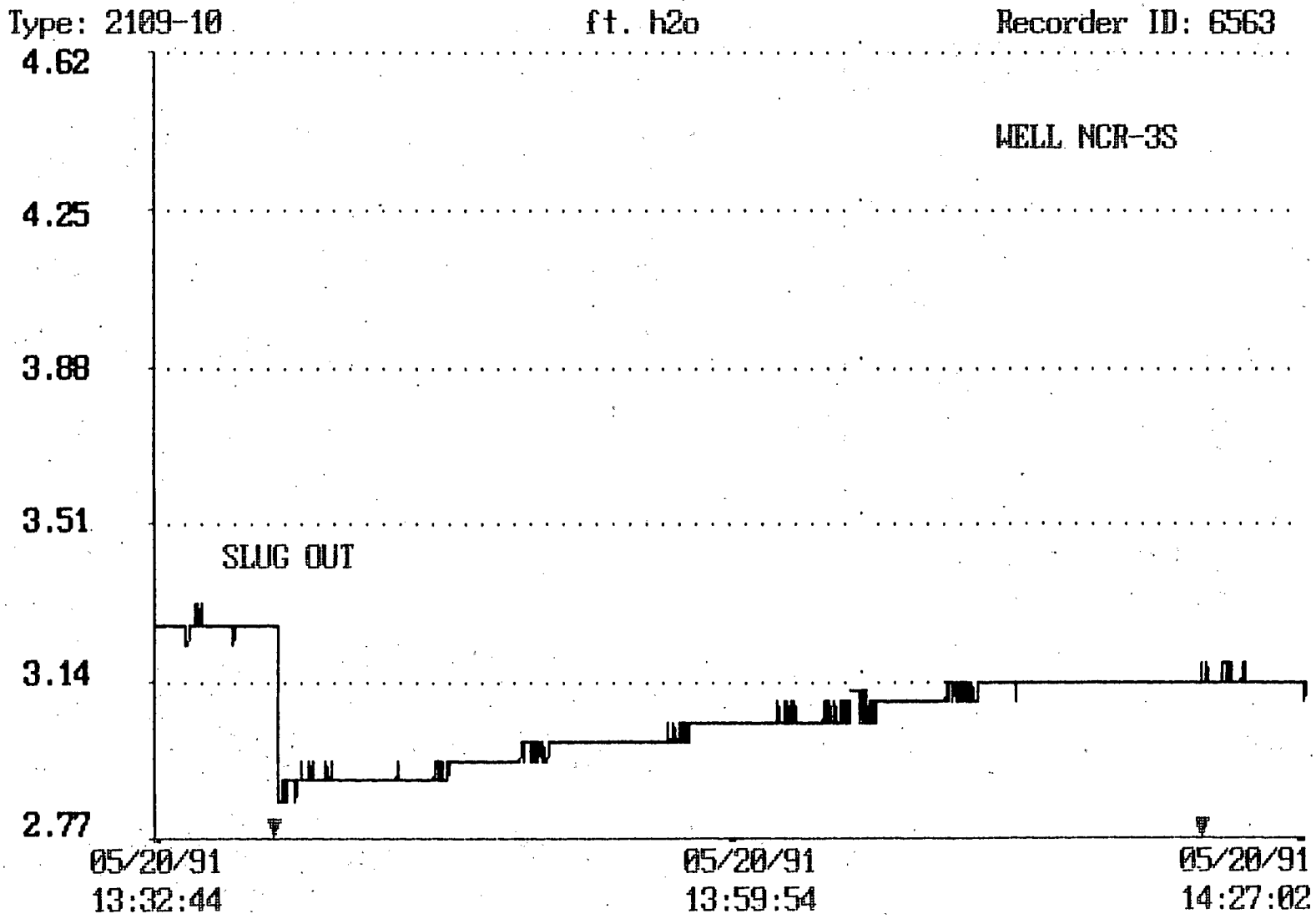
$$\ln \frac{Re}{rw} = \left| \frac{1.1}{\ln(4.07/0.333)} + \frac{1.5}{(2.5/0.333)} \right|^{-1} = \left| 0.439 + 0.20 \right|^{-1} = 1.56 \quad \checkmark$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{2500} \ln \frac{0.40}{0.14} = 0.00042 \ \text{sec}^{-1} \quad \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54\ \text{cm})^2 (1.56)(0.00042\ \text{sec}^{-1})}{2(2.5')(30.48\ \text{cm/ft})} = \frac{0.0042}{152.4} = 2.8 \times 10^{-5}\ \text{cm/sec} \quad \checkmark$$


Type: 2109-10
ft. h2o
Recorder ID: 6563
4.62
4.25
3.88
3.51
3.14
2.77
WELL NCR-3S
SLUG OUT
05/20/91
13:32:44
05/20/91
13:59:54
05/20/91
14:27:02

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. h2o Recorder ID: 6563
Time at Recorder: 05/20/91 14:54:09 Last Update: 05/03/91 11:27:48
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:02 Amount of data recorded: 03:37:04
Storage Capacity: 6512 values records: 03:37:04
Output compressed by a factor of 4

Date	Time	Avg	
05/20/91	13:38:16	3.28	*
05/20/91	13:38:24	3.08	*
05/20/91	13:38:32	2.86	*
05/20/91	13:38:40	2.89	*
05/20/91	13:38:48	2.90	*
05/20/91	13:38:56	2.91	*
05/20/91	13:39:04	2.91	*
05/20/91	13:39:12	2.90	*
05/20/91	13:39:20	2.91	*
05/20/91	13:39:28	2.92	*
05/20/91	13:39:36	2.91	*
05/20/91	13:39:44	2.91	*
05/20/91	13:39:52	2.92	*
05/20/91	13:40:00	2.91	*
05/20/91	13:40:08	2.92	*
05/20/91	13:40:16	2.91	*
05/20/91	13:40:24	2.91	*
05/20/91	13:40:32	2.91	*
05/20/91	13:40:40	2.92	*
05/20/91	13:40:48	2.91	*
05/20/91	13:40:56	2.92	*
05/20/91	13:41:04	2.91	*
05/20/91	13:41:12	2.91	*
05/20/91	13:41:20	2.91	*
05/20/91	13:41:28	2.91	*
05/20/91	13:41:36	2.91	*
05/20/91	13:41:44	2.91	*
05/20/91	13:41:52	2.91	*
05/20/91	13:42:00	2.91	*
05/20/91	13:42:08	2.91	*
05/20/91	13:42:16	2.91	*
05/20/91	13:42:24	2.91	*
05/20/91	13:42:32	2.91	*
05/20/91	13:42:40	2.91	*
05/20/91	13:42:48	2.91	*
05/20/91	13:42:56	2.91	*
05/20/91	13:43:04	2.91	*
05/20/91	13:43:12	2.91	*
05/20/91	13:43:20	2.91	*
05/20/91	13:43:28	2.91	*
05/20/91	13:43:36	2.91	*
05/20/91	13:43:44	2.91	*
05/20/91	13:43:52	2.91	*
05/20/91	13:44:00	2.92	*
05/20/91	13:44:08	2.91	*
05/20/91	13:44:16	2.91	*
05/20/91	13:44:24	2.91	*
05/20/91	13:44:32	2.91	*

05/20/91	13:44:56	2.91	*
05/20/91	13:45:04	2.91	*
05/20/91	13:45:12	2.91	*
05/20/91	13:45:20	2.91	*
05/20/91	13:45:28	2.91	*
05/20/91	13:45:36	2.91	*
05/20/91	13:45:44	2.92	*
05/20/91	13:45:52	2.95	*
05/20/91	13:46:00	2.93	*
05/20/91	13:46:08	2.95	*
05/20/91	13:46:16	2.92	*
05/20/91	13:46:24	2.92	*
05/20/91	13:46:32	2.96	*
05/20/91	13:46:40	2.96	*
05/20/91	13:46:48	2.96	*
05/20/91	13:46:56	2.96	*
05/20/91	13:47:04	2.96	*
05/20/91	13:47:12	2.96	*
05/20/91	13:47:20	2.96	*
05/20/91	13:47:28	2.96	*
05/20/91	13:47:36	2.96	*
05/20/91	13:47:44	2.96	*
05/20/91	13:47:52	2.96	*
05/20/91	13:48:00	2.96	*
05/20/91	13:48:08	2.96	*
05/20/91	13:48:16	2.96	*
05/20/91	13:48:24	2.96	*
05/20/91	13:48:32	2.96	*
05/20/91	13:48:40	2.96	*
05/20/91	13:48:48	2.96	*
05/20/91	13:48:56	2.96	*
05/20/91	13:49:04	2.96	*
05/20/91	13:49:12	2.96	*
05/20/91	13:49:20	2.96	*
05/20/91	13:49:28	2.96	*
05/20/91	13:49:36	2.96	*
05/20/91	13:49:44	2.96	*
05/20/91	13:49:52	2.96	*
05/20/91	13:50:00	2.99	*
05/20/91	13:50:08	2.99	*
05/20/91	13:50:16	3.00	*
05/20/91	13:50:24	2.99	*
05/20/91	13:50:32	2.98	*
05/20/91	13:50:40	2.98	*
05/20/91	13:50:48	2.99	*
05/20/91	13:50:56	2.98	*
05/20/91	13:51:04	2.97	*
05/20/91	13:51:12	2.97	*
05/20/91	13:51:20	3.00	*
05/20/91	13:51:28	3.00	*
05/20/91	13:51:36	3.00	*
05/20/91	13:51:44	3.00	*
05/20/91	13:51:52	3.00	*
05/20/91	13:52:00	3.00	*
05/20/91	13:52:08	3.00	*
05/20/91	13:52:16	3.00	*
05/20/91	13:52:24	3.00	*
05/20/91	13:52:32	3.00	*
05/20/91	13:52:40	3.00	*
05/20/91	13:52:48	3.00	*
05/20/91	13:52:56	3.00	*
05/20/91	13:53:04	3.00	*
05/20/91	13:53:12	3.00	*
05/20/91	13:53:20	3.00	*

05/20/91	13:53:44	3.00	*
05/20/91	13:53:52	3.00	*
05/20/91	13:54:00	3.00	*
05/20/91	13:54:08	3.00	*
05/20/91	13:54:16	3.00	*
05/20/91	13:54:24	3.00	*
05/20/91	13:54:32	3.00	*
05/20/91	13:54:40	3.00	*
05/20/91	13:54:48	3.00	*
05/20/91	13:54:56	3.00	*
05/20/91	13:55:04	3.00	*
05/20/91	13:55:12	3.00	*
05/20/91	13:55:20	3.00	*
05/20/91	13:55:28	3.00	*
05/20/91	13:55:36	3.00	*
05/20/91	13:55:44	3.00	*
05/20/91	13:55:52	3.00	*
05/20/91	13:56:00	3.00	*
05/20/91	13:56:08	3.00	*
05/20/91	13:56:16	3.00	*
05/20/91	13:56:24	3.00	*
05/20/91	13:56:32	3.00	*
05/20/91	13:56:40	3.00	*
05/20/91	13:56:48	3.01	*
05/20/91	13:56:56	3.00	*
05/20/91	13:57:04	3.01	*
05/20/91	13:57:12	3.01	*
05/20/91	13:57:20	3.01	*
05/20/91	13:57:28	3.01	*
05/20/91	13:57:36	3.03	*
05/20/91	13:57:44	3.04	*
05/20/91	13:57:52	3.03	*
05/20/91	13:58:00	3.05	*
05/20/91	13:58:08	3.05	*
05/20/91	13:58:16	3.05	*
05/20/91	13:58:24	3.05	*
05/20/91	13:58:32	3.05	*
05/20/91	13:58:40	3.05	*
05/20/91	13:58:48	3.05	*
05/20/91	13:58:56	3.05	*
05/20/91	13:59:04	3.05	*
05/20/91	13:59:12	3.05	*
05/20/91	13:59:20	3.05	*
05/20/91	13:59:28	3.05	*
05/20/91	13:59:36	3.05	*
05/20/91	13:59:44	3.05	*
05/20/91	13:59:52	3.05	*
05/20/91	14:00:00	3.05	*
05/20/91	14:00:08	3.05	*
05/20/91	14:00:16	3.05	*
05/20/91	14:00:24	3.05	*
05/20/91	14:00:32	3.05	*
05/20/91	14:00:40	3.05	*
05/20/91	14:00:48	3.05	*
05/20/91	14:00:56	3.05	*
05/20/91	14:01:04	3.05	*
05/20/91	14:01:12	3.05	*
05/20/91	14:01:20	3.05	*
05/20/91	14:01:28	3.05	*
05/20/91	14:01:36	3.05	*
05/20/91	14:01:44	3.05	*
05/20/91	14:01:52	3.05	*
05/20/91	14:02:00	3.06	*
05/20/91	14:02:08	3.05	*

05/20/91	14:02:32	3.06	*
05/20/91	14:02:40	3.07	*
05/20/91	14:02:48	3.06	*
05/20/91	14:02:56	3.05	*
05/20/91	14:03:04	3.05	*
05/20/91	14:03:12	3.05	*
05/[redacted]/91	14:03:20	3.05	*
05/20/91	14:03:28	3.05	*
05/20/91	14:03:36	3.05	*
05/20/91	14:03:44	3.05	*
05/20/91	14:03:52	3.05	*
05/20/91	14:04:00	3.05	*
05/20/91	14:04:08	3.06	*
05/20/91	14:04:16	3.07	*
05/20/91	14:04:24	3.06	*
05/20/91	14:04:32	3.05	*
05/20/91	14:04:40	3.06	*
05/20/91	14:04:48	3.05	*
05/20/91	14:04:56	3.06	*
05/20/91	14:05:04	3.06	*
05/20/91	14:05:12	3.07	*
05/20/91	14:05:20	3.08	*
05/20/91	14:05:28	3.10	*
05/20/91	14:05:36	3.10	*
05/20/91	14:05:44	3.10	*
05/20/91	14:05:52	3.07	*
05/20/91	14:06:00	3.10	*
05/20/91	14:06:08	3.08	*
05/20/91	14:06:16	3.06	*
05/20/91	14:06:24	3.07	*
05/20/91	14:06:32	3.07	*
05/[redacted]/91	14:06:40	3.08	*
05/[redacted]/91	14:06:48	3.10	*
05/20/91	14:06:56	3.10	*
05/20/91	14:07:04	3.10	*
05/20/91	14:07:12	3.10	*
05/20/91	14:07:20	3.10	*
05/20/91	14:07:28	3.10	*
05/20/91	14:07:36	3.10	*
05/20/91	14:07:44	3.10	*
05/20/91	14:07:52	3.10	*
05/20/91	14:08:00	3.10	*
05/20/91	14:08:08	3.10	*
05/20/91	14:08:16	3.10	*
05/20/91	14:08:24	3.10	*
05/20/91	14:08:32	3.10	*
05/20/91	14:08:40	3.10	*
05/20/91	14:08:48	3.10	*
05/20/91	14:08:56	3.10	*
05/20/91	14:09:04	3.10	*
05/20/91	14:09:12	3.10	*
05/20/91	14:09:20	3.10	*
05/20/91	14:09:28	3.10	*
05/20/91	14:09:36	3.10	*
05/20/91	14:09:44	3.10	*
05/20/91	14:09:52	3.11	*
05/20/91	14:10:00	3.11	*
05/[redacted]/91	14:10:08	3.14	*
05/20/91	14:10:16	3.12	*
05/20/91	14:10:24	3.13	*
05/20/91	14:10:32	3.11	*
05/20/91	14:10:40	3.13	*
05/20/91	14:10:48	3.12	*
05/20/91	14:10:56	3.12	*

05/20/91	14:11:20	3.10	*
05/20/91	14:11:28	3.13	*
05/20/91	14:11:36	3.14	*
05/20/91	14:11:44	3.14	*
05/20/91	14:11:52	3.14	*
05/20/91	14:12:00	3.14	*
05/20/91	14:12:08	3.14	*
05/20/91	14:12:16	3.14	*
05/20/91	14:12:24	3.14	*
05/20/91	14:12:32	3.14	*
05/20/91	14:12:40	3.14	*
05/20/91	14:12:48	3.14	*
05/20/91	14:12:56	3.14	*
05/20/91	14:13:04	3.14	*
05/20/91	14:13:12	3.13	*
05/20/91	14:13:20	3.14	*
05/20/91	14:13:28	3.14	*
05/20/91	14:13:36	3.14	*
05/20/91	14:13:44	3.14	*
05/20/91	14:13:52	3.14	*
05/20/91	14:14:00	3.14	*
05/20/91	14:14:08	3.14	*
05/20/91	14:14:16	3.14	*
05/20/91	14:14:24	3.14	*
05/20/91	14:14:32	3.14	*
05/20/91	14:14:40	3.14	*
05/20/91	14:14:48	3.14	*
05/20/91	14:14:56	3.14	*
05/20/91	14:15:04	3.14	*
05/20/91	14:15:12	3.14	*
05/20/91	14:15:20	3.14	*
05/20/91	14:15:28	3.14	*
05/20/91	14:15:36	3.14	*
05/20/91	14:15:44	3.14	*
05/20/91	14:15:52	3.14	*
05/20/91	14:16:00	3.14	*
05/20/91	14:16:08	3.14	*
05/20/91	14:16:16	3.14	*
05/20/91	14:16:24	3.14	*
05/20/91	14:16:32	3.14	*
05/20/91	14:16:40	3.14	*
05/20/91	14:16:48	3.14	*
05/20/91	14:16:56	3.14	*
05/20/91	14:17:04	3.14	*
05/20/91	14:17:12	3.14	*
05/20/91	14:17:20	3.14	*
05/20/91	14:17:28	3.14	*
05/20/91	14:17:36	3.14	*
05/20/91	14:17:44	3.14	*
05/20/91	14:17:52	3.14	*
05/20/91	14:18:00	3.14	*
05/20/91	14:18:08	3.14	*
05/20/91	14:18:16	3.14	*
05/20/91	14:18:24	3.14	*
05/20/91	14:18:32	3.14	*
05/20/91	14:18:40	3.14	*
05/20/91	14:18:48	3.14	*
05/20/91	14:18:56	3.14	*
05/20/91	14:19:04	3.14	*
05/20/91	14:19:12	3.14	*
05/20/91	14:19:20	3.14	*
05/20/91	14:19:28	3.14	*
05/20/91	14:19:36	3.14	*
05/20/91	14:19:44	3.14	*

05/20/91	14:20:08	3.14	*
05/20/91	14:20:16	3.14	*
05/20/91	14:20:24	3.14	*
05/20/91	14:20:32	3.14	*
05/20/91	14:20:40	3.14	*
05/20/91	14:20:48	3.14	*
05/20/91	14:20:56	3.14	*
05/20/91	14:21:04	3.14	*
05/20/91	14:21:12	3.14	*
05/20/91	14:21:20	3.14	*
05/20/91	14:21:28	3.14	*
05/20/91	14:21:36	3.14	*
05/20/91	14:21:44	3.14	*
05/20/91	14:21:52	3.14	*

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-3M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 9.0
R_e	= Effective radius over which y is dissipated	= —
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ Btoc	= 13.96'
H	= Difference from bottom of well screen to water table	= 31.66'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= —
y_o	= Determine off graph of ln y_t vs. t	= 0.76 ✓
y_t	= Change of y with time	= 0.19 ✓
t	= Time	= 2900 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= —
C	=	= 1.9 ✓

L/r_w =

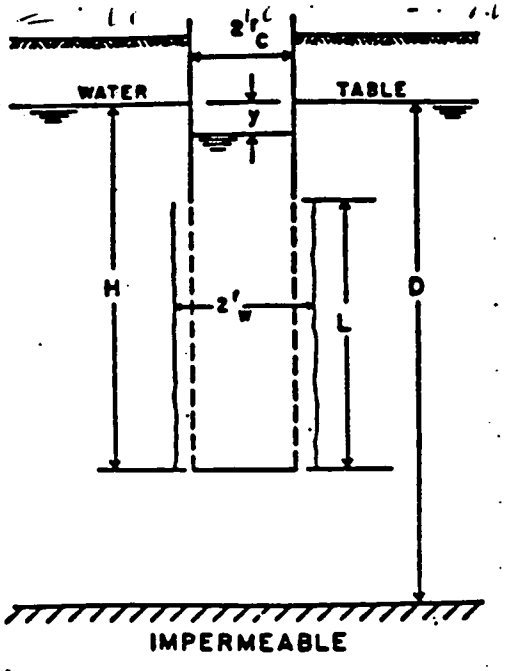


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-3M

PROJECT NO.: _____ DATE COMPLETED: _____

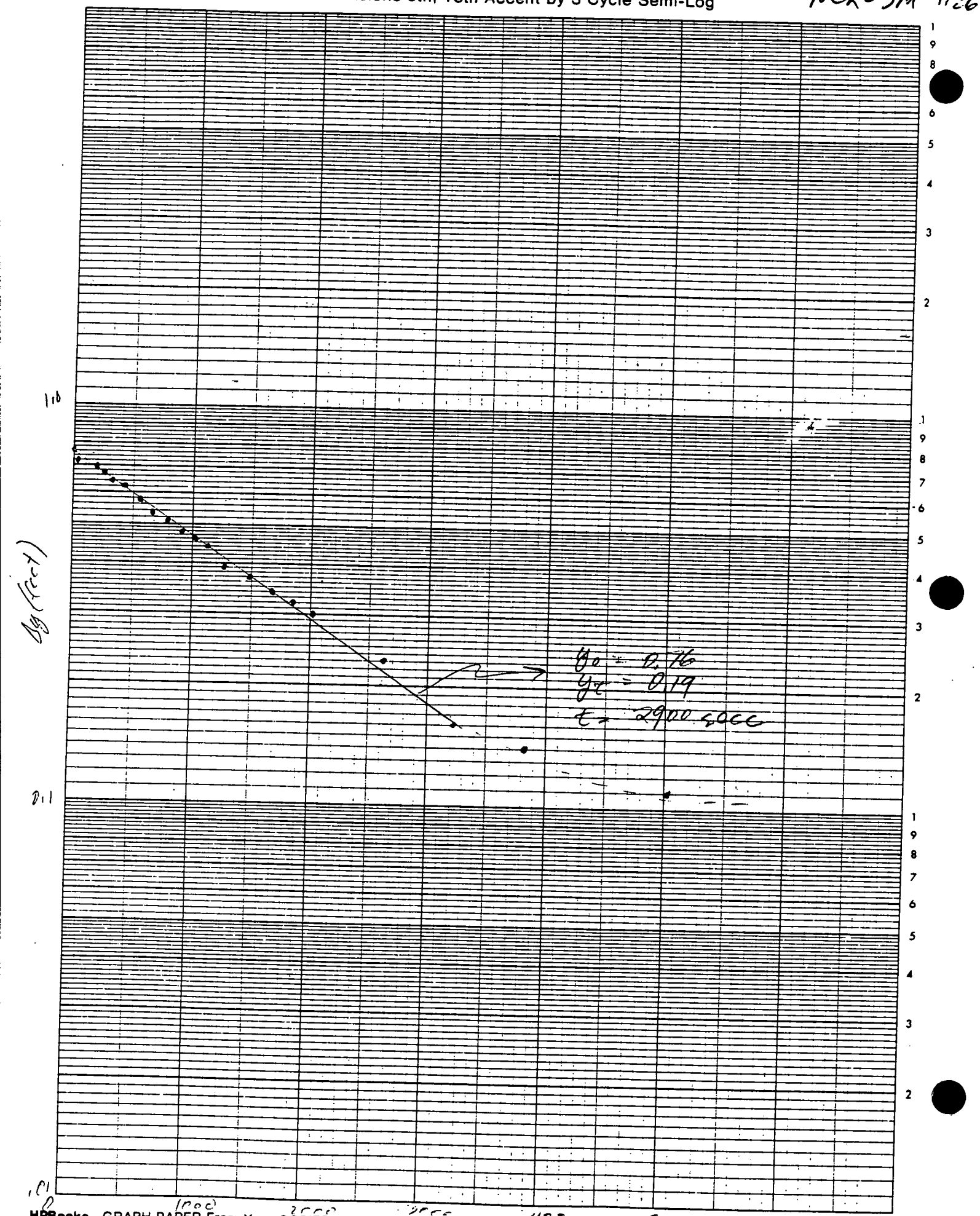
CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
	TRANSDUCER STATIC = 7.62 FT.				
1336 58	0	6.86	.76		
	1	6.88	.74		
1337 16	14	6.91	.71		
1340 16	198	6.93	.69		
41 16	258	6.95	.67		
42 16	318	6.98	.64		
44 16	438	7.00	.62		
46	558	7.05	.57		
48	678	7.09	.53		
50 16	798	7.11	.51		
52	918	7.14	.48		
54	1038	7.16	.46		
56	1158	7.18	.44		
58	1278	7.23	.39		
		7.62			
1402 16	1494	7.25	.37		
430	1674	7.28	.34		
730	1854	7.30	.32		
1030	2034	7.32	.30		
1230	2634	7.39	.23		
330	3234	7.46	.16		
4030	3834	7.48	.14		
4330	4134	7.51	.11		

SLUG OUT - 13:36:58 - 6.86'

NCR-3M A267,



HPBooks—GRAPH PAPER From Your COPIER

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1} = C$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

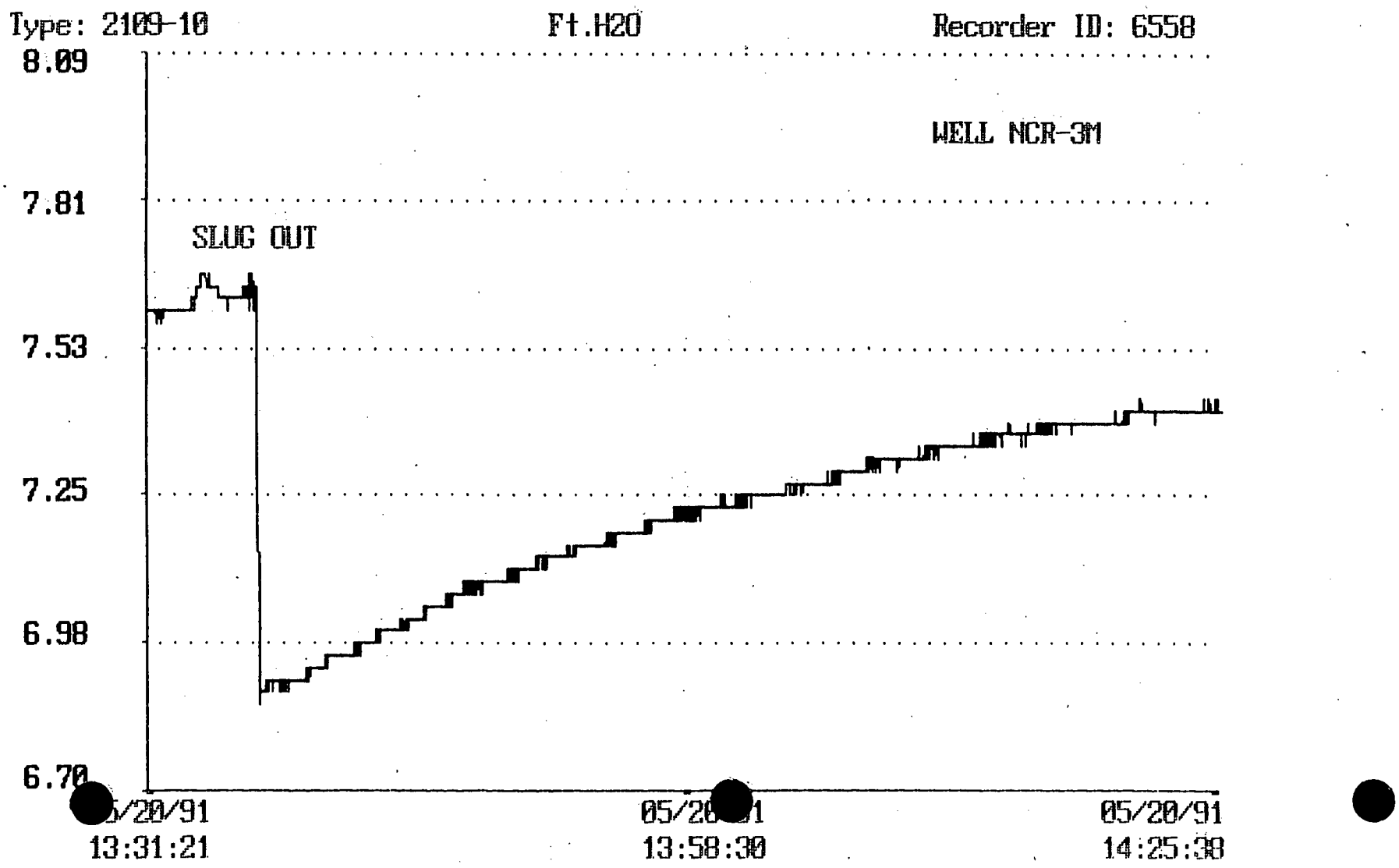
$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(31.66/0.333)} + \frac{1.9}{(9.0/0.333)} \right|^{-1} = \left| 0.242 + 0.070 \right|^{-1} = 3.21$$ ✓

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{2910} \ln \frac{0.76}{0.19} = 0.000478 \text{ sec}^{-1}$$ ✓

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54 \text{ cm})^2 (3.21)(0.000478 \text{ sec}^{-1})}{2(9.0)(30.48 \text{ cm/ft})} = \frac{0.009889}{548.64} = 1.8 \times 10^{-5} \text{ cm/s}$$ ✓


Type: 2109-10
Ft.H2O
Recorder ID: 6558
8.09
7.81
7.53
7.25
6.98
6.70
WELL NCR-3M
SLUG OUT
05/20/91
13:31:21
05/20/91
13:58:30
05/20/91
14:25:30

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H2O Recorder ID: 6558
Time at Recorder: 05/20/91 14:52:45 Last Update: 05/20/91 10:34:29
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32
Storage Capacity: 6512 values records: 01:48:32
Output compressed by a factor of 4

Date	Time	Avg	
05/20/91	13:35:41	7.62	*
05/20/91	13:35:45	7.62	*
05/20/91	13:35:49	7.62	*
05/20/91	13:35:53	7.62	*
05/20/91	13:35:57	7.62	*
05/20/91	13:36:01	7.62	*
05/20/91	13:36:05	7.62	*
05/20/91	13:36:09	7.62	*
05/20/91	13:36:13	7.63	*
05/20/91	13:36:17	7.63	*
05/20/91	13:36:21	7.64	*
05/20/91	13:36:25	7.65	*
05/20/91	13:36:29	7.63	*
05/20/91	13:36:33	7.64	*
05/20/91	13:36:37	7.65	*
05/20/91	13:36:41	7.63	*
05/20/91	13:36:45	7.63	*
05/20/91	13:36:49	7.63	*
05/20/91	13:36:53	7.53	*
05/20/91	13:36:57	6.88	*
05/20/91	13:37:01	6.88	*
05/20/91	13:37:05	6.88	*
05/20/91	13:37:09	6.88	*
05/20/91	13:37:13	6.89	*
05/20/91	13:37:17	6.90	*
05/20/91	13:37:21	6.90	*
05/20/91	13:37:25	6.91	*
05/20/91	13:37:29	6.91	*
05/20/91	13:37:33	6.90	*
05/20/91	13:37:37	6.91	*
05/20/91	13:37:41	6.91	*
05/20/91	13:37:45	6.91	*
05/20/91	13:37:49	6.91	*
05/20/91	13:37:53	6.91	*
05/20/91	13:37:57	6.90	*
05/20/91	13:38:01	6.90	*
05/20/91	13:38:05	6.91	*
05/20/91	13:38:09	6.90	*
05/20/91	13:38:13	6.90	*
05/20/91	13:38:17	6.91	*
05/20/91	13:38:21	6.91	*
05/20/91	13:38:25	6.90	*
05/20/91	13:38:29	6.91	*
05/20/91	13:38:33	6.91	*
05/20/91	13:38:37	6.91	*
05/20/91	13:38:41	6.91	*
05/20/91	13:38:45	6.91	*
05/20/91	13:38:49	6.91	*

05/20/91	13:39:01	6.91	*
05/20/91	13:39:05	6.91	*
05/20/91	13:39:09	6.91	*
05/20/91	13:39:13	6.91	*
05/20/91	13:39:17	6.91	*
05/20/91	13:39:21	6.91	*
05/20/91	13:39:25	6.92	*
05/20/91	13:39:29	6.93	*
05/20/91	13:39:33	6.93	*
05/20/91	13:39:37	6.93	*
05/20/91	13:39:41	6.93	*
05/20/91	13:39:45	6.93	*
05/20/91	13:39:49	6.93	*
05/20/91	13:39:53	6.93	*
05/20/91	13:39:57	6.93	*
05/20/91	13:40:01	6.93	*
05/20/91	13:40:05	6.93	*
05/20/91	13:40:09	6.93	*
05/20/91	13:40:13	6.93	*
05/20/91	13:40:17	6.94	*
05/20/91	13:40:21	6.94	*
05/20/91	13:40:25	6.95	*
05/20/91	13:40:29	6.95	*
05/20/91	13:40:33	6.95	*
05/20/91	13:40:37	6.95	*
05/20/91	13:40:41	6.95	*
05/20/91	13:40:45	6.95	*
05/20/91	13:40:49	6.95	*
05/20/91	13:40:53	6.95	*
05/20/91	13:40:57	6.95	*
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05/20/91	13:43:33	7.00	*
05/20/91	13:43:37	7.00	*
05/20/91	13:43:41	7.00	*
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05/20/91	13:47:37	7.09	*

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05/20/91	13:52:01	7.14	*

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05/20/91	13:52:17	7.14
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05/20/91	13:52:49	7.16
05/20/91	13:52:53	7.16
05/20/91	13:52:57	7.16
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05/20/91	13:53:05	7.16
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05/20/91	13:53:45	7.16
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05/20/91	13:53:53	7.16
05/20/91	13:53:57	7.16
05/20/91	13:54:01	7.16
05/20/91	13:54:05	7.16
05/20/91	13:54:09	7.16
05/20/91	13:54:13	7.16
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05/[redacted]/91	13:54:21	7.16
05/20/91	13:54:25	7.17
05/20/91	13:54:29	7.17
05/20/91	13:54:33	7.18
05/20/91	13:54:37	7.17
05/20/91	13:54:41	7.17
05/20/91	13:54:45	7.17
05/20/91	13:54:49	7.18
05/20/91	13:54:53	7.17
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05/20/91	13:55:05	7.18
05/20/91	13:55:09	7.18
05/20/91	13:55:13	7.18
05/20/91	13:55:17	7.18
05/20/91	13:55:21	7.18
05/20/91	13:55:25	7.18
05/20/91	13:55:29	7.18
05/20/91	13:55:33	7.18
05/20/91	13:55:37	7.18
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05/20/91	13:56:09	7.18
05/20/91	13:56:13	7.18
05/20/91	13:56:17	7.18
05/20/91	13:56:21	7.18
05/20/91	13:56:25	7.19

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05/20/91	14:01:33	7.25	*
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05/20/91	14:04:53	7.28	*
05/20/91	14:04:57	7.28	*
05/20/91	14:05:01	7.28	*
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05/20/91	14:05:09	7.28	*
05/20/91	14:05:13	7.28	*

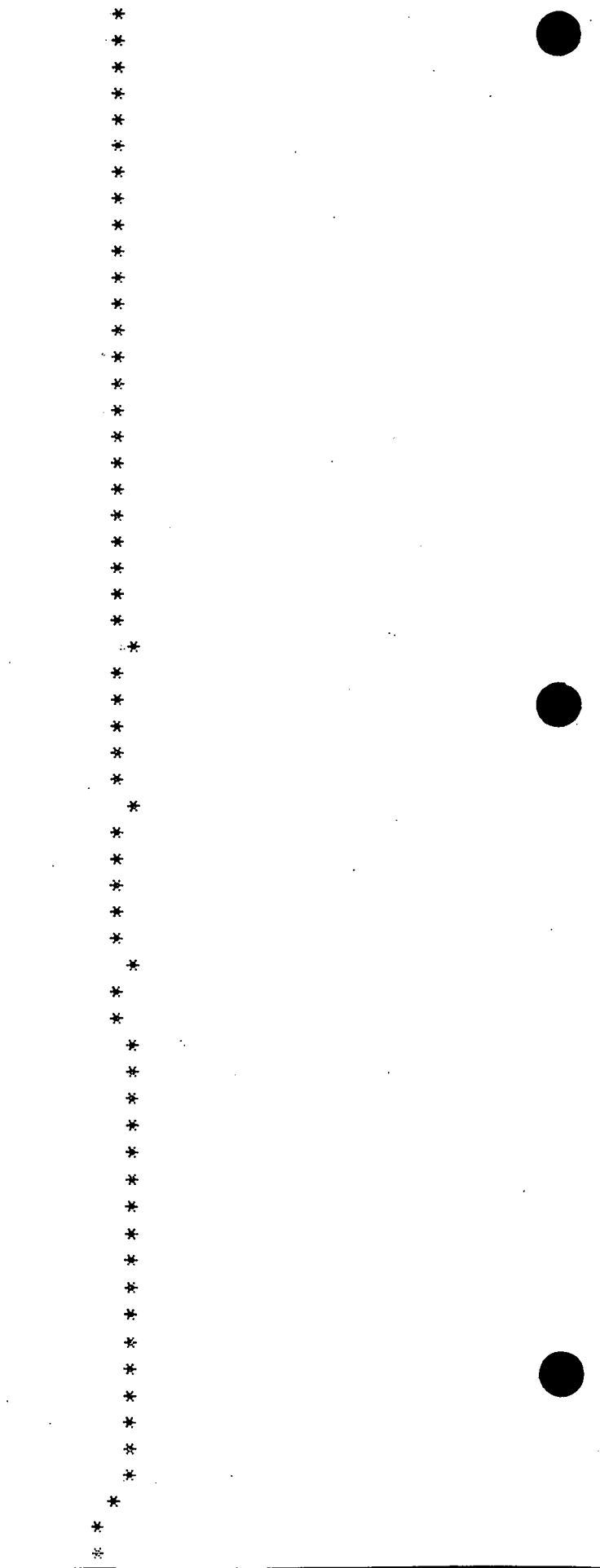
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05/20/91	14:07:45	7.32
05/20/91	14:07:49	7.32
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05/20/91	14:07:57	7.32
05/20/91	14:08:01	7.32
05/20/91	14:08:05	7.32
05/20/91	14:08:09	7.31
05/20/91	14:08:13	7.32
05/20/91	14:08:17	7.32
05/20/91	14:08:21	7.32
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05/20/91	14:08:45	7.32
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05/20/91	14:09:37	7.32

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05/20/91	14:10:45	7.33	*
05/20/91	14:10:49	7.34	*
05/20/91	14:10:53	7.35	*
05/20/91	14:10:57	7.34	*
05/20/91	14:11:01	7.35	*
05/20/91	14:11:05	7.35	*
05/20/91	14:11:09	7.34	*
05/20/91	14:11:13	7.35	*
05/20/91	14:11:17	7.34	*
05/20/91	14:11:21	7.35	*
05/20/91	14:11:25	7.35	*
05/20/91	14:11:29	7.35	*
05/20/91	14:11:33	7.35	*
05/20/91	14:11:37	7.35	*
05/20/91	14:11:41	7.35	*
05/20/91	14:11:45	7.35	*
05/20/91	14:11:49	7.35	*
05/20/91	14:11:53	7.35	*
05/20/91	14:11:57	7.35	*
05/20/91	14:12:01	7.35	*
05/20/91	14:12:05	7.35	*
05/20/91	14:12:09	7.35	*
05/20/91	14:12:13	7.35	*
05/20/91	14:12:17	7.35	*
05/20/91	14:12:21	7.35	*
05/20/91	14:12:25	7.35	*
05/20/91	14:12:29	7.35	*
05/20/91	14:12:33	7.35	*
05/20/91	14:12:37	7.35	*
05/20/91	14:12:41	7.35	*
05/20/91	14:12:45	7.35	*
05/20/91	14:12:49	7.35	*
05/20/91	14:12:53	7.35	*
05/20/91	14:12:57	7.35	*
05/20/91	14:13:01	7.35	*
05/20/91	14:13:05	7.35	*
05/20/91	14:13:09	7.35	*
05/20/91	14:13:13	7.35	*
05/20/91	14:13:17	7.35	*
05/20/91	14:13:21	7.35	*
05/20/91	14:13:25	7.35	*
05/20/91	14:13:29	7.35	*
05/20/91	14:13:33	7.35	*
05/20/91	14:13:37	7.36	*
05/20/91	14:13:41	7.36	*
05/20/91	14:13:45	7.36	*
05/20/91	14:13:49	7.36	*
05/20/91	14:13:53	7.35	*
05/20/91	14:13:57	7.36	*
05/20/91	14:14:01	7.36	*

05/20/91	14:14:13	7.36	*
05/20/91	14:14:17	7.37	*
05/20/91	14:14:21	7.37	*
05/20/91	14:14:25	7.37	*
05/20/91	14:14:29	7.36	*
05/20/91	14:14:33	7.37	*
05/20/91	14:14:37	7.37	*
05/20/91	14:14:41	7.37	*
05/20/91	14:14:45	7.37	*
05/20/91	14:14:49	7.37	*
05/20/91	14:14:53	7.37	*
05/20/91	14:14:57	7.37	*
05/20/91	14:15:01	7.37	*
05/20/91	14:15:05	7.37	*
05/20/91	14:15:09	7.37	*
05/20/91	14:15:13	7.37	*
05/20/91	14:15:17	7.37	*
05/20/91	14:15:21	7.37	*
05/20/91	14:15:25	7.37	*
05/20/91	14:15:29	7.36	*
05/20/91	14:15:33	7.37	*
05/20/91	14:15:37	7.37	*
05/20/91	14:15:41	7.36	*
05/20/91	14:15:45	7.37	*
05/20/91	14:15:49	7.37	*
05/20/91	14:15:53	7.37	*
05/20/91	14:15:57	7.37	*
05/20/91	14:16:01	7.37	*
05/20/91	14:16:05	7.37	*
05/20/91	14:16:09	7.37	*
05/20/91	14:16:13	7.37	*
05/20/91	14:16:17	7.37	*
05/20/91	14:16:21	7.37	*
05/20/91	14:16:25	7.37	*
05/20/91	14:16:29	7.37	*
05/20/91	14:16:33	7.37	*
05/20/91	14:16:37	7.37	*
05/20/91	14:16:41	7.37	*
05/20/91	14:16:45	7.38	*
05/20/91	14:16:49	7.38	*
05/20/91	14:16:53	7.39	*
05/20/91	14:16:57	7.38	*
05/20/91	14:17:01	7.39	*
05/20/91	14:17:05	7.39	*
05/20/91	14:17:09	7.39	*
05/20/91	14:17:13	7.39	*
05/20/91	14:17:17	7.39	*
05/20/91	14:17:21	7.39	*
05/20/91	14:17:25	7.39	*
05/20/91	14:17:29	7.39	*
05/20/91	14:17:33	7.39	*
05/20/91	14:17:37	7.39	*
05/20/91	14:17:41	7.39	*
05/20/91	14:17:45	7.39	*
05/20/91	14:17:49	7.39	*
05/20/91	14:17:53	7.39	*
05/20/91	14:17:57	7.39	*
05/20/91	14:18:01	7.39	*
05/20/91	14:18:05	7.39	*
05/20/91	14:18:09	7.39	*
05/20/91	14:18:13	7.39	*
05/20/91	14:18:17	7.39	*
05/20/91	14:18:21	7.39	*
05/20/91	14:18:25	7.39	*

05/20/91	14:18:37	7.39	*
05/20/91	14:18:41	7.39	*
05/20/91	14:18:45	7.39	*
05/20/91	14:18:49	7.39	*
05/20/91	14:18:53	7.39	*
05/20/91	14:18:57	7.39	*
05/20/91	14:19:01	7.39	*
05/20/91	14:19:05	7.39	*
05/20/91	14:19:09	7.39	*
05/20/91	14:19:13	7.39	*
05/20/91	14:19:17	7.39	*
05/20/91	14:19:21	7.39	*
05/20/91	14:19:25	7.39	*
05/20/91	14:19:29	7.39	*
05/20/91	14:19:33	7.39	*
05/20/91	14:19:37	7.39	*
05/20/91	14:19:41	7.39	*
05/20/91	14:19:45	7.39	*
05/20/91	14:19:49	7.39	*
05/20/91	14:19:53	7.39	*
05/20/91	14:19:57	7.39	*
05/20/91	14:20:01	7.39	*
05/20/91	14:20:05	7.39	*
05/20/91	14:20:09	7.39	*
05/20/91	14:20:13	7.39	*
05/20/91	14:20:17	7.40	*
05/20/91	14:20:21	7.39	*
05/20/91	14:20:25	7.39	*
05/20/91	14:20:29	7.39	*
05/20/91	14:20:33	7.39	*
05/20/91	14:20:37	7.39	*
05/20/91	14:20:41	7.40	*
05/20/91	14:20:45	7.40	*
05/20/91	14:20:49	7.41	*
05/20/91	14:20:53	7.40	*
05/20/91	14:20:57	7.42	*
05/20/91	14:21:01	7.42	*
05/20/91	14:21:05	7.42	*
05/20/91	14:21:09	7.42	*
05/20/91	14:21:13	7.42	*
05/20/91	14:21:17	7.42	*
05/20/91	14:21:21	7.42	*
05/20/91	14:21:25	7.42	*
05/20/91	14:21:29	7.42	*
05/20/91	14:21:33	7.42	*
05/20/91	14:21:37	7.42	*
05/20/91	14:21:41	7.42	*
05/20/91	14:21:45	7.42	*
05/20/91	14:21:49	7.42	*
05/20/91	14:21:53	7.42	*
05/20/91	14:21:57	7.42	*
05/20/91	14:22:01	7.42	*
05/20/91	14:22:05	7.42	*
05/20/91	14:22:09	7.42	*
05/20/91	14:22:13	7.42	*
05/20/91	14:22:17	7.41	*
05/20/91	14:22:21	7.42	*
05/20/91	14:22:25	7.42	*
05/20/91	14:22:29	7.42	*
05/20/91	14:22:33	7.42	*
05/20/91	14:22:37	7.42	*
05/20/91	14:22:41	7.42	*
05/20/91	14:22:45	7.42	*
05/20/91	14:22:49	7.42	*

05/20/91	14:23:01	7.42
05/20/91	14:23:05	7.42
05/20/91	14:23:09	7.42
05/20/91	14:23:13	7.42
05/20/91	14:23:17	7.42
05/20/91	14:23:21	7.42
05/20/91	14:23:25	7.42
05/20/91	14:23:29	7.42
05/20/91	14:23:33	7.42
05/20/91	14:23:37	7.42
05/20/91	14:23:41	7.42
05/20/91	14:23:45	7.42
05/20/91	14:23:49	7.42
05/20/91	14:23:53	7.42
05/20/91	14:23:57	7.42
05/20/91	14:24:01	7.42
05/20/91	14:24:05	7.42
05/20/91	14:24:09	7.42
05/20/91	14:24:13	7.42
05/20/91	14:24:17	7.42
05/20/91	14:24:21	7.42
05/20/91	14:24:25	7.42
05/20/91	14:24:29	7.42
05/20/91	14:24:33	7.42
05/20/91	14:24:37	7.42
05/20/91	14:24:41	7.42
05/20/91	14:24:45	7.42
05/20/91	14:24:49	7.42
05/20/91	14:24:53	7.42
05/20/91	14:24:57	7.43
05/20/91	14:25:01	7.42
05/20/91	14:25:05	7.42
05/20/91	14:25:09	7.42
05/20/91	14:25:13	7.42
05/20/91	14:25:17	7.42
05/20/91	14:25:21	7.43
05/20/91	14:25:25	7.42
05/20/91	14:25:29	7.42
05/20/91	14:25:33	7.42
05/20/91	14:25:37	7.42
05/20/91	14:25:41	7.42
05/20/91	14:25:45	7.43
05/20/91	14:25:49	7.42
05/20/91	14:25:53	7.42
05/20/91	14:25:57	7.43
05/20/91	14:26:01	7.43
05/20/91	14:26:05	7.43
05/20/91	14:26:09	7.43
05/20/91	14:26:13	7.43
05/20/91	14:26:17	7.43
05/20/91	14:26:21	7.44
05/20/91	14:26:25	7.43
05/20/91	14:26:29	7.44
05/20/91	14:26:33	7.43
05/20/91	14:26:37	7.44
05/20/91	14:26:41	7.44
05/20/91	14:26:45	7.44
05/20/91	14:26:49	7.44
05/20/91	14:26:53	7.44
05/20/91	14:26:57	7.44
05/20/91	14:27:01	7.44
05/20/91	14:27:05	7.41
05/20/91	14:27:09	7.39
05/20/91	14:27:13	7.39



05/20/91	14:27:25	7.39
05/20/91	14:27:29	7.39
05/20/91	14:27:33	7.39
05/20/91	14:27:37	7.39
05/20/91	14:27:41	7.39
05/20/91	14:27:45	7.40
05/20/91	14:27:49	7.42
05/20/91	14:27:53	7.42
05/20/91	14:27:57	7.42
05/20/91	14:28:01	7.42
05/20/91	14:28:05	7.43
05/20/91	14:28:09	7.43
05/20/91	14:28:13	7.43
05/20/91	14:28:17	7.44
05/20/91	14:28:21	7.44
05/20/91	14:28:25	7.44
05/20/91	14:28:29	7.44
05/20/91	14:28:33	7.44
05/20/91	14:28:37	7.44
05/20/91	14:28:41	7.44
05/20/91	14:28:45	7.44
05/20/91	14:28:49	7.44
05/20/91	14:28:53	7.44
05/20/91	14:28:57	7.44
05/20/91	14:29:01	7.44
05/20/91	14:29:05	7.44
05/20/91	14:29:09	7.44
05/20/91	14:29:13	7.44
05/20/91	14:29:17	7.44
05/20/91	14:29:21	7.44
05/20/91	14:29:25	7.44
05/20/91	14:29:29	7.44
05/20/91	14:29:33	7.44
05/20/91	14:29:37	7.44
05/20/91	14:29:41	7.44
05/20/91	14:29:45	7.44
05/20/91	14:29:49	7.44
05/20/91	14:29:53	7.44
05/20/91	14:29:57	7.44
05/20/91	14:30:01	7.46
05/20/91	14:30:05	7.45
05/20/91	14:30:09	7.44
05/20/91	14:30:13	7.44
05/20/91	14:30:17	7.45
05/20/91	14:30:21	7.45
05/20/91	14:30:25	7.44
05/20/91	14:30:29	7.46
05/20/91	14:30:33	7.46
05/20/91	14:30:37	7.46
05/20/91	14:30:41	7.46
05/20/91	14:30:45	7.46
05/20/91	14:30:49	7.46
05/20/91	14:30:53	7.46
05/20/91	14:30:57	7.46
05/20/91	14:31:01	7.46
05/20/91	14:31:05	7.46
05/20/91	14:31:09	7.46
05/20/91	14:31:13	7.46
05/20/91	14:31:17	7.46
05/20/91	14:31:21	7.46
05/20/91	14:31:25	7.46
05/20/91	14:31:29	7.46
05/20/91	14:31:33	7.46
05/20/91	14:31:37	7.46

05/20/91	14:31:49	7.46	*
05/20/91	14:31:53	7.46	*
05/20/91	14:31:57	7.46	*
05/20/91	14:32:01	7.46	*
05/20/91	14:32:05	7.46	*
05/20/91	14:32:09	7.46	*
05/20/91	14:32:13	7.46	*
05/20/91	14:32:17	7.46	*
05/20/91	14:32:21	7.46	*
05/20/91	14:32:25	7.46	*
05/20/91	14:32:29	7.46	*
05/20/91	14:32:33	7.46	*
05/20/91	14:32:37	7.46	*
05/20/91	14:32:41	7.46	*
05/20/91	14:32:45	7.46	*
05/20/91	14:32:49	7.46	*
05/20/91	14:32:53	7.46	*
05/20/91	14:32:57	7.46	*
05/20/91	14:33:01	7.46	*
05/20/91	14:33:05	7.46	*
05/20/91	14:33:09	7.46	*
05/20/91	14:33:13	7.46	*
05/20/91	14:33:17	7.46	*
05/20/91	14:33:21	7.46	*
05/20/91	14:33:25	7.46	*
05/20/91	14:33:29	7.46	*
05/20/91	14:33:33	7.46	*
05/20/91	14:33:37	7.46	*
05/20/91	14:33:41	7.46	*
05/20/91	14:33:45	7.46	*
05/20/91	14:33:49	7.46	*
05/20/91	14:33:53	7.46	*
05/20/91	14:33:57	7.46	*
05/20/91	14:34:01	7.46	*
05/20/91	14:34:05	7.46	*
05/20/91	14:34:09	7.46	*
05/20/91	14:34:13	7.46	*
05/20/91	14:34:17	7.46	*
05/20/91	14:34:21	7.46	*
05/20/91	14:34:25	7.46	*
05/20/91	14:34:29	7.46	*
05/20/91	14:34:33	7.46	*
05/20/91	14:34:37	7.46	*
05/20/91	14:34:41	7.46	*
05/20/91	14:34:45	7.46	*
05/20/91	14:34:49	7.46	*
05/20/91	14:34:53	7.46	*
05/20/91	14:34:57	7.46	*
05/20/91	14:35:01	7.46	*
05/20/91	14:35:05	7.46	*
05/20/91	14:35:09	7.46	*
05/20/91	14:35:13	7.46	*
05/20/91	14:35:17	7.46	*
05/20/91	14:35:21	7.46	*
05/20/91	14:35:25	7.46	*
05/20/91	14:35:29	7.46	*
05/20/91	14:35:33	7.46	*
05/20/91	14:35:37	7.46	*
05/20/91	14:35:41	7.46	*
05/20/91	14:35:45	7.47	*
05/20/91	14:35:49	7.49	*
05/20/91	14:35:53	7.48	*
05/20/91	14:35:57	7.49	*
05/20/91	14:36:01	7.48	*

05/20/91	14:36:13	7.47
05/20/91	14:36:17	7.48
05/20/91	14:36:21	7.47
05/20/91	14:36:25	7.48
05/20/91	14:36:29	7.50
05/20/91	14:36:33	7.49
05/20/91	14:36:37	7.50
05/20/91	14:36:41	7.49
05/20/91	14:36:45	7.50
05/20/91	14:36:49	7.50
05/20/91	14:36:53	7.50
05/20/91	14:36:57	7.50
05/20/91	14:37:01	7.48
05/20/91	14:37:05	7.49
05/20/91	14:37:09	7.49
05/20/91	14:37:13	7.48
05/20/91	14:37:17	7.48
05/20/91	14:37:21	7.47
05/20/91	14:37:25	7.47
05/20/91	14:37:29	7.47
05/20/91	14:37:33	7.47
05/20/91	14:37:37	7.46
05/20/91	14:37:41	7.47
05/20/91	14:37:45	7.47
05/20/91	14:37:49	7.46
05/20/91	14:37:53	7.47
05/20/91	14:37:57	7.46
05/20/91	14:38:01	7.47
05/20/91	14:38:05	7.46
05/20/91	14:38:09	7.47
05/20/91	14:38:13	7.47
05/20/91	14:38:17	7.46
05/20/91	14:38:21	7.47
05/20/91	14:38:25	7.46
05/20/91	14:38:29	7.46
05/20/91	14:38:33	7.46
05/20/91	14:38:37	7.47
05/20/91	14:38:41	7.46
05/20/91	14:38:45	7.46
05/20/91	14:38:49	7.46
05/20/91	14:38:53	7.46
05/20/91	14:38:57	7.46
05/20/91	14:39:01	7.46
05/20/91	14:39:05	7.46
05/20/91	14:39:09	7.46
05/20/91	14:39:13	7.46
05/20/91	14:39:17	7.46
05/20/91	14:39:21	7.46
05/20/91	14:39:25	7.46
05/20/91	14:39:29	7.46
05/20/91	14:39:33	7.46
05/20/91	14:39:37	7.47
05/20/91	14:39:41	7.46
05/20/91	14:39:45	7.48
05/20/91	14:39:49	7.47
05/20/91	14:39:53	7.47
05/20/91	14:39:57	7.47
05/20/91	14:40:01	7.47
05/20/91	14:40:05	7.48
05/20/91	14:40:09	7.48
05/20/91	14:40:13	7.48
05/20/91	14:40:17	7.48
05/20/91	14:40:21	7.47
05/20/91	14:40:25	7.47

05/20/91	14:40:37	7.47	*
05/20/91	14:40:41	7.47	*
05/20/91	14:40:45	7.46	*
05/20/91	14:40:49	7.47	*
05/20/91	14:40:53	7.46	*
05/20/91	14:40:57	7.47	*
05/20/91	14:41:01	7.46	*
05/20/91	14:41:05	7.46	*
05/20/91	14:41:09	7.46	*
05/20/91	14:41:13	7.46	*
05/20/91	14:41:17	7.46	*
05/20/91	14:41:21	7.46	*

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____ HOLE DESIGNATION: NIR-45

PROJECT NO.: 2677 DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

L = Height of the portion of well through which water enters = 2.0

R_e = Effective radius over which y is dissipated = _____

r_w = Horizontal distance from well center to original aquifer = .33

r_c = Inside radius of casing if water level is above the perforated or otherwise open portion of the well = .25?

w_s = Static water table ~~(BGS)~~ BTOC = 11.24

H = Difference from bottom of well screen to water table = 416.76

D = Difference from impermeable zone to water table = _____

y = Vertical distance between water level in well and equilibrium water table in aquifer = _____

y_o = Determine off graph of ln y_t vs. t = .72 ✓

y_t = Change of y with time = .52 ✓

t = Time = 2600 ✓

6.06

A = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = _____

B = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = _____

~~C = .5~~ C = 1.2

$L/r_w = 9$

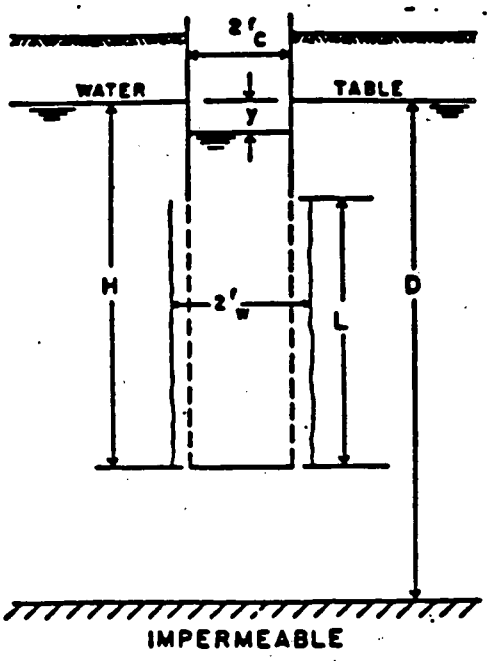
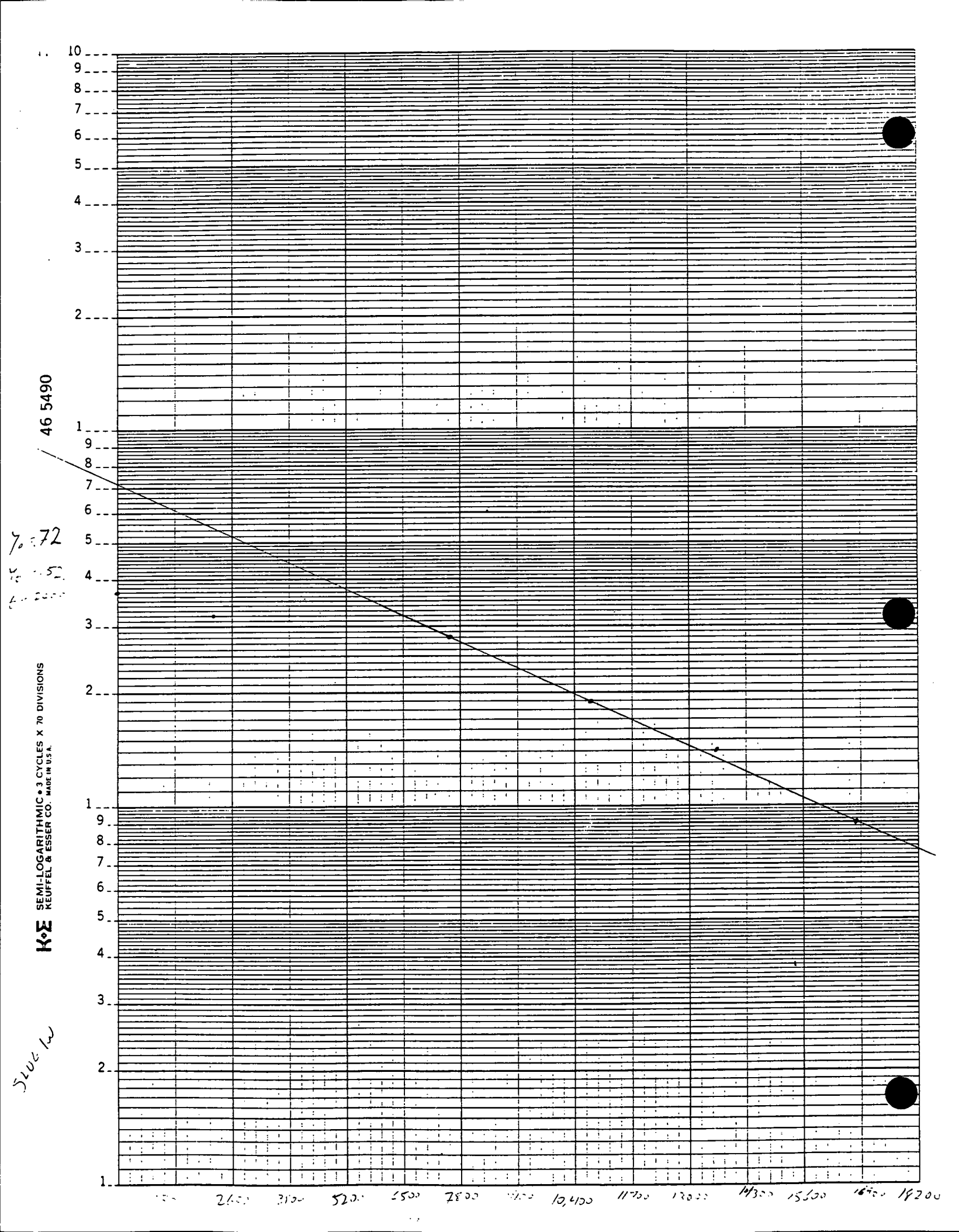
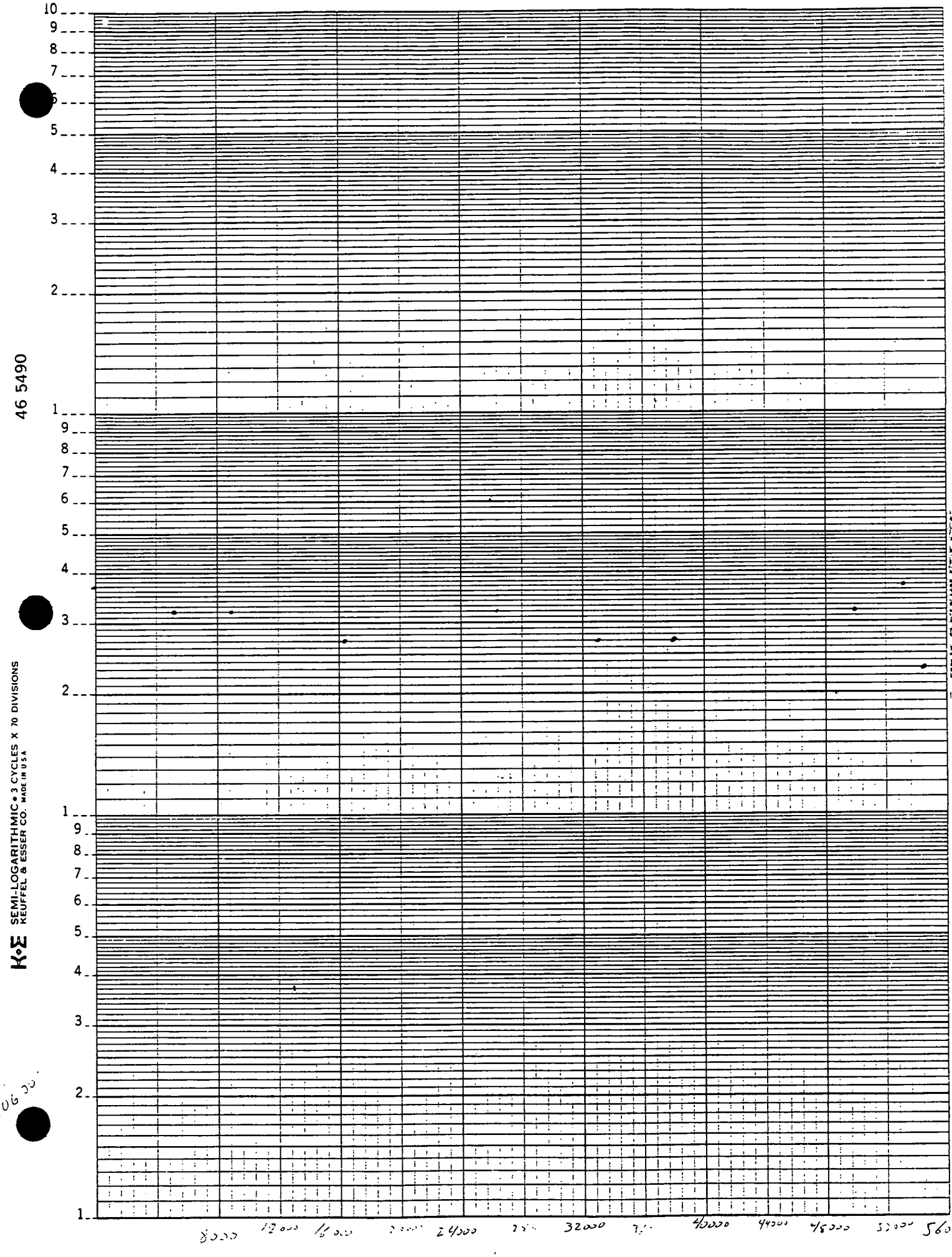


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.


46 5490
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
K•E
10
9
8
7
6
5
4
3
2
1
2100
3150
5200
7800
10,400
11700
13000
14300
15600
16900
18200


46 5490
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
10
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
8000
12000
16000
20000
24000
28
32000
36
40000
44000
48000
52000
56000

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-115-A B

PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 1.57 FT.					
0	1.94	-.37			
2	1.94	-.37			
4	1.94	-.37			
6	1.94	-.37			
8	1.94	-.37			
10	1.94	-.37			
10 42 24					
11 42	2188	1.89	-.32		
11 30 50	4116	1.99	-.42		
11 39 50	4465	1.89	-.32		
12 04 50	4154	1.94	-.37		
12 25 12	6174	1.99	-.42		
12 47 50	7544	1.89	-.32		
B 12 52 12	7775	1.85	-.28		
C 13 12	8665	1.94	-.42		
13 12 50	9540	1.89	-.32		
13 23 39	9685	1.85	-.28		
13 40 39	12705	1.76	-.19		
14 24 39	13585	1.71	-.14		
15 19 05	16685	1.66	-.09		
15 35 39	17605	1.62	-.05		
15 54 24	15730	1.71	-.14		
16 15 24	20230	1.66	-.09		

SLUG IN - 10:42:14 - 1.94'

SLUG TEST DATA MAYBE Look AT 45 ADCC

PROJECT NAME: _____ HOLE DESIGNATION: NCR-45D

PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 1.66 FT.					
0	1.29	.37			
15	1.25				
30	1.29				
45	1.29				
60	1.29				
75	1.29				
90	1.29				
105	1.29				
120	1.3				
135	1.29				
150	1.29	.37			
1875	1.34	.32			
5[illegible]	1.34	.32			
5933	1.34	.32			
164337	1.39	.27			
164330	1.34	.32			
32913	1.39	.27			
[illegible]3250	1.39	.27			
45110	1.34	.32			
53250	1.29	.37			
55050	1.43	.23			
55420	1.34	.32			
5[illegible]5[illegible]0	1.43	.23			

SLUG OUT - 163454 1.29

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1}$$

$= C$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln 46.76 / .33} + \frac{.5}{3/.333} \right|^{-1} = |.22 + .133| = 3.3$ ✓ 4.8 APK

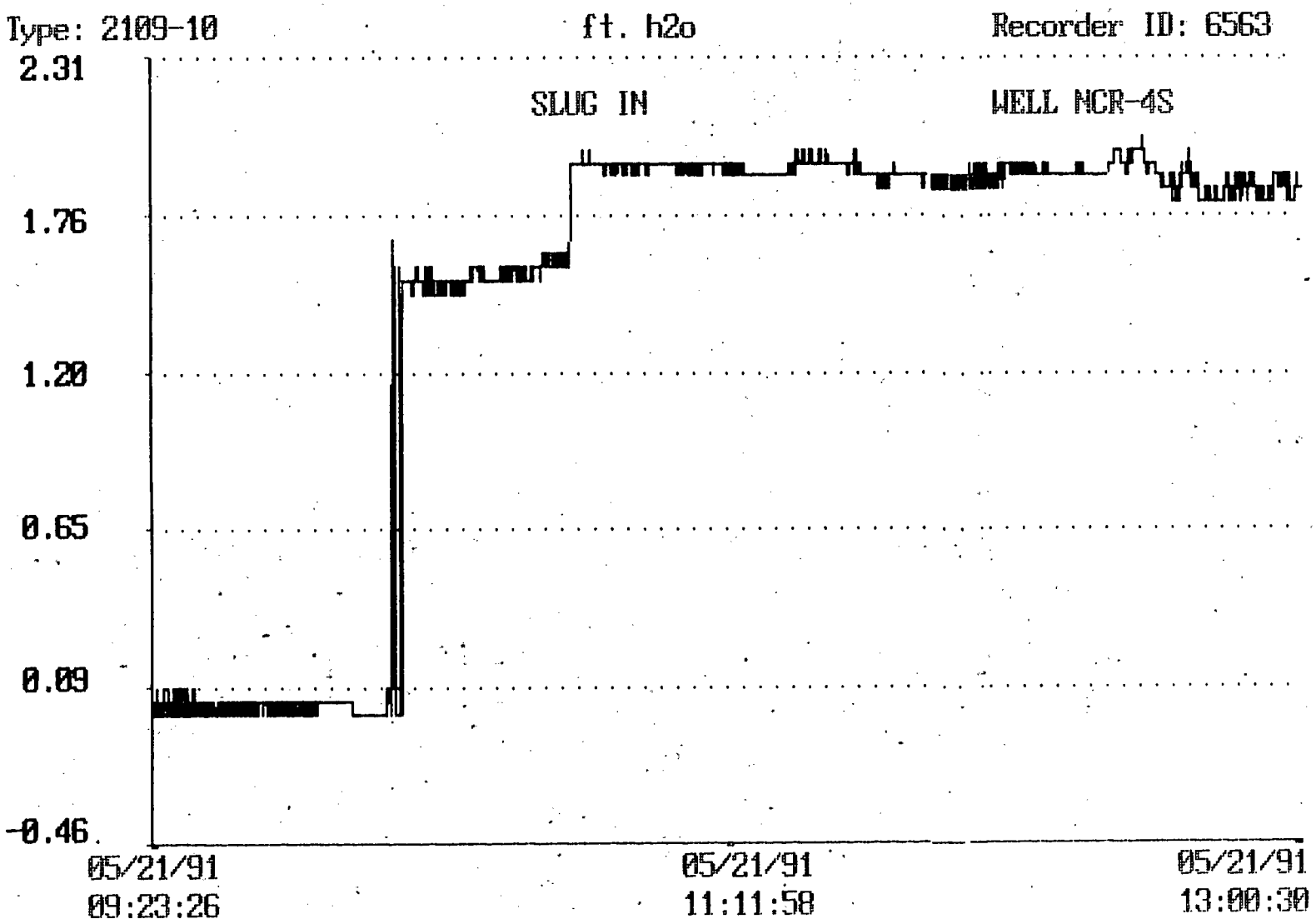
$\frac{1}{2600} \ln \frac{72}{.52} = 1.25 \times 10^{-4}$ ✓

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$K = \frac{(2.54)^2 (3.3)^{2.8}}{2(3.0)(30.48)} (1.25 \times 10^{-4}) = 2.18 \times 10^{-5}$ cm/sec ✓

$K = 1.2 \times 10^{-5}$ cm/sec APK


Type: 2109-10
ft. h2o
Recorder ID: 6563
2.31
SLUG IN
WELL NCR-4S
1.76
1.20
0.65
0.09
-0.46
05/21/91
09:23:26
05/21/91
11:11:58
05/21/91
13:00:30

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. h2o Recorder ID: 6563

Time at Recorder: 05/21/91 13:00:31 Last Update: 05/03/91 11:27:48

Signal process: Not Applicable

Values being saved: averages

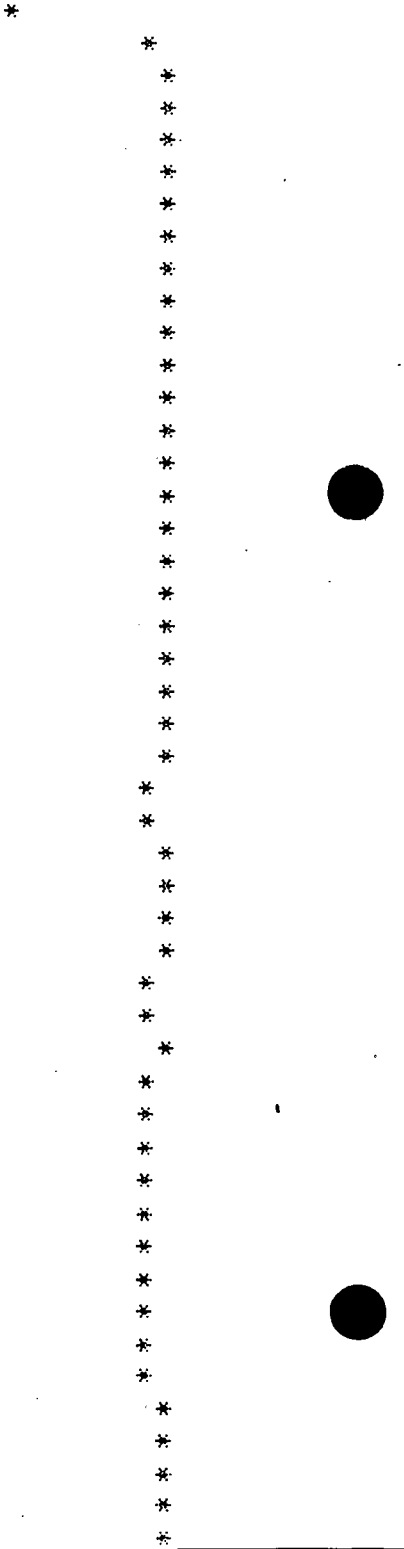
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:02 Amount of data recorded: 03:37:04

Storage Capacity: 6512 values records: 03:37:04

Output compressed by a factor of 30

Date	Time	Avg
05/21/91	10:41:06	1.59
05/21/91	10:42:06	1.89
05/21/91	10:43:06	1.94
05/21/91	10:44:06	1.94
05/21/91	10:45:06	1.95
05/21/91	10:46:06	1.94
05/21/91	10:47:06	1.94
05/21/91	10:48:06	1.94
05/21/91	10:49:06	1.94
05/21/91	10:50:06	1.94
05/21/91	10:51:06	1.94
05/21/91	10:52:06	1.93
05/21/91	10:53:06	1.93
05/21/91	10:54:06	1.93
05/21/91	10:55:06	1.94
05/21/91	10:56:06	1.92
05/21/91	10:57:06	1.94
05/21/91	10:58:06	1.94
05/21/91	10:59:06	1.94
05/21/91	11:00:06	1.94
05/21/91	11:01:06	1.94
05/21/91	11:02:06	1.92
05/21/91	11:03:06	1.92
05/21/91	11:04:06	1.93
05/21/91	11:05:06	1.90
05/21/91	11:06:06	1.91
05/21/91	11:07:06	1.94
05/21/91	11:08:06	1.94
05/21/91	11:09:06	1.94
05/21/91	11:10:06	1.94
05/21/91	11:11:06	1.92
05/21/91	11:12:06	1.91
05/21/91	11:13:06	1.92
05/21/91	11:14:06	1.92
05/21/91	11:15:06	1.90
05/21/91	11:16:06	1.89
05/21/91	11:17:06	1.89
05/21/91	11:18:06	1.89
05/21/91	11:19:06	1.89
05/21/91	11:20:06	1.89
05/21/91	11:21:06	1.89
05/21/91	11:22:06	1.89
05/21/91	11:23:06	1.90
05/21/91	11:24:06	1.92
05/21/91	11:25:06	1.94
05/21/91	11:26:06	1.95
05/21/91	11:27:06	1.95
05/21/91	11:28:06	1.94



05/21/91	11:31:06	1.94
05/21/91	11:32:06	1.94
05/21/91	11:33:06	1.94
05/21/91	11:34:06	1.94
05/21/91	11:35:06	1.94
05/21/91	11:36:06	1.93
05/21/91	11:37:06	1.90
05/21/91	11:38:06	1.89
05/21/91	11:39:06	1.89
05/21/91	11:40:06	1.88
05/21/91	11:41:06	1.88
05/21/91	11:42:06	1.89
05/21/91	11:43:06	1.92
05/21/91	11:44:06	1.89
05/21/91	11:45:06	1.89
05/21/91	11:46:06	1.89
05/21/91	11:47:06	1.89
05/21/91	11:48:06	1.89
05/21/91	11:49:06	1.89
05/21/91	11:50:06	1.88
05/21/91	11:51:06	1.88
05/21/91	11:52:06	1.86
05/21/91	11:53:06	1.87
05/21/91	11:54:06	1.88
05/21/91	11:55:06	1.87
05/21/91	11:56:06	1.88
05/21/91	11:57:06	1.87
05/21/91	11:58:06	1.87
05/21/91	11:59:06	1.87
05/21/91	12:00:06	1.88
05/21/91	12:01:06	1.88
05/21/91	12:02:06	1.88
05/21/91	12:03:06	1.90
05/21/91	12:04:06	1.93
05/21/91	12:05:06	1.93
05/21/91	12:06:06	1.93
05/21/91	12:07:06	1.91
05/21/91	12:08:06	1.91
05/21/91	12:09:06	1.90
05/21/91	12:10:06	1.90
05/21/91	12:11:06	1.90
05/21/91	12:12:06	1.90
05/21/91	12:13:06	1.89
05/21/91	12:14:06	1.89
05/21/91	12:15:06	1.89
05/21/91	12:16:06	1.89
05/21/91	12:17:06	1.90
05/21/91	12:18:06	1.90
05/21/91	12:19:06	1.90
05/21/91	12:20:06	1.89
05/21/91	12:21:06	1.89
05/21/91	12:22:06	1.89
05/21/91	12:23:06	1.91
05/21/91	12:24:06	1.94
05/21/91	12:25:06	1.98
05/21/91	12:26:06	1.95
05/21/91	12:27:06	1.93
05/21/91	12:28:06	1.97
05/21/91	12:29:06	1.99
05/21/91	12:30:06	1.98
05/21/91	12:31:06	1.91
05/21/91	12:32:06	1.93
05/21/91	12:33:06	1.89
05/21/91	12:34:06	1.85

05/21/91	12:37:06	1.84
05/21/91	12:38:06	1.91
05/21/91	12:39:06	1.87
05/21/91	12:40:06	1.88
05/21/91	12:41:06	1.80
05/21/91	12:42:06	1.84
05/21/91	12:43:06	1.81
05/21/91	12:44:06	1.80
05/21/91	12:45:06	1.82
05/21/91	12:46:06	1.85
05/21/91	12:47:06	1.84
05/21/91	12:48:06	1.85
05/21/91	12:49:06	1.87
05/21/91	12:50:06	1.86
05/21/91	12:51:06	1.87
05/21/91	12:52:06	1.82

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____
PROJECT NO.: _____
CLIENT: 2677
LOCATION: _____

HOLE DESIGNATION: NCR-4M
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

L = Height of the portion of well through which water enters = 5.0 8.1

R_e = Effective radius over which y is dissipated = _____

r_w = Horizontal distance from well center to original aquifer = .33

r_c = Inside radius of casing if water level is above the perforated or otherwise open portion of the well = .053

w_s = Static water table ~~(BGS)~~ BTOC = 11.24

H = Difference from bottom of well screen to water table = 46.76

D = Difference from impermeable zone to water table = _____

y = Vertical distance between water level in well and equilibrium water table in aquifer = _____

y_o = Determine off graph of ln y_t vs. t = .63

y_t = Change of y with time = .54

t = Time = 50

L/r_w = 15

A = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = .

B = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = _____

C = .75

C = 1.8

L/r_w = 24

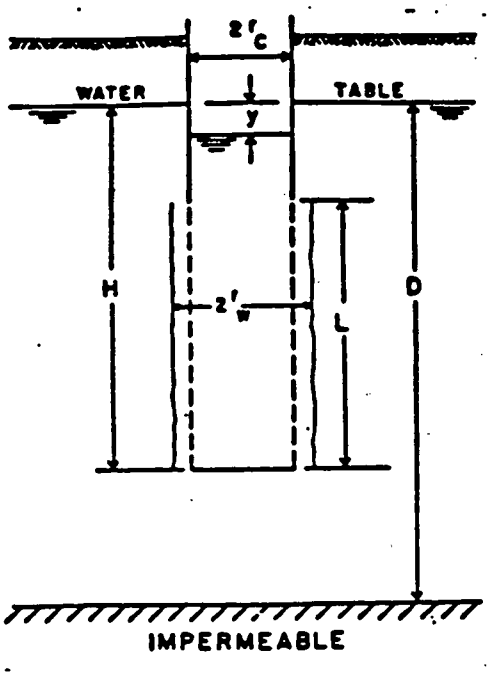


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: 4M

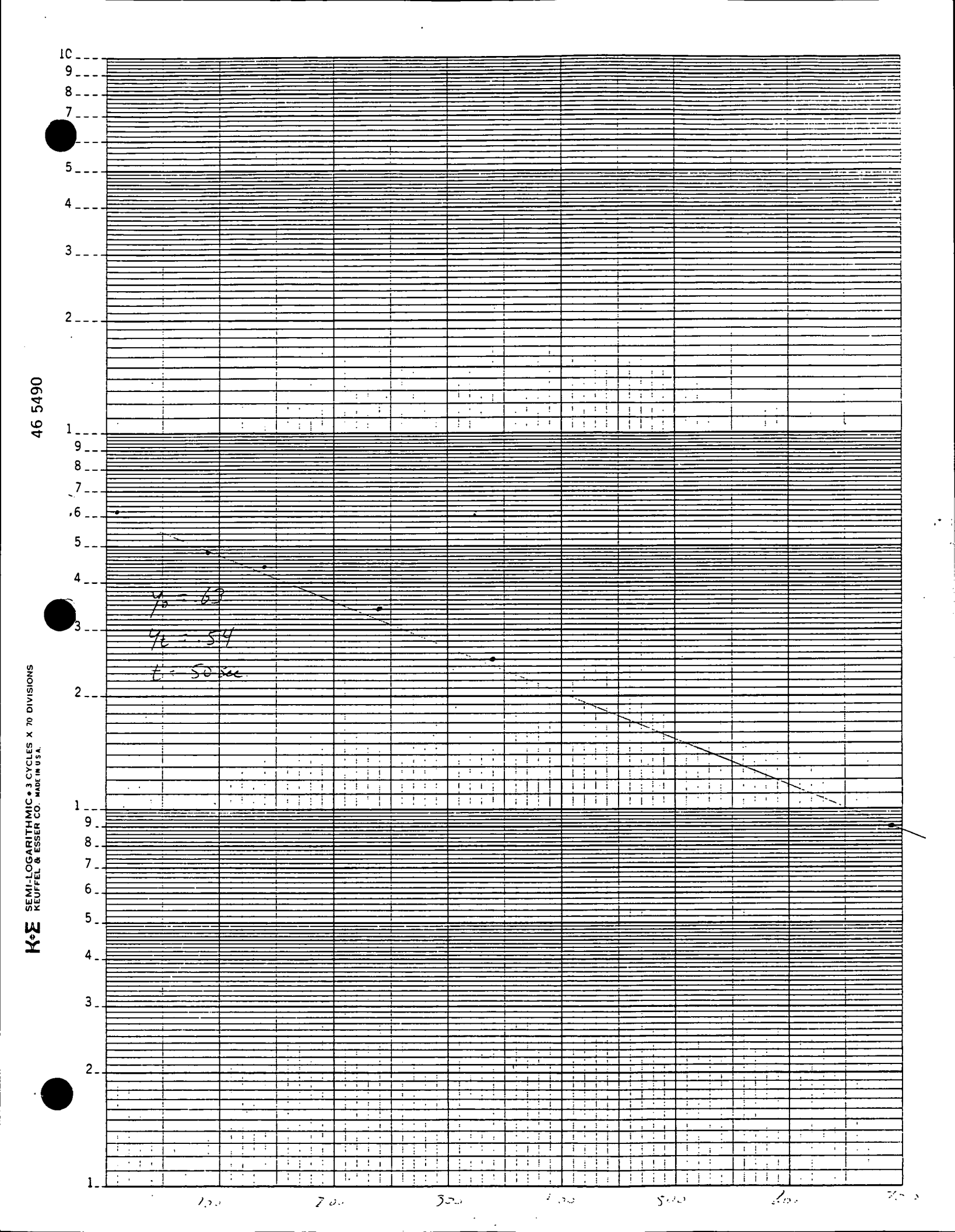
PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC —		11.94	365	69	.25
1	11.37	.64	390	71	.23
2	11.32	.62	415	73	.21
3	.32	.62	440	73	
4	32	62	465	73	.21
5	32	.62	490	76	.18
6	32	.62	515	78	.16
7	32	.62	540	83	.11
8	32	.62	565	80	.14
9	37	.60	590	83	.11
10	32	.62	615	83	.11
11	32	.62	640	85	.09
12	34	.60	665	85	.09
13	34	.60	690	85	.09
14	34	60	715	87	.07
15	34	.60	740	87	.07
16	40	.55	765	90	.04
17	41	.53	790	90	.04
18	41	.48	815	92	.02
115	41	.44	840	92	.02
20	41	.44	865	92	.02
21	42	.41	890	92	.02
22	45	.39	915	94	.00
23	46	.34	940	94	.00
24	46	.34	965	94	.00
25	46	.32	990	94	.00
26	64	.30	1015	97	-.03
27	67	.27	1215	11.89	-.05
28	69	.25			

11:40:22


46 5490
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
$y_0 = .63$
$y_t = .54$
$t = 50$ sec

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1} = C$$

$$\left[\frac{1.1}{\ln 46.76/.33} + \frac{1.5}{2432} \right] = [0.22 + .074] = 3.37 \text{ APK}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$$\left| \frac{1.1}{\ln 46.76/.33} + \frac{.75}{15.15} \right|^{-1} = |.22 + .05|^{-1} = 3.7$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{50} \ln \frac{.63}{.54} = 3.08 \times 10^{-3} \checkmark$$

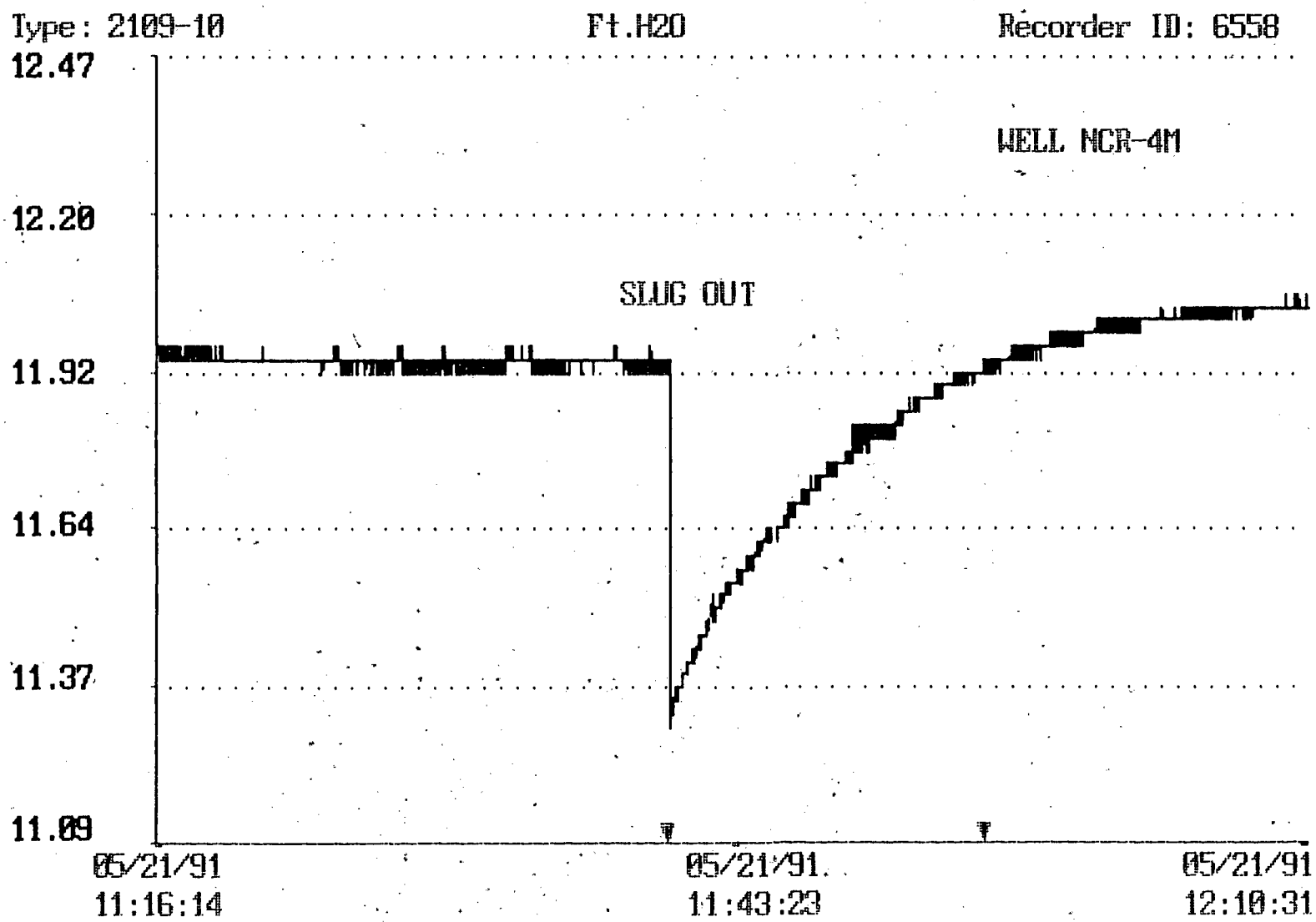
$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54)^2 (3.7)}{2(50)(30.48)} (3.08 \times 10^{-3}) = 2.4 \times 10^{-5} \text{ cm/sec.}$$

$$K = \frac{2.54^2 (3.37)(3.08 \times 10^{-3})}{2(8.1)(30.48)} = 1.4 \times 10^{-4} \text{ cm/sec} \checkmark$$

APK


Type: 2109-10
Ft.H2O
Recorder ID: 6558
12.47
12.20
11.92
11.64
11.37
11.09
WELL NCR-4M
SLUG OUT
05/21/91
11:16:14
05/21/91
11:43:23
05/21/91
12:10:31

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H2O Recorder ID: 6558

Time at Recorder: 05/21/91 12:37:38 Last Update: 05/20/91 10:34:29

Signal process: Not Applicable

Values being saved: averages

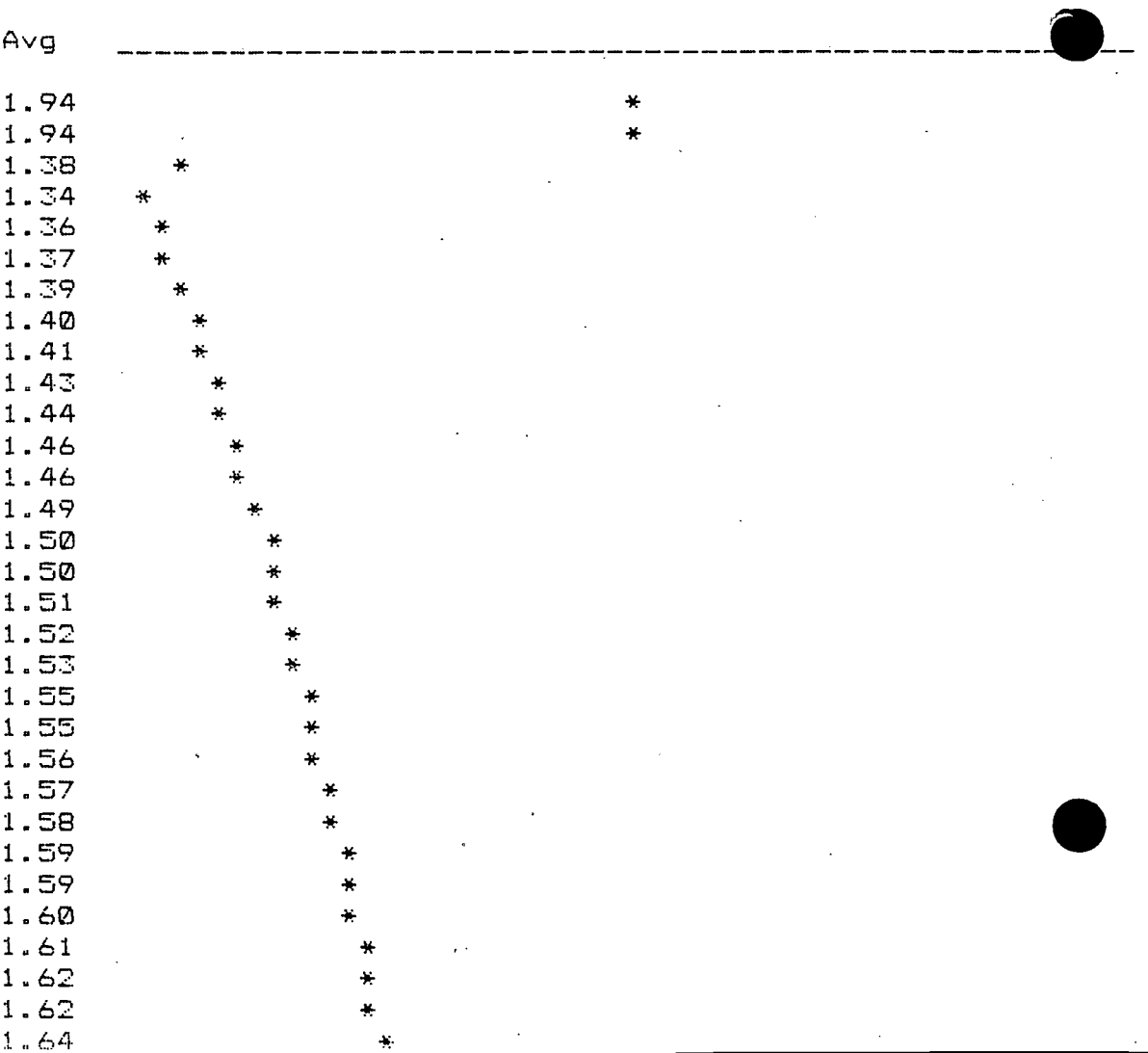
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32

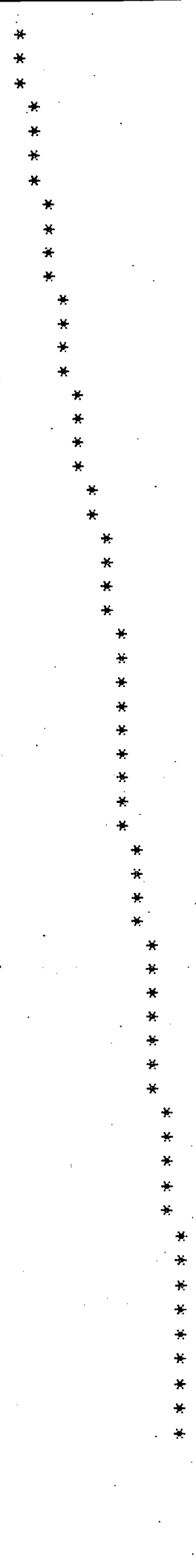
Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 10

Date	Time	Avg
05/21/91	11:40:00	11.94
05/21/91	11:40:10	11.94
05/21/91	11:40:20	11.38
05/21/91	11:40:30	11.34
05/21/91	11:40:40	11.36
05/21/91	11:40:50	11.37
05/21/91	11:41:00	11.39
05/21/91	11:41:10	11.40
05/21/91	11:41:20	11.41
05/21/91	11:41:30	11.43
05/21/91	11:41:40	11.44
05/21/91	11:41:50	11.46
05/21/91	11:42:00	11.46
05/21/91	11:42:10	11.49
05/21/91	11:42:20	11.50
05/21/91	11:42:30	11.50
05/21/91	11:42:40	11.51
05/21/91	11:42:50	11.52
05/21/91	11:43:00	11.53
05/21/91	11:43:10	11.55
05/21/91	11:43:20	11.55
05/21/91	11:43:30	11.56
05/21/91	11:43:40	11.57
05/21/91	11:43:50	11.58
05/21/91	11:44:00	11.59
05/21/91	11:44:10	11.59
05/21/91	11:44:20	11.60
05/21/91	11:44:30	11.61
05/21/91	11:44:40	11.62
05/21/91	11:44:50	11.62
05/21/91	11:45:00	11.64



05/21/91 11:45:30 11.66
05/21/91 11:45:40 11.67
05/21/91 11:45:50 11.67
05/21/91 11:46:00 11.68
05/21/91 11:46:10 11.69
05/21/91 11:46:20 11.69
05/21/91 11:46:30 11.70
05/21/91 11:46:40 11.70
05/21/91 11:46:50 11.71
05/21/91 11:47:00 11.72
05/21/91 11:47:10 11.72
05/21/91 11:47:20 11.73
05/21/91 11:47:30 11.73
05/21/91 11:47:40 11.74
05/21/91 11:47:50 11.74
05/21/91 11:48:00 11.75
05/21/91 11:48:10 11.75
05/21/91 11:48:20 11.76
05/21/91 11:48:30 11.76
05/21/91 11:48:40 11.77
05/21/91 11:48:50 11.78
05/21/91 11:49:00 11.80
05/21/91 11:49:10 11.80
05/21/91 11:49:20 11.81
05/21/91 11:49:30 11.81
05/21/91 11:49:40 11.82
05/21/91 11:49:50 11.82
05/21/91 11:50:00 11.82
05/21/91 11:50:10 11.82
05/21/91 11:50:20 11.82
05/21/91 11:50:30 11.82
05/21/91 11:50:40 11.82
05/21/91 11:50:50 11.82
05/21/91 11:51:00 11.84
05/21/91 11:51:10 11.84
05/21/91 11:51:20 11.85
05/21/91 11:51:30 11.85
05/21/91 11:51:40 11.85
05/21/91 11:51:50 11.86
05/21/91 11:52:00 11.87
05/21/91 11:52:10 11.87
05/21/91 11:52:20 11.87
05/21/91 11:52:30 11.87
05/21/91 11:52:40 11.88
05/21/91 11:52:50 11.88
05/21/91 11:53:00 11.89
05/21/91 11:53:10 11.89
05/21/91 11:53:20 11.90
05/21/91 11:53:30 11.90
05/21/91 11:53:40 11.90
05/21/91 11:53:50 11.91
05/21/91 11:54:00 11.91
05/21/91 11:54:10 11.91
05/21/91 11:54:20 11.92
05/21/91 11:54:30 11.92
05/21/91 11:54:40 11.92
05/21/91 11:54:50 11.92
05/21/91 11:55:00 11.92
05/21/91 11:55:10 11.92



SW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____ HOLE DESIGNATION: NCR-55

PROJECT NO.: 2677 DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

L = Height of the portion of well through which water enters = 5.6'

R_e = Effective radius over which y is dissipated = _____

r_w = Horizontal distance from well center to original aquifer = .33

r_c = Inside radius of casing if water level is above the perforated or otherwise open portion of the well = .083

w_s = Static water table ~~(BGS)~~ Brac = 5.36 ✓

H = Difference from bottom of well screen to water table = 6.28

D = Difference from impermeable zone to water table = D = H

y = Vertical distance between water level in well and equilibrium water table in aquifer = _____

y_o = Determine off graph of ln y_t vs. t = .63 ✓

y_t = Change of y with time = .4 ✓

t = Time = 6525

15

A = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = _____

B = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = _____

C = 1.5

~~C = 1.5~~

C = 1.75

$L/r_w = 16.8$

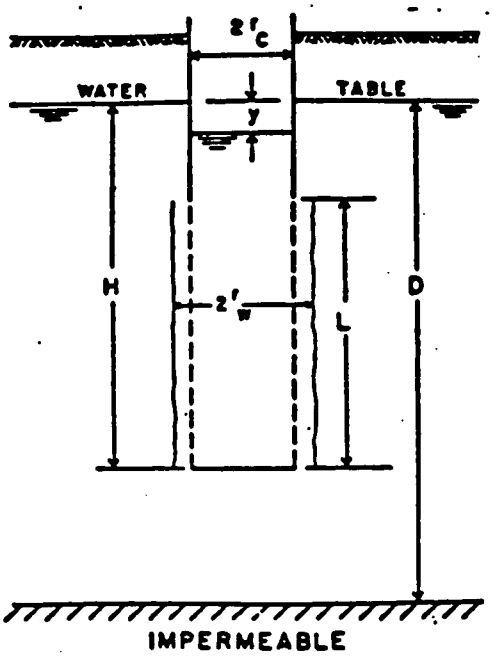


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-55

PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

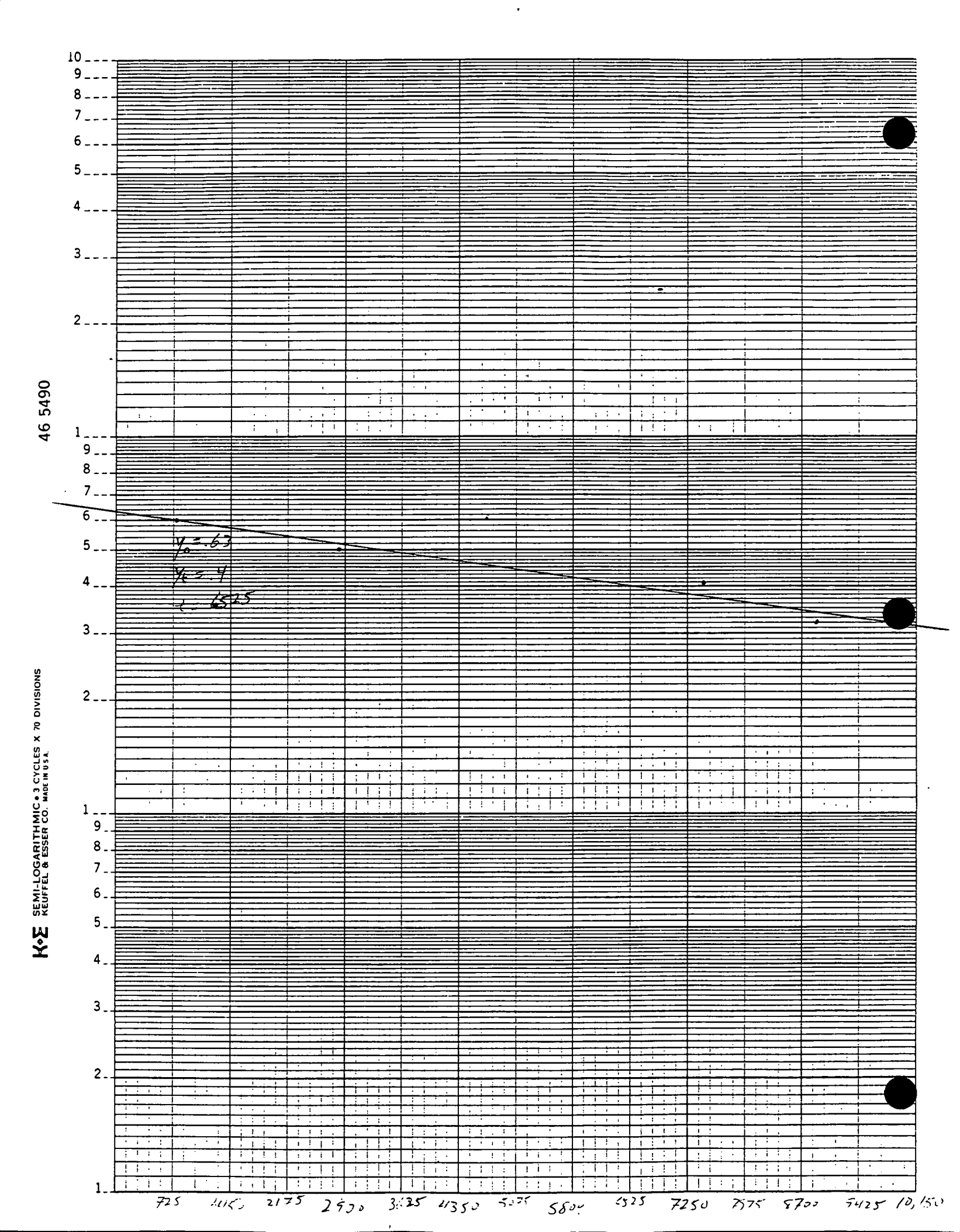
10

10 sec. intervals

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 5.54 FT.			204554 8540	5.22	.32
			211954	5.22	.32
10	4.99	.55	214254	5.27	.27
20	4.94	.50	2225	527	.27
30	4.94	.50	234554	5.31	.23
40	4.90	.50	235154	5.31	.23
		.5	20,100		
50	4.9[illegible]	.50	5/21/91		
5	4.94	.60	011104	5.27	.27
	4.[illegible]	.60	55304	5.22	.32
	4.50	.64	20714	5.17	.37
	4.50	.64	85711	5.[illegible]	.41
	4.50	.60			
	4.49	.60			
	4.94	.60			
720	4.94	.60			
780	[illegible]	.60			
	4.99	.55			
	[illegible]	.55			
7860	5.37	.50			
3830	5.04	.50			
	[illegible]	.46			
	[illegible]	.46			
	[illegible]	.46			
	5.13	.41			
7440	[illegible]	.41			
	5.13	.41			
	5.17	.37			
8850	5.17	.37			

SLUG OUT @ 151654-4.99

[illegible] - 5.27


46 5490
K•E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
10
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
$y_0 = .63$
$y_t = .4$
$t = 6525$
725
1450
2175
2900
3625
4350
5075
5800
6525
7250
7975
8700
9425
10,150

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + A + B \ln [(D-H)/r_w] \right|^{-1} = C$$

$$\left(\left[.375 + .089 \right]^{-1} = 2.16 \right)$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$$\left(\left| \frac{1.1}{\ln \frac{6.25}{.33}} + .75 \right|^{-1} = .89 \right.$$

$$\frac{1}{6525} \quad \ln \frac{.63}{.4} \qquad 6.96 \times 10^{-5}$$

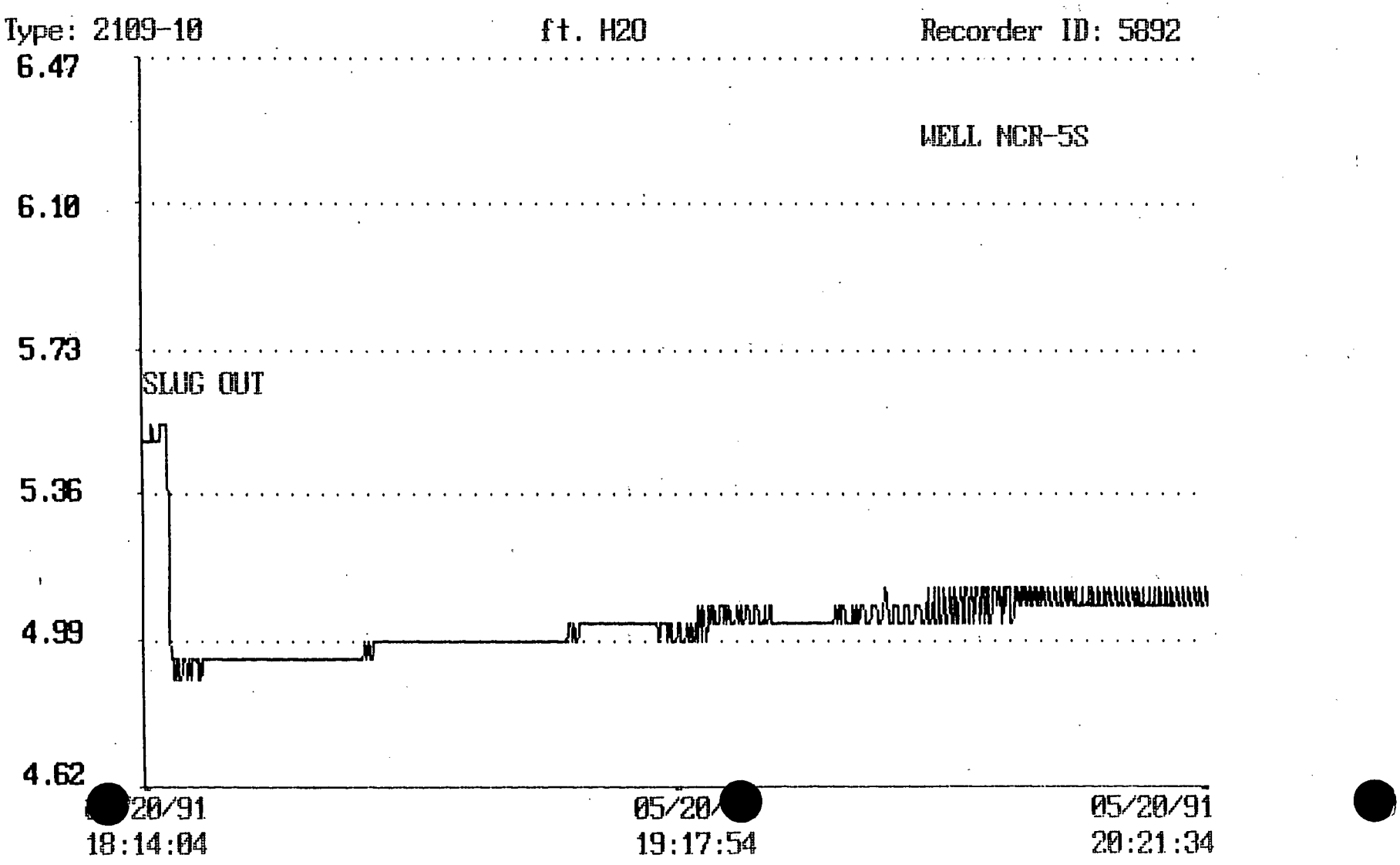
$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

$$\left(\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{6525} \ln \frac{.63}{.4} = 6.96 \times 10^{-5} \right)$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$\frac{-(7.54)^2(.85)}{2(5.0)(30.48)} (6.96 \times 10^{-5}) = 1.26 \times 10^{-6}$$

$$\left(\frac{(2.16)}{5.6} = 2.8 \times 10^{-6} \right)$$


Type: 2109-10
ft. H20
Recorder ID: 5892
6.47
6.10
5.73
5.36
4.99
4.62
WELL NCR-5S
SLUG OUT
05/20/91
18:14:04
05/20/
19:17:54
05/20/91
20:21:34

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. H20 Recorder ID: 5892
Time at Recorder: 05/21/91 11:12:45 Last Update: 05/20/91 11:34:06
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:10 Amount of data recorded: 16:58:40
Storage Capacity: 6512 values records: 18:05:20
Output compressed by a factor of 30

Date	Time	Avg	
05/20/91	18:16:44	4.97	*
05/20/91	18:21:44	4.94	*
05/20/91	18:26:44	4.94	*
05/20/91	18:31:44	4.94	*
05/20/91	18:36:44	4.95	*
05/20/91	18:41:44	4.99	*
05/20/91	18:46:44	4.99	*
05/20/91	18:51:44	4.99	*
05/20/91	18:56:44	4.99	*
05/20/91	19:01:44	5.00	*
05/20/91	19:06:44	5.04	*
05/20/91	19:11:44	5.03	*
05/20/91	19:16:44	5.02	*
05/20/91	19:21:44	5.05	*
05/20/91	19:26:44	5.05	*
05/20/91	19:31:44	5.04	*
05/20/91	19:36:44	5.06	*
05/20/91	19:41:44	5.06	*
05/20/91	19:46:44	5.07	*
05/20/91	19:51:44	5.09	*
05/20/91	19:56:44	5.10	*
05/20/91	20:01:44	5.10	*
05/20/91	20:06:44	5.09	*
05/20/91	20:11:44	5.09	*
05/20/91	20:16:44	5.09	*
05/20/91	20:21:44	5.10	*
05/20/91	20:26:44	5.09	*
05/20/91	20:31:44	5.15	*
05/20/91	20:36:44	5.15	*
05/20/91	20:41:44	5.14	*
05/20/91	20:46:44	5.16	*
05/20/91	20:51:44	5.15	*
05/20/91	20:56:44	5.15	*
05/20/91	21:01:44	5.15	*
05/20/91	21:06:44	5.16	*
05/20/91	21:11:44	5.17	*
05/20/91	21:16:44	5.17	*
05/20/91	21:21:44	5.17	*
05/20/91	21:26:44	5.17	*
05/20/91	21:31:44	5.18	*
05/20/91	21:36:44	5.15	*
05/20/91	21:41:44	5.16	*
05/20/91	21:46:44	5.16	*
05/20/91	21:51:44	5.17	*
05/20/91	21:56:44	5.16	*
05/20/91	22:01:44	5.17	*
05/20/91	22:06:44	5.16	*
05/20/91	22:11:44	5.17	*
05/20/91	22:16:44	5.16	*

05/20/91	22:31:44	5.17	*
05/20/91	22:36:44	5.16	*
05/20/91	22:41:44	5.17	*
05/20/91	22:46:44	5.19	*
05/20/91	22:51:44	5.21	*
05/20/91	22:56:44	5.21	*
05/20/91	23:01:44	5.21	*
05/20/91	23:06:44	5.21	*
05/20/91	23:11:44	5.22	*
05/20/91	23:16:44	5.21	*
05/20/91	23:21:44	5.21	*
05/20/91	23:26:44	5.22	*
05/20/91	23:31:44	5.21	*
05/20/91	23:36:44	5.21	*
05/20/91	23:41:44	5.22	*
05/20/91	23:46:44	5.24	*

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-SM
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

L	= Height of the portion of well through which water enters	= 9.0'
R_e	= Effective radius over which y is dissipated	=
r_w	= Horizontal distance from well center to original aquifer	= 0.333
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ BTOC	= 13.19'
H	= Difference from bottom of well screen to water table	= 37.84'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	=
y_o	= Determine off graph of ln y_t vs. t	= 0.80 ✓
y_t	= Change of y with time	= 0.23 ✓
t	= Time	= 120 Sec ✓
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
C		= 1.9 ✓

$L/r_w = 27$ ✓

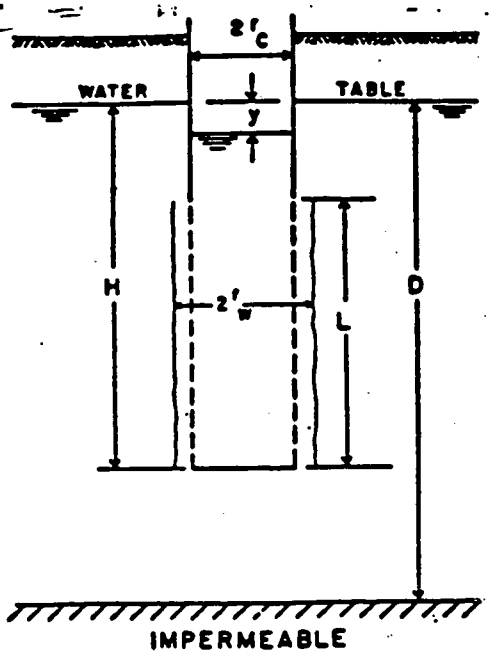


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

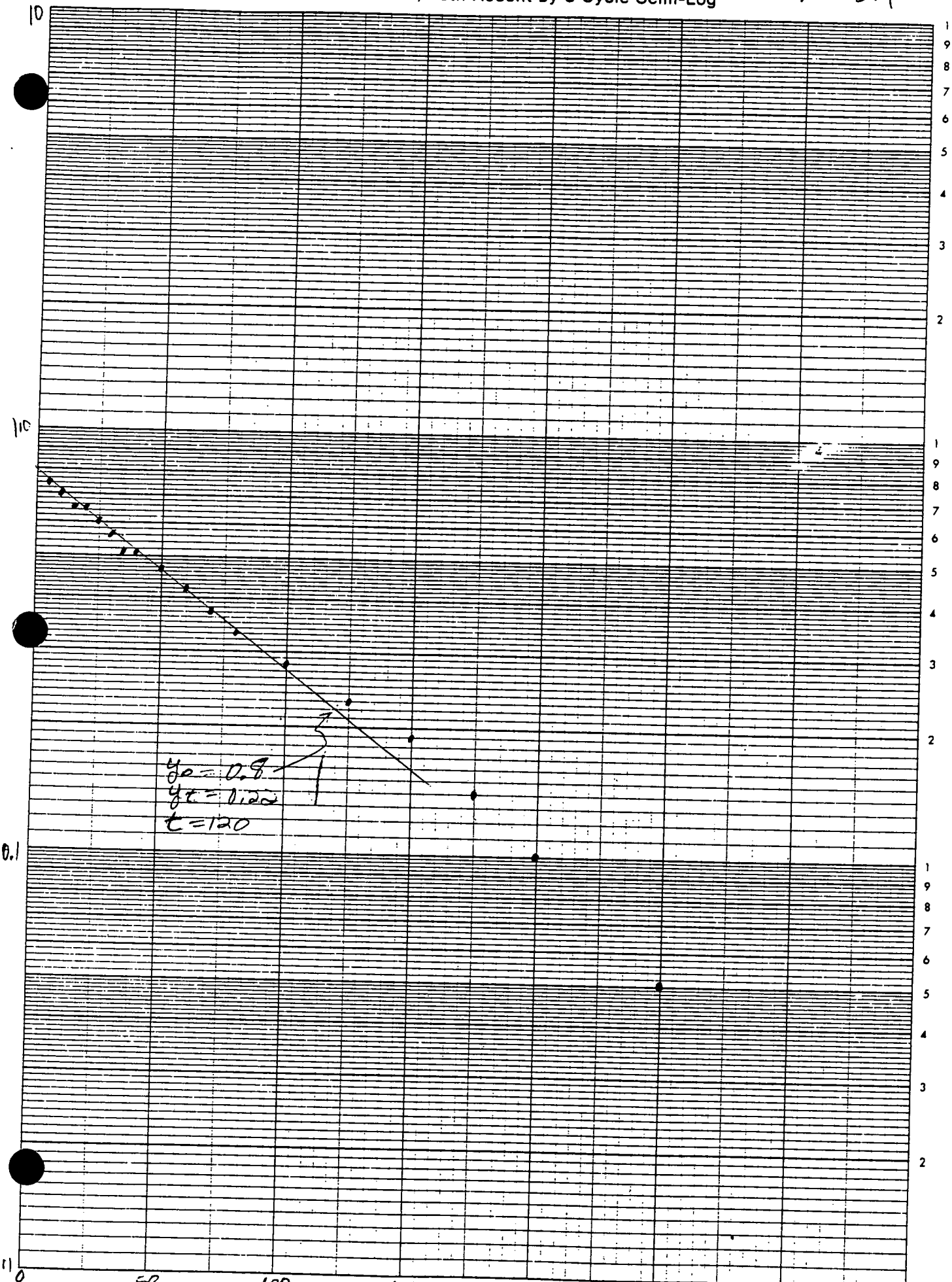
HOLE DESIGNATION: NCR-5M
DATE COMPLETED: 5/20/91
DRILLING METHOD: _____
CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 7.58 FT.					
5	6.84	0.74			
10	6.88	0.70			
15	6.93	0.65			
20	6.93	0.65			
25	6.98	0.60			
30	7.02	0.56			
35	7.07	0.51			
40	7.07	0.51			
50	7.11	0.47			
60	7.16	0.42			
70	7.21	0.37			
80	7.25	0.33			
100	7.30	0.28			
125	7.35	0.23			
150	7.39	0.19			
175	7.44	0.14			
200	7.48	0.10			
250	7.53	0.05			

SLUG OUT @ 13:25:08

70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log

MW-5M #267



HPBooks—GRAPH PAPER From Your COPIER

MW-5M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

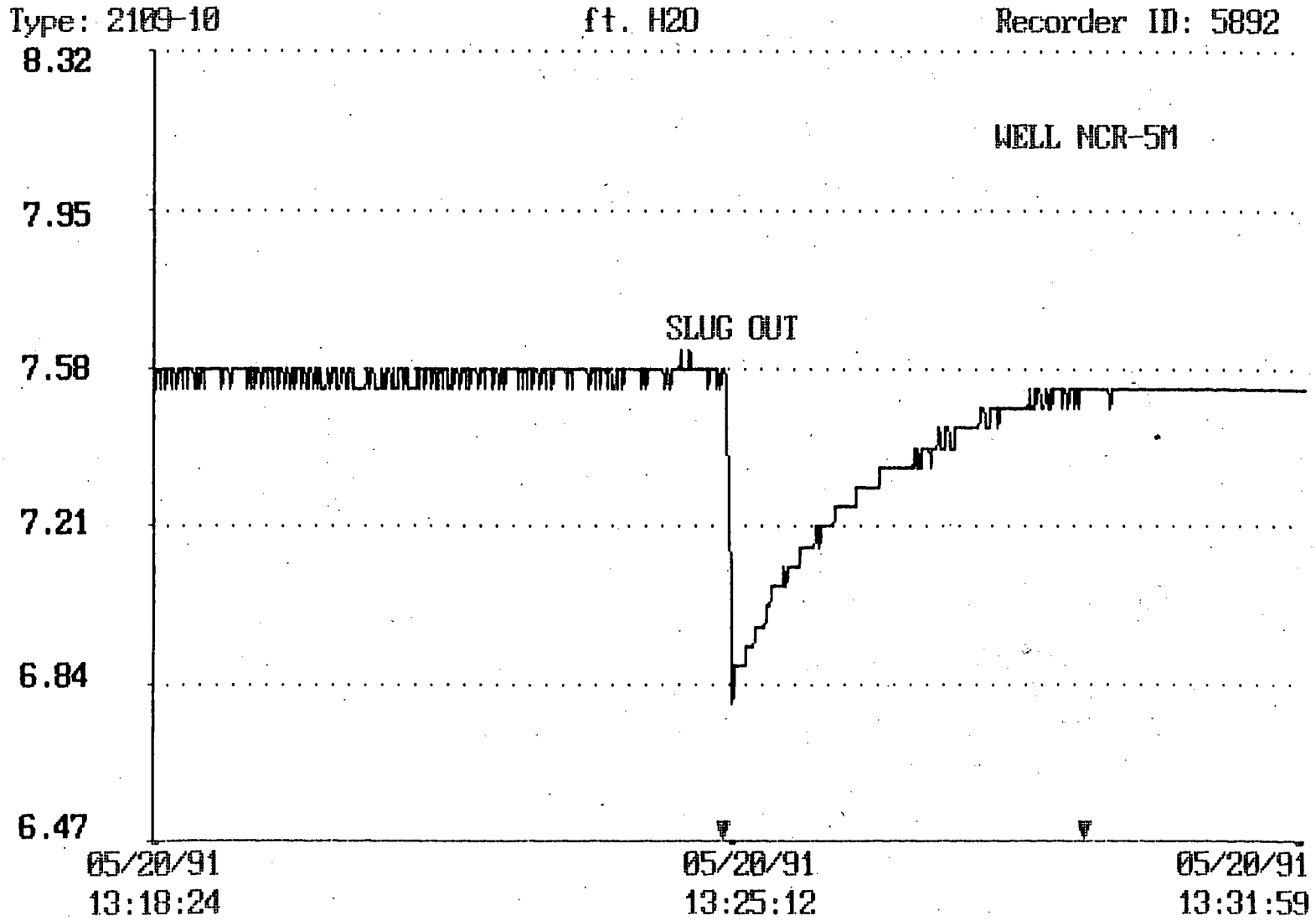
$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln\left(\frac{37.84}{0.333}\right)} + \frac{1.9}{(9/0.333)} \right|^{-1} = \left| 0.232 + 0.070 \right|^{-1} = 3.30 \checkmark$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{120} \ln \frac{0.80}{0.22} = 0.0108 \text{ sec}^{-1} \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54 \text{ cm})^2 (0.0108 \text{ sec}^{-1})(3.30)}{2(9.0')(30.48 \text{ cm/ft})} = \frac{0.2293}{584.64} = 4.2 \times 10^{-4} \text{ cm/sec} \checkmark$$


Type: 2100-10
ft. H2O
Recorder ID: 5892
8.32
7.95
7.58
7.21
6.84
6.47
WELL NCR-5M
SLUG OUT
05/20/91
13:18:24
05/20/91
13:25:12
05/20/91
13:31:59

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. H2O Recorder ID: 5892

Time at Recorder: 05/20/91 13:52:19 Last Update: 05/20/91 11:34:06

Signal process: Not Applicable

Values being saved: averages

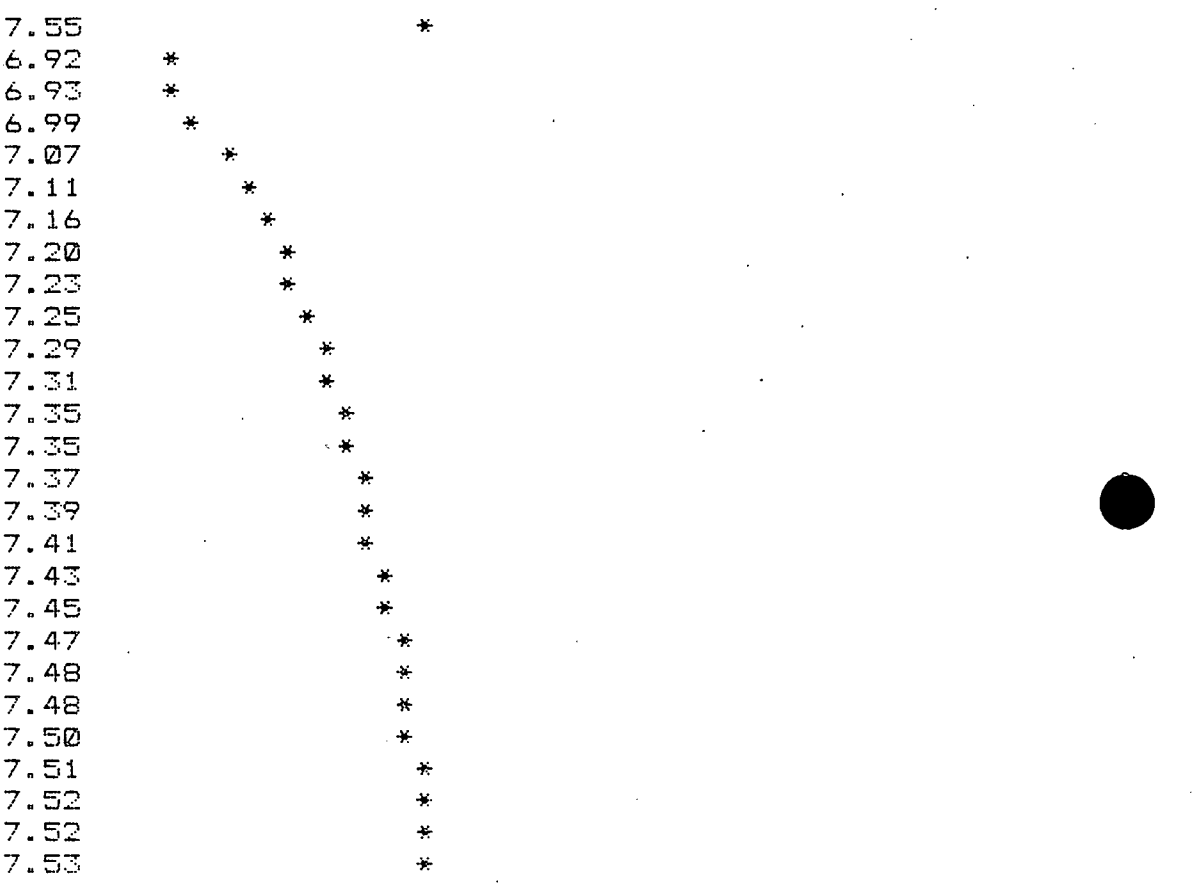
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32

Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 10

Date	Time	Avg
05/20/91	13:25:00	7.55
05/20/91	13:25:10	6.92
05/20/91	13:25:20	6.93
05/20/91	13:25:30	6.99
05/20/91	13:25:40	7.07
05/20/91	13:25:50	7.11
05/20/91	13:26:00	7.16
05/20/91	13:26:10	7.20
05/20/91	13:26:20	7.23
05/20/91	13:26:30	7.25
05/20/91	13:26:40	7.29
05/20/91	13:26:50	7.31
05/20/91	13:27:00	7.35
05/20/91	13:27:10	7.35
05/20/91	13:27:20	7.37
05/20/91	13:27:30	7.39
05/20/91	13:27:40	7.41
05/20/91	13:27:50	7.43
05/20/91	13:28:00	7.45
05/20/91	13:28:10	7.47
05/20/91	13:28:20	7.48
05/20/91	13:28:30	7.48
05/20/91	13:28:40	7.50
05/20/91	13:28:50	7.51
05/20/91	13:29:00	7.52
05/20/91	13:29:10	7.52
05/20/91	13:29:20	7.53



JC

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: _____
PROJECT NO.: 3677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-6M
DATE COMPLETED: _____
DRILLING METHOD: _____
CRA SUPERVISOR: _____

L	= Height of the portion of well through which water enters	= 10.0'
R_e	= Effective radius over which y is dissipated	= –
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ Btoc	=
H	= Difference from bottom of well screen to water table	= 43.31
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= –
y_o	= Determine off graph of ln y_t vs. t	= 0.90
y_t	= Change of y with time	= 0.21
t	= Time	= 14 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= –
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= –
C	=	= 2.0

$L/r_w = 30$

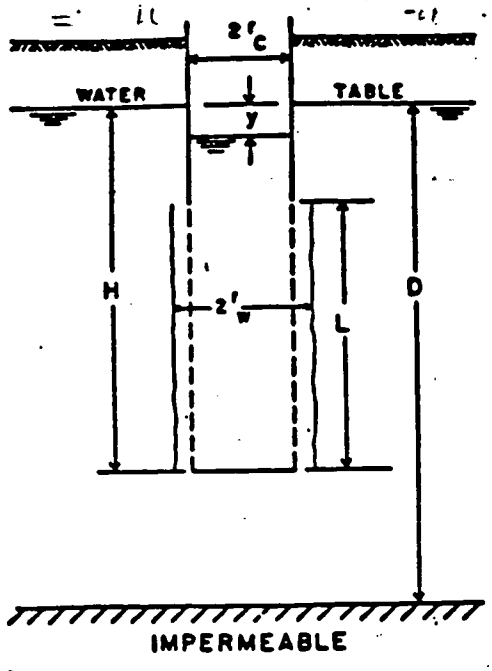


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-6M

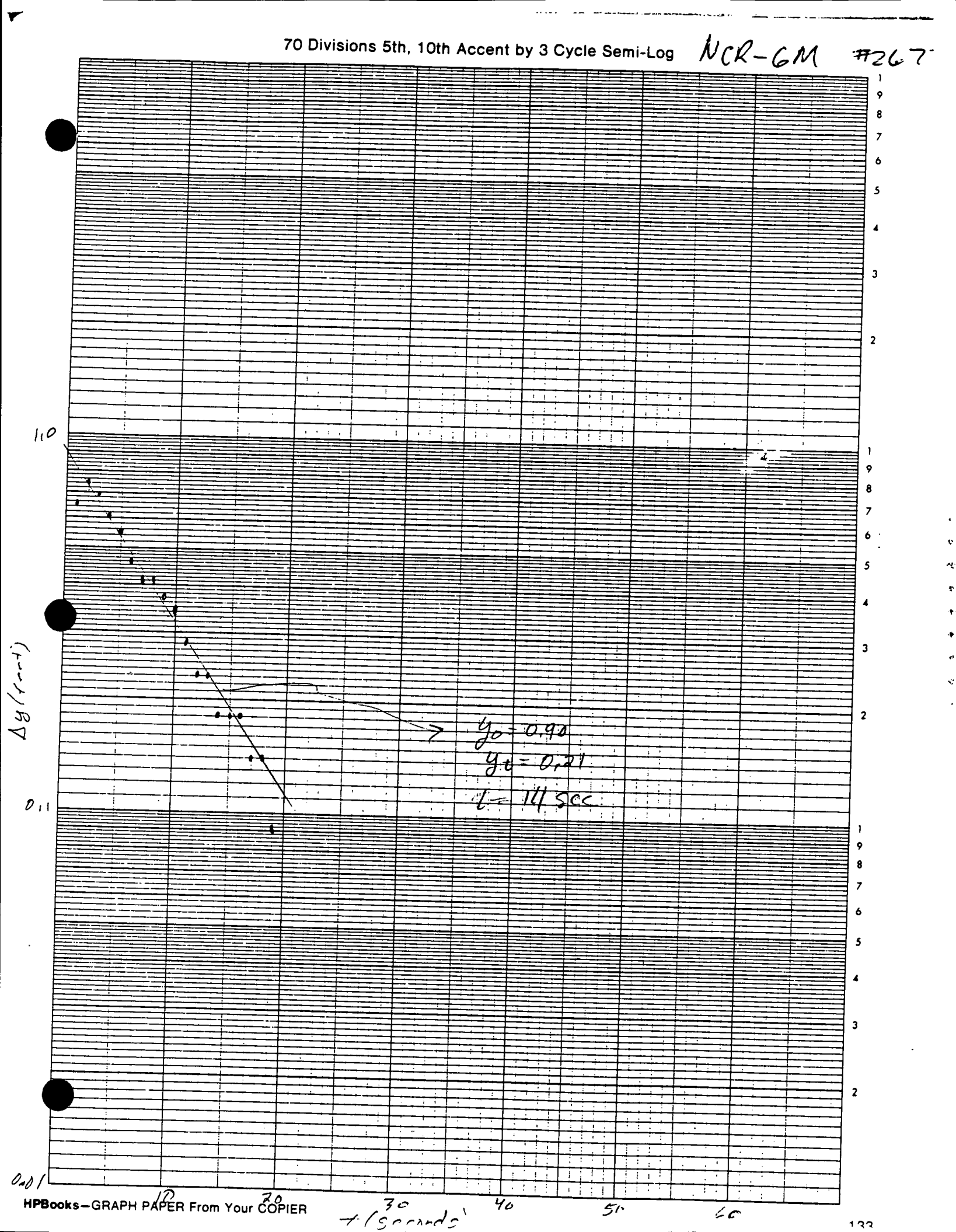
PROJECT NO.: 2677 DATE COMPLETED: 5/21/91

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC =	7.16 FT.				
1	6.51	0.65			
2	6.42	0.74			
3	6.47	0.69			
4	6.56	0.60			
5	6.61	0.55			
6	6.70	0.46			
7	6.75	0.41			
8	6.75	0.41			
9	6.79	0.37			
10	6.84	0.34			
11	6.88	0.28			
12	6.93	0.23			
13	6.93	0.23			
14	6.93	0.23			
15	6.98	0.18			
16	6.98	0.18			
17	6.98	0.18			
18	7.02	0.14			
19	7.02	0.14			
20	7.07	0.09			

SLUG OUT @ 12:16:14


70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log
NCR-6M #267
1.0
0.1
0.01
Δy (mm)
$y_0 = 0.90$
$y_t = 0.21$
$t = 11.5$ sec
10
20
30
40
50
60
t (seconds)
HPBooks—GRAPH PAPER From Your COPIER

NCR-6M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

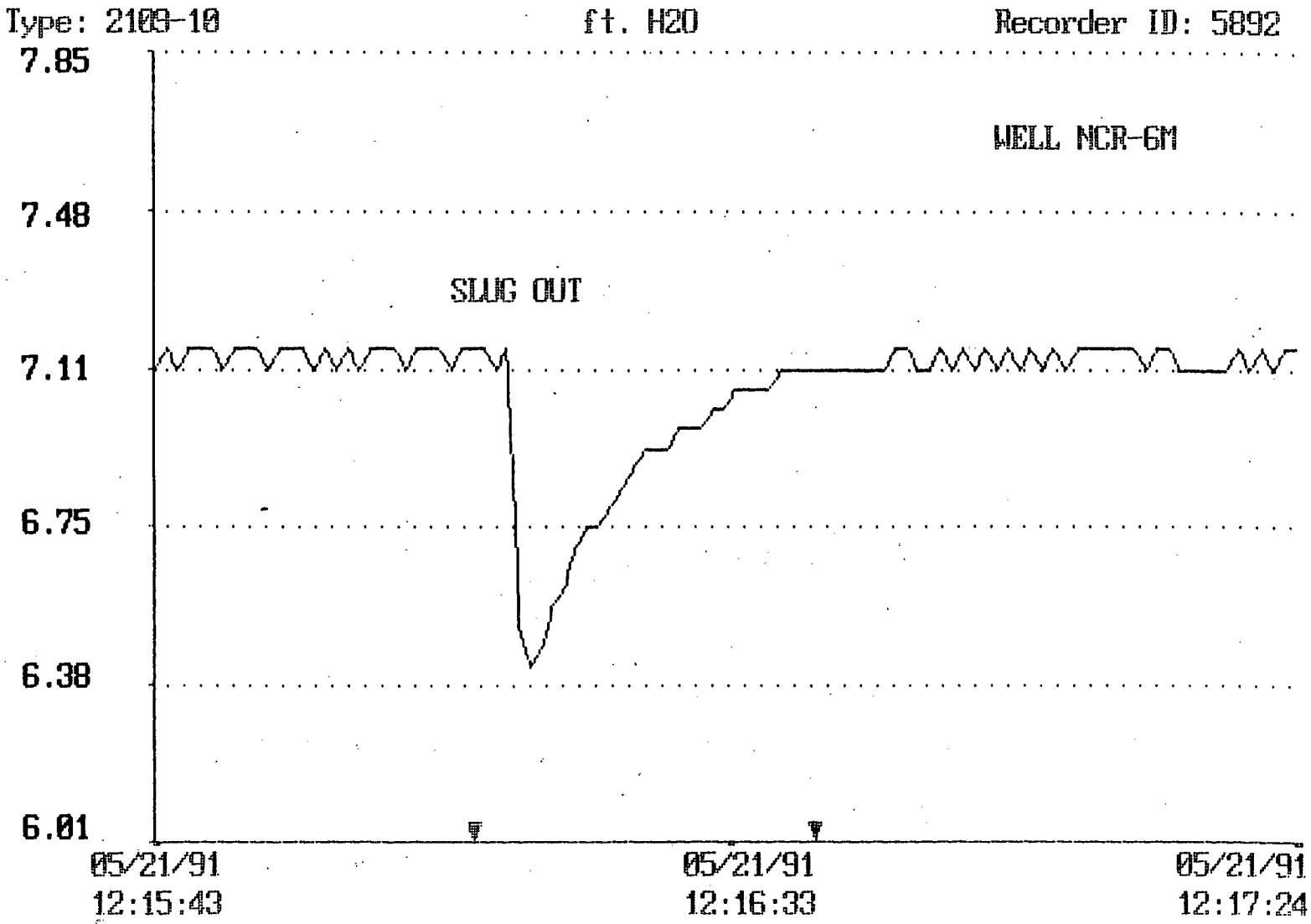
$$\ln \frac{Re}{rw} = \left| \frac{1.1}{\ln(43.31/0.333)} + \frac{2.0}{(10/0.333)} \right|^{-1} = \left| 0.226 + .067 \right|^{-1} = 3.42$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{14} \ln \frac{0.90}{0.21} = 0.10395 \text{ sec}^{-1}$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54\text{cm})^2 (3.42)(0.10395 \text{ sec}^{-1})}{2(10')(30.48 \text{ cm/ft})} = \frac{2.292}{609.6} = 3.8 \times 10^{-3} \text{ cm/sec}$$


Type: 2100-10
ft. H20
Recorder ID: 5892
7.85
7.48
7.11
6.75
6.38
6.01
WELL NCR-6M
SLUG OUT
05/21/91
12:15:43
05/21/91
12:16:33
05/21/91
12:17:24

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. H2O Recorder ID: 5892

Time at Recorder: 05/21/91 12:21:32 Last Update: 05/20/91 11:34:06

Signal process: Not Applicable

Values being saved: averages

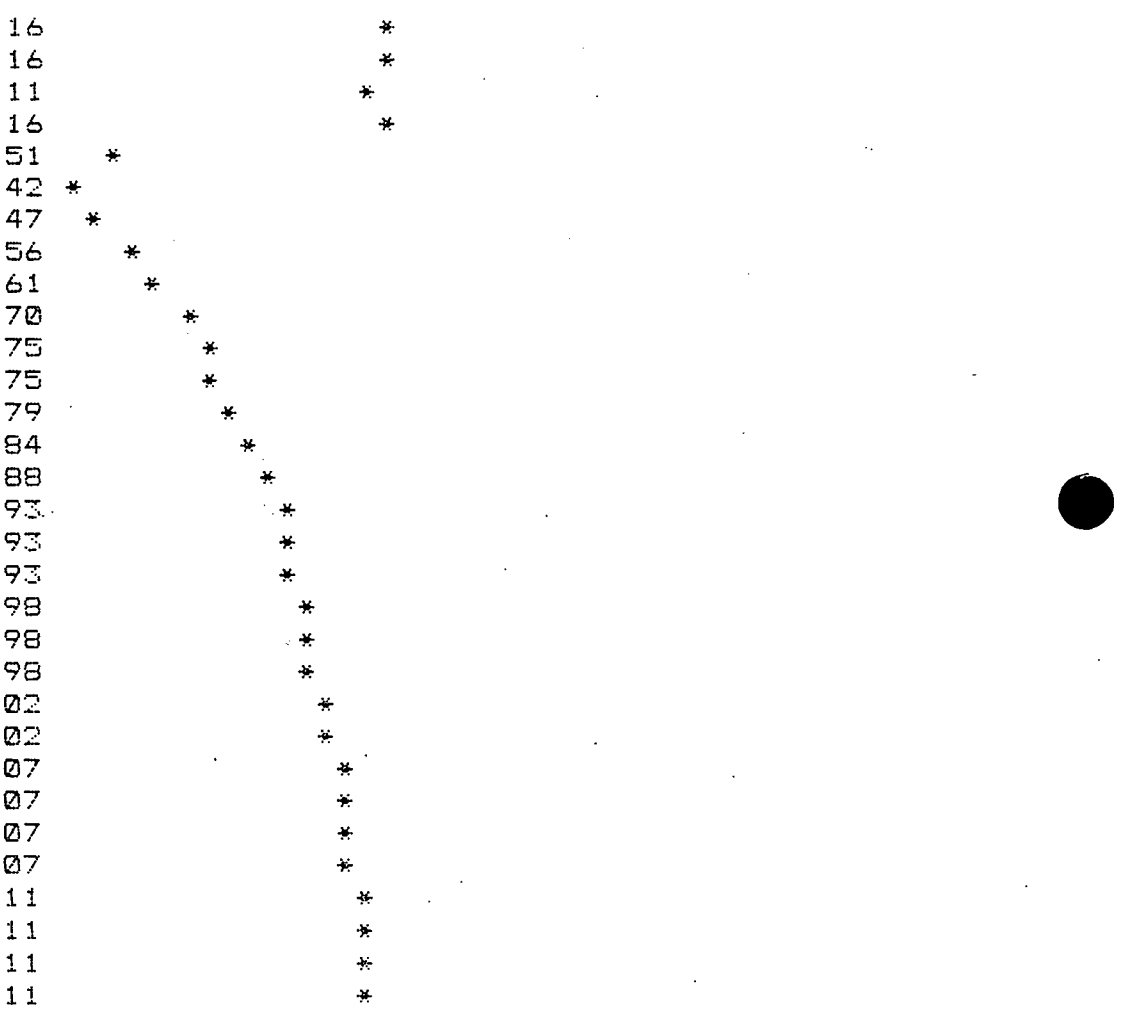
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:01 Amount of data recorded: 00:13:18

Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 1

Date	Time	Avg
05/21/91	12:16:11	7.16
05/21/91	12:16:12	7.16
05/21/91	12:16:13	7.11
05/21/91	12:16:14	7.16
05/21/91	12:16:15	6.51
05/21/91	12:16:16	6.42
05/21/91	12:16:17	6.47
05/21/91	12:16:18	6.56
05/21/91	12:16:19	6.61
05/21/91	12:16:20	6.70
05/21/91	12:16:21	6.75
05/21/91	12:16:22	6.75
05/21/91	12:16:23	6.79
05/21/91	12:16:24	6.84
05/21/91	12:16:25	6.88
05/21/91	12:16:26	6.93
05/21/91	12:16:27	6.93
05/21/91	12:16:28	6.93
05/21/91	12:16:29	6.98
05/21/91	12:16:30	6.98
05/21/91	12:16:31	6.98
05/21/91	12:16:32	7.02
05/21/91	12:16:33	7.02
05/21/91	12:16:34	7.07
05/21/91	12:16:35	7.07
05/21/91	12:16:36	7.07
05/21/91	12:16:37	7.07
05/21/91	12:16:38	7.11
05/21/91	12:16:39	7.11
05/21/91	12:16:40	7.11
05/21/91	12:16:41	7.11



JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-7M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L = Height of the portion of well through which water enters = 9.0

R_e = Effective radius over which y is dissipated =

r_w = Horizontal distance from well center to original aquifer = 0.333'

r_c = Inside radius of casing if water level is above the perforated or otherwise open portion of the well = 0.083

w_s = Static water table ~~(BGS)~~ Brac = 12.75'

H = Difference from bottom of well screen to water table = 38.84

D = Difference from impermeable zone to water table = D=H

y = Vertical distance between water level in well and equilibrium water table in aquifer = —

y_o = Determine off graph of ln y_t vs. t = 0.62 ✓

y_t = Change of y with time = 0.21 ✓

t = Time = 6 sec

A = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = —

B = From value of L/r_w (taken from Figure 3 in Bouwer and Rice) = —

C = = 1.9 ✓

$L/r_w = 9/0.333 = 2$

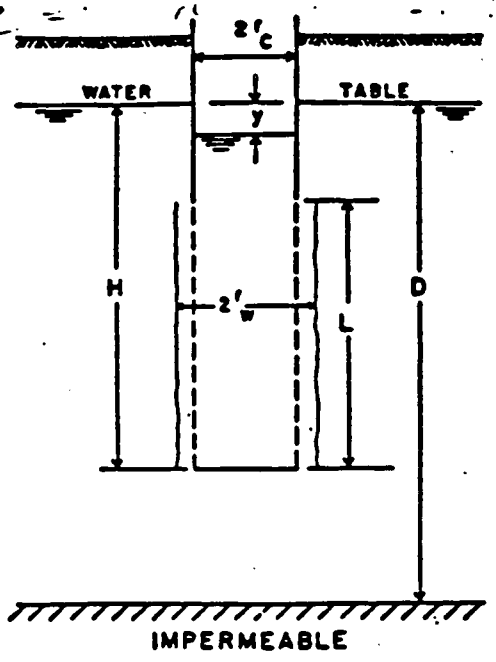


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

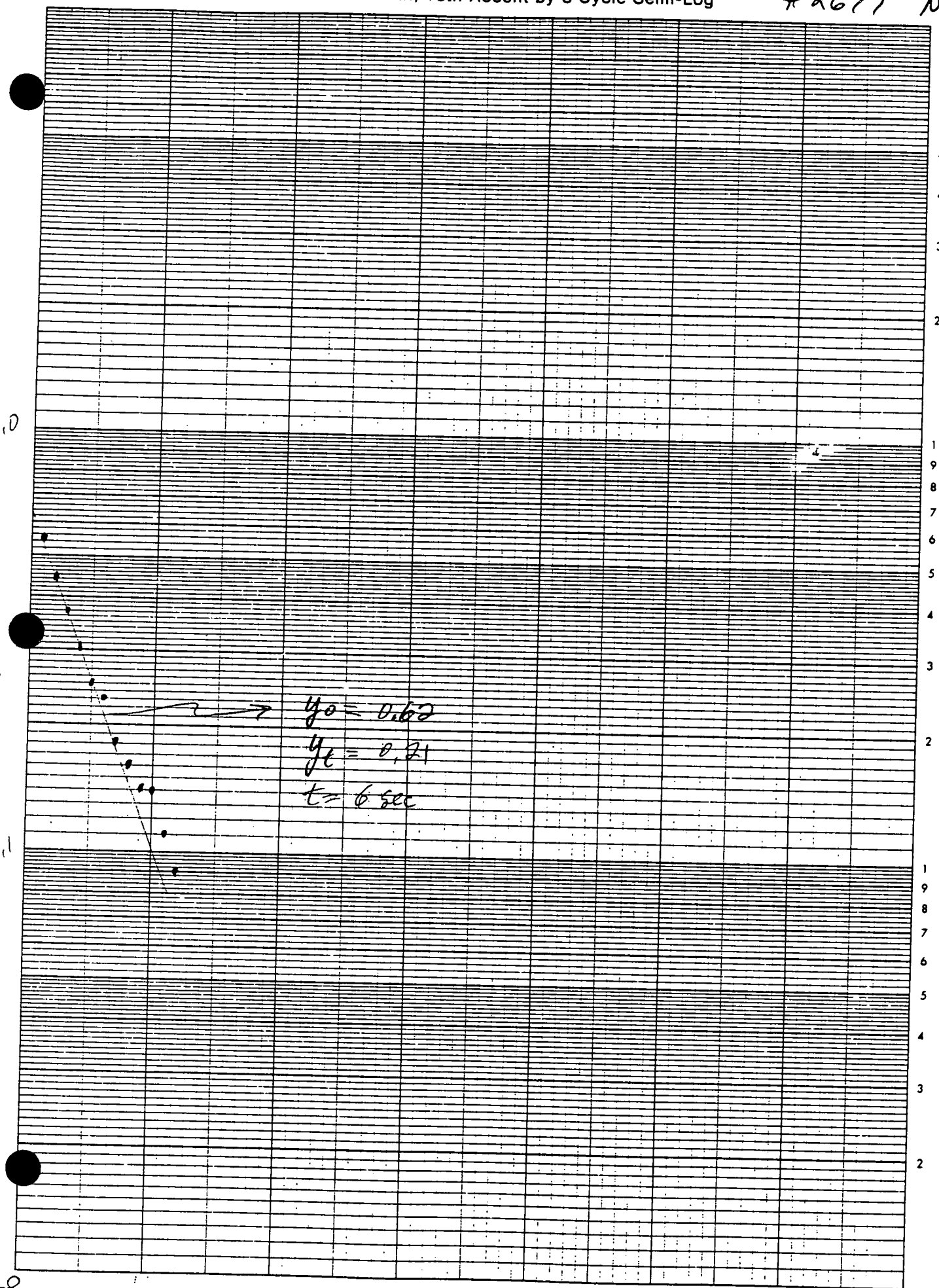
SLUG TEST DATA

PROJECT NAME: _____
PROJECT NO.: 2677
CLIENT: _____
LOCATION: _____

HOLE DESIGNATION: NCR-7M
DATE COMPLETED: 5/20/91
DRILLING METHOD: _____
CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 12.45 FT.					
	12.06				
	12.20				
1	11.90	0.55			
2	12.01	0.44			
3	12.08	0.37			
4	12.15	0.30			
5	12.20	0.25			
6	12.22	0.23			
7	12.27	0.18			
8	12.29	0.16			
9	12.31	0.14			
10	12.31	0.14			
11	12.34	0.11			
12	12.36	0.09			

SLUG OUT @ 15:16:15


1.0
0.1
Δy (Feet)
$y_0 = 0.62$
$y_t = 0.21$
$t = 6$ sec

NCK #2677
NCK-7M

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1} = C$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

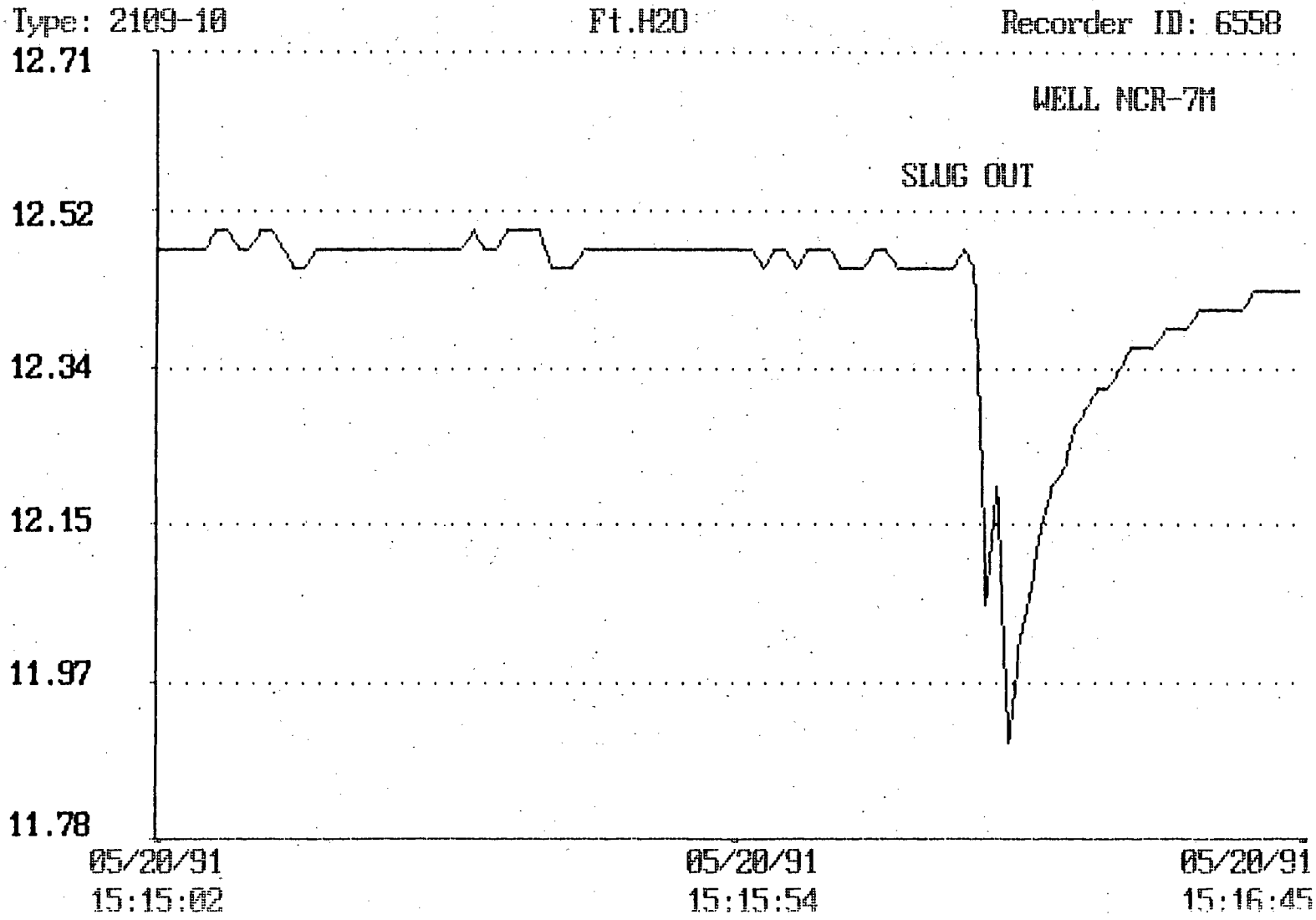
$$\ln \frac{Re}{rw} = \left| \frac{1.1}{\ln(38.84/0.333)} + \frac{1.9}{(9/0.333)} \right|^{-1} = \left| 0.231 + 0.070 \right|^{-1} = 3.3$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{6} \ln \frac{0.62}{0.21} = 0.1504 \text{ sec}^{-1} \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(0.34 \text{ cm})^2 (3.32)(0.1504 \text{ sec}^{-1})}{2(9')(30.48 \text{ cm/ft})} = \frac{3.862}{548.64} = 7.0 \times 10^{-3} \text{ cm/sec}$$


Type: 2109-10
Ft.H20
Recorder ID: 6558
12.71
12.52
12.34
12.15
11.97
11.78
WELL NCR-7M
SLUG OUT
05/20/91
15:15:02
05/20/91
15:15:54
05/20/91
15:16:45

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H20 Recorder ID: 6558

Time at Recorder: 05/20/91 15:19:17 Last Update: 05/20/91 10:34:29

Signal process: Not Applicable

Values being saved: averages

Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32

Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 1

Date	Time	Avg
05/20/91	15:16:14	12.47
05/20/91	15:16:15	12.45
05/20/91	15:16:16	12.06
05/20/91	15:16:17	12.20
05/20/91	15:16:18	11.90
05/20/91	15:16:19	12.01
05/20/91	15:16:20	12.08
05/20/91	15:16:21	12.15
05/20/91	15:16:22	12.20
05/20/91	15:16:23	12.22
05/20/91	15:16:24	12.27
05/20/91	15:16:25	12.29
05/20/91	15:16:26	12.31
05/20/91	15:16:27	12.31
05/20/91	15:16:28	12.34
05/20/91	15:16:29	12.36
05/20/91	15:16:30	12.36
05/20/91	15:16:31	12.36
05/20/91	15:16:32	12.38
05/20/91	15:16:33	12.38
05/20/91	15:16:34	12.38
05/20/91	15:16:35	12.40
05/20/91	15:16:36	12.40
05/20/91	15:16:37	12.40
05/20/91	15:16:38	12.40
05/20/91	15:16:39	12.40
05/20/91	15:16:40	12.43
05/20/91	15:16:41	12.43
05/20/91	15:16:42	12.43

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-8M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 7.5
R_e	= Effective radius over which y is dissipated	= –
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ BTOC	= 17.93'
H	= Difference from bottom of well screen to water table	= 27.83
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= –
y_o	= Determine off graph of ln y_t vs. t	= 0.81 ✓
y_t	= Change of y with time	= 0.30 ✓
t	= Time	= 180 sec ✓
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= –
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= –
C	=	= 1.6 ✓

$L/r_w = 23$ ✓

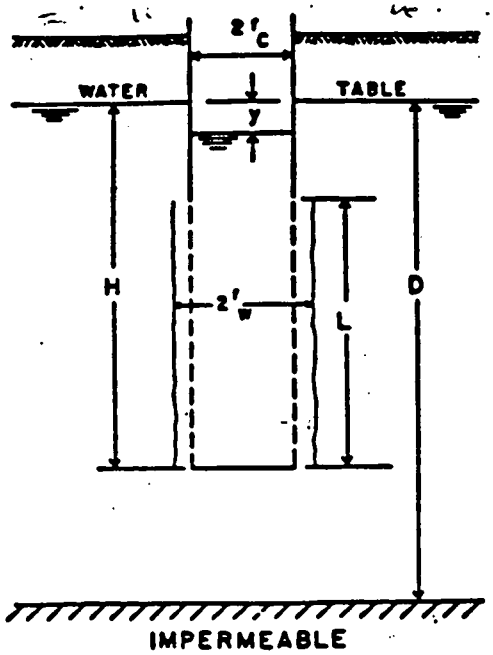


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: MCR-8M

PROJECT NO.: 2677 DATE COMPLETED: _____

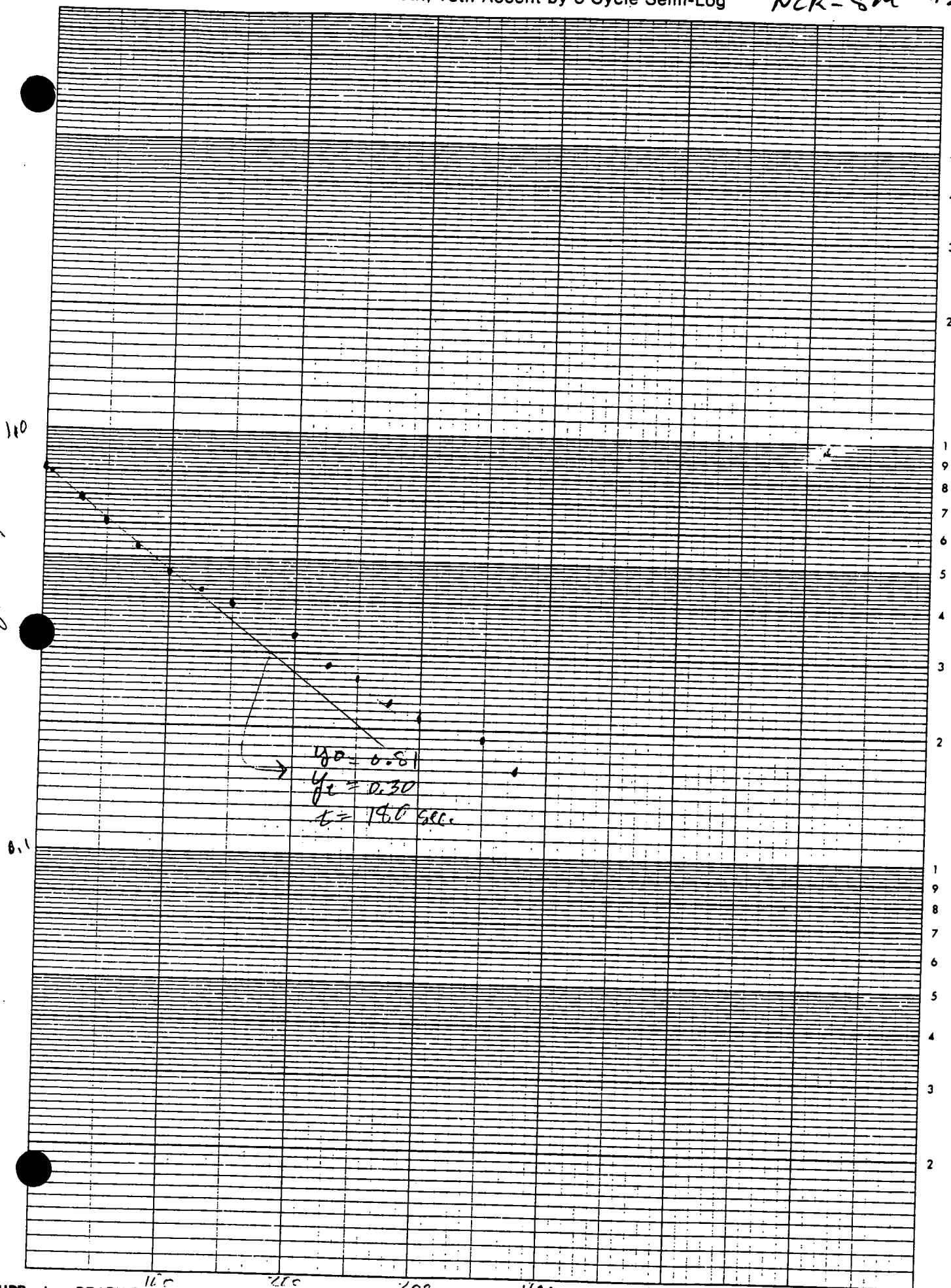
CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 10.42 FT.					
0	9.61	0.81			
1	9.61	0.81			
2	9.61	0.81			
3	9.61	0.81			
4	9.63	0.79			
5	9.63	0.79			
30	9.73	0.69			
50	9.82	0.60			
75	9.89	0.53			
100	9.96	0.46			
125	10.00	0.42			
150	10.03	0.39			
175	10.07	0.35			
200	10.09	0.33			
225	10.14	0.28			
250	10.16	0.26			
275	10.19	0.23			
300	10.21	0.21			
325	10.23	0.19			
350	10.23	0.19			
375	10.26	0.16			
400	10.26	0.16			
500	10.30	0.12			
600	10.33	0.09			
700	10.35	0.07			
800	10.37	0.05			

SLUG OUT @ 18:04:20

70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log NCR-8M #2677



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NCR-8M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1} = C$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

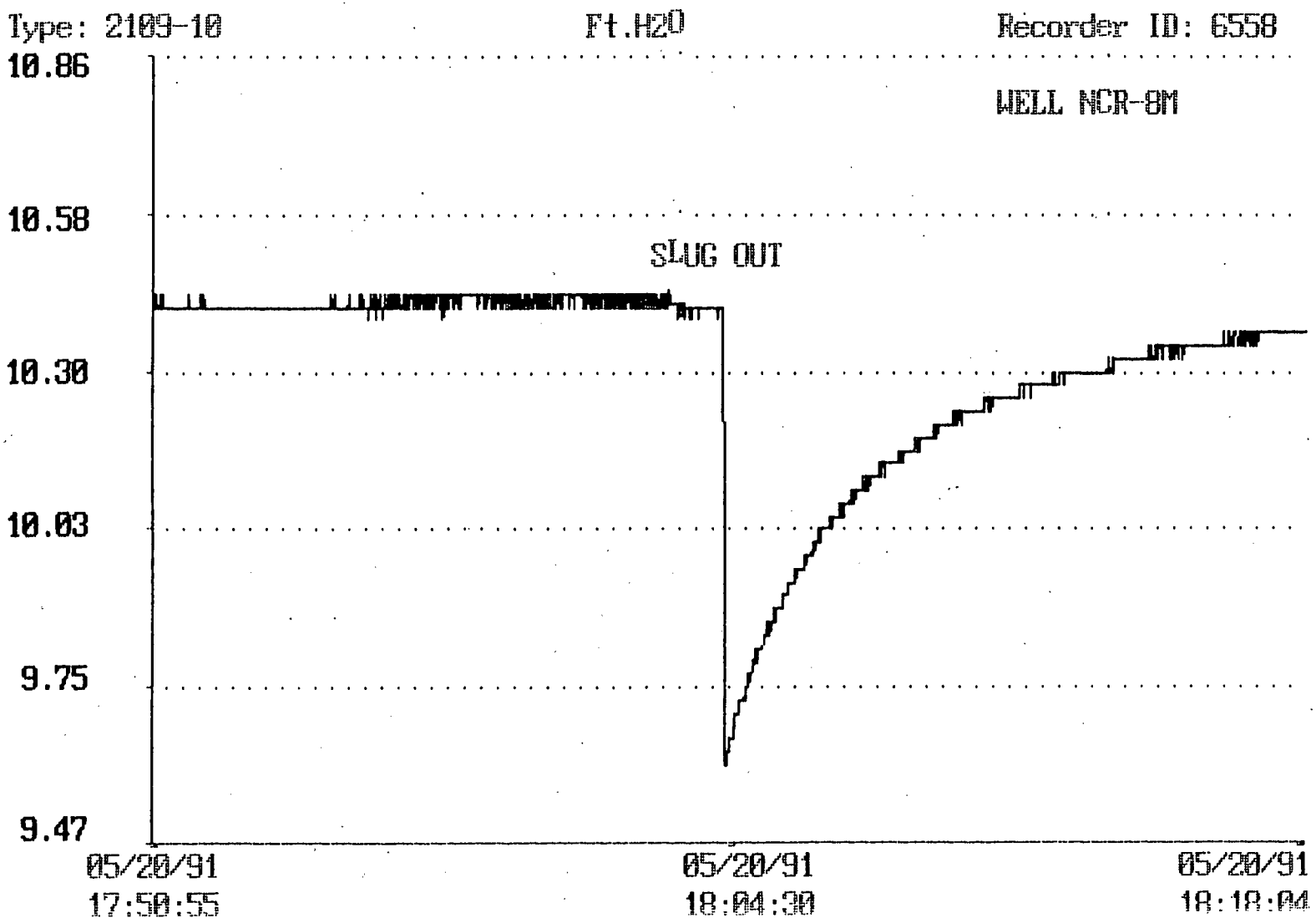
$$\ln \frac{Re}{rw} = \left| \frac{1.1}{\ln(27.83'/0.333)} + \frac{1.6}{(7.5/0.333)} \right|^{-1} = \left| 0.249 + 0.071 \right|^{-1} = 3.13 \checkmark$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{180} \ln \frac{0.81}{0.30} = 0.00552 \ sec^{-1} \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of K = 3.06 x 10^{-2} cm/sec.

$$K = \frac{(2.54 cm)^2 (3.13)(0.00552 \ sec^{-1})}{2(7.5)(30.48 \ cm/ft)} = \frac{0.1114}{457.2} = 2.4 \times 10^{-4} \ cm/sec \checkmark$$

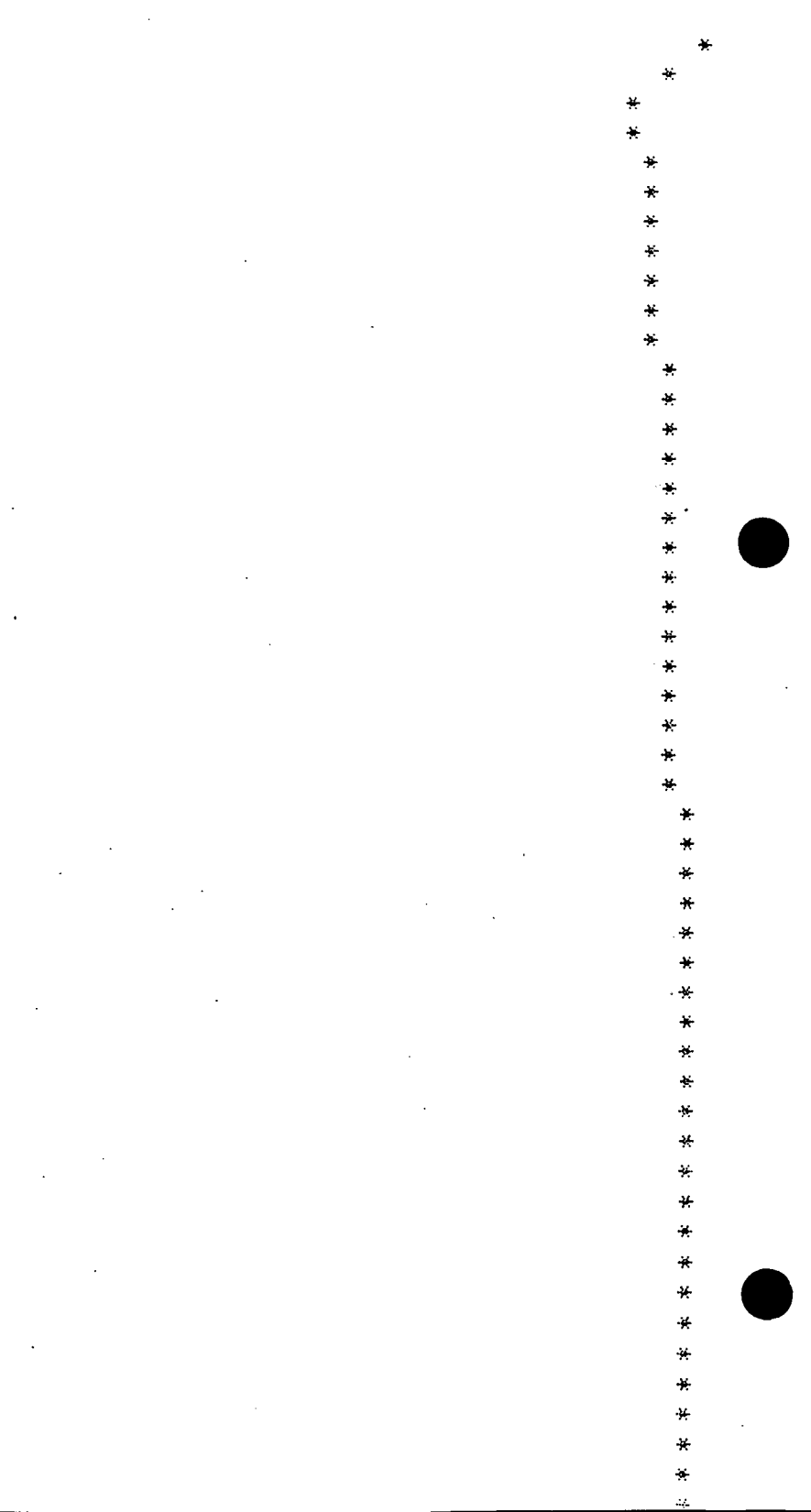

Type: 2109-10
Ft.H2O
Recorder ID: 6558
10.86
WELL NCR-8M
10.58
SLUG OUT
10.30
10.03
9.75
9.47
05/20/91
17:50:55
05/20/91
18:04:30
05/20/91
18:18:04

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H20 Recorder ID: 6558
Time at Recorder: 05/20/91 18:31:37 Last Update: 05/20/91 10:34:29
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32
Storage Capacity: 6512 values records: 01:48:32
Output compressed by a factor of 10

Date	Time	Avg
05/20/91	18:04:06	10.42
05/20/91	18:04:16	9.94
05/20/91	18:04:26	9.66
05/20/91	18:04:36	9.71
05/20/91	18:04:46	9.74
05/20/91	18:04:56	9.79
05/20/91	18:05:06	9.82
05/20/91	18:05:16	9.85
05/20/91	18:05:26	9.87
05/20/91	18:05:36	9.89
05/20/91	18:05:46	9.92
05/20/91	18:05:56	9.94
05/20/91	18:06:06	9.96
05/20/91	18:06:16	9.98
05/20/91	18:06:26	10.00
05/20/91	18:06:36	10.02
05/20/91	18:06:46	10.04
05/20/91	18:06:56	10.05
05/20/91	18:07:06	10.07
05/20/91	18:07:16	10.08
05/20/91	18:07:26	10.09
05/20/91	18:07:36	10.10
05/20/91	18:07:46	10.12
05/20/91	18:07:56	10.12
05/20/91	18:08:06	10.14
05/20/91	18:08:16	10.14
05/20/91	18:08:26	10.15
05/20/91	18:08:36	10.16
05/20/91	18:08:46	10.17
05/20/91	18:08:56	10.18
05/20/91	18:09:06	10.19
05/20/91	18:09:16	10.20
05/20/91	18:09:26	10.21
05/20/91	18:09:36	10.21
05/20/91	18:09:46	10.23
05/20/91	18:09:56	10.23
05/20/91	18:10:06	10.23
05/20/91	18:10:16	10.23
05/20/91	18:10:26	10.24
05/20/91	18:10:36	10.25
05/20/91	18:10:46	10.26
05/20/91	18:10:56	10.26
05/20/91	18:11:06	10.26
05/20/91	18:11:16	10.27
05/20/91	18:11:26	10.28
05/20/91	18:11:36	10.28
05/20/91	18:11:46	10.28
05/20/91	18:11:56	10.28
05/20/91	18:12:06	10.29
05/20/91	18:12:16	10.30



05/20/91 18:12:46 10.30 *
05/20/91 18:12:56 10.30 *
05/20/91 18:13:06 10.30 *
05/20/91 18:13:16 10.30 *
05/20/91 18:13:26 10.31 *
05/20/91 18:13:36 10.33 *
05/20/91 18:13:46 10.33 *
05/20/91 18:13:56 10.33 *
05/20/91 18:14:06 10.33 *
05/20/91 18:14:16 10.33 *
05/20/91 18:14:26 10.33 *
05/20/91 18:14:36 10.34 *
05/20/91 18:14:46 10.34 *
05/20/91 18:14:56 10.34 *
05/20/91 18:15:06 10.35 *
05/20/91 18:15:16 10.35 *
05/20/91 18:15:26 10.35 *
05/20/91 18:15:36 10.35 *
05/20/91 18:15:46 10.35 *
05/20/91 18:15:56 10.35 *
05/20/91 18:16:06 10.36 *
05/20/91 18:16:16 10.36 *
05/20/91 18:16:26 10.36 *
05/20/91 18:16:36 10.36 *
05/20/91 18:16:46 10.36 *

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-9M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 8.7
R_e	= Effective radius over which y is dissipated	= -
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGG)~~ BTOC	= 13.98'
H	= Difference from bottom of well screen to water table	= 32.35'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= -
y_o	= Determine off graph of ln y_t vs. t	= 0.81
y_t	= Change of y with time	= 0.15 ✓
t	= Time	= 24 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= -
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= -
C	= " " " " "	= 1.9 ✓

$L/r_w = 26$ ✓

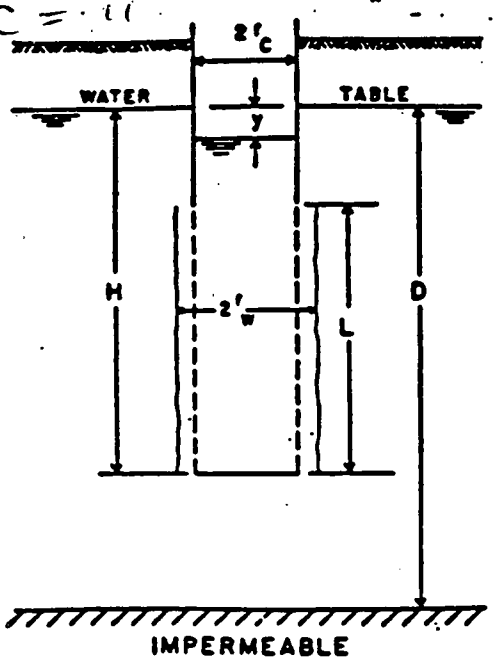


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-9M

PROJECT NO.: 2677 DATE COMPLETED: _____

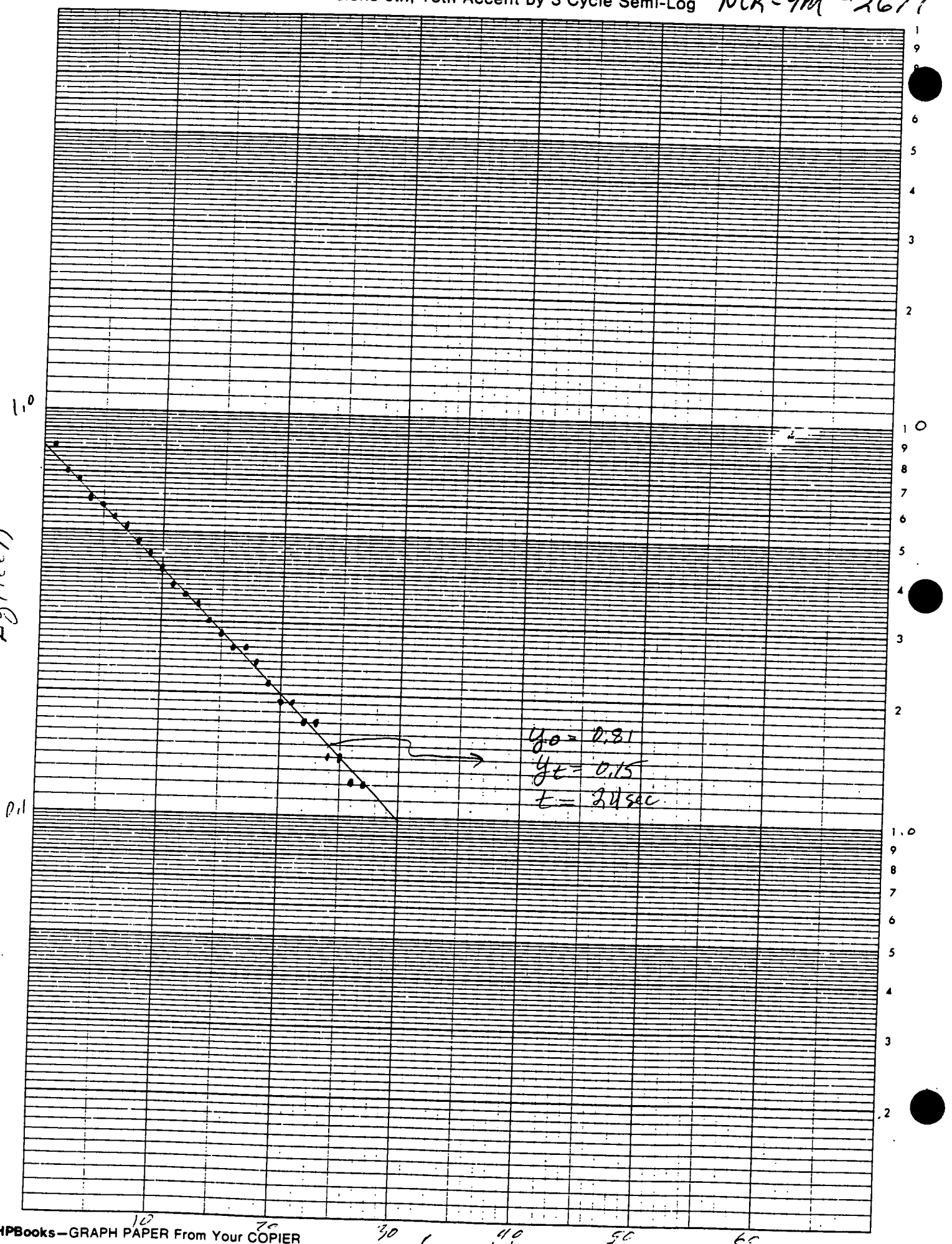
CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 11.00 FT.					
1	10.19	0.81			
2	10.30	0.70			
3	10.33	0.67			
4	10.40	0.60			
5	10.42	0.58			
6	10.46	0.54			
7	10.49	0.51			
8	10.53	0.47			
9	10.56	0.44			
10	10.60	0.40			
11	10.63	0.37			
12	10.65	0.35			
13	10.67	0.33			
14	10.70	0.30			
15	10.72	0.28			
16	10.74	0.26			
17	10.74	0.26			
18	10.76	0.24			
19	10.79	0.21			
20	10.81	0.19			
21	10.81	0.19			
22	10.83	0.17			
23	10.83	0.17			
24	10.86	0.14			
25	10.86	0.14			
26	10.88	0.12			
27	10.88	0.12			

SLUG OUT @ 15:47:19

70 Divisions 5th, 10th Accent by 3 Cycle Semi-Log NCR-9M #2677



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NCR-9M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{= C} \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

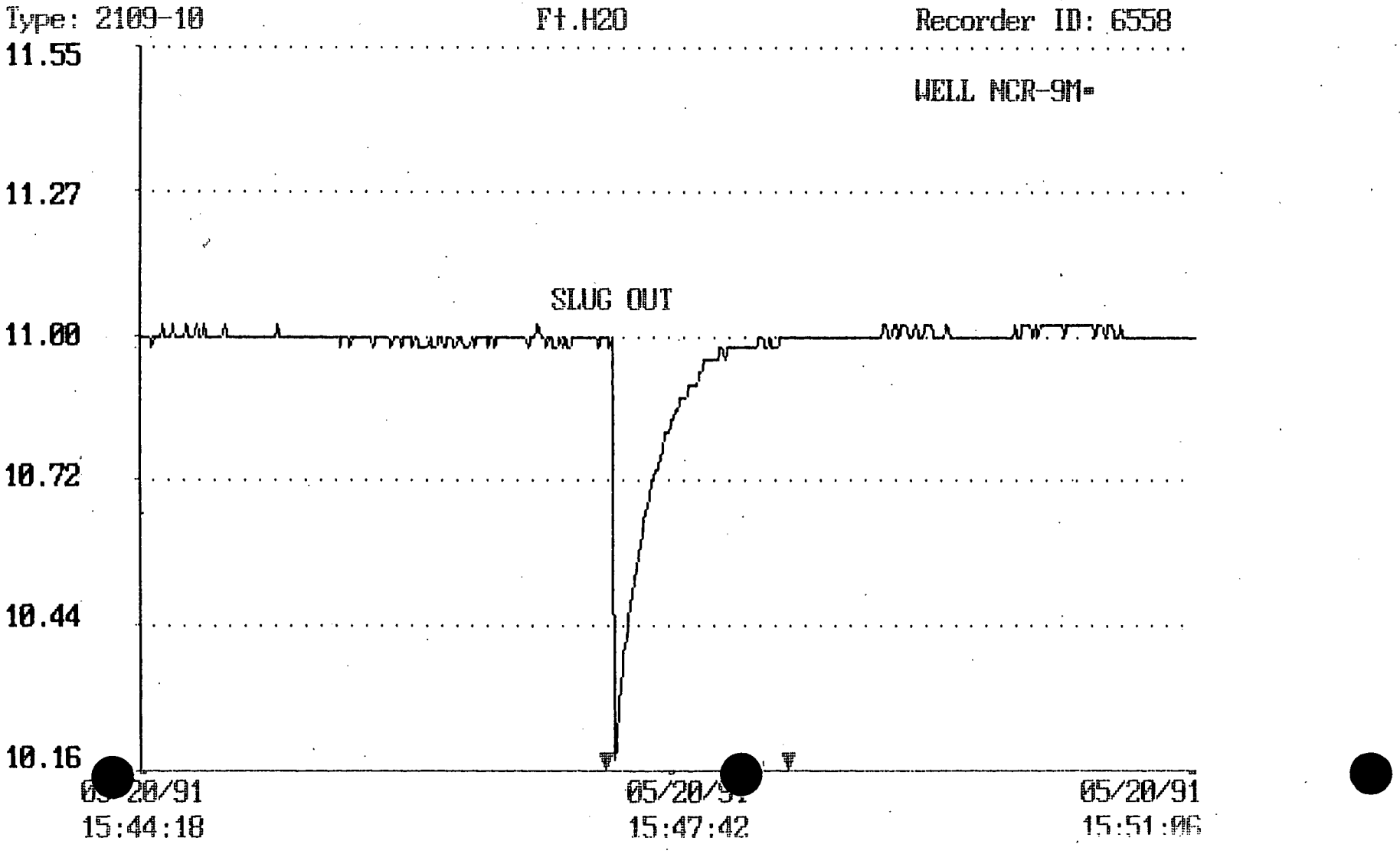
$$\ln \frac{Re}{r_w} = \left| \frac{1.1}{\ln(32.35/0.333)} + \frac{1.9}{(6.7/0.333)} \right|^{-1} = \left| 0.240 + 0.073 \right|^{-1} = 3.19$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = 1/24 \ln \frac{0.81}{0.15} = 0.0703 \text{ sec}^{-1} \checkmark$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54 \text{ cm})^2 (3.19)(0.0703 \text{ sec}^{-1})}{2(8.7)(32.45 \text{ cm})(24)} = \frac{1.4479}{530.352} = 2.7 \times 10^{-3} \text{ cm/sec}$$


Type: 2109-10
Ft.H20
Recorder ID: 6558
11.55
WELL NCR-9M-
11.27
SLUG OUT
11.00
10.72
10.44
10.16
05/20/91
15:44:18
05/20/91
15:47:42
05/20/91
15:51:06

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H2O Recorder ID: 6558
Time at Recorder: 05/20/91 15:54:29 Last Update: 05/20/91 10:34:29
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32
Storage Capacity: 6512 values records: 01:48:32
Output compressed by a factor of 1

Date	Time	Avg
05/20/91	15:47:17	11.00
05/20/91	15:47:18	10.97
05/20/91	15:47:19	11.00
05/20/91	15:47:20	10.56
05/20/91	15:47:21	10.19
05/20/91	15:47:22	10.30
05/20/91	15:47:23	10.33
05/20/91	15:47:24	10.40
05/20/91	15:47:25	10.42
05/20/91	15:47:26	10.46
05/20/91	15:47:27	10.49
05/20/91	15:47:28	10.53
05/20/91	15:47:29	10.56
05/20/91	15:47:30	10.60
05/20/91	15:47:31	10.63
05/20/91	15:47:32	10.65
05/20/91	15:47:33	10.67
05/20/91	15:47:34	10.70
05/20/91	15:47:35	10.72
05/20/91	15:47:36	10.74
05/20/91	15:47:37	10.74
05/20/91	15:47:38	10.76
05/20/91	15:47:39	10.79
05/20/91	15:47:40	10.81
05/20/91	15:47:41	10.81
05/20/91	15:47:42	10.83
05/20/91	15:47:43	10.83
05/20/91	15:47:44	10.86
05/20/91	15:47:45	10.86
05/20/91	15:47:46	10.88
05/20/91	15:47:47	10.88
05/20/91	15:47:48	10.88
05/20/91	15:47:49	10.90
05/20/91	15:47:50	10.90
05/20/91	15:47:51	10.90
05/20/91	15:47:52	10.90
05/20/91	15:47:53	10.93
05/20/91	15:47:54	10.93
05/20/91	15:47:55	10.95
05/20/91	15:47:56	10.95
05/20/91	15:47:57	10.95
05/20/91	15:47:58	10.95
05/20/91	15:47:59	10.95
05/20/91	15:48:00	10.95
05/20/91	15:48:01	10.97
05/20/91	15:48:02	10.97
05/20/91	15:48:03	10.95
05/20/91	15:48:04	10.97
05/20/91	15:48:05	10.97
05/20/91	15:48:06	10.97

05/20/91	15:48:09	10.97 *
05/20/91	15:48:10	10.97 *
05/20/91	15:48:11	10.97 *
05/20/91	15:48:12	10.97 *
05/20/91	15:48:13	10.97 *
05/20/91	15:48:14	10.97 *
05/20/91	15:48:15	10.97 *
05/20/91	15:48:16	11.00 *
05/20/91	15:48:17	11.00 *
05/20/91	15:48:18	10.97 *
05/20/91	15:48:19	10.97 *
05/20/91	15:48:20	11.00 *
05/20/91	15:48:21	10.97 *
05/20/91	15:48:22	10.97 *
05/20/91	15:48:23	10.97 *
05/20/91	15:48:24	11.00 *
05/20/91	15:48:25	11.00 *
05/20/91	15:48:26	11.00 *
05/20/91	15:48:27	11.00 *

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-10M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 8.5
R_e	= Effective radius over which y is dissipated	= –
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ BTOC	= 13.60'
H	= Difference from bottom of well screen to water table	= 35.75'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= –
y_o	= Determine off graph of ln y_t vs. t	= 0.90
y_t	= Change of y with time	= 0.10
t	= Time	= 12 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= –
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	= 1.85

$L/r_w = 25.5$

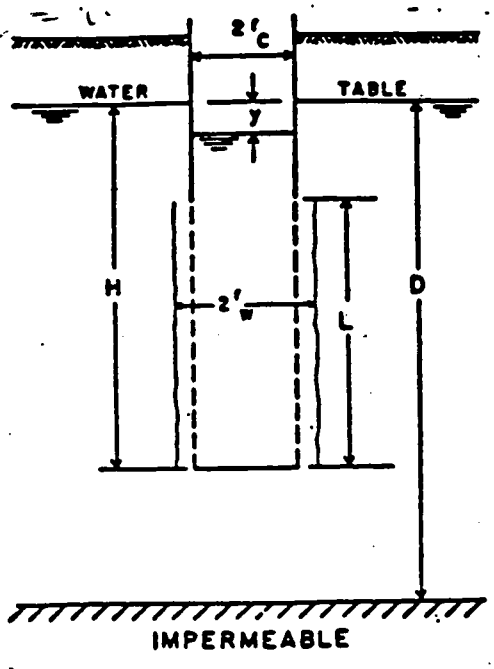


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-10M

PROJECT NO.: 2677 DATE COMPLETED: _____

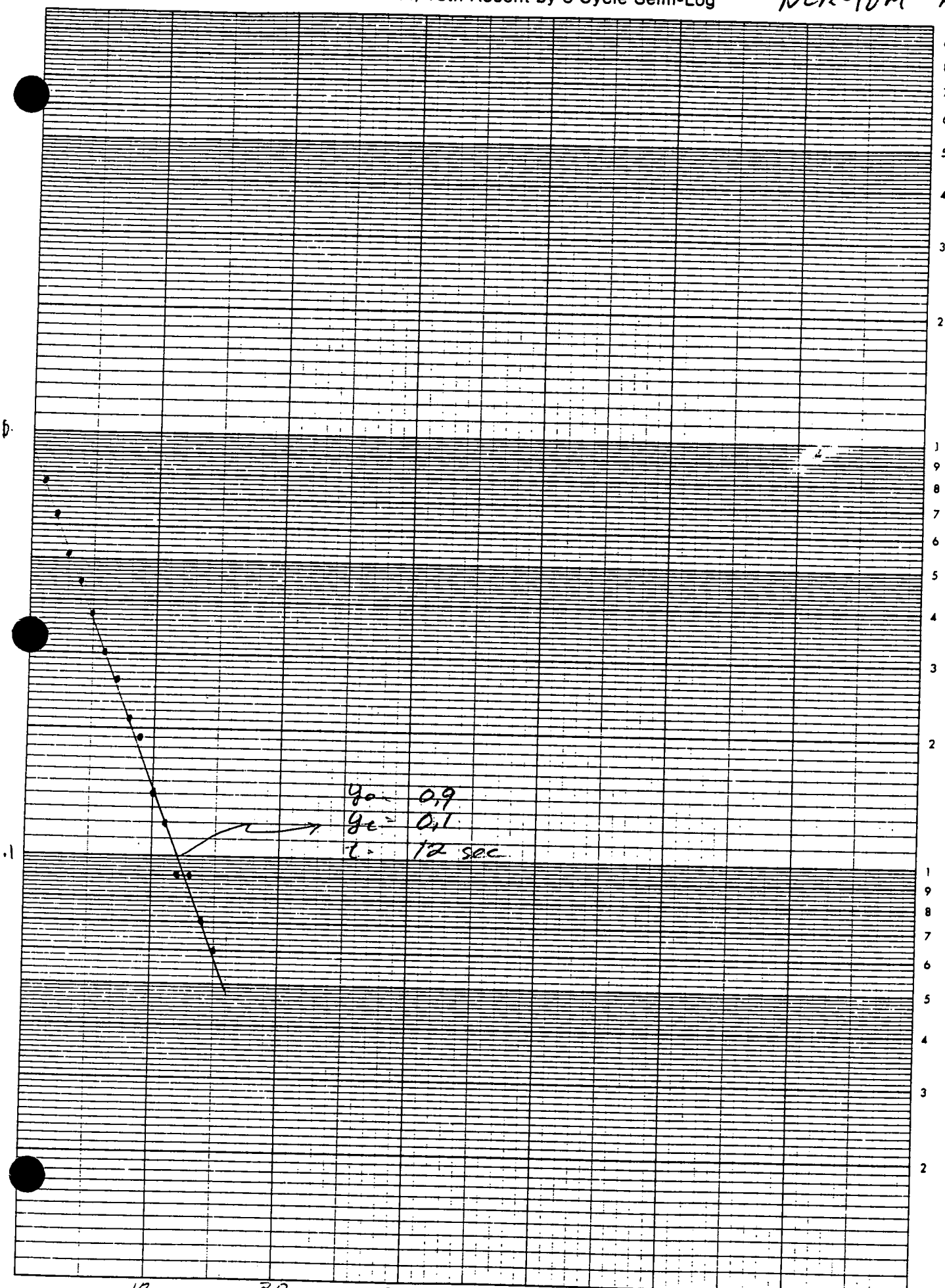
CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 12.73 FT.					
1	11.97	0.76			
2	12.10	0.63			
3	12.22	0.51			
4	12.29	0.44			
5	12.36	0.37			
6	12.43	0.30			
7	12.47	0.26			
8	12.52	0.21			
9	12.54	0.19			
10	12.59	0.14			
11	12.61	0.12			
12	12.64	0.09			
13	12.64	0.09			
14	12.66	0.07			
15	12.68	0.05			

SLUG OUT @ 16:33:28

NCR-10M #2677



NCR-10M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln [(D-H)/r_w]}_{=C} \over L/r_w \right|^{-1}$$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

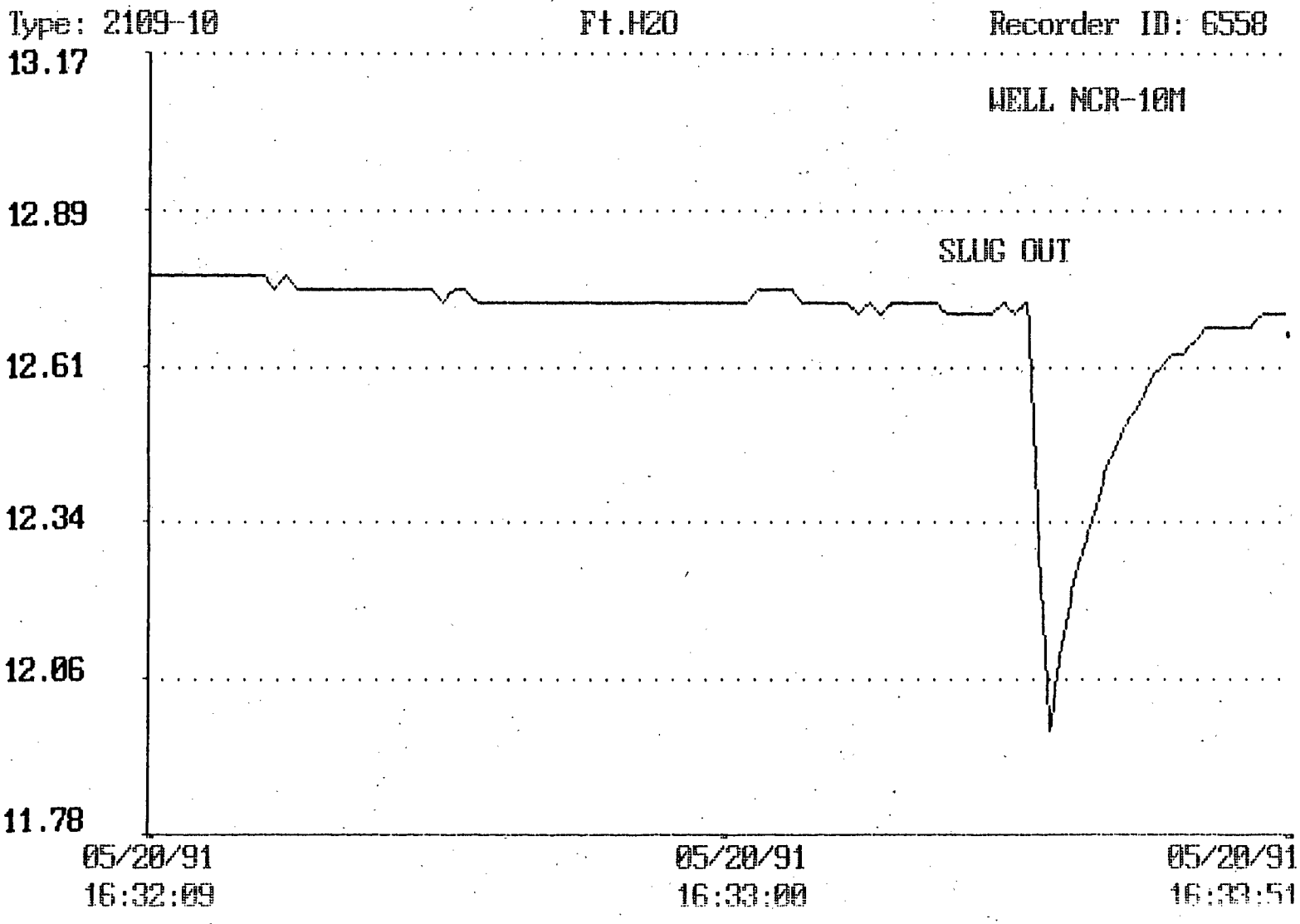
$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(35.75/0.333)} + \frac{1.85}{(8.5/0.333)} \right|^{-1} = \left| 0.235 + 0.072 \right|^{-1} = 3.25 \quad \checkmark$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{12} \ln \frac{0.90}{0.10} = 0.1831 \text{ sec}^{-1}$$

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54\text{cm})^2 (3.25)(0.1831 \text{ sec}^{-1})}{2(8.5)(30.48 \text{ cm/ft})} = \frac{3.839}{518.16} = \underline{\underline{7.4 \times 10^{-3} \text{ cm/sec}}} \quad \checkmark$$


Type: 2109-10
Ft.H2O
Recorder ID: 6558
13.17
12.89
12.61
12.34
12.06
11.78
WELL NCR-10M
SLUG OUT
05/20/91
16:32:09
05/20/91
16:33:00
05/20/91
16:33:51

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H20 Recorder ID: 6558
Time at Recorder: 05/20/91 16:35:33 Last Update: 05/20/91 10:34:29
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32
Storage Capacity: 6512 values records: 01:48:32
Output compressed by a factor of 1

Date	Time	Avg	
05/20/91	16:33:26	12.71	*
05/20/91	16:33:27	12.73	*
05/20/91	16:33:28	12.34	*
05/20/91	16:33:29	11.97	*
05/20/91	16:33:30	12.10	*
05/20/91	16:33:31	12.22	*
05/20/91	16:33:32	12.29	*
05/20/91	16:33:33	12.36	*
05/20/91	16:33:34	12.43	*
05/20/91	16:33:35	12.47	*
05/20/91	16:33:36	12.52	*
05/20/91	16:33:37	12.54	*
05/20/91	16:33:38	12.59	*
05/20/91	16:33:39	12.61	*
05/20/91	16:33:40	12.64	*
05/20/91	16:33:41	12.64	*
05/20/91	16:33:42	12.66	*
05/20/91	16:33:43	12.68	*
05/20/91	16:33:44	12.68	*
05/20/91	16:33:45	12.68	*
05/20/91	16:33:46	12.68	*
05/20/91	16:33:47	12.68	*
05/20/91	16:33:48	12.71	*
05/20/91	16:33:49	12.71	*

JW

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-11 M
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 7.2'
R_e	= Effective radius over which y is dissipated	= —
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ Brac	= 10.28
H	= Difference from bottom of well screen to water table	= 11.7'
D	= Difference from impermeable zone to water table	= D=11
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= —
y_o	= Determine off graph of ln y_t vs. t	= 0.62 ✓
y_t	= Change of y with time	= 0.14
t	= Time	= 2500 sec ✓
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
C	=	= 1.75 ✓

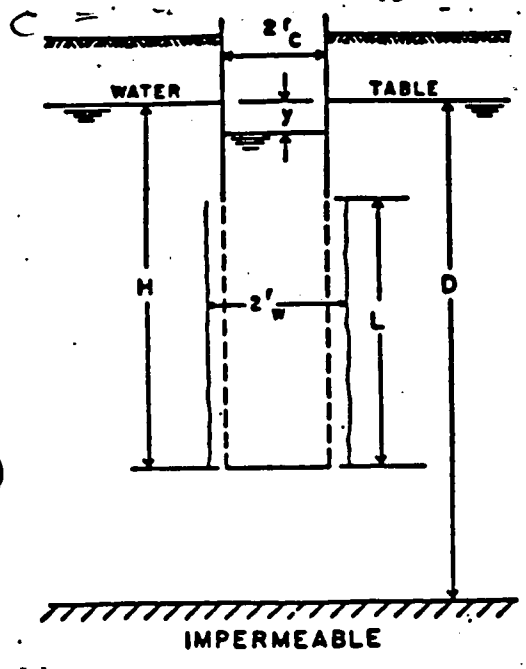


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

NCR-11M
#2677

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w} \right|^{-1}$$

$= C$

Where: $\ln [(D-H)/r_w]$ has a maximum value of 6

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(11.7/0.333)} + \frac{1.75}{(7.2/0.333)} \right|^{-1} = \left| 0.309 + 0.081 \right|^{-1} = 2.56$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{2580} \ln \frac{0.62}{0.14} = 0.00177 \text{ sec}^{-1}$$

5.95×10^{-4} ✓

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

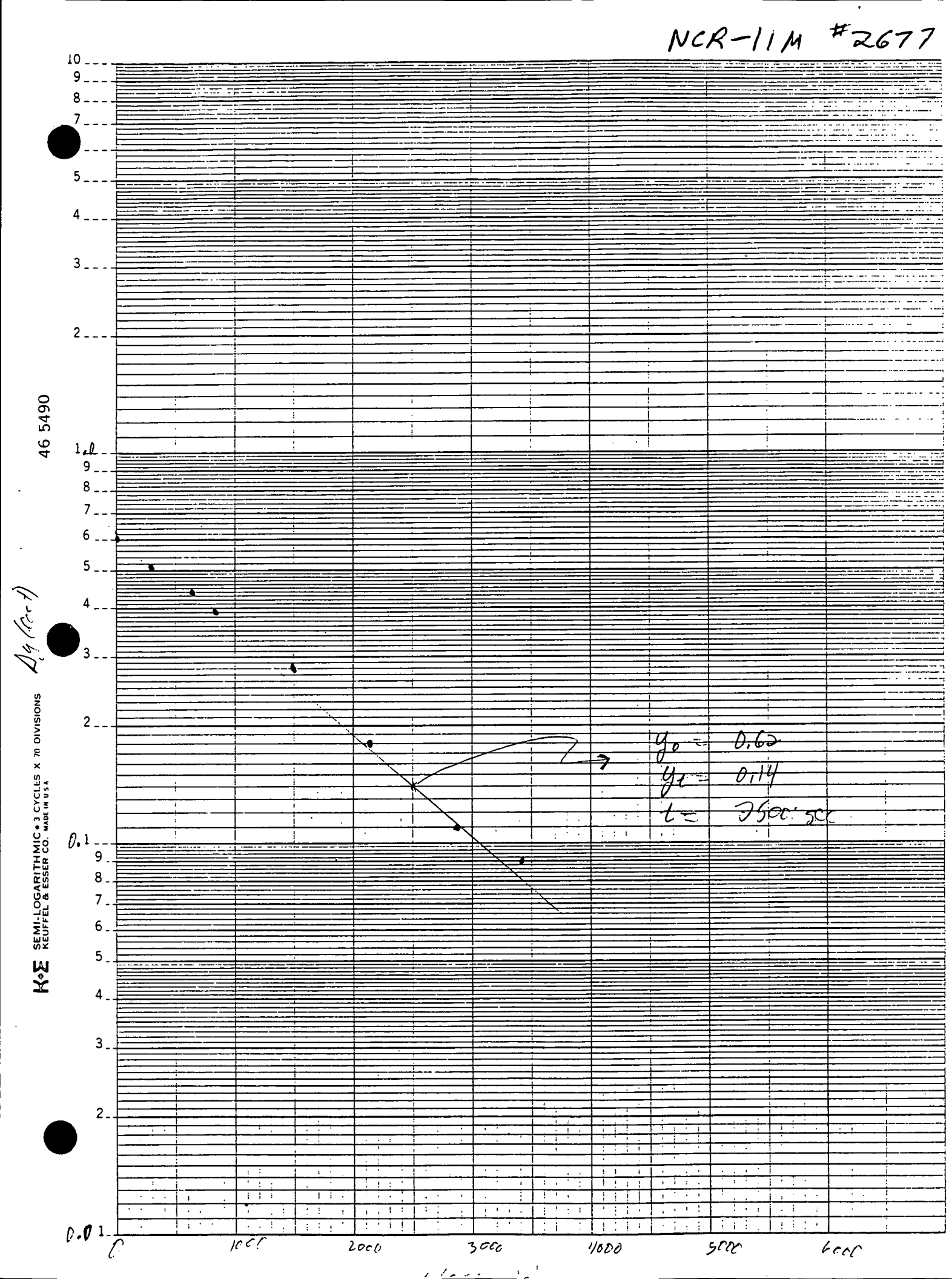
Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(2.54(\text{cm}))^2 (2.56)(0.00177 \text{ sec}^{-1})}{2(7.2')(30.48 \text{ cm/ft.})} = \frac{0.0293}{438.912} = 6.7 \times 10^{-5} \text{ cm/s}$$

$$K = \frac{(2.54)^2 (2.56)(2.45 \times 10^{-4})}{2(7.2)(30.48)} = 2.2 \times 10^{-6} \text{ cm/sec}$$

✓

NCR-11M #2677


10
9
8
7
5
4
3
2
1.0
9
8
7
6
5
4
3
2
0.1
9
8
7
6
5
4
3
2
0.01
1000
2000
3000
4000
5000
6000
y_0 = 0.62
y_1 = 0.14
t = 3500 sec
Δy (cm)
46 5490
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

SLUG TEST DATA

PROJECT NAME: _____ HOLE DESIGNATION: NCR-11M

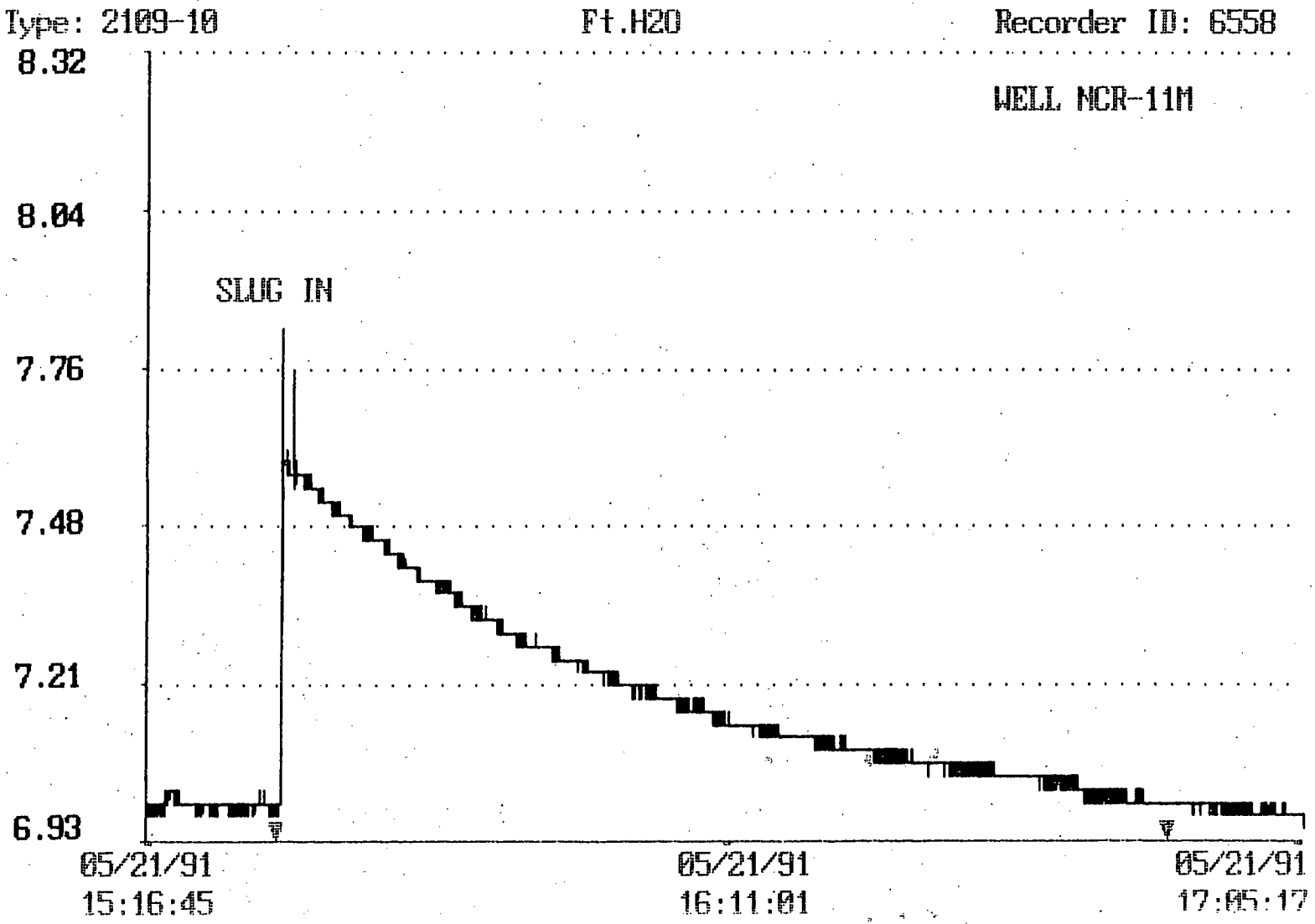
PROJECT NO.: #2677 DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
TRANSDUCER STATIC = 7.00 FT.					
0	7.00	0.00			
1	7.11	.11			
2	7.6	.60			
3	7.6	.60			
4	7.62	.62			
30	7.60	.60			
300	7.51	.51			
660	7.44	.44			
840	7.39	.39			
1500	7.28	.28			
2160	7.18	.18			
2880	7.11	.11			
3420	7.09	.09			
4260	7.05	.05			
4560	7.02	.02			
4980	7.00	.00			

SLUG IN - 15 29 15


Type: 2109-10
Ft.H2O
Recorder ID: 6558
8.32
WELL NCR-11M
8.04
SLUG IN
7.76
7.48
7.21
6.93
05/21/91
15:16:45
05/21/91
16:11:01
05/21/91
17:05:17

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 23.63 Ft.H2O Recorder ID: 6558

Time at Recorder: 05/21/91 17:05:17 Last Update: 05/20/91 10:34:29

Signal process: Not Applicable

Values being saved: averages

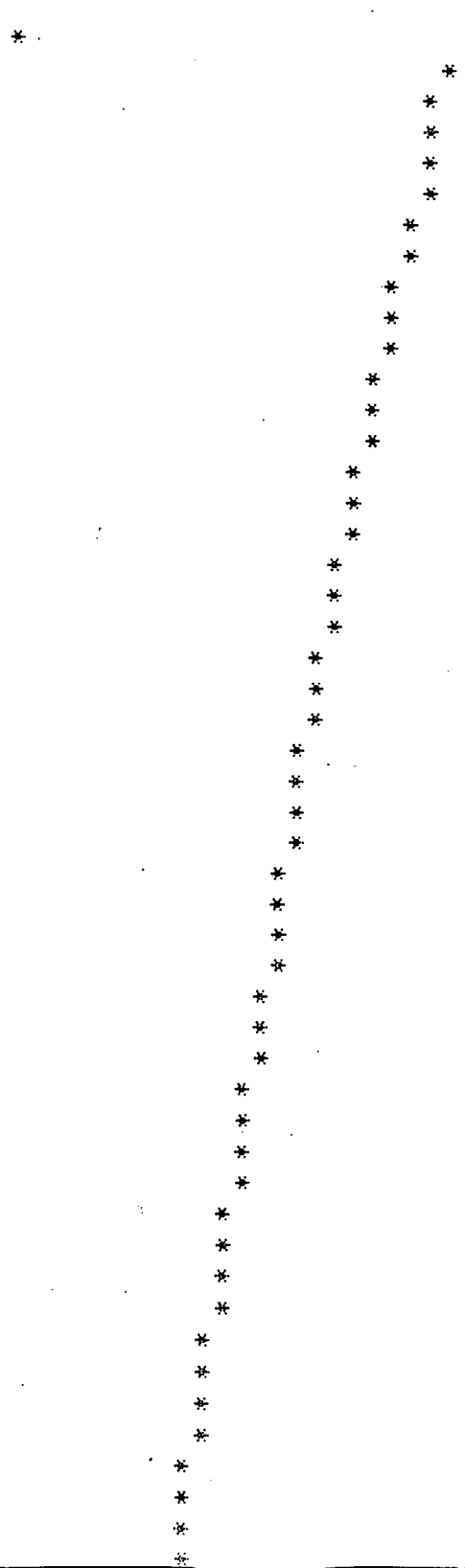
Alarm status: Low alarm @ 0.09 is OFF Upper alarm @ 23.56 is OFF

Averaging period: 00:00:01 Amount of data recorded: 01:48:32

Storage Capacity: 6512 values records: 01:48:32

Output compressed by a factor of 30

Date	Time	Avg
05/21/91	15:28:50	7.07
05/21/91	15:29:20	7.60
05/21/91	15:29:50	7.58
05/21/91	15:30:20	7.59
05/21/91	15:30:50	7.58
05/21/91	15:31:20	7.57
05/21/91	15:31:50	7.56
05/21/91	15:32:20	7.55
05/21/91	15:32:50	7.53
05/21/91	15:33:20	7.53
05/21/91	15:33:50	7.52
05/21/91	15:34:20	7.51
05/21/91	15:34:50	7.51
05/21/91	15:35:20	7.50
05/21/91	15:35:50	7.49
05/21/91	15:36:20	7.48
05/21/91	15:36:50	7.47
05/21/91	15:37:20	7.46
05/21/91	15:37:50	7.46
05/21/91	15:38:20	7.46
05/21/91	15:38:50	7.45
05/21/91	15:39:20	7.44
05/21/91	15:39:50	7.44
05/21/91	15:40:20	7.42
05/21/91	15:40:50	7.42
05/21/91	15:41:20	7.42
05/21/91	15:41:50	7.41
05/21/91	15:42:20	7.39
05/21/91	15:42:50	7.39
05/21/91	15:43:20	7.39
05/21/91	15:43:50	7.38
05/21/91	15:44:20	7.38
05/21/91	15:44:50	7.37
05/21/91	15:45:20	7.37
05/21/91	15:45:50	7.35
05/21/91	15:46:20	7.35
05/21/91	15:46:50	7.34
05/21/91	15:47:20	7.34
05/21/91	15:47:50	7.33
05/21/91	15:48:20	7.32
05/21/91	15:48:50	7.32
05/21/91	15:49:20	7.32
05/21/91	15:49:50	7.30
05/21/91	15:50:20	7.30
05/21/91	15:50:50	7.30
05/21/91	15:51:20	7.29
05/21/91	15:51:50	7.28
05/21/91	15:52:20	7.28
05/21/91	15:52:50	7.28
05/21/91	15:53:20	7.28



05/21/91	15:54:50	7.26	*
05/21/91	15:55:20	7.25	*
05/21/91	15:55:50	7.25	*
05/21/91	15:56:20	7.25	*
05/21/91	15:56:50	7.25	*
05/21/91	15:57:20	7.25	*
05/21/91	15:57:50	7.23	*
05/21/91	15:58:20	7.23	*
05/21/91	15:58:50	7.23	*
05/21/91	15:59:20	7.23	*
05/21/91	15:59:50	7.22	*
05/21/91	16:00:20	7.21	*
05/21/91	16:00:50	7.21	*
05/21/91	16:01:20	7.21	*
05/21/91	16:01:50	7.21	*
05/21/91	16:02:20	7.21	*
05/21/91	16:02:50	7.20	*
05/21/91	16:03:20	7.20	*
05/21/91	16:03:50	7.19	*
05/21/91	16:04:20	7.19	*
05/21/91	16:04:50	7.18	*
05/21/91	16:05:20	7.18	*
05/21/91	16:05:50	7.18	*
05/21/91	16:06:20	7.17	*
05/21/91	16:06:50	7.17	*
05/21/91	16:07:20	7.16	*
05/21/91	16:07:50	7.17	*
05/21/91	16:08:20	7.17	*
05/21/91	16:08:50	7.16	*
05/21/91	16:09:20	7.16	*
05/21/91	16:09:50	7.15	*
05/21/91	16:10:20	7.15	*
05/21/91	16:10:50	7.14	*
05/21/91	16:11:20	7.14	*
05/21/91	16:11:50	7.14	*
05/21/91	16:12:20	7.14	*
05/21/91	16:12:50	7.14	*
05/21/91	16:13:20	7.14	*
05/21/91	16:13:50	7.14	*
05/21/91	16:14:20	7.13	*
05/21/91	16:14:50	7.12	*
05/21/91	16:15:20	7.12	*
05/21/91	16:15:50	7.12	*
05/21/91	16:16:20	7.11	*
05/21/91	16:16:50	7.11	*
05/21/91	16:17:20	7.11	*
05/21/91	16:17:50	7.11	*
05/21/91	16:18:20	7.11	*
05/21/91	16:18:50	7.11	*
05/21/91	16:19:20	7.11	*
05/21/91	16:19:50	7.10	*
05/21/91	16:20:20	7.10	*
05/21/91	16:20:50	7.09	*
05/21/91	16:21:20	7.09	*
05/21/91	16:21:50	7.09	*
05/21/91	16:22:20	7.09	*
05/21/91	16:22:50	7.09	*
05/21/91	16:23:20	7.09	*
05/21/91	16:23:50	7.09	*
05/21/91	16:24:20	7.09	*
05/21/91	16:24:50	7.09	*
05/21/91	16:25:20	7.09	*
05/21/91	16:25:50	7.08	*
05/21/91	16:26:20	7.08	*

05/21/91	16:27:50	7.07	*
05/21/91	16:28:20	7.07	*
05/21/91	16:28:50	7.07	*
05/21/91	16:29:20	7.07	*
05/21/91	16:29:50	7.07	*
05/21/91	16:30:20	7.07	*
05/21/91	16:30:50	7.07	*
05/21/91	16:31:20	7.07	*
05/21/91	16:31:50	7.06	*
05/21/91	16:32:20	7.06	*
05/21/91	16:32:50	7.06	*
05/21/91	16:33:20	7.06	*
05/21/91	16:33:50	7.05	*
05/21/91	16:34:20	7.05	*
05/21/91	16:34:50	7.05	*
05/21/91	16:35:20	7.05	*
05/21/91	16:35:50	7.05	*
05/21/91	16:36:20	7.05	*
05/21/91	16:36:50	7.05	*
05/21/91	16:37:20	7.05	*
05/21/91	16:37:50	7.05	*
05/21/91	16:38:20	7.05	*
05/21/91	16:38:50	7.05	*
05/21/91	16:39:20	7.05	*
05/21/91	16:39:50	7.05	*
05/21/91	16:40:20	7.04	*
05/21/91	16:40:50	7.04	*
05/21/91	16:41:20	7.04	*
05/21/91	16:41:50	7.04	*
05/21/91	16:42:20	7.04	*
05/21/91	16:42:50	7.03	*
05/21/91	16:43:20	7.03	*
05/21/91	16:43:50	7.02	*
05/21/91	16:44:20	7.02	*
05/21/91	16:44:50	7.02	*
05/21/91	16:45:20	7.01	*
05/21/91	16:45:50	7.00	*
05/21/91	16:46:20	7.01	*
05/21/91	16:46:50	7.00	*
05/21/91	16:47:20	7.01	*
05/21/91	16:47:50	7.00	*
05/21/91	16:48:20	7.00	*
05/21/91	16:48:50	7.00	*
05/21/91	16:49:20	7.00	*
05/21/91	16:49:50	7.00	*
05/21/91	16:50:20	7.00	*
05/21/91	16:50:50	7.00	*
05/21/91	16:51:20	7.00	*
05/21/91	16:51:50	7.00	*

CALCULATION OF HYDRAULIC CONDUCTIVITY

PROJECT NAME: NCR
PROJECT NO.:
CLIENT: 2677
LOCATION:

HOLE DESIGNATION: NCR-13S
DATE COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

L	= Height of the portion of well through which water enters	= 3.0
R_e	= Effective radius over which y is dissipated	= -
r_w	= Horizontal distance from well center to original aquifer	= 0.333'
r_c	= Inside radius of casing if water level is above the perforated or otherwise open portion of the well	= 0.083'
w_s	= Static water table ~~(BGS)~~ Btoc	= 3.89'
H	= Difference from bottom of well screen to water table	= 4.86'
D	= Difference from impermeable zone to water table	= D=H
y	= Vertical distance between water level in well and equilibrium water table in aquifer	= -
y_o	= Determine off graph of ln y_t vs. t	= 0.52
y_t	= Change of y with time	= 0.27
t	= Time	= 60 sec
A	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=
B	= From value of L/r_w (taken from Figure 3 in Bouwer and Rice)	=

C = 1.2

$L/r_w = 9$

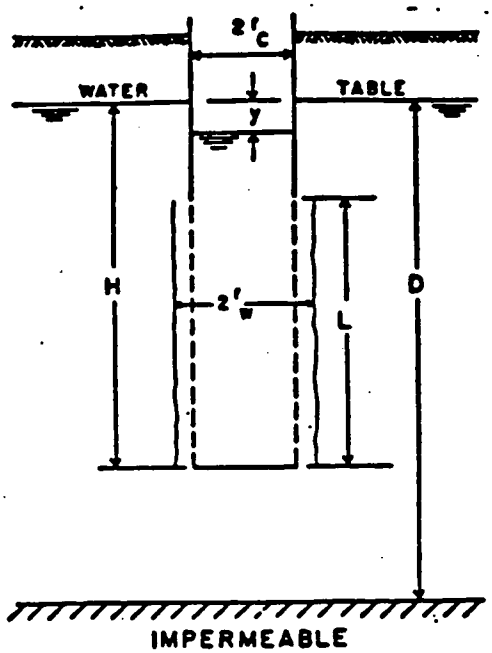


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

SLUG TEST DATA

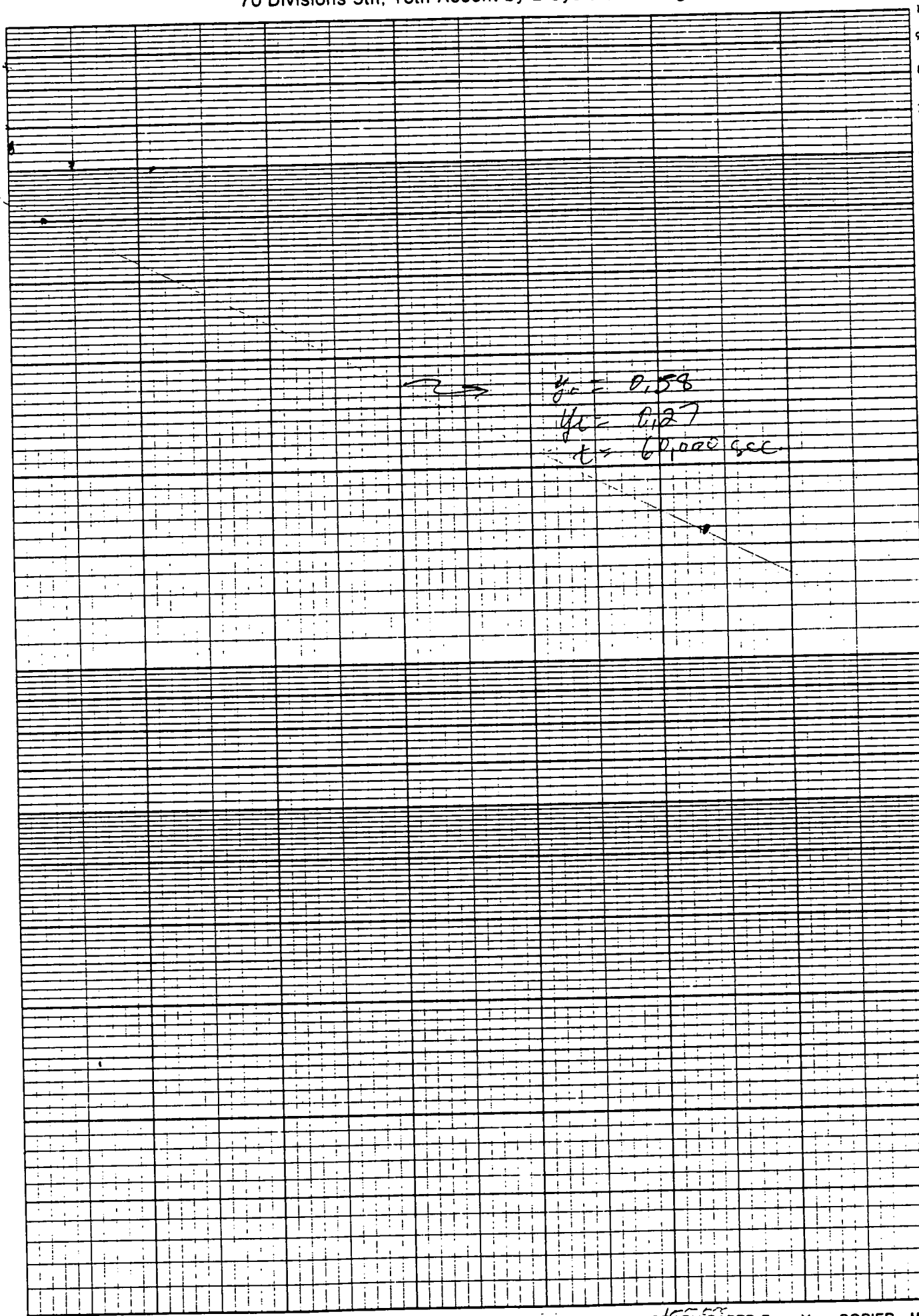
PROJECT NAME: NCR
PROJECT NO.: 2677
CLIENT:
LOCATION:

HOLE DESIGNATION: NCR-135
DATE COMPLETED: 5/22/91
DRILLING METHOD:
CRA SUPERVISOR:

FALLING			RISING		
Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
1512	STATIC 3.79' BTOC			3.63	
1512 0	3.13	0.66	1514	4.33	0.70
1618 5160	3.22	0.57	1709 10509	4.24	0.61
			1550 22560	4.23	0.60
STOP 107,340	3.63	0.16			

* MANUAL READINGS

70 Divisions 5th, 10th Accent by 2 Cycle Semi-Log



GRAPH PAPER From Your COPIER—HPBo

SLUG TEST DATA

NE-DO.

PROJECT NAME: _____ HOLE DESIGNATION: 13-5

PROJECT NO.: _____ DATE COMPLETED: _____

CLIENT: _____ DRILLING METHOD: _____

LOCATION: _____ CRA SUPERVISOR: _____

Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)	Time (sec.)	Water Level (ft.)	Static Water Table - Water Level (ft.)
	TRANSDUCER STATIC = 4.94 FT.				
15:12:12 0	5.31	.66	~~250~~ 0	5.59	
2	5.64	.70	~~2500~~ 2500	5.59	
4	5.68	.74	~~5000~~ 5000	5.59	
6	5.59	.65			
8	5.59	.65			
10	5.64	.70			
15:15:12 180	5.59	.65			
15:17:12 10,800	5.59	.65			
3:45 12780	5.54	.60			

SLUG IN - 15:12:12

NCR-135

Calculations:

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(H/r_w)} + \underbrace{A + B \ln[(D-H)/r_w]}_{=C} \right|^{-1}$$

Where: $\ln[(D-H)/r_w]$ has a maximum value of 6

$$\ln \frac{R_e}{r_w} = \left| \frac{1.1}{\ln(4.84/.333)} + \frac{1.2}{(3.0/.333)} \right|^{-1} = \left| 0.410 + 0.133 \right|^{-1} = 1.84$$

$$\frac{1}{t} \ln \frac{y_o}{y_t} = \frac{1}{60\,000} \ln \frac{0.58}{0.27} = 1.3 \times 10^{-5} \text{ sec}^{-1}$$

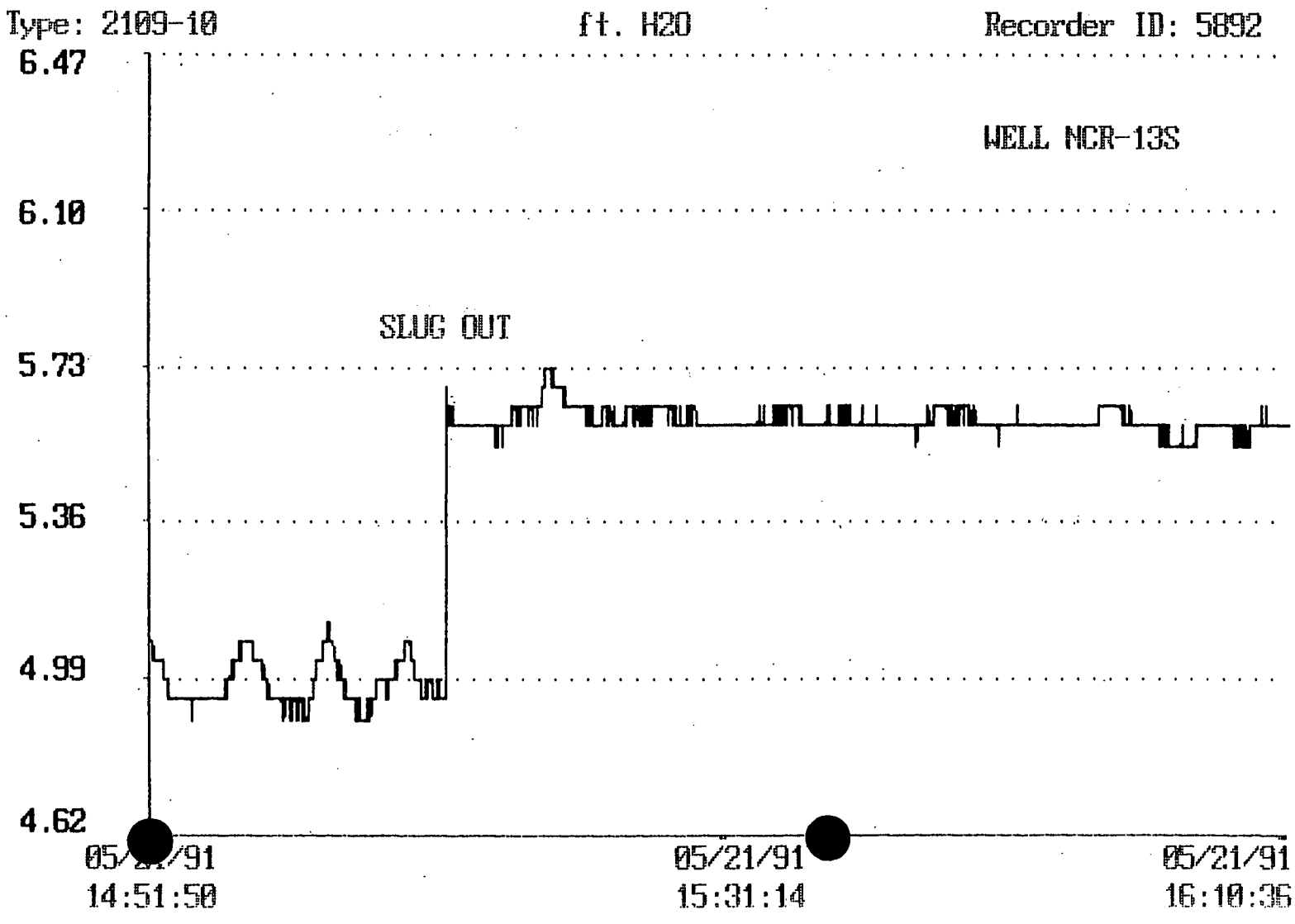
$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

Where QROC #1 has a value of $K = 3.06 \times 10^{-2}$ cm/sec.

$$K = \frac{(.54)^2 (1.84)(1.3 \times 10^{-5} \text{ sec}^{-1})}{(2(3.0)(30.48 \text{ cm/ft}))} = \frac{.0001513}{182.88} = 8.3 \times 10^{-7} \text{ cm/s}$$

Note: rough estimate of K

$$> 8.3 \times 10^{-7}$$


Type: 2109-10
ft. H2O
Recorder ID: 5892
6.47
WELL NCR-13S
6.10
SLUG OUT
5.73
5.36
4.99
4.62
05/21/91
14:51:50
05/21/91
15:31:14
05/21/91
16:10:36

Saved Recorder Status

Type: 2109-10 Range: 0.00 - 47.26 ft. H20 Recorder ID: 5892
Time at Recorder: 05/21/91 16:49:57 Last Update: 05/20/91 11:34:06
Signal process: Not Applicable
Values being saved: averages
Alarm status: Low alarm @ 0.18 is OFF Upper alarm @ 47.12 is OFF

Averaging period: 00:00:02 Amount of data recorded: 02:37:28
Storage Capacity: 6512 values records: 03:37:04
Output compressed by a factor of 2

Date	Time	Avg	
05/21/91	15:12:04	4.94	*
05/21/91	15:12:08	4.94	*
05/21/91	15:12:12	5.50	*
05/21/91	15:12:16	5.64	*
05/21/91	15:12:20	5.61	*
05/21/91	15:12:24	5.61	*
05/21/91	15:12:28	5.61	*
05/21/91	15:12:32	5.59	*
05/21/91	15:12:36	5.61	*
05/21/91	15:12:40	5.64	*
05/21/91	15:12:44	5.59	*
05/21/91	15:12:48	5.59	*
05/21/91	15:12:52	5.59	*
05/21/91	15:12:56	5.59	*
05/21/91	15:13:00	5.59	*
05/21/91	15:13:04	5.59	*
05/21/91	15:13:08	5.59	*
05/21/91	15:13:12	5.59	*
05/21/91	15:13:16	5.59	*
05/21/91	15:13:20	5.59	*
05/21/91	15:13:24	5.59	*
05/21/91	15:13:28	5.59	*
05/21/91	15:13:32	5.59	*
05/21/91	15:13:36	5.59	*
05/21/91	15:13:40	5.59	*
05/21/91	15:13:44	5.59	*
05/21/91	15:13:48	5.59	*
05/21/91	15:13:52	5.59	*
05/21/91	15:13:56	5.59	*
05/21/91	15:14:00	5.59	*
05/21/91	15:14:04	5.59	*
05/21/91	15:14:08	5.59	*
05/21/91	15:14:12	5.59	*
05/21/91	15:14:16	5.59	*
05/21/91	15:14:20	5.59	*
05/21/91	15:14:24	5.59	*
05/21/91	15:14:28	5.59	*
05/21/91	15:14:32	5.59	*
05/21/91	15:14:36	5.59	*
05/21/91	15:14:40	5.59	*
05/21/91	15:14:44	5.59	*
05/21/91	15:14:48	5.59	*
05/21/91	15:14:52	5.59	*
05/21/91	15:14:56	5.59	*
05/21/91	15:15:00	5.59	*
05/21/91	15:15:04	5.59	*
05/21/91	15:15:08	5.59	*
05/21/91	15:15:12	5.59	*
05/21/91	15:15:16	5.59	*
05/21/91	15:15:20	5.59	*

05/21/91	15:15:32	5.57	*
05/21/91	15:15:36	5.59	*
05/21/91	15:15:40	5.59	*
05/21/91	15:15:44	5.57	*
05/21/91	15:15:48	5.59	*
05/21/91	15:15:52	5.57	*
05/21/91	15:15:56	5.59	*
05/21/91	15:16:00	5.59	*
05/21/91	15:16:04	5.57	*
05/21/91	15:16:08	5.59	*
05/21/91	15:16:12	5.59	*
05/21/91	15:16:16	5.59	*
05/21/91	15:16:20	5.59	*
05/21/91	15:16:24	5.59	*
05/21/91	15:16:28	5.59	*
05/21/91	15:16:32	5.59	*
05/21/91	15:16:36	5.59	*
05/21/91	15:16:40	5.64	*
05/21/91	15:16:44	5.59	*
05/21/91	15:16:48	5.61	*
05/21/91	15:16:52	5.64	*
05/21/91	15:16:56	5.64	*
05/21/91	15:17:00	5.61	*
05/21/91	15:17:04	5.64	*
05/21/91	15:17:08	5.61	*
05/21/91	15:17:12	5.64	*
05/21/91	15:17:16	5.61	*
05/21/91	15:17:20	5.59	*
05/21/91	15:17:24	5.64	*
05/21/91	15:17:28	5.64	*
05/21/91	15:17:32	5.64	*
05/21/91	15:17:36	5.64	*
05/21/91	15:17:40	5.64	*
05/21/91	15:17:44	5.64	*
05/21/91	15:17:48	5.64	*
05/21/91	15:17:52	5.64	*
05/21/91	15:17:56	5.61	*
05/21/91	15:18:00	5.64	*
05/21/91	15:18:04	5.64	*
05/21/91	15:18:08	5.61	*
05/21/91	15:18:12	5.61	*
05/21/91	15:18:16	5.64	*
05/21/91	15:18:20	5.64	*
05/21/91	15:18:24	5.64	*
05/21/91	15:18:28	5.61	*
05/21/91	15:18:32	5.64	*
05/21/91	15:18:36	5.64	*
05/21/91	15:18:40	5.64	*
05/21/91	15:18:44	5.66	*
05/21/91	15:18:48	5.66	*
05/21/91	15:18:52	5.68	*
05/21/91	15:18:56	5.68	*
05/21/91	15:19:00	5.68	*
05/21/91	15:19:04	5.71	*
05/21/91	15:19:08	5.73	*
05/21/91	15:19:12	5.73	*
05/21/91	15:19:16	5.73	*
05/21/91	15:19:20	5.73	*
05/21/91	15:19:24	5.73	*
05/21/91	15:19:28	5.71	*
05/21/91	15:19:32	5.71	*
05/21/91	15:19:36	5.73	*
05/21/91	15:19:40	5.68	*
05/21/91	15:19:44	5.68	*

05/21/91	15:19:56	5.68	*
05/21/91	15:20:00	5.68	*
05/21/91	15:20:04	5.68	*
05/21/91	15:20:08	5.68	*
05/21/91	15:20:12	5.68	*
05/21/91	15:20:16	5.68	*
05/21/91	15:20:20	5.66	*
05/21/91	15:20:24	5.68	*
05/21/91	15:20:28	5.64	*
05/21/91	15:20:32	5.64	*
05/21/91	15:20:36	5.64	*
05/21/91	15:20:40	5.64	*
05/21/91	15:20:44	5.64	*
05/21/91	15:20:48	5.64	*
05/21/91	15:20:52	5.64	*
05/21/91	15:20:56	5.64	*
05/21/91	15:21:00	5.64	*
05/21/91	15:21:04	5.64	*
05/21/91	15:21:08	5.64	*
05/21/91	15:21:12	5.64	*
05/21/91	15:21:16	5.64	*
05/21/91	15:21:20	5.64	*
05/21/91	15:21:24	5.64	*
05/21/91	15:21:28	5.64	*
05/21/91	15:21:32	5.64	*
05/21/91	15:21:36	5.64	*
05/21/91	15:21:40	5.64	*
05/21/91	15:21:44	5.64	*
05/21/91	15:21:48	5.64	*
05/21/91	15:21:52	5.61	*
05/21/91	15:21:56	5.61	*
05/21/91	15:22:00	5.61	*
05/21/91	15:22:04	5.61	*
05/21/91	15:22:08	5.61	*
05/21/91	15:22:12	5.64	*
05/21/91	15:22:16	5.61	*
05/21/91	15:22:20	5.59	*
05/21/91	15:22:24	5.59	*
05/21/91	15:22:28	5.59	*
05/21/91	15:22:32	5.59	*
05/21/91	15:22:36	5.59	*
05/21/91	15:22:40	5.59	*
05/21/91	15:22:44	5.59	*
05/21/91	15:22:48	5.59	*
05/21/91	15:22:52	5.59	*
05/21/91	15:22:56	5.59	*
05/21/91	15:23:00	5.61	*
05/21/91	15:23:04	5.64	*
05/21/91	15:23:08	5.64	*
05/21/91	15:23:12	5.64	*
05/21/91	15:23:16	5.61	*
05/21/91	15:23:20	5.64	*
05/21/91	15:23:24	5.61	*
05/21/91	15:23:28	5.59	*
05/21/91	15:23:32	5.64	*
05/21/91	15:23:36	5.64	*
05/21/91	15:23:40	5.59	*
05/21/91	15:23:44	5.59	*
05/21/91	15:23:48	5.59	*
05/21/91	15:23:52	5.64	*
05/21/91	15:23:56	5.59	*
05/21/91	15:24:00	5.59	*
05/21/91	15:24:04	5.59	*
05/21/91	15:24:08	5.59	*

05/21/91	15:24:20	5.59	*
05/21/91	15:24:24	5.59	*
05/21/91	15:24:28	5.59	*
05/21/91	15:24:32	5.64	*
05/21/91	15:24:36	5.61	*
05/21/91	15:24:40	5.64	*
05/21/91	15:24:44	5.61	*
05/21/91	15:24:48	5.64	*
05/21/91	15:24:52	5.64	*
05/21/91	15:24:56	5.64	*
05/21/91	15:25:00	5.64	*
05/21/91	15:25:04	5.64	*
05/21/91	15:25:08	5.59	*
05/21/91	15:25:12	5.64	*
05/21/91	15:25:16	5.64	*
05/21/91	15:25:20	5.61	*
05/21/91	15:25:24	5.64	*
05/21/91	15:25:28	5.64	*
05/21/91	15:25:32	5.64	*
05/21/91	15:25:36	5.59	*
05/21/91	15:25:40	5.61	*
05/21/91	15:25:44	5.61	*
05/21/91	15:25:48	5.61	*
05/21/91	15:25:52	5.64	*
05/21/91	15:25:56	5.61	*
05/21/91	15:26:00	5.61	*
05/21/91	15:26:04	5.61	*
05/21/91	15:26:08	5.59	*
05/21/91	15:26:12	5.59	*
05/21/91	15:26:16	5.61	*
05/21/91	15:26:20	5.59	*
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05/21/91	15:26:28	5.64	*
05/21/91	15:26:32	5.64	*
05/21/91	15:26:36	5.64	*
05/21/91	15:26:40	5.64	*
05/21/91	15:26:44	5.64	*
05/21/91	15:26:48	5.64	*
05/21/91	15:26:52	5.64	*
05/21/91	15:26:56	5.64	*
05/21/91	15:27:00	5.64	*
05/21/91	15:27:04	5.64	*
05/21/91	15:27:08	5.64	*
05/21/91	15:27:12	5.64	*
05/21/91	15:27:16	5.64	*
05/21/91	15:27:20	5.64	*
05/21/91	15:27:24	5.64	*
05/21/91	15:27:28	5.64	*
05/21/91	15:27:32	5.61	*
05/21/91	15:27:36	5.64	*
05/21/91	15:27:40	5.64	*
05/21/91	15:27:44	5.61	*
05/21/91	15:27:48	5.61	*
05/21/91	15:27:52	5.64	*
05/21/91	15:27:56	5.61	*
05/21/91	15:28:00	5.61	*
05/21/91	15:28:04	5.61	*
05/21/91	15:28:08	5.59	*
05/21/91	15:28:12	5.59	*
05/21/91	15:28:16	5.59	*
05/21/91	15:28:20	5.61	*
05/21/91	15:28:24	5.59	*
05/21/91	15:28:28	5.59	*
05/21/91	15:28:32	5.59	*

05/21/91	15:28:44	5.59	*
05/21/91	15:28:48	5.61	*
05/21/91	15:28:52	5.59	*
05/21/91	15:28:56	5.61	*
05/21/91	15:29:00	5.59	*
05/[redacted]/91	15:29:04	5.59	*
05/[redacted]/91	15:29:08	5.61	*
05/21/91	15:29:12	5.61	*
05/21/91	15:29:16	5.61	*
05/21/91	15:29:20	5.64	*
05/21/91	15:29:24	5.64	*
05/21/91	15:29:28	5.59	*
05/21/91	15:29:32	5.59	*
05/21/91	15:29:36	5.59	*
05/21/91	15:29:40	5.59	*
05/21/91	15:29:44	5.59	*
05/21/91	15:29:48	5.59	*
05/21/91	15:29:52	5.59	*
05/21/91	15:29:56	5.59	*
05/21/91	15:30:00	5.59	*
05/21/91	15:30:04	5.59	*
05/21/91	15:30:08	5.59	*
05/21/91	15:30:12	5.59	*
05/21/91	15:30:16	5.59	*
05/21/91	15:30:20	5.59	*
05/21/91	15:30:24	5.59	*
05/21/91	15:30:28	5.59	*
05/21/91	15:30:32	5.59	*
05/21/91	15:30:36	5.59	*
05/21/91	15:30:40	5.59	*
05/21/91	15:30:44	5.59	*
05/[redacted]/91	15:30:48	5.59	*
05/21/91	15:30:52	5.59	*
05/21/91	15:30:56	5.59	*
05/21/91	15:31:00	5.59	*
05/21/91	15:31:04	5.59	*
05/21/91	15:31:08	5.59	*
05/21/91	15:31:12	5.59	*
05/21/91	15:31:16	5.59	*
05/21/91	15:31:20	5.59	*
05/21/91	15:31:24	5.59	*
05/21/91	15:31:28	5.59	*
05/21/91	15:31:32	5.59	*
05/21/91	15:31:36	5.59	*
05/21/91	15:31:40	5.59	*
05/21/91	15:31:44	5.59	*
05/21/91	15:31:48	5.59	*
05/21/91	15:31:52	5.59	*
05/21/91	15:31:56	5.59	*
05/21/91	15:32:00	5.59	*
05/21/91	15:32:04	5.59	*
05/21/91	15:32:08	5.59	*
05/21/91	15:32:12	5.59	*
05/21/91	15:32:16	5.59	*
05/21/91	15:32:20	5.59	*
05/21/91	15:32:24	5.59	*
05/[redacted]/91	15:32:28	5.59	*
05/[redacted]/91	15:32:32	5.59	*
05/21/91	15:32:36	5.59	*
05/21/91	15:32:40	5.59	*
05/21/91	15:32:44	5.59	*
05/21/91	15:32:48	5.59	*
05/21/91	15:32:52	5.59	*
05/21/91	15:32:56	5.59	*

05/21/91	15:33:08	5.59	*
05/21/91	15:33:12	5.59	*
05/21/91	15:33:16	5.59	*
05/21/91	15:33:20	5.59	*
05/21/91	15:33:24	5.59	*
05/21/91	15:33:28	5.59	*
05/21/91	15:33:32	5.59	*
05/21/91	15:33:36	5.59	*
05/21/91	15:33:40	5.59	*
05/21/91	15:33:44	5.59	*
05/21/91	15:33:48	5.61	*
05/21/91	15:33:52	5.59	*
05/21/91	15:33:56	5.59	*
05/21/91	15:34:00	5.59	*
05/21/91	15:34:04	5.59	*
05/21/91	15:34:08	5.61	*
05/21/91	15:34:12	5.59	*
05/21/91	15:34:16	5.59	*
05/21/91	15:34:20	5.59	*
05/21/91	15:34:24	5.59	*
05/21/91	15:34:28	5.59	*
05/21/91	15:34:32	5.59	*
05/21/91	15:34:36	5.59	*
05/21/91	15:34:40	5.59	*
05/21/91	15:34:44	5.59	*
05/21/91	15:34:48	5.59	*
05/21/91	15:34:52	5.61	*
05/21/91	15:34:56	5.61	*
05/21/91	15:35:00	5.64	*
05/21/91	15:35:04	5.61	*
05/21/91	15:35:08	5.61	*
05/21/91	15:35:12	5.61	*
05/21/91	15:35:16	5.61	*
05/21/91	15:35:20	5.61	*
05/21/91	15:35:24	5.61	*
05/21/91	15:35:28	5.64	*
05/21/91	15:35:32	5.61	*
05/21/91	15:35:36	5.59	*
05/21/91	15:35:40	5.64	*
05/21/91	15:35:44	5.59	*
05/21/91	15:35:48	5.64	*
05/21/91	15:35:52	5.64	*
05/21/91	15:35:56	5.64	*
05/21/91	15:36:00	5.64	*
05/21/91	15:36:04	5.61	*
05/21/91	15:36:08	5.64	*
05/21/91	15:36:12	5.64	*
05/21/91	15:36:16	5.64	*
05/21/91	15:36:20	5.64	*
05/21/91	15:36:24	5.64	*
05/21/91	15:36:28	5.64	*
05/21/91	15:36:32	5.64	*
05/21/91	15:36:36	5.61	*
05/21/91	15:36:40	5.61	*
05/21/91	15:36:44	5.59	*
05/21/91	15:36:48	5.59	*
05/21/91	15:36:52	5.59	*
05/21/91	15:36:56	5.59	*
05/21/91	15:37:00	5.59	*
05/21/91	15:37:04	5.59	*
05/21/91	15:37:08	5.59	*
05/21/91	15:37:12	5.59	*
05/21/91	15:37:16	5.59	*
05/21/91	15:37:20	5.59	*

05/21/91	15:37:32	5.59	*
05/21/91	15:37:36	5.59	*
05/21/91	15:37:40	5.59	*
05/21/91	15:37:44	5.59	*
05/21/91	15:37:48	5.59	*
05/[redacted]/91	15:37:52	5.59	*
05/[redacted]/91	15:37:56	5.59	*
05/21/91	15:38:00	5.59	*
05/21/91	15:38:04	5.59	*
05/21/91	15:38:08	5.59	*
05/21/91	15:38:12	5.59	*
05/21/91	15:38:16	5.59	*
05/21/91	15:38:20	5.59	*
05/21/91	15:38:24	5.59	*
05/21/91	15:38:28	5.61	*
05/21/91	15:38:32	5.61	*
05/21/91	15:38:36	5.61	*
05/21/91	15:38:40	5.59	*
05/21/91	15:38:44	5.61	*
05/21/91	15:38:48	5.59	*
05/21/91	15:38:52	5.59	*
05/21/91	15:38:56	5.59	*
05/21/91	15:39:00	5.59	*
05/21/91	15:39:04	5.59	*
05/21/91	15:39:08	5.59	*
05/21/91	15:39:12	5.59	*
05/21/91	15:39:16	5.59	*
05/21/91	15:39:20	5.59	*
05/21/91	15:39:24	5.61	*
05/21/91	15:39:28	5.61	*
05/21/91	15:39:32	5.61	*
05/[redacted]/91	15:39:36	5.59	*
05/21/91	15:39:40	5.59	*
05/21/91	15:39:44	5.61	*
05/21/91	15:39:48	5.61	*
05/21/91	15:39:52	5.61	*
05/21/91	15:39:56	5.61	*
05/21/91	15:40:00	5.59	*
05/21/91	15:40:04	5.61	*
05/21/91	15:40:08	5.59	*
05/21/91	15:40:12	5.59	*
05/21/91	15:40:16	5.59	*
05/21/91	15:40:20	5.59	*
05/21/91	15:40:24	5.59	*
05/21/91	15:40:28	5.59	*
05/21/91	15:40:32	5.59	*
05/21/91	15:40:36	5.59	*
05/21/91	15:40:40	5.59	*
05/21/91	15:40:44	5.59	*
05/21/91	15:40:48	5.59	*
05/21/91	15:40:52	5.61	*
05/21/91	15:40:56	5.59	*
05/21/91	15:41:00	5.59	*
05/21/91	15:41:04	5.59	*
05/21/91	15:41:08	5.59	*
05/21/91	15:41:12	5.59	*
05/[redacted]/91	15:41:16	5.59	*
05/[redacted]/91	15:41:20	5.59	*
05/21/91	15:41:24	5.59	*
05/21/91	15:41:28	5.59	*
05/21/91	15:41:32	5.59	*
05/21/91	15:41:36	5.59	*
05/21/91	15:41:40	5.59	*
05/21/91	15:41:44	5.59	*

APPENDIX J

PACKER INJECTION TEST DATA AND HYDRAULIC CONDUCTIVITY CALCULATIONS

WELL NCR-2D
TEST DATE 6/4/91

PROJECT NAME NCR RI/FS
PROJECT NUMBER 2677

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH T. STATIC H. (ft. BG
52.1 - 68.6'	2.3 - 18.8'	$4.23 \times 10^{-4} - 1.40 \times 10^{-3}$	Y	11.61'

Ref # 2677

WELL NCR-2D

$$K = \frac{Q \ln 10}{2\pi} \cdot \frac{1}{\Delta H L} = \text{ft/sec} \times 30.48\ \text{cm/ft} = \text{cm/sec}$$

$\left(\frac{2.303}{6.283}\right)$

P1 $K = \frac{1.27 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{20.31 \cdot 16.5} = 4.655 \times 10^{-3} \cdot 2.98 \times 10^{-3} =$

1.39×10^{-5} ft/sec $\times$ 30.48 cm/ft = $\boxed{4.23 \times 10^{-4}\ \text{cm/sec}}$

P2 $K = \frac{3.23 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{20.31 \cdot 16.5} = 1.184 \times 10^{-2} \cdot 2.98 \times 10^{-3} =$

3.53×10^{-5} ft/sec $\times$ 30.48 cm/ft. = $\boxed{1.09 \times 10^{-3}\ \text{cm/sec}}$

P3 $K = \frac{3.77 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{20.31 \cdot 16.5} = 1.382 \times 10^{-2} \cdot 2.98 \times 10^{-3} =$

4.12×10^{-5} ft/sec $\times$ 30.48 cm/ft = $\boxed{1.26 \times 10^{-3}\ \text{cm/sec}}$

P4 $K = \frac{4.21 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{20.31 \cdot 16.5} = 1.543 \times 10^{-2} \cdot 2.98 \times 10^{-3} =$

4.60×10^{-5} ft/sec $\times$ 30.48 cm/ft = $\boxed{1.40 \times 10^{-3}\ \text{cm sec}}$

INJECTION TEST CALCULATIONS

BY KPL

DATE 6/6/91

WELL NUMBER NCR-2D

INTERVAL TESTED 53.1' to 69.6' BTOC

H_o = 28.60 / = 28.60 PSI

P_1

USING DATA FROM 5 TO 10 MINUTES

ΔH = ____ − ____ = [redacted] PSI ÷ .433 = 20.31 FT. *

$Q = \frac{441.9 - 383.5}{5} = 5.68$ gpm ÷ 7.48 ÷ 60 = 1.27×10^{-2} FT^3/sec

P_2

USING DATA FROM 5 TO 10 MINUTES

ΔH = ____ − ____ = PSI ÷ .433 = 20.31 FT. *

$Q = \frac{600.6 - 528.2}{5} = 14.48$ gpm ÷ 7.48 ÷ 60 = 3.23×10^{-2} FT^3/sec

P_3

USING DATA FROM 5 TO 10 MINUTES

ΔH = ____ − ____ = PSI ÷ .433 = 20.31 FT. *

$Q = \frac{785.5 - 701.0}{5} = 16.90$ gpm ÷ 7.48 ÷ 60 = 3.77×10^{-2} FT^3/sec

P_4

USING DATA FROM 5 TO 10 MINUTES

ΔH = ____ − ____ = PSI ÷ .433 = 20.31 FT. *

$Q = \frac{991.0 - 896.5}{5} = 18.9$ gpm ÷ 7.48 ÷ 60 = 4.21×10^{-2} FT^3/sec

* ΔH derived as distance from Static water to pressure guage

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR 2D	LOCATION		SHEET No. 3 OF
DATE STARTED 6/4/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

Stable = 20.46 Before & After Packer inflation = Telog Max PSI

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	TIME	PERME-ABILITY
T. P.		53.1	69.6	16.5	327.4			0			5	20.46		15:45:00	
					338.0			1				11			
					348.6			2				11			
					360.0			3				11			
					373.0			4			5	11			
					383.5			5				11			
					395.0			6				11			
					406.8			7				11			
					418.5			8				11			
					431.8	+15 cu		9				11			
					441.9			10				11			

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION		SHEET No.
2677	NCR 2D			2 OF
DATE STARTED	**DATE COMPLETED**	**SURFACE ELEVATION**	**DEPTH TO ROCK**	**DEPTH TO GROUNDWATER**
6/4/91				
LOGGED BY	**CLIENT**			
KPL				

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
T_1P_2					455.6			0			10	20.46		15:57:00	
					470.4			1				11			
					484.5			2				11			
					499.3			3			10	11			
					[redacted]	513.7 AVG		4				11			
					528.2			5				11			
					543.0			6			10	11			
					557.4			7				11			
					571.6			8				11			
					586.7			9				11			
					600.6			10			10	11			

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION	SHEET No.
2677	NCR 2D		3 OF

DATE STARTED	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
6/4/91				

LOGGED BY	CLIENT
KPL	

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
T1 P3		53.1	71.6	16.5	616.6			0			15	20.46	(Max)	160800	
					637.3	+10 sec		1				"			
					650.6			2				"			
					670.5	+10 Sec		3				"			
					684.8			4				"			
					701.0			5				"			
					718.0			6				"			
					735.0			7			15	"			
					751.7			8				"			
					768.5			9				"			
					785.5			10			15	"			

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-2D	LOCATION		SHEET No. OF
DATE STARTED 6/4/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE	PERME-ABILITY
T1P4	140#	53.1	69.6'	16.5'	804.2			0			20	20.46	(MAX)	161900	
					822.7			1							
					841.0			2							
					859.4			3							
					877.8			4			20				
					896.5			5							
					914.8			6							
					933.1			7							
					951.3			8			20				
					970.0			9							
					991.0			10			20				

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

WELL NCR-6D

TEST DATE 6/5/91

PROJECT NAME NCR RI/FS

PROJECT NUMBER 2677

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH TO STATIC WA (ft. BGS
58.6 - 75.7'	1.9 - 19.0'	2.66×10^{-4} - 6.84×10^{-4}	Y	8.54'

Ref # 2677

WELL NCR-6D

$$K = \frac{Q}{2\pi} \cdot \frac{\ln 10}{(6.283)} \cdot \frac{(2.303)}{\Delta H L} = \quad ft/sec \times 30.48\ cm/ft = \quad cm/s$$

P1 $K = \frac{5.61 \times 10^{-3} \times 2.303}{6.283} \cdot \frac{1}{13.76 \cdot 17.1} = 2.056 \times 10^{-3} \cdot 4.25 \times 10^{-3} =$

8.74×10^{-6} ft/sec x 30.48 cm/ft = $\boxed{2.66 \times 10^{-4}\ cm/sec}$

P2 $K = \frac{9.14 \times 10^{-3} \times 2.303}{6.283} \cdot \frac{1}{13.76 \cdot 17.1} = 3.350 \times 10^{-3} \cdot 4.25 \times 10^{-3} =$

1.42×10^{-5} ft/sec x 30.48 cm/ft. = $\boxed{4.34 \times 10^{-4}\ cm/sec}$

P3 $K = \frac{1.18 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{13.76 \cdot 17.1} = 4.325 \times 10^{-3} \cdot 4.25 \times 10^{-3} =$

1.84×10^{-5} ft/sec x 30.48 cm/ft = $\boxed{5.60 \times 10^{-4}\ cm/sec}$

P4 $K = \frac{1.44 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{13.76 \cdot 17.1} = 5.28 \times 10^{-3} \cdot 4.25 \times 10^{-3} =$

2.24×10^{-5} ft/sec x 30.48 cm/ft = $\boxed{6.84 \times 10^{-4}\ cm\ sec}$

INJECTION TEST CALCULATIONS

BY KPC

DATE 6/6/91

WELL NUMBER NCR-6D

PAGE 1

INTERVAL TESTED 60.0' to 77.1' BTOC

H_o = 20.46 = 20.46 PSI

P_1

USING DATA FROM 7 TO 12 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 13.76 FT.

$Q = \frac{50.1 - 37.5}{5} = 2.52$ gpm ÷ 7.48 ÷ 60 = 5.61×10^{-3} FT^3/sec

P_2

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 13.76 FT.

$Q = \frac{91.3 - 70.8}{5} = 4.1$ gpm ÷ 7.48 ÷ 60 = 9.14×10^{-3} FT^3/sec

P_3

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 13.76 FT.

$Q = \frac{154.2 - 127.8}{5} = 5.28$ gpm ÷ 7.48 ÷ 60 = 1.18×10^{-2} FT^3/sec

P_4

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 13.76 FT.

$Q = \frac{232.1 - 199.7}{5} = 6.48$ gpm ÷ 7.48 ÷ 60 = 1.44×10^{-2} FT^3/sec

* ΔH derived as distance from Static water level to pressure guage.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION		SHEET No.
2677	NCR-6D			1 OF
DATE STARTED	**DATE COMPLETED**	**SURFACE ELEVATION**	**DEPTH TO ROCK**	**DEPTH TO GROUNDWATER**
6/5/91				10.96'
LOGGED BY	**CLIENT**			
KPL				

Recorder Pressure is maxed at 20.46 psi

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐ CU. FT.) (☐ GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERME-ABILITY
F1P1	140#	60.0	77.1'	17.1	022.5			0			10	MAXED		101700	
					024.5			1				AT			
					026.5			2				20.46			
					028.5			3				↑			
					030.6			4			8	↓			
					032.7			5			10				
					035.0			6							
					037.5			7							
					040.0			8							
					042.3			9			10				
					045.0			10							
					047.5			11							
					050.1			12			10				

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION	SHEET No.
2677	NCR-6D		2 OF

DATE STARTED	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
6/5/91				11.96'

LOGGED BY	CLIENT
KPL	

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERME-ABILITY
T1P2		60.0	77.1	17.1	053.6			0			15	Max at		103000	
					057.5			1				20.46	PSI		
					060.6			2							
					064.0			3							
					067.4			4							
					070.8			5			15				
					074.5			6							
					078.8			7							
					083.0			8							
					087.2			9							
					091.3			10							

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR [illegible]H TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR 6D	LOCATION		SHEET No. 3 OF
DATE STARTED 4/6/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERME-ABILITY
T_1P_3		60.0	77.0'	17.1'	101.5			0			20	Max at		104200	
					106.8			1				20.46 PSI			
					112.1			2							
					117.4			3							
					122.5			4			20				
					127.8			5							
					133.0			6							
					138.3			7							
					143.6			8							
					149.0			9							
					154.2			10			20				

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION		SHEET No.
2677	NCR-6D			4 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	TIME	PERME-ABILITY
T1P4		60.0	77.1	17.1	167.0			0			25	Max at		105400	
					173.5			1				20.46			
					180.0			2				PSI			
					186.7			3							
					193.2			4			25				
					199.7			5							
					206.2			6							
					.	212.7 AVG		7							
					219.1			8							
					225.8			9							
					232.1			10			25			110400	

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR [illegible]H TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

WELL NCR-5D

TEST DATE 6/4/91

PROJECT NAME NCR RI/FS

PROJECT NUMBER 2677

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH TO STATIC H2O (ft. BGS
52.9 - 70.1'	6.0 - 18.2	$4.72 \times 10^{-4} - 1.82 \times 10^{-3}$	Y	9.93'

Ref # 2677

WELL NCR-5D

$$K = \frac{Q \ln 10}{2\pi} \cdot \frac{1}{\Delta H L} = \text{ft/sec} \times 30.48\ \text{cm/ft} = \text{cm/s}$$

(2.303) (6.283)

P1 $K = \frac{2.87 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{16.8 \cdot 17.2} = 1.052 \times 10^{-2} \cdot 3.46 \times 10^{-3} =$

3.63×10^{-5} ft/sec $\times$ 30.48 cm/ft = 4.72×10^{-4} cm/sec

P2 $K = \frac{3.64 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{16.8 \cdot 17.2} = 1.334 \times 10^{-2} \cdot 3.46 \times 10^{-3} =$

4.62×10^{-5} ft/sec $\times$ 30.48 cm/ft. = 1.41×10^{-3} cm/sec

P3 $K = \frac{4.23 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{16.8 \cdot 17.2} = 1.550 \times 10^{-2} \cdot 3.46 \times 10^{-3} =$

5.363×10^{-5} ft/sec $\times$ 30.48 cm/ft = 1.63×10^{-3} cm/sec

P4 $K = \frac{4.71 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{16.8 \cdot 17.2} = 1.726 \times 10^{-2} \cdot 3.46 \times 10^{-3} =$

5.97×10^{-5} ft/sec $\times$ 30.48 cm/ft = 1.82×10^{-3} cm sec

INJECTION TEST CALCULATIONS

BY KPL
DATE 6/6/91

WELL NUMBER NCR-5D

INTERVAL TESTED 54.0 TO 71.2' BTOC

H_o = _____ = 18.24' PSI
ΔH = 16.8' *

P_1

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 16.8 FT.

$Q = \frac{594.6 - 530.3}{5}$ = 12.86 gpm ÷ 7.48 ÷ 60 = 2.87×10^{-2} FT³/SEC

P_2

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 16.8 FT.

$Q = \frac{777.0 - 695.3}{5}$ = 16.34 gpm ÷ 7.48 ÷ 60 = 3.64×10^{-2} FT³/SEC

P_3

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 16.8 FT.

$Q = \frac{999.9 - 905.0}{5}$ = 18.98 gpm ÷ 7.48 ÷ 60 = 4.23×10^{-2} FT³/SEC

P_4

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 16.8 FT.

$Q = \frac{1236.6 - 1131.0}{5}$ = 21.12 gpm ÷ 7.48 ÷ 60 = 4.71×10^{-2} FT³/SEC

* Derived from distance from Static Water level to pressure gage.

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR 5D	LOCATION		SHEET No. 1 OF
DATE STARTED 6/4/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

18.24 STABLE – no packers up

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	RECORDER SENSITIVITY (%)	TIME	PERME-ABILITY
1. P.	140psi	54.0'	71.2'		5466.9			0			5	20.46		1138:00	
					5479.0			1				19.84		.39	
					5491.9			2				20.40		.40	
					508.0			3				20.16	+15	41	
					521.5			4			5	19.20	+15	.42	
					530.3			5				19.20		.43	
					540.2			6			5	18.88		44	
					557.3			7				18.72		45	
					568.7			8				18.56		46	
					581.8			9				18.56		47	
					594.6			10				18.56		48	

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION	SHEET No.
2677	NCR-5D		2 OF

DATE STARTED	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
6/4/91			53.0' +/-	13.0'

LOGGED BY	CLIENT
KPL	

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START (GAL)	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
T_1P_2		54.0'	71.2'	17.2'	613.7			0			10	18.88		114900	
					630.3			1				18.88		50	
					646.4			2				18.56		51	
					663.0			3			10	18.56		52	
					679.5			4				18.72		53	
					695.3			5				Computer down		115400	18.72
					712.0			6			10	19.20		55	
					728.2	16.3		7				18.24		56	
					744.4			8				19.20	19.01	57	
					761.0			9				19.20		58	
					777.0			10				19.20		59	

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-5D	LOCATION		SHEET No. 3 OF
DATE STARTED 6/4/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
TIP$_3$		54.0'	71.2'		809.0			0		USE	TELOG	DATA 20.46	RECORDER	120100	
					830.5			1			DATA	20.46			
					847.4			2				20.46			
					866.8			3				20.46			
					885.9			4			15	20.46			
					905.0			5				20.46			
					923.9			6				20.46			
					942.8			7			15				
					962.5			8							
					980.2			9							
					999.9			10			15				

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-5D	LOCATION		SHEET No. 4 OF
DATE STARTED 6/4/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)	PRESSURE: TIME	PERME-ABILITY
					1024.3			0			20	TELOG	20.46	12:12:00	
					1048.0			1				DATA			
					1067.4			2							
					1088.4			3							
					1109.8			4							
					1131.0			5			20				
					1152.5			6							
					1173.2			7							
					1194.3			8							
					1215.5			9							
					1236.6			10			20			12:22:10	

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

WELL NCR-8D

TEST DATE 6/4/91

PROJECT NAME NCR RI/FS

PROJECT NUMBER 26[redacted]

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH T STATIC HE (ft. BG
55.0 – 70.6'	6.5 – 22.1'	$9.35 \times 10^{-4} - 1.52 \times 10^{-3}$	Y	14.9'

Ref # 2677

WELL NCR-8D

$$K = \frac{Q \ln 10}{2\pi} \cdot \frac{1}{\Delta H L} \quad \left(\frac{2.303}{6.283}\right) = \quad \text{ft/sec} \times 30.48\ \text{cm/ft} = \quad \text{cm/s}$$

P1 $K = \frac{3.00 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{230 \cdot 15.6} = 1.10 \times 10^{-2} \cdot 2.79 \times 10^{-3} =$

3.07×10^{-5} ft/sec $\times$ 30.48 cm/ft = $\boxed{9.35 \times 10^{-4}\ \text{cm/sec}}$

P2 $K = \frac{4.46 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{23.0 \cdot 15.6} = 1.63 \times 10^{-2} \cdot 2.79 \times 10^{-3} =$

4.55×10^{-5} ft/sec $\times$ 30.48 cm/ft. = $\boxed{1.39 \times 10^{-3}\ \text{cm/sec}}$

P3 $K = \frac{4.88 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{23.0 \cdot 15.6} = 1.79 \times 10^{-2} \cdot 2.79 \times 10^{-3} =$

4.99×10^{-5} ft/sec $\times$ 30.48 cm/ft = $\boxed{1.52 \times 10^{-3}\ \text{cm/sec}}$

P4 ~~$K = \frac{\times 10^{-} \times 2.303}{6.283} \cdot \frac{1}{} = \times 10^{-} \cdot \times 10^{-} =$~~

~~$\times 10^{-}$ ft/sec $\times$ 30.48 cm/ft = $\times 10^{-}$ cm sec~~

INJECTION TEST CALCULATIONS

BY KPL

DATE 6/6/91

WELL NUMBER NCR-8D

INTERVAL TESTED 57.0 - 72.6'

H_o = _____ = 17.30 PSI

ΔH = 23.0' *

P_1

USING DATA FROM 5 TO 10 MINUTES

ΔH = _____ − _____ = _____ PSI ÷ .433 = 23.0 FT.

$Q = \frac{4872.2 - 4804.8}{5} = 13.48$ gpm ÷ 7.48 ÷ 60 = 3.00×10^{-2} FT³/SEC

P_2

USING DATA FROM 5 TO 10 MINUTES

ΔH = _____ − _____ = _____ PSI ÷ .433 = 23.0 FT.

$Q = \frac{5089.0 - 4989.0}{5} = 20.0$ gpm ÷ 7.48 ÷ 60 = 4.46×10^{-2} FT³/SEC

P_3

USING DATA FROM 3 TO 8 MINUTES

ΔH = _____ − _____ = _____ PSI ÷ .433 = 23.0 FT.

$Q = \frac{5281.0 - 5171.4}{5} = 21.92$ gpm ÷ 7.48 ÷ 60 = 4.88×10^{-2} FT³/SEC

~~USING DATA FROM _____ TO _____ MINUTES~~

~~ΔH = _____ − _____ = _____ PSI ÷ .433 = _____ FT.~~

~~Q = _____ = _____ gpm ÷ 7.48 ÷ 60 = _____ FT³/SEC~~

* ΔH derived as distance from static water level to pressure guage.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION	SHEET No.
2677	NCR-8D	E. SIDE OF LANDFILL	1 OF 4
DATE STARTED	**DATE COMPLETED**	**SURFACE ELEVATION**	**DEPTH TO ROCK**	**DEPTH TO GROUNDWATER**
6/3/91				17.2' BTOC
LOGGED BY	**CLIENT**			
KPL	NCR PRP GROUP			

USING Pressure Transducer (Telog)

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	TIME	PERME-ABILITY
T1P1	140#	57.0	72.6	15.6'	741.0			0			5	17.42		8:30:00	
					753.5			1				17.42			
					766.2			2				17.44			
					779.3			3				17.44			
					791.5			4				17.46			
					804.8			5			5	17.46			
					818.6			6				17.44			
					831.5			7				17.46			
					845.0			8			5	17.46			
					857.6			9				17.48			
					872.2			10			5	17.46			
								11							
								12							
								13							
								14							
								15							

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No. NCR BD	LOCATION		SHEET No. 2 OF 4
DATE STARTED 6/7/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	RECORDER SENSITIVITY (%)		PERMEABILITY
T_1P_2		57.0	73.6	15.6	4907.5			0			15	17.46		8:42:00	
					4922.6			1				17.46			
					4940.5			2				17.46			
					4958.0			3				17.48			
					4976.4			4				17.48			
					4998.2			5			15	17.48	+15		
					5002.4			6				17.46			
					5034.5			7				17.48			
					5053.3			8				17.48			
					5071.0			9				17.48			
					5089.0			10			15	17.48			

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No. ICR 8D	LOCATION	SHEET No. 3 OF
DATE STARTED 6/7/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK / DEPTH TO GROUNDWATER
LOGGED BY	CLIENT		

3 steps 3 days

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)		PERME-ABILITY
T1P3		57.0	73.6	15.6	5103.5			0			25	17.48		8:53:00	
					5126.6			1				17.46			
					5147.8			2				17.42			
					5171.4			3				17.46			
					5192.5			4				17.48			
					5215.0			5				17.50			
					5236.9			6				17.48			
					5260.3			7				17.46			
					5281.0			8				17.50			
					5302.0			9				17.44			
					5324.2			10			25	17.44		9:03:00	

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

WELL NCR - 11D

TEST DATE 6/5/91

PROJECT NAME NCR RI/FS

PROJECT NUMBER 2677

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH T STATIC WA (ft. BGS
44.9 - 60.7'	2.9 - 18.7'	$1.33 \times 10^{-3} - 1.91 \times 10^{-3}$	Y	7.0'

Ref # 2677

WELL NCR-11D

$$K = \frac{Q}{2\pi} \ln 10 \cdot \frac{1}{\Delta H L} = \text{ft/sec} \times 30.48\ \text{cm/ft} = \text{cm/sec}$$

(2.303) (6.283)

P1 $K = \frac{3.00 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{15.97 \cdot 15.8} = 1.10 \times 10^{-2} \cdot 3.96 \times 10^{-3} =$

4.36×10^{-5} ft/sec $\times$ 30.48 cm/ft = 1.33×10^{-3} cm/sec

P2 $K = \frac{3.69 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{15.97 \cdot 15.8} = 1.35 \times 10^{-2} \cdot 3.96 \times 10^{-3} =$

5.35×10^{-5} ft/sec $\times$ 30.48 cm/ft. = 1.63×10^{-3} cm/sec

P3 $K = \frac{4.32 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{15.97 \cdot 15.8} = 1.58 \times 10^{-2} \cdot 3.96 \times 10^{-3} =$

6.26×10^{-5} ft/sec $\times$ 30.48 cm/ft = 1.91×10^{-3} cm/sec

P4 $K = \frac{\times 10^{-} \times 2.303}{6.283} \cdot \frac{1}{\quad} = \times 10^{-} \cdot \times 10^{-} =$

$\times 10^{-}$ ft/sec $\times$ 30.48 cm/ft = $\times 10^{-}$ cm/sec

INJECTION TEST CALCULATIONS

BY KPL
DATE 6/6/91

WELL NUMBER NCR-11D

PAGE 1

INTERVAL TESTED ~~NCR-11D~~ 46.9-62.7' BTOC

H_o = _____ = 13.42 PSI *

ΔH = 15.97' *

P_1

USING DATA FROM 6 TO 11 MINUTES *

ΔH = _____ − _____ = PSI ÷ .433 = 15.97 FT.

$Q = \frac{420.3 - 353.0}{5}$ = 13.46 gpm ÷ 7.48 ÷ 60 = 3.00×10^{-2} FT^3/sec

P_2

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = PSI ÷ .433 = 15.97 FT.

$Q = \frac{624.1 - 541.4}{5}$ = 16.54 gpm ÷ 7.48 ÷ 60 = 3.69×10^{-2} FT^3/sec

P_3

USING DATA FROM 7 TO 12 MINUTES *

ΔH = _____ − _____ = PSI ÷ .433 = 15.97 FT.

$Q = \frac{904.0 - 807.0}{5}$ = 19.4 gpm ÷ 7.48 ÷ 60 = 4.32×10^{-2} FT^3/sec

~~USING DATA FROM _____ TO _____ MINUTES~~

~~ΔH = _____ − _____ = PSI ÷ .433 = FT.~~

~~Q = _____ = gpm ÷ 7.48 ÷ 60 = FT^3/sec~~

* ΔH derived as distance from static water level to pressure gauge

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR 11D	LOCATION		SHEET No. 1 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT	Stable before infl 13.42 after 13.90		

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERMEABILITY
T1 P1		46.9	62.7	15.8'	~~[illegible]~~	?		0			5	15.34		1410 30	+/-
					285.2			1				15.02			
					299.1			2				15.02			
					312.5			3				15.10			
					325.8			4			5	15.02			
					339.5			5				14.70			
					353.0			6				14.86			
					366.2			7				15.02			
					380.0			8				15.34			
					393.0			9				14.70			
					406.5			10				15.18			
					420.3			~~11~~			5	15.02			
								~~12~~							

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR 11D	LOCATION		SHEET No. 2 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERMEABILITY
T1P2	160#	46.9	62.7	15.8	458.0			0			10	15.18		1425	
					474.8			1				15.34			
					491.9	+/-		2				15.18			
					507.8			3				15.34			
					524.6			4				15.26			
					541.4			5			10	15.18			
					557.7			6				15.18			
					574.3			7				15.18			
					591.1			8				15.34			
					607.5			9				15.34			
				624.1	~~625.5~~	+15 Sec		10			10	15.26			

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR [illegible]H TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-11D	LOCATION		SHEET No. 3 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (□CU. FT.) (□GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
T_1P_3		46.9	62.7	15.8	678.0			0			15	15.66		1437	00
					697.0			1				15.34			
					717.0			2				15.98			
					736.0			3				15.34			
					755.0			4				15.34			
					770.5			5			15	15.66			
					788.0			6				17.18			
					807.0			7				16.94			
					826.5			8				15.98			
					846.0			9				15.98			
					—	(865.5 AVG		10			15	16.22			
					885.0			11				15.98			
					904.0			12				16.54			
						No 4TH Step - out of Water									

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

WELL NCR-12D
TEST DATE 6/5/91

PROJECT NAME NCR RI/FS
PROJECT NUMBER 267

FEET BELOW GROUND SURFACE (ft. BGS)	FEET BELOW TOP OF BEDROCK (ft. BTOR)	HYDRAULIC CONDUCTIVITY (cm/sec)	WATER-BEARING? (Y/N)	DEPTH T STATIC HE (ft. BG
61.0 – 76.0'	4.0 – 19.0	$8.87 \times 10^{-4} - 1.20 \times 10^{-3}$	Y	20.7'

Ref # 2677

WELL NCR-12D

$$K = \frac{Q \ln 10}{2\pi} \cdot \frac{1}{\Delta H L} = \quad \text{ft/sec} \times 30.48 \text{ cm/ft} = \quad \text{cm/sec}$$

(2.303) (6.283)

P1 $K = \frac{2.97 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{24.95 \cdot 15.0} = 1.089 \times 10^{-2} \cdot 2.67 \times 10^{-3} =$

2.91×10^{-5} ft/sec $\times$ 30.48 cm/ft = 8.87×10^{-4} cm/sec

P2 $K = \frac{3.61 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{24.95 \cdot 15.0} = 1.323 \times 10^{-2} \cdot 2.67 \times 10^{-3} =$

3.54×10^{-5} ft/sec $\times$ 30.48 cm/ft. = 1.08×10^{-3} cm/sec

P3 $K = \frac{4.01 \times 10^{-2} \times 2.303}{6.283} \cdot \frac{1}{24.95 \cdot 15.0} = 1.470 \times 10^{-2} \cdot 2.67 \times 10^{-3} =$

3.93×10^{-5} ft/sec $\times$ 30.48 cm/ft = 1.20×10^{-3} cm/sec

P4 $K = \frac{\times 10^{-} \times 2.303}{6.283} \cdot \frac{1}{} = \times 10^{-} \cdot \times 10^{-} =$

$\times 10^{-}$ ft/sec $\times$ 30.48 cm/ft = $\times 10^{-}$ cm/sec

INJECTION TEST CALCULATIONS

BY KPL
DATE 6/6/91

WELL NUMBER NCR-12D

INTERVAL TESTED 63.2' to 78.2' BTOC

H_o = _____ = 20.46 PSI

P_1

USING DATA FROM 6 TO 11 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 24.95 FT.

$Q = \frac{1112.2 - 1045.5}{5} = 13.34$ gpm ÷ 7.48 ÷ 60 = 2.97×10^{-2} FT^3/sec

P_2

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 24.95 FT.

$Q = \frac{1320.0 - 1238.9}{5} = 16.22$ gpm ÷ 7.48 ÷ 60 = 3.61×10^{-2} FT^3/sec

P_3

USING DATA FROM 5 TO 10 MINUTES *

ΔH = _____ − _____ = _____ PSI ÷ .433 = 24.95 FT.

$Q = \frac{1533.2 - 1443.3}{5} = 17.98$ gpm ÷ 7.48 ÷ 60 = 4.01×10^{-2} FT^3/sec

P_4

~~USING DATA FROM _____ TO _____ MINUTES~~

~~ΔH = _____ − _____ = _____ PSI ÷ .433 = _____ FT.~~

~~Q = _____ = _____ gpm ÷ 7.48 ÷ 60 = _____ FT^3/sec~~

* ΔH derived as distance from static water level to pressure guage.

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-12D	LOCATION		SHEET No. 1 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
LOGGED BY KPL	CLIENT			

No Adjacent wells to monitor

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERME-ABILITY
T.P.		63.2	78.2	15.0	964.7			0			5	MAX =		1639	
					978.5			1				20.46			
					991.5			2				ON			
					1005.0			3				TELOG			
					1018.5			4			5				
					1033.0			5							
					1045.5			6							
					1058.3			7							
					1071.8			8							
					1085.2			9							
					1098.5			10							
					1112.2			11							

CRA

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

REPORT OF WATER PRESSURE TESTING

JOB No.	HOLE No.	LOCATION		SHEET No.
2677	NCR-12D			2 OF
DATE STARTED	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER
6/5/91				
LOGGED BY	CLIENT			
KPL				

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE STATIC BOREHOLE (PSI)	PRESSURE LINE GAUGE (PSI)	PRESSURE TEST BOREHOLE (PSI)	PRESSURE RECORDER SENSITIVITY (%)	PRESSURE TIME	PERMEABILITY
T1P2		63.2	78.2	15.0	1158.4			0			10	MAX=		16:52:00	
					1174.3			1				20.46			
					1191.0			2				ON			
					1207.0			3				Telog			
					1225.0			4							
					1238.9			5							
					1255.6			6							
					1271.2			7							
					1287.6			8							
					1303.8			9							
					1320.0			10							

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

REPORT OF WATER PRESSURE TESTING

JOB No. 2677	HOLE No. NCR-12D	LOCATION		SHEET No. 3 OF
DATE STARTED 6/5/91	DATE COMPLETED	SURFACE ELEVATION	DEPTH TO ROCK	DEPTH TO GROUNDWATER 22.8'
LOGGED BY KPL	CLIENT			

No 4TH STEP - OUT OF WATER

TEST No.	PACKER INFLATION PRESSURE (PSI)	DEPTH FROM	DEPTH TO	LENGTH OF INTERVAL TESTED (FEET)	WATER METER START	WATER METER END	WATER LOSS (☐CU. FT.) (☐GAL.) (1)	ELAPSED TIME (MIN.)	RATE OF LOSS (GPM)	PRESSURE: STATIC BOREHOLE (PSI)	PRESSURE: LINE GAUGE (PSI)	PRESSURE: TEST BOREHOLE (PSI)	PRESSURE: RECORDER SENSITIVITY (%)	TIME	PERMEABILITY
T_1P_3	160#	63.2	78.2	15.0	353.8			0			15	Max -		170500	
					371.7			1				20.46 PSI			
					389.5			2							
					407.5			3							
	180#	W/L = 17.5'			425.8			4							
					443.3			5			15				
					460.3			6							
					479.5			7							
					496.7			8							
					517.0			9							
					533.2			10			15				

NOTE: -FOR USE WITH U.S.B.R. TEST DESIGNATION E-18.
-GAUGE PRESSURE (IN PSI) ÷ .433 = FT. WATER
-COLUMN PRESSURE = DEPTH TO UPPER PACKER OR DEPTH TO GROUNDWATER, WHICHEVER IS SMALLER.

(1) CONVERSION FACTOR: 7.48 U.S. GALLONS = 1 CU. FT.

CRA

APPENDIX K

COMPLETE ANALYTICAL DATA SUMMARY

Data Qualifiers

ND	None detected at provided sample quantitation limits.
J	The associated numerical number is an estimated quantity.
UJ	The material was analyzed for but not detected. The sample quantitation limit is an estimated quantity and may be inaccurate or imprecise.
U	The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination attributable to laboratory or field conditions.
R	Unusable data.
N	Presumptive evidence of presence of material.
Q	Data considered suspect, resampling and reanalyses did not confirm the presence of these compounds.
<	Less than value. The sample quantitation limit has been adjusted to reflect potential contamination attributable to laboratory or field conditions.
[ ]	Recollected and reanalyzed samples for TCL VOCs.

COMPLETE

BOREHOLE SOIL DATA SUMMARY

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED1-R	SED2-R	SED3-R	SED4-R	SED5-R	SED6-R	SED7-R	SED7-R DUP
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
METALS, mg/kg								
Aluminum	19200	24900	18300	21800	13800	19500	16900	16000
Antimony	ND(13)	ND(12)	ND(9.8)	ND(13)	ND(12)	ND(11)	ND(12)	ND(12)
Arsenic	22	27	19	24	11	18	16	15.8
Barium	111	148	91.1	113	72.3	98.5	75.5	79.3
Beryllium	1	1.1	0.74	0.91	0.63	0.84	0.73	0.65
Cadmium	ND(0.64)	ND(0.62)	ND(0.49)	ND(0.64)	ND(0.58)	ND(0.56)	ND(0.58)	ND(0.62)
Calcium	47200	8790	37100	48200	35600	39400	27100	31000
Chromium	26.7	30.8	23.9	28	17.4	25	20.4	19.4
Cobalt	12.7	10.3	8	11.1	7.4	8.1	7.2	6.6
Copper	35.5	24.4	17.2	31.9	12.5	15.5	29.2	34.4
Cyanide	ND(0.79)	ND(0.79)	ND(0.72)	ND(0.88)	ND(0.72)	ND(0.58)	ND(0.76)	ND(0.94)
Iron	30100	22500	20800	27300	18600	21200	18900	18500
Lead	49	35	30	54	21	44	30	28.4
Magnesium	16000	6140	10200	15400	11500	16200	7740	7940
Manganese	551	187	399	645	313	430	324	376
Mercury	0.56	ND(0.082)	0.32	1.1	ND(0.075)	0.18	0.12	0.16
Nickel	30	30.9	20	27.6	13.7	21.8	21.7	28.5
Potassium	4080	2360	3240	5980	3060	3740	3930	3440
Selenium	ND(0.62)	ND(0.63)	ND(0.53)	ND(0.65)	ND(0.59)	ND(0.50)	ND(0.60)	ND(0.74)
Silver	ND(1.3)	ND(1.2)	ND(0.98)	ND(1.3)	ND(1.2)	ND(1.1)	ND(1.2)	ND(1.2)
Sodium	574	361	265	669	371	325	739	764
Thallium	ND(0.62)	ND(0.63)	ND(0.53)	ND(0.65)	ND(0.59)	ND(0.50)	ND(0.60)	ND(0.74)
Vanadium	33.2	40.5	33.1	39.1	27.4	34.2	30.4	27.4
Zinc	133	99.5	71.2	124	66.8	101	145	198

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED8-R	SED9-R	SED10-R	SED11-R	SED11-R DUP	SED12-R	SED13-R
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
METALS, mg/kg							
Aluminum	19800	16400	22400	21700	18700	18900	11600
Antimony	ND(12)UJ	ND(13)	ND(15)	ND(15)	ND(14)	ND(9.8)	ND(12)
Arsenic	20J	20.1	27.6	24.2	20.4	17.5	15
Barium	102	218	123	124	113	99.7	64.5
Beryllium	0.89	0.79	1	0.98	0.79	0.67	0.65
Cadmium	ND(0.62)	1.4	ND(0.74)	0.8	0.88	ND(0.49)	ND(0.58)
Calcium	92300	33900	54500	33100	29200	.5170	9400
Chromium	28.7	21.6	28	28.1	24.4	19.8	16.3
Cobalt	7.9	14.9	10.6	9.8	8.1	4.8	6.8
Copper	19.6	14.6	22.2	19.4	18.6	10.4	15.6
Cyanide	ND(0.84)	ND(0.62)	ND(0.85)	ND(0.98)	ND(0.98)	ND(0.77)	ND(0.61)
Iron	21900	69000	28200	28400	25400	15100	16300
Lead	100	41.6	68	92.8	101	27.1	28
Magnesium	39200	9790	21900	11500	10100	4210	5230
Manganese	695	424	511	373	330	126	196
Mercury	0.13	0.18	0.31	ND(0.10)	ND(0.10)	ND(0.082)	0.1
Nickel	20.4	21.4	27.1	28.5	26.2	16.5	15.2
Potassium	4730	2950	4750	4290	3460	2390	1520
Selenium	ND (0.63) R	ND(0.89)	ND(0.77)	ND(0.93)	ND(0.91)	ND(0.82)	ND(0.55)
Silver	ND(1.2)	ND(1.3)	ND(1.5)	ND(1.5)	ND(1.4)	ND(0.98)	ND(1.2)
Sodium	606	392	328	1660	1630	1450	308
Thallium	ND(0.63)	ND(0.89)	ND(0.77)	ND(0.93)	ND(0.91)	ND(0.82)	ND(0.55)
Vanadium	34.4	22.2	38.4	36.7	30	29.3	22.2
Zinc	148	139	146	280	306	88.5	246

SEDIMENT SAMPLE DATA SUMMARY - NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED8-R	SED9-R	SED10-R	SED11-R	SED11-R DUP	SED12-R	SED13-R
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL PESTICIDES/PCBs, µg/kg							
4-4'-DDD	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	4.7
4-4'-DDE	ND(8.7)	1.1 J	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
4-4'-DDT	ND(17)	6.9	ND(4.1)	ND(4.1)	ND(4.2)	ND(3.5)	ND(8.3)
Aldrin	ND(8.7)	ND(1.5)	2.0 J	1.1 J	ND(2.1)	ND(1.7)	ND(4.1)
Dieldrin	ND(8.7)	2.1	ND(2.1)	2.4	2.1	ND(1.7)	ND(4.1)
Endosulfan I	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
Endosulfan II	ND(26)	2.7 J	ND(6.2)	ND(6.2)	ND(6.3)	ND(5.2)	ND(12)
Endosulfan Sulfate	ND(44)	ND(7.3)	ND(10)	ND(10)	ND(11)	ND(8.7)	ND(21)
Endrin	ND(8.7)	ND(1.5)	18	7.6	ND(2.1)	ND(1.7)	ND(4.1)
Endrin Ketone	ND(44)	ND(7.3)	ND(10)	ND(10)	ND(11)	ND(8.7)	ND(21)
Heptachlor	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
Heptachlor epoxide	ND(8.7)	0.93 J	0.30 J	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
Methoxychlor	ND(44)	ND(7.3)	ND(10)	ND(10)	ND(11)	ND(8.7)	ND(21)
PCB-1016	ND(87)	ND(15)	ND(21)	ND(21)	ND(21)	ND(17)	ND(41)
PCB-1221	ND(170)	ND(29)	ND(41)	ND(41)	ND(42)	ND(35)	ND(83)
PCB-1232	ND(170)	ND(29)	ND(41)	ND(41)	ND(42)	ND(35)	ND(83)
PCB-1242	ND(87)	ND(15)	ND(21)	ND(21)	ND(21)	ND(17)	ND(41)
PCB-1248	ND(87)	ND(15)	ND(21)	ND(21)	ND(21)	ND(17)	ND(41)
PCB-1254	ND(170)	ND(29)	ND(41)	ND(41)	ND(42)	ND(35)	ND(83)
PCB-1260	ND(170)	ND(29)	ND(41)	ND(41)	ND(42)	ND(35)	ND(83)
Toxaphene	ND(440)	ND(73)	ND(100)	ND(100)	ND(110)	ND(87)	ND(210)
alpha-BHC	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
alpha-Chlordane	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
beta-BHC	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
delta-BHC	ND(8.7)	1.7	4.4	2.6	ND(2.1)	2	ND(4.1)
gamma-BHC	ND(8.7)	0.92 J	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)
gamma-Chlordane	ND(8.7)	ND(1.5)	ND(2.1)	ND(2.1)	ND(2.1)	ND(1.7)	ND(4.1)

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED14-R	SED15-R	SED16-R	SED17-R	SED18-R	RINSATE	RINSATE
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/28/90	11/28/90	BLANK1	BLANK2
TCL PESTICIDES/PCBs, µg/kg							
4-4'-DDD	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
4-4'-DDE	ND(36)	ND(31) UJ	ND(8.4)	28	ND(2.5)	ND(0.01)	ND(0.01)
4-4'-DDT	ND(71)	ND(63) UJ	ND(17)	11	11	ND(0.02)	ND(0.02)
Aldrin	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
Dieldrin	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
Endosulfan I	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
Endosulfan II	ND(110)	ND(94) UJ	ND(25)	ND(4.7)	ND(7.5)	ND(0.03)	ND(0.03)
Endosulfan Sulfate	ND(180)	ND(160) UJ	ND(42)	ND(7.9)	ND(13)	ND(0.051)	ND(0.050)
Endrin	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
Endrin Ketone	ND(180)	ND(160) UJ	ND(42)	ND(7.9)	ND(13)	ND(0.051)	ND(0.050)
Heptachlor	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
Heptachlor epoxide	ND(36)	ND(31) UJ	ND(8.4)	3.1	ND(2.5)	ND(0.01)	ND(0.01)
Methoxychlor	ND(180)	ND(160) UJ	ND(42)	ND(7.9)	ND(13)	ND(0.051)	ND(0.050)
PCB-1016	ND(360)	ND(310) UJ	ND(84)	ND(16)	ND(25)	ND(0.01)	ND(0.01)
PCB-1221	ND(710)	ND(630) UJ	ND(170)	ND(31)	ND(50)	ND(0.02)	ND(0.02)
PCB-1232	ND(710)	ND(630) UJ	ND(170)	ND(31)	ND(50)	ND(0.02)	ND(0.02)
PCB-1242	ND(360)	ND(310) UJ	ND(84)	ND(16)	ND(25)	ND(0.01)	ND(0.01)
PCB-1248	ND(360)	ND(310) UJ	ND(84)	ND(16)	ND(25)	ND(0.01)	ND(0.01)
PCB-1254	ND(710)	ND(630) UJ	ND(170)	ND(31)	ND(50)	ND(0.02)	ND(0.02)
PCB-1260	ND(710)	ND(630) UJ	ND(170)	ND(31)	ND(50)	ND(0.02)	ND(0.02)
Toxaphene	ND(1800)	ND(1600) UJ	ND(420)	ND(79)	ND(130)	ND(0.51)	ND(0.50)
alpha-BHC	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
alpha-Chlordane	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
beta-BHC	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)
delta-BHC	ND(36)	ND(31) UJ	ND(8.4)	2	ND(2.5)	ND(0.01)	ND(0.01)
gamma-BHC	ND(36)	ND(31) UJ	ND(8.4)	1.5 J	ND(2.5)	ND(0.01)	ND(0.01)
gamma-Chlordane	ND(36)	ND(31) UJ	ND(8.4)	ND(1.6)	ND(2.5)	ND(0.01)	ND(0.01)

SEDIMENT SAMPLE DATA SUMMARY - NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED14-R	SED15-R	SED16-R	SED17-R	SED18-R	RINSATE	RINSATE
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/28/90	11/28/90	BLANK1	BLANK2
TCL SEMI-VOLATILE ORGANICS, µg/kg							
Benzo(g h i)perylene	ND(5300)	ND(5100)	ND(5400)	ND(5000)	ND(4000)	ND(10)	ND(10)
Benzo(k)fluoranthene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Benzoic acid	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
Benzyl alcohol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Butylbenzylphthalate	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Chrysene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Di-n-butylphthalate	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Di-n-octylphthalate	ND(1800)	290 J	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Dibenz(a h)anthracene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Dibenzofuran	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Diethylphthalate	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Dimethylphthalate	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Fluoranthene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Fluorene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Hexachlorobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Hexachlorobutadiene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Hexachlorocyclopentadiene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)-	ND(10)
Hexachloroethane	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Indeno(1 2 3-cd)pyrene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Isophorone	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
N-Nitrosodi-n-propylamine	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
N-Nitrosodiphenylamine	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Naphthalene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Nitrobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Pentachlorophenol	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
Phenanthrene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Phenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Pyrene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
bis(2-Chloroethoxy)methane	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
bis(2-Chloroethyl)ether	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
bis(2-Chloroisopropyl)ether	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
bis(2-Ethylhexyl)phthalate	ND(1800)	540 J	290 J	ND(1700)	3900	12	ND(10)
TIC SEMI-VOLATILE ORGANICS, µg/kg							
Unknown hydrocarbon	9000 J	14700	25070	4000 J	6300 J		
2-Pentanone, 4-hydroxy-4-methy							
2-Cyclohexene-1-one							
Unknown aldehyde	3100 J		5200 J				
Morpholine		3800 J					
Cyclotrisiloxane							
Unknown ketone							
Hexathiepane							

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED1-R	SED2-R	SED3-R	SED4-R	SED5-R	SED6-R	SED7-R	SED7-R DUP
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL PESTICIDES/PCBs, µg/kg								
4-4'-DDD	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
4-4'-DDE	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	1.3 J
4-4'-DDT	ND(7.4)	77	ND(6.3)	15	ND(6.9)	ND(5.5)	ND(7.0)	ND(3.3)
Aldrin	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
Dieldrin	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	1.9 J	ND(1.6)
Endosulfan I	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
Endosulfan II	ND(11)	ND(56)	ND(9.4)	7.8 J	ND(10)	ND(8.3)	3.2 J	5.3
Endosulfan Sulfate	ND(19)	ND(93)	ND(16)	ND(18)	ND(17)	ND(14)	ND(18)	ND(8.2)
Endrin	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
Endrin Ketone	ND(19)	ND(93)	ND(16)	ND(18)	ND(17)	ND(14)	ND(18)	ND(8.2)
Heptachlor	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
Heptachlor epoxide	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
Methoxychlor	ND(19)	ND(93)	ND(16)	ND(18)	ND(17)	ND(14)	ND(18)	16
PCB-1016	ND(37)	ND(190)	ND(31)	ND(37)	ND(35)	ND(28)	ND(35)	ND(16)
PCB-1221	ND(74)	ND(370)	ND(63)	ND(73)	ND(69)	ND(55)	ND(70)	ND(33)
PCB-1232	ND(74)	ND(370)	ND(63)	ND(73)	ND(69)	ND(55)	ND(70)	ND(33)
PCB-1242	ND(37)	ND(190)	ND(31)	ND(37)	ND(35)	ND(28)	ND(35)	ND(16)
PCB-1248	ND(37)	ND(190)	ND(31)	ND(37)	ND(35)	ND(28)	ND(35)	ND(16)
PCB-1254	ND(74)	ND(370)	ND(63)	ND(73)	ND(69)	ND(55)	ND(70)	ND(33)
PCB-1260	ND(74)	ND(370)	ND(63)	ND(73)	ND(69)	ND(55)	ND(70)	ND(33)
Toxaphene	ND(190)	ND(930)	ND(160)	ND(180)	ND(170)	ND(140)	ND(180)	ND(82)
alpha-BHC	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
alpha-Chlordane	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
beta-BHC	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
delta-BHC	ND(3.7)	ND(19)	ND(3.1)	5.4	ND(3.5)	ND(2.8)	3.7	ND(1.6)
gamma-BHC	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)
gamma-Chlordane	ND(3.7)	ND(19)	ND(3.1)	ND(3.7)	ND(3.5)	ND(2.8)	ND(3.5)	ND(1.6)

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED1-R	SED2-R	SED3-R	SED4-R	SED5-R	SED6-R	SED7-R	SED7-R DUP
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL SEMI-VOLATILE ORGANICS, µg/kg								
Benzo(g h i)perylene	ND(5500)	ND(5400)	ND(4300)	ND(5600)	ND(5200)	ND(1500) UJ	ND(5200) UJ	ND(5100)
Benzo(k)fluoranthene	ND(1800)	160 J	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700)	ND(1700)
Benzoic acid	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
Benzyl alcohol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
Butylbenzylphthalate	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Chrysene	ND(1800)	150 J	ND(1400)	150 J	ND(1700)	120 J	ND(1700) UJ	ND(1700)
Di-n-butylphthalate	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Di-n-octylphthalate	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Dibenz(a h)anthracene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Dibenzofuran	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Diethylphthalate	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Dimethylphthalate	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Fluoranthene	62 J	230 J	ND(1400)	150 J	ND(1700)	150 J	ND(1700) UJ	ND(1700)
Fluorene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Hexachlorobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Hexachlorobutadiene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Hexachlorocyclopentadiene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700) UJ	ND(1500) UJ	ND(1700) UJ	ND(1700)
Hexachloroethane	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Indeno(1 2 3-cd)pyrene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Isophorone	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
N-Nitrosodi-n-propylamine	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
N-Nitrosodiphenylamine	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Naphthalene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Nitrobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Pentachlorophenol	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
Phenanthrene	40 J	98 J	ND(1400)	62 J	ND(1700)	83 J	ND(1700) UJ	ND(1700)
Phenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
Pyrene	50 J	190 J	ND(1400)	140 J	ND(1700)	170 J	ND(1700) UJ	ND(1700)
bis(2-Chloroethoxy)methane	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
bis(2-Chloroethyl)ether	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
bis(2-Chloroisopropyl)ether	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
bis(2-Ethylhexyl)phthalate	290 J	ND(1800)	ND(1400)	440 J	170 J	ND(1500) UJ	ND(1700) UJ	690 J
TIC SEMI-VOLATILE ORGANICS, µg/kg								
Unknown hydrocarbon	6000 J	10000 J	15100		8400 J	10100 J	10500	9400 J
2-Pentanone, 4-hydroxy-4-methy			23000 J		12000 J	7900 J		
2-Cyclohexene-1-one								
Unknown aldehyde								4800 J
Morpholine								
Cyclotrisiloxane								
Unknown ketone						3100 J		
Hexathiepane								

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED8-R	SED9-R	SED10-R	SED11-R	SED11-R DUP	SED12-R	SED13-R
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL SEMI-VOLATILE ORGANICS, µg/kg							
Benzo(g h i)perylene	230 J	ND(4300)	ND(6300)	ND(6100)	ND(6400)	ND(5600)	ND(2100)
Benzo(k)fluoranthene	250 J	ND(1400)	220 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Benzoic acid	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
Benzyl alcohol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Butylbenzylphthalate	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Chrysene	270 J	ND(1400)	240 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Di-n-butylphthalate	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	140 J	ND(2100)
Di-n-octylphthalate	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Dibenz(a h)anthracene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Dibenzofuran	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Diethylphthalate	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Dimethylphthalate	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Fluoranthene	320 J	ND(1400)	330 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Fluorene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Hexachlorobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Hexachlorobutadiene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Hexachlorocyclopentadiene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Hexachloroethane	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Indeno(1 2 3-cd)pyrene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Isophorone	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
N-Nitrosodi-n-propylamine	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
N-Nitrosodiphenylamine	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Naphthalene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Nitrobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Pentachlorophenol	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
Phenanthrene	150 J	ND(1400)	180 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Phenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Pyrene	280 J	ND(1400)	310 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
bis(2-Chloroethoxy)methane	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
bis(2-Chloroethyl)ether	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
bis(2-Chloroisopropyl)ether	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
bis(2-Ethylhexyl)phthalate	110 J	580 J	ND(2100)	470 J	970 J	550 J	ND(2100)
TIC SEMI-VOLATILE ORGANICS, µg/kg							
Unknown hydrocarbon	3300 J	14890	15270	30710	32900	6990 J	6000 J
2-Pentanone, 4-hydroxy-4-methy	5600 J						
2-Cyclohexene-1-one		860 J	880 J				
Unknown aldehyde		7000 J	4000 J				
Morpholine				11000 J	11000 J		
Cyclotrisiloxane				1000 J		990 J	
Unknown ketone							
Hexathiepane					980 J		

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED8-R	SED9-R	SED10-R	SED11-R	SED11-R DUP	SED12-R	SED13-R
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL SEMI-VOLATILE ORGANICS, µg/kg							
1,2,4-Trichlorobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
1,2-Dichlorobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
1,3-Dichlorobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
1,4-Dichlorobenzene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2,4,5-Trichlorophenol	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
2,4,6-Trichlorophenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2,4-Dichlorophenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2,4-Dimethylphenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2,4-Dinitrophenol	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
2,4-Dinitrotoluene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2,6-Dinitrotoluene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2-Chloronaphthalene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2-Chlorophenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2-Methylnaphthalene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2-Methylphenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
2-Nitroaniline	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
2-Nitrophenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
3 3'-Dichlorobenzidine	ND(3500)	ND(2800)	ND(4100)	ND(4000)	ND(4200)	ND(3700)	ND(4200)
3-Nitroaniline	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
4,6-Dinitro-2-methylphenol	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
4-Bromophenyl phenyl ether	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
4-Chloro-3-methylphenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
4-Chloroaniline	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
4-Chlorophenyl phenyl ethe	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
4-Methylphenol	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
4-Nitroaniline	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
4-Nitrophenol	ND(8500)	ND(6800)	ND(10000)	ND(9800)	ND(10000)	ND(8900)	ND(10000)
Acenaphthene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Acenaphthylene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Anthracene	ND(1700)	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Benzo(a)anthracene	210 J	ND(1400)	210 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Benzo(a)pyrene	250 J	ND(1400)	ND(2100)	ND(2000)	ND(2100)	ND(1800)	ND(2100)
Benzo(b)fluoranthene	320 J	ND(1400)	270 J	ND(2000)	ND(2100)	ND(1800)	ND(2100)

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION: / SAMPLE DATE:	SED14-R 11/27/90	SED15-R 11/27/90	SED16-R 11/27/90	SED17-R 11/28/90	SED18-R 11/28/90	RINSATE BLANK1	RINSATE BLANK2
TCL SEMI-VOLATILE ORGANICS, µg/kg							
1,2,4-Trichlorobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
1,2-Dichlorobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
1,3-Dichlorobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
1,4-Dichlorobenzene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2,4,5-Trichlorophenol	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
2,4,6-Trichlorophenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2,4-Dichlorophenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2,4-Dimethylphenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2,4-Dinitrophenol	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(10)	ND(10)
2,4-Dinitrotoluene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2,6-Dinitrotoluene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2-Chloronaphthalene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2-Chlorophenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2-Methylnaphthalene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2-Methylphenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
2-Nitroaniline	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
2-Nitrophenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
3 3'-Dichlorobenzidine	ND(3500)	ND(3300)	ND(3500)	ND(3300)	ND(2600)	ND(20)	ND(19)
3-Nitroaniline	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
4,6-Dinitro-2-methylphenol	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
4-Bromophenyl phenyl ether	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
4-Chloro-3-methylphenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
4-Chloroaniline	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
4-Chlorophenyl phenyl ethe	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
4-Methylphenol	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
4-Nitroaniline	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
4-Nitrophenol	ND(8500)	ND(8100)	ND(8600)	ND(8100)	ND(6400)	ND(50)	ND(48)
Acenaphthene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Acenaphthylene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Anthracene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Benzo(a)anthracene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Benzo(a)pyrene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)
Benzo(b)fluoranthene	ND(1800)	ND(1700)	ND(1800)	ND(1700)	ND(1300)	ND(10)	ND(10)

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED14-R	SED15-R	SED16-R	SED17-R	SED18-R	RINSATE	RINSATE
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/28/90	11/28/90	BLANK1	BLANK2
TCL VOLATILE ORGANICS, µg/kg							
1,1,1,2-Tetrachloroethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,1,1-Trichloroethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,1,2-Trichloroethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethane	19	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethene (total)	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
1,2-Dichloropropane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
2-Butanone	ND(18)	ND(17)	ND(18)	ND(17) UJ	ND(14) UJ	ND(5.0)	ND(5.0)
2-Hexanone	ND(18)	ND(17)	ND(18)	ND(17) UJ	ND(14) UJ	ND(10)	ND(10)
4-Methyl-2-pentanone(MIBK)	ND(18)	ND(17)	ND(18)	ND(17)	ND(14)	ND(10)	ND(10)
Acetone	84	ND(17)	ND(18)	ND(17)	12 J	ND(10)	ND(10)
Benzene	3 J	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Bromodichloromethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Bromomethane	ND(18)	ND(17)	ND(18)	ND(17)	ND(14)	ND(5.0)	ND(5.0)
Carbon disulfide	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Carbon tetrachloride	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Chlorobenzene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Chloroethane	ND(18)	ND(17)	ND(18)	ND(17)	ND(14)	ND(10)	ND(10)
Chloroform	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Chloromethane	ND(18)	ND(17)	ND(18)	ND(17)	ND(14)	ND(10)	ND(10)
Dibromochloromethane	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Ethyl benzene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Methylene chloride	32	15	16	71	21	ND(5.0)	2J
Styrene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Tetrachloroethene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Toluene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Tribromomethane(Bromoform)	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Trichloroethene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Vinyl acetate	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
Vinyl chloride	ND(9.0)	ND(9.0)	ND(9.0)	ND(17)	ND(14)	ND(10)	ND(10)
Xylenes	ND(18)	ND(17)	ND(18)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
cis-1,3-Dichloropropene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
trans-1,3-Dichloropropene	ND(9.0)	ND(9.0)	ND(9.0)	ND(8.0)	ND(7.0)	ND(5.0)	ND(5.0)
TIC VOLATILE ORGANICS, µg/kg							
None							

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED1-R	SED2-R	SED3-R	SED4-R	SED5-R	SED6-R	SED7-R	SED7-R DUP
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL SEMI-VOLATILE ORGANICS, µg/kg								
1,2,4-Trichlorobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
1,2-Dichlorobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
1,3-Dichlorobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
1,4-Dichlorobenzene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
2,4,5-Trichlorophenol	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
2,4,6-Trichlorophenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
2,4-Dichlorophenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
2,4-Dimethylphenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
2,4-Dinitrophenol	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
2,4-Dinitrotoluene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
2,6-Dinitrotoluene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
2-Chloronaphthalene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
2-Chlorophenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
2-Methylnaphthalene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
2-Methylphenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
2-Nitroaniline	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100) UJ	ND(8300) UJ	ND(8200)
2-Nitrophenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
3 3'-Dichlorobenzidine	ND(3700)	ND(3600)	ND(2900)	ND(3700)	ND(3400)	ND(2900) UJ	ND(3400) UJ	ND(3400)
3-Nitroaniline	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100) UJ	ND(8300) UJ	ND(8200)
4,6-Dinitro-2-methylphenol	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
4-Bromophenyl phenyl ether	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
4-Chloro-3-methylphenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
4-Chloroaniline	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
4-Chlorophenyl phenyl ethe	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
4-Methylphenol	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500)	ND(1700)	ND(1700)
4-Nitroaniline	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100) UJ	ND(8300) UJ	ND(8200)
4-Nitrophenol	ND(8900)	ND(8700)	ND(6900)	ND(9000)	ND(8300)	ND(7100)	ND(8300)	ND(8200)
Acenaphthene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Acenaphthylene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Anthracene	ND(1800)	ND(1800)	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Benzo(a)anthracene	ND(1800)	140 J	ND(1400)	82 J	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Benzo(a)pyrene	ND(1800)	140 J	ND(1400)	ND(1800)	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)
Benzo(b)fluoranthene	ND(1800)	130 J	ND(1400)	250 J	ND(1700)	ND(1500) UJ	ND(1700) UJ	ND(1700)

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED1-R	SED2-R	SED3-R	SED4-R	SED5-R	SED6-R	SED7-R	SED7-R DUP
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL VOLATILE ORGANICS, µg/kg								
1,1,1,2-Tetrachloroethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,1,1-Trichloroethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	2 J	3 J	ND(9.0)
1,1,2-Trichloroethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,1-Dichloroethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,1-Dichloroethene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,2-Dichloroethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,2-Dichloroethene (total)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
1,2-Dichloropropane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
2-Butanone	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18) UJ
2-Hexanone	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18) UJ
4-Methyl-2-pentanone(MIBK)	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18)
Acetone	ND(19)	26	ND(15)	13 J	18	ND(15)	ND(18)	ND(18)
Benzene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Bromodichloromethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Bromomethane	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18)
Carbon disulfide	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Carbon tetrachloride	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Chlorobenzene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Chloroethane	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18)
Chloroform	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Chloromethane	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18)
Dibromochloromethane	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Ethyl benzene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Methylene chloride	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	22
Styrene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Tetrachloroethene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Toluene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Tribromomethane(Bromoform)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Trichloroethene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Vinyl acetate	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
Vinyl chloride	ND(19)	ND(19)	ND(15)	ND(19)	ND(18)	ND(15)	ND(18)	ND(18)
Xylenes	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
cis-1,3-Dichloropropene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
trans-1,3-Dichloropropene	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)	ND(7.0)	ND(9.0)	ND(9.0)
TIC VOLATILE ORGANICS, µg/kg								
None								

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SED8-R	SED9-R	SED10-R	SED11-R	SED11-R DUP	SED12-R	SED13-R
SAMPLE DATE:	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90	11/27/90
TCL VOLATILE ORGANICS, µg/kg							
1,1,1,2-Tetrachloroethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,1,1-Trichloroethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,1,2-Trichloroethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,1-Dichloroethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,1-Dichloroethene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,2-Dichloroethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,2-Dichloroethene (total)	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
1,2-Dichloropropane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
2-Butanone	ND(18) UJ	ND(14)	ND(22)	ND(21)	ND(21) UJ	ND(19) UJ	ND(22) UJ
2-Hexanone	ND(18) UJ	ND(14)	ND(22)	ND(21)	ND(21) UJ	ND(19) UJ	ND(22) UJ
4-Methyl-2-pentanone(MIBK)	ND(18)	ND(14)	ND(22)	ND(21)	ND(21)	ND(19)	ND(22)
Acetone	18	12 J	30	100	78 J	69	31 J
Benzene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Bromodichloromethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Bromomethane	ND(18)	ND(14)	ND(22)	ND(21)	ND(21)	ND(19)	ND(22)
Carbon disulfide	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Carbon tetrachloride	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Chlorobenzene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Chloroethane	ND(18)	ND(14)	ND(22)	ND(21)	ND(21)	ND(19)	ND(22)
Chloroform	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Chloromethane	ND(18)	ND(14)	ND(22)	ND(21)	ND(21)	ND(19)	ND(22)
Dibromochloromethane	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Ethyl benzene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Methylene chloride	ND(9.0)	20	29	27	39	46	73
Styrene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Tetrachloroethene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Toluene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Tribromomethane(Bromoform)	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Trichloroethene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Vinyl acetate	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
Vinyl chloride	ND(18)	ND(7.0)	ND(11)	ND(10)	ND(21)	ND(9.0)	ND(11)
Xylenes	ND(9.0)	ND(14)	ND(22)	ND(21)	ND(11)	ND(19)	ND(22)
cis-1,3-Dichloropropene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
trans-1,3-Dichloropropene	ND(9.0)	ND(7.0)	ND(11)	ND(10)	ND(11)	ND(9.0)	ND(11)
TIC VOLATILE ORGANICS, µg/kg							
None							

COMPLETE

SEDIMENT DATA SUMMARY

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 10	NCR 11	NCR 11	NCR11-DUP	NCR 12	NCR 12	NCR12-DUP	NCR 13	NCR 13	B&J Water
INTERVAL:	44.0'-46.0'	0-3.2'	0-3.2'	0-3.2'	22.0'-26.0'	44.0'-46.0'	44.0'-46.0'	0-0.8'	2.5'-3.5'	
SAMPLE DATE:	8/14/90	9/6/90	9/12/90	9/12/90	8/22/90	8/23/90	8/23/90	8/8/90	8/8/90	7/24/90
METALS, mg/kg										
Aluminum	8700	14000	18000	23000	5800	7900	7900	13000	8900	ND.20
Antimony	ND8.2	ND10	ND9.2 UJ	ND10	ND9.0	ND9.3	ND10	ND10	ND11	ND.10
Barium	84	100	140	130	72	69	72	65	ND1.1	ND.010
Beryllium	0.4	0.68	0.89	1	0.2	0.3	0.27	0.46	0.34	ND.002
Cadmium	ND.41	ND.52	ND.46	ND.52	2	ND.46	ND.52	ND.50	ND.53	ND.005
Calcium	68000	3500 J	9000 J	5700	53000 J	60000 J	57000 J	13000	2600	ND1.0
Chromium	12	19	24	28	10	11	11	16	13	ND.010
Cobalt	5.7	6.9	8.2	9.4 J	3.9	5.6 J	5 J	5.5	5.8	ND.010
Copper	11	19	< 25	<29	< 14	< 14	< 13	32	12	ND.020
Iron	12000	17000	24000	25000 J	11000	13000	13000	16000	15000	ND.040
Magnesium	28000	3200 J	5000 J	4600 J	17000	19000	18000	4600	2200	ND1.0
Manganese	410	100	200 J	230 J	410 J	510 J	450 J	250	200	ND.010
Nickel	10	20	24	28 J	8.9	13	12	20	14	ND.020
Potassium	2800	1300	2100	3300	1600	2100	2200	1700	1400	ND3.0
Silver	ND.82	ND1.0	ND.92	ND1.0	ND.90	ND.93	ND1.0	ND1.0	ND1.1	ND.010
Sodium	< 240	ND100	< 290	< 150	390	320	350	320	260	ND1.0
Vanadium	17	17 J	31 J	38	13	14 J	14 J	21	19	ND.020
Zinc	60	100 J	100 J	110 J	54 J	45 J	38 J	59	44	ND.020
Arsenic	8.8	28	24	20	5.8	10 J	9.5 J	17	13	ND.004
Total cyanide	ND.56	ND.55	ND.61	ND.60	ND.41	ND.50	ND.46	ND.59	ND.59	ND.010
Mercury	ND.045	ND.056	ND.056	ND.056	ND.045	ND.045	ND.045	ND.053	ND.053	ND.0002
Lead	7.9	130 J	250 J	100 J	13	8.4	11	32	8.3	ND.0030
Selenium	ND.49	ND.52 UJ	ND.50	ND.50	ND.38	ND.44	ND.42	ND5.1	ND4.7	ND.0050
Thallium	ND.48	ND.52	ND.50	ND.50	ND.38	ND.44	ND.43	ND.51	ND.47	ND.0050
Moisture (%)	14	20	21	21	9	7.9	8.2	17	16	

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*DI Lot Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Potable*
INTERVAL:		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*Water*
SAMPLE DATE:	*8/23/90*	*7/26/90*	*7/31/90*	*8/8/90*	*8/10/90*	*8/16/90*	*8/21/90*	*8/28/90*	*9/6/90*	*8/1/90*
METALS, mg/kg										
Aluminum	ND.20	ND.20	ND.20	ND.20	ND.20	ND.20	ND.20	ND.20	ND.20	0.3
Antimony	ND.10	ND.10	ND.10	ND.10	ND.10	ND.10	ND.10	ND.10	ND.10	ND.10
Barium	ND.010	ND.010	ND.010	ND.010	ND.010	0.065	0.58	0.48	0.012	0.02
Beryllium	ND.002	ND.002	ND.002	ND.002	ND.002	ND.002	ND.002	ND.002	ND.002	ND.002
Cadmium	ND.005	ND.005	ND.005	ND.005	ND.005	ND.005	ND.005	ND.005	ND.005	ND.005
Calcium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	35
Chromium	ND.010	ND.010	ND.010	0.028	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010
Cobalt	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010
Copper	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020
Iron	ND.040	ND.040	0.14	0.2	0.42	0.057	0.25	0.072	ND.040	0.33
Magnesium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	8.2
Manganese	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010
Nickel	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020
Potassium	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0
Silver	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010
Sodium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	1.2	8.5
Vanadium	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020	ND.020
Zinc	ND.020	ND.020	ND.020	0.11	0.021	0.027	0.3	0.25	0.054	ND.020
Arsenic	ND.004	ND.004	ND.004	ND.004	ND.004	ND.004	ND.004	ND.004	ND.004	ND.004
Total cyanide	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010	ND.010
Mercury	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002	ND.0002
Lead	ND.0030	0.0065	ND.0030	ND.0030	ND.0030	ND.0030	ND.0030	ND.0030	ND.0030	0.0078
Selenium	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050
Thallium	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050	ND.0050
Moisture (%)										

BOREHOLE DATA SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 1	NCR 1	NCR 2	NCR 2	NCR 3M	NCR 3M	NCR 4	NCR 4	NCR 5	NCR 5
INTERVAL:	1.0'-3.0'	44.0'-46.0'	2.0'-3.0'	24.0'-24.7'	4.0'-6.0'	24.0'-26.0'	1.0'-3.0'	55.0'-57.0'	5.4'-7.0'	44.0'-47.0'
SAMPLE DATE:	8/29/90	8/29/90	7/26/90	7/26/90	7/31/90	7/31/90	8/23/90	8/22/90	8/3/90	8/7/90
METALS, mg/kg										
Aluminum	10000	4200	13000	7200	25000	11000	9500	3800	6600	2300
Antimony	ND6.8	13	ND7.8	14	ND9.5	ND5.5	ND10	ND7.9 UJ	13	ND6.5
Barium	45	280	48	55	160	77	42	55 J	52	36
Beryllium	0.38	ND.16	ND.16	0.24	0.96	0.39	0.34	ND.16	0.24	ND.13
Cadmium	ND.34	ND.41	ND.39	ND.34	ND.48	ND.28	ND.52	ND.40	ND.34	ND.32
Calcium	3800 J	97000 J	10000	92000	90000	52000	17000 J	54000 J	89000	65000
Chromium	13	5.9	16	8.4	30	13	13	6	8.9	3.5
Cobalt	5.1 J	2.6	6.6	3.6	15	6.1	5.9 J	2.3 J	3.4	1.5
Copper	< 8.8	< 8.3	8.8	16	21	14	< 8.6	< 8.1	12	4.7
Iron	11000	6800	15000	10000	31000	16000	16000	7200 J	9600	5200
Magnesium	3200 J	48000 J	4800	40000	13000	18000	6100	16000	39000	28000
Manganese	63	370 J	190	530	1300	510	240 J	460 J	520	290
Nickel	12	5.9	14 J	8.3	30	14	13	7.8	8	3.5
Potassium	800	1300	1500	2300	6000	3100	840	980 J	2100	660
Silver	ND.68	ND.81	ND.78	ND.69	ND.95	ND.55	ND1.0	ND.79	ND.68	ND.65
Sodium	< 89	< 220	240	320	< 920	330	190	250	300	250
Vanadium	19	8.1	24	14	36	17	18 J	8.3	13	7.4
Zinc	40	39	43 J	120	68	52	36 J	30 J	96	36
Arsenic	2.7	1.8	14	13	26	11	11 J	5.3 J	7.8	4.2
Total cyanide	ND.54	ND.44	ND.46	ND.51	ND.60	ND.46	ND.51	ND.44	ND.51	ND.56
Mercury	ND.045	ND.045	ND.053	ND.050	ND.056	ND.050	ND.045	ND.045	ND.050	ND.050
Lead	< 22	< 4.9	8.7	12	11	14	8.6	7.2	13	6.4
Selenium	ND.39 UJ	ND.37 UJ	ND5.0	ND5.0	ND.54	ND7.0	ND.54	ND.44 UJ	ND4.2	ND4.0
Thallium	ND.39 UJ	ND.37 UJ	ND.50	ND.50	0.61	ND.70	ND.54	ND.44	ND.42	ND.40
Moisture (%)	8.7	8.1	16	9.7	20	7.9	13	6	9	12

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 6	NCR 6	NCR 7	NCR 7	NCR 8	NCR 8	NCR 9M	NCR 10	NCR10-DUP	NCR 10
INTERVAL:	2.0'-6.0'	38.0'-40.0'	0-2.0'	44.0'-46.0'	0-2.0'	3.0'-5.0'	2.0'-6.0'	2.0'-4.0'	2.0'-4.0'	26.0'-28.0'
SAMPLE DATE:	8/15/90	8/17/90	8/3/90	8/6/90	8/15/90	8/15/90	8/8/90	8/10/90	8/10/90	8/10/90
METALS, mg/kg										
Aluminum	2600 R	6000	12000	6400	26000	5000	8900	23000	15000	9500
Antimony	ND7.2	ND6.8 UJ	ND9.5	20	ND11	ND5.9	ND8.3 UJ	8.6	ND10	ND6.0
Barium	12 J	59 J	55	33	130	34	70	100	93	70
Beryllium	ND.14	0.26	0.52	0.22	1.1	0.2	0.23	0.87	0.59	0.35
Cadmium	ND.36	ND.34	ND.48	ND.32	ND.54	ND.30	ND.42	ND.34	ND.51	ND.30
Calcium	27000	67000	25000	150000	40000	51000	82000	25000	30000	75000
Chromium	4	7.2 J	14	5.7	31	6.3	9.7	27	20	11
Cobalt	2.1	4.4 J	7.1	2	14	3.6	3.5	11	8.7	5.4
Copper	4	7.2	8	4.3	16	8.9	11	18	17	11
Iron	4500 R	9200	15000	6700	31000	8700	11000	25000	22000	13000
Magnesium	12000 R	28000	10000	93000	14000	37000	27000	12000	8300	29000
Manganese	160 R	420	330	220	360	590	490	580	1100	480
Nickel	2.6	7 J	16	5.6	26	6.6	8.2	26	23	11
Potassium	470	1900	1700	3600	6300	1400	2500	5500	3000	2900
Silver	ND.72	ND.68	ND.95	ND.63	ND1.1	ND.59	ND.83	ND.69	ND1.0	ND.60
Sodium	< 120	< 210	690	350	< 160	< 210	360	350	320	360
Vanadium	6.3	12	22	9.4	37	10	16	34	25	16
Zinc	25 J	96 R	42	5.4	72	88	61	60	56	72
Arsenic	6	6.9	14	8.8	23	9.3	13 J	20	13	10
Total cyanide	ND.49	ND.52	ND.52	ND.55	ND.48	ND.38	ND.56	ND.60	ND.60	ND.54
Mercury	ND.045	ND.045	ND.050	ND.053	ND.045	ND.045	ND.050	ND.056	ND.056	ND.050
Lead	6.3	11	9.4	10	14	14	12	14	9.2	8.5
Selenium	ND.38	ND.41	ND5.0	ND.52	ND.42	ND.34	ND3.8 UJ	ND.49	ND.46	ND.30
Thallium	ND.38	ND.41	ND.50	ND.52	ND.42	ND.34	ND.33	ND.49	ND.46	ND.30
Moisture (%)	12	8.1	11	16	19	7.5	12	21	21	11

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR 10*	*NCR 11*	*NCR 11*	*NCR11-DUP*	*NCR 12*	*NCR 12*	*NCR12-DUP*	*NCR 13*	*NCR 13*	*B&J Water*
SAMPLE DEPTH:	*44.0'-46.0'*	*0-3.2'*	*0-3.2'*	*0-3.2'*	*22.0'-26.0'*	*44.0'-46.0'*	*44.0'-46.0'*	*0-0.8'*	*2.5'-3.5'*	
SAMPLE DATE:	*8/14/90*	*9/6/90*	*9/12/90*	*9/12/90*	*8/22/90*	*8/23/90*	*8/23/90*	*8/8/90*	*8/8/90*	*7/24/90*
TCL PESTICIDES/PCBs, µg/kg										
Aldrin	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
Aroclor-1016	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Aroclor-1221	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Aroclor-1232	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Aroclor-1242	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Aroclor-1248	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Aroclor-1254	ND240	ND270	ND280 UJ	ND260	47 J	ND230	ND230	ND260 UJ	ND250	ND1.0
Aroclor-1260	ND240	ND270	ND280 UJ	ND260	ND230	ND230	ND230	ND260 UJ	ND250	ND1.0
gamma-BHC (Lindane)	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
alpha-BHC	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
beta-BHC	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
delta-BHC	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
alpha-Chlordane	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
gamma-Chlordane	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
4,4'-DDD	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
4,4'-DDE	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
4,4'-DDT	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Dieldrin	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Endosulfan I	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
Endosulfan II	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Endosulfan sulfate	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Endrin	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Endrin Ketone	ND24	ND27	ND28 UJ	ND26	ND23	ND23	ND23	ND26 UJ	ND25	ND.10
Heptachlor	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
Heptachlor epoxide	ND12	ND14	ND14 UJ	ND13	ND12	ND12	ND11	ND13 UJ	ND13	ND.050
Methoxychlor	ND120	ND140	ND140 UJ	ND130	ND120	ND120	ND110	ND130 UJ	ND130	ND.50
Toxaphene	ND240	ND270	ND280 UJ	ND260	ND230	ND230	ND230	ND260 UJ	ND250	ND1.0

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	DI Lot Blank	Rinse Blank 1	Rinse Blank 2	Rinse Blank 3	Rinse Blank 4	Rinse Blank 5	Rinse Blank 6	Rinse Blank 7	Rinse Blank 8	Potable Water
SAMPLE DEPTH:										
SAMPLE DATE:	8/23/90	7/26/90	7/31/90	8/8/90	8/10/90	8/16/90	8/21/90	8/28/90	9/6/90	8/1/90
TCL PESTICIDES/PCBs, µg/kg										
Aldrin	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
Arodor-1016	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Arodor-1221	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Arodor-1232	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Arodor-1242	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Arodor-1248	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Arodor-1254	ND1.0	ND1.0	ND1.0 UJ	ND1.0 R	ND1.0	ND1.0 UJ	ND1.0	ND1.0	ND1.0	ND1.0
Arodor-1260	ND1.0	ND1.0	ND1.0 UJ	ND1.0 R	ND1.0	ND1.0 UJ	ND1.0	ND1.0	ND1.0	ND1.0
gamma-BHC (Lindane)	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
alpha-BHC	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
beta-BHC	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
delta-BHC	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
alpha-Chlordane	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
gamma-Chlordane	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
4,4'-DDD	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
4,4'-DDE	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
4,4'-DDT	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Dieldrin	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Endosulfan I	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
Endosulfan II	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Endosulfan sulfate	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Endrin	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Endrin Ketone	ND.10	ND.10	ND.10 UJ	ND.10 R	ND.10	ND.10 UJ	ND.10	ND.10	ND.10	ND.10
Heptachlor	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
Heptachlor epoxide	ND.050	ND.050	ND.050 UJ	ND.050 R	ND.050	ND.050 UJ	ND.050	ND.050	ND.050	ND.050
Methoxychlor	ND.50	ND.50	ND.50 UJ	ND.50 R	ND.50	ND.50 UJ	ND.50	ND.50	ND.50	ND.50
Toxaphene	ND1.0	ND1.0	ND1.0 UJ	ND1.0 R	ND1.0	ND1.0 UJ	ND1.0	ND1.0	ND1.0	ND1.0

BOREHOLE DATA SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR 1*	*NCR 1*	*NCR 2*	*NCR 2*	*NCR 3M*	*NCR 3M*	*NCR 4*	*NCR 4*	*NCR 5*	*NCR 5*
SAMPLE DEPTH:	*1.0'-3.0'*	*44.0'-46.0'*	*2.0'-3.0'*	*24.0'-24.7'*	*4.0'-6.0'*	*24.0'-26.0'*	*1.0'-3.0'*	*55.0'-57.0'*	*5.4'-7.0'*	*44.0'-47.0'*
SAMPLE DATE:	*8/29/90*	*8/29/90*	*7/26/90*	*7/26/90*	*7/31/90*	*7/31/90*	*8/23/90*	*8/22/90*	*8/3/90*	*8/7/90*
TCL PESTICIDES/PCBs, µg/kg										
Aldrin	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
Aroclor-1016	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Aroclor-1221	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Aroclor-1232	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Aroclor-1242	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Aroclor-1248	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Aroclor-1254	ND230	ND230	ND230	ND220	ND260	ND240 UJ	ND240	ND230	ND240	ND250 UJ
Aroclor-1260	ND230	ND230	ND230	ND220	ND260	ND240 UJ	ND240	ND230	ND240	ND250 UJ
gamma-BHC (Lindane)	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
alpha-BHC	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
beta-BHC	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
delta-BHC	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
alpha-Chlordane	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
gamma-Chlordane	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
4,4'-DDD	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
4,4'-DDE	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
4,4'-DDT	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Dieldrin	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Endosulfan I	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
Endosulfan II	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Endosulfan sulfate	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Endrin	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Endrin Ketone	ND23	ND23	ND23	ND22	ND26	ND24 UJ	ND24	ND23	ND24	ND25 UJ
Heptachlor	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	ND12	ND12 UJ
Heptachlor epoxide	ND12	ND12	ND11	ND11	ND13	ND12 UJ	ND12	ND12	0.58 J	ND12 UJ
Methoxychlor	ND120	ND120	ND110	ND110	ND130	ND120 UJ	ND120	ND120	ND120	ND120 UJ
Toxaphene	ND230	ND230	ND230	ND220	ND260	ND240 UJ	ND240	ND230	ND240	ND250 UJ

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR 6*	*NCR 6*	*NCR 7*	*NCR 7*	*NCR 8*	*NCR 8*	*NCR 9M*	*NCR 10*	*NCR10-DUP*	*NCR 10*
SAMPLE DEPTH:	*2.0'-6.0'*	*38.0'-40.0'*	*0-2.0'*	*44.0'-46.0'*	*0-2.0'*	*3.0'-5.0'*	*2.0'-6.0'*	*2.0'-4.0'*	*2.0'-4.0'*	*26.0'-28.0'*
SAMPLE DATE:	*8/15/90*	*8/17/90*	*8/3/90*	*8/6/90*	*8/15/90*	*8/15/90*	*8/8/90*	*8/10/90*	*8/10/90*	*8/10/90*
TCL PESTICIDES/PCBs, µg/kg										
Aldrin	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
Arodor-1016	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Arodor-1221	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Arodor-1232	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Arodor-1242	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Arodor-1248	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Arodor-1254	ND240	ND230 UJ	ND200	ND200	ND210	ND240	ND230 R	ND260	ND260	ND240
Arodor-1260	ND240	ND230 UJ	ND200	ND200	ND210	ND240	ND230 R	ND260	ND260	ND240
gamma-BHC (Lindane)	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
alpha-BHC	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	0.26 J	ND13	ND13	ND12
beta-BHC	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
delta-BHC	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
alpha-Chlordane	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
gamma-Chlordane	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
4,4'-DDD	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
4,4'-DDE	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
4,4'-DDT	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Dieldrin	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Endosulfan I	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
Endosulfan II	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Endosulfan sulfate	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Endrin	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Endrin Ketone	ND24	ND23 UJ	ND20	ND20	ND21	ND24	ND23 R	ND26	ND26	ND24
Heptachlor	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
Heptachlor epoxide	ND12	ND12 UJ	ND10	ND9.8	ND11	ND12	ND12 R	ND13	ND13	ND12
Methoxychlor	ND120	ND120 UJ	ND100	ND98	ND110	ND120	ND120 R	ND130	ND130	ND120
Toxaphene	ND240	ND230 UJ	ND200	ND200	ND210	ND240	ND230 R	ND260	ND260	ND240

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 10	NCR 11	NCR 11	NCR11-DUP	NCR 12	NCR 12	NCR12-DUP	NCR 13	NCR 13	B&J Water
SAMPLE DEPTH:	44.0'-46.0'	0-3.2'	0-3.2'	0-3.2'	22.0'-26.0'	44.0'-46.0'	44.0'-46.0'	0-0.8'	2.5'-3.5'	
SAMPLE DATE:	8/14/90	9/6/90	9/12/90	9/12/90	8/22/90	8/23/90	8/23/90	8/8/90	8/8/90	7/24/90
TIC SEMI-VOLATILES, µg/kg										
Unknown substituted benzene										
Trimethylbenzene isomer										
Saturated hydrocarbon										
Octadenoic acid ester										
Unknown hydrocarbon								1090 J		
Unknown phthalate					540 R					
Unknown acid ester										
Hexanedioic acid ester			10 J		8900 J	8200 J	650 J	960 R	840 R	
Benzaldehyde										
Butanoic acid ester					4700 J					
Dimethyl sulfoxide										
Unknown						37620 R	3000 R			

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	DI Lot Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Potable
SAMPLE DEPTH:		1	2	3	4	5	6	7	8	Water
SAMPLE DATE:	8/23/90	7/26/90	7/31/90	8/8/90	8/10/90	8/16/90	8/21/90	8/28/90	9/6/90	8/1/90
TIC SEMI-VOLATILES, µg/kg										
Unknown substituted benzene										
Trimethylbenzene isomer										
Saturated hydrocarbon								850 J		
Octadenoic acid ester										
Unknown hydrocarbon										
Unknown phthalate										
Unknown acid ester										
Hexanedioic acid ester										
Benzaldehyde										
Butanoic acid ester										
Dimethyl sulfoxide										
Unknown										

BOREHOLE DATA SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 1	NCR 1	NCR 2	NCR 2	NCR 3M	NCR 3M	NCR 4	NCR 4	NCR 5	NCR 5
SAMPLE DEPTH:	1.0'-3.0'	44.0'-46.0'	2.0'-3.0'	24.0'-24.7'	4.0'-6.0'	24.0'-26.0'	1.0'-3.0'	55.0'-57.0'	5.4'-7.0'	44.0'-47.0'
SAMPLE DATE:	8/29/90	8/29/90	7/26/90	7/26/90	7/31/90	7/31/90	8/23/90	8/22/90	8/3/90	8/7/90
TIC SEMI-VOLATILES, µg/kg										
Unknown substituted benzene										57200 J
Trimethylbenzene isomer										2000 J
Saturated hydrocarbon										25100 J
Octadenoic acid ester										26000 J
Unknown hydrocarbon	950 J									274000
Unknown phthalate		510 J								8000 J
Unknown acid ester										2900 J
Hexanedioic acid ester							4800 J			
Benzaldehyde								40 J		
Butanoic acid ester										
Dimethyl sulfoxide										
Unknown	720 R	900 R			39600 R	37500 R	20600 R		45700 R	

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 6	NCR 6	NCR 7	NCR 7	NCR 8	NCR 8	NCR 9M	NCR 10	NCR10-DUP	NCR 10
SAMPLE DEPTH:	2.0'-6.0'	38.0'-40.0'	0-2.0'	44.0'-46.0'	0-2.0'	3.0'-5.0'	2.0'-6.0'	2.0'-4.0'	2.0'-4.0'	26.0'-28.0'
SAMPLE DATE:	8/15/90	8/17/90	8/3/90	8/6/90	8/15/90	8/15/90	8/8/90	8/10/90	8/10/90	8/10/90
TIC SEMI-VOLATILES, µg/kg										
Unknown substituted benzene										
Trimethylbenzene isomer										
Saturated hydrocarbon										
Octadenoic acid ester										
Unknown hydrocarbon										710 J
Unknown phthalate	630 J									
Unknown acid ester										
Hexanedioic acid ester								2000 J	3600 J	5600 J
Benzaldehyde										
Butanoic acid ester										
Dimethyl sulfoxide		770 J								
Unknown		26990 R	26750 R	23780 R						

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 10	NCR 11	NCR 11	NCR11-DUP	NCR 12	NCR 12	NCR12-DUP	NCR 13	NCR 13	B&J Water
SAMPLE DEPTH:	44.0'-46.0'	0-3.2'	0-3.2'	0-3.2'	22.0'-26.0'	44.0'-46.0'	44.0'-46.0'	0-0.8'	2.5'-3.5'	
SAMPLE DATE:	8/14/90	9/6/90	9/12/90	9/12/90	8/22/90	8/23/90	8/23/90	8/8/90	8/8/90	7/24/90
TCL SEMI-VOLATILES, µg/kg										
2,4-Dinitrotoluene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2,6-Dinitrotoluene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
bis(2-Ethylhexyl)phthalate	ND380 R	ND420	ND430	ND410	2900 N	ND360	ND360 R	ND400	ND390	ND10
Fluoranthene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Fluorene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Hexachlorobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Hexachlorobutadiene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Hexachlorocyclopentadiene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Hexachloroethane	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Ideno(1,2,3-cd)pyrene	ND380 R	ND420	ND430 UJ	ND410 UJ	ND360	ND360	ND360 R	ND400	ND390	ND10
Isophorone	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Methylnaphthalene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Methylphenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
4-Methylphenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
N-Nitroso-di-n-dipropylamine	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
N-Nitrosodiphenylamine	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Naphthalene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Nitroaniline	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50 UJ
3-Nitroaniline	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
4-Nitroaniline	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
Nitrobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Nitrophenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
4-Nitrophenol	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
Pentachlorophenol	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
Phenanthrene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Phenol	ND380 R	ND420	ND430	ND410	4300	ND360	ND360 R	ND400	ND390	ND10
Pyrene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
1,2,4-Trichlorobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2,4,5-Trichlorophenol	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
2,4,6-Trichlorophenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	DI Lot Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Rinse Blank	Potable
SAMPLE DEPTH:		1	2	3	4	5	6	7	8	Water
SAMPLE DATE:	8/23/90	7/26/90	7/31/90	8/8/90	8/10/90	8/16/90	8/21/90	8/28/90	9/6/90	8/1/90
TCL SEMI-VOLATILES, µg/kg										
2,4-Dinitrotoluene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2,6-Dinitrotoluene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
bis(2-Ethylhexyl)phthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Fluoranthene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Fluorene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Hexachlorobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Hexachlorobutadiene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Hexachlorocyclopentadiene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4 UJ	ND10	ND10	ND10	ND10
Hexachloroethane	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Ideno(1,2,3-cd)pyrene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Isophorone	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Methylnaphthalene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Methylphenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
4-Methylphenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
N-Nitroso-di-n-dipropylamine	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
N-Nitrosodiphenylamine	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Naphthalene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Nitroaniline	ND50 UJ	ND50	ND50	ND50	ND50 UJ	ND47	ND50	ND50	ND50	ND50 UJ
3-Nitroaniline	ND50 UJ	ND50	ND50	ND50	ND50 UJ	ND47	ND50	ND50	ND50	ND50
4-Nitroaniline	ND50 UJ	ND50	ND50	ND50	ND50 UJ	ND47	ND50	ND50	ND50	ND50
Nitrobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Nitrophenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
4-Nitrophenol	ND50	ND50	ND50	ND50	ND50	ND47 R	ND50	ND50	ND50	ND50
Pentachlorophenol	ND50	ND50	ND50	ND50	ND50	ND47	ND50	ND50	ND50	ND50
Phenanthrene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Phenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
Pyrene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
1,2,4-Trichlorobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2,4,5-Trichlorophenol	ND50	ND50	ND50	ND50	ND50	ND47	ND50	ND50	ND50	ND50
2,4,6-Trichlorophenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10

BOREHOLE DATA SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 1	NCR 1	NCR 2	NCR 2	NCR 3M	NCR 3M	NCR 4	NCR 4	NCR 5	NCR 5
SAMPLE DEPTH:	1.0'-3.0'	44.0'-46.0'	2.0'-3.0'	24.0'-24.7'	4.0'-6.0'	24.0'-26.0'	1.0'-3.0'	55.0'-57.0'	5.4'-7.0'	44.0'-47.0'
SAMPLE DATE:	8/29/90	8/29/90	7/26/90	7/26/90	7/31/90	7/31/90	8/23/90	8/22/90	8/3/90	8/7/90
TCL SEMI-VOLATILES, µg/kg										
2,4-Dinitrotoluene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2,6-Dinitrotoluene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
bis(2-Ethylhexyl)phthalate	ND370 UJ	ND370 UJ	ND350	ND340	ND420	ND370	ND380 UJ	1400 N	ND380	ND380
Fluoranthene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Fluorene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Hexachlorobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Hexachlorobutadiene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Hexachlorocyclopentadiene	ND370	ND370	ND350	ND340	ND420 UJ	ND370 UJ	ND380 UJ	ND360	ND380 UJ	ND380
Hexachloroethane	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Ideno(1,2,3-cd)pyrene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380 UJ	ND380
Isophorone	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2-Methylnaphthalene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2-Methylphenol	ND370	ND370	ND350 UJ	ND340 UJ	ND420	ND370	ND380 UJ	ND360	ND380	ND380
4-Methylphenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
N-Nitroso-di-n-dipropylamine	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
N-Nitrosodiphenylamine	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Naphthalene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2-Nitroaniline	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
3-Nitroaniline	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
4-Nitroaniline	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
Nitrobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2-Nitrophenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
4-Nitrophenol	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
Pentachlorophenol	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
Phenanthrene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Phenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Pyrene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
1,2,4-Trichlorobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2,4,5-Trichlorophenol	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
2,4,6-Trichlorophenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 6	NCR 6	NCR 7	NCR 7	NCR 8	NCR 8	NCR 9M	NCR 10	NCR10-DUP	NCR 10
SAMPLE DEPTH:	2.0'-6.0'	38.0'-40.0'	0-2.0'	44.0'-46.0'	0-2.0'	3.0'-5.0'	2.0'-6.0'	2.0'-4.0'	2.0'-4.0'	26.0'-28.0'
SAMPLE DATE:	8/15/90	8/17/90	8/3/90	8/6/90	8/15/90	8/15/90	8/8/90	8/10/90	8/10/90	8/10/90
TCL SEMI-VOLATILES, µg/kg										
2,4-Dinitrotoluene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2,6-Dinitrotoluene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
bis(2-Ethylhexyl)phthalate	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	1500
Fluoranthene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Fluorene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Hexachlorobenzene	ND370 R	ND360	ND340	ND370	ND390 R	ND370 R	ND370 R	ND400	ND420	ND380
Hexachlorobutadiene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Hexachlorocyclopentadiene	ND370	ND360	ND340 UJ	ND370 UJ	ND390	ND370	ND370 R	ND400	ND420	ND380
Hexachloroethane	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Ideno(1,2,3-cd)pyrene	ND370	ND360	ND340 UJ	ND370 UJ	ND390	ND370	ND370 R	ND400	ND420	ND380
Isophorone	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2-Methylnaphthalene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2-Methylphenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Methylphenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
N-Nitroso-di-n-dipropylamine	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
N-Nitrosodiphenylamine	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Naphthalene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2-Nitroaniline	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
3-Nitroaniline	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
4-Nitroaniline	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
Nitrobenzene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2-Nitrophenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Nitrophenol	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
Pentachlorophenol	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
Phenanthrene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Phenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Pyrene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
1,2,4-Trichlorobenzene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2,4,5-Trichlorophenol	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
2,4,6-Trichlorophenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 10	NCR 11	NCR 11	NCR11-DUP	NCR 12	NCR 12	NCR12-DUP	NCR 13	NCR 13	B&J Water
SAMPLE DEPTH:	44.0'-46.0'	0-3.2'	0-3.2'	0-3.2'	22.0'-26.0'	44.0'-46.0'	44.0'-46.0'	0-0.8'	2.5'-3.5'	
SAMPLE DATE:	8/14/90	9/6/90	9/12/90	9/12/90	8/22/90	8/23/90	8/23/90	8/8/90	8/8/90	7/24/90
TCL SEMI-VOLATILES, µg/kg										
Acenaphthene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Acenaphthylene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Anthracene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzo(a)anthracene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzo(a)pyrene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzo(b)fluoranthene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzo(g,h,i)perylene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzo(k)fluoranthene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Benzoic acid	ND1900 R	ND2100	ND2100	ND2100	3500 J	ND1800 R	ND1800 R	ND2000 UJ	ND2000	ND50
Benzyl alcohol	ND380 R	ND420	ND430	ND410	ND360 UJ	ND360	ND360 R	ND400 UJ	ND390	ND10
4-Bromophenyl-phenylether	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Butylbenzylphthalate	ND380 R	ND420	ND430	ND410	2800	ND360	ND360 R	ND400	ND390	ND10
4-Chloro-3-methylphenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
4-Chloroaniline	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
bis(2-Chloroethoxy)methane	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
bis(2-Chloroethyl)ether	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
bis(2-Chloroisopropyl)ether	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Chloronaphthalene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2-Chlorophenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
4-Chlorophenyl-phenyl ether	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Chrysene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Di-n-butylphthalate	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Di-n-octylphthalate	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Dibenz(a,h)anthracene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Dibenzofuran	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
1,2-Dichlorobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
1,3-Dichlorobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
1,4-Dichlorobenzene	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
3,3'-Dichlorobenzidine	ND760 R	ND840	ND860	ND820	ND730	ND720	ND720 R	ND810	ND790	ND20
2,4-Dichlorophenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Diethylphthalate	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
2,4-Dimethylphenol	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
Dimethylphthalate	ND380 R	ND420	ND430	ND410	ND360	ND360	ND360 R	ND400	ND390	ND10
4,6-Dinitro-2-methylphenol	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000	ND2000	ND50
2,4-Dinitrophenol	ND1900 R	ND2100	ND2100	ND2100	ND1800	ND1800	ND1800 R	ND2000 UJ	ND2000	ND50

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	DI Lot Blank	Rinse Blank 1	Rinse Blank 2	Rinse Blank 3	Rinse Blank 4	Rinse Blank 5	Rinse Blank 6	Rinse Blank 7	Rinse Blank 8	Potable Water
SAMPLE DEPTH:										
SAMPLE DATE:	8/23/90	7/26/90	7/31/90	8/8/90	8/10/90	8/16/90	8/21/90	8/28/90	9/6/90	8/1/90
TCL SEMI-VOLATILES, µg/kg										
Acenaphthene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Acenaphthylene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Anthracene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzo(a)anthracene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzo(a)pyrene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzo(b)fluoranthene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzo(g,h,i)perylene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzo(k)fluoranthene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Benzoic acid	ND50 R	ND50	ND50	ND50 UJ	ND50	ND47	ND50	ND50	ND50	ND50
Benzyl alcohol	ND10 R	ND10	ND10	ND10 UJ	ND10	ND9.4 R	ND10	ND10	ND10	ND10
4-Bromophenyl-phenylether	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Butylbenzylphthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	140	ND10	ND10
4-Chloro-3-methylphenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
4-Chloroaniline	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
bis(2-Chloroethoxy)methane	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
bis(2-Chloroethyl)ether	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
bis(2-Chloroisopropyl)ether	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Chloronaphthalene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2-Chlorophenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
4-Chlorophenyl-phenyl ether	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Chrysene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Di-n-butylphthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Di-n-octylphthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Dibenz(a,h)anthracene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
Dibenzofuran	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
1,2-Dichlorobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
1,3-Dichlorobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
1,4-Dichlorobenzene	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
3,3'-Dichlorobenzidine	ND20 UJ	ND20	ND20	ND20	ND20 UJ	ND19	ND20	ND20	ND20	ND20
2,4-Dichlorophenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
Diethylphthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
2,4-Dimethylphenol	ND10	ND10	ND10	ND10	ND10	ND9.4	ND10	ND10	ND10	ND10
Dimethylphthalate	ND10 UJ	ND10	ND10	ND10	ND10 UJ	ND9.4	ND10	ND10	ND10	ND10
4,6-Dinitro-2-methylphenol	ND50	ND50	ND50	ND50	ND50	ND47	ND50	ND50	ND50	ND50
2,4-Dinitrophenol	ND50	ND50	ND50	ND50 UJ	ND50	ND47 R	ND50	ND50	ND50	ND50

BOREHOLE DATA / SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 1	NCR 1	NCR 2	NCR 2	NCR 3M	NCR 3M	NCR 4	NCR 4	NCR 5	NCR 5
SAMPLE DEPTH:	1.0'-3.0'	44.0'-46.0'	2.0'-3.0'	24.0'-24.7'	4.0'-6.0'	24.0'-26.0'	1.0'-3.0'	55.0'-57.0'	5.4'-7.0'	44.0'-47.0'
SAMPLE DATE:	8/29/90	8/29/90	7/26/90	7/26/90	7/31/90	7/31/90	8/23/90	8/22/90	8/3/90	8/7/90
TCL SEMI-VOLATILES, µg/kg										
Acenaphthene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Acenaphthylene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Anthracene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzo(a)anthracene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzo(a)pyrene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzo(b)fluoranthene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzo(g,h,i)perylene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzo(k)fluoranthene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Benzoic acid	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 R	ND1800 UJ	ND1900	ND1900 UJ
Benzyl alcohol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360 UJ	ND380	ND380 UJ
4-Bromophenyl-phenylether	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Butylbenzylphthalate	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	1200	ND380	ND380
4-Chloro-3-methylphenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
4-Chloroaniline	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
bis(2-Chloroethoxy)methane	ND370	ND370	ND350 UJ	ND340 UJ	ND420 UJ	ND370 UJ	ND380 UJ	ND360	ND380	ND380
bis(2-Chloroethyl)ether	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
bis(2-Chloroisopropyl)ether	ND370 UJ	ND370 UJ	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380 UJ	ND380
2-Chloronaphthalene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2-Chlorophenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
4-Chlorophenyl-phenyl ether	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Chrysene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Di-n-butylphthalate	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Di-n-octylphthalate	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Dibenz(a,h)anthracene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Dibenzofuran	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
1,2-Dichlorobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
1,3-Dichlorobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
1,4-Dichlorobenzene	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
3,3'-Dichlorobenzidine	ND740	ND730	ND700	ND680	ND840	ND740	ND760 UJ	ND730	ND760	ND750
2,4-Dichlorophenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Diethylphthalate	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
2,4-Dimethylphenol	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
Dimethylphthalate	ND370	ND370	ND350	ND340	ND420	ND370	ND380 UJ	ND360	ND380	ND380
4,6-Dinitro-2-methylphenol	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900
2,4-Dinitrophenol	ND1800	ND1800	ND1700	ND1700	ND2100	ND1800	ND1900 UJ	ND1800	ND1900	ND1900 UJ

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 6	NCR 6	NCR 7	NCR 7	NCR 8	NCR 8	NCR 9M	NCR 10	NCR10-DUP	NCR 10
SAMPLE DEPTH:	2.0'-6.0'	38.0'-40.0'	0-2.0'	44.0'-46.0'	0-2.0'	3.0'-5.0'	2.0'-6.0'	2.0'-4.0'	2.0'-4.0'	26.0'-28.0'
SAMPLE DATE:	8/15/90	8/17/90	8/3/90	8/6/90	8/15/90	8/15/90	8/8/90	8/10/90	8/10/90	8/10/90
TCL SEMI-VOLATILES, µg/kg										
Acenaphthene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Acenaphthylene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Anthracene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Benzo(a)anthracene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Benzo(a)pyrene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Benzo(b)fluoranthene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Benzo(g,h,i)perylene	ND370 UJ	ND360	ND340	ND370	ND390 UJ	ND370 UJ	ND370 R	ND400	ND420	ND380
Benzo(k)fluoranthene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Benzoic acid	ND1800 UJ	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
Benzyl alcohol	ND370 UJ	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Bromophenyl-phenylether	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Butylbenzylphthalate	ND370	1200	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Chloro-3-methylphenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Chloroaniline	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
bis(2-Chloroethoxy)methane	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
bis(2-Chloroethyl)ether	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
bis(2-Chloroisopropyl)ether	ND370	ND360	ND340 UJ	ND370 UJ	ND390	ND370	ND370 R	ND400	ND420	ND380
2-Chloronaphthalene	ND370 UJ	ND360	ND340	ND370	ND390 UJ	ND370 UJ	ND370 R	ND400	ND420	ND380
2-Chlorophenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4-Chlorophenyl-phenyl ether	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Chrysene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Di-n-butylphthalate	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Di-n-octylphthalate	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Dibenz(a,h)anthracene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Dibenzofuran	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
1,2-Dichlorobenzene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
1,3-Dichlorobenzene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
1,4-Dichlorobenzene	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
3,3'-Dichlorobenzidine	ND740	ND730	ND690	ND750	ND790	ND730	ND740 R	ND800	ND830	ND750
2,4-Dichlorophenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Diethylphthalate	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
2,4-Dimethylphenol	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
Dimethylphthalate	ND370	ND360	ND340	ND370	ND390	ND370	ND370 R	ND400	ND420	ND380
4,6-Dinitro-2-methylphenol	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900
2,4-Dinitrophenol	ND1800	ND1800	ND1700	ND1900	ND2000	ND1800	ND1900 R	ND2000	ND2100	ND1900

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 10	NCR 11	NCR 11	NCR11-DUP	NCR 12	NCR 12	NCR12-DUP	NCR 13	NCR 13	B&J Water
SAMPLE DEPTH:	44.0'-46.0'	0-3.2'	0-3.2'	0-3.2'	22.0'-26.0'	44.0'-46.0'	44.0'-46.0'	0-0.8'	2.5'-3.5'	
SAMPLE DATE:	8/14/90	9/6/90	9/12/90	9/12/90	8/22/90	8/23/90	8/23/90	8/8/90	8/8/90	7/24/90
TCL VOLATILES, µg/kg										
Acetone	ND12	ND13	ND13	ND13	98 J	ND11 UJ	ND11 UJ	18 JQ [ND19]	ND12 [ND 11]	ND10
Benzene	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Bromodichloromethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Bromoform	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 R	ND5.4 UJ	ND6.2 [ND11]	ND6.0 [ND11]	ND5.0
Bromomethane	ND12 UJ	ND13	ND13	ND13	ND11 UJ	ND11 UJ	ND11 UJ	ND6.2 [ND6]	ND12 [ND6]	ND10
2-Butanone	ND12 R	ND13	ND13 UJ	ND13 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND6.2 [ND11]	ND12 [ND11]	ND10
Carbon disulfide	ND5.8 UJ	ND6.4	ND6.6 UJ	ND6.4 UJ	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Carbon tetrachloride	ND5.8	ND6.4	ND6.6 UJ	ND6.4 UJ	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Chlorobenzene	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Chloroethane	ND12 UJ	ND13	ND13	ND13	ND11 UJ	ND11 UJ	ND11 UJ	ND6.2 [ND11]	ND12 [ND11]	ND10
Chloroform	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Chloromethane	ND12	ND13	ND13	ND13	ND11 UJ	ND11 UJ	ND11 UJ	ND6.2 [ND11]	ND12 [ND11]	ND10
Dibromochloromethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
1,1-Dichloroethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
1,2-Dichloroethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
1,2-Dichloroethene (total)	ND5.8 UJ	ND6.4	ND6.6 UJ	ND6.4 UJ	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	440 JQ [ND6.0]	ND6.0 [ND6.0]	ND5.0
1,1-Dichloroethene	ND5.8 UJ	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
1,2-Dichloropropane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
cis-1,3-Dichloropropene	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
trans-1,3-Dichloropropene	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Ethylbenzene	ND5.8	ND6.4	ND6.6	ND6.4	5 J	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6.0]	ND6.0 [ND6.0]	ND5.0
2-Hexanone	ND12 UJ	ND13	ND13 UJ	ND13 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND12 [ND17]	ND12 [ND17]	ND10
4-Methyl-2-pentanone	ND12 UJ	ND13	ND13	ND13	ND11 UJ	ND11 UJ	ND11 UJ	ND12 [ND17]	ND12 [ND17]	ND10
Methylene chloride	ND5.8	ND6.4	ND6.6 UJ	ND6.4 UJ	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	6.5 Q [ND19]	17Q [ND24]	ND5.0
Styrene	ND5.8	ND6.4	ND6.6	ND6.4	4.9 J	ND5.4 UJ	ND5.4 UJ	1.4 JQ [ND6.0]	ND6.0 [ND6.0]	ND5.0
1,1,2,2-Tetrachloroethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND11]	ND6.0 [ND11]	ND5.0
Tetrachloroethene	ND5.8	ND6.4	ND6.6 UJ	ND6.4 UJ	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0
Toluene	ND5.8	ND6.4	ND6.6	ND6.4	51	15 J	ND5.4 UJ	ND6.2 [ND6.0]	ND6.0 [ND6.0]	ND5.0
Total xylenes	ND5.8	ND6.4	ND6.6	ND6.4	26	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6.0]	ND6.0 [ND6.0]	ND5.0
1,1,1-Trichloroethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6.0]	ND6.0 [ND6.0]	ND5.0 UJ
1,1,2-Trichloroethane	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2 [ND6]	ND6.0 [ND6]	ND5.0 UJ
Trichloroethene	ND5.8	ND6.4	ND6.6	ND6.4	ND5.4 UJ	ND5.4 UJ	ND5.4 UJ	32 Q [ND6.0]	68Q [ND6.0]	ND5.0
Vinyl acetate	ND12 UJ	ND13	ND13 UJ	ND13 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND12 UJ [ND11]	ND12 [ND11]	ND10
Vinyl chloride	ND12	ND13	ND13	ND13	ND11 UJ	ND11 UJ	ND11 UJ	240 Q [ND11]	21Q [ND6.0]	ND10
TIC VOLATILES, µg/kg										
1,2-Dichloroethene isomer										

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*DI Lot Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Rinse Blank*	*Potable*
SAMPLE DEPTH:		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*Water*
SAMPLE DATE:	*8/23/90*	*7/26/90*	*7/31/90*	*8/8/90*	*8/10/90*	*8/16/90*	*8/21/90*	*8/28/90*	*9/6/90*	*8/1/90*
TCL VOLATILES, µg/kg										
Acetone	ND10	ND10 UJ	ND10	ND10	ND10	ND10 R	ND10	ND10	ND10	ND10
Benzene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Bromodichloromethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Bromoform	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Bromomethane	ND10	ND10	ND10	ND10	ND10	ND10 R	ND10	ND10	ND10	ND10
2-Butanone	ND10 UJ	ND10 UJ	ND10 UJ	ND10 UJ	ND10	ND10 R	ND10 UJ	ND10	ND10	ND10 UJ
Carbon disulfide	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Carbon tetrachloride	ND5.0	ND5.0 UJ	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Chlorobenzene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Chloroethane	ND10 UJ	ND10	ND10	ND10 UJ	ND10	ND10 R	ND10	ND10 R	ND10	ND10
Chloroform	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	14
Chloromethane	ND10	ND10	ND10	ND10	ND10	ND10 R	ND10	ND10	ND10	ND10 UJ
Dibromochloromethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0 R	ND5.0	ND5.0
1,1-Dichloroethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0 UJ	ND5.0	ND5.0
1,2-Dichloroethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
1,2-Dichloroethene (total)	ND5.0 UJ	ND5.0	ND5.0	ND5.0 UJ	ND5.0 UJ	ND5.0 R	ND5.0	ND5.0 UJ	ND5.0	ND5.0
1,1-Dichloroethene	ND5.0	ND5.0 UJ	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
1,2-Dichloropropane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
cis-1,3-Dichloropropene	ND5.0	ND5.0 UJ	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
trans-1,3-Dichloropropene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0 R
Ethylbenzene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
2-Hexanone	ND10	ND10 UJ	ND10 UJ	ND10	ND10	ND10 R	ND10	ND10 UJ	ND10	ND10
4-Methyl-2-pentanone	ND10	ND10	ND10	ND10	ND10	ND10 R	ND10	ND10	ND10	ND10
Methylene chloride	ND5.0 UJ	1.0 J	1.9 J	ND5.0 UJ	ND5.0	ND5.0 R	ND5.0 UJ	ND5.0	ND5.0	19 U
Styrene	ND5.0 UJ	ND5.0	ND5.0	ND5.0 UJ	ND5.0	ND5.0 R	ND5.0 UJ	ND5.0	ND5.0	ND5.0
1,1,2,2-Tetrachloroethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Tetrachloroethene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Toluene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Total xylenes	ND5.0 UJ	ND5.0	ND5.0	ND5.0 UJ	ND5.0	ND5.0 R	ND5.0 UJ	ND5.0	ND5.0	ND5.0
1,1,1-Trichloroethane	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0 UJ	ND5.0	ND5.0	ND5.0
1,1,2-Trichloroethane	ND5.0 UJ	ND5.0	ND5.0	ND5.0 UJ	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Trichloroethene	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0 R	ND5.0	ND5.0	ND5.0	ND5.0
Vinyl acetate	ND10 UJ	ND10	ND10	ND10 UJ	ND10	ND10 R	ND10	ND10	ND10	ND10 UJ
Vinyl chloride	ND10	ND10	ND10	ND10	ND10	ND10 R	ND10	ND10	ND10	ND10
TIC VOLATILES, µg/kg										
1,2-Dichloroethene isomer										

BOREHOLE DATA SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 1	NCR 1	NCR 2	NCR 2	NCR 3M	NCR 3M	NCR 4	NCR 4	NCR 5	NCR 5 (1)
SAMPLE DEPTH:	1.0'-3.0'	44.0'-46.0'	2.0'-3.0'	24.0'-24.7'	4.0'-6.0'	24.0'-26.0'	1.0'-3.0'	55.0'-57.0'	5.4'-7.0'	44.0'-47.0'
SAMPLE DATE:	8/29/90	8/29/90	7/26/90	7/26/90	7/31/90	7/31/90	8/23/90	8/22/90	8/3/90	8/7/90
TCL VOLATILES, µg/kg										
Acetone	ND11 UJ	ND11 UJ	ND11 UJ	ND11	ND12	ND11	ND11	50 J	ND12	ND12
Benzene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4 UJ	ND5.8	ND5.8
Bromodichloromethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Bromoform	ND5.6 R	ND5.5 R	ND5.4 UJ	ND5.4	ND6.2 UJ	ND5.7 UJ	ND5.7 R	ND5.4	ND5.8	ND5.8
Bromomethane	ND11 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND12	ND11	ND11	ND11	ND12	ND12
2-Butanone	ND11 UJ	ND11 UJ	ND11 UJ	ND11	ND12	ND11	ND11	ND11	ND12	ND12
Carbon disulfide	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8	ND5.8
Carbon tetrachloride	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Chlorobenzene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8	ND5.8
Chloroethane	ND11 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND12	ND11	ND11	ND11	ND12	ND12
Chloroform	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Chloromethane	ND11 UJ	ND11 UJ	ND11 UJ	ND11	ND12	ND11	ND11 UJ	ND11	ND12	ND12
Dibromochloromethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
1,1-Dichloroethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8	ND5.8
1,2-Dichloroethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
1,2-Dichloroethene (total)	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4 UJ	ND5.8	390 JQ
1,1-Dichloroethene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8 UJ	ND5.8
1,2-Dichloropropane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
cis-1,3-Dichloropropene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
trans-1,3-Dichloropropene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4 UJ	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Ethylbenzene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	65 Q
2-Hexanone	ND11 UJ	ND11 UJ	ND11 UJ	ND11	ND12	ND11	ND11	ND11	ND12	ND12
4-Methyl-2-pentanone	ND11 UJ	ND11 UJ	ND11 R	ND11 R	ND12	ND11	ND11	ND11	ND12	ND12
Methylene chloride	ND5.6 UJ	ND5.5 UJ	3.5 J	49	ND6.2	ND5.7	ND5.7 UJ	20	ND5.8	ND5.8
Styrene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	39 JQ
1,1,2,2-Tetrachloroethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Tetrachloroethene	ND5.6 UJ	ND5.5 UJ	ND5.4 R	ND5.4 R	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8	ND5.8
Toluene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	3.6JQ
Total xylenes	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
1,1,1-Trichloroethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
1,1,2-Trichloroethane	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	ND5.4	ND6.2	ND5.7	ND5.7	ND5.4	ND5.8	ND5.8
Trichloroethene	ND5.6 UJ	ND5.5 UJ	ND5.4 UJ	24	ND6.2	ND5.7	ND5.7 UJ	ND5.4	ND5.8	ND5.8
Vinyl acetate	ND11 UJ	ND11 UJ	ND11 UJ	ND11 UJ	ND12	ND11	ND11 UJ	ND11	ND12 UJ	ND12 UJ
Vinyl chloride	ND11 UJ	ND11 UJ	ND11 UJ	ND11	ND12	ND11	ND11	ND11	ND12	190 Q
TIC VOLATILES, µg/kg										
1,2-Dichloroethene isomer										

BOREHOLE SOIL SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR 6	NCR 6	NCR 7	NCR 7	NCR 8	NCR 8	NCR 9M	NCR 10	NCR10-DUP	NCR 10
SAMPLE DEPTH:	2.0'-6.0'	38.0'-40.0'	0-2.0'	44.0'-46.0'	0-2.0'	3.0'-5.0'	2.0'-6.0'	2.0'-4.0'	2.0'-4.0'	26.0'-28.0'
SAMPLE DATE:	8/15/90	8/17/90	8/3/90	8/6/90	8/15/90	8/15/90	8/8/90	8/10/90	8/10/90	8/10/90
TCL VOLATILES, µg/kg										
Acetone	ND11	ND11 UJ	ND10	ND12	ND12	ND12	ND11	ND12	ND13	ND12
Benzene	ND5.6	ND5.5 R	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Bromodichloromethane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Bromoform	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Bromomethane	ND11 UJ	ND11	ND10	ND12	ND12 UJ	ND12 UJ	ND11	ND12	ND13	ND12
2-Butanone	ND11 R	ND11	ND10	ND12	ND12 R	ND12 R	ND11	ND12	ND13	ND12
Carbon disulfide	ND5.6 UJ	ND5.5	ND5.2	ND5.9	ND6.0 UJ	ND6.0 UJ	ND5.6	ND6.1	ND6.4	ND5.8
Carbon tetrachloride	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Chlorobenzene	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Chloroethane	ND11 UJ	ND11	ND10	ND12	ND12 UJ	ND12 UJ	ND11	ND12	ND13	ND12
Chloroform	ND5.6	ND5.5 R	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Chloromethane	ND11	ND11 UJ	ND10	ND12	ND12	ND12	ND11	ND12	ND13	ND12
Dibromochloromethane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,1-Dichloroethane	ND5.6	ND5.5 UJ	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,2-Dichloroethane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,2-Dichloroethene (total)	160 J	ND5.5 UJ	ND5.2	ND5.9	ND6.0 UJ	ND6.0 UJ	320 J	ND6.1 UJ	ND6.4 UJ	ND5.8 UJ
1,1-Dichloroethene	ND5.6	ND5.5	ND5.2 UJ	ND5.9 UJ	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,2-Dichloropropane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
cis-1,3-Dichloropropene	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
trans-1,3-Dichloropropene	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Ethylbenzene	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
2-Hexanone	ND11 UJ	ND11	ND10	ND12	ND12 UJ	ND12 UJ	ND11	ND12 UJ	ND13 UJ	ND12 UJ
4-Methyl-2-pentanone	ND11 UJ	ND11	ND10	ND12	ND12 UJ	ND12 UJ	ND11	ND12	ND13	ND12
Methylene chloride	5.7 J	ND5.5 UJ	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	8.2	ND6.4	ND5.8
Styrene	ND5.6	ND5.5 UJ	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,1,2,2-Tetrachloroethane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0 UJ	ND5.6	ND6.1	ND6.4	ND5.8
Tetrachloroethene	ND5.6	ND5.5 R	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Toluene	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Total xylenes	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
1,1,1-Trichloroethane	5.6	ND5.5	ND5.2	ND5.9	6.1	6.1	ND5.6	5.7 J	ND6.4	ND5.8
1,1,2-Trichloroethane	ND5.6	ND5.5	ND5.2	ND5.9	ND6.0	ND6.0	ND5.6	ND6.1	ND6.4	ND5.8
Trichloroethene	15 J	ND5.5 UJ	ND5.2	ND5.9	20 J	ND6.0	15J	14 J	14 J	14 J
Vinyl acetate	ND11 UJ	ND11 UJ	ND10 UJ	ND12 UJ	ND12 UJ	ND12 UJ	ND11 UJ	ND12 UJ	ND13 UJ	ND12 UJ
Vinyl chloride	ND11	ND11	ND10	ND12	ND12	ND12	ND11	ND12	ND13	ND12
TIC VOLATILES, µg/kg										
1,2-Dichloroethene isomer								150J		

SEDIMENT SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION: / SAMPLE DATE:	SED14-R 11/27/90	SED15-R 11/27/90	SED16-R 11/27/90	SED17-R 11/28/90	SED18-R 11/28/90	RINSATE BLANK1	RINSATE BLANK2
METALS, mg/kg							
Aluminum	13000	23100	27800	17000	6480	ND(200)	ND(200)
Antimony	ND(14)	ND(11)	ND(13)	ND(9.6)	ND(13)	ND(100)	ND(100)
Arsenic	16.1	26.8	24.4	21	7.2	ND(4)	ND(4)
Barium	87	118	156	122	114	ND(10)	ND(10)
Beryllium	0.54	0.97	1.3	0.8	0.48	ND(2)	ND(2)
Cadmium	ND(0.72)	0.82	ND(0.65)	ND(0.48)	2.1	ND(5)	ND(5)
Calcium	41800	61400	28400	38500	115000	ND(1000)	ND(1000)
Chromium	17.3	29.2	34.8	21.3	14.1	ND(10)	ND(10)
Cobalt	7.2	13.1	11.8	9	17.7	ND(10)	ND(10)
Copper	18.6	22.4	27.8	36.7	11.9	ND(2)	ND(2)
Cyanide	ND(0.96)	ND(0.81)	ND(1.1)	ND(0.64)	ND(0.98)	ND(10)	ND(10)
Iron	17700	28500	32000	22100	8590	100	49
Lead	31.4	45.6	40.2	50	59	<4.2	<7.3
Magnesium	11600	17600	12500	7710	48700	ND(1000)	ND(1000)
Manganese	344	511	402	515	451	ND(10)	ND(10)
Mercury	0.44	0.082	0.28	ND(0.064)	ND(0.10)	ND(.2)	ND(.2)
Nickel	20.9	27.9	35.4	23.6	7.4	ND(20)	ND(20)
Potassium	3520	5960	6340	2730	1320	ND(3000)	ND(3000)
Selenium	ND(0.68)	ND(0.55)	ND(0.61)	ND(0.51)	ND(0.69)	ND(5)	ND(5)
Silver	ND(1.4)	ND(1.1)	ND(1.3)	ND(0.96)	ND(1.3)	ND(10)	ND(10)
Sodium	694	790	240	279	528	1010	ND(1000)
Thallium	ND(0.68)	ND(0.55)	ND(0.61)	ND(0.51)	ND(0.69)	ND(5.0)	ND(5.0)
Vanadium	24.4	40.9	49	29.3	12	ND(20)	ND(20)
Zinc	76.6	97.7	120	142	78	ND(20)	ND(20)

COMPLETE

SURFACE WATER DATA SUMMARY

SAMPLE LOCATION:	SW1-R	SW2-R	SW4-R	SW5-R	SW7-R	SW8-R	TRIPBLANK 03
SAMPLE DATE:	11/28/90	11/29/90	11/28/90	11/28/90	11/29/90	11/29/90	11/28/90
TCL VOLATILE ORGANICS, µg/L							
1,1,1,2-Tetrachloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,1-Trichloroethane	ND(5.0)	ND(5.0)	2 J	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,2-Trichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethene (total)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Butanone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	41
2-Hexanone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Methyl-2-pentanone(MIBK)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Acetone	ND(10)	ND(10) UJ	14 U	15 U	ND(10) UJ	ND(10) UJ	ND20
Benzene	5 U	ND(5.0)	5 U	5 U	ND(5.0)	ND(5.0)	1J
Bromodichloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromomethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Carbon disulfide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Carbon tetrachloride	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Chloroform	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloromethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibromochloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethyl benzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene chloride	16 U	21 U	20 U	15 U	21 U	20 U	27
Styrene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Tetrachloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Toluene	ND(5.0)	ND(5.0)	2 J	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Tribromomethane(Bromoform)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Trichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vinyl acetate	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(10)
Vinyl chloride	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Xylenes	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
cis-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
trans-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
TIC VOLATILE ORGANICS, µg/L							
Unknown hydrocarbon					13 J		

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	TRIPBLANK 04	SW10-R	SW11-R	SW11-RDUP	SW-13 R	SW18-R
SAMPLE DATE:	11/29/90	11/29/90	11/28/90	11/28/90	11/28/90	11/28/90
TCL VOLATILE ORGANICS, µg/L						
1,1,1,2-Tetrachloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,1-Trichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,2-Trichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloroethene (total)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Butanone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Hexanone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Methyl-2-pentanone(MIBK)	ND(10)	ND(10)	2 J	ND(10)	ND(10)	ND(10)
Acetone	ND(10)	ND(10)	16 U	20 U	ND(10)	ND(10)
Benzene	ND(5.0)	ND(5.0)	5 U	5 U	5 U	5 U
Bromodichloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromomethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Carbon disulfide	ND(5.0)	ND(5.0)	0.7 J	0.6 J	1 J	8
Carbon tetrachloride	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Chloroform	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Chloromethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibromochloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethyl benzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	1 J	ND(5.0)
Methylene chloride	23	18 U	23 U	30 U	31 U	34 U
Styrene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Tetrachloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	4 J
Toluene	ND(5.0)	ND(5.0)	2 J	2 J	ND(5.0)	ND(5.0)
Tribromomethane(Bromoform)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Trichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vinyl acetate	ND(10)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vinyl chloride	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Xylenes	ND(5.0)	ND(5.0)	6	5	ND(5.0)	ND(5.0)
cis-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
trans-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
TIC VOLATILE ORGANICS, µg/L						
Unknown hydrocarbon						

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW1-R	SW2-R	SW4-R	SW5-R	SW7-R	SW8-R
SAMPLE DATE:	11/28/90	11/29/90	11/28/90	11/28/90	11/29/90	11/29/90
TCL SEMI-VOLATILE ORGANICS, µg/L						
1,2,4-Trichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
1,2-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
1,3-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
1,4-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2,4,5-Trichlorophenol	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
2,4,6-Trichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2,4-Dichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2,4-Dimethylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2,4-Dinitrophenol	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
2,4-Dinitrotoluene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2,6-Dinitrotoluene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2-Chloronaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2-Chlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2-Methylnaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2-Methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
2-Nitroaniline	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
2-Nitrophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
3,3'-Dichlorobenzidine	ND(19)	ND(19)	ND(19)	ND(20)	ND(19)	ND(19)
3-Nitroaniline	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
4,6-Dinitro-2-methylphenol	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
4-Bromophenyl phenyl ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
4-Chloro-3-methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
4-Chloroaniline	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
4-Chlorophenyl phenyl ethe	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
4-Methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
4-Nitroaniline	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
4-Nitrophenol	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
Acenaphthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Acenaphthylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Benzo(a)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Benzo(a)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Benzo(b)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW10-R	SW11-R	SW11-RDUP	SW-13 R	SW18-R
SAMPLE DATE:	11/29/90	11/28/90	11/28/90	11/28/90	11/28/90
TCL SEMI-VOLATILE ORGANICS, µg/L					
1,2,4-Trichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,2-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,3-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
1,4-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4,5-Trichlorophenol	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
2,4,6-Trichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4-Dichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,4-Dimethylphenol	ND(10)	7 J	6 J	ND(10)	ND(10)
2,4-Dinitrophenol	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
2,4-Dinitrotoluene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2,6-Dinitrotoluene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Chloronaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Chlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Methylnaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
2-Nitroaniline	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
2-Nitrophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
3,3'-Dichlorobenzidine	ND(20)	ND(19)	ND(19)	ND(19)	ND(19)
3-Nitroaniline	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
4,6-Dinitro-2-methylphenol	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
4-Bromophenyl phenyl ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chloro-3-methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chloroaniline	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Chlorophenyl phenyl ethe	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
4-Nitroaniline	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
4-Nitrophenol	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
Acenaphthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Acenaphthylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo(a)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo(a)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo(b)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW1-R	SW2-R	SW4-R	SW5-R	SW7-R	SW8-R
SAMPLE DATE:	11/28/90	11/29/90	11/28/90	11/28/90	11/29/90	11/29/90
TCL SEMI-VOLATILE ORGANICS, µg/L						
Benzo(g,h,i)perylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Benzo(k)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Benzoic acid	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
Benzyl alcohol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Butylbenzylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Chrysene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Di-n-butylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Di-n-octylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Dibenz(a,h)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Dibenzofuran	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Diethylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Dimethylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Fluorene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Hexachlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Hexachlorobutadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Hexachlorocyclopentadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Hexachloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Indeno(1,2,3-cd)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Isophorone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
N-Nitrosodi-n-propylamine	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
N-Nitrosodiphenylamine	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Naphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Nitrobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Pentachlorophenol	ND(48)	ND(48)	ND(48)	ND(50)	ND(48)	ND(47)
Phenanthrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
Phenol	ND(10)	ND(10)	11	ND(10)	ND(10)	ND(9.0)
Pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
bis(2-Chloroethoxy)methane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
bis(2-Chloroethyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
bis(2-Chloroisopropyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.0)
bis(2-Ethylhexyl)phthalate	10	ND(10)	ND(10)	3 J	2 J	20
TIC SEMI-VOLATILE ORGANICS, µg/L						
Cyclohexanol			26 J			
Unknown chlorinated compound			199 J		475	33 J
Morpholine					34 J	
C4-Phenol						
Unknown hydrocarbon						
Nitroso-morpholine					130 J	19 J
Bicyclo (2,2,1) hepta-2,5-diene						

SAMPLE LOCATION:	SW10-R	SW11-R	SW11-RDUP	SW-13 R	SW18-R
SAMPLE DATE:	11/29/90	11/28/90	11/28/90	11/28/90	11/28/90
TCL SEMI-VOLATILE ORGANICS, µg/L					
Benzo(g,h,i)perylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzo(k)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Benzoic acid	ND(49)	ND(48)	ND(48)	5 J	ND(48)
Benzyl alcohol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Butylbenzylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Chrysene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Di-n-butylphthalate	ND(10)	0.4 J	ND(10)	ND(10)	0.3 J
Di-n-octylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibenz(a,h)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Dibenzofuran	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Diethylphthalate	ND(10)	0.5 J	0.6 J	ND(10)	ND(10)
Dimethylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Fluorene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorobutadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachlorocyclopentadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Hexachloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Indeno(1,2,3-cd)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Isophorone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
N-Nitrosodi-n-propylamine	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
N-Nitrosodiphenylamine	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Naphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Nitrobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Pentachlorophenol	ND(49)	ND(48)	ND(48)	ND(48)	ND(48)
Phenanthrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Phenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-Chloroethoxy)methane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-Chloroethyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-Chloroisopropyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
bis(2-Ethylhexyl)phthalate	ND(10)	80	4 J	8 J	1000
TIC SEMI-VOLATILE ORGANICS, µg/L					
Cyclohexanol					
Unknown chlorinated compound			430 J		
Morpholine		230 J			
C4-Phenol		25 J	26 J		
Unknown hydrocarbon				72 J	
Nitroso-morpholine					
Bicyclo (2,2,1) hepta-2,5-diene					26 J

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW1-R	SW2-R	SW4-R	SW5-R	SW7-R	SW8-R
SAMPLE DATE:	11/28/90	11/29/90	11/28/90	11/28/90	11/29/90	11/29/90
TCL PESTICIDES/PCBs, µg/L						
4 4'-DDD	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
4 4'-DDE	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
4 4'-DDT	ND(0.019)	ND(0.019)	0.04	ND(0.020) UJ	ND(0.019)	ND(0.019)
Aldrin	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
Dieldrin	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
Endosulfan I	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
Endosulfan II	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.029) UJ	ND(0.029)	ND(0.028)
Endosulfan Sulfate	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.049) UJ	ND(0.048)	ND(0.047)
Endrin	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
Endrin Ketone	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.049) UJ	ND(0.048)	ND(0.047)
Heptachlor	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
Heptachlor epoxide	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	0.014
Methoxychlor	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.049) UJ	ND(0.048)	ND(0.047)
PCB-1016	ND(0.094)	ND(0.095)	ND(0.094)	ND(0.098) UJ	ND(0.095)	ND(0.095)
PCB-1221	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.20) UJ	ND(0.19)	ND(0.19)
PCB-1232	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.20) UJ	ND(0.19)	ND(0.19)
PCB-1242	ND(0.094)	ND(0.095)	ND(0.094)	ND(0.098) UJ	ND(0.095)	ND(0.095)
PCB-1248	ND(0.094)	ND(0.095)	ND(0.094)	ND(0.098) UJ	ND(0.095)	ND(0.095)
PCB-1254	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.20) UJ	ND(0.19)	ND(0.19)
PCB-1260	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.20) UJ	ND(0.19)	ND(0.19)
Toxaphene	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.49) UJ	ND(0.48)	ND(0.47)
alpha-BHC	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
alpha-Chlordane	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
beta-BHC	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
delta-BHC	ND(0.0094)	ND(0.0095)	0.021	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
gamma-BHC	ND(0.0094)	0.0051J	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)
gamma-Chlordane	ND(0.0094)	ND(0.0095)	ND(0.0094)	ND(0.0098) UJ	ND(0.0095)	ND(0.0095)

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW10-R	SW11-R	SW11-RDUP	SW-13 R	SW18-R
SAMPLE DATE:	11/29/90	11/28/90	11/28/90	11/28/90	11/28/90
TCL PESTICIDES/PCBs, µg/L					
4 4'-DDD	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
4 4'-DDE	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
4 4'-DDT	ND(0.020)	ND(0.094)	ND(0.094)	ND(0.019)	ND(0.094)
Aldrin	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Dieldrin	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Endosulfan I	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Endosulfan II	ND(0.029)	ND(0.14)	ND(0.14)	ND(0.028)	ND(0.14)
Endosulfan Sulfate	ND(0.049)	ND(0.24)	ND(0.24)	ND(0.047)	ND(0.24)
Endrin	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Endrin Ketone	ND(0.049)	ND(0.24)	ND(0.24)	ND(0.047)	ND(0.24)
Heptachlor	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Heptachlor epoxide	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
Methoxychlor	ND(0.049)	ND(0.24)	ND(0.24)	ND(0.047)	ND(0.24)
PCB-1016	ND(0.098)	ND(0.47)	ND(0.47)	ND(0.094)	ND(0.47)
PCB-1221	ND(0.20)	ND(0.94)	ND(0.94)	ND(0.19)	ND(0.94)
PCB-1232	ND(0.20)	ND(0.94)	ND(0.94)	ND(0.19)	ND(0.94)
PCB-1242	ND(0.098)	ND(0.47)	ND(0.47)	ND(0.094)	ND(0.47)
PCB-1248	ND(0.098)	ND(0.47)	ND(0.47)	ND(0.094)	ND(0.47)
PCB-1254	ND(0.20)	ND(0.94)	ND(0.94)	ND(0.19)	ND(0.94)
PCB-1260	ND(0.20)	ND(0.94)	ND(0.94)	ND(0.19)	ND(0.94)
Toxaphene	ND(0.49)	ND(2.4)	ND(2.4)	ND(0.47)	ND(2.4)
alpha-BHC	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
alpha-Chlordane	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
beta-BHC	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
delta-BHC	ND(0.0098)	ND(0.047)	ND(0.047)	0.014	ND(0.047)
gamma-BHC	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)
gamma-Chlordane	ND(0.0098)	ND(0.047)	ND(0.047)	ND(0.0094)	ND(0.047)

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW1-R	SW2-R	SW4-R	SW5-R	SW7-R	SW8-R
SAMPLE DATE:	11/28/90	11/29/90	11/28/90	11/28/90	11/29/90	11/29/90
METALS, µg/L						
Aluminum	589	2570	861	666	426	21500
Antimony	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)
Arsenic	ND(4.0)	4.7	ND(4.0)	ND(4.0)	ND(4.0)	24.6
Barium	89	147	96	66	103	347
Beryllium	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	2.1
Cadmium	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Calcium	134000	262000	94600	81800	133000	285000
Chromium	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	38
Cobalt	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	18
Copper	ND(20)	ND(20)	ND(20)	ND(20)	27	61
Cyanide	ND(10)	ND(10)	ND(10)	19.3	40.6	ND(10)
Iron	752	3400	1550	488	663	31300
Lead	6.1	20	9.9	8.8	6.8	352
Magnesium	36900	64300	50100	34300	76600	113000
Manganese	79	783	48	27	30	1690
Mercury	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Nickel	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	63
Potassium	9290	5850	29100	12700 J	63200	33400
Selenium	ND(5.0)	ND(50)	ND(5.0)	ND(5.0) UJ	ND(50)	ND(50)
Silver	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Sodium	59400	60700	150000	47700	265000	171000
Thallium	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vanadium	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	42
Zinc	ND(20)	76	ND(20)	ND(20)	24	307

SURFACE WATER SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SW10-R	SW11-R	SW11-RDUP	SW-13 R	SW18-R
SAMPLE DATE:	11/29/90	11/28/90	11/28/90	11/28/90	11/28/90
METALS, µg/L					
Aluminum	665	535	457	25200	734
Antimony	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)
Arsenic	ND(4.0)	ND(4.0)	ND(4.0)	30.6	ND(4.0)
Barium	68	167	164	456	55
Beryllium	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Cadmium	ND(5.0)	ND(5.0)	ND(5.0)	5.7	ND(5.0)
Calcium	103000	75600	75400	286000	71100
Chromium	ND(10)	ND(10)	ND(10)	27	ND(10)
Cobalt	ND(10)	ND(10)	ND(10)	25	ND(10)
Copper	ND(20)	ND(20)	ND(20)	94	ND(20)
Cyanide	ND(10)	24.6	30.6	ND(10)	ND(10)
Iron	1390	3690	3460	38000	1030
Lead	12.9	29.7	30.6	176	6.3
Magnesium	30400	90000	89400	56000	28500
Manganese	130	48	46	1460	41
Mercury	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Nickel	ND(20)	29	25	57	ND(20)
Potassium	13600	68000	67500	7380	7760
Selenium	ND(50)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Silver	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Sodium	51400	395000	392000	29800	46400
Thallium	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vanadium	ND(20)	ND(20)	ND(20)	61	ND(20)
Zinc	ND(20)	71	73	2360	ND(20)

COMPLETE

LEACHATE DATA SUMMARY

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
									Soil Matrix µg/kg	Soil Matrix µg/kg
TCL VOLATILE ORGANICS, µg/L										
1,1,2,2-Tetrachloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,1,1-Trichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,1,2-Trichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,1-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,1-Dichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,2-Dichloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,2-Dichloroethene (total)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
1,2-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
2-Butanone	72	120J	120	ND(10)	1400	620	ND(50)	ND(20)	ND(12)	ND(14)
2-Hexanone	ND(10)	ND(10)	ND(10)	11J	ND(200)	ND(50)	ND(50)	ND(20)	ND(12)	ND(14)
4-Methyl-2-pentanone(MIBK)	2J	5J	3J	ND(10)	ND(200)	21J	ND(50)	ND(20)	ND(12)	ND(14)
Acetone	29 U	34 U	37 U	ND(10)	2200	490	32 U	28 U	10U	10U
Benzene	ND(5.0)	ND(5.0)	ND(5.0)	5 U	36J	5 U	50	48	6U	7U
Bromodichloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Bromomethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(200)	ND(50)	ND(50)	ND(20)	ND(12)	ND(14)
Carbon disulfide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Carbon tetrachloride	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Chlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	26J	ND(25)	56	45	ND(6.0)	ND(7.0)
Chloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(200)	ND(50)	ND(50)	ND(20)	ND(12)	ND(14)
Chloroform	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Chloromethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(200)	ND(50)	ND(50)	ND(20)	ND(12)	ND(14)
Dibromochloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Ethyl benzene	1J	3J	2J	ND(5.0)	26J	ND(25)	680	87	ND(6.0)	ND(7.0)
Methylene chloride	5U	5U	5U	5U	470	ND(25)	25U	27U	67	15U
Styrene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Tetrachloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Toluene	2J	4J	ND(5.0)	ND(5.0)	190	11J	350	8J	ND(6.0)	ND(7.0)
Tribromomethane(Bromoform)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Trichloroethene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Vinyl acetate	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
Vinyl chloride	ND(10)	ND(10)	ND(10)	ND(10)	ND(200)	ND(50)	ND(50)	ND(20)	ND(12)	ND(14)
Xylenes	8	16	ND(5.0)	ND(5.0)	120	ND(25)	1300	250	ND(6.0)	ND(7.0)
cis-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)
trans-1,3-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(25)	ND(25)	ND(10)	ND(6.0)	ND(7.0)

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
									Soil Matrix	Soil Matrix
TIC VOLATILE ORGANICS, µg/L									µg/kg	µg/kg
1-Propene							50 J			
Tetrahydrofuran							120 J	420		
1,2-Diethoxyethane							30 J			
Unknown C10H16							25 J			
Dichlorofluormethane				6.0 J						
Di-isopropyl ether				34 J				.60 J		
2,4-Dimethyl-2-pentanol				8.0 J						
Unknown C10H160								50 J		
3-Methyl phentone										
Apl pinene (ACN)										11 J

LEACHATE SAMPLE DATA SUMMARY - NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
									Soil Matrix	Soil Matrix
TCL SEMI-VOLATILE ORGANICS, µg/L									µg/kg	µg/kg
1,2,4-Trichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
1,2-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	16	ND(11)	ND(1200)	ND(1300)
1,3-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	6J	ND(11)	ND(1200)	ND(1300)
1,4-Dichlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	1200J
2,4,5-Trichlorophenol	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
2,4,6-Trichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2,4-Dichlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2.4-Dimethylphenol	130	94	120	ND(10)	47	18	980	74	ND(1200)	ND(1300)
2,4-Dinitrophenol	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
2,4-Dinitrotoluene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2,6-Dinitrotoluene	ND(10)	ND(10)	51	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2-Chloronaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2-Chlorophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
2-Methylnaphthalene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	5J	ND(1200)	120J
2-Methylphenol	600	660	960	ND(10)	570	160	320	12	ND(1200)	ND(1300)
2-Nitroaniline	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
2-Nitrophenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
3,3'-Dichlorobenzidine	ND(20)	ND(19)	ND(19)	ND(20)	ND(19)	ND(19)	ND(20)	ND(23)	ND(2400)	ND(2600)
3-Nitroaniline	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
4,6-Dinitro-2-methylphenol	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
4-Bromophenyl phenyl ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
4-Chloro-3-methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
4-Chloroaniline	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
4-Chlorophenyl phenyl ethe	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
4-Methylphenol	4100	3400	2100	ND(10)	1200	400	750	ND(11)	ND(1200)	440J
4-Nitroaniline	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
4-Nitrophenol	ND(50)	ND(48)	ND(48)	ND(51)	ND(48)	ND(48)	ND(51) R	ND(57)	ND(5700)	ND(6300)
Acenaphthene	1J	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	0.8J	1J	ND(1200)	100J
Acenaphthylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	190J
Benzo(a)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	210J
Benzo(a)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Benzo(b)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
									Soil Matrix µg/kg	Soil Matrix µg/kg
TCL SEMI-VOLATILE ORGANICS, µg/L										
Benzo(g,h,i)perylene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(3600)	ND(3900)
Benzo(k)fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Benzoic acid	ND(50)	ND(48)	12000	ND(51)	ND(48)	4300	ND(51)	ND(57)	ND(5700)	ND(6300)
Benzyl alcohol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Butylbenzylphthalate	4J	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	0.9J	ND(11)	ND(1200)	1200J
Chrysene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	200J
Di-n-butylphthalate	ND(10)	0.4J	ND(10)	ND(10)	1J	ND(10)	4J	ND(11)	81J	350J
Di-n-octylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Dibenz(a,h)anthracene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Dibenzofuran	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Diethylphthalate	18	14	55	ND(10)	53	1J	27	8J	ND(1200)	ND(1300)
Dimethylphthalate	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Fluoranthene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	480J
Fluorene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	0.6J	1J	ND(1200)	ND(1300)
Hexachlorobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Hexachlorobutadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Hexachlorocyclopentadiene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Hexachloroethane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Indeno(1,2,3-cd)pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Isophorone	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
N-Nitrosodi-n-propylamine	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
N-Nitrosodiphenylamine	ND(10)	ND(10)	ND(10)	ND(10)	2J	ND(10)	7J	ND(11)	ND(1200)	ND(1300)
Naphthalene	200	ND(10)	ND(10)	ND(10)	9J	0.6J	26	ND(11)	ND(1200)	240J
Nitrobenzene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
Pentachlorophenol	ND(50)	ND(48)	ND(48)	ND(51 R)	ND(48)	ND(48)	ND(51)	ND(57)	ND(5700)	ND(6300)
Phenanthrene	1J	1J	ND(10)	ND(10)	ND(10)	ND(10)	2J	2J	ND(1200)	470J
Phenol	1000	1300	1800	ND(10)	130	990	45	ND(11)	ND(1200)	ND(1300)
Pyrene	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	840J
bis(2-Chloroethoxy)methane	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
bis(2-Chloroethyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
bis(2-Chloroisopropyl)ether	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(11)	ND(1200)	ND(1300)
bis(2-Ethylhexyl)phthalate	5J	15	3J	3J	1J	4J	0.7J	4J	ND(1200)	750J
TIC SEMI VOLATILES (µg/L)										
Unknown hydrocarbon									490 J	23100
2-Pentanone, 4-hydroxy-4-methy										9600 J
Nitrogen heterocyde										3100 J
Methylenebis-phenol										71000 J

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
									Soil Matrix µg/kg	Soil Matrix µg/kg
TIC SEMI-VOLATILE ORGANICS, µg/L										
Acetamide, N-phenyl-	21 J									
Unknown oxygenated hydrocarbon	40 J	40 J								
Methylene bis-phenol	220 J	38 J			62 J	31 J	500 J			
Octanoic acid			40 J							
Methyoxy-ethyl ether		21 J	40 J							
Unknown chlorinated compound			30 J							
C6-ketone					37J					
C1-Dioxane					40 J					
Toluene					11 J					
Methyl morpholine					24 J					
Fenchone					21 J					
Camphor					21 J					
Benzeneacetc acid						42 J				
Methyl-benzoic acid						25 J				
Benzenepropanoic acid						340 J				
[1,1'-Biphenyl]-4 ol						20 J				
Unknown hydrocarbon				36 J		19 J				
Benzene, methyl-							51 J			
Trimethyl-trioxane							28 J			
Morpholine							67 J			
Benzene ethyl							95 J			
Xylene							340 J	147		
Benzene, ethyl-								39 J		
Benzenamine								24 J		
Benzene, trimethyl								40 J		
Unknown keton				23 J			28 J	184 J		
Phosphoric acid, triethyl				33 J				23 J		
Bis (1-methyl-2-hydroxyethyl) e								40 J		
Methylene-bis-phenol								2.3 J		
Unkown diene										
Hexadecanoic acid										
Benzene		37 J								
Phenol, 2-ethyl		16 J								
Linalyl propionate		43 J								
C3-benzene							19 J			
C4-benzene							40 J			
C-2 phenol							22 J			
C-4 phenol							78 J			
Phenyl ethyl-phenol							32 J			

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
TCL PESTICIDES/PCBs, µg/L									Soil Matrix µg/kg	Soil Matrix µg/kg
4,4'-DDD	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	0.015J	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
4,4'-DDE	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	0.69J	ND(13)
4,4'-DDT	ND(1.9)UJ	ND(0.20)UJ	ND(0.19)UJ	0.11	0.059J	0.044J	ND(0.20)	ND(0.019)	ND(2.4)	ND(26)
Aldrin	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	0.082	ND(0.0094)	2.1	ND(13)
Dieldrin	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	3.2	ND(13)
Endosulfan I	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
Endosulfan II	ND(2.9)UJ	ND(0.30)UJ	ND(0.29)UJ	ND(0.030)	ND(0.029)UJ	ND(0.028)UJ	ND(0.31)	ND(0.028)	ND(3.5)	ND(40)
Endosulfan Sulfate	ND(4.9)UJ	ND(0.51)UJ	ND(0.49)UJ	ND(0.051)	ND(0.048)UJ	ND(0.047)UJ	ND(0.51)	ND(0.047)	ND(5.9)	ND(66)
Endrin	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
Endrin Ketone	ND(4.9)UJ	ND(0.51)UJ	ND(0.49)UJ	ND(0.051)	ND(0.048)UJ	ND(0.047)UJ	ND(0.51)	ND(0.047)	ND(5.9)	ND(66)
Heptachlor	1.1J	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	0.091J	ND(0.0094)	ND(1.2)	ND(13)
Heptachlor epoxide	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
Methoxychlor	ND(4.9)UJ	ND(0.51)UJ	ND(0.49)UJ	ND(0.051)	ND(0.048)UJ	ND(0.047)UJ	ND(0.51)	ND(0.047)	ND(5.9)	ND(66)
PCB-1016	ND(9.7)UJ	ND(1.0)UJ	ND(0.97)UJ	ND(0.10)	ND(0.096)UJ	ND(0.094)UJ	ND(1.0)	ND(0.094)	ND(12)	ND(130)
PCB-1221	ND(19)UJ	ND(2.0)UJ	ND(1.9)UJ	ND(0.20)	ND(0.19)UJ	ND(0.19)UJ	ND(2.0)	ND(0.19)	ND(24)	ND(260)
PCB-1232	ND(19)UJ	ND(2.0)UJ	ND(1.9)UJ	ND(0.20)	ND(0.19)UJ	ND(0.19)UJ	ND(2.0)	ND(0.19)	ND(24)	ND(260)
PCB-1242	ND(9.7)UJ	ND(1.0)UJ	ND(0.97)UJ	ND(0.10)	ND(0.096)UJ	ND(0.094)UJ	ND(1.0)	ND(0.094)	ND(12)	ND(130)
PCB-1248	ND(9.7)UJ	ND(1.0)UJ	ND(0.97)UJ	ND(0.10)	ND(0.096)UJ	ND(0.094)UJ	ND(1.0)	ND(0.094)	ND(12)	ND(130)
PCB-1254	ND(19)UJ	ND(2.0)UJ	ND(1.9)UJ	ND(0.20)	ND(0.19)UJ	ND(0.19)UJ	ND(2.0)	ND(0.19)	ND(24)	ND(260)
PCB-1260	ND(19)UJ	ND(2.0)UJ	ND(1.9)UJ	ND(0.20)	ND(0.19)UJ	ND(0.19)UJ	ND(2.0)	ND(0.19)	ND(24)	ND(260)
Toxaphene	ND(49)UJ	ND(5.1)UJ	ND(4.9)UJ	ND(0.51)	ND(0.48)UJ	ND(0.47)UJ	ND(5.1)	ND(0.47)	ND(59)	ND(660)
alpha-BHC	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
alpha-Chlordane	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
beta-BHC	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
delta-BHC	ND(0.97)UJ	0.18J	ND(0.097)UJ	ND(0.010)	0.067J	ND(0.0094)UJ	ND(0.10)	0.019	2.1	ND(13)
gamma-BHC	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	0.052J	ND(0.10)	ND(0.0094)	ND(1.2)	ND(13)
gamma-Chlordane	ND(0.97)UJ	ND(0.10)UJ	ND(0.097)UJ	ND(0.010)	ND(0.0096)UJ	ND(0.0094)UJ	ND(0.10)	ND(0.0094)	1.2	ND(13)

LEACHATE SAMPLE DATA SUMMARY NCR SITE-WHEATFIELD, NEW YORK

SAMPLE LOCATION:	SEEP5-R	SEEP5-RDUP	SEEP7-R	SEEP10-R	SEEP13-R	SEEP14-R	SEEP16-R	SEEP21-R	SEEP1-R	SEEP3-R
SAMPLE DATE:	11/26/90	11/26/90	11/26/90	11/27/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90	11/26/90
METALS, µg/L									Soil Matrix mg/kg	Soil Matrix mg/kg
Aluminum	2330J	7270J	1710	15200	1140	325000	8720	4240	7810	11700
Antimony	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100) UJ	ND(100)	ND(8.3)	ND(8.8)
Arsenic	21.3	29.2	11.6	58.6	9.5	30.8	21.8J	13.8	7	12
Barium	310	437	294	7610	147	1200	1340J	949	110	110
Beryllium	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	2.2	ND(2.0)	ND(2.0)	0.29	0.6
Cadmium	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	9J	6.1	ND(0.42)	0.71
Calcium	77900	115000	132000	272000	103000	396000	165000	139000	81400	78600
Chromium	52	69	45	26	27	51	114J	42	18.1	17.5
Cobalt	10	15	ND(10)	ND(10)	ND(10)	35	28J	93	4.7	6.8
Copper	ND(20)	39	ND(20)	51	ND(20)	85	99J	28	29.4	47.8
Cyanide	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(0.55)	ND(0.57)
Iron	7910J	17200J	13300	390000	14500	236000	77600	40500	23400	25700
Lead	< 36.1	50.8	< 17.4	< 39.5	100	185	1010	734	110	40
Magnesium	286000	324000	419000	145000	310000	107000	257000	291000	31300	29700
Manganese	106J	341J	124	2590	76	2960	450J	346	441	511
Mercury	ND(0.20)	ND(0.20)	ND(0.2)	ND(0.20)	ND(0.20)	ND(0.20)	0.5J	0.5	0.39	1.2
Nickel	102	120	93	34	78	101	92J	115	16.1	18.7
Potassium	263000	303000	275000	88800	310000	26200	254000	445000	1390	2890
Selenium	ND(5.0)	ND(5.0)	ND(5)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)R	ND(5.0)	ND(0.40)	ND(0.43)
Silver	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)UJ	ND(10)	ND(0.83)	ND(0.88)
Sodium	1010000	1090000	649000	664000	882000	84800	1290000	1660000	394	365
Thallium	ND(5.0)	ND(5.0)	ND(5)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)UJ	ND(5.0)	ND(0.40)	ND(0.43)
Vanadium	ND(20)	33	ND(20)	ND(20)	ND(20)	24	29J	23	16.3	23.1
Zinc	395	581	1410	293	204	376	939J	707	102	119

COMPLETE

HAND AUGER SOIL DATA SUMMARY

HAND AUGER SAMPLE DATA SUMMARY NCR SITE, WHEATFIELD, NEW YORK

SAMPLE LOCATION:	HA-3	HA-8	HA-9	HA-9DUP	HA-13	HA-14	RINSATE
SAMPLE DATE:	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	BLANK
VOLATILE ORGANICS, µg/kg							
1,1,1,2-Tetrachloroethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,1,1-Trichloroethane	3J	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,1,2-Trichloroethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,1-Dichloroethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,1-Dichloroethene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,2-Dichloroethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,2-Dichloroethene (total)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
1,2-Dichloropropane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
2-Butanone	ND(12) UJ	ND(12) UJ	ND(12)	ND(12)	ND(12)	ND(12) UJ	ND10
2-Hexanone	ND(12) UJ	ND(12) UJ	ND(12)	ND(12)	ND(12)	ND(12) UJ	ND10
4-Methyl-2-pentanone(MIBK)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND10
Acetone	17J	ND(12)	9J	4 J	13	14 J	ND10
Benzene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Bromodichloromethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Bromomethane	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND10
Carbon disulfide	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Carbon tetrachloride	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Chlorobenzene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Chloroethane	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND10
Chloroform	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Chloromethane	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND10
Dibromochloromethane	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Ethyl benzene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Methylene chloride	22	22	18	15	11	15	ND5.0
Styrene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Tetrachloroethene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Toluene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Tribromomethane(Bromoform)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Trichloroethene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
Vinyl acetate	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND10
Vinyl chloride	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND10
Xylenes	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
cis-1,3-Dichloropropene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0
trans-1,3-Dichloropropene	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND(6.0)	ND5.0

HAND AUGER SAMPLE DATA SUMMARY NCR SITE, WHEATFIELD, NEW YORK

SAMPLE LOCATION:	HA-3	HA-8	HA-9	HA-9DUP	HA-13	HA-14	RINSATE
SAMPLE DATE:	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	BLANK
SEMI-VOLATILE ORGANICS, µg/kg							
1,2,4-Trichlorobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
1,2-Dichlorobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
1,3-Dichlorobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
1,4-Dichlorobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2,4,5-Trichlorophenol	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
2,4,6-Trichlorophenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2,4-Dichlorophenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2,4-Dimethylphenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2,4-Dinitrophenol	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
2,4-Dinitrotoluene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2,6-Dinitrotoluene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2-Chloronaphthalene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2-Chlorophenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2-Methylnaphthalene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2-Methylphenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
2-Nitroaniline	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
2-Nitrophenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
3,3'-Dichlorobenzidine	ND(2400)	ND(2400)	ND(2400)	ND(2400)	ND(2300)	ND(2400)	ND19
3-Nitroaniline	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
4,6-Dinitro-2-methylphenol	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
4-Bromophenyl phenyl ether	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
4-Chloro-3-methylphenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
4-Chloroaniline	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
4-Chlorophenyl phenyl ethe	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
4-Methylphenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
4-Nitroaniline	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
4-Nitrophenol	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
Acenaphthene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Acenaphthylene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Anthracene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Benzo(a)anthracene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Benzo(a)pyrene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Benzo(b)fluoranthene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10

HAND AUGER SAMPLE DATA SUMMARY NCR SITE, WHEATFIELD, NEW YORK

SAMPLE LOCATION:	HA-3	HA-8	HA-9	HA-9DUP	HA-13	HA-14	RINSATE
SAMPLE DATE:	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	BLANK
SEMI-VOLATILE ORGANICS, µg/kg							
Benzo(g,h,i)perylene	ND(3600)	ND(3600)	ND(3700)	ND(3700)	ND(3400)	ND(3600)	ND10
Benzo(k)fluoranthene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Benzoic acid	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
Benzyl alcohol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Butylbenzylphthalate	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Chrysene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Di-n-butylphthalate	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Di-n-octylphthalate	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Dibenz(a,h)anthracene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Dibenzofuran	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Diethylphthalate	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Dimethylphthalate	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Fluoranthene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Fluorene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Hexachlorobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Hexachlorobutadiene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Hexachlorocyclopentadiene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Hexachloroethane	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Indeno(1,2,3-cd)pyrene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Isophorone	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
N-Nitrosodi-n-propylamine	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
N-Nitrosodiphenylamine	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Naphthalene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Nitrobenzene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Pentachlorophenol	ND(5700)	ND(5700)	ND(5900)	ND(5900)	ND(5500)	ND(5700)	ND48
Phenanthrene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Phenol	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
Pyrene	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
bis(2-Chloroethoxy)methane	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
bis(2-Chloroethyl)ether	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
bis(2-Chloroisopropyl)ethe	ND(1200)	ND(1200)	ND(1200)	ND(1200)	ND(1100)	ND(1200)	ND10
bis(2-Ethylhexyl)phthalate	ND(1200)	ND(1200)	850J	1200	ND(1100)	700J	ND10

HAND AUGER SAMPLE DATA SUMMARY, NCR SITE, WHEATFIELD, NEW YORK

SAMPLE LOCATION:	HA-3	HA-8	HA-9	HA-9DUP	HA-13	HA-14	RINSATE
SAMPLE DATE:	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	BLANK
PESTICIDES/PCBs, µg/kg							
4 4'-DDD	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
4 4'-DDE	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
4 4'-DDT	ND(2.4)	ND(2.3)	ND(2.3)	ND(2.3)	ND(2.4)	ND(2.3)	ND0.019
Aldrin	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
Dieldrin	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
Endosulfan I	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
Endosulfan II	ND(3.5)	ND(3.5)	ND(3.5)	ND(3.5)	ND(3.5)	ND(3.4)	ND0.028
Endosulfan Sulfate	ND(5.9)	ND(5.8)	ND(5.8)	ND(5.8)	ND(5.9)	ND(5.7)	ND0.047
Endrin	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
Endrin Ketone	ND(5.9)	ND(5.8)	ND(5.8)	ND(5.8)	ND(5.9)	ND(5.7)	ND0.047
Heptachlor	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
Heptachlor epoxide	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	0.0017J
Methoxychlor	ND(5.9)	ND(5.8)	ND(5.8)	ND(5.8)	ND(5.9)	ND(5.7)	ND0.047
PCB-1016	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(11)	ND0.095
PCB-1221	ND(24)	ND(23)	ND(23)	ND(23)	ND(24)	ND(23)	ND0.19
PCB-1232	ND(24)	ND(23)	ND(23)	ND(23)	ND(24)	ND(23)	ND0.19
PCB-1242	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(11)	ND0.095
PCB-1248	ND(12)	ND(12)	ND(12)	ND(12)	ND(12)	ND(11)	ND0.095
PCB-1254	ND(24)	ND(23)	ND(23)	ND(23)	ND(24)	ND(23)	ND0.19
PCB-1260	ND(24)	ND(23)	ND(23)	ND(23)	ND(24)	ND(23)	ND0.19
Toxaphene	ND(59)	ND(58)	ND(58)	ND(58)	ND(59)	ND(57)	ND0.47
alpha-BHC	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
alpha-Chlordane	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
beta-BHC	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
delta-BHC	ND(1.2)	1.4	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
gamma-BHC	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095
gamma-Chlordane	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.1)	ND0.0095

HAND AUGER SAMPLE DATA SUMMARY NCR SITE, WHEATFIELD, NEW YORK

SAMPLE LOCATION:	HA-3	HA-8	HA-9	HA-9DUP	HA-13	HA-14	RINSATE
SAMPLE DATE:	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	12/3/90	BLANK
METALS, mg/kg							
Aluminum	8570	10900	7420	6250	4650	5960	ND200
Antimony	ND(8.9)	ND(9.4)	ND(9.1)	ND(9.4)	ND(9.2)	ND(8.5)UJ	ND100
Arsenic	6.1	9.8	7.5	6.9	5.3	8.6J	ND4.0
Barium	18.6	74.9	39.5	25.2	25.8	21.2	ND10
Beryllium	0.31	0.47	0.27	0.25	ND(0.18)	0.28	ND2.0
Cadmium	ND(0.45)	ND(0.47)	ND(0.45)	ND(0.47)	ND(0.46)	ND(0.42)	ND5.0
Calcium	10500	3140	34100	46700	48500	68900	ND1000
Chromium	17.1	14.7	9.9	8.2	6.4	7.9	ND10
Cobalt	3.5	6.1	4.3	3.5	3	3.7	ND10
Copper	7.4	14.5	9.2	9.3	10.2	14	ND20
Cyanide	ND(0.52)	ND(0.56)	ND(0.65)	ND(0.60)	ND(0.57)	ND(0.59)	ND10
Iron	11500	15400	11200	9590	10900	10900	61
Lead	6.3	7.5	5.4	5.3	4.9	5.4R	ND3.0
Magnesium	6830	2850	9630	12000	17600	25500	ND1000
Manganese	344	575	444J	271J	389	356J	ND10
Mercury	ND(0.056)	ND(0.056)	ND(0.060)	ND(0.056)	ND(0.056)	ND(0.056)	ND0.20
Nickel	11.2	15.8	12.2	9.4	9	11.5	ND20
Potassium	1140	1130	1050	1290	727	1250J	ND3000
Selenium	ND(0.45)	ND(0.49)	ND(0.46)	ND(0.47)	ND(0.45)	ND(0.44)UJ	ND5.0
Silver	ND(0.89)	ND(0.94)	ND(0.91)	ND(0.94)	ND(0.92)	ND(0.85)	ND10
Sodium	211	134	429	475	392	199	ND1000
Thallium	ND(0.45)	ND(0.49)	ND(0.46)	ND(0.47)	ND(0.45)	ND(0.44)	ND5.0
Vanadium	15.9	25.1	14.9	13.7	13.1	15.1	ND20
Zinc	41	36.5	33.2	28.2	35.5	40.8	ND20

COMPLETE TEST PIT

DATA SUMMARY

TEST PIT SAMPLE SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

Sample Location:	***Test Pit 3***
Sample Date:	***04/30/91***
TCL Volatiles (µg/kg)	
Chloromethane	ND13
Bromomethane	ND6
Vinyl Chloride	ND13
Chloroethane	ND13
Methylene Chloride	150U
Acetone	ND13
Carbon Disulfide	ND6
1,1-Dichloroethene	ND6
1,1-Dichloroethane	ND6
1,2-Dichloroethene (total)	ND6
Chloroform	ND6
1,2-Dichloroethane	ND6
2-Butanone	ND13
1,1,1-Trichloroethane	ND6
Carbon Tetrachloride	ND6
Vinyl Acetate	ND13
Bromodichloromethane	ND6
1,2-Dichloropropane	ND6
cis-1,3-Dichloropropene	ND6
Trichloroethene	ND6
Dibromochloromethane	ND6
1,1,2-Trichloroethane	ND6
Benzene	ND6
Trans-1,3-Dichloropropene	ND6
Bromoform	ND13
4-Methyl-2-Pentanone	ND19
2-Hexanone	ND19
Tetrachloroethene	ND6
1,1,2,2-Tetrachloroethane	ND13
Toluene	ND6
Chlorobenzene	ND6
Ethylbenzene	ND6
Styrene	ND6
Total Xylenes	ND6

TEST PIT SAMPLE SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

Sample Location:	***Test Pit 3***
Sample Date:	***04/30/91***
TCL Semi-Volatiles (µg/kg)	
Phenol	ND430
bis (2-Chloroethyl)Ether	ND860
2-Chlorophenol	ND430
1,3-Dichlorobenzene	ND430
1,4-Dichlorobenzene	ND430
Benzyl Alcohol	ND430
1,2-Dichlorobenzene	ND430
2-Methylphenol	ND430
bis(2-Chloroisopropyl)Ether	ND430
4-Methylphenol	68J
N-Nitroso-Di-n-Propylamine	ND430
Hexachloroethane	ND430
Nitrobenezene	ND430
Isophorone	ND430
2-Nitrophenol	ND430
2,4-Dimethylphenol	ND430
Benzoic Acid	220J
bis(2-Chloroethoxyl)Methane	ND430
2-4-Dichlorophenol	ND430
1,2,4-Trichlorobenzene	ND430
Naphthalene	43J
4-Chloroaniline	ND430
Hexachlorobutadiene	ND430
4-Chloro-3-Methylphenol	ND430
2-Methylnaphthalene	ND430
Hexachlorocyclopentadiene	ND430
2,4,6-Trichlorophenol	ND430
2,4,5-Trichlorophenol	ND860
2-Chloronaphthalene	ND430R
2-Nitroaniline	ND430
Dimethyl Phthalate	ND430
Acenaphthylene	ND430
2,6-Dinitrotoluene	ND430
3-Nitroaniline	ND860
Acenaphthene	ND430

TEST PIT SAMPLE SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

	Test Pit 3
Sample Location:	
Sample Date:	***04/30/91***
TCL Semi-Volatiles (µg/kg)	
2,4-Dinitrophenol	ND1700
4-Nitrophenol	ND430UJ
Dibenzofuran	ND430
2,4-Dinitrotoluene	ND430
Diethylphthalate	430U
4-Chlorophenyl-phenylether	ND430
Fluorene	ND430
4-Nitroaniline	ND860
4,6-Dinitro-2-Methylphenol	ND1300
N-Nitrosodiphenylamine (1)	ND430
4-Bromophenyl-phenylether	ND430
Hexachlorobenzene	ND430
Pentachlorophenol	ND860
Phenanthrene	60J
Anthracene	ND430
Di-n-Butylphthalate	ND430
Fluoranthene	ND86
Pyrene	67J
Butylbenzylphthalate	ND430
3,3'-Dichlorobenzidine	ND430
Benzo(a)Anthracene	ND430
Chrysene	46J
bis(2-Ethylhexyl)Phthalate	160J
Di-n-Octyl Phthalate	ND430
Benzo(b)Fluoranthene	ND430
Benzo(k)Fluoranthene	ND430
Benzo(a)Pyrene	ND430
Indo(1,2,3-cd)Pyrene	ND430
Dibenz(a,h)Anthracene	ND430
Benzo(g,h,i)Perylene	ND430

Note:

(1) Cannot be separated from Diphenylamine.

TEST PIT SAMPLE SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

Sample Location:	***Test Pit 3***
Sample Date:	***04/30/91***
TIC Semi-Volatiles (µg/kg)	
Solvent Contaminant	220R
Unknown Alkalyphenol	650J
Unknown Carboxylic Acid	350J
Sulfur, Mol. (S8)	1400J
Unknown Hydrocarbon	5140J
Unknown Phthalate	430J
Blank Contaminant	740R
Unknown	780
TCL Pesticides/PCBs (µg/kg)	
4',4'-DDD	ND3.5
4,4'-DDE	ND3.5
4,4'-DDT	ND3.5
Aldrin	ND1.0
Chlordane	ND4.0
Dieldrin	ND1.5
Endosulfan I	ND1.5
Endosulfan II	ND3.5
Endosulfan Sulfate	ND2.0
Endrin	ND2.5
Endrin Aldehyde	ND1.0
Heptachlor	ND1.0
Heptachlor Epoxide	ND1.0
Kepone	ND1.0
Methoxychlor	ND3.5
Toxaphene	ND20
Alpha-BHC	ND1.0
Beta-BHC	ND1.0
Delta-BHC	ND1.0
Gamma-BHC	ND1.0
PCB-1016	ND20
PCB-1221	ND20
PCB-1232	ND20
PCB-1242	ND20
PCB-1248	ND20
PCB-1254	ND20
PCB-1260	ND20

TEST PIT SAMPLE SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

Sample Location:	***Test Pit 3***
Sample Date:	***04/30/91***
TAL Metals (mg/kg)	
Aluminum	15000
Antimony	ND2.8
Arsenic	3.9
Barium	89.0
Beryllium	0.62B
Cadmium	ND0.51
Calcium	37600
Chromium	20.6
Cobalt	9.3
Copper	39.2
Iron	21500
Lead	20.5
Magnesium	10700
Manganese	403
Mercury	0.23
Nickel	22.7
Potassium	3070
Selenium	0.82
Silver	ND0.64
Sodium	302B
Thallium	ND0.39
Vanadium	32.3
Zinc	135
Cyanide	ND0.50

COMPLETE ROUND I

GROUNDWATER DATA SUMMARY

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-I*	*NCR-2S-I*	*NCR-2I-I*	*NCR-2M-I*	*NCR-2D-I*	*NCR-3S-I*	*NCR-3M-I*	*NCR-4S-I*	*NCR-4M-I*	*NCR-5S-I*	*NCR-5M-I*	*NCR-5D-I*	*NCR-6M-I*	*NCR-6D-I*	*NCR-7M-I*	*NCR-7M-I Dup*	*NCR-8M-I*	*NCR-8D-I*
SAMPLE DATE:	3/20/91	3/14/91	3/14/91	3/14/91	3/14/91	3/18/91	3/18/91	3/22/91	3/25/91	3/18/91	3/15/91	3/15/91	3/21/91	3/22/91	3/19/91	3/19/91	3/20/91	3/20/91
TCL VOLATILES (µg/L)																		
Chloromethane	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1	ND1	ND1UJ	ND1	ND1UJ	ND1UJ	ND1	ND1UJ	ND1	ND1	ND1	ND1UJ	ND1UJ
Bromomethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Vinyl Chloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroethane	ND1R	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1	ND1	ND1R	ND1UJ	ND1UJ	ND1UJ	ND1	ND1R	ND1UJ	ND1	ND1	ND1R	ND1R
Methylene Chloride	4UR	3UR	3UR	20UR	3UR	2UR	2UR	4UR	3UR	3UR	3UR	2UR	4UR	3UR	2UR	3UR	2UR	2UR
Acetone	ND5	ND5	ND5	12U	ND5	ND5	ND5	27U	ND5	8U	ND5	ND5	ND5	ND5	ND5	ND5	5U	ND5
Carbon Disulfide	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
trans-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
2-Butanone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Bromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,1-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Carbon Tetrachloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromodichloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Dibromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Benzene	ND1	ND1	ND1	1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trans-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromoform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromoethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
4-Methyl-2-Pentanone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Hexanone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Tetrachloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2,2-Tetrachloroethane	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ
Toluene	ND1	ND1	ND1	5	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Ethylbenzene	ND1	ND1	ND1	1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Styrene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Xylenes (Total)	ND1	ND1	ND1	8	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromo-3-Chloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,3-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,4-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
TIC VOLATILES (µg/L)																		
Ethyl Methyl Benzene				2JN														
Trimethyl Benzene				3JN														
Butene								2JN										
Pentene								2JN										
Methyl (methylethyl) Benzene								20JN										
Hexane																2.0R		
Oxybispropane																		
Dichlorofluoromethane																		
1-Pentene, 2-methyl																		
Unknowns			21J								3J					2.0J		

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR-9M-I	NCR-10M-I	NCR-11M-I	NCR-11D-I	NCR-11D-I Dup	NCR-12D-I	NCR-12D-I Diluted	NCR-12D-I Dup	NCR-12D-I Dup/Diluted	NCR-13S-I	Trip Blank 1	Trip Blank 2	Trip Blank 3	Trip Blank 4	Trip Blank 5	Trip Blank 6	Trip Blank 7	Rinse Blank 1	Rinse Blank 2	Rinse Blank 3
SAMPLE DATE:	3/19/91	3/19/91	3/22/91	3/22/91	3/22/91	3/25/91	3/25/91	3/25/91	3/24/91	3/20/91	3/14/91	3/15/91	3/18/91	3/20/91	3/21/91	3/22/91	3/25/91	3/13/91	3/19/91	3/26/91
TCL VOLATILES (ug/L)																				
Chloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1UJ	ND1UJ	ND1UJ	ND1	ND1	ND1UJ	ND1	ND1	ND1UJ	ND1	ND1
Bromomethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Vinyl Chloride	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroethane	ND1	ND1	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND2UJ	ND1UJ	ND2UJ	ND1R	ND1UJ	ND1UJ	ND1	ND1	ND1R	ND1UJ	ND1UJ	ND1UJ	ND1	ND1UJ
Methylene Chloride	2UR	2UR	2UR	4UR	2UR	3UR	6UR	3UR	7UR	3UR	4UR	3UR	3UR	2UR	4UR	3UR	3UR	3UR	5UR	2UR
Acetone	ND5	11U	ND5	6J	5J	43 EJ	42DJ	46EJ	50DJ	12U	ND5	ND5	ND5	ND5	7U	ND5	ND5	ND5	13U	ND5
Carbon Disulfide	ND1	ND1	ND1	ND1	ND1	0.6 J	ND2	0.5J	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
trans-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroform	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
2-Butanone	ND5	ND5	ND5	ND5	ND5	19	4D	19	ND12	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Bromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,1-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Carbon Tetrachloride	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromodichloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Dibromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Benzene	ND1	ND1	ND1	ND1	ND1	0.7 J	ND2	0.7 J	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trans-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromoform	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1UJ	ND1	ND1	ND1	ND1
1,2-Dibromoethane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
4-Methyl-2-Pentanone	ND5	ND5	ND5	ND5	ND5	ND5	ND11	ND5	ND12	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Hexanone	ND5	ND5	ND5	ND5	ND5	ND5	ND11	ND5	ND12	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Tetrachloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2,2-Tetrachloroethane	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND2UJ	ND1UJ	ND2UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ	ND1UJ
Toluene	ND1	ND1	ND1	ND1	ND1	3	3	3	3	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Ethylbenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Styrene	ND1	ND1	ND1	ND1	ND1	3	3	3	3	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Xylenes (Total)	ND1	ND1	ND1	ND1	ND1	2	2J	2	2J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromo-3-Chloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1UJ	ND1	ND1	ND1	ND1
1,3-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1UJ	ND1	ND1	ND1	ND1
1,4-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	0.5 JN	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1UJ	ND1	ND1	ND1	ND1
1,2-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND2	ND1	ND2	ND1	ND1	ND1	ND1	ND1	ND1	ND1UJ	ND1	ND1	ND1	ND1
TIC VOLATILES (ug/L)																				
Ethyl Methyl Benzene																				
Trimethyl Benzene																				
Butene										2 J										
Pentene										2 J										
Methyl (methylethyl) Benzene																				
Hexane										2 JNR									7.0JNR	
Oxybispropane					3 JN															
Dichlorofluoromethane						5 JN		4 JN												
1-Pentene, 2-Methyl																			2.0JN	
Unknowns	5.0R									7J									7.0J	

SAMPLE LOCATION:	NCR-1M-I	NCR-2S-I	NCR-2I-I	NCR-2M-I	NCR-2D-I	NCR-3S-I	NCR-3M-I	NCR-4S-I	NCR-4M-I	NCR-5S-I	NCR-5M-I	NCR-5D-I	NCR-6M-I	NCR-6D-I	NCR-7M-I
SAMPLE DATE:	3/20/91	3/14/91	3/14/91	3/14/91	3/14/91	3/18/91	3/18/91	3/22/91	3/25/91	3/18/91	3/15/91	3/15/91	3/21/91	3/22/91	3/19/91
TCL SEMI-VOLATILES (µg/L)															
Phenol	2 J	ND5	ND5	ND5	ND5	ND5	ND5	4 J	2 J	ND5	ND5	1 J	ND5	ND5	ND5
bis(2-Chloroethyl) Ether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2-Chlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,2'-oxybis (1-Chloropropane)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
4-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
N-Nitroso-Di-n-Propylamine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Hexachloroethane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Nitrobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Isophorone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2-Nitrophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4-Dimethylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
bis (2-Chloroethoxy) Methane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4-Dichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
1,2,4-Trichlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Naphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
4-Chloroaniline	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5UJ	ND5	ND5	ND5UJ	ND5UJ	ND5UJ	ND5
Hexachlorobutadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
4-Chloro-3-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2-Methylnaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Hexachlorocyclopentadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4,6-Trichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4,5-Trichlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
2-Chloronaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
Dimethyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Acenaphthylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,6-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
3-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
Acenaphthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4-Dinitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
4-Nitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
Dibenzofuran	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
2,4-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Diethylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	8U	8U	ND5	ND5
4-Chlorophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5UJ	ND5	ND5
Fluorene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5UJ	ND5	ND5
4-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20UJ	ND20	ND20

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-7M-I*							*NCR-11D-I*		*NCR-12D-I*	*NCR-12D-I*	*NCR-12D-I*		*Rinse*	*Rinse*	*Rinse*
SAMPLE DATE:	*Dup* 3/19/91	*NCR-8M-I* 3/20/91	*NCR-8D-I* 3/20/91	*NCR-9M-I* 3/19/91	*NCR-10M-I* 3/19/91	*NCR-11M-I* 3/22/91	*NCR-11D-I* 3/22/91	*Dup* 3/22/91	*NCR-12D-I* 3/25/91	*Diluted* 3/25/91	*Dup* 3/25/91	*Dup/Diluted* 3/25/91	*NCR-13S-I* 3/20/91	*Blank 1* 3/13/91	*Blank 2* 3/19/91	*Blank 3* 3/26/91
TCL SEMI-VOLATILES (ug/L)																
Phenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	1500E	1200D	1200 E	1200D	ND5	ND5	ND5	ND5
bis(2-Chloroethyl) Ether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2-Chlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	46	32DJ	34	ND300	ND5	ND5	ND5	ND5
2,2'-oxybis (1-Chloropropane)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	49J	42DJ	37J	34DJ	ND5	ND5	ND5	ND5
N-Nitroso-Di-n-Propylamine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Hexachloroethane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Nitrobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Isophorone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2-Nitrophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4-Dimethylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	4	ND120	3J	ND300	ND5	ND5	ND5	ND5
bis (2-Chloroethoxy) Methane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4-Dichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
1,2,4-Trichlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Naphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Chloroaniline	ND5	ND5UJ	ND5	ND5	ND5	ND5UJ	ND5UJ	ND5UJ	ND10UJ	ND120	ND5UJ	ND300	ND5UJ	ND5	ND5	ND5
Hexachlorobutadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Chloro-3-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2-Methylnaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Hexachlorocyclopentadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4,6-Trichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4,5-Trichlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND600	ND20	ND1200	ND20	ND20	ND20	ND20
2-Chloronaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND600	ND20	ND1200	ND20	ND20	ND20	ND20
Dimethyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Acenaphthylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,6-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
3-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND600	ND20	ND1200	ND20	ND20	ND20	ND20
Acenaphthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4-Dinitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND600	ND20	ND1200	ND20	ND20	ND20	ND20
4-Nitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND600	ND20	ND1200	ND20	ND20	ND20	ND20
Dibenzofuran	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
2,4-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Diethylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Chlorophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Fluorene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND600	ND20	ND300	ND20	ND20	ND20	ND20

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-I*	*NCR-2S-I*	*NCR-2I-I*	*NCR-2M-I*	*NCR-2D-I*	*NCR-3S-I*	*NCR-3M-I*	*NCR-4S-I*	*NCR-4M-I*	*NCR-5S-I*	*NCR-5M-I*	*NCR-5D-I*	*NCR-6M-I*	*NCR-6D-I*	*NCR-7M-I*
SAMPLE DATE:	*3/20/91*	*3/14/91*	*3/14/91*	*3/14/91*	*3/14/91*	*3/18/91*	*3/18/91*	*3/22/91*	*3/25/91*	*3/18/91*	*3/15/91*	*3/15/91*	*3/21/91*	*3/22/91*	*3/19/91*
TCL SEMI-VOLATILES (ug/L) (Cont'd)															
4,6-Dinitro-2-Methylphenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
N-Nitrosodiphenylamine (1)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
4-Bromophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Hexachlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Pentachlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20UJ	ND20	ND20	ND20
Phenanthrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Di-n-Butylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	1J	ND5	ND5	ND5UJ	ND5	ND5	ND5
Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Butylbenzylphthalate	ND5	5U	6U	ND5	5U	ND5	ND5	ND5	ND5	3J	4 J	ND5UJ	ND5	ND5	2J
3,3'-Dichlorobenzidine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Benzo(a)Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Chrysene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
bis(2-Ethylhexyl)phthalate	ND5	6U	ND5	5U	ND5	ND5	ND5	5U	10	23	1JN	3 J	ND5	ND5	5U
Di-n-Octyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Benzo (b) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Benzo (k) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Benzo (a) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Indeno (1,2,3-cd) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Dibenz (a,h) Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5
Benzo (g,h,i) Perylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5

(1) - Cannot be separated from Diphenylamine

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-7M-I Dup*	*NCR-8M-I*	*NCR-8D-I*	*NCR-9M-I*	*NCR-10M-I*	*NCR-11M-I*	*NCR-11D-I*	*NCR-11D-I Dup*	*NCR-12D-I*	*NCR-12D-I Dup*	*NCR-12D-I Diluted*	*NCR-12D-I Dup/Diluted*	*NCR-13S-I*	*Rinse Blank 1*	*Rinse Blank 2*	*Rinse Blank 3*
SAMPLE DATE:	*3/19/91*	*3/20/91*	*3/20/91*	*3/19/91*	*3/19/91*	*3/22/91*	*3/22/91*	*3/22/91*	*3/25/91*	*3/25/91*	*3/25/91*	*3/25/91*	*3/20/91*	*3/13/91*	*3/19/91*	*3/26/91*
TCL SEMI-VOLATILES (µg/L) (Cont'd)																
4,6-Dinitro-2-Methylphenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND500	ND20	ND1200	ND20	ND20	ND20	ND20
N-Nitrosodiphenylamine (1)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
4-Bromophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Hexachlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Pentachlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND40	ND500	ND20	ND1200	3J	ND20	ND20	ND20
Phenanthrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Di-n-Butylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	2 J	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Butylbenzylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	6	2JN	ND5
3,3'-Dichlorobenzidine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Benzo(a)Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Chrysene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
bis(2-Ethylhexyl)phthalate	5U	5	ND5	5U	5U	ND5	ND5	ND5	4JN	ND120	3 J	ND300	8	7	5U	ND5
Di-n-Octyl Phthalate	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Benzo (b) Fluoranthene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Benzo (k) Fluoranthene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Benzo (a) Pyrene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Indeno (1,2,3-cd) Pyrene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Dibenz (a,h) Anthracene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5
Benzo (g,h,i) Perylene	ND5	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND10	ND120	ND5	ND300	ND5	ND5	ND5	ND5

(1) - Cannot be separated from Diphenylamine

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-I*	*NCR-2S-I*	*NCR-2I-I*	*NCR-2M-I*	*NCR-2D-I*	*NCR-3S-I*	*NCR-3M-I*	*NCR-4S-I*	*NCR-4M-I*	*NCR-5S-I*	*NCR-5M-I*	*NCR-6D-I*	*NCR-6M-I*	*NCR-6D-I*	*NCR-7M-I*
SAMPLE DATE:	*3/20/91*	*3/14/91*	*3/14/91*	*3/14/91*	*3/14/91*	*3/18/91*	*3/18/91*	*3/22/91*	*3/25/91*	*3/18/91*	*3/15/91*	*3/15/91*	*3/21/91*	*3/22/91*	*3/19/91*
TIC SEMI-VOLATILES (µg/L)															
Solvent Contaminant						4.0 R		4.0 R		6.0 R		19R			
Unknown Phthalate							3.0 J								
Butanoic Acid															
Hexanoic Acid, 2-Methyl															
Hexanoic Acid															
Heptanoic Acid															
Octanoic Acid															
Benzoic Acid															
Benzene Propanoic Acid															
Unknown Substituted Phenol															
Propanoic Acid, 2-Hydroxy-2-															
Bicyclo[2.2.1]Heptan-2-One								6.0 JN							
Unknown Hexane Dioic Acid Est						20 JR	7.0 J								
Hexanoic Acid, 2-Ethyl						9.0 JN									
Benzeneacetic Acid															
2-Propanol, 2,2'-Methylenebis-															
Phenol, 4,4'-Methylenebis															
2-Heptanone, 3-Methyl-									3.0 JN						
Ethane,1-Methoxy-2 (Methoxy									10.0 JN						
Benzene,1 Methyl-3-(Methy								7.0 JN							
Unknown Substituted Hydrocarbon								22.0 JN							
Bicyclo[2.2.1]Heptan-2-One, 1								10.0 JN							
[Bicyclo [3.1.1] Hept-3-EN-2-ON								4.0 JN							
Sulfur Molecule														290 JN	
VOA TCL				14 R									10.0 R		
4 Pentene-2-OL													7.0 JN		
2-Propanol, 1-Methoxy-2-Meth													7.0 R		
Unknown Ester Hexanedioic AC															
Hexanoic Acid, 3,5,5-Trimeth						4.0 JN									
1,2-Benzenedicarboxylic Acid						3.0 JN									
Unknown Oxygenated Hydrocarbon												10 R			
Unknown Carboxylic Acids												6 J			
1,3-Propanediol, 2,2 Dimethyl															
Unknown			5.0 J			16.0 J		10.0 J	20.0J				7.0 J		
2-Propanol													7.0 R		
Unknown Acid								7.0 J							

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-7M-I Dup*	*NCR-8M-I*	*NCR-8D-I*	*NCR-9M-I*	*NCR-10M-I*	*NCR-11M-I*	*NCR-11D-I*	*NCR-11D-I Dup*	*NCR-12D-I*	*NCR-12D-I Diluted*	*NCR-12D-I Dup*	*NCR-12D-I Diluted/Dup*	*NCR-13S-I*	*Rinse Blank 1*	*Rinse Blank 2*	*Rinse Blank 3*
SAMPLE DATE:	*3/19/91*	*3/20/91*	*3/20/91*	*3/19/91*	*3/19/91*	*3/22/91*	*3/22/91*	*3/22/91*	*3/25/91*	*3/25/91*	*3/25/91*	*3/25/91*	*3/20/91*	*3/13/91*	*3/19/91*	*3/26/91*
TIC SEMI-VOLATILES (ug/L)																
Solvent Contaminant	5.0 R	10 R	4.0 R	5.0 R			5.0 R	4.0 R					6.0 R		5.0 R	
Unknown Phthalate				3.0 J		4.0 J		3.0 J					3.0 J			
Butanoic Acid									3000 JN		1600 JN					
Hexanoic Acid, 2-Methyl									1800 JN							
Hexanoic Acid									2200 JN		1900 JN	1600 JN				
Heptanoic Acid									500 JN		400 JN					
Octanoic Acid									500 JN		510 JN					
Benzoic Acid									240 JN							
Benzene Propanoic Acid									110 JN		150 JN					
Unknown Substituted Phenol									49 J							
Propanoic Acid, 2-Hydroxy-2-													4.0 JN			
Bicyclo[2.2.1]Heptan-2-One													6.0 JN			
Unknown Hexane Dioic Acid Est				4.0 J									2.0 R			
Hexanoic Acid, 2-Ethyl											16 JN					
Benzeneacetic Acid											40 JN					
2-Propanol, 2,2'-Methylenebis-											33 JN					
Phenol, 4,4'-Methylenebis											40 JN					
2-Heptanone, 3-Methyl-																
Ethane,1-Methoxy-2 (Methoxy																
Benzene,1 Methyl-3-(Methy																
Unknown Substituted Hydrocarbon																
Bicyclo[2.2.1]Heptan-2-One, 1																
[Bicyclo [3.1.1] Hept-3-EN-2-ON																
Sulfur Molecule																
VOA TCL																
4 Pentene-2-OL																
2-Propanol, 1-Methoxy-2-Meth																6.0 JN
Unknown Ester Hexanedioic AC																
Hexanoic Acid, 3,5,5-Trimeth																
1,2-Benzenedicarboxylic Acid																
Unknown Oxygenated Hydrocarbon																
Unknown Carboxylic Acids										6760 J						
1,3-Propanediol, 2,2 Dimethyl				6.0 JN												
Unknown	6.0 J						7.0 J		60 J		94 J	2300 J	15.0 J		20.0 J	
2-Propanol																
Unknown Acid																
1,1-(1-Methyl)2-Propanol											24 JN					
Pentanoic Acid, 2-Methyl												360 JN				

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-I*	*NCR-2S-I*	*NCR-2I-I*	*NCR-2M-I*	*NCR-2D-I*	*NCR-3S-I*	*NCR-3M-I*	*NCR-4S-I*	*NCR-4M-I*	*NCR-5S-I*	*NCR-5M-I*	*NCR-5D-I*	*NCR-6M-I*	*NCR-6D-I*	*NCR-7M-I*
SAMPLE DATE:	3/20/91	3/14/91	3/14/91	3/14/91	3/14/91	3/18/91	3/18/91	3/22/91	3/25/91	3/18/91	3/15/91	3/15/91	3/21/91	3/22/91	3/19/91
TCL PESTICIDES/PCB (ug/L)															
alpha-BHC	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	0.00065JP	ND0.010UJ	ND0.010	0.00054JP	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
beta-BHC	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	0.049 P	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	0.00086JP	ND0.010	ND0.010UJ	ND0.010
delta-BHC	ND0.010	0.0012 J	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
gamma-BHC (Lindane)	ND0.010	ND0.010UJ	0.00099JP	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	0.0011JP	0.0011 JP	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
Heptachlor	0.0015 JP	ND0.010UJ	0.0020JP	0.0017JP	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	0.00070 JP	ND0.010UJ	0.0018 JP	ND0.010UJ	ND0.010
Aldrin	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
Heptachlor epoxide	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
Endosulfan I	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
Dieldrin	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
4,4'-DDE	ND0.020	ND0.020UJ	0.0018JP	ND0.020UJ	ND0.020	0.0010 JP	ND0.020UJ	0.0012JP	0.02U	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
Endrin	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
Endosulfan II	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
4,4'-DDD	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
Endosulfan sulfate	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
4,4'-DDT	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
Methoxyclor	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010UJ	0.0078JP	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
Endrin Ketone	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020
Endrin aldehyde	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	0.02U	ND0.020UJ	0.0031 J	0.02U	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	0.02U
alpha-Chlordane	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	0.0015 JP	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010
gamma-Chlordane	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	0.01U	ND0.010UJ	ND0.010	0.01U	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	0.01U
Toxaphene	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0
Aroclor-1016	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20
Aroclor-1221	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20
Aroclor-1232	ND0.40	ND0.40UJ	ND0.40UJ	ND0.40UJ	ND0.40	ND0.40	ND0.40UJ	ND0.40UJ	ND0.40	ND0.40UJ	ND0.40UJ	ND0.40UJ	ND0.40	ND0.40UJ	ND0.40
Aroclor-1242	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20
Aroclor-1248	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20
Aroclor-1254	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20
Aroclor-1260	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.020UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR-7M-I Dup	NCR-8M-I	NCR-8D-I	NCR-9M-I	NCR-10M-I	NCR-11M-I	NCR-11D-I	NCR-11D-I Dup	NCR-12D-I	NCR-12D-I Dup	NCR-13S-I	Rinse Blank 1	Rinse Blank 2	Rinse Blank 3
SAMPLE DATE:	3/19/91	3/20/91	3/20/91	3/19/91	3/19/91	3/22/91	3/22/91	3/22/91	3/25/91	3/25/91	3/20/91	3/13/91	3/19/91	3/26/91
TCL PESTICIDES/PCB (ug/L)														
alpha-BHC	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
beta-BHC	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
delta-BHC	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	0.00051JP	ND0.010UJ	0.0011JP	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	0.0017JP
gamma-BHC (Lindane)	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Heptachlor	ND0.010	0.0034 JP	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	0.0017JP	0.01U	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Aldrin	ND0.010	ND0.010	ND0.010	0.00089 JP	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Heptachlor epoxide	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	0.00086JP	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	0.00075J
Endosulfan I	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Dieldrin	ND0.020	ND0.020	ND0.020	ND0.020	0.00058 J	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.1 UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
4,4'-DDE	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
Endrin	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
Endosulfan II	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
4,4'-DDD	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
Endosulfan sulfate	0.00094JP	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
4,4'-DDT	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
Methoxyclor	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.5UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Endrin Ketone	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.20UJ	ND0.020UJ	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020UJ
Endrin aldehyde	0.02U	ND0.020	0.02U	ND0.020	0.02U	ND0.020UJ	ND0.20UJ	0.02U	ND0.01UJ	ND0.020UJ	ND0.020UJ	ND0.020	0.02U	ND0.020UJ
alpha-Chlordane	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
gamma-Chlordane	ND0.01	ND0.010	0.01U	ND0.010	0.01U	ND0.010UJ	ND0.010UJ	ND0.010UJ	ND0.05UJ	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010UJ	ND0.010UJ
Toxaphene	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0UJ	ND5UJ	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0UJ
Aroclor-1016	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ
Aroclor-1221	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ
Aroclor-1232	ND0.40	ND0.40	ND0.40	ND0.40	ND0.40	ND0.40UJ	ND0.40UJ	ND0.40UJ	ND2UJ	ND0.40UJ	ND0.40UJ	ND0.40	ND0.40UJ	ND0.40UJ
Aroclor-1242	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ
Aroclor-1248	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ
Aroclor-1254	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ
Aroclor-1260	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20UJ	ND1UJ	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20UJ

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-I*		*NCR-2S-I*		*NCR-2I-I*		*NCR-2M-I*		*NCR-2D-I*		*NCR-3S-I*		*NCR-3M-I*	
SAMPLE DATE:	*3/14/91*		*3/14/91*		*3/14/91*		*3/14/91*		*3/14/91*		*3/18/91*		*3/18/91*	
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*
TAL METALS (ug/L)														
Aluminum	181B	93.4B	1110	130B	80800	301R	1460	140B	200U	139B	27300	73.9B	1180	124B
Antimony	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ
Arsenic	16.3	12.8	ND3.0	ND3.0	14.6	5.2B	5.4B	6.3B	4.2B	ND3.0	6.1B	4.3B	3.0B	ND3.0
Barium	55.8B	46.5B	31.7B	28.0B	431	37.7B	59.6B	38.4B	7.6B	5.7B	364	191B	35.0B	24.0B
Beryllium	ND1.0	ND1.0	ND1.0	ND1.0	3.1B	ND1.0	1.0B	ND1.0	ND1.0	ND1.0	1.7B	ND1.0	1.5B	ND1.0
Cadmium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Calcium	48500	43700	80100	87000	511000	43000	50200	46000	468000	492000	317000	288000	35600	28000
Chromium	ND5.0	ND5.0	25.2	ND5.0	105J	ND5.0	9.0B	ND5.0	ND5.0	ND5.0	134	ND5.0	14.6	ND5.0
Cobalt	ND7.0	ND5.0	ND7.0	ND5.0	43.9B	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	19.6B	ND5.0	ND7.0	ND5.0
Copper	3.1B	ND4.0	14.2B	ND4.0	109	ND4.0	36.3	5.5B	ND3.0	ND4.0	62.6	ND4.0	11.5B	ND4.0
Iron	434	ND42.0	1440	ND42.0	108000J	235J	1820	ND42.0	284U	204	43600	1410	1200	ND42.0
Lead	ND3.0	ND2.0UJ	ND3.0	ND2.0UJ	77.9	ND2.0UJ	ND3.0	ND20.0UJ	ND30.0R	ND20.0UJ	22.4	ND2.0UJ	ND3.0	ND2.0UJ
Magnesium	72900	71300	43300J	54000J	217000	97100	71000	78200	119000	124000	100000	92300	33500	31700
Manganese	91.6	52.3	190J	415J	3740	133	106	40.9	33.7U	22.7	3840	3340	128	60.2
Mercury	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	1.8	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	0.15J	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ
Nickel	ND11.0	ND7.0	19.0B	14.2B	133J	10.1B	ND11.0	ND7.0	ND11.0	ND7.0	155	87.6	12.0B	ND7.0
Potassium	5040	3720B	1370B	ND1240	24300	3460B	4930B	5710	4090B	5000	7410	2340B	3310B	2220B
Selenium	ND3.0	ND3.0UJ	ND3.0UJ	ND3.0	ND3.0	ND3.0UJ	ND3.0	ND3.0UJ	ND15.0UJ	ND30.0UJ	ND3.0	ND3.0UJ	ND3.0	ND3.0UJ
Silver	ND4.0	ND5.0R	ND4.0	ND5.0UJ	ND4.0UJ	ND5.0UJ	ND4.0	ND5.0UJ	ND4.0	ND5.0UJ	ND4.0	ND5.0R	5.0B	ND5.0UJ
Sodium	45100	43500	27100R	59600R	81000	82800	66900J	76200J	74900	77100	807000	825000	79100	81200
Thallium	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0UJ	ND3.0	ND3.0	ND3.0UJ	ND3.0	ND15.0	ND3.0	ND3.0	ND3.0
Vanadium	ND4.0	ND4.0	ND4.0	ND4.0	150	ND4.0	5.1B	ND4.0	ND4.0	ND4.0	55.9	ND4.0	ND4.0	ND4.0
Zinc	24.4J	2.6B	88.8	4.4B	469	2.4B	76.1	ND2.0	20U	2.4B	149	7.2B	27.2J	ND2.0
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0	

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-4S-I*		*NCR-4M-I*		*NCR-5S-I*		*NCR-5M-I*		*NCR-5D-I*		*NCR-6M-I*		*NCR-6D-I*	
SAMPLE DATE:	*3/26/91*		*3/25/91*		*3/18/91*		*3/15/91*		*3/15/91*		*3/21/91*		*3/22/91*	
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*
TAL METALS (ug/L)														
Aluminum	2440	55.6B	215U	51.1B	2200	113B	101B	86.0B	73.8B	42.0B	205J	97.3B	130B	ND35.0
Antimony	ND28.0	ND22.0	ND28.0	ND22.0	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0	ND28.0	ND22.0
Arsenic	ND3.0	ND3.0	3.3B	ND3.0	ND3.0	ND3.0	7.1B	8.7B	ND3.0	ND3.0	5.9BJ	ND3.0	ND3.0	ND3.0
Barium	47.7B	15.6B	39.0B	31.7B	80.4B	56.5B	54.7B	46.5B	6.3B	6.1B	21.2B	21.7BJ	7.2B	7.8B
Beryllium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	21.2B	ND1.0	ND1.0	ND1.0
Cadmium	ND4.0	199R	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Calcium	71100	73100	163000	163000	83300	79500	62100	61000	525000	538000	484000	499000J	553000	561000
Chromium	91.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0
Cobalt	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0
Copper	20.4B	ND4.0	ND3.0	ND4.0	13.5B	9.8B	ND3.0	ND4.0	ND3.0	ND4.0	ND3.0	ND4.0	ND3.0	8.7B
Iron	7220	ND42.0	287U	ND42.0	2750	ND42.0	722	573	101	43.1B	398	49.2B	291	276
Lead	5.6J	ND20.0	ND3.0UJ	ND20.0	4.2	ND2.0UJ	ND3.0	ND2.0	ND15.0	ND20.0	ND15.0UJ	ND20.0R	ND27.0	ND20.0
Magnesium	28500	24400	62600	63000	64900	64500	71600	71200	125000	128000	88700	91900J	148000	151000
Manganese	1440	912	38.5	19.6	531	434	39.4	24.3	38.7	23.1	42.9J	33.9J	19.7	18.0
Mercury	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.15UJ	1.2	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20R	ND0.20UJ	ND0.20	ND0.20UJ
Nickel	149	74.3	ND11.0	ND7.0	28.0B	35.3	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0
Potassium	1900B	ND1240	20800	17400	2900B	ND1240	2350B	2700B	6010	5960	11100	12700J	17900J	21100J
Selenium	ND15.0	ND3.0	ND15.0	ND30.0	ND3.0	ND3.0UJ	ND3.0	ND3.0UJ	ND15.0	ND30.0UJ	ND15.0	ND30.0UJ	ND15.0	ND30.0
Silver	ND4.0UJ	ND5.0	ND4.0UJ	ND5.0	ND4.0	ND5.0UJ	ND4.0	ND5.0UJ	ND4.0	ND5.0UJ	ND4.0UJ	ND5.0UJ	ND4.0UJ	ND5.0
Sodium	63000	60900	112000	110000	70800	68500	15100	15600	123000	125000	92400	96000J	420000	433000
Thallium	ND3.0UJ	ND30.0	ND3.0UJ	ND30.0	ND3.0	ND3.0	ND3.0	ND3.0	ND15.0	ND30.0	ND3.0UJ	ND30.0	ND30.0UJ	ND150
Vanadium	6.1B	ND4.0	ND4.0	ND4.0	4.7B	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	9.6B
Zinc	96.8U	9.4B	20U	ND2.0	50.6J	5.0B	6.8B	ND2.0	3.7B	ND2.0	7.2B	ND2.0	7.4B	ND2.0
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0UJ		ND10.0UJ	

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR-7M-I		NCR-7M-I Dup		NCR-8M-I		NCR-8D-I		NCR-9M-I		NCR-10M-I		NCR-11M-I	
SAMPLE DATE:	3/19/91		3/19/91		3/20/91		3/20/91		3/19/91		3/19/91		3/22/91	
	Total	Filtered	Total	Filtered	Total	Filtered	Total	Filtered	Total	Filtered	Total	Filtered	Total	Filtered
TAL METALS (ug/L)														
Aluminum	200U	203	200U	138B	176B	86.4B	392	101B	200U	80.0B	211U	120B	22500	81.3B
Antimony	ND28.0	26.9BJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ	ND28.0	ND22.0UJ
Arsenic	ND3.0	ND3.0	ND3.0	ND3.0	3.5B	4.6B	ND3.0	ND3.0	ND3.0	ND3.0	3.4B	ND3.0	13.5	4.1B
Barium	12.7B	14.0B	13.2B	13.2B	30.7B	24.3B	7.5B	4.1B	9.2B	9.4B	23.2B	13.8B	260	23.6B
Beryllium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	1.2B	ND1.0
Cadmium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	5.0B	ND4.0
Calcium	532000J	631000J	548000	587000	59800	58200	526000	557000	425000	448000	466000	481000	453000	116000
Chromium	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	42.8	ND5.0
Cobalt	ND7.0	ND5.0	ND7.0	5.9B	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	15.1B	ND5.0
Copper	ND3.0	ND4.0	ND3.0	18.3B	N D3.0	ND4.0	ND3.0	ND4.0	ND3.0	ND4.0	ND3.0	ND4.0	42.5	ND4.0
Iron	1550	1710	1580	1600	318	72.4B	520	ND42.0	1660	1650	1180	988	41100	1390
Lead	ND3.0	ND20.0UJ	ND3.0	ND20.0UJ	ND3.0	ND2.0UJ	ND15.0UJ	ND20.0UJ	ND3.0	ND20.0UJ	ND3.0	ND20.0UJ	25.7J	ND2.0UJ
Magnesium	95800J	113000J	98800	106000	33400	32400	123000	130000	81300	85300	74300	75400	340000	235000
Manganese	103	103	105	96.3	42.4	21.9	44.1	21.4	57.7U	46.6	76.7	55.6	2670	455
Mercury	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ
Nickel	ND11.0	8.9B	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	57.9	ND7.0
Potassium	6310J	7510J	5570R	12000R	7210	6260	6270	6560	6300J	7970J	5570	6000	10300	5300
Selenium	ND3.0	ND30.0UJ	ND15.0	ND30.0UJ	ND3.0	ND30.0UJ	ND15.0	ND30.0UJ	ND3.0	ND30.0UJ	ND3.0	ND30.0UJ	ND15.0	ND3.0UJ
Silver	ND4.0	8.2BJ	ND4.0	ND5.0UJ	ND4.0	ND5.0R	ND4.0	ND5.0R	ND4.0	ND5.0UJ	ND4.0	ND5.0R	ND4.0UJ	ND5.0R
Sodium	58400	66000	60100	63200	56700	54500	127000	131000	64900	67500	37000	36700	86500	87700
Thallium	ND3.0	ND30.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND30.0	ND15.0	ND30.0	ND3.0	ND30.0	ND30UJ	ND30.0
Vanadium	ND4.0	4.4B	ND4.0	16.5B	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	47.2B	ND4.0
Zinc	20U	ND2.0	20U	4.1B	8.8B	ND2.0	13.9B	ND2.0	20U	ND2.0	20U	ND2.0	269	11.6B
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0UJ	

ROUND I - GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE
WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-11D-I*		*NCR-11D-I Dup*		*NCR-12D-I*		*NCR-12D-I Dup*		*NCR-13S-I*		*Rinse Blank 1*	*Rinse Blank 2*	*Rinse Blank 3*
SAMPLE DATE:	*3/22/91*		*3/22/91*		*3/25/91*		*3/25/91*		*3/20/91*		*3/13/91*	*3/19/91*	*3/26/91*
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*			
TAL METALS (ug/L)													
Aluminum	119B	298J	89.1B	ND35.0UJ	200U	ND35.0UJ	200U	117BJ	265	96.5	149B	159B	165B
Antimony	ND28.0	58.4BJ	ND28.0	ND22.0UJ	ND28.0	ND22.0	ND28.0	39.1B	ND28.0	ND22.0UJ	ND28.0	ND28.0	ND280
Arsenic	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0
Barium	13.9B	9.2B	13.3B	4.4B	12.4B	12.6B	12.5B	11.0B	44.6B	41.2B	1.2B	1.1B	1.2B
Beryllium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0
Cadmium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0UJ	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Calcium	519000	547000	534000	568000	497000	528000	500000	512000	202000	195000	510B	589B	521B
Chromium	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0
Cobalt	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND5.0	ND7.0	ND7.0	ND7.0
Copper	ND3.0	ND4.0	ND3.0	ND4.0	ND3.0	ND4.0UJ	ND3.0	19.9BJ	12.6B	ND4.0	ND3.0	ND3.0	ND3.0
Iron	88.4B	ND42.0	66.3B	ND42.0	630	601	645	579	6960	335	75.2B	41.3B	77.4B
Lead	ND27.0UJ	ND20.0UJ	ND27.0	ND2.0UJ	ND27.0UJ	ND20.0	ND3.0UJ	ND20.0	ND3.0	ND20.0UJ	ND3.0	ND3.0	ND3.0UJ
Magnesium	104000	109000	107000	116000	96900	103000	97400	101000	67400	64600	54.2B	57.7B	59.1B
Manganese	17.2	19.3	17.3	16.6	24.1	24.4	23.8	24.9	3780	3660	13.1B	12.7B	3.4B
Mercury	ND0.20	ND0.15UJ	ND0.20	ND0.15UJ	ND0.20	ND0.20	ND0.20	ND0.20	ND0.20	ND0.15UJ	ND0.20	ND0.20	ND0.20
Nickel	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	ND11.0	ND7.0	128	111	ND11.0	ND11.0	ND11.0
Potassium	8140	8040J	7650	1910BJ	14600	14500	15200J	19200J	11200	9640	ND873	891B	ND873
Selenium	ND15.0	ND30.0UJ	ND15.0	ND30.0UJ	ND15.0	ND30.0	ND15.0	ND30.0	ND3.0	ND3.0UJ	ND15.0	ND3.0	ND15.0
Silver	ND4.0UJ	15.1J	ND4.0	ND5.0UJ	ND4.0UJ	ND5.0	ND4.0UJ	6.6B	ND4.0	ND5.0R	ND4.0	ND4.0	ND4.0UJ
Sodium	178000	177000	184000	200000	69600	72200	70100	66100	116000	107000	1160B	1250B	1460B
Thallium	ND30.0UJ	ND30.0	ND3.0	ND30.0	ND3.0UJ	ND30.0	ND3.0UJ	ND30.0	ND3.0	ND30.0	ND3.0	ND3.0	ND3.0UJ
Vanadium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0UJ	ND4.0	19.4BJ	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Zinc	6.6B	ND2.0	6.8B	ND2.0	20U	ND2.0	20U	ND2.0	33.9J	10.2B	7.7B	4.1B	50.7
Cyanide	ND10.0UJ		ND10.0UJ		ND10.0		ND10.0		ND10.0		ND10.0	ND10.0	ND10.0

COMPLETE ROUND II

GROUNDWATER DATA SUMMARY

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-1M-II* 6/25/91	*NCR-1S-II* 6/23/91	*NCR-2I-II* 6/23/91	*NCR-2M-II* 6/23/91	*NCR-2D-II* 6/23/91	*NCR-3S-II* 6/23/91	*NCR-3M-II* 6/23/91	*NCR-4S-II* 6/29/91	*NCR-4M-II* 6/29/91	*NCR-5S-II* 6/23/91	*NCR-5M-II* 6/23/91	*NCR-6D-II* 6/23/91	*NCR-6M-II* 6/26/91	*NCR-6D-II* 6/26/91	*NCR-7M-II* 6/24/91	*NCR-7M-II Dup* 6/26/91	*NCR-8M-II* 6/25/91	*NCR-8M-II Dup* 6/25/91	*NCR-8D-II* 6/26/91
TCL VOLATILES (ug/L)																			
Chloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromomethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Vinyl Chloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Methylene Chloride	3 U	3 U	4 J	3 U	2 U	3U	3 U	3 U	4 U	3 U	4 U	4 U	2 U	2 U	2 U	3 U	6 U	4 U	2 U
Acetone	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ
Carbon Disulfide	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
trans-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
2-Butanone	ND5	ND5	ND5	ND5	ND6	ND5	ND5	ND5	ND5	ND6	ND6	ND5	ND5	ND6	ND5	ND6	ND6	ND5	ND5
Bromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,1-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Carbon Tetrachloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromodichloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Dibromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Benzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trans-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromoform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromoethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
4-Methyl-2-Pentanone	ND5	ND5	ND5	ND5	ND6	ND5	ND5	ND5	ND5	ND6	ND6	ND5	ND5	ND6	ND5	ND6	ND6	ND5	ND5
2-Hexanone	ND5	ND5	ND5	ND5	ND6	ND5	ND5	ND5	ND5	ND6	ND6	ND5	ND5	ND6	ND5	ND6	ND6	ND5	ND5
Tetrachloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2,2-Tetrachloroethane	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ	ND 1UJ
Toluene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	3	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Ethylbenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Styrene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Xylenes (Total)	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromo-3-Chloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,3-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,4-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
TIC VOLATILES (ug/L)																			
Butene						2 JN													
Oxybispropane																			
Dichlorofluoromethane																			

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION:	NCR-9M-II	NCR-10M-II	NCR-11M-II	NCR-11D-II	NCR-12D-II	NCR-12D-II Dup	NCR-13S-II	Trip Blank 1	Trip Blank 2	Trip Blank 3	Trip Blank 4	Trip Blank 5	Trip Blank 6	Rinse Blank 1	Rinse Blank 2	Rinse Blank 3
SAMPLE DATE:	4/25/91	4/25/91	4/30/91	5/1/91	4/30/91	4/30/91	4/24/91	4/23/91	4/24/91	4/25/91	4/26/91	4/30/91	5/1/91	4/24/91	4/25/91	4/29/91
TCL VOLATILES (ug/L)																
Chloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromomethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Vinyl Chloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Methylene Chloride	3 U	5U	3U	2 U	4 U	4 U	5 U	5 U	3 J	2	3 J	4 U	3 U	4 U	4 U	5 U
Acetone	ND5 UJ	ND5 UJ	ND5 UJ	ND5 UJ	19 U	24 U	ND5 UJ	10 J	4J	ND5	ND5 UJ	11 J	6 J	ND5 UJ	ND5 UJ	ND5 UJ
Carbon Disulfide	ND1	ND1	ND1	ND1	ND1	1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
trans-1,2-Dichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chloroform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
2-Butanone	ND6	ND5	ND5	ND5	ND7	15	ND6	ND5	ND5	ND5	ND5	ND6	ND5	ND6	ND5	ND6
Bromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,1-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Carbon Tetrachloride	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromodichloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
cis-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trichloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Dibromochloromethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2-Trichloroethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Benzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Trans-1,3-Dichloropropene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Bromoform	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromoethane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
4-Methyl-2-Pentanone	ND6	ND5	ND5	ND5	ND7	ND6	ND6	ND5	ND6	ND5	ND6	ND6	ND5	ND6	ND5	ND6
2-Hexanone	ND6	ND5	ND5	ND5	ND7	ND6	ND6	ND5	ND6	ND5	ND6	ND6	ND5	ND6	ND5	ND6
Tetrachloroethene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,1,2,2-Tetrachloroethane	ND1 U,	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ	ND1 UJ
Toluene	ND1	ND1	ND1	ND1	1J	1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Chlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Ethylbenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Styrene	ND1	ND1	ND1	ND1	2	2	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
Xylenes (Total)	ND1	ND1	ND1	ND1	1J	0.9J	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dibromo-3-Chloropropane	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,3-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,4-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
1,2-Dichlorobenzene	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1	ND1
TIC VOLATILES (ug/L)																
Butene																
Oxybispropane				3 JN												
Dichlorofluoromethane					7 JN											

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-1M-II* 4/29/91	*NCR-2S-II* 4/23/91	*NCR-2I-II* 4/23/91	*NCR-2M-II* 4/23/91	*NCR-2D-II* 4/23/91	*NCR-3S-II* 4/23/91	*NCR-3M-II* 4/23/91	*NCR-4S-II* 4/29/91	*NCR-4M-II* 4/29/91	*NCR-5S-II* 4/23/91	*NCR-5M-II* 4/23/91	*NCR-5D-II* 4/23/91	*NCR-6M-II* 4/26/91	*NCR-6D-II* 4/26/91	*NCR-7M-II* 4/24/91
TCL SEMI-VOLATILES (µg/L)															
Phenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
bis(2-Chloroethyl) Ether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Chlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,2'-oxybis (1-Chloropropane)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
4-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
N-Nitroso-Di-n-Propylamine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Hexachloroethane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Nitrobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Isophorone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Nitrophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4-Dimethylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
bis (2-Chloroethoxy) Methane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4-Dichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
1,2,4-Trichlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Naphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
4-Chloroaniline	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Hexachlorobutadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
4-Chloro-3-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Methylnaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Hexachlorocyclopentadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4,6-Trichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4,5-Trichlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
2-Chloronaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
Dimethyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Acenaphthylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,6-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
3-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
Acenaphthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4-Dinitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
4-Nitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
Dibenzofuran	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
2,4-Dinitrotoluene	ND5UJ	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5	ND5UJ	ND5UJ	ND5
Diethylphthalate	ND5	ND5	1J	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	5 U	ND5	ND5	ND5
4-Chlorophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Fluorene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
4-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-7M-II Dup 4/24/91*	*NCR-8M-II 4/25/91*	*NCR-8M-II Dup 4/25/91*	*NCR-8D-II 4/26/91*	*NCR-9M-II 4/25/91*	*NCR-10M-II 4/25/91*	*NCR-11M-II 4/30/91*	*NCR-11D-II 5/1/91*	*NCR-12D-II 4/30/91*	*NCR-12D-II Diluted 4/30/91*	*NCR-12D-II Dup 4/30/91*	*NCR-12D-II Dup/Diluted 4/30/91*	*NCR-13S-II 4/24/91*	*Rinse Blank 1 4/24/91*	*Rinse Blank 2 4/25/91*	*Rinse Blank 3 4/29/91*
TCL SEMI-VOLATILES (ug/L)																
Phenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	480E	740D	500E	810D	ND5	ND5	ND5	ND5
bis(2-Chloroethyl) Ether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2-Chlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	480E	740D	500E	810D	ND5	ND5	ND5	ND5
2,2'-oxybis (1-Chloropropane)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
4-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	21	23DJ	22	22DJ	ND5	ND5	ND5	ND5
N-Nitroso-Di-n-Propylamine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Hexachloroethane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Nitrobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Isophorone	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2-Nitrophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4-Dimethylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	2J	ND50	2J	ND75	ND5	ND5	ND5	ND5
bis (2-Chloroethoxy) Methane	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4-Dichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
1,2,4-Trichlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Naphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
4-Chloroaniline	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Hexachlorobutadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
4-Chloro-3-Methylphenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2-Methylnaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Hexachlorocyclopentadiene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4,6-Trichlorophenol	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4,5-Trichlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20
2-Chloronaphthalene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20
Dimethyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Acenaphthylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,6-Dinitrotoluene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
3-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20
Acenaphthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4-Dinitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20
4-Nitrophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20
Dibenzofuran	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
2,4-Dinitrotoluene	ND5	ND5	ND5	ND5UJ	ND5	ND5	ND5UJ	ND5UJ	ND5UJ	ND5UJ	ND5UJ	ND75	ND5	ND5	ND5	ND5UJ
Diethylphthalate	5U	ND5	ND5	ND5	2 J	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	2J	ND5	ND5
4-Chlorophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Fluorene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
4-Nitroaniline	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND300	ND20	ND20	ND20	ND20

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-II*	*NCR-2S-II*	*NCR-2I-II*	*NCR-2M-II*	*NCR-2D-II*	*NCR-3S-II*	*NCR-3M-II*	*NCR-4S-II*	*NCR-4M-II*	*NCR-5S-II*	*NCR-5M-II*	*NCR-5D-II*	*NCR-6M-II*	*NCR-6D-II*	*NCR-7M-II*
SAMPLE DATE:	*4/29/91*	*4/23/91*	*4/23/91*	*4/23/91*	*4/23/91*	*4/23/91*	*4/23/91*	*4/29/91*	*4/29/91*	*4/23/91*	*4/23/91*	*4/23/91*	*4/26/91*	*4/26/91*	*4/24/91*
TCL SEMI-VOLATILES (ug/L)															
4,6-Dinitro-2-Methylphenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
N-Nitrosodiphenylamine (1)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
4-Bromophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Hexachlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Pentachlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20
Phenanthrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Di-n-Butylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Butylbenzylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
3,3'-Dichlorobenzidine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Benzo(a)Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Chrysene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
bis(2-Ethylhexyl)phthalate	ND5	ND5	0.8J	ND5	ND5	ND5	2J	5U	ND5	5 U	ND5	5 U	3J	ND5	5 U
Di-n-Octyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Benzo (b) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Benzo (k) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Benzo (a) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Indeno (1,2,3-cd) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Dibenz (a,h) Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5
Benzo (g,h,i) Perylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-7M-II Dup 4/24/91*	*NCR-8M-II 4/25/91*	*NCR-8M-II Dup 4/25/91*	*NCR-8D-II 4/26/91*	*NCR-9M-II 4/25/91*	*NCR-10M-II 4/25/91*	*NCR-11M-II 4/30/91*	*NCR-11D-II 5/1/91*	*NCR-12D-II 4/30/91*	*NCR-12D-II Diluted 4/30/91*	*NCR-12D-II Dup 4/30/91*	*NCR-12D-II Dup/Diluted 4/30/91*	*NCR-13S-II 4/24/91*	*Rinse Blank 1 4/24/91*	*Rinse Blank 2 4/25/91*	*Rinse Blank 3 4/29/91*
TCL SEMI-VOLATILES (ug/L)																
4,6-Dinitro-2-Methylphenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND80J	ND20	ND20	ND20	ND20
N-Nitrosodiphenylamine (1)	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
4-Bromophenyl-phenylether	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Hexachlorobenzene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Pentachlorophenol	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND20	ND200	ND20	ND80J	ND20	ND20	ND20	ND20
Phenanthrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Di-n-Butylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	1J	ND5	ND5
Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Butylbenzylphthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	2J	ND5	ND5
3,3'-Dichlorobenzidine	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Benzo(a)Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Chrysene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
bis(2-Ethylhexyl)phthalate	5 U	5 U	ND5	5	ND5	ND5	ND5	5 U	ND5	ND50	ND5	ND75	5 U	2J	9	ND5
Di-n-Octyl Phthalate	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Benzo (b) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Benzo (k) Fluoranthene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Benzo (a) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Indeno (1,2,3-cd) Pyrene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Dibenz (a,h) Anthracene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5
Benzo (g,h,i) Perylene	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND5	ND50	ND5	ND75	ND5	ND5	ND5	ND5

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-1M-II* 4/29/91	*NCR-2S-II* 4/23/91	*NCR-2I-II* 4/23/91	*NCR-2M-II* 4/23/91	*NCR-2D-II* 4/23/91	*NCR-3S-II* 4/23/91	*NCR-3M-II* 4/23/91	*NCR-4S-II* 4/29/91	*NCR-4M-II* 4/29/91	*NCR-5S-II* 4/23/91	*NCR-5M-II* 4/23/91	*NCR-5D-II* 4/23/91	*NCR-6M-II* 4/26/91	*NCR-6D-II* 4/26/91	*NCR-7M-II* 4/24/91
TIC SEMI-VOLATILES (ug/L)															
Solvent Contaminant													5R		
Unknown Phthalate							3J								
Hexanoic Acid, 2-Methyl															
Hexanoic Acid															
Octanoic Acid															
Benzoic Acid															
Benzene Propanoic Acid															
Hexanoic Acid, 2-Ethyl							6JN	8JN							
Ethane,1-Methoxy-2 (Methoxy															
VOA TCL				10R											
Hexanoic Acid, 3,5,5-Trimeth							9JN								
Unknown Carboxylic Acid															
Unknowns			149J				39J	4J				5R	14J		
Blank Contaminant	13R							9R	8R						
Sulfur, Mol-S8														2200JN	
2-Pyrolidinone,1-Methyl-			8JN	7JN											
Tetra-methylbutyl Phenol							4JN								
Heptanoic acid															
Unusable unknowns															

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-7M-II Dup 4/24/91*	*NCR-8M-II 4/25/91*	*NCR-8M-II Dup 4/25/91*	*NCR-8D-II 4/26/91*	*NCR-9M-II 4/25/91*	*NCR-10M-II 4/25/91*	*NCR-11M-II 4/30/91*	*NCR-11D-II 5/1/91*	*NCR-12D-II 4/30/91*	*NCR-12D-II Diluted 4/30/91*	*NCR-12D-II Dup 4/30/91*	*NCR-12D-II Dup/Diluted 4/30/91*	*NCR-13S-II 4/24/91*	*Rinse Blank 1 4/24/91*	*Rinse Blank 2 4/25/91*	*Rinse Blank 3 4/29/91*
TIC SEMI-VOLATILES (ug/L)																
Solvent Contaminant				3R												
Unknown Phthalate																
Hexanoic Acid, 2-Methyl										460JN						
Hexanoic Acid									800JN							
Octanoic Acid										300JN						
Benzoic Acid										130JN						
Benzene Propanoic Acid									100JN	50JN	120JN					
Hexanoic Acid, 2-Ethyl									13JN		14JN					
Ethane,1-Methoxy-2 (Methoxy	5R															
VOA TCL																
Hexanoic Acid, 3,5,5-Trimeth																
Unknown Carboxylic Acid									2536J	3230J	3867J	4000J				
Unknowns	2J	9J	4R		6J	5J		12J	639J	120J	637J		176J	5J	4J	
Blank Contaminant							13R	3R								
Sulfur, Mol-S8																10R
2-Pyrolidinone,1-Methyl-																
Tetra-methylbutyl Phenol																
Heptanoic acid									230JN							
Unusable unknowns	5R				13R											

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION: / *SAMPLE DATE:*	*NCR-1M-II* 4/29/91	*NCR-2S-II* 4/23/91	*NCR-2I-II* 4/23/91	*NCR-2M-II* 4/23/91	*NCR-2D-II* 4/23/91	*NCR-3S-II* 4/23/91	*NCR-3M-II* 4/23/91	*NCR-4S-II* 4/30/91	*NCR-4M-II* 4/29/91	*NCR-5S-II* 4/23/91	*NCR-5M-II* 4/23/91	*NCR-5D-II* 4/23/91	*NCR-6M-II* 4/26/91	*NCR-6D-II* 4/26/91	*NCR-7M-II* 4/24/91	*NCR-7M-II Dup* 4/24/91
TCL PESTICIDES/PCB (µg/L)																
alpha-BHC	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
beta-BHC	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	0.048UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
delta-BHC	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
gamma-BHC (Lindane)	ND0.0100	ND0.010UJ	0.00085 JP	ND0.010	ND0.010	ND0.010	ND0.010UJ	0.0016JP	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
Heptachlor	ND0.0100	ND0.010UJ	0.0033 JP	0.0037JP	ND0.010	0.00092JP	0.0019JP	ND0.0100UJ	ND0.0100	0.013U	0.0011JP	0.01U	0.0035J	ND0.010UJ	0.01U	0.01U
Aldrin	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
Heptachlor epoxide	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
Endosulfan I	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	ND0.0100UJ	ND0.0100	ND0.0100UJ	ND0.010	ND0.0100	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
Dieldrin	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.010	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
4,4'-DDE	ND0.020	0.0011J	0.0012 JP	0.0012JP	0.00081J	ND0.020	0.00092JP	ND0.020UJ	ND0.020	ND0.020UJ	0.00098JP	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
Endrin	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
Endosulfan II	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
4,4'-DDD	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
Endosulfan sulfate	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	0.00089JP	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
4,4'-DDT	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
Methoxychlor	ND0.010	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.10	ND0.010UJ	0.10U	ND0.10	ND0.10UJ	ND0.10	ND0.10	ND0.020UJ	ND0.10UJ	ND0.10	ND0.010
Endrin Ketone	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
Endrin aldehyde	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020	ND0.020	ND0.020UJ	ND0.020UJ	ND0.020	ND0.020UJ	ND0.020	ND0.020	ND0.0040UJ	ND0.020UJ	ND0.020	ND0.020
alpha-Chlordane	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	0.00098JP	0.0022JP	ND0.0100	ND0.0100UJ	ND0.010	ND0.010	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
gamma-Chlordane	ND0.0100	ND0.010UJ	ND0.010UJ	ND0.010	ND0.010	ND0.010	ND0.010UJ	0.0018JP	ND0.0100	ND0.0100UJ	ND0.010	ND0.010	ND0.0020UJ	ND0.010UJ	ND0.0100	ND0.0100
Toxaphene	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0	ND1.0	ND1.0UJ	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0	ND0.20UJ	ND1.0UJ	ND1.0	ND1.0
Aroclor-1016	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.020UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20
Aroclor-1221	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.40UJ	ND0.20UJ	ND0.20	ND0.020UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20
Aroclor-1232	ND0.40	ND0.40UJ	ND0.40UJ	ND0.40	ND0.40	ND0.40	ND0.20UJ	ND0.40UJ	ND0.40	ND0.40UJ	ND0.40	ND0.40	ND0.080UJ	ND0.40UJ	ND0.40	ND0.40
Aroclor-1242	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20
Aroclor-1248	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20
Aroclor-1254	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20
Aroclor-1260	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20	ND0.20	ND0.20UJ	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20	ND0.040UJ	ND0.20UJ	ND0.20	ND0.20

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-8M-II*	*NCR-8M-II Dup*	*NCR-8D-II*	*NCR-9M-II*	*NCR-10M-II*	*NCR-11M-II*	*NCR-11D-II*	*NCR-12D-II*	*NCR-12D-II Dup*	*NCR-13S-II*	*Rinse Blank 1*	*Rinse Blank 2*	*Rinse Blank 3*
SAMPLE DATE:	*4/25/91*	*4/25/91*	*4/26/91*	*4/25/91*	*4/25/91*	*4/30/91*	*5/1/91*	*4/30/91*	*4/30/91*	*4/25/91*	*4/24/91*	*4/25/91*	*4/29/91*
TCL PESTICIDES/PCB (ug/L)													
alpha-BHC	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	ND0.0100	ND0.0100	ND0.0100UJ
beta-BHC	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	ND0.0100	ND0.0100	ND0.0100UJ
delta-BHC	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	ND0.0100	ND0.0100	ND0.0100UJ
gamma-BHC (Lindane)	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	0.0030JP	0.00041JP	ND0.0050UJ	ND0.0020	0.00086JP	ND0.0100	ND0.0100UJ
Heptachlor	0.00095J	0.00083JP	0.0015JP	0.016P	0.00099JP	ND0.0050UJ	ND0.050	ND0.0050UJ	0.00059JP	0.090	0.27	ND0.0100	ND0.0100UJ
Aldrin	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	ND0.0100	ND0.0100	ND0.0100UJ
Heptachlor epoxide	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	0.00063JP	ND0.0100	ND0.0100UJ
Endosulfan I	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	ND0.0020	ND0.0100	ND0.0100	ND0.0100UJ
Dieldrin	ND0.020	ND0.020	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	ND0.10	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
4,4'-DDE	ND0.020	ND0.020	ND0.0040	ND0.020	0.002U	ND0.0100UJ	0.57P	ND0.0100UJ	ND0.0050UJ	0.02U	ND0.020	0.00093J	ND0.020UJ
Endrin	ND0.020	ND0.020	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	ND0.10	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
Endosulfan II	ND0.020	ND0.020	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	ND0.10	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
4,4'-DDD	ND0.020	ND0.020	ND0.0040	0.002U	ND0.020	ND0.0100UJ	0.24P	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
Endosulfan sulfate	ND0.020	ND0.020	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	0.056JP	0.00069JP	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
4,4'-DDT	ND0.020	ND0.020	ND0.0040	0.14	ND0.020	ND0.0100UJ	0.67P	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
Methoxyclor	ND0.010	ND0.010	ND0.020	0.0025JP	ND0.10	0.10U	ND0.050	0.10U	ND0.0050UJ	ND0.020	ND0.10	ND0.10	0.10JP
Endrin Ketone	ND0.020	0.0024JP	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	0.022JP	ND0.0100UJ	ND0.0050UJ	ND0.0040	ND0.020	ND0.020	ND0.020UJ
Endrin aldehyde	ND0.020	ND0.020	ND0.0040	ND0.020	ND0.020	ND0.0100UJ	0.0076JP	ND0.0100UJ	ND0.0050UJ	0.0025J	ND0.020	ND0.020	ND0.020UJ
alpha-Chlordane	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	ND0.050	ND0.0050UJ	ND0.0050UJ	0.00062JP	ND0.0100	ND0.0100	ND0.0100UJ
gamma-Chlordane	ND0.0100	ND0.0100	ND0.0020	ND0.0100	ND0.0100	ND0.0050UJ	0.015J	ND0.0050UJ	ND0.0050UJ	ND0.0020	0.00099JP	ND0.0100	ND0.0100UJ
Toxaphene	ND1.0	ND1.0	ND0.20	ND1.0	ND1.0	ND0.50UJ	ND5.0	ND0.50UJ	ND0.0050UJ	ND0.20	ND1.0	ND1.0	ND1.0UJ
Aroclor-1016	ND0.20	ND0.20	ND0.040	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ
Aroclor-1221	ND0.20	ND0.20	ND0.040	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ
Aroclor-1232	ND0.40	ND0.40	ND0.080	ND0.40	ND0.40	ND0.20UJ	ND2.0	ND0.20UJ	ND0.0050UJ	ND0.080	ND0.40	ND0.40	ND0.40UJ
Aroclor-1242	ND0.20	ND0.20	ND0.40	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ
Aroclor-1248	ND0.20	ND0.20	ND0.40	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ
Aroclor-1254	ND0.20	ND0.20	ND0.40	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ
Aroclor-1260	ND0.20	ND0.20	ND0.40	ND0.20	ND0.20	ND0.10UJ	ND1.0	ND0.10UJ	ND0.0050UJ	ND0.040	ND0.20	ND0.20	ND0.20UJ

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

SAMPLE LOCATION:	*NCR-1M-II*		*NCR-2S-II*		*NCR-2I-II*		*NCR-2M-II*		*NCR-2D-II*		*NCR-3S-II*		*NCR-3M-II*	
SAMPLE DATE:	*4/29/91*		*4/24/91*		*4/23/91*		*4/23/91*		*4/23/91*		*4/23/91*		*4/23/91*	
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*
TAL METALS (ug/L)														
Aluminum	200U	117B	15400	68.2B	55600	ND35.0	1960	77.3B	80.5B	ND35.0	9370	38.2B	3040	85.5B
Antimony	ND22.0	ND22.0	ND22.0UJ	ND22.0	26.4BJ	ND22.0	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0
Arsenic	16.4	13.4	4.2B	ND3.0	15.4	6.5B	6.9B	6.2B	ND3.0	ND3.0	4.9B	ND3.0	ND3.0	ND3.0
Barium	59.9B	56.0B	153B	76.5B	413	77.1B	60.6B	56.4B	5.9B	4.0B	294	242J	48.6BJ	72.2BJ
Beryllium	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	2.6B	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ
Cadmium	ND4.0	ND4.0UJ	4.6BJ	4.1BJ	5.7R	28.5R	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	5.0BJ
Calcium	47400	47000	101000	88200	577000	38100	55800	43300	500000	506000	293000	275000	36000	28100
Chromium	ND5.0	ND5.0UJ	128J	ND5.0UJ	101J	ND5.0UJ	8.3BJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	77.2J	ND5.0UJ	119J	ND5.0UJ
Cobalt	ND5.0	ND5.0UJ	9.0B	ND5.0UJ	33.7B	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0	ND5.0UJ	9.1B	ND5.0UJ	ND5.0	ND5.0UJ
Copper	ND4.0	ND4.0UJ	39.5	ND4.0UJ	127	ND4.0UJ	8.8B	ND4.0UJ	ND4.0	ND4.0UJ	25.0	ND4.0UJ	11.2B	ND4.0UJ
Iron	500	ND42.0	17800	ND42.0	76700	ND42.0	2630	ND42.0	237	189	12600	2270J	3900	ND42.0
Lead	ND20.0	ND2.0	7.6	ND2.0	61.6	ND2.0	2.6B	ND2.0	ND10.0UJ	ND20.0	5.5	ND20.0	2.9B	ND2.0UJ
Magnesium	74500J	83200J	59200	51100	251000	99000	77200	72800	124000	130000	90600	87100	33500	31100
Manganese	46.2	43.5	580	175	3930	168	115	34.8	23.3	19.3	3550	3360J	140	35.7
Mercury	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ
Nickel	ND7.0	ND7.0	93.7	10.1B	107	ND7.0	9.5B	ND7.0	ND7.0	ND7.0	99.4	34.8B	66.5	ND7.0
Potassium	4550B	4040B	5730	ND1240	19200	2430B	4780B	3020B	4690B	2110B	6300	1970B	3230B	1820B
Selenium	ND3.0	ND3.0	ND3.0	ND3.0	ND15.0UJ	ND3.0	ND3.0	ND3.0UJ	ND15.0R	ND30.0	ND15.0UJ	ND30.0	ND3.0UJ	ND3.0
Silver	ND5.0	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ
Sodium	42300J	48500J	64700	38100	83200	73100	76600	70500	77600J	92100J	3610000	1080000	80200	76800
Thallium	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0UJ	ND3.0	ND15.0	ND30.0	ND3.0	ND3.0
Vanadium	ND4.0	ND4.0	28.8B	ND4.0	105	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	18.4B	ND4.0	6.3B	ND4.0
Zinc	26.5U	6.7B	121	29.2	508	24.6	71.5	13.2B	15.3BJ	ND2.0	133	35.7	47.3	13.1B
Cyanide	ND10.0		ND10.0		ND10.0UJ		ND10.0UJ		ND10.0UJ		ND10.0UJ		ND10.0UJ	

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

	NCR-4S-II 4/30/91		*NCR-4M-II* 4/29/91		*NCR-5S-II* 4/24/91		*NCR-5M-II* 4/23/91		*NCR-5D-II* 4/24/91		*NCR-6M-II* 4/26/91		*NCR-6D-II* 4/26/91	
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*
TAL METALS (ug/L)														
Aluminum	1420	45.3B	1270	99.4B	6460	49.5B	132B	97.7B	200U	ND35.0	116BR	750R	121B	96.8B
Antimony	ND22.0	ND36.0UJ	ND22.0	ND36.0UJ	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0	ND22.0R	153R	ND22.0R	374R
Arsenic	ND3.0	ND3.0UJ	5.1B	ND30.0UJ	ND3.0	ND3.0	8.2B	8.1B	ND3.0	ND3.0	ND3.0R	483R	ND3.0	ND3.0
Barium	26.9B	28.2B	37.6B	29.3B	130B	159B	56.6B	50.9B	200U	35.1B	11.4B	21.4B	7.4B	30.0B
Beryllium	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ
Cadmium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0UJ	9.5J	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0	ND4.0R	35.3R	ND4.0UJ	ND4.0UJ
Calcium	70300R	183000R	171000	182000	130000	83900	61400	62600	520000J	589000J	483000J	604000J	549000J	629000J
Chromium	47.0	ND5.0	ND5.0	ND5.0	24.5J	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0UJ	ND5.0UJ
Cobalt	ND5.0	ND5.0	ND5.0	ND5.0	6.6B	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0UJ	6.4BJ	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ
Copper	7.4B	ND9.0	5.2B	ND9.0	31.2	ND4.0UJ	ND4.0	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0	ND4.0UJ	4.5B	ND4.0UJ
Iron	1560	67.8B	1070	28.5B	8660	ND42.0	807	719	104	86.6BJ	483	437	386	275
Lead	ND20.0	ND20.0UJ	ND20.0	ND20.0R	13.2	ND2.0	ND2.0	ND2.0	ND10.0	ND20.0UJ	ND20.0R	ND20.0UJ	ND2.0	ND20.0UJ
Magnesium	23400R	68200R	66000	69800	77100	66200	73700	73600	122000J	138000J	86800J	105000J	144000J	175000J
Manganese	687	24.8U	68.9	24.6	651	245	35.4	29.9	24.5	28.0	44.0J	53.9J	23.4J	33.1J
Mercury	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20R	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ
Nickel	52.1	ND35.0UJ	ND7.0	ND35.0UJ	26.8B	12.0B	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0R	47.6R	ND7.0	ND7.0
Potassium	1960BR	12400R	13900	14400	4200B	1950B	6450	4210B	7460	5390	9040	6980	17100	17400
Selenium	ND3.0	ND3.0UJ	ND3.0	ND30.0UJ	ND3.0	ND3.0	ND15.0	ND3.0	ND15.0	ND30.0R	ND30.0R	ND30.0	ND30.0UJ	ND30.0
Silver	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0R	25.0R	ND5.0R	77.9R
Sodium	59200R	112000R	104000	115000	60200	62000	19900	17600	120000	129000	87600	94600	407000	461000
Thallium	ND3.0	ND30.0	ND3.0	ND20.0UJ	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND30.0R	ND3.0UJ	ND3.0	ND15.0	ND30.0
Vanadium	ND4.0	ND6.0	ND4.0	ND6.0	13.7B	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Zinc	34.7U	ND2.0	36.2U	ND2.0	160	42.9	16.7B	ND2.0	20U	3.4B	23.2J	ND2.0	9.2B	24.5
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0UJ		ND10.0		ND10.0		ND10.0	

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

	NCR-7M-II 4/24/91		*NCR-7M-II Dup* 4/24/91		*NCR-8M-II* 4/25/91		*NCR-8M-II Dup* 4/25/91		*NCR-8D-II* 4/26/91		*NCR-9M-II* 4/25/91		*NCR-10M-II* 4/25/91	
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*
TAL METALS (ug/L)														
Aluminum	334J	291	829J	120B	200U	90.8B	200U	85.2B	ND35.0	ND35.0	200U	120B	200U	ND35.0
Antimony	ND22.0UJ	151J	ND22.0R	219R	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0	ND22.0R	135R	ND22.0R	160R	ND22.0UJ	ND22.0
Arsenic	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	3.6B	ND3.0	4.2B	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	3.0B
Barium	15.8B	16.6B	23.6B	47.9B	25.1B	26.9B	25.5B	26.5B	3.4B	5.6B	11.0B	43.7B	17.1B	39.9B
Beryllium	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ	ND1.0	ND1.0UJ
Cadmium	ND4.0UJ	8.9	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	10.6J	ND4.0UJ	5.5J	ND4.0UJ	ND4.0UJ
Calcium	534000J	607000J	529000J	623000J	62600J	70300J	63900J	70300J	513000J	603000J	424000	484000	463000	499000
Chromium	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ
Cobalt	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0	9.8BJ	ND5.0	ND5.0UJ
Copper	ND4.0	ND5.0UJ	10.7B	ND4.0UJ	ND4.0	ND4.0UJ	ND4.0	ND4.0UJ	ND4.0	ND4.0UJ	ND4.0	16.4BJ	ND4.0	ND4.0UJ
Iron	1630	991J	1710	368J	182	ND42.0	188	ND42.0	ND42.0	ND42.0	1580	686	972	844
Lead	ND10.0	ND20.0UJ	ND10.0	ND20.0UJ	ND2.0	ND2.0	ND2.0	ND2.0	ND10.0	ND20.0UJ	ND2.0	ND2.0UJ	ND2.0	ND20.0UJ
Magnesium	94400J	106000J	94200J	110000J	31900J	36300J	32300J	36300J	118000J	137000J	80000J	90200J	72300	79200
Manganese	93.2	102	109	117	18.7	20.5	19.1	20.4	19.5J	26.5J	55.7	66.0	55.8J	63.6J
Mercury	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ
Nickel	ND7.0	11.6B	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0	ND7.0	14.6B	ND7.0	ND7.0
Potassium	6500	3970	7320	7390	3910B	4440B	4670B	4100B	5020	4640B	15400J	23800J	3780B	ND1240
Selenium	ND15.0	ND30.0	ND15.0	ND30.0	ND3.0UJ	ND3.0	ND3.0UJ	ND3.0	ND3.0UJ	ND3.0	ND30.0	ND3.0	ND15.0	ND30.0
Silver	ND5.0UJ	30.1J	ND5.0UJ	42.2J	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	27.6J	ND5.0R	34.9R	ND5.0UJ	ND5.0UJ
Sodium	57900	63200	58700	62900	53600J	61600J	53800J	61800J	126000	134000	71900	76600	35500J	41300J
Thallium	ND3.0	N3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0	ND30.0	ND3.0	ND3.0
Vanadium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	15.0B	ND4.0	ND4.0
Zinc	8.5BJ	5.2BJ	44.0J	49.1J	20U	3.9B	20U	2.3B	4.2B	ND2.0	20U	29.4J	20U	21.4
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0	

ROUND 2- GROUNDWATER SAMPLE DATA SUMMARY
NCR SITE - WHEATFIELD, NEW YORK

	NCR-11M-II 4/30/91		*NCR-11D-II* 5/1/91		*NCR-12D-II* 4/30/91		*NCR-12D-II Dup* 4/30/91		*NCR-13S-II* 4/25/91		*Rinse Blank 1* 4/24/91	*Rinse Blank 2* 4/25/91	*Rinse Blank 3* 4/29/91
	Total	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*	*Total*	*Filtered*			
TAL METALS (ug/L)													
Aluminum	29200	84.5B	124B	ND35.0	132B	141B	66.4B	118B	228U	87.5B	132B	88.7B	156B
Antimony	29.6B	ND36.0UJ	23.1B	200U	26.6B	ND36.0UJ	ND22.0	200U	ND22.0UJ	ND22.0	ND22.0UJ	ND22.0UJ	ND22.0
Arsenic	12.9	ND3.0UJ	ND3.0	ND3.0UJ	ND3.0	ND30.0UJ	ND3.0	ND30.0UJ	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0
Barium	274	55.2B	18.9B	17.0B	9.9B	10.6B	9.0B	10.2B	46.3B	107B	1.3B	1.2B	1.4B
Beryllium	1.1B	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0	ND1.0UJ	ND1.0	ND1.0	ND1.0
Cadmium	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0UJ	ND4.0
Calcium	281000	114000	540000	586000	523000	561000	499000J	575000J	184000J	221000J	2250B	2180B	1350B
Chromium	84.9	ND5.0	ND5.0	10U	ND5.0	ND5.0	ND5.0	ND5.0	7.5BJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0
Cobalt	14.0B	ND5.0	ND5.0	6.7B	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0	ND5.0UJ	ND5.0	ND5.0	ND5.0
Copper	54.4	ND9.0	ND4.0	ND9.0	ND4.0	ND9.0	ND4.0	ND9.0	ND4.0	ND4.0UJ	ND4.0	ND4.0	ND4.0
Iron	40500	1820	59.5B	ND7.0	675	623	588J	666J	8650	ND42.0	ND42.0	ND42.0	49.0B
Lead	ND20.0	ND20.0	ND20.0	ND20.0	ND20.0	ND20.0UJ	ND20.0	ND20.0UJ	ND2.0UJ	ND2.0UJ	ND2.0	ND2.0	ND2.0
Magnesium	308000	293000	106000J	124000J	98600J	110000J	94000J	117000J	64900	67300	464B	344B	178B
Manganese	1610	458	18.8	22.5U	25.1	27.5U	23.4	28.3U	1810	1460	ND1.0	1.4B	1.5B
Mercury	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20UJ	ND0.20	ND0.20	ND0.20
Nickel	65.6	ND35.0UJ	ND7.0	ND35.0UJ	ND7.0	ND35.0UJ	ND7.0	ND35.0UJ	42.7	35.8B	ND7.0	ND7.0	ND7.0
Potassium	14700	5010	13100J	19700J	10400	6980	9580	10200	7790J	14600J	ND1240	ND1240	ND1240
Selenium	ND3.0	ND30.0	ND30.0	ND30.0	ND30.0	ND30.0UJ	ND30.0UJ	ND30.0UJ	ND30.0	ND3.0	ND3.0	ND3.0	ND3.0
Silver	ND5.0	ND5.0UJ	ND5.0	21.8U	ND5.0	ND5.0UJ	ND5.0	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0UJ	ND5.0
Sodium	89700J	110000J	187000	216000	67900	74800	64200J	78700J	95800J	138000J	1360B	1360B	1380B
Thallium	ND3.0	ND30.0	ND3.0	ND3.0	ND3.0	ND30.0	ND3.0	ND30.0	ND3.0	ND3.0	ND3.0	ND3.0	ND3.0
Vanadium	58.9	ND6.0	ND4.0	ND6.0	ND4.0	ND6.0	ND4.0	ND6.0	ND4.0	ND4.0	ND4.0	ND4.0	ND4.0
Zinc	268	30.7U	12.3B	ND2.0	21.2J	ND2.0	10.2B	ND2.0	20UR	46.2R	8.5B	4.1B	15.4B
Cyanide	ND10.0		ND10.0		ND10.0		ND10.0		ND10.0		ND10.0	ND10.0	ND10.0

APPENDIX L

DATA ASSESSMENT AND VALIDATION

DATA QUALIFICATION AND VALIDATION

FOR

AMBIENT AIR, SUBSURFACE SOIL, SEDIMENT, SURFACE WATER, LEACHATE AND HAND AUGER SAMPLES (RADIAN DATA)

M E M O

TO: ED ROBERTS

FROM: TONY MISERCOLA

REFERENCE NO. 2677

DATE: APRIL 2, 1991, REVISED JULY, 1991

RE: ANALYTICAL DATA QUALITY ASSESSMENT
ROUND I AND II AIR MONITORING ANALYSES
SOIL BORING, HAND AUGER, SEEP, SEDIMENT
AND SURFACE WATER ANALYSES
NCR SITE REMEDIAL INVESTIGATION (RI)
WHEATFIELD, NEW YORK

OVERVIEW

The following memo presents an analytical data quality assessment relative to the samples collected at the NCR Site from July 1990 through December 1990. Analytical services were provided by Radian Corporation (Radian) of Morrisville, North Carolina and Austin, Texas.

Ambient air monitoring samples were analyzed for chlorobenzene, benzene, methylene chloride, toluene and phenol. Remaining samples collected were analyzed for Target Compound List (TCL) and Target Analyte List (TAL) constituents. The analytical methods used for the analyses of the subject samples are referenced in the document entitled:

"Quality Assurance Project Plan (QAPP)
Remedial Investigation
Niagara County Refuse Site
Wheatfield, New York

Prepared for the PRP Committee - NCR
May 1990"

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in the QAPP and the following two documents:

i) "CLP Organics Data Review and Preliminary Review". SOP No. HW-6, Revision #6, March 1989.

ii) "Evaluation of Metals Data for the Contract Laboratory Program (CLP)". SOP No. HW-2, Revision VIII, December 1988.

Based on a review of this data set and related quality control criteria, the following have been noted:

A) ORGANIC DATA

A.1 LABORATORY CASE NARRATIVES

Review of each provided case narrative documented analytical problems associated with the analyses of Round I and Round II ambient air monitoring samples. The most pervasive problem and, thus, having the most significant impact on the validity of the air data was the fact that several air sample tubes were not completely loaded onto the GC/MS instrument. Therefore, only partial analyses resulted for those tubes affected. The cause of this problem as identified in Radian's case narratives, was cryogenic trap freezing due to water condensation in the sample tubes.

The following action was taken on the affected air sample data:

i) Samples which were not completely analyzed and yielded non-detected results were qualified as unusable (data qualifier R).

ii) Samples which were not fully analyzed and yielded positive results were qualified as estimated (data qualifier J).

The following air monitoring samples required qualification of data in accordance with the above due to incomplete sample loading:

Round I	*Round II*
1) NCR-S1-2505M NCR-S1-2506B	1) NCR-S1-2706M
2) NCR-DW1-2509M	2) NCR-UW2-2715M 2) NCR-UW2-2716B
3) NCR-S1-2511M NCR-S1-2512B	3) NCR-S2-2705M NCR-S2-2713B
4) NCR-DW1-2503B	4) NCR-S3-2704M
5) NCR-S50-2520	5) NCR-S51-2720M

On occasions, returned chain-of-custody forms from Radian noted that soil boring samples submitted for TAL determinations arrived at the

laboratory at a temperature above 4°C (±2°C). As this would have minimal effect on the integrity of the data, qualification was not required.

A.2 SAMPLE HOLDING TIMES

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded should be qualified as estimated, "J". The non-detects (sample quantitation limits) should be flagged as estimated "UJ", or unusable "R", if the holding times are grossly exceeded.

Sample holding time requirements for air monitoring analyses are specified in the QAPP. The following action was taken on air monitoring samples and effected compounds due to exceeded holding times.

i) Samples yielding positive results are qualified as estimated - data qualifier J.

ii) Quantitation limits of samples yielding none detected results are qualified as estimated - data qualifier UJ.

Affected Samples	*Compounds*	*Actual(1) Hold Time*	*Required(1) Hold Time*
Round I			
All	Phenol	13 days	7 days
Round II			
All	Chlorobenzene	20 days	14 days
NCR-UW2-2712B	Vinyl Chloride	20 days	14 days
NCR-S3-2702M	Vinyl Chloride	20 days	14 days
NCR-S3-2717B	Vinyl Chloride	20 days	14 days
NCR-DW2-2719M	Vinyl Chloride	20 days	14 days
NCR-DW2-2709B	Vinyl Chloride	20 days	14 days

1) Holding time period begins on date of collection.

Organic parameter holding time requirements relative to soil/sediment samples as mandated by USEPA Region II were more stringent than those required by the methods of analyses (USEPA SW-846). USEPA Region II holding time requirements as compared to method holding times are as follows:

Matrix	*Parameter*	*USEPA(1) Region II*	*Method(1) (SW-846)*
Soil	VOCs	10 days until analysis	14 days
	BNAs/Pest/PCBs	7 days until extraction	14 days
		40 days until analysis	40 days

1) Holding time period begins on date of collection.

Most borehole samples submitted for VOC, BNA and pesticide/PCB analyses exceeded USEPA Region II holding time requirements for analysis (VOCs) and/or extraction (BNAs/pesticides/PCBs). However, as the majority of those samples were analyzed within method holding time requirements, no qualification of data based on holding time exceedences was recommended in most cases. The following borehole samples were analyzed within USEPA Region II holding time requirements:

Sample	*Analysis*
NCR-3M-(4.0-6.0)	VOCs
NCR-3M-(24.0-26.0)	
NCR-6 (2.0-6.0)	
NCR-8 (0.0-2.0)	
NCR-8 (3.0-5.0)	
NCR-10 (44.0-46.0)	
NCR-11 (0.0-3.2)	
NCR-23 (0.0-2.0)	

Borehole samples which exceeded both USEPA Region II holding time requirements and method holding time requirements, and as such, require qualification, are as follows:

Sample	*Analysis*	*Actual Hold Time(1)*
NCR-1 (1.0-3.0)	VOCs	15 days from collection
NCR-1 (44.0-46.0)	VOCs	15 days from collection
NCR-12A (44.0-46.0)	VOCs	22 days from collection

1) Holding time period begins on date of collection.

Qualification of the above-noted samples which exceeded both USEPA Region II and method holding times should be performed in the same fashion as was performed for air monitoring samples.

All USEPA Region II VOC and pesticides/PCB holding time requirements as contained in the QAPP, were adhered to for the analyses of sediment, seep, surface water and hand auger samples. As well, all USEPA Region II BNA holding time requirements were adhered to for seep, surface water and hand auger samples. A total of 3 sediment samples did exceed USEPA Region II BNA holding times by one day for extraction (8 days total). The samples were:

i) Sediment-13R
ii) Sediment-17R
iii) Sediment-18R

However, as the extractions for these samples were performed within method holding criteria, qualification based on holding time exceedence was not recommended.

A.3 SURROGATE SPIKE RECOVERIES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical extraction procedure. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Samples which showed surrogate spike recoveries below 10 percent should be qualified as follows:

i) positive data - J (estimated)
ii) non-detects - R (unusable)

Qualification of air monitoring samples due to outlying surrogate recoveries should be performed only for samples that did not exhibit loading problems as previously discussed.

The following air monitoring samples require qualification due to surrogate spike recoveries below 10 percent:

Round	*Sample*	*Matrix*	*Analysis*
I	NCR-S1-2216aB NCR-UW1-2201aM NCR-DW1-2219aM NCR-S50-2211a	Air	Chlorobenzene
	NCR-UW1-2501M NCR-UW1-2502B NCR-DW1-2510B NCR-S50-2514	Air	Toluene, Benzene, Methylene Chloride
	NCR-UW1-2507M NCR-UW1-2508B NCR-DW1-2504M	Air	Vinyl Chloride
II	NCR-S3-2606B NCR-S51-2619M NCR-UW2-2609M	Air	Chlorobenzene
	NCR-S3-2714B NCR-DW2-2707M NCR-DW2-2708B	Air	Toluene, Benzene, Methylene Chloride
	NCR-UW2-2711M	Air	Vinyl Chloride

Air monitoring samples which showed surrogate spike recoveries outside control limits but greater than 10 percent, should be qualified as follows:

i) positive data - J (estimated)
non-detects - UJ (estimated quantitation limit)

The following air monitoring samples require qualification in accordance with the above:

Round	*Sample*	*Matrix*	*Analysis*
I	NCR-S1-2214aM NCR-UW1-2207aB NCR-DW1-2220aB	Air	Chlorobenzene

It should be noted that Round I laboratory blank surrogate spike recoveries relative to vinyl chloride, benzene, methylene chloride and toluene analyses were outside laboratory control limits (i.e. less than 10 percent and/or greater than 150 percent). Thus, the outlying surrogate spike recoveries noted in the investigative air monitoring samples may have been caused by poor laboratory method performance, rather than matrix effects.

Remaining samples collected during this phase of the RI that yielded surrogate spike recoveries below 10 percent, should be qualified as per the air monitoring analyses with the exception of samples analyzed for pesticides/PCBs. Samples analyzed for pesticides/PCBs which yielded surrogate recoveries below 10 percent should be qualified as UJ for non-detects (rather than R). Samples which required qualification due to surrogate recoveries below 10 percent are as follows:

Matrix	*Sample*	*Analysis*
Soil	NCR-10 (44.0-46.0)	BNAs
	NCR-6 (38.0-40.0)	Pest/PCBs
	NCR-9M (2.0-6.0)	BNAs
	NCR-13 (0.0-0.8)	Pest/PCBs
	NCR-12A (44.0-46.0)	BNAs

Samples (including corresponding rinsate blanks) which yielded surrogate spike recoveries outside control limits but greater than 10 percent require qualification consistent with those applied to air monitoring analyses. Those samples being:

Matrix	*Sample*	*Analyses*
Soil	NCR-4 (1.0-3.0)	BNAs
Water	DI Lot Blank 8/23/90	BNs
Soil	NCR-2 (2.0-3.0)	VOCs
Water	Rinse Blank 4	BNs
Soil	NCR-12 (22.0-26.0)	VOCs
Soil	NCR-11 (0-3.2) 9/12/90	Pest/PCBs
Sediment	Sed-6R	BNs
Sediment	Sed-7R	BNs
Sediment	Sed-15R	Pest/PCBs
Water	Seep-5R	Pest/PCBs
Water	Seep-7R	Pest/PCBs
Water	Seep-13R	Pest/PCBs
Water	Seep-14R	Pest/PCBs
Water	Seep-32R	Pest/PCBs
Water	SW-5R	Pest/PCBs

A.4 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

MS/MSD analyses were not performed on ambient air samples collected for this program. However, Radian submitted results of blank spike analyses to USEPA prior to any sample collection, on July 9, 1990. The associated blank spike analyses were acceptable to USEPA.

MS/MSD analyses performed by Radian exceeded the frequency requirements identified in the QAPP. It is noted that in most cases, the spiked samples gave recoveries within the prescribed control limits, as well as acceptable reproducibility. No qualification of data was required in most cases where samples yielded outlying surrogate spike recoveries, since recoveries were greater than 10 percent (recovery below which data must be qualified per USEPA Region II validation guidelines). The exception to this occurred for one BNA MS/MSD analysis of Seep-16R which yielded a zero (0) percent recovery for 4-nitrophenol. The resultant compound concentration should be qualified as unusable (data qualifer - R).

It should be noted that the pesticide MS/MSD analyses performed on sample Sed-8R showed zero (0) percent spike recoveries. This was

explained in Radian's case narrative as resulting from sample dilution. As well, the pesticide MS/MSD recoveries relative to Sed-18R were shown to be zero (0) and non-calculated. Radian's case narrative explained that the sample was contaminated during the extraction process and thus, recoveries were unable to be calculated.

As well, some pesticide MS/MSD analyses reported for soil boring samples, yielded elevated recoveries. Since corresponding soil boring sample data were non-detected for the subject parameters and, inspection of sample chromatograms showed minimal matrix effect problems, qualification of these data was not recommended.

A.5 BLANK CONTAMINATION

Quality Assurance (QA) blanks, i.e. method, lot, rinse and trip blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks measure cross-contamination of samples during field operations. Trip blanks measure cross-contamination of samples during shipment. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, 'U".

A.5.1 Lot Blank Analyses

The results of Lot blank analyses for air monitoring samples were provided to USEPA on July 9, 1990. All air monitoring lot blank analyses yielded non-detectable concentrations of the parameters of concern. Thus, the potential for contamination attributable to the sample tubes and solutions was minimal.

As well, lot blank samples of the deionized/distilled water used for the decontamination of sampling equipment were analyzed for TCL organic parameters. The results of these lot blank analyses yielded non-detectable concentrations of the subject parameters. Thus, the potential for sample contamination attributable to the water used in the decontamination of sampling equipment was minimal.

A.5.2 Method Blank Analyses

Contamination of samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples.

Most method blank analyses yielded non-detectable and/or below method detection limit concentrations of the parameters of concern. Sample qualification of TCL data due to probable laboratory contamination was limited to two investigative samples. The remaining qualification of data due to probable laboratory contamination was performed on Tentatively Identified compounds (TICs). In accordance with Region II validation guidelines, TICs identified in investigative samples potentially caused by laboratory contamination, are rejected as unusable (data qualifier R).

Sample results qualified due to probable laboratory contamination are presented in Table 1.

A.5.3 Field and Rinse Blank Samples

One set of field blanks were collected per round during the collection of ambient air samples. Although the results of each analysis yielded non-detectable concentrations of the compounds of concern, most field blank results (less phenol) are unusable (data qualifier R) due to outlying QC factors previously discussed. Thus, contamination of the air monitoring samples due to field operations could not be properly assessed.

A total of eight rinsate blank samples were collected during the soil boring collection phase of the RI. Each rinse blank sample was submitted for TCL VOC, BNA and Pesticide/PCB determinations.

The following contaminants were detected from the analysis of rinse blank samples collected during the soil boring phase:

	Methylene Chloride	*Butyl benzyl phthalate*
Rinse Blank 1	1.0.µg/L	
Rinse Blank 2	1.9 µg/L	
Rinse Blank 7		140 µg/L

Both detections of methylene chloride were reported below the laboratory quantitation limits and, are considered insignificant. All

soil boring samples collected on the same day as rinse blank 7 yielded non-detectable concentrations of butyl benzyl phthalate.

Both methylene chloride and butyl benzylphthalate are common laboratory contaminants and the detections of these compounds in the rinsate blank samples were most likely contributed from same. On the basis of the results associated with rinsate blank samples collected during implementation of the soil boring collection phase it is concluded that the decontamination process used on the borehole sampling equipment was mostly effective. Inspection of soil boring sample TIC data did however, identify compounds related to the decontamination process; those being:

2-butanoic acid; and
2-hexanedioic acid ester

The presence of 2-butanone and associated degradation products in TCL as well as TIC data is most likely attributable to 2-butanone contamination of almost all grades of methanol. Pesticide grade methanol was required by USEPA Region II as a decon solvent. As well, the presence of hexane and associated degradation products in NCR site samples is most likely attributable to the hexane used in the decontamination process. Although hexane is hydrophobic, it was also required to be used by USEPA as a decontamination solvent. Thus, the presence of these compounds in the sample data should be considered suspect at best.

A total of three rinsate blank samples were collected during collection of hand auger and sediment samples. Each rinsate blank sample was submitted for TCL, VOC, BNA and Pesticide/PCB determinations.

The following contaminants were detected in the above-noted rinsate blank samples:

<u>Rinsate Blank-2R</u>	
methylene chloride	2J µg/LJ
<u>Rinse Blank-1R</u>	
Bis (2-ethylethyl) phthlate	12 µg/L
<u>Rinse Blank (12/03/90)</u>	
Heptachlor epoxide	0.0175J µg/L J

Samples collected prior to and after rinse blank (12/03/90) show non-detected hepachlor epoxide results. Thus, no sample qualification

due to field contamination is required based on the detections of heptachlor epoxide in one rinse blank sample. The detection of methylene chloride in Rinse blank-2R was below Radian's quantitation limit, and is considered insignificant.

Sample Sed-4R was collected subsequent to the collection of Rinse blank-1R. Both of these samples, yielded detections of bis (2-ethyl hexyl) phthalate. However, the bis (2-ethyl hexyl) phthalate concentration reported in Sed-4R (440 µg/kg), was below Radian's quantitation limits and as such, has already been qualified as estiimated. Thus, further qualification of this data would have minimal effect.

A.5.4 Trip Blanks

A total of four trip blank samples were submitted to Radian for VOC analysis. Trip blank samples were collected during implementation of the surface water and seep sample collection phase. Detections of VOCs in trip blanks and samples shipped with same, are presented as follows:

	Compound	*Concentration (µg/L)*	*Associated Samples*
Trip Blank 11/26/90	acetone	10 µg/L	Seep-1R
	benzene	1J µg/L	Seep-3R
	Methyl chloride	3J µg/L	Seep-5R
			Seep-32R
			Seep-16R
			Seep-7R
			Seep-14R
			Seep-13R
			Seep-21R
Trip Blank 11/27/90	Acetone	17 µg/L	Seep-10R
	Benzene	1J µg/L	Seep-10R
	Methyl Chloride	19 µg/L	Seep-10R
Trip Blank 11/28/90	methylene chloride	27 µg/L	SW-18R
	acetone	20 µg/L	SW-13R
	2-butanone	41 µg/L	SW-5R
	benzene	1J µg/L	SW-11R
			SW-21R
			SW-1R
			SW-4R
Trip Blank 11/29/90	methylene chloride	23 µg/L	SW-2R
			SW-7R
			SW-8R
			SW-10R

Due to potential contamination during shipping, compounds detected in the seep and surface water samples which were also detected in corresponding trip blank samples, required qualification in accordance with the following guidelines:

methylene chloride acetone 2-butanone	**sample conc. >QL but <10x blank**	**sample conc <QL & is < 10 x blank value**	**sample conc. >QL value & >10 x blank value**
	flag sample result with a 'U'; cross out 'B' flag	reject sample result and report QL; cross out 'B' flag	no qualification is needed
benzene	**sample conc. >QL but < 5x blank**	**sample conc. <QL & is <5 x blank value**	**sample conc. > QL value & > 5 blank value**
	flag sample result with a 'U'; cross out 'B' flag	reject sample result and report QL; cross out 'B' flag	no qualification is needed

QL - laboratory quantitation limit.
U - non-detected at stated quantitation limit. The associated quantitation limit has been adjusted to reflect blank contamination.

A.6 GC/MS TUNING AND PERFORMANCE

To ensure that the data produced by the instruments may be correctly interpreted, the tuning and performance criteria, established in the relevant methods have been assessed. Re-calculation of at least two of the GC/MS tuning and mass calibration values reported for each mass listing indicated that no transcription errors occurred.

In general, a review of the provided GC/MS tuning and calibration data, accompanying the Radian work orders, indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) were met for the analysis of VOCs and BNAs. Thus, the utility of the GC/MS tuning and mass calibration data was not suspect.

A.7 CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A.7.1 GC/MS

The response factor measures the instrument's response to specific chemical compounds. The response factors for the Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity).

Qualification of samples analyzed in which initial and/or continuing calibration data yielded compound response factors below a value of 0.05 is recommended as follows:

i) compounds detected in the sample are qualified as estimated-data qualifier J

ii) compounds reported as non-detected are qualified as unusable-data qualifier R.

The following samples require qualification in accordance with the above:

Matrix	*Sample*	*Affected Compound*
Soil	NCR-4 (1.0-3.0) NCR-12 (44.0-46.0)	Benzoic acid
Water	DI Lot Blank	Benzyl alcohol(1) Benzoic acid(1)
Soil	NCR-6 (2.0-6.0) NCR-8 (0.0-2.0) NCR-8 (3.0-5.0) NCR-10 (44.0-46.0)	2-Butanone
Water	Rinse Blank 5	Benzyl alcohol(1)
Water	Rinse Blank 7	Dibromochloromethane(1)
Soil	NCR-2 (2.0-3.0) NCR-2 (24.0-24.7)	tetrachloroethene(1)

(1) This compound was not analyzed in subsequent continuing calibration verification analyses.

Percent relative standard deviations (RSDs) are calculated from the initial calibration and are used to indicate the stability of specific compound response factors (RFs) over increasing concentration. Percent differences (%D's) compare response factors of the continuing calibration check to the mean response factors (RRFs) of the initial calibrations. Percent Ds are a measure of the instrument's daily performance. Percent RSDs must be <30% and %Ds must be <25%. A value outside of these limits indicates potential detection and quantitation errors.

Qualification of sample data in which associated calibrations yielded outlying RSD or % D values is required as follows:

i) For initial calibration outlying percent RSD values:

	% RSDs between 30-50%	*% RSDs between 50-90%*	*% RSDs greater than 90%*
Positive Sample data	J	J	J
Non-detected Sample data	–	UJ	R

ii) For continuing calibration outlying % D values:

	% Ds between 25-50%	*% Ds between 50-90%*	*% Ds greater than 90%*
Positive Sample data	J	J	J
Non-detected Sample data	–	UJ	R

Presented in Tables 2 and 3 are the samples associated with initial and continuing calibrations having outlying RSD and % D values. Sample qualification should be consistent with the guidelines presented.

A.7.2 Gas Chromatography

Detailed data required for a comprehensive assessment of soil boring pesticide/PCB initial and continuing calibrations were not provided by Radian. Items such as retention time windows, continuing calibration verifications and chromatograms of same were lacking from soil boring sample data. However, based on the provided data, an assessment was performed.

Two gas chromatographic instruments were used for the pesticide/PCB analyses of soil boring samples. Initial calibration of both instruments was performed by generation of standard curves of peak height or area response versus mass injected.

Inspection of the initial calibration data showed that in most cases, standard curves demonstrated acceptable linearity as noted by resulting correlation coefficients (r values) greater than 0.995.

The following pesticide/PCB compounds showed curves which yielded correlation coefficients less than 0.995.

Compound	*Correlation Coefficients*
Aroclor 1016	0.986
b-BHC	0.993
Endrin	0.994

Since none of the above pesticides/PCBs were detected in any borehole samples, and the fact that outlying correlation coefficients would have minimal effect on the ability of the GC to detect the subject parameters, qualification was not recommended.

As well, both GC instruments showed 4,4'-DDT retention times for each standard curve greater than 12 minutes. This indicated satisfactory resolution was achieved for each targeted pesticide.

Further, all percent degradation results with the exception of one reported for both 4,4'-DDT and endrin yielded values below 20 percent. This indicated that on most occassions, the instrument columns and injection ports were sufficiently free of high boiling residues which may have restricted the identification and quantification of the targeted pesticides.

The percent degradation of 4,4'-DDT associated with the analyses of NCR-3M (4.0-6.0) and NCR-3M (24.0-26.0) was 23.42 percent. However,

as 4,4'-DDT, 4,4'-DDD and 4,4'-DDE were not detected in the subject samples, false identifications of same were not considered a problem.

Finally, dibutyl chlorendate (DBC) surrogate compound retention time shifts were assessed. Based on the GC columns used by Radian for the analyses of soil boring samples, the USEPA Region II maximum allowable DBC retention time shift between standard and sample is ±1%. However, USEPA CLP allows for a 1.5% percent retention time shift. The following soil boring samples were shown to exceed the 1% and/or the 1.5% criteria.

Sample	*DBC RT Shift* (%)
NCR-3M-(6-8)	1.01
NCR-3M (24.0-26.0)	1.14
Rinse Blank 2	1.42
NCR-5 (44.0-47.0)	1.344
Rinse Blank 3	2.285
Rinse Blank 5	1.366
NCR-9M (2.0-6.0)	1.883
NCR-10 (2.0-4.0)	1.01

Qualification of data in which DBC retention time shifts exceeded 1% should be performed as follows:

	Percent RT Shift Range (1.0-1.1)	*Percent RT Shift Range (1.1-1.5)*	*Percent RT Shifts >1.5*
Positive pesticide/PCB data	none	J	J
Non-detected pesticide/PCB data	none	UJ	R

Calibration data provided for the pesticide/PCB determinations of seep, surface water, sediment and hand auger samples contained retention time windows for each targeted pesticide. The criteria for pesticide/PCB identification require that the retention time of the analyte fall within the retention time windows for the two specified chromatographic columns. Based on the provided data, all pesticide

detections yielded retention times within their respective control windows.

Percent degradation results for endrin and 4,4'-DDT were not provided with the accompanying seep, surface water, sediment and hand auger sample data. Thus it was not possible to evaluate the potential for false identifications of 4.4'-DDD and/or 4,4'-DDE caused by the GC columns.

A.8 INTERNAL STANDARDS PERFORMANCE

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to ±100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to ±100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" or "R" if there is a severe loss of sensitivity.

Most air monitoring samples showed internal standard retention times and/or area counts outside the above noted control limits. However, as the affected samples have been previously qualified due to other outlying QC criteria, further qualification was not required.

Of the remaining samples analyzed, the following showed one or more VOC internal standard retention time outside control limits. Those being:

Rinsate Blank 5
NCR-3M (4.0-6.0)
NCR-3M (24.0-26.0)

In as much as the outlying VOC internal standard retention times relative to both NCR-3M samples were slightly outside (less than 10/100's of a minute) lower retention time control values, it is recommended that these samples remain unqualified on the basis of internal standard performance. However, as shown below, VOC internal standard retention times associated with rinsate blank 5 were substantially outside control limits.

	Internal Standard (IS)	*Internal Standard Retention Time*	Internal *Standard Retention Time Control Limits*
Rinsate Blank 5	Bromochloromethane	7:31	5:89-6:89
	1,4-difluorobenzene	6:30	7:78-8:78
	Chlorobenzene	8:20	11:78-12:78

Since internal standard retention times varied substantially from established control limits, it is recommended that the VOC data relative to rinsate blank 5 to be qualified as follows:

i) positive data - estimated as J
ii) non-detected data unusable-data qualifier R

A.9 COMPOUND IDENTIFICATION

The criteria used for evaluating compound identifications were as follows:

i) The relative retention time (RRT) of the chromatographic peak must fall within±0.06 units of the standard RRT. In this case, the standard RRT used was that determined from the continuing calibrations.

ii) The mass spectral data for the identified compounds must conform to the requirements stipulated in the USEPA Region II data validation guidelines.

Subsequent review of sample reconstructed ion chromatographs and mass spectra showed that in most cases, the compounds identified showed RRTs within ±0.06 units of the appropriate standard. As well, most mass spectral data generated for each compound identified corresponded well with the library-generated mass spectra.

The following samples yielded detections of which did not meet one of the above criteria for compound identification.

Matrix	*Sample*	*Compound of Concern*	*Concentration*
Air	NCR-S1-2506B	methylene chloride	0.02 µg/m^3
Soil	NCR-4(55.0-57.0)	bis(2-ethyl hexyl) phthalate	1400 µg/kg
Soil	NCR-12(22.0-26.0)	bis(2-ethyl hexyl) phthalate	2900 µg/kg

Although, the relative retention times of the above noted compounds identified in both soil samples and in the air monitoring sample were within ±0.06 RRT units of their corresponding continuing calibration values, all sample mass spectra showed poor correlations to the library mass spectra. Therefore, the detections of bis (2-ethyl hexyl) phthalate and methylene chloride in these samples should be qualified as follows:

N - presumptive evidence of the presences of the compound

Field duplicate samples collected for sediments and seeps identified different detections of targeted pesticides. Chromatograms of both primary and confirmatory analyses were reviewed to compare standard retention time windows to those of the subject sample analyses.

In all cases, the pesticides detected in the field duplicate samples yielded retention times within their respective control windows. The anomolies in these data may be due to variability of data detected at or below the quantitation limit as well as sample heterogeneity (discussed in Section A.10).

Compound identifications for detected pesticides/PCBs in the associated soil boring data was not possible since retention time windows were not provided.

A.10 FIELD DUPLICATE SAMPLES

Among the field duplicate samples analyzed for VOCs, BNAs and pesticides/PCBs, most results were reproducible, indicating satisfactory analytical and sampling protocol precision were achieved. Any anomalies in the field duplicate data may be attributed to the heterogeneity of the sample matrix. Slight changes in the uniformity of the sample matrix may have a substantial effect on the reproducibility of the data.

A.11 OVERALL ORGANICS DATA ASSESSMENT

Based on the criteria outlined, it is recommended that the results reported for the organics analyses (less ambient air monitoring data) be accepted as accurate. However, these data require some qualification as noted. In most cases these qualifications are necessary due to

calibration difficulties and matrix effects resulting in surrogate compound spike recoveries outside specified control limits.

Most data provided for ambient air monitoring samples collected were qualified as unusable and/or estimated due to sample-instrument loading problems. As noted in Radian case narratives, these loading problems were caused by water condensation in the sampling tubes which ultimately lead to clogging of the GC/MS cryogenic trap.

B) INORGANIC DATA

B.1 SAMPLE HOLDING TIMES

Under the guidelines established in the QAPP, the following sample holding time requirements were established for the analyses of TAL inorganic analytes:

Metals:	6 months
Mercury:	28 days
Cyanide:	14 days

Due to potential loss of analyte(s), exceeding the holding time for a sample requires that positive data and minimum detection limits (MDLs) be qualified as estimated, and the results annotated to indicate that holding times were exceeded.

The samples submitted for inorganic analyses were all analyzed within the prescribed holding times and require no qualification based on this criterion.

B.2 CALIBRATION

Initial calibration of an instrument ensures that it is capable of producing satisfactory quantitative data at the beginning of a series of analyses. The reported data was checked for calibration frequency, number and type of standards analyzed, and use of a calibration blank.

For inductively coupled plasma (ICP) analyses, a calibration blank and at least one standard must be analyzed in establishing the analytical curve. For atomic absorption (AA) and cyanide analyses, a calibration blank and at least three standards (4-mercury) must be used in establishing the analytical curve. In all instances, the calibration verification sample results must fall within the control limits of 90 to

110 percent of the true value, with the exception of cyanide and mercury for which the limits are 85 to 115 percent and 80-120 percent respectively.

In all instances, the instruments were calibrated initially with the proper number of standards and calibration blanks. The percent recovery (% R) values reported on the initial and continuing calibration summaries all complied with the prescribed control limits. As well, all mercury and cyanide curves yielded correlation coefficients greater than 0.995. A spot check was conducted for calculation errors; none were found.

The verification of continuing calibration was conducted in accordance with the prescribed methods. All reported % R values were within the accepted control limits with the exception of vanadium. Vanadium continuing calibration verifications associated with the analyses of the following samples yielded recoveries of 88.9 percent and 88.6 percent (control limits 90-110 percent):

Matrix	*Sample*
Soil	NCR-4(1.0-3.0)
	NCR-12(44.0-46.0)
	NCR-12A(44.0-46.0)

Thus vanadium results reported for the above samples should be qualified as follows:

Positive data - J (estimated)
Non-detects - UJ (estimated quantitation limit)

B.3 BLANKS

B.3.1 INITIAL AND CONTINUING CALIBRATION BLANK SAMPLES

Most initial and continuing calibration blank (ICB & CCB) samples analyzed by Radian yielded contaminant concentrations below the instrument detection limits. Exceptions to this were noted for the following analytes:

lead;
aluminum;
cadmium;

copper.

However, since corresponding NCR Site samples showed non-detectable concentrations of the above analytes or, sample analyte concentrations exceeded five times those of the associated blanks, qualification of inorganic data attributable ICB and CCB contamination was not required.

B.3.2 LABORATORY/METHOD BLANKS

A laboratory/method blank consists of deionized water, prepared as a sample and analyzed. Most preparation blanks gave contaminant concentrations below the method detection limits.

Qualification of sample data on the basis of preparation blank contamination was performed on samples in which sample analyte concentrations were below 10 times those detected in the preparation blanks. Sample results less than 10 times those reported in corresponding preparation blank samples are reported by using less than values (<).

The following samples require qualification in accordance with the aforementioned due to potential laboratory contamination:

Blank Contaminant	*Blank Concentration*	*Affected Samples*
Copper Sodium Lead	5.6 mg/kg 338 mg/kg 0.76 mg/kg	NCR-1(1.0-3.0) NCR-1(44.0-46.0)
Sodium	170 mg/kg	NCR-3M(4.0-6.0) NCR-6(38.0-40.0) NCR-6(2.0-6.0) NCR-8(0.0-2.0) NCR-8(3.0-5.0) NCR-10(44.0-46.0)
Copper	2.0 mg/kg	NCR-4(55.0-57.0) NCR-12(22.0-26.0) NCR-4(1.0-3.0) NCR-12(44.0-46.0) NCR-12A(44.0-46.0)

Copper	2.8 mg/kg	NCR-23(0.0-3.2) (NCR-11) DUP
Sodium	121 mg/kg	NCR-11 (0.0-3.2)
Lead	4.2 µg/L	Seep 5-R Seep 7-R Seep 10-R Rinse Blank 1-R Rinse Blank 2-R

B.4 INTERFERENCE CHECK SAMPLE (ICP) ANALYSIS

A review of Form IV, accompanying Radian's data package's, revealed that the % R values all fell within the control limits of ±20 percent of the established concentration. In this situation, the true concentration of a given analyte was supplied, rather than the mean value determined by the laboratory and as such, the control limits were 80 to 120 percent recovery.

B.5 MATRIX SPIKE (MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

Laboratory MS/MSD samples were analyzed in an effort to assess any effects the sample matrix may have on the digestion and measurement methodologies. The inorganic data for all samples yielding spike recoveries outside the control limits of 75-125 percent and percent RPD values above ±20 percent (water) or ±35 percent (soils/sediments) require qualification. Qualification of data was performed on samples showing outlying recovery and/or percent RPD values with the exception of those analytes whose sample concentration exceeded the spike concentration by four times or more. Qualification of the data based on outlying MS/MSD recoveries are presented in Table 4.

B.6 FIELD DUPLICATE SAMPLES

The prescribed frequency outlined in the QAPP for the collection of field duplicate samples was adhered to for samples submitted for inorganic analyses.

The analyses of field duplicate samples submitted for TAL determinations revealed good reproducibility in most cases. The exceptions to this occurred for the following analyte concentrations reported in field duplicate samples:

	NCR-11 (0-2.0) (mg/kg)	Seep 5 (µg/L)	Hand Auger-9 (mg/kg)
Aluminum		7270/2330	
Iron		17,200/7,910	
Manganese		341/106	
Lead	250/100		271/444

Based on USEPA Region II guidelines, these data should be qualified as estimated-data qualifier J.

B.7 LABORATORY CONTROL SAMPLES

Based on the data reported among the laboratory control sample summaries, it is noted that all water laboratory control samples yielded acceptable recoveries (within 80-120 percent). A spot check on these data indicated no calculation errors.

Laboratory control samples analyzed for soil samples did however, yield some analyte concentrations outside upper and/or lower control concentration values. Qualification of samples associated with laboratory control samples having outlying concentration values should be performed as follows:

positive data - J (estimated)
non-detected - UJ (estimated quantitation limit)

Samples which require qualification are as follows:

Matrix	*Samples*	*Metals*
Soil	NCR 4(1.0-3.0) NCR 12 (44.0-46.0) NCR-12A(44.0-46.0)	Calcium, cobalt, manganese, vanadium, zinc, arsenic
Soil	NCR-11(0.0-3.2) (9/06/90)	Calcium, magnesium, vanadium, zinc
Soil	NCR-4(55.0-57.0) NCR-12 (22.0-26.0)	Calcium, copper, manganese, zinc
Soil	NCR-1 (1.0-3.0) NCR-1 (44.0-46.0)	Calcium, magnesium

B.8 ICP SERIAL DILUTION

ICP serial dilutions were performed where analyte concentrations were significantly high enough to determine whether significant physical or chemical interferences existed from the sample matrix. Sample results of ICP serial dilutions which did not agree within ±10 percent difference of the undiluted sample result require the following qualification:

	Percent Difference Values Between 10-100	*Percent of Difference Values >100*
positive data	J (estimated value)	R (unusable)
non-detects	UJ (estimated quantitation Limit)	R (unusable)

Samples having outlying percent differences in ICP serial dilution results and as such, require qualification in accordance with the above, are as follows:

Sample	*Analyte*	*Percent difference Values in Serial Dilution*
NCR 1(1.0-3.0)	Cobalt	17.8
NCR 6(2.0-6.0)	Aluminum	108
	Barium	85.5
	Iron	122
	Magnesium	100.6
	Manganese	112.2
	Zinc	87
NCR 4 (55.0-57.0)	Calcium	10.6
	Iron	11.6
	Manganese	11.0
	Zinc	10.3
NCR 2(2.0-3.0)	Nickel	12.9
	Zinc	12.4
NCR-23(0.0-2.0)	Cobalt	11.5
	Iron	12.4
	Magnesium	10.8
	Manganese	10.9
	Nickel	18.9
	Zinc	78.2

B.9 DIONIZED WATER LOT BLANKS

As for the DI water lot blank samples analyzed for organic parameters, lot blank samples of the dionized/distilled water used in the decontamination of field sampling equipment yielded non-detectable concentrations of the subject inorganic analytes of concern.

B.10 RINSE BLANK SAMPLE ANALYSES

The field rinsate blank samples collected during the soil boring sample phase yielded nominal levels of barium iron and zinc. Based on the fact that soil boring samples collected subsequent to each rinse blank sample yielded detections of the above analytes in excess of five times their corresponding quantition limits (USEPA Region II guidelines), no qualifications of data were recommended.

Field rinsate blank samples collected during collection of hand auger and sediment samples yielded detections of iron, sodium and lead. The presence of lead in the rinsate blank samples was however, assumed to be caused by laboratory contamination and have been qualified to reflect same. Since samples collected subsequent to each rinse blank sample yielded detectable levels of iron and sodium above five times their respective quantitation limits, no qualification of sediment and/or hand auger data was required based on potential field contamination.

B.11 OVERALL INORGANIC DATA ASSESSMENT

Overall, the inorganic data provided by Radian were found to be accurate and precise. Exceptions have been discussed and documented in the previous sections. These qualified data may be used for quantitative asessment purposes, except where the data have been found to be unusable. It should be noted that on some occassions, data have been qualified more than once (i.e. for outlying ICP serial dilutions or laboratory control sample data). In these cases, the more stringent of the data qualifiers should be used (R takes precedance over J or UJ values).

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

Sample	*Fraction*	*Compound*	*Sample Conc.*	*Blank Conc.*	*Qualified Sample Conc.*
Potable water	VOCs	Methylene Chloride	19 µg/L	6.7 µg/L	19U
NCR-5 (5.4-7.0)	BNAs-TICs	unknown	1700 µg/kg	1100 µg/kg	R
		unknown	44000 µg/kg	36000 µg/kg	R
NCR-7 (0.0-2.0)	BNA-TICs	unknown	750 µg/kg	1100 µg/kg	R
		unknown	26000 µg/kg	36000 µg/kg	R
NCR-7 (44.0-46.0)	BNA-TICs	unknown	780 µg/kg	1100 µg/kg	R
		unknown	23000 µg/kg	36000 µg/kg	R
NCR-13 (0.0-0.8)	BNA-TICs	Hexanedioc Acid	960 µg/kg	980 µg/kg	R
NCR-13 (2.5-3.5)	BNAs-TICs	Hexanedioc Acid	840 µg/kg	980 µg/kg	R
NCR-3M (4.0-6.0)	BNAs-TICs	unknown	1600 µg/kg	1600 µg/kg	R
		unknown	38000 µg/kg	38000 µg/kg	R
Seep 3-R	VOCs	methylene chloride	15 µg/L	5 µg/L	15U
NCR-3M (24.0-26.0)	BNAs-TICs	unknown	1500 µg/kg	1600 µg/kg	R
		unknown	36000 µg/kg	38000 µg/kg	R
NCR-1 (1.0-3.0)	BNAs-TICs	unknown	720 µg/kg	940 µg/kg	R
NCR-1 (44.0-46.0)	BNAs-TICs	unknown	900 µg/kg	940 µg/kg	R
NCR-4 (1.0-3.0)	BNA-TICs	unknown	960 µg/kg	2500 µg/kg	R
		unknown	19000 µg/kg	46000 µg/kg	R
NCR-12 (44.0-46.0)	BNA-TICs	unknown	1900 µg/kg	2500 µg/kg	R
		unknown	35000 µg/kg	46000 µg/kg	R
		unknown	720 µg/kg	1100 µg/kg	R
NCR-12A (44.0-46.0)	BNA-TICs	unknown	3000 µg/kg	2500 µg/kg	R
NCR-6 (38.0-40.0)	BNA-TICs	unknown	990 µg/kg	1300 µg/kg	R
		unknown	26000 µg/kg	49000 µg/kg	R
NCR-12 (22.0-26.0)	BNA-TICs	unknown Phthalate	540 µg/kg	340 J	R

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitiation limit and has been adjusted to reflect potential laboratory contamination.

R - Unusable data.

TABLE 2

SAMPLES REQUIRING QUALIFICATION DUE TO INITIAL CALIBRATION DATA HAVING OUTLYING PERCENT RSD VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
1)	NCR-4 (1.0-3.0)	Soil	1,1-Dichloroethene	2
			Vinyl Acetate	2
2)	NCR-12 (44.0-46.0)	Soil	Same as sample 1	
3)	NCR-4 (55.0-57.0)	Soil	Acetone	1
			1,2-Dichloroethene	2
			1,1,2,2-Tetrachloroethane	1
4)	NCR-12 (22.0-26.0)	Soil	same as sample 3	
5)	NCR-6 (38-40)	Soil	1,2-Dichlorothene	2
			Vinyl Acetate	2
6)	NCR-8 (2.0-6.0)	Soil	same as sample 5	
7)	NCR-8 (0.0-2.0)	Soil	same as sample 5	
8)	NCR-8 (3.0-5.0)	Soil	same as sample 5	
9)	NCR-10 (2.0-4.0)	Soil	same as sample 5	
10)	NCR-10 (26.0-28.0)	Soil	same as sample 5	
11)	NCR-10 (44.0-46.0)	Soil	same as sample 5	
12)	NCR-21 (6.0-8.0)	Soil	same as sample 5	
13)	NCR-5 (5.4-7.0)	Soil	same as sample 1	
14)	NCR-7 (0.0-2.0)	Soil	same as sample 1	
15)	NCR-7 (44.0-46.0)	Soil	same as sample 1	
16)	NCR-6 (38-40)	Soil	same as sample 5	
17)	NCR-11 (0-3.2)	Soil	same as sample 5	

TABLE 2

SAMPLES REQUIRING QUALIFICATION DUE TO INITIAL CALIBRATION DATA HAVING OUTLYING PERCENT RSD VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
18)	NCR-23 (0.0-2.0)	Soil	same as sample 5	
19)	NCR-5 (44.0-47.0)	Soil	Acetone	1
			1,2-Dichloroethene	2
			Vinyl Acetate	2
			1,1,2,2-Tetrachloroethane	1
20)	NCR-13 (0-0.8)	Soil	same as sample 19	
21)	NCR-9M (2.0-6.0)	Soil	same as sample 19	
22)	NCR-2 (2.0-3.0)	Soil	Trans 1,3-Dichloropropene	2
23)	NCR-2 (24.0-24.7)	Soil	same as sample 22	

Notes:

1) Percent RSD value is between 30 to 50 percent. Therefore, positive data is estimated as J.

2) Percent RSD value is between 50 to 90 percent. Therefore, positive and non-detected data are estimated as J and UJ, respectively.

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
1)	NCR-4 (1.0-3.0)	Soil	Chloromethane	2
			Methylene Chloride	2
			Carbon Disulfide	2
			1,1 Dichloroethane	2
			Trichloroethene	2
			Tetrachloroethene	2
			Chlorobenzene	2
			Bromoform	3
2)	NCR-12 (44.0-46.0)	Soil	Same as sample 1	
3)	DI Lot Blank	Water	Chloroethane	2
			Methylene Chloride	2
			1,2-Dichloroethene	2
			2-Butanone	2
			1,1,2-Trichloroethane	2
			Vinyl Acetate	2
			Styrene	2
			Xylene	2
4)	NCR-4 (55.0-57.0)	Soil	Benzene	2
			Benzyl Alcohol	2
			Benzoic Acid	2
5)	NCR-12 (22.0-26.0)	Soil	same as sample 4	
6)	Rinse Blank 6	Water	Methylene Chloride	2
			2-Butanone	2
			1,1,1-Trichloroethane	2
			Styrene	2
			Xylene	2
7)	NCR-6 (2.0-6.0)	Soil	Methylene Chloride	1
			Trichloroethene	1
			Chloroethane	2
			Carbon Disulfide	2
			4-Methyl-2-Pentanone	2
			2-Hexanone	2
			Benzo(g,h,i)Perylene	2
			2-Chloronaphthalene	2
			Hexachlorobenzene	3

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
8)	NCR-8 (0.0-2.0)	Soil	same as sample 7	
9)	NCR-8 (3.0-5.0)	Soil	same as sample 7	
10)	NCR-10 (44.0-46.0)	Soil	same as sample 7	
11)	NCR-10 (2.0-4.0)	Soil	Trichloroethene	1
			2-Hexanone	2
12)	NCR-10 (26-28.0)	Soil	same as sample 11	
13)	NCR-21 (6.0-8.0)	Soil	same as sample 11	
14)	Rinse Blank 4	Water	1,2-dichloroethene	2
15)	Potable Water	Water	Chloromethane	2
			2-Butanone	2
			Vinyl Acetate	2
			Trans 1,3-Dichloropropene	3
			2-Nitroaniline	2
17)	NCR-5 (5.4-7.0)	Soil	Bis(2-Chloroisopropyl)ether	2
			Hexachlorocyclopentadiene	2
			Indeno (1,2,3 c,d) Pyrene	2
18)	NCR-7 (0-2.0)		same as sample 17	
19)	NCR-7 (44.0-46.0)		same as sample 17	
20)	NCR-6 (38-40.0)	Soil	Chloromethane	2
			Acetone	2
			1,1-Dichloroethane	2
			Trichloroethene	2
			Methyl Chloride	2
			Styrene	2
			Chloroform	3
			Benzene	3
			Tetrachloroethene	3

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
21)	NCR-11 (0-3.2) (9/06/90)	Soil	Indeno (1,2,3-c,d) Pyrene	2
			Carbon disulfide	2
			2-Butanone	2
			Carbon tetrachloride	2
			2-Hexanone	2
			Tetrachloroethene	2
22)	NCR-23 (0-2.0) (9/06/90)		same as sample 21	
23)	B&J Water	Water	1,1,1-Trichloroethane	2
			1,1,2-Trichloroethane	2
24)	NCR-5 (44.0-47.0)	Soil	Styrene	1
			Benzyl Alcohol	2
			Benzoic Acid	2
			2,4-Dinitrophenol	2
25)	NCR-13 (0.0-0.8)		same as sample 24	
26)	Rinsate Blank 3		same as sample 3	
27)	Rinsate Blank 2	Water	2-Butanone	2
			2-Hexanone	2
28)	NCR-3M (4.0-6.0)	Soil	Bromoform	2
			Bis(2-Chloroethoxy)methane	2
			Hexachlorocyclopentadiene	2
29)	NCR-3M (24.0-26.0)	Soil	same as sample 28	
30)	NCR-1 (1.0-3.0)	Soil	Bromoform	3
			Bis-2(Ethylhexyl)Phthalate	2
31)	NCR-1 (44.0-46.0)	Soil	same as sample 30	

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
32)	Rinsate Blank 5	Water	Bromomethane	2
			Chloroethane	2
			Carbon Disulfide	2
			1,1-Dichloroethene	2
			1,2-Dichloroethane	2
			Chloromethane	3
33)	NCR-2 (0.0-3.5)	Soil	Bromomethane	2
			Chloroethane	2
			Vinyl Acetate	2
			4-Methyl-2-Pentanone	3
			2-Methyl Phenol	2
			Bis-2(Chloroethoxy)methane	2
34)	NCR-2 (24.0-24.7)	Soil	same as sample 33	
35)	SW-11 R	Water	Acetone	1
			2-Butanone	1
			2-Hexanone	1
36)	SW-13 R	Water	same as sample 35	
37)	SW-18 R	Water	same as sample 35	
38)	SW-21 R	Water	same as sample 35	
39)	SW-4 R	Water	same as sample 35	
40)	SW-5 R	Water	same as sample 35	
41)	Rinse Blank 1 R	Water	same as sample 35	
42)	Rinse Blank 2 R	Water	same as sample 35	
43)	Seep-10 R	Water	same as sample 35	
44)	Seep-32 R	Water	same as sample 35	
45)	Seep-5 R	Water	same as sample 35	
46)	SW-10 R	Water	same as sample 35	

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
47)	SW-2R	Water	Acetone	2
			4-Methyl 2-Pentanone	1
			2-Hexanone	1
48)	SW-7R	Water	sample as sample 47	
49)	SW-8R	Water	sample as sample 47	
50)	Sediment-1 R	Water	Methylene Chloride	1
			2-Butanone	1
			2-Hexanone	1
51)	Sediment-2 R	Water	same as sample 50	
52)	Sediment-3 R	Water	same as sample 50	
53)	Sediment-4 R	Water	same as sample 50	
54)	Sediment-5 R	Water	same as sample 50	
55)	Sediment-6 R	Water	same as sample 50	
56)	Sediment-7 R	Water	same as sample 50	
57)	HA-14	Soil	Acetone	1
			2-Butanone	2
			2-Hexanone	2
58)	HA-3	Soil	same as sample 57	
59)	HA-8	Soil	same as sample 57	
60)	Sediment-13 R	Soil	same as sample 57	
61)	Sediment-17 R	Soil	same as sample 57	
62)	Sediment-18 R	Soil	same as sample 57	

TABLE 3

SAMPLES REQUIRING QUALIFICATION DUE TO CONTINUING CALIBRATION DATA HAVING OUTLYING % D VALUES

	Sample	*Matrix*	*Affected Compound*	*For Qualification See Note:*
63)	Sediment-20 R	Soil	same as sample 57	
64)	Sediment-21 R	Soil	same as sample 57	

Notes:

1) Percent D value is between 25 to 50 percent. Therefore, positive data is estimated as J.

2) Percent D value is between 50 to 90 percent. Therefore, positive and non-detected data are estimated as J and UJ, respectively.

3) Percent D value is greater than 90 percent. Therefore, positive data are estimated as J and non-detected data are unusable - data qualifier R.

TABLE 4

QUALIFIED INORGANIC DATA DUE TO OUTLYING SPIKE RECOVERIES AND OR PERCENT RPD VALUES

Sample	Analyte	Sample Conc	Data Qualifier	Outlying (1) MS Recovery	Outlying (2) MSD Recovery	Outlying (3) RPD Value
NCR-6(44.0-46.0)	Lead					
	Selenium	ND 0.37 mg/kg	UJ	55.2		
	Thallium	ND 0.37 mg/kg	UJ	72.4		
NCR-6(38.0-40.0)	Antimony	ND 6.8 mg/kg	UJ	45	35	
	Barium	59 mg/kg	J	53.8		55.4
	Chromium	7.2 mg/kg	J	72.3		
	Cobalt	4.4 mg/kg	J	69.8		
	Nickel	7.0 mg/kg	J	66.8		
	Zinc	96 mg/kg	R	4.2	48.7	168.2
NCR-4(55.0-57.0)	Antimony	ND 7.9 mg/kg	UJ	53.5	55	
	Barium	55 mg/kg	J		72.9	
	Potassium	980 mg/kg	J	214.9	124.9	53.3
	Arsenic	5.3 mg/kg	J	64.3	73.2	
	Selenium	ND 0.44 mg/kg	UJ	24	22.7	
NCR-9M(2.0-6.0)	Antimony	ND 8.3 mg/kg	UJ	63.3	65.5	
	Arsenic	13 mg/kg	J	25.7	36.5	
	Selenium	ND 0.33 mg/kg	UJ	23.9	18.6	
NCR-11(0.0-3.2)	Selenium	ND 0.52 mg/kg	UJ	69.6		
9/6/90	Lead	130 mg/kg	J			35.9
NCR 11 (0.0-3.2)	Antimony	ND 9.2 mg/kg	UJ	68.9	37.8	58.3
9/12/90	Manganese	200	J		135	
	Zinc	100	J	67		

TABLE 4

QUALIFIED INORGANIC DATA DUE TO OUTLYING SPIKE RECOVERIES AND OR PERCENT RPD VALUES

Sample	Analyte	Sample Conc	Data Qualifier	Outlying (1) MS Recovery	Outlying (2) MSD Recovery	Outlying (3) RPD Value
Seep 16R	Managenese	450. µg/L	J	74	66.0	
	Mercury	0.5 µg/L	J	50	65.0	
	Thallium	ND 5.0 µg/L	UJ	64.6	64.0	
	Zinc	939 µg/L	J	73.1	61.1	
	Antimony	ND 100 µg/L	UJ		74.1	
	Arsenic	21 µg/L	J	20.6	21.8	
	Barium	1340 µg/L	J		61.0	
	Cadmium	9.0 µg/L	J		72.1	
	Chromium	114 µg/L	J		70.5	
	Cobalt	28 µg/L	J		70.5	
	Copper	99 µg/L	J		72.7	
	Nickel	92 µg/L	J		69.3	
	Selenium	ND 5.0 µg/L	R		0	
	Silver	ND 10 µg/L	UJ		71.8	
	Vanadium	29 µg/L	J		73.7	
SW5-R	Potassium	12700 µg/L	J	130.00		
	Selenium	ND 5.0 µg/L	UJ	69	65.5	
HA-14	Antimony	ND 8.5 mg/kg	UJ	62.6	59.5	
	Arsenic	8.6 mg/kg	J	128.9		
	Lead	5.4 mg/kg	R	-3.3	-1.1	
	Managanese	356 mg/kg	J	61.6		
	Potassium	1250 mg/kg	J	306	352.0	
	Selenium	ND 0.44 mg/kg	UJ	33.8	35.3	
Sed 8-R	Antimony	ND 12.4 mg/kg	UJ	68.7	65.8	
	Selenium	ND 0.6 mg/kg	R	18.6	0	
	Arsenic	20 mg/kg	J	72.2		

Notes:

(1) Matrix spike
(2) Matrix spike duplicate
(3) Relative percent difference

J - estimated concentration
UJ-estimated quantitation limit
R-unusable data
NB•MS/MSD recovery control limits = 75-125%, RPD control limits ±35% for soil and ±20% for water.

Data Qualifiers

ND None detected at provided sample quantitation limits.

J The associated numerical number is an estimated quantity.

UJ The material was analyzed for but not detected. The sample quantitation limit is an estimated quantity and may be inaccurate or imprecise.

U The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination attributable to laboratory or field conditions.

R Unusable data.

N Presumptive evidence of presence of material.

< Less than value. The sample quantitation limit has been adjusted to reflect potential contamination attributable to laboratory or field conditions.

DATA QUALIFICATION AND VALIDATION

FOR

ROUND I AND ROUND II GROUNDWATER AND TEST PIT SAMPLES

(COMPU CHEM DATA)

M E M O

TO: Ed Roberts

FROM: Tony Misercola/jdh/2

REFERENCE NO. 2677

DATE: 1 August 1991

RE: **Analytical Data Quality Assessment and Validation**
NCR Site - Remedial Investigation (RI)
Wheatfield, New York
Round I and II Groundwater Samples and Test Pit Soil Sample

OVERVIEW

The following memo presents an analytical data quality assessment and validation for groundwater samples and one test pit soil sample collected at the NCR Site during March and April 1991. Analytical services were provided by Compuchem Corporation (Compuchem) of Research Triangle Park, North Carolina. The samples submitted for analyses consisted of the following:

Matrix	*Investigative Samples*	*Field Duplicate Samples*	*Rinsate Blank Samples*	*Trip (1) Blank Samples*	*Total*
Round I					
Groundwater	23	3	3	7	36
Round II					
Groundwater	23	3	3	6	35
Soil	1	--	--	--	1

1) Trip blanks were submitted for TCL-VOC determinations only.

All samples were submitted for Target Compound List (TCL) and Target Analyte List (TAL) determinations. In addition, groundwater samples were submitted for soluble metals determinations. All samples collected for soluble metals determinations were filtered in the field subsequent to sample collection. Samples collected and submitted to Compuchem, were analyzed in accordance with the following methods:

Matrix	*Parameter*	*Methods of Analysis*
Groundwater	TCL-VOCs TCL - BNAs TCL - Pesticides/PCBs	U.S. EPA Contract Laboratory Program (CLP) "Low Concentration Water for Organics", dated April 1990 (DOC #OLC01) with modification dated December 5, 1990.
	TAL - Metals Cyanide	U.S. EPA CLP "Statement of Work (SOW) for Inorganics Analysis", dated 7/88, with revision of 2/89 and/or latest revision.
Soil	TCL-VOCs	8240, USEPA SW-846, 3rd Edition, 1986
	TCL-BNAs	8270, USEPA SW-846, 3rd Edition, 1986
	TCL-Pesticides/PCBs	8080, USEPA SW-846, 3rd Edition, 1986
	TAL-Metals	6010/7000 Series, USEPA SW-846, 3rd Edition, 1986
	Cyanide	9010, USEPA SW-846, 3rd Edition, 1986

The QA/QC criteria by which these data have been assessed are outlined in the aforementioned methods and the documents entitled:

i) "Quality Assurance Project Plan (QAPP)
Remedial Investigation
Niagara County Refuse Site
Wheatfield, New York

Prepared for the PRP Committee - NCR
May 1990".

ii) "CLP Organics Data Review and Preliminary Review". SOP HW-6, Revision No. 6, March 1989.

iii) "Evaluations of Metals Data for the Contract Laboratory Program (CLP)". SOP No. HW-2, Revision XIII, December 1988.

The data quality assessment and validation is presented in the subsections that follow:

A. ORGANICS DATA

A.1 LABORATORY CASE NARRATIVE

Review of each provided laboratory case narrative noted the following items of potential concern:

i) Initial pH readings of samples submitted for BNA and Pesticide/PCB determinations were not taken prior to pH adjustment and extraction.

Since the laboratory documented that all samples submitted for BNA and Pesticide/PCB determinations were adjusted to the required pH needed for extraction, no qualification of data is required on this basis. Further, pH readings of all samples were recorded in the field prior to sample shipment to the laboratory.

ii) The BNA advisory surrogate compound Pyrene-d_{10} was inadvertently reported as a Tentatively Identified Compound (TIC) in each sample BNA result.

iii) A total of seven Round I groundwater samples submitted for Pesticide/PCB analyses and one sample submitted for BNA analyses exceeded their holding time requirements identified in the QAPP.

Samples requiring qualification due to holding time exceedances are discussed in Section A.2 of this memo.

iv) The VOC analysis of NCR-4S-I detected acetone above the linear range of the instrument's initial calibration. Per U.S. EPA CLP protocol, the sample should have been diluted so that acetone could be quantiated within the limits of the calibration curve. However, due to the probability of exceeding holding time criteria, the sample was not diluted and re-analyzed.

The acetone concentration reported for sample NCR-4S-I was flagged with the data qualifier E. This data qualifier indicates to the data user that the result is estimated because the acetone concentration was quantitated above the linear range of the instrument's calibration curve. Thus, no further qualification of this data is required.

A.2 SAMPLE HOLDING TIMES

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded should be qualified as estimated, "J". The non-detects (sample quantitation limits) should be flagged as estimated "UJ", or unusable "R", if the holding times are grossly exceeded.

Sample holding time requirements for groundwater and soil samples are presented in the QAPP. Samples which exceeded required holding times and as such, require qualification, are as follows:

Sample	*Fraction*	*Actual Holding Time*	*Required Holding Time*	*Data Qualification*
NCR-5D-I	BNAs	23 days from collection to extraction	7 days from collection	J/UJ
NCR-6D-I	Pesticides/PCBs	19 days from collection to extraction	7 days from collection	J/UJ
NCR-11D-I	Pesticides/PCBs	19 days from collection to extraction	7 days from collection	J/UJ
NCR-11M-I	Pesticides/PCBs	19 days from collection to extraction	7 days from collection	J/UJ
NCR-4S-I	Pesticides/PCBs	14 days from collection to extraction	7 days from collection	J/UJ
NCR-12D-I	Pesticides/PCBs	19 days from collection to extraction	7 days from collection	J/UJ
NCR-22D-I (Dup. of-12D-I)	Pesticides/PCBs	17 days from collection to extraction	7 days from collection to collection	J/UJ
NCR-5M-I	Pesticides/PCBs	21 days from collection to extraction	7 days from collection	J/UJ

Positive Data - J (estimated concentration)
Non-Detects - UJ (estimated quantitation limit)

A.3 SURROGATE SPIKE RECOVERIES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Samples which showed surrogate spike recoveries below 10 percent were qualified as follows:

i) positive data - J (estimated)
ii) non-detects - R (unusable)

Samples which showed surrogate spike recoveries outside control limits but greater than 10 percent, were qualified as follows:

i) positive data - J (estimated)
ii) non-detects - UJ (estimated quantitation limit)

U.S. EPA Region II Data Validation guidelines allow one BNA surrogate compound spike recovery to be outside control limits provided that the outlying recovery is above 10 percent.

All samples submitted for TCL-VOC determinations yielded surrogate compound recoveries within the control limits identified in the method. Therefore, no qualification of TCL-VOC data was required based on surrogate spike recoveries.

Similarly, all samples submitted for TCL-BNA determinations not requiring dilution, yielded no more than one outlying surrogate compound spike recovery in either the base/neutral or acid fraction. Therefore, no qualification of the TCL-BNA data was required based on surrogate spike recoveries.

Among the samples submitted for TCL-Pesticide/PCB determinations, the following yielded outlying surrogate spike recoveries in both the primary and confirmatory analyses and/or had surrogate recoveries below 10 percent in either analyses:

Sample ID	*Primary Column Surrogate Spike Recoveries*		*Confirmatory Column Surrogate Spike Recoveries*	
Control Limits:	*60-150*		*60-150*	
Surrogate Compounds:	*TCX(1)*	*DCB(2)*	*TCX(1)*	*DCB(2)*
Round I				
NCR-2I-I		34	48	33
NCR-2S-I		36	181	44
Rinse Blank 2		54		45
NCR-5S-I	169	49		35
NCR-3M-I	164	49		51
NCR-2M-I		32		40
NCR-13S-I		52		47
NCR-21D-I				0
(Dup of 11D-I)				
NCR-4S-I		35	46	
NCR-11M-I		37		44
Rinse Blank 3				8
Round II				
NCR-3M-II	41		244	38
NCR-2I-II		57		56
NCR-2S-II		45		55
NCR-5S-II		47		46
NCR-6D-II	0	0	259	
NCR-6M-II		46	59	48
Rinse Blank 3		42		59
NCR-4S-II		35		51
NCR-12D-II	35	55	44	51
NCR-22D-II	46	34	51	51
(Dup. of 12D-II)				
NCR-11M-II	17	21	24	22

1) TCX - Tetra-chloro-meta-xylene
2) DCB - decachlorobiphenyl

Based on the outlying surrogate spike recoveries reported for the above samples, qualification of corresponding Pesticide/PCB data should be consistent with the guidelines previously identified with exception to samples NCR-21D-I and Rinse Blank 3 from Round I and NCR-6D-II from Round II. Since these Pesticide/PCB analyses yielded surrogate recoveries below 10 percent, the non-detects should be qualified as unusable (data qualifier R). However, since one or the other surrogate compounds showed recoveries greater than 10 percent upon primary and/or confirmatory

analyses, it is concluded that the non-detects are still usable but required qualification as estimated (date qualifier UJ).

A.4 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. Results of MS/MSD analyses may be used in conjunction with other QC criteria to assess both analytical accuracy and precision.

MS/MSD samples were collected in accordance with the frequencies prescribed in the QAPP. However, review of the final data packages showed that no MS/MSD samples were analyzed. On the basis of several conversations with Rick Camp of Compuchem, I was informed that the Low Level U.S. EPA CLP Methods performed replaced MS/MSD analyses with laboratory control samples. He was also aware of the fact that the contract signed into by Compuchem required that the laboratory analyze Site-specific samples as MS/MSDs. Compuchem offered no further explanation for the omission of MS/MSDs other than the fact that the methods do not require the analyses of same.

The results of the laboratory control sample analyses were therefore used to assess the ability of the laboratory to perform the required analytical protocols. Analytical accuracy and precision on actual NCR-Site samples were able to be assessed only on the basis of surrogate spike recoveries and field duplicate sample analyses. The assessment of surrogate compound spike recoveries and field duplicate sample data are presented in other sections of this memo.

All VOC laboratory control samples yielded recoveries within the control limits identified in the method. This indicated that few, if any, problems were related to sample preparation procedures and/or instrument operations.

A total of 3 BNA (2 from Round I and one from Round II) laboratory control samples and 2 pesticides/PCB (one from both Rounds) laboratory control samples yielded outlying recoveries as follows:

Sample Round	*Fraction*	*Compound*	*Percent Recovery*	*Control Limit*
I	BNAs	hexachloroethane	96	32-77
		1,2,4-trichlorobenzene	97	44-96
		diethyl phthalate	106	76-104
		hexachlorobenzene	98	30-95
	BNAs	4-chloroanaline	24	35-98
	Pesticides/PCBs	endosulfan sulfate	1,250	50-100
II	BNAs	hexachloroethane	92	32-77
		1,2,4-trichlorobenzene	98	44-96
		hexachlorobenzene	106	32-95
		2,4-dinitrotoluene	47	61-140
	Pesticides/PCBs	endosulfan sulfate	105	50-100

In most cases; the outlying BNA and Pesticide/PCB laboratory control sample recoveries indicated that the established upper control limits were too low. With the exception of 4-chloroanaline, endosulfan sulfate (Round I) and 2,4-dinitrotoluene (Round II) it is concluded that the BNA and pesticide/PCB data did not require qualification on the basis of outlying laboratory control sample spike recoveries.

Samples associated with the outlying laboratory control sample recoveries relative to 4-chloroanaline and 2,4-dinitrotoluene required qualification of same due to the potential for a low bias in sample results. Qualification of the affected samples was performed as follows:

Positive 4-chloroanaline and/or 2,4-dinitrotoluene data	-	J (estimated)
Non-detected 4-chloroanaline and/or 2,4-dinitrotoluene data	-	UJ (estimated quantitation limit)

Samples which required qualification consistent with the above were as follows:

Round I (4-chloroaniline)	*Round II (2,4-dinitrotoluene)*
NCR - 11D-I	NCR-1M-II
NCR - 11M-I	NCR-11M-II
NCR - 12D-I	NCR-11D-II
NCR - 13S-I	NCR-12D-II
NCR - 1M-I	NCR-12D-II DL
NCR - 21D-I (Dup of NCR-11D-I)	NCR-22D-II (Dup. of 12D-II)
NCR - 22D-I (Dup of NCR-12D-I)	NCR-4M-II
NCR - 4M-I	NCR-6D-II
NCR - 4S-I	NCR-6M-II
NCR - 6D-I	NCR-8D-II
NCR - 6M-I	Rinse Blank3
NCR - 8M-I	

The Round I outlying spike recovery associated with endosulfan sulfate indicates a substantial high bias. It should be noted that all samples including laboratory control samples were analyzed on two different gas chromatographic (G.C.) instruments.

The endosulfan sulfate recovery reported on the second G.C. instrument was within method control limits. Further, only one Round I sample detected endosulfan sulfate (NCR-20M-I; Dup. of NCR-7M-I). Since the detection of endosulfan sulfate in NCR-20M-I was reported substantially below the U.S. EPA CLP detection limit, it was qualified by Compuchem as estimated (data qualifier J). Thus, no further qualification is required based on the outlying endosulfan sulfate laboratory control sample recovery.

A.5 BLANK CONTAMINATION

Quality Assurance (QA) blanks, i.e. method, rinse and trip blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks measure cross-contamination of samples during field operations. Trip blanks measure cross-contamination of samples during shipment. If the concentration of a sample analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U" or in the case of tentatively identified compounds (TICs), unusable "R".

A.5.1 Method Blank Analyses

Contamination of samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples.

Most VOC and BNA method blank analyses yielded concentrations of common laboratory contaminants methylene chloride, acetone, and phthalates. As well, TICs were also detected in the BNA method blank analyses. In some cases, contamination was noted in the pesticide method blank analyses from d-BHC, endrin, endrin aldehyde, gamma-chlordane heptachlor and 4,4-DDT and its metabolites and methxychlor. The concentrations of these pesticides in method blank analyses were below the method detection limits.

Sample results qualified on the basis of corresponding method blank contamination are presented in Table 1.

A.5.2 Rinsate Blank Samples

A total of three rinsate blank samples were collected during each round of the NCR groundwater sampling program. Each rinsate blank sample was submitted for TCL-VOC, BNA, and Pesticide/PCB determinations.

The following compounds were detected in the rinsate blank samples:

Round I ***Rinsate Blank 1***		***µg/L***	***Associated Samples***
VOC	- methylene chloride	3B	NCR-2S-I
BNA	- butylbenzyl phthalate	6	NCR-2I-I
	- bis(2-ethylhexyl)phthalate	7	NCR-2M-I
			NCR-2D-I
Round I ***Rinsate Blank 2***			
VOC	- methylene chloride	5B	NCR-7M-I
	- acetone	13B	NCR-9M-I
	- hexane (TIC-7.88 RT)	7.0JN	NCR-20M-I
	- 1-pentene, 2-methyl (TIC 9.29 RT)	2.0JN	
BNA	- unknown (TIC-5.25 RT)	5.0J	
	- unknown (TIC-22.02 RT)	11.0J	
	- unknown (TIC-22.57 RT)	9.0J	
Pesticide	- endrin aldahyde	0.0032J	

Round I *Rinsate Blank 3*		*µg/L*	*Associated Samples*
VOC	- methylene chloride	2B	NCR-12D-I
BNA	- 2-propanol (TIC 5.28)	6.0JN	NCR-4M-I
Pesticide	- delta-BHC	0.0017JP	
	- heptachlor epoxide	0.00075JP	

Round II *Rinsate Blank 1*		*µg/L*	*Associated Samples*
VOC	- methylene chloride	4B	NCR-13S-II (VOC, BNA)
BNA	- diethylphalate	1J	NCR-20-II (Dup. of 7M)
	- di-n-butyl phthalate	1J	NCR-5D-II
	- butyl benzyl phthlate	2J	NCR - 5S-II
	- unknown (RT 6.20)	5J	NCR-7M-II
Pesticides	- gamma-BHC	0.00086JP	
	- heptachlor	0.27	
	- heptachlor epoxide	0.00063JP	
	- gamma chlordane	0.00099JP	

Round II *Rinsate Blank 2*		*µg/L*	*Associated Samples*
VOC	- methylene chloride	4B	NCR-21M-II (Dup. of 8M)
BNA	- bis (2-ethylhexyl) phthalate	9	NCR-8M-II
	- unknown (RT 6.73)	4J	NCR-10M-II
Pesticide	- 4,4'-DDE	0.00093J	NCR-13S-II (pest. only)

Round II *Rinsate Blank 3*		*µg/L*	*Associated Samples*
VOC	- methylene chloride	5B	NCR-4S-II (VOC and BNA)
BNA	-blank contaminant (RT 19:17)	10BJ	NCR-4M-II
Pesticide	- methoxychlor	0.10JP	NCR-1M-II

B - compound found in associated method blank
J - estimated data
N - presumptive evidence of the presence of the compound
P - indicates greater than 25% difference between concentration calculated from the two GC columns

In most cases, the concentrations of VOC and BNA compounds detected in the rinsate blank samples were caused by probable laboratory contamination as discussed in Section A.5.1 and attached Table 1. Most concentrations of

pesticides in the rinsate blank samples were substantially below the method quantitation limits and may be assumed representative of background conditions. Therefore, the sampling device decontamination protocol used during both sampling rounds was found to be mostly effective. Qualification of the sample data based on rinsate blank sample results follow the same guidelines as those for method blank samples.

Since most samples were previously qualified for the affected compounds due to method blank contamination, qualification due to rinsate blank contamination was limited to few samples. Presented in Table 2 are the samples qualified due to potential field contamination.

A.5.3 Trip Blanks

A total of seven trip blank samples for Round I and 6 trip blank samples for Round II were submitted to Compuchem for VOC analyses. Detections of VOCs in the individual trip blank samples are presented as follows:

Trip Blank Round I	*Date Shipped*	*Compound*	*Concentration (µg/L)*
Trip Blank 1	3/14/91	methylene chloride	3B
Trip Blank 2	3/15/91	methylene chloride	3B
Trip Blank 3	3/19/91	methylene chloride	3B
Trip Blank 4	3/20/91	methylene chloride	3B
Trip Blank 5	3/21/91	methylene chloride	4B
		acetone	7B
Trip Blank 6	3/22/91	methylene chloride	3B
Trip Blank 7	3/25/91	methylene chloride	3B
Round II			
Trip Blank 1	4/23/91	methylene chloride	5B
		acetone	10
Trip Blank 2	4/24/91	methylene chloride	3
		acetone	4J
Trip Blank 3	4/25/91	methylene chloride	2
Trip Blank 4	4/26/91	methylene chloride	3
Trip Blank 5	4/30/91	methylene chloride	4B
		acetone	11
Trip Blank 6	5/01/91	methylene chloride	3
		acetone	6

B - compound found in associated method blank.

All methylene chloride and acetone concentrations detected in Round I trip blank samples and investigative samples were previously qualified to

non-detected based on the detection of same in method blank and rinsate blank samples (see Sections A.5.1 and A.5.2). Thus, no qualification of Round I sample data based on trip blank contamination was required.

Qualification of Round II sample data based on trip blank contamination is presented in Table 3.

A.6 GC/MS TUNING AND PERFORMANCE

To ensure that the data produced by the instruments may be correctly interpreted, the tuning and performance criteria, established in the relevant methods have been assessed. Re-calculation of at least two of the GC/MS tuning and mass calibration values reported for each mass listing indicated that no transcription errors occurred.

In general, a review of the provided GC/MS tuning and calibration data, accompanying the Compuchem data packages, indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) have been met for analysis of VOCs and BNAs. Thus, the utility of the GC/MS tuning and mass calibration data was not suspect.

A.7 CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A.7.1 GC/MS

The response factor measures the instrument response to specific chemical compounds. In accordance with the U.S. EPA CLP methods used for the analyses of VOCs and BNAs, each compound has a unique minimum response factor which must be achieved. Response factor values falling below the minimum value required by the method indicates a detection and quantitation problem (poor sensitivity).

Qualification of samples analyzed in which initial and/or continuing calibration data yielded compound response factor below the minimum response factor required by the method should be performed as follows:

i) Compounds detected in the sample are qualified as estimated - data qualifier J.

ii) Quantitation limits for compounds reported as non-detected in the sample are qualified as estimated (data qualifier UJ) if the response factor is greater than 0.05 (or greater than 0.01 for compounds requiring minimum response factors with values no less than 0.01).

iii) Quantitation limits for compounds reported as non-detected in the sample are qualified as unusable (data qualifier R) if the response factor is less than 0.05 (or less than 0.01 for compounds requiring response factors with values of no less than 0.01).

Based on review of all TCL-VOC and BNA initial and continuing calibration response factors, only 1,1,2,2-tetrachloroethane in an initial calibration yielded response factors below the minimum value required by the method. The outlying response factor values are presented as follows:

Initial Calibration	*Compound*	*Average Response Factor*	*Response Factor Required*
Groundwater			
Round I - VOCs	1,1,2,2-tetrachloroethane	0.204	0.500
Round II - VOCs	1,1,2,2-tetrachloroethane	0.196	0.500

Based on the reported outlying response factors associated with 1,1,2,2-tetrachloroethane, all associated sample 1,1,2,2-tetrachloroethane data were qualified as J for detected results and UJ for non-detected results. The following samples required qualification in accordance with the above:

Round I
Affected Samples

NCR-7M-I	NCR-2M-I
NCR-9M-I	NCR-2S-I
NCR-5S-I	NCR-2D-I
NCR3M-I	Trip Blank 1
NCR-3S-I	Rinse Blank 1
NCR10M-I	NCR-5M-I
Trip Blank 3	NCR-5D-I
NCR-8D-I	Trip Blank 2
NCR-20M-I (Dup. of 7M-I)	
Rinse Blank 2	

Round II
Affected Samples

NCR-10M-II	NCR-11D-II
NCR-13S-II	NCR-11M-II
NCR-20-II	Trip Blank 3
(Dup. of 7M-II)	NCR-12D-II
NCR-21M-II	NCR-1M-II
(Dup. of 8M-II)	NCR22D-II
NCR-2D-II	(Dup. of 12D-II)
NCR-2I-II	NCR-4M-II
NCR-2M-II	NCR-6D-II
NCR2S-II	NCR-6M-II
NCR-3M-II	NCR-8D-II
NCR-3S-II	Rinse Blank 1
NCR-5D-II	Rinse Blank 2
NCR-5M-II	Rinse Blank 3
NCR-5S-II	Trip Blank 1
NCR-7M-II	Trip Blank 2
NCR-8M-II	Trip Blank 4
NCR-9M-II	Trip Blank 5
	Trip Blank 6

Percent relative standard deviations (RSDs) are calculated from initial calibrations and are used to indicate the stability of specific compound response factors over increasing concentration. Percent differences (%Ds) compare response factors of continuing calibration checks to mean response factors of the initial calibrations. In accordance with the U.S. EPA CLP methods used for the analyses of VOCs and BNAs, each compound has a unique maximum RSD value and %D value which should not be exceeded in the initial and continuing calibrations, respectively. Outlying RSD and/or %D values indicate potential detection and quantitation errors.

Qualification of sample data in which associated calibrations yielded outlying RSD and/or %D values was required as follows:

i) for initial calibration outlying % RSD values:

	% RSDs between X - 50%	*% RSDs between 50 - 90%*	*% RSDs greater than 90%*
Positive Sample data	J	J	J
Non-detected Sample data -	--	UJ	R

ii) for continuing calibration outlying %D values:

	% Ds between X - 50%	*% Ds between 50 - 90%*	*% Ds greater than 90%*
Positive Sample data	J	J	J
Non-detected Sample data -	--	UJ	R

X - maximum percent RSD and/or %D, value allowable per compound as identified in the U.S. EPA CLP methodologies.
J - estimated data
UJ - estimated quantitation limit
R - unusable data.

Presented in Table 4 are the samples associated with initial and continuing calibrations having outlying RSD and %D values. Sample qualification was consistent with the guidelines presented.

A.8 PESTICIDE/PCB ANALYSES

A.8.1 Instrument Performance

A. Resolution

In order to ensure that adequate separation between each individual Pesticide/PCB peak is achieved, the Resolution Check Mixture (RCM) consisting of seven pesticide compounds and two surrogate standards were analyzed by the laboratory in accordance with the frequency prescribed in the method.

In all cases, the resolution between two adjacent peaks in the RCM exceeded 60 percent on both primary and confirmatory analyses. This indicated that adequate separation was achieved in accordance with the acceptance criteria of the method.

B. 4,4-DDT/Endrin Degradation Check

In order to measure the amount of decomposition that 4,4-DDT and endrin undergo when analyzed by the chromatographic system, the percent breakdown of the these two compounds is evaluated and compared against the control limits identified in the method. The measurement of 4,4-DDT and endrin degradation is accomplished by

the analysis of Performance Evaluation Mixtures (PEMs) throughout the analytical sequence. In accordance with the control limits identified in the method, the individual percent breakdowns for both 4,4-DDT and endrin cannot exceed 20 percent and the combined breakdown cannot exceed than 30 percent.

Based on review of all PEM results provided in the data packages, it is noted that all percent degradation results reported for 4,4-DDT and endrin yielded values below 20 percent. Further, all combined breakdown percentages were below 30 percent. This indicated that the GC instrument columns and injection ports were sufficiently free of high boiling residues which may have restricted the identification and quantification of the targeted pesticides and/or PCBs.

C. Surrogate Compound Retention Time Check

Based on the method protocols and subsequent revision, both Pesticide/PCB surrogate compounds tetra-chloro-meta xylene (TCX) and decachlorobiphenyl (DCB), must have retention times within established retention time windows in all sample analyses. Upon review of the TCX and DCB retention times tabulated on CLP Form VIII, it is noted that in all but two cases, all sample surrogate retention times were within the established retention time windows. The exceptions to this were one method blank (PBLK #99) whose TCX retention time was 4.72 with a retention time window of 4.61 - 4.71 and sample NCR-6D-II whose TCX retention time on primary analyses was 1.10 with a retention time window of 3.36-4.6. The method blank outlier was an isolated occurrence during Round I groundwater sample analyses. The outlying retention time relative to NCR-6D-II was caused by a low surrogate recovery and was qualified for same.

A.8.2 Pesticide/PCB - Calibration GC/ECD

In order to ensure that satisfactory instrument performance was established and maintained during the analysis of Pesticides/PCBs, the technical acceptance criteria outlined in the U.S. EPA CLP methodology and subsequent revision was evaluated. The evaluation included assessment of the analytical sequence, initial calibration data and continuing calibration data. Both primary column analyses and confirmatory column analyses were evaluated against the technical acceptance criteria.

i) Analytical Sequence

Upon review of the initial calibration sequence of analyses, it is noted that all initial calibrations were performed in accordance with the 17 step sequence identified in the U.S. EPA CLP Method.

Review of each subsequent calibration verification sequence (continuing calibration) and 12 hour sample analysis sequence noted that in most cases, the required number of blanks, Performance Evaluation Mixtures (PEMs) and Individual Standard Mixtures (A and B) were analyzed at the required time frame in the analytical sequence. In accordance with U.S. EPA CLP method protocol, the three injections immediately after the 12 hour analysis run must be an instrument blank, individual mix A and mix B. However, on some occasions, this 3 step sequence wasn't followed until several hexane injections were performed. The hexane injections were used to clean the columns and ensure no sample carryover occurred prior to the next 12 hour sequence. Further, following the hexane washes and 3 step injection sequence, all instrument blank, PEM analyses and individual A and B mix analyses met all method acceptance criteria. As well, in accordance with method protocol, no investigative samples were analyzed following the twelve hour sequence that began with the injection of the instrument blank sample.

ii) Initial and Continuing Calibration

In addition to the Resolution Check Mixture criteria, degradation criteria and analytical sequence criteria discussed previously, the following additional criteria identified in the U.S. EPA CLP were met and as such, validated the initial and/or continuing calibrations performed:

- All target compounds had percent Relative Standard Deviation (RSDs) in calibration factors less than or equal to 20 percent and/or no more than two compounds yielded RSDs less than or equal to 30 percent.

- All surrogates compound RSDs between calibration factors were less than or equal to 30 percent.

- all single component pesticides, surrogates and methoxychlor in the Performance Evaluation Mixture (PEM) analyses and Individual Standard Mixes A and B analyses yielded retention times within their established retention time windows.

- All relative percent differences (RPDs) between the calculated amount and true amount for each TCL pesticide and surrogate compound in the PEM and Individual Standard Mixes A and B analyses were less than an equal to 25 percent.

A.9 INTERNAL STANDARD PERFORMANCE

Internal Standard (IS) performance criteria ensures that the GC/MS sensitivity and response are stable during each analysis. The internal standard performance criteria established by the U.S. EPA CLP methodologies for VOCs and BNAs are as follows:

	Retention Time Windows	*Peak Area Windows*
VOCs	±0.33 minutes	±40 percent
BNAs	±0.33 minutes	-50 to 100 percent

Sample IS retention times and peak areas should not vary by more than the windows identified above (as specified in the methods) from their associated continuing calibration standards.

Review of the internal standard performance data noted that a transcriptional error occurred for the VOC peak area acceptance criteria. The peak area windows identified by the laboratory relative to VOCs was the same as for BNAs. Subsequent recalculation of these windows showed that only one sample from Round I, Trip Blank 6, yielded an outlying IS peak area. Similarly only sample NCR-8M-I yielded an outlying BNA IS peak area. The outlying IS areas and corresponding samples are as follows:

Sample	*Fraction*	*Internal Standard*	*Peak Area*	*Peak Area Window*
Round I				
Trip Blank 6	VOCs	1,4-dichlorobenzene (d_4)	42,700	50,200 - 98,400
NCR-8M-I	BNAs	perylene d-12	45,800	48,850 - 183,400

All samples yielded internal standard retention times within their subsequent retention time windows. Based on the outlying IS peak areas associated with the VOC analysis of Trip Blank 6 and the BNA analysis of NCR-8M-I, the associated sample data required qualification. Qualification of the affected compounds was performed as follows:

i) positive data - estimated as J

ii) non-detected data - estimated quantitation limit - UJ

The following VOC and BNA compounds required qualification in accordance with the above for samples Trip Blank 6 and NCR-8M-I respectively:

Trip Blank 6	*NCR-8M-I*
bromoform	di-n-octyl phthalate
1,2-dibromo-3-chloropropane	benzo(b)fluoranthene
1,2-dichlorobenzene	benzo(k)fluoranthene
1,3-dichlorobenzene	benzo(a)pyrene
1,4-dichlorobenzene	indeno(1,2,3-CD)pyrene
	dibenzo(a,h)anthracene
	benzo(G,H,I)perylene

A.10 COMPOUND IDENTIFICATION

The criteria used for compound identifications were as follows:

i) The relative retention time (RRT) of the chromatographic peak must fall within ±0.06 units of the standard RRT. In this case, the standard RRTs used were those determined from the continuing calibrations.

ii) All ions present in the reference mass spectrum at a relative intensity greater than 10 percent must also be present in the sample mass spectrum and must agree within 20 percent.

Subsequent review of sample reconstructed ion chromatographs and mass spectra showed that in all cases, the compounds identified showed RRTs within ±0.06 units of the appropriate standard. As well, most mass spectra data generated for each compound identified corresponded well with the library-generated mass spectra.

In cases where exact matches between sample mass spectra and reference mass spectra were not observed, the associated compound required qualification to an "unknown" or as "presumptively"present (data qualifier "N"). In some cases where TCL compounds were identified as Tentatively Identified Compounds (TICs), the TIC should be qualified as unusable (data qualifier "R"). Finally, in accordance with U.S.EPA CLP protocol, identified TICs require the data qualifier "N". In cases where identified TICs were not qualified with an "N", the associated data base requires same.

Qualification of samples and associated compounds due to potential identification errors are presented in Table 5. It should be noted that the chromatograms of all samples yielding detections of TCL - pesticides were reviewed to assess whether identified pesticide retention times were within their established retention time windows. In all cases, detected pesticides were within the retention time windows established for both primary and confirmatory analyses.

A.11 FIELD DUPLICATE SAMPLES

Field duplicate samples were collected at the prescribed frequency identified in the QAPP. Field duplicate samples were collected in order to assess the aggregate analytical and sampling protocol precision. Field duplicate samples were taken of the following samples:

Round I ***Field Duplicate Samples***	***Round II*** ***Field Duplicate Samples***
NCR-7M-I and NCR-20M-I	NCR-7M-II and NCR-20-II
NCR-11D-I and NCR-21D-I	NCR-8M-II and NCR-21M-II
NCR-12D-I and NCR-22D-I	NCR-12D-II and NCR-22D-II

Most TCL field duplicate sample results were non-detected. The TCL data reported for NCR-12D-I and NCR-12D-II and their field duplicate samples yielded several detected compounds in both the VOC and BNA fractions. The detected results reported for NCR-12D-I and NCR-12D-II and their duplicate samples were reproducible, indicating satisfactory analytical and sampling protocol precision were achieved during both groundwater sampling rounds.

A.12 OVERALL ORGANICS DATA ASSESSMENT

Based on the criteria outlined, it is recommended that the results reported for the organics analyses be accepted as accurate and complete. However, these data require some qualification as noted. In most cases, these qualifications are necessary due to potential laboratory contamination, calibration difficulties, matrix effects resulting in surrogate compound spike recoveries outside specified control limits, holding time exceedances and potential identification errors.

B. INORGANIC DATA

B.1 SAMPLE HOLDINGS TIMES

Under the guidelines established in the QAPP, the following sample holding time requirements were established for the analyses of TAL inorganic analytes:

Metals:	6 months
Mercury	28 days
Cyanide	14 days

Due to potential loss of analyte(s), exceeding the holding time for a sample requires that positive data and minimum detection limits (MDLs) be qualified as estimated, and the results annotated to indicate the holding times were exceeded.

Most samples submitted for total inorganic determinations were analyzed within their prescribed holding times. Holding time exceedances for samples submitted for total inorganic determinations were limited to eleven cyanide samples. However, most samples submitted for filtered metals determinations exceeded the QAPP prescribed holding time for mercury. Table 6 presents the associated samples, affected analytes, and required qualification due to holding time exceedances.

B.2 CALIBRATION

Initial calibration of an instrument ensures that it is capable of producing satisfactory quantitative data at the beginning of a series of analyses. The reported data was checked for calibration frequency, number and type of standards analyzed, and use of a calibration blank.

For inductively coupled plasma (ICP) analyses, a calibration blank and at least one standard must be analyzed in establishing the analytical curve. For atomic absorption (AA) and cyanide analyses, a calibration blank and at least three standards (4-mercury) must be used in establishing the analytical curve. In all instances, the calibration verification sample results must fall within the control limits of 90 to 110 percent of the true value, with the exception of cyanide and mercury for which the limits are 85 to 115 percent and 80-120 percent respectively.

In all instances, the instruments were calibrated initially with the proper number of standards and calibration blanks. All percent recovery (%R)

values reported on the initial calibration summaries associated with NCR-Site samples complied with the prescribed control limits. It should be noted that correlation coefficients were not reported for mercury, cyanide and/or atomic absorption analyses. Thus, verification that calibration curves for these analyses yielded correlation coefficients equal to or greater than 0.995 could not be performed.

The verification of continuing calibration was conducted in accordance with the prescribed methods. Most reported %R values were within the accepted control limits with the exception of the following:

Fraction	*Analyte*	*%Recovery*	*Associated Samples*
Total	Lead	89.8	NCR-4S-I NCR-4M-I NCR-22D-I (Dup of 12D-I) Rinse Blank 3 (Round I)
Filtered	Silver	632	NCR-13S-I NCR-10M-I NCR-8D-I NCR-8M-I NCR-1M-I NCR-11D-I NCR-11M-I NCR-21D-I (Dup. of 11D-I)
Filtered	Selenium	110.2	NCR-4M-II

In accordance with U.S. EPA Region II data validation guidelines, sample results associated with the outlying continuing calibration verifications were qualified as follows:

Fraction	*Analyte*	*% Recovery*	*Data Qualifiers*
Total	Lead	89.8	Positive data - J (estimated) non-detects - UJ (estimated quantitation limit)
Filtered	Silver	632	Both Positive and Non-detects-R (unusable)
Filtered	Selenium	110.2	Positive data - J (estimated)

B.3 CRDL STANDARDS FOR AA AND ICP

The analyses of the Contract Required Detection Limit (CRDL) standards enables the data reviewer to establish whether or not the laboratory can actually detect those metals at the CRDL. Controls limits for recoveries of the CRDL standards as identified in the U.S. EPA CLP methodology are as follows:

Metals	90-110
Cyanide	85-115

Presented in Table 7 are the CRDL standards which did not meet acceptance criteria, associated samples, and required qualification of same due to outlying CRDL standard recoveries.

It should be noted that CRDL standard recovery results (mid-range calibration standard) reported for cyanide were within the prescribed method control limits identified in the U.S. EPA CLP method.

B.4 BLANKS

B.4.1 Initial and Continuing Calibration Blank (ICB and CCB) Samples

All but one initial and/or continuing calibration blank sample reported for Round I groundwater sample analyses yielded contaminant concentrations below the contract required detection limits (CRDL). The exception was one CCB which yielded cadmium at the CRDL (5.0 µg/L).

However, since corresponding Round I NCR Site samples showed non-detectable concentrations of cadmium, qualification of inorganic data attributable to ICB and CCB contamination was not required.

Several contaminants were, however, detected in continuing calibration blanks during analyses of Round II groundwater samples. Qualifications of inorganic data due to potential blank contamination was performed as follows:

Sample	*Analyte*	*CCB Concentration (µg/L)*	*Sample Concentration (µg/L)*	*Qualified Sample Concentration (µg/L)*
NCR-11D-II (filtered)	Antimony	77.6	108B	200U
	Chromium	44.5	8.6B	10U
	Manganese	44.7	22.5	22.5U
	Silver	13.1	21.8	21.8U
NCR-11M-II (filtered)	Zinc	44.6	30.7	30.7U
NCR-12D-II (filtered)	Manganese	44.7	27.5	27.5U
NCR-22D-II (filtered)	Antimony	77.6	38.5B	200U
(Dup. of 12D-II)	Manganese	44.7	28.3	28.3U
NCR-4S-II (filtered)	Manganese	44.7	24.8	24.8U

CCB - Continuing Calibration Blank.

B.4.2 Laboratory/Method Blank Samples

A laboratory/method blank consists of deionized water, prepared and analyzed in the same fashion as investigative samples.

All laboratory/method blank samples yielded detections of all target analytes below the contract required detection limits (CRDLs). Therefore, the potential for contamination attributable to laboratory conditions was minimal.

B.5 INTERFERENCE CHECK SAMPLE (ICP) ANALYSIS

A review of Form IV, accompanying Compuchem data packages, revealed that the %R values all fell within the control limits of ±20 percent of the established concentration. In this situation, the true concentration of a given analyte was supplied, rather than the mean value determined by the laboratory and as such, the control limits were 80 to 120 percent recovery.

B.6 MATRIX SPIKE AND DUPLICATE SAMPLE ANALYSES

Matrix spike and duplicate samples were analyzed in accordance with the MS/MSD frequencies prescribed in the QAPP.

On the basis of the matrix spike and laboratory duplicate data reported by Compuchem, it is noted that in most cases, satisfactory analytical accuracy and precession were achieved. Qualification of sample data not meeting acceptance criteria was performed in accordance with U.S. EPA Region II guidelines and, is presented as follows:

Sample	*Analyte*	*Fraction*	*Spike(1) Recovery (75-125%)*	*RPD(2) (20%)*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
NCR-6M-I	Arsenic	total	72.8		5.9B	5.9BJ
	Lead	total	65.8		ND(15)	ND(15UJ)
	Thallium	total	55.2		ND(3.0)	ND(3.0UJ)
	Potassium	filtered		23.9	12,760	12,760J
NCR-2D-I	Lead	total	24.7		ND(30)	ND(30R)
	Selenium	total	31.0		ND(15)	ND(15UJ)
	Thallium	total	58.4		ND(3.0)	ND(3.0UJ)
NCR-2I-I	Lead	filtered	67.6		ND(2.0)	ND(2.0UJ)
	Selenium	filtered	66.3		ND(3.0)	ND(3.0UJ)
	Thallium	filtered	62.9		ND(3.0)	ND(3.0UJ)
	Aluminum	filtered		23.7	301	301J
NCR-6M-II	Lead	total	20.2		ND(20)	ND(20R)
	Selenium	total	0.		ND(30)	ND(30R)
	Thallium	total	60		ND(3.0)	ND(3.0UJ)
	Aluminum	total		26.0	116B	116BJ
	Zinc	total		65.5	23.2	23.2J
NCR-2D-II	Lead	total	32.3		ND(10)	ND(10UJ)
	Selenium	total	0		ND(15)	ND(15R)
	Thallium	total	58.5		ND(3.0)	ND(3.0UJ)
	Zinc	total		103.3	15.3B	15.3BJ
NCR-4M-II	Lead	filtered	22.7		ND(20)	ND(20R)
	Selenium	filtered	45.6		ND(30)	ND(30UJ)
	Thallium	filtered	54.8		ND(20)	ND(20UJ)

Sample	*Analyte*	*Fraction*	*Spike(1) Recovery (75-125%)*	*RPD(2) (20%)*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
NCR-5D-II	Mercury	filtered	0		ND(0.20)	ND(0.20R)
	Lead	filtered	33.0		ND(20)	ND(20UJ)
	Selenium	filtered	0		ND(30)	ND(30R)
	Silver	filtered	41.4		ND(5.0)	ND(5.0UJ)
	Thallium	filtered	29.5		ND(30)	ND(30R)
	Chromium	filtered		200	ND(5.0)	ND(5.0UJ)
	Cobalt	filtered		88.7	6.4B	6.4BJ
	Iron	filtered		26.3	86.6B	86.6BJ

1) Spike recovery control limits identified in parentheses
2) RPD - Relative Percent Difference between duplicate sample results. Control limits identified in parentheses.

B - Below CRDL but above instrument detection limit (IDL)
J - estimated data
UJ - estimated quantitation limit
R - unusable data

B.7 LABORATORY CONTROL SAMPLES

Based on the data reported among the laboratory control sample summaries, it is noted that all water laboratory control samples yielded acceptable recoveries (within 80-120 percent). A spot check on these data indicated no calculation errors, and as such, no qualification based on this criteria was required.

B.8 FIELD DUPLICATE SAMPLES

The prescribed frequency outlined in the QAPP for the collection of field duplicate samples were adhered to for samples submitted for inorganic analyses.

The analyses of field duplicate samples submitted for TAL determinations revealed good reproducibility in most cases. The exceptions to this occurred for the following:

Analyte	*NCR-11D-I/Dup (filtered) (µg/L)*	*NCR-12D-I/Dup (filtered) (µg/L)*	*NCR-7M-II/Dup (total) (µg/L)*	*NCR-7M-II (filtered) (µg/L)*
Aluminum	298/ND(35.0)	ND(35.0)/117B	334/829	
Antimony	58.4B/ND(22.0)			151/219
Potassium	8040/1910B			
Silver	15.1/ND(5.0)			30.1/42.2
Copper		ND(4.0)/19.9B		
Vanadium		ND(4.0)/19.4B		
Zinc			8.5B/44	5.2B/49.1
Iron				991/368

In most cases identified above, one of the analyte concentrations was reported as non-detected at the CRDL or detected below the CRDL but above the instrument detection limit (data qualifier B). The cause of these discrepancies can therefore be attributed to the variability of data at or near the detection limit. However, in accordance with U.S. EPA Region II validation guidelines, non-reproducible field duplicate data as identified for the above-noted samples, required qualification as follows:

Positive data - estimated as J
Non-detected data - estimated quantitation limit as UJ

B.9 ICP SERIAL DILUTION

ICP serial dilutions were performed where analyte concentrations were significantly high enough to determine whether potential physical or chemical interferences existed from the sample matrix. Sample results relative to ICP Serial dilutions which did not agree within ±10 percent difference of the undiluted sample result required qualification as follows:

	Percent Difference Values Between 10-100	*Percent Difference Values >100*
positive data	J (estimated value)	R (unusable)
non-detects	UJ (estimated quantitation limit)	R (unusable)

Samples showing outlying percent difference values in ICP serial dilutions and appropriate data qualifiers are presented as follows:

Sample	*Analyte*	*Percent difference Values in Serial Dilution Analyses*	*Data Qualifier*
NCR-2I-I (Total)	Chromium	16.7	J/UJ
	Iron	10.1	J/UJ
	Nickel	13.8	J/UJ
NCR-6M-I (Total)	Aluminum	90.0	J/UJ
	Manganese	15.8	J/UJ
NCR-2I-I (Filtered)	Aluminum	150.4	R
	Iron	33.3	J/UJ
NCR-6M-I (Filtered)	Calcium	15.9	J/UJ
	Magnesium	15.0	J/UJ
	Manganese	34.2	J/UJ
	Potassium	20.7	J/UJ
	Sodium	18.2	J/UJ
NCR-3S-II (Filtered)	Barium	12.3	J/UJ
	Iron	10.8	J/UJ
	Manganese	11.7	J/UJ

B.11 RINSATE BLANK SAMPLES

With the exception of the detection of zinc at 50.7 µg/L (CRDL = 20µg/L) in Rinsate Blank 3 from Round I, all analytes detected in rinsate blank samples were reported below the CRDL. Therefore, the decontamination protocol used in the field was found to be mostly effective.

However, several analytes were detected in each of the rinsate blank samples above the instrument detection limit. Therefore, samples in which analytes were detected at a concentration below five times the concentration reported in the associated rinsate blank sample were required to be reported as non-detected (data qualifier U) by adjusting the sample quantitation limit to the sample concentration. Further, samples requiring qualification due to potential contamination and having analyte concentrations below the CRDL were required to be reported as non-detected at the CRDL.

Qualification of data due to potential field contamination was required only for samples submitted for total metals analyses since rinsate blank samples were not analyzed for filtered metals. Qualification of these data are presented in Table 8.

B.12 ANOMALIES

Several groundwater samples collected during Rounds I and II yielded filtered metals results significantly greater than their corresponding total results. These anomalies are most likely due to non-laboratory optimum conditions during field filtering of the samples. In accordance with U.S. EPA Region II validation guidelines, these data required qualification as estimated (data qualifier J) or as unusable (data qualifier R) if the filtered metal concentrations were greater than its corresponding total metal concentrations by more than 50 percent. Presented in Table 9 are the affected samples and appropriate qualifications.

B.13 OVERALL INORGANIC DATA ASSESSMENT

Overall, the inorganic data provided by Compuchem were found to be accurate and precise. Exceptions have been discussed and documented in the previous sections. These qualified data may be used for quantitative assessment purposes, except where the data have been found to be unusable. It should be noted the on some occasions, data have been qualified more than once. In these cases, the more stringent of the data qualifiers should be used (R takes precedence over J or UJ values).

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

Sample	Fraction	Retention Time (TICs Only)	Compound	Sample Conc. (µg/L)	Qualified Sample Conc. (µg/L)
Volatile Method Blanks (Round I)					
1. Volatile Blank (VBLK PS)	VOCs		methylene chloride	0.7J	
			acetone	7	
Corresponding Samples					
NCR-2D-I			methylene chloride	3B	3U
NCR-2I-I			methylene chloride	3B	3U
NCR-2M-I			methylene chloride	20B	remove B (report 20)
			acetone	12	12U
NCR-2S-I			methylene chloride	3B	3U
NCR-5M-I			methylene chloride	3B	3U
NCR-5S-I			methylene chloride	3B	3U
			acetone	8B	8U
Rinse Blank 1			methylene chloride	3B	3U
Trip Blank 1			methylene chloride	4B	4U
Trip Blank 2			methylene chloride	3B	3U
2. Volatile Blank (VBLK PL)	VOCs		methylene chloride	1J	
			acetone	8	
Corresponding Samples					
NCR-10M-I			methylene chloride	1BJ	2U
			acetone	11B	11U
NCR-20M-I (Dup. of 7M-I)			methylene chloride	3B	3U
NCR-3M-I			methylene chloride	2B	2U
NCR-3S-I			methylene chloride	1BJ	2U
NCR-5D-I			methylene chloride	2B	2U
NCR-7D-I			methylene chloride	2B	2U
NCR-9M-I			methylene chloride	2B	2U
Rinse Blank 2			methylene chloride	5B	5U
			acetone	13B	13U
Trip Blank 3			methylene chloride	3B	3U
3. Volatile Blank (VBLK PR)	VOCs		methylene chloride	2	
			acetone	7	
Corresponding Samples					
NCR-8D-I			methylene chloride	2B	2U
NCR-13S-I			methylene chloride	3B	3U
			acetone	12B	12U
NCR-1M-I			methylene chloride	4B	4U
NCR-4S-I			methylene chloride	4B	4U
			acetone	27B	27U
NCR-6M-I			methylene chloride	4B	4U
NCR-8M-I			methylene chloride	2B	2U
			acetone	4BJ	5U
Trip Blank 5			methylene chloride	4B	4U
			acetone	7B	7U

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

	Sample	Fraction	Retention Time (TICs Only)	Compound	Sample Conc. (µg/L)	Qualified Sample Conc. (µg/L)
4.	Volatile Blank (VBLK PD, pH, PO)	VOCs		methylene chloride	2	
	Corresponding Samples					
	Trip Blank 4			methylene chloride	2	2U
	NCR-11D-I			methylene chloride	4B	4U
	NCR-11M-1			methylene chloride	2B	2U
	DCR-21D-I (Dup. of 11D-I)			methylene chloride	2B	2U
	NCR-6D-I			methylene chloride	3B	3U
	Trip Blank 7			methylene chloride	3B	3U
	NCR-12D-I			methylene chloride	3B	3U
	NCR-12D-I reanalyzed			methylene chloride	6B	6U
	NCR-22D-I (Dup. of 12D-I)			methylene chloride	3B	3U
	NCR-22D-I reanalyzed			methylene chloride	7B	7U
	NCR-4M-I			methylene chloride	3B	3U
	Rinse Blank 3			methylene chloride	2B	2U
	Trip Blank 6			methylene chloride	3B	3U
Volatile Method Blanks (Round II)						
1.	Volatile Bank (VBLKPD)	VOCs		methylene chloride	0.7J	
	Corresponding Samples					
	Rinse Blank 2			methylene chloride	4B	4U
	NCR-8M-II			methylene chloride	6B	6U
2.	Volatile Bank (VBLKXO)	VOCs		methylene chloride	1J	
	Corresponding Samples					
	NCR-13S-II			methylene chloride	5B	5U
	NCR-20-II (Dup of 7M-II)			methylene chloride	3B	3U
	NCR-2D-II			methylene chloride	2B	2U
	NCR-2M-II			methylene chloride	3B	3U
	NCR-2S-II			methylene chloride	3B	3U
	NCR-3M-II			methylene chloride	3B	3U
	NCR-3S-II			methylene chloride	3B	3U
	NCR-5D-II			methylene chloride	4B	4U
	NCR-5M-II			methylene chloride	4B	4U
	NCR-5S-II			methylene chloride	3B	3U
	Rinse Blank 1			methylene chloride	4B	4U
	Trip Blank 1			methylene chloride	5B	5U

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

	Sample	*Fraction*	*Retention Time (TICs Only)*	*Compound*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
3.	Volatile Bank (VBLKSR)	VOCs		methylene chloride	2	
	Corresponding Samples					
	NCR-11M-II			methylene chloride	3B	3U
	NCR-1M-II			methylene chloride	3B	3U
	NCR-22D-II (Dup. of 12D-II)			methylene chloride	4B	4U
	NCR-4M-II			methylene chloride	4B	4U
	NCR-4S-II			methylene chloride	3B	4U
	Rinse Blank 3			methylene chloride	5	5U
	Trip Blank 5			methylene chloride	4B	4U
	Trip Blank 6			methylene chloride	3B	3U
4.	Volatile Blank (VBLKPO)	VOCs		methylene chloride	0.7J	
	Corresponding Samples					
	NCR-11D-II			methylene chloride	2B	2U
	NCR-12D-II			methylene chloride	4B	4U
5.	Volatile Blank (VBLKDR)	VOCs		methylene chloride	22	
	Corresponding Samples					
	Test Pit 3			methylene chloride	150B	150U
	BNA Method Blanks (Round I)					
1.	BNA Blank (SB1K-72)	BNAs		bis(2-ethylhexyl)phthalate	2J	
			5.33	unknown	10J	
	Corresponding Samples					
	NCR-10M-I			bis(2-ethylhexyl)phthalate	2BJ	5U
	NCR-20M-I			bis(2-ethylhexyl)phthalate	3BJ	5U
	(Dup. of 7M-I)		5.25	unknown	5.0J	5.0R
	NCR-3S-I		5.27	unknown	4.0BJ	4.0R
	NCR-5S-I			bis(2-ethylhexyl)phthalate	23B	remove B (report 23)
			5.27	unknown	6.0J	6.0R
	NCR-7M-I			bis(2-ethylhexyl)phthalate	4BJ	5U
	NCR-9M-I			bis(2-ethylhexyl)phthalate	5B	5U
			5.27	solvent contaminant	5BJ	5R
	Rinse Blank 2			bis(2-ethylhexyl)phthalate	1BJ	5U
			5.27	unknown	5.0J	5.0R
2.	BNA Blank (SBLK 99)	BNAs	5.27	3-methoxy-1 butanol	4.0J	
	Corresponding Samples					
	NCR-8D-I		5.27	solvent contaminant	4.0BJ	4.0R

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

	Sample	*Fraction*	*Retention Time (TICs Only)*	*Compound*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
3.	BNA Blank (SBLK 56)	BNAs		diethyl phthalate	4J	
			6.28	unknown	19JN	
			6.65	ethane 1-methoxy-2(methoxy)	10JN	
	Corresponding Samples					
	NCR-5D-I			diethyl phthalate	8B	8U
			6.27	unknown	19J	19R
			6.63	unknown oxygenated hydrocarbon	10J	10R
4.	BNA Blank (SBLK 71)	BNAs	5.28	unknown	13J	
			19.62	unknown hexanedioic acid ester	2.0J	
	Corresponding Samples					
	NCR-13S-I		5.22	unknown	4.0J	4.0R
			19.64	unknown hexanedioic acid ester	2.0J	2.0R
	NCR-6M-I		5.28	2-propanol	7.0JN	7.0R
	NCR-8M-I		5.27	solvent contaminant	10BJ	10R
5.	BNA Blank (SBLK 92)	BNAs	5.27	bis(2-ethylhexyl)phthalate	7	
				2-propanol	5.0JN	
	Corresponding Samples					
	NCR-11D-I		5.27	solvent contaminant	5.0BJ	5.0R
	NCR-21D-I (Dup. of 11D-I)		5.27	solvent contaminant	4.0BJ	4.0R
	NCR-4S-I			bis(2-ethylhexyl)phthalate	2BJ	5U
			5.28	solvent contaminant	4BJ	4R
	BNA Method Blanks (Round II)					
1.	BNA Blank (SBLK90)	BNAs	6.58	unknown	9J	
	Corresponding Samples					
	NCR-20-II (Dup. of 7M-II)		6.58	ethane 1-methoxy-2 (methoxy)	5JN	5R
	NCR-9M-II		6.57	unknown	13J	13R
2.	BNA Blank (SBLK91)	BNAs	6.73	unknown	4J	
	Corresponding Samples					
	NCR-6M-II		6.73	solvent contaminant	5BJ	5R
	NCR-8D-II		6.73	solvent contaminant	3BJ	3R

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

	Sample	*Fraction*	*Retention Time (TICs Only)*	*Compound*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
3.	BNA Blank (SBLK52)	BNAs		bis (2-ethylhexyl) phthalate	2J	
			19.12	unknown ester hexanedioic acid	100J	
	Corresponding Samples					
	NCR-11D-II			bis (2-ethylhexyl) phthalate	3BJ	5U
			19.14	blank contaminant	3BJ	3R
	NCR-11M-II		19.14	blank contaminant	13BJ	13R
	NCR-1M-II		19.12	blank contaminant	13BJ	13R
	NCR-4M-II		19.17	blank contaminant	8BJ	8R
	NCR4S-II			bis (2-ethylhexyl) phthalate	1BJ	5U
			19.17	blank contaminant	9BJ	9R
	Rinse Blank 3		19.17	blank contaminant	10BJ	10R
4.	BNA Blank (SBLK79)			diethylphthalate	100J	
			4.55	solvent contaminant	330J	
			15.57	unknown carboxylic acid	0	
			21.09	blank contaminant	200J	
	Corresponding Samples					
	Test Pit 3			diethylphthalate	82BJ	430U
			4.55	solvent contaminant	220BJ	220R
			15.57	unknown carboxylic acid	350BJ	remove B
			21.09	blank contaminant	740BJ	860R
Pesticide/PCB Method Blanks (Round I)						
1.	Pesticide/PCB Blank (PBLK 90)	Pest/PCBs		heptachlor	0.0004JP	
				endrin aldehyde	0.0013JP	
				gamma-chlordane	0.0011JP	
	Corresponding Samples					
	NCR-3M-I			endrin aldehyde	0.0017JP	0.02U
				gamma-chlordane	0.00074JPB	0.01U
	NCR-5S-I			endrin aldehyde	0.0037JPB	0.02U
				gamma-chlordane	0.0012JPB	0.01U
	NCR-7M-I			endrin aldehyde	0.0027JB	0.02U
				gamma-chlordane	0.00081JPB	0.01U
	NCR-8D-I			endrin aldehyde	0.0016JPB	0.02U
				gamma-chlordane	0.00079JB	0.01U
	NCR-10M-I			endrin aldehyde	0.0023JPB	0.02U
				gamma-chlordane	0.0014JPB	0.01U
	NCR-20M-I (Dup. of 7M-I)			endrin aldehyde	0.0014JPB	0.02U
	Rinse Blank 2			endrin aldehyde	0.0032J	0.02U
2.	Pesticide/PCB Blank (PBLK 53)	Pest/PCBs		4,4-DDE	0.015J	
	Corresponding Samples					
	NCR-4M-I			4,4-DDE	0.0016JPB	0.02U

TABLE 1

QUALIFIED DATA DUE TO POTENTIAL LABORATORY CONTAMINATION

	Sample	*Fraction*	*Retention Time (TICs Only)*	*Compound*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
3.	Pesticide/PCB Blank (PBLK 31)	Pest/PCBs		endrin aldehyde	0.0011JP	
	Corresponding Samples					
	NCR-21D-I (Dup. of 11D-I)			endrin aldehyde	0.0094JPB	0.02U
4.	Pesticide/PCB Blank (PBLK 53)	Pest/PCBs		heptachlor	0.0045J	
	Corresponding Samples					
	NCR-12D-I			heptachlor	0.0067JPB	0.01U
Pesticide/PCB Method Blanks (Round II)						
1.	Pesticide/PCB Blank (PBLK03)	Pest/PCBs		4,4'-DDD	0.0035JP	
	Corresponding Samples					
	NCR-9M-II			4,4'-DDD	0.0070JP	0.02U
2.	Sulfur Blank	Pest/PCBs		Heptachlor	0.0012JP	
	Corresponding Samples					
	NCR-5D-II			Heptachlor	0.0018JP	0.01U
3.	Pesticide/PCBs (PBLK47)	Pest/PCBs		Methoxychlor	0.0037JP	
	Corresponding Samples					
	NCR-11M-II			Methoxychlor	0.0029JP	0.10U
	Rinse Blank 3			Methoxychlor	0.10PB	0.10U
	NCR-4S-II			Methoxychlor	0.0089JPB	0.10U
	NCR-12D-II			Methoxychlor	0.0050JP	0.10U

B - Compound found in associated method blank.
J - Estimated data.
N - Presumptive evidence of the compound.
P - Indicates greater than 25% difference between the concentration calculated from the two GC columns.
R - Unusable data.
U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination from laboratory or field activities.

TABLE 2

QUALIFIED ORGANICS DATA DUE TO CONTAMINATION IN RINSATE BLANK SAMPLES

Sample	*Fractions*	*Compound*	*Rinsate Blank Conc. (µg/L)*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
Round I					
NCR-2M-I	VOC	methylene chloride	3B	20B	20U
NCR-2D-I	BNA	butyl benzyl phthalate	6	2J	5U
NCR-2I-I	BNA	butyl benzyl phthalate	6	6	6U
NCR-2M-I	BNA	bis (2-ethyl hexyl) phtalate	7	1J	5U
NCR-2S-I	BNA	butyl benzyl phthalate	6	3J	5U
		bis (2-ethyl hexyl) phtalate	7	6	6U
NCR-20M-I (Dup. of 7M-I)	VOC	hexane (R.T. 7.90 TIC)	7.0JN	2.0JN	2.0R
NCR-9M-I	VOC	unknown (R.T. 7.87 TIC)	7.0JN	5.0J	5.0R
Round II					
NCR-13S-II	BNA	bis(2-ethylhexyl)phthalate	2J	4J	5U
NCR-20-II	BNA	diethyl phthalate	2J	2J	5U
(Dup. of 7M-II)		bis(2-ethylhexyl) phthalate	2J	4J	5U
		unknown (R.T. 6.20 TIC)	2J	5J	5R
	Pesticide	heptachlor	0.27	0.0018JP	0.01U
NCR-5D-II	BNA	diethyl phthalate	2J	2J	5U
		bis (2-ethyl hexyl) phthalate	2J	3J	5U
		unknown (R.T. 6.18 TIC)	2J	5J	5R
NCR-5S-II	BNA	bis (2-ethyl hexyl) phthalate	2J	4J	5U
	Pesticide	heptachlor	0.27	0.013	0.013U
NCR-7M-II	BNA	bis (2-ethyl hexyl) phthalate	2J	4J	5U
	Pesticide	heptachlor	0.27	0.0024JP	0.01U
NCR-21M-II (Dup. of 8M-II)	BNA	unknown (R.T. 6.73 TIC)	4J	4J	4R
NCR-8M-II	BNA	bis (2-ethyl hexyl) phthalate	9	2J	5U
NCR-10M-II	Pesticide	4,4'-DDE	0.00093J	0.00096J	0.020U
NCR-13S-II	Pesticide	4.4'-DDE	0.00093J	0.00078JP	0.02U

TABLE 2

QUALIFIED ORGANICS DATA DUE TO CONTAMINATION IN RINSATE BLANK SAMPLES

Notes:

ND - None detected at provided sample quantitation limits.
J - The associated numerical number is an estimated quantity.
U - The material was analyzed for but not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination attributable to laboratory or field conditions.
R - Unusable data.
N - Presumptive evidence of presence of material.
P - Indicates greater than 25% difference between the concentration calculated from the two GC columns.

TABLE 3

QUALIFIED DATA DUE TO TRIP BLANK CONTAMINATION

Sample	*Compound*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
Round II			
Trip Blank 2	methylene chloride	3	
Associated Samples			
NCR-7M-II	methylene chloride	2	2U
Trip Blank 3	methylene chloride	2	
Associated Samples			
NCR-10M-II	methylene chloride	5	5U
NCR-21M-II (Dup. of 8M-II)	methylene chloride	4	4U
NCR-9M-II	methylene chloride	3	3U
Trip Blank 4	methylene chloride	3	
Associated Samples			
NCR-6M-II	methylene chloride	2	2U
NCR-8D-II	methylene chloride	2	2U
NCR-6D-II	methylene chloride	2	2U
Trip Blank 5	acetone	6	
Associated Samples			
NCR-12D-II	acetone	19	19U
NCR-22D-II (Dup. of 12D-II)	acetone	24	24U

Notes:

U - The material was analyzed for but not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination attributable to laboratory or field conditions.

TABLE 4

SAMPLES REQUIRING QUALIFICATION DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES IN INITIAL AND CONTINUING CALIBRATIONS

	Date of Calibration	*Compound*	*Percent RSD Value*	*Percent D Value*	*Qualifier*	*Associated Samples*
A.	*VOCs - Round I*					
1.	1/14/91 and /15/91	acetone	41.9		J/-	NCR-8M-I
		methylene chloride	115.9		J/R	NCR-1M-I
						NCR-13S-I
						NCR-6M-I
						Trip Blank 4
						NCR-4S-I
						Trip Blank 5
						NCR-6D-I
						NCR-11M-I
						NCR-21D-I
						NCR-11D-I
						Trip Blank 6
						NCR-12D-I
						NCR-4M-I
						NCR-22D-I
						Trip Blank 7
						Rinse Blank 3
						Rinse Blank 2
						NCR-20M-I
						NCR-7M-I
						NCR-9M-I
						NCR-5S-I
						NCR-3M-I
						NCR-3S-I
						NCR-10M-I
						Trip Blank 3
						NCR-8D-I
						NCR-2I-I
						NCR-2M-I
						NCR-2S-I
						NCR-2D-I
						Rinse Blank 1
						Trip Blank 1
						NCR-5S-I
						NCR-5M-I
						NCR-5D-I
						Trip Blank 2
2.	3/20/91	chloromethane		57.4	J/UJ	NCR-2D-I
		chloroethane		69.2	J/UJ	NCR-2M-I
						NCR-2I-I
						NCR-2S-I
						NCR-5M-I
						NCR-5S-I
						Rinse Blank 1

TABLE 4

SAMPLES REQUIRING QUALIFICATION
DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES
IN INITIAL AND CONTINUING CALIBRATIONS

	Date of Calibration	Compound	Percent RSD Value	Percent D Value	Qualifier	Associated Samples
3.	3/23/91	chloromethane		52.5	J/UJ	NCR-8D-I
		chloroethane		101.7	J/R	NCR-13S-I
		4-methyl-2-pentanone		41.5	J/-	NCR-1M-I
		2-hexanone		45.0/45.5	J/-	NCR-4S-I
						NCR-6M-I
						NCR-8M-I
						Trip Blank 5
4.	3/24/91	chloromethane		48.9/49.6	J/-	NCR-10M-I
						NCR-20M-I
						NCR-3M-I
						NCR-3S-I
						NCR-5D-I
						NCR-7M-I
						NCR-9M-I
						Rinse Blank 2
						Trip Blank 3
						Trip Blank 4
5.	3/27/91	chloromethane		48.9	J/-	NCR-11D-I
		chloroethane		59.8	J/UJ	NCR-11M-I
						NCR-21D-I
						NCR-6D-I
						Trip Blank 6
6.	3/28/91	vinyl chloride		32.8	J/-	Trip Blank 7
		chloroethane		74.4	J/UJ	NCR-12D-I
						NCR-12D-I re-analyzed
						NCR-22D-I
						NCR-22D-I re-analyzed
						NCR-4M-I
						Rinse Blank 3
B.	***VOCs - Round II***					
1.	4/23/91	acetone	55.6		J/UJ	Trip Blank 3
		1,2-dibromochloropropane	34.0		J/-	NCR-10M-II
		methylene chloride	53.7		J/UJ	NCR-13S-II
						NCR-20-II
						NCR-21M-II
						NCR-2D-II
						NCR-2I-II
						NCR-2M-II
						NCR-2S-II
						NCR-3M-II

TABLE 4

**SAMPLES REQUIRING QUALIFICATION
DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES
IN INITIAL AND CONTINUING CALIBRATIONS**

	Date of Calibration	*Compound*	*Percent RSD Value*	*Percent D Value*	*Qualifier*	*Associated Samples*
						NCR-3S-II
						NCR-5D-II
						NCR-5M-II
						NCR-5S-II
						NCR-7M-II
						NCR-8M-II
						NCR-9M-II
						Rinse Blank 1
						Rinse Blank 2
						Trip Blank 1
						Trip Blank 2
						NCR-11D-II
						NCR-11M-II
						NCR-12D-II
						NCR-1M-II
						NCR-22D-II
						NCR-4M-II
						NCR-4S-II
						NCR-6D-II
						NCR-6M-II
						NCR-5D-II
						Rinse Blank 3
						Trip Blank 4
						Trip Blank 5
						Trip Blank 6
2.	4/29/91	2-hexanone		31.7	J/-	NCR-2D-II
						NCR-2S-II
						NCR-2M-II
						NCR-3M-II
						NCR-3S-II
						NCR-5M-II
						NCR-20-II
						NCR-5S-II
						NCR-5D-II
						NCR-13S-II
						Rinse Blank 1
3.	4/30/91	carbon tetrachloride		30.9	J/-	Trip Blank 3
		4-methyl-2 pentanone		31.3	J/-	NCR-2I-I
		2-hexanone		37.8	J/-	NCR-7M-II
						NCR-6D-II
						NCR-6M-II
						NCR-8D-II
						Trip Blank 4
						NCR-10M-II
						NCR-21M-II
4.	5/1/91	2-hexanone		34.2	J/-	Rinse Blank 2

SAMPLES REQUIRING QUALIFICATION DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES IN INITIAL AND CONTINUING CALIBRATIONS

	Date of Calibration	Compound	Percent RSD Value	Percent D Value	Qualifier	Associated Samples
						NCR-8M-II
5.	5/04/91	carbon tetrachloride		32.6	J/-	Trip Blank 5
		2-hexanone		32.9	J/-	Rinse Blank 3
						Trip Blank 6
						NCR-4M-II
						NCR-4S-II
						NCR-12D-II
						NCR-22D-II
						NCR-1M-II
						NCR-11M-II
6.	5/05/91	carbon tetrachloride		31.0	J/-	NCR-11D-II
		2-hexanone		39.0	J/-	NCR-12D-II
C.	***BNAs - Round I***					
1.	4/03/91	2,4-dinitrophenol	36.5		J/-	NCR-2D-I
						NCR-2I-I
						NCR-2M-I
						NCR-2S-I
						NCR-5M-I
						Rinse Blank 1
						NCR-10M-I
						NCR-20M-I
						NCR-3M-I
						NCR-3S-I
						NCR-5S-I
						NCR-7M-I
						NCR-9M-I
						NCR-8D-I
						NCR-13S-I
						NCR-1M-I
						NCR-6M-I
						NCR-8M-I
						NCR-11D-I
						NCR-11M-I
						NCR-21D-I
						NCR-4S-I
						NCR-6D-I
						NCR-12D-I
						NCR-22D-I
						NCR-4M-I
						Rinse Blank 2
2.	4/04/91	4-nitrophenol		26.7	J/-	NCR-7M-I
		4,6-dinitrophenol		27.6	J/-	NCR-9M-I
		3,3-dichlorobenzidine		31.4	J/-	NCR-3M-I

SAMPLES REQUIRING QUALIFICATION DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES IN INITIAL AND CONTINUING CALIBRATIONS

	Date of Calibration	Compound	Percent RSD Value	Percent D Value	Qualifier	Associated Samples
		dibenzo(A,H)anthracene		33.0	J/-	NCR-8D-I NCR-8M-I NCR-1M-I
3.	4/05/91	4-chlorophenol		26.9	J/-	NCR-5S-I
		3,3-dichlorobenzidine		29.4	J/-	NCR-13S-I
		dibenzo(A,H)anthracene		35.2	J/-	NCR-6M-I NCR-4M-I NCR-22D-I
4.	4/06/91	4-methylphenol		26.9	J/-	NCR-10M-I
		4-nitrophenol		29.0	J/-	Rinse Blank 3
		indeno(1,2,3-CD)pyrene		25.3	J/-	NCR-11M-I
		dibenzo(A,H)anthracene		37.1	J/-	NCR-21D-I NCR-11D-I NCR-4S-I NCR-12D-I NCR-22D-IDL
5.	4/23/91	di-n-octyl phthalate		33.6	J/-	NCR-12D-IDL
		benzo(b)fluoranthene		24.0	J/-	
D.	*BNAs - Round II*					
1.	5/01/91	2,4-dinitrophenol	33.0		J/-	NCR-2D-II NCR-2I-II NCR-2M-II NCR-2S-II NCR-3M-II NCR-3S-II NCR-5M-II
2.	5/06/91	2,2-oxybis (1-chloropropane)		26.0	J/-	NCR-6D-II
		N-nitroso-di-n-propylamine		34.7	J/-	NCR-8D-II
		nitrobenzene		26.2	J/-	NCR-6M-II NCR-13S-II
3.	5/07/91	2-chloronaphthlene		134	J/R	Test Pit 3
		4-nitrophenol		52.2	J/UJ	
4.	5/8/91	N-nitrosodi-n-propylamine		32.3	J/-	Rinse Blank 3
		2,4-dimethylphenol		25.1	J/-	NCR-4M-II
		4-nitrophenol		36.6	J/-	NCR-4S-II

TABLE 4

**SAMPLES REQUIRING QUALIFICATION
DUE TO OUTLYING PERCENT RSD AND PERCENT D VALUES
IN INITIAL AND CONTINUING CALIBRATIONS**

	Date of Calibration	*Compound*	*Percent RSD Value*	*Percent D Value*	*Qualifier*	*Associated Samples*
		4-chlorophenyl-phenylether		26.6	J/-	NCR-12D-II
		3,3-dichlorobenzidine		30.6	J/-	NCR-22D-II
						NCR-11M-II
						NCR-11D-II
5.	5/22/91	4-nitrophenol		27.5	J/-	NCR-12D-II
		4,6-dinitro-2-methylphenol		29.1	J/-	(Diluted)
6.	5/23/91	4-nitroanaline		28.5	J/-	NCR-22D-II
		N-nitroso-di-n-propylamine		27.2	J/-	(Diluted)

Notes:

Percent RSD - Relative percent difference between initial calibration response factors.
Percent D - Percent difference between continuing calibration response factor and average initial calibration response factor.
J - Estimated data - for detected compounds.
UJ - Estimated quantitation limit for non-detected compounds.
R - unusable data

TABLE 5

QUALIFIED DATA DUE TO POTENTIAL IDENTIFICATION ERRORS

Sample	*Fraction*	*Compound*	*Conc. (µg/L)*	*Qualified Conc. (µg/L)*
NCR-2M-I	VOC-TICs	ethylmethylbenzene	2J	2JN
		trimethylbenzene	3J	3JN
NCR-12D-I	VOC-TIC	dichlorofluoromethane	5.0J	5.0JN
(not exact spectral match)	VOC-TCL	1,4-dichlorobenzene	0.5J	0.5JN
NCR-13S-I	VOC-TICs	butene	2J	2JN
		pentene	2J	2JN
		hexane (poor spectral match)	2J	unknown
NCR-21D-I (Dup. of 11D-I)	VOC-TIC	oxibispropane	3J	3JN
NCR-22D-I (Dup. of 12D-I)	VOC-TIC	dichlorofluoromethane	4J	4JN
NCR-4S-I	VOC-TIC	butene	2J	2JN
		pentene	2J	2JN
		methyl(methylethyl) benzene	20J	20JN
NCR-13S-I	VOC-TIC	hexane (poor spectral match)	2.0J	unknown
Rinse Blank 2 (Round I)	VOC-TIC	hexane (poor spectral match)	7.0JN	unknown
NCR-20M-I (Dup. of 7M-I)	VOC-TIC	hexane (poor spectral match)	2.0JN	unknown
NCR-2M-I	BNA-TIC	VOA-TCL	14J	14JR
NCR-5M-I (not exact spectral match)	BNA-TCL	bis (2-ethylhexyl) phthalate	1J	1JN
Rinse Blank 2 (Round I) (not exact spectral match)	BNA-TCL	butylbenzyl phthalate	2J	2JN
NCR-3S-I	BNA-TIC	unknown ester hexanedioic acid	2.0J	unknown
NCR-6D-I	BNA-TIC	sulfur molecule	290J	290JN
NCR-12D-I (not exact spectral match)	BNA-TCL	bis (2-ethylhexyl) phthalate	4J	4JN

TABLE 5

QUALIFIED DATA DUE TO POTENTIAL IDENTIFICATION ERRORS

Sample	*Fraction*	*Compound*	*Conc. (µg/L)*	*Qualified Conc. (µg/L)*
NCR-3S-II	VOC-TIC	butene	2J	2JN
NCR-11D-II	VOC-TIC	oxibispropane	3J	3JN
NCR-12D-II	VOC-TIC	dichlorofluoromethane	7J	7JN
NCR-3M-II	BNA-TIC	tretramethyl butyl phenol	4J	4JN
NCR-12D-II (Diluted)	BNA-TIC	benzoic acid	130J	130JN
		octanoic acid	300J	300JN
NCR-6D-II	BNA-TIC	sulfur mol (S8)	2200J	2200JN
NCR-2I-II	BNA-TIC	silanthrene, 5,10-dihydro (poor spectral match)	28JN	unknown
		15-crown-5 (R.T.19.05) (poor spectral match)	7JN	unknown
		15-crown-5 (R.T.20.77) (poor spectral match)	4JN	unknown
Test Pit 3	BNA-TCL	2,4,5-trichlorophenol (poor spectral match)	50J (µg/kg)	ND (860 µg/kg)

Notes:

N - Presumptive evidence of presence of the compound.
J - Estimated data.
R - Unusable.
Unknown - Identified TIC changed to unknown when spectral comparison between reference standard and sample was poor.
ND - Non-detected at provided sample quantitation limit.

TABLE 6

INORGANIC DATA REQUIRING QUALIFICATION DUE TO HOLDING TIME EXCEEDANCES

Sample	*Analyte*	*Fraction*	*Actual (1) Holding Time (days)*	*Required Holding Time (days)*	*Data Qualifier*
Round I					
NCR-6M-I	cyanide	total	16	14	J/UJ
NCR-6D-I	cyanide	total	15	14	J/UJ
NCR-11M-I	cyanide	total	15	14	J/UJ
NCR-21D-I (Dup. of 11D-I)	cyanide	total	15	14	J/UJ
NCR-11D-I	cyanide	total	15	14	J/UJ
NCR-1M-I	mercury	filtered	32	28	J/UJ
NCR-2M-I	mercury	filtered	38	28	J/UJ
NCR-2I-I	mercury	filtered	38	28	J/UJ
NCR-2D-I	mercury	filtered	38	28	J/UJ
NCR-2S-I	mercury	filtered	37	28	J/UJ
NCR-3M-I	mercury	filtered	34	28	J/UJ
NCR-3S-I	mercury	filtered	34	28	J/UJ
NCR-5M-I	mercury	filtered	37	28	J/UJ
NCR-5S-I	mercury	filtered	34	28	J/UJ
NCR-5D-I	mercury	filtered	37	28	J/UJ
NCR-6M-I	mercury	filtered	31	28	J/UJ
NCR-6D-I	mercury	filtered	30	28	J/UJ
NCR-7M-I	mercury	filtered	33	28	J/UJ
NCR-20M-I (Dup. of 7M-I)	mercury	filtered	33	28	J/UJ
NCR-8D-I	mercury	filtered	32	28	J/UJ
NCR-8M-I	mercury	filtered	32	28	J/UJ
NCR-9M-I	mercury	filtered	33	28	J/UJ
NCR-10M-I	mercury	filtered	33	28	J/UJ
NCR-11D-I	mercury	filtered	30	28	J/UJ
NCR-21D-I (Dup. of 11D-I)	mercury	filtered	30	28	J/UJ
NCR-11M-I	mercury	filtered	30	28	J/UJ
NCR-13S-I	mercury	filtered	31	28	J/UJ
Round II					
NCR-2I-II	cyanide	total	15	14	J/UJ
NCR-2M-II	cyanide	total	15	14	J/UJ
NCR-2D-II	cyanide	total	15	14	J/UJ
NCR-3M-II	cyanide	total	15	14	J/UJ
NCR-3S-II	cyanide	total	15	14	J/UJ
NCR-5M-II	cyanide	total	15	14	J/UJ
NCR-4M-II	mercury	filtered	35	28	J/UJ
NCR-12D-II	mercury	filtered	34	28	J/UJ

TABLE 6

INORGANIC DATA REQUIRING QUALIFICATION DUE TO HOLDING TIME EXCEEDANCES

Sample	*Analyte*	*Fraction*	*Actual (1) Holding Time (days)*	*Required Holding Time (days)*	*Data Qualifier*
NCR-4S-II	mercury	filtered	32	28	J/UJ
NCR-22D-II (Dup. of 12D-II)	mercury	filtered	34	28	J/UJ
NCR-11M-II	mercury	filtered	34	28	J/UJ
NCR-11D-II	mercury	filtered	33	28	J/UJ
NCR-5D-II	mercury	filtered	37	28	J/UJ
NCR-2I-II	mercury	filtered	38	28	J/UJ
NCR-21M-II (Dup. of 8M-II)	mercury	filtered	38	28	J/UJ
NCR-5M-II	mercury	filtered	38	28	J/UJ
NCR-3M-II	mercury	filtered	38	28	J/UJ
NCR-2S-II	mercury	filtered	37	28	J/UJ
NCR-3S-II	mercury	filtered	38	28	J/UJ
NCR-5S-II	mercury	filtered	37	28	J/UJ
NCR-7M-I	mercury	filtered	37	28	J/UJ
NCR-13S-II	mercury	filtered	36	28	J/UJ
NCR-20-II (Dup. of 7M-II)	mercury	filtered	37	28	J/UJ
NCR-2D-II	mercury	filtered	36	28	J/UJ
NCR-8M-II	mercury	filtered	36	28	J/UJ
NCR-10M-II	mercury	filtered	36	28	J/UJ
NCR-9M-II	mercury	filtered	36	28	J/UJ
NCR-6D-II	mercury	filtered	36	28	J/UJ
NCR-8D-II	mercury	filtered	35	28	J/UJ
NCR-6M-II	mercury	filtered	35	28	J/UJ
NCR-1M-II	mercury	filtered	32	28	J/UJ

Notes:

(1) - Holding time begins from date of collection.
J - Estimated data - for detected results.
UJ - Estimated quantitation limit for non-detected results.

TABLE 7
SAMPLES WHICH REQUIRED QUALIFICATION DUE TO OUTLYING CONTRACT REQUIRED DETECTION LIMIT (CRDL) STANDARD RECOVERIES

Analyte	*CRDL Standard Recovery*	*Associated Samples*	*Qualification*
Zinc (total)	118/113.7	NCR-13S-I NCR-1M-I NCR-3M-I NCR-5S-I	J/UJ
Lead (total)	76.7/57.0/60.0	NCR-11M-I	J/UJ
Thallium (total)	84.8/85.7		
Silver (total)	89.2		
Selenium (filtered)	87.2/86.2	NCR-11D-I	J/UJ
Silver (filtered)	65.8		
Cadmium (filtered)	111.2		J/-
Antimony (filtered)	87.1		J/UJ
Lead (filtered)	57.3/85.0/69.7		
Zinc (total)	123.2/126.0	NCR-1M-II NCR-4M-II NCR-4S-II NCR-6M-II NCR-11D-II NCR-12D-II NCR-22D-II Rinse Blank 3	J/- (Round II)
Antimony (total)	78.4/84.3	NCR-2I-II	J/UJ
Cadmium (total)	89.1	NCR-2S-II	
Silver (total)	83.8	NCR-2D-II	
Chromium (total)	86.9	NCR-2M-II NCR-3M-II NCR-3S-II NCR-5M-II NCR-20-II NCR-7M-II NCR-5S-II NCR-5D-II Rinse Blank 1 NCR-10M-II NCR-21M-II NCR-9M-II Rinse Blank 2 NCR-8M-II NCR-13S-II NCR-8D-II	 (Round II) (Round II)

TABLE 7
SAMPLES WHICH REQUIRED QUALIFICATION DUE TO OUTLYING CONTRACT REQUIRED DETECTION LIMIT (CRDL) STANDARD RECOVERIES

Analyte	*CRDL Standard Recovery*	*Associated Samples*	*Qualification*
		NCR-6D-II	
Selenium (total)	86.8	NCR-6D-II NCR-8D-II NCR-21M-II	J/UJ
Cadmium (filtered)	87.1	NCR-5D-II (Note 1)	J/UJ
Beryllium (filtered)	87.4	NCR-2D-II	
Chromium (filtered)	84.2	NCR-2I-II	
Cobalt (filtered)	88.5	NCR-2M-II	
Copper (filtered)	89.6	NCR-5M-II	
Silver (filtered)	84.6	NCR-3S-II NCR-3M-II NCR-2S-II NCR-5S-II NCR-7M-II (Note 2) NCR-13S-II NCR-21M-II NCR-8M-II NCR-10M-II NCR-9M-II (Note 2) NCR-6D-II (Note 2) NCR-8D-II NCR-6M-II (Note 1) NCR-1M-II	
Lead (filtered)	89.0	NCR-9M-II NCR-20-II NCR-10M-II NCR-6M-II NCR-13S-II NCR-7M-II NCR-6D-II NCR-8D-II	J/UJ

TABLE 7
SAMPLES WHICH REQUIRED QUALIFICATION DUE TO OUTLYING CONTRACT REQUIRED DETECTION LIMIT (CRDL) STANDARD RECOVERIES

Analyte	*CRDL Standard Recovery*	*Associated Samples*	*Qualification*
Selenium (filtered)	117	NCR-6M-II NCR-1M-II NCR-2M-II NCR-5M-II	J/-
Nickel (filtered)	89.5	NCR-4M-II	
Silver (filtered)	60.1/81.0	NCR-12D-II	J/UJ
Antimony (filtered)	83.5	NCR-4S-II NCR-22D-II NCR-11M-II NCR-11D-II	
Selenium (filtered)	68.4	NCR-4M-II NCR-12D-II NCR-4S-II. NCR-22D-II	J/UJ
Selenium (filtered)	115.6	NCR-11M-II NCR-11D-II	J/-
Arsenic (filtered)	84.6	NCR-4M-II NCR-12D-II NCR-22D-II NCR-11M-II NCR-11D-II	J/UJ
Lead (filtered)	79.8/67.6	NCR-4M-II NCR-12D-II NCR-4S-II NCR-22D-II	J/UJ

Notes:
1 Cadmium does not require qualification for this sample.
2 Silver does not require qualification for this sample.
J Estimated data (for positive results).
UJ Estimated quantitation limit (for non-detects).
- No qualification for non-detected data.

TABLE 8
QUALIFIED METALS DATA
DUE TO CONTAMINATION IN RINSATE BLANK SAMPLES

Sample	*Analyte*	*Rinsate Blank Conc. (µg/L)*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
NCR-2D-I	Aluminum (total)	149B	85.6B	200U
	Manganese (total)	54.2B	33.7	33.7U
	Zinc (total)	7.7B	9.3B	20U
	Iron (total)	75.2B	284	284U
NCR-4S-I	Zinc (total)	50.7	96.8	96.8U
NCR-4M-I	Aluminum (total)	165B	215	215U
	Iron (total)	77.4B	287	287U
	Zinc (total)	50.7B	9.5B	20U
NCR-7M-I	Aluminum (total)	159B	107B	200U
	Zinc (total)	41B	9.8B	20U
NCR-20MD-I	Aluminum (total)	159B	98.2B	200U
(Dup. of 7M-I)	Zinc (total)	4.1B	4.4B	20U
NCR-9M-I	Aluminum (total)	159B	149B	200U
	Manganese (total)	12.7B	57.7	57.7U
	Zinc (total)	4.1B	5.5B	20U
CR-10M-I	Aluminum (total)	159B	211	211U
	Zinc (total)	4.1B	5.6B	20U
NCR-12D-I	Aluminum (total)	165B	109B	200U
	Zinc (total)	50.7	4.8B	20U
NCR-22D-I	Aluminum (total)	165B	110B	200U
(Dup. 12D-I)	Zinc (total)	50.7	16.5B	20U
NCR-5D-II	Aluminum (total)	132B	106B	200U
	Barium (total)	1.3B	6.5B	200U
	Zinc (total)	8.5B	3.7B	20U
NCR-8M-II	Aluminum (total)	88.7B	105B	200U
	Zinc (total)	4.1B	8.9B	20U
NCR-9M-II	Aluminum (total)	88.7B	94.9B	200U
	Zinc (total)	4.1B	19.4B	20U
NCR-10M-II	Aluminum (total)	88.7B	125B	200U
	Zinc (total)	4.1B	3.3B	20U
NCR-21M-II	Aluminum (total)	88.7B	116B	200U
(Dup. of 8M-II)	Zinc (total)	4.1B	9.8B	20U
NCR-13S-II	Aluminum (total)	88.7B	228	228U
	Zinc (total)	4.1B	9.5B	20U

TABLE 8

QUALIFIED METALS DATA
DUE TO CONTAMINATION IN RINSATE BLANK SAMPLES

Sample	*Analyte*	*Rinsate Blank Conc. (µg/L)*	*Sample Conc. (µg/L)*	*Qualified Sample Conc. (µg/L)*
NCR-1M-II	Aluminum (total)	156B	197B	200U
	Zinc (total)	15.4B	26.5	26.5U
NCR-4M-II	Zinc (total)	15.4B	36.2	36.2U
NCR-4S-II	Zinc (total)	15.4B	34.7	34.7U

Notes:

B - Below contract required detection limit (CRDL) but above instrument detection limit (IDL).

U - The material was analyzed for but not detected. The associated numerical value is the sample quantitation limit and has been adjusted to reflect potential contamination from laboratory or field activities.

TABLE 9

QUALIFIED DATA RESULTING FROM FILTERED METALS CONCENTRATIONS GREATER THAN TOTAL METALS CONCENTRATIONS

Sample	*Analyte*	*Total Concentration µg/L*	*Filtered Concentration µg/L*	*Data Qualifier*
NCR-2S-I	magnesium	43,300	54,000	J
	sodium	27,100	59,600	R
NCR-2M-I	sodium	66,900	76,200	J
NCR-6D-I	potassium	17,900	21,100	J
NCR-7M-I	calcium	532,000	631,000	J
	magnesium	95,800	113,000	J
	potassium	6,310	7,510	J
NCR-20M-I (Dup. of 7M-1)	potassium	5,570	12,000	R
NCR-9M-I	potassium	6,300	7,970	J
NCR-22D-I	potassium	15,200	19,200	J
NCR-20-II	antimony	ND(22)	219	R
	calcium	529,000	623,000	J
	magnesium	94,200	110,000	J
NCR-2D-II	sodium	77,600	92,100	J
NCR-2I-II	cadmium	5.7	28.5	R
NCR-3M-II	barium	48.6	72.2	J
NCR-6D-II	antimony	ND(22)	374	R
	calcium	549,000	629,000	J
	magnesium	144,000	175,000	J
	silver	ND(5)	77.9	R
NCR-8D-II	antimony	ND(22)	135	R
	cadmium	ND(4.0)	10.6	UJ/J
	calcium	513,000	603,000	J
	manganese	19.5	26.5	J
	magnesium	118,000	137,000	J
NCR-8M-II	calcium	62,600	70,300	J

TABLE 9

QUALIFIED DATA RESULTING FROM FILTERED METALS CONCENTRATIONS GREATER THAN TOTAL METALS CONCENTRATIONS

Sample	*Analyte*	*Total Concentration µg/L*	*Filtered Concentration µg/L*	*Data Qualifier*
	magnesium	32,300	36,000	J
	sodium	53,800	61,800	J
NCR-9M-II	antimony	ND(22)	160	R
	magnesium	80,000	90,200	J
	potassium	15,400	23,800	J
	silver	ND(5.0)	34.9	R
	zinc	20U	29.4	J (Filtered only)
NCR-10M-II	manganese	55.8	63.6	J
	sodium	35,500	41,300	J
NCR-21M-II (Dup. of 8M-II)	sodium	53,800	61,800	J
NCR-5D-II	calcium	520,000	589,000	J
	magnesium	122,000	138,000	J
NCR-7M-II	calcium	534,000	607,000	J
	magnesium	94,400	106,000	J
NCR-12D-II	magnesium	98,600	110,000	J
NCR-22D-II (Dup. of 12D-II)	calcium	499,000	575,000	J
	iron	588	666	J
	magnesium	94,000	117,000	J
	sodium	64,200	78,700	J
NCR-4S-II	calcium	70,300	180,000	R
	magnesium	23,400	68,200	R
	potassium	1960B	12,400	R
	sodium	59,200	112,000	R
NCR-13S-II	calcium	184,000	221,000	J
	potassium	7,790	14,600	J
	sodium	95,800	138,000	J
	zinc	20U	46.2	R

TABLE 9

QUALIFIED DATA RESULTING FROM FILTERED METALS CONCENTRATIONS GREATER THAN TOTAL METALS CONCENTRATIONS

Sample	*Analyte*	*Total Concentration µg/L*	*Filtered Concentration µg/L*	*Data Qualifier*
NCR-6M-II	aluminum	116B	750	R
	antimony	ND(22)	153	R
	arsenic	ND(3.0)	483	R
	cadmium	ND(4.0)	35.3	R
	calcium	483,000	604,000	J
	magnesium	86800	105,000	J
	manganese	44	53.9	J
	nickel	ND(7.0)	47.6	R
	silver	ND(5.0)	25	R
NCR-1M-II	magnesium	74,500	83,200	J
	sodium	42,300	48,500	J
NCR-11D-II	magnesium	106,000	124,000	J
	potassium	13,100	19,700	J
NCR-11M-II	sodium	89,700	110,000	J

Notes:

J - estimated value
R - unusable
UJ - estimated quantitation limit

DATA QUALIFICATION AND VALIDATION FOR TWO ADDITIONAL SUBSURFACE SOIL SAMPLES FROM NCR-13

M E M O

TO: Ed Roberts

FROM: Bill Hamel/ks/4

REFERENCE NO. 2677

DATE: 13 September 1991

RE: Analytical Data Quality Assessment and Validation
NCR Site-Remedial Investigation (RI)
Wheatfield, New York
Supplemental Soil Samples

OVERVIEW

The following memo presents an analytical data quality assessment and validation for two soil samples collected at the NCR-Site on August 8, 1991. Analytical Services were provided by Compuchem Corporation (Compuchem) of Research Triangle Park, North Carolina.

Both soil samples were submitted for Target Compound List (TCL) Volatile Organic Compounds (VOCs), and were analyzed in accordance with method 8240, USEPA SW-846, 3rd edition. The reportable and deliverable requirements for the analytical data are referenced in the document entitled:

> "Quality Assurance Project Plan (QAPP)
> Remedial Investigation Niagara County Refuse Site
> Wheatfield, New York
> Prepared for the PRP Committee - NCR
> May 1990"

The QA/QC criteria by which these data have been assessed are outlined in method 8240, the QAPP, and the following two document:

> "CLP Organics Data Review and Preliminary Review". SOP No. HW-6, Revision #6, March 1989.

Based on a review of this data set and related quality control criteria, the following have been noted:

1.0 LABORATORY CASE NARRATIVES

Review of the provided case narrative documented one analytical problem associated with the analysis of the soil samples.

Samples NCR-13A and NCR-13B contained methylene chloride which was also detected in the associated laboratory blank. NCR-13A also contained acetone which was detected in the associated laboratory blank. The presence of acetone and methylene chloride in the laboratory blank indicates potential laboratory contamination. This will be further discussed in Section 5.0 of this document. The concentrations of acetone and/or methylene chloride in NCR-13A and NCR-13B were properly flagged by Compuchem with the laboratory qualifier "B", indicating the compound was present in the associated laboratory blank.

2.0 SAMPLE HOLDING TIMES

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not valid. Sample holding time requirements for TCL-VOC analyses in soil matrices are specified in the QAPP as 10 days from collection to analysis. Both NCR 13A and NCR 13B were analyzed for TCL VOCs within 6 days of collection, thereby fulfilling the QAPP holding time requirements. Therefore, qualification of the sample data was not required on this basis.

3.0 SURROGATE SPIKE RECOVERIES

All samples were spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical extraction procedure. If the measured surrogate concentrations were outside method specifications, qualification of the affected sample data is required.

In accordance with method 8240, sample NCR-13A and NCR-13B were spiked with the surrogate compounds toluene-d8, bromofluorobenzene, and 1,2-dichloroethane-d4. In addition, samples NCR-13A and NCR-13B yielded surrogate spike recoveries within the method control limits. Therefore, qualification of the sample data was not required on this basis.

4.0 BLANK SPIKE/BLANK SPIKE DUPLICATE (BS/BSD) ANALYSES

The recoveries of BS/BSD analysis are used to assess the analytical accuracy and precision as achieved by the laboratory. As the BS/BSD analyses are

independent of potential matrix effects, these analyses give a true indication of the laboratory's analytical accuracy and precision for each respective parameter. One VOC BS/BSD analysis was performed in conjunction with samples NCR-13A and NCR-13B.

All VOC BS/BSD recoveries and Relative Percent Differences (RPDs) were within the method control limits indicating acceptable accuracy and precision was achieved by Compuchem for VOC analyses.

5.0 LABORATORY CONTAMINATION

Contamination of samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method black samples. If the concentration of the compound is less than 5 times the method blank contamination level (10 times for common laboratory contaminants), the analytes are qualified as non-detects (data qualifier U).

Both method blank samples analyzed yielded detections of acetone and methylene chloride (common laboratory contaminants) as shown below:

Blank ID	Parameter	Compound	Concentration (ug/kg)
VBLK H9	VOCs	acetone	17
		methylene chloride	23
VBLK I1	VOCs	acetone	5
		methylene chloride	16

Therefore, qualification of the affected sample data for NCR-13A and NCR-13B is recommended as follows:

Sample ID	Parameter	Compound	Concent. ug/kg	Qualf.
NCR-13A	VOCs	acetone	19	U
		methylene chloride	19	U
NCR-13B	VOCs	methylene chloride	24	U

NOTE: U - non detected at the associated value which is the detection limit. The detection limit has been adjusted to reflect potential laboratory contamination.

Both method blanks yielded non detected concentrations of the remaining TCL-VOCs. Further, no Tentatively Identified Compounds (TICs) were present in the method blanks.

6.0 GC/MS TUNING AND PERFORMANCE

The analysis of TCL VOCs and is based upon gas chromatographic/mass spectrometic (GC/MS) methods. To ensure that the data produced by the GC/MS instruments may be correctly interpreted, the tuning and performance criteria presented in the "Guidelines" have been assessed. These criteria have been established to assure mass resolution, identification, and to some degree, sensitivity.

In general, a review of the GC/MS tuning and calibration data accompanying the Compuchem work orders indicated that all tuning and calibration criteria for bromofluorobenzene (BFB) were met for the analysis of TCL VOCs. In addition, comparison of the GC/MS tuning and mass calibration summary sheets (Form Vs) with each mass listing indicated that no transcription errors occurred. Recalculation of at least two of the GC/MS tuning and mass calibration values reported for each mass listing indicated that these values were correctly determined. Therefore, the integrity of the GC/MS tuning and mass calibration data was not suspect.

7.0 GC/MS CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

7.1 INITIAL CALIBRATION

To assess the validity of the initial calibrations, the average relative response factors (RRFs) and relative standard deviations (RSDs) of system performance check compounds (SPCCs), calibration check compounds (CCCs), and the remaining compounds of interest have been evaluated.

The RRF measures the instrument response to specific compounds. RRF values falling below the minimum value required by the method indicates a detection problem due to poor sensitivity. The RSDs are calculated from the initial calibration and are used to indicate the linearity and stability of specific compound RRFs over increasing concentrations. Outlying RSD values indicate potential detection and quantitative errors.

In accordance with the "Region II Guidelines" and method 8240 it is recommended that all VOC initial calibration data be evaluated by the following criteria:

i) SPCCs must demonstrate average RRFs greater than 0.300 (bromoform .0.250);

ii) all remaining TCL VOCs must demonstrate average RRFs greater than 0.050;

iii) CCCs must demonstrate RSD values less than 25 percent; and

iv) all remaining TCL VOCs must demonstrate RSD values less than 30 percent.

Upon review of the initial calibration data reported by Compuchem, it was noted that all criteria for SPCCs and CCCs were met for VOC analyses. In addition, all remaining TCL VOCs yielded average RRF values greater than 0.050.

However, three non calibration VOCs yielded RSDS greater than 30 percent as shown below:

Initial Calibration Date	Instrument	VOC	RSD
6/27/91	18	acetone	40.7
		methylene-chloride	43.1
		2-butanone	42.3

In accordance with the "USEPA Region II Guidelines", qualification of sample data in which associated initial calibrations yielded outlying percent RSD values was required as follows:

	% RSD Between 30%-50%	% RSD Between 50%-90%	%RSD Greater than 90%
Positive Sample Data	J	J	J
Non-Detected Sample Data	--	UJ	R

J Estimated data
UJ Estimated quantitation limit
R Unusable data

Based on the above criteria and the reported initial calibration data, qualification of the sample data was not required on this basis.

Recalculation of at least 10 percent of the VOC initial calibration data indicated that all RRF and RSD values were correctly determined.

7.2 CONTINUING CALIBRATION

To ensure that initial calibrations remained valid during sample analysis, the percent difference (%D) of compound RRFs between the initial calibration and continuing calibration was assessed. In addition, the RRF of a 50 nanogram continuing calibration check standard (RRF 50) was evaluated for all SPCCs, CCCs, and remaining TCL VOCs. Only TCL VOCs which yielded acceptable initial calibration data were evaluated.

The RRF50 demonstrates that instrument response was sufficiently maintained for specific compounds throughout sample analysis. Percent differences (%D) compare response factors of continuing calibration checks to mean response factors of the initial calibrations, and demonstrate that satisfactory linearity was maintained during sample analyses.

In accordance with the "Region II Guidelines" and Method 8240 it is recommended that all VOC continuing calibration data be evaluated by the following criteria:

i) SPCCs must demonstrate RRF50s greater than 0.300 (bromoform 0.250);
ii) all remaining TCL VOCs must demonstrate RRF50s greater than 0.050;
iii) CCCs must demonstrate %Ds less than 25 percent; and
iv) all remaining TCL VOCs must demonstrate %D less than 25 percent.

Upon review of the continuing calibration data reported by Compuchem it was noted that all continuing criteria were met for SPCCs and CCCs. In addition, all remaining TCL VOCs yielded average RRF(50s) greater than 0.050.

However, nine non calibration VOCs yielded %D greater than 25 percent as shown below:

Initial Calibration Date	Continuing Calibration Date	Instrument	VOC	%D
6/27/91	8/14/91	18	acetone	38.3
			2-butanone	68.2
			bromoform	101.9
			carbon disulfide	30.6
			dibromochloromethane	56.9

Initial Calibration Date	Continuing Calibration Date	Instrument	VOC	%D
6/27/91	8/14/91		tetrachloroethene	51.2
			1,1,2,2-tetrachloroethane	27.4
			1,1,1-trichloroethane	34.4
			trichloroethene	35.3

In accordance with the "USEPA Region II Guidelines", qualification of sample data in which associated calibrations yielded outlying %D values was required as follows:

	% Ds Between 25%-50%	% Ds Between 50%-90%	%Ds Greater than 90%
Positive Sample Data	J	J	J
Non-Detected Sample Data	--	UJ	R

J Estimated data
UJ Estimated quantitation limit
R Unusable data

Based on the above criteria, and the reported continuing calibration data, qualification of the affected sample data was recommended as follows:

Sample ID	Parameter	Compound	Concent. ug/kg	Qualf.
NCR-13A	VOCs	2-butanone	11U	UJ
NCR-13B	VOCs	2-butanone	11U	UJ
NCR-13A	VOCs	bromoform	11U	R
NCR-13B	VOCs	bromoform	11U	R
NCR-13A	VOCs	dibromochloromethane	6U	UJ
NCR-13B	VOCs	dibromochloromethane	6U	UJ
NCR-13A	VOCs	tetrachloroethene	6U	UJ
NCR-13B	VOCs	tetrachloroethene	6U	UJ

U- non detected at the associated value which is the detection limit
UJ- Estimated detection limit
R- the associated value is unusable

Recalculation of at least 10 percent of the VOC continuing calibration data indicated that all RRF(50s) and %D were correctly determined.

8.0 INTERNAL STANDARDS PERFORMANCE

In order to ensure that GC/MS sensitivity and response are stable during each sample analysis, the internal standard performance criteria established in method 8240 and the "Region II Guidelines" have been evaluated for VOC analyses. The criteria by which the internal standards have been assessed are as follows:

i) internal standard area counts must not vary by more than a factor of two (-50% to +100%) from the associated calibration standard; and

ii) the retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

Upon review of the internal standard area summary sheets (Form VIIIs) accompanying the Compuchem work orders, it was noted that all internal standard area count and retention time criteria were met for all samples submitted for VOC analyses.

9.0 COMPOUND IDENTIFICATION

The criteria used for compound identifications were as follows:

i) The relative retention time (RRT) of the chromatographic peak must fall within ±0.06 units of the standard RRT. In this case, the standard RRTs used were those determined from the continuing calibrations.

ii) All ions present in the reference mass spectrum at a relative intensity greater than 10 percent must also be present in the sample mass spectrum and must agree within 20 percent.

Subsequent review of the sample reconstructed ion chromatographs showed that in most cases, the compounds identified showed RRTs within ±0.06 units of the appropriate standard. As well, all mass spectral data generated for each compound identified (acetone and methylene chloride) corresponded well with the library-generated mass spectra.

It should be noted that while the detections of acetone and methylene chloride met the compound identification criteria, the presence of these compounds has been qualified as non detected due to potential laboratory contamination (see section 5 of this memo).

10.0 OVERALL VOC DATA ASSESSMENT

Based on the criteria outlined in the aforementioned, it is recommended that the results reported for the VOC analyses of NCR-13A and NCR-13B be accepted as accurate and complete. However, these data require some qualification as noted herein. These qualifications were due to potential laboratory contamination and calibration difficulties. No other analytical problems were encountered during these analyses.

APPENDIX M

BASELINE RISK ASSESSMENT CALCULATIONS

APPENDIX M TABLE 1

EXPOSURE SCENARIO : CONSTRUCTION WORKER - SUBSURFACE SOIL EXCAVATION (FUTURE CONDITION)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SUBSURFACE SOIL
LOCATION : OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CS \times CF \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (ADULT WORKER) (mg soil/day)	100	100	RAGS (1)
SA (ADULT WORKER) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	RAGS (1)
EF (days/year)	130	130	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - (CARCINOGEN) (yrs)	2	4	PROFESSIONAL JUDGEMENT
ED - (NON-CARC.) (yr)	1	1	RAGS (1)
BW (ADULT) (kg)	70	70	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	HAWLEY (3)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			HAWLEY (3)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.25	0.5	PROFESSIONAL JUDGEMENT

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ASSESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE 2

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SUBSURFACE SOIL
LOCATION : OFF-SITE
MEDIA : SUBSURFACE SOIL
POPULATION : CONSTRUCTION WORKER
EXPOSURE SCENARIO : CONSTRUCTION WORKER - SUBSURFACE SOIL EXCAVATION (FUTURE CONDITION)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	8.00E-03	1.10E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
1,2-DICHLOROETHENE (TOTAL)	1.90E-02	4.20E-02	NC	2.00E-02	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	1.00E-02	1.40E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	3.10E-03	3.30E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TRICHLOROETHENE	5.80E-03	8.00E-03	1.10E-02	NA	1.00	1.00	1.000	1.000
TCL SVOCs								
BUTYL BENZYLPHTHALATE	3.35E-01	4.47E-01	NC	2.00E-01	1.00	1.00	0.25	0.25
bis(2-ETHYLHEXYL)PHTHALATE	3.69E-01	5.13E-01	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25

APPENDIX M TABLE 3

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SUBSURFACE SOIL
LOCATION : OFF-SITE
MEDIA : SUBSURFACE SOIL
POPULATION : CONSTRUCTION WORKER
EXPOSURE SCENARIO : CONSTRUCTION WORKER - SUBSURFACE SOIL EXCAVATION (FUTURE CONDITION)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPERBOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	1.30E-10	7.13E-10	0.00E+00	0.00E+00	4.54E-09	1.25E-08	4.54E-08	1.25E-07
1,2-DICHLOROETHENE (TOTAL)	3.08E-10	2.72E-09	0.00E+00	0.00E+00	1.08E-08	4.76E-08	5.39E-07	2.38E-06
METHYLENE CHLORIDE	1.62E-10	9.07E-10	1.22E-12	6.81E-12	5.67E-09	1.59E-08	9.45E-08	2.65E-07
1,1,1-TRICHLOROETHANE	5.02E-11	2.14E-10	0.00E+00	0.00E+00	1.76E-09	3.74E-09	1.95E-08	4.16E-08
TRICHLOROETHENE	9.40E-11	5.18E-10	1.03E-12	5.70E-12	3.29E-09	9.07E-09	0.00E+00	0.00E+00
TCL SVOCs								
BUTYL BENZYLPHTHALATE	2.27E-09	1.21E-08	0.00E+00	0.00E+00	7.95E-08	2.12E-07	3.97E-07	1.06E-06
bis(2-ETHYLHEXYL)PHTHALATE	2.50E-09	1.39E-08	3.50E-11	1.95E-10	8.75E-08	2.43E-07	4.38E-06	1.22E-05
TOTAL LIFETIME ADDED CANCER RISK			3.73E-11	2.07E-10	HAZARD INDEX:		5.47E-06	1.60E-05

APPENDIX M TABLE : 4

EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (PRESENT CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CS \times CF \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (OLDER CHILD OR ADULT) (mg/exposure)	100	100	RAGS (1)
SA (OLDER CHILD/ADULT) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	RAGS (1)
EF (days/year)	13	26	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - (CARCINOGEN) (yrs)	10	30	RAGS (1)
ED - (NON-CARC.) (yr)	1	1	RAGS (1)
BW (OLDER CHILD)	48	48	RAGS (1)
BW (ADULT) (kg)	70	70	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	HAWLEY (3)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			RAGS (1)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.1	0.25	PROFESSIONAL JUDGEMENT

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ASSESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE : 5

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : OLDER CHILDREN AND ADULTS (HIKERS AND HUNTERS)
EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (PRESENT CONDITIONS)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	2.60E-02	3.80E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	2.20E-02	3.30E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	4.30E-03	3.80E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TCL SVOCs								
BENZO(a)ANTHRACENE	6.95E-01	2.10E-01	1.67E+00	NA	1.00	1.00	0.25	0.25
BENZO(a)PYRENE	7.90E-01	2.50E-01	1.15E+01	NA	1.00	1.00	0.25	0.25
BENZO(b)FLUORANTHENE	7.14E-01	3.20E-01	1.61E+00	NA	1.00	1.00	0.25	0.25
BENZO(k)FLUORANTHENE	7.45E-01	2.50E-01	7.59E-01	NA	1.00	1.00	0.25	0.25
CH[redacted]E	6.70E-01	2.70E-01	5.06E-02	NA	1.00	1.00	0.25	0.25
bis(2-ETHYLHEXYL)PHTHALATE	8.09E-01	1.20E+00	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25
FLUORANTHENE	6.37E-01	3.30E-01	NC	4.00E-02	1.00	1.00	0.25	0.25
PHENANTHRENE	6.02E-01	1.88E-01	NC	NA	1.00	1.00	0.25	0.25
PYRENE	6.31E-01	3.10E-01	NC	3.00E-02	1.00	1.00	0.25	0.25
TCL PESTICIDES								
4,4'-DDE	5.40E-03	9.00E-03	2.40E-01	NA	1.00	1.00	0.25	0.25
4,4'-DDT	1.30E-02	2.20E-03	3.40E-01	NA	1.00	1.00	0.25	0.25
ALDRIN	3.90E-03	2.00E-03	1.70E+01	3.00E-05	1.00	1.00	1	1
DIELDRIN	4.00E-03	2.30E-03	1.60E+01	5.00E-05	1.00	1.00	1	1
ENDOSULFAN II (1)	1.20E-02	7.80E-03	NC	5.00E-05	1.00	1.00	1	1
ENDRIN	5.00E-03	7.80E-03	NC	3.00E-04	1.00	1.00	1	1
HEPTACHLOR EPOXIDE	3.90E-03	3.10E-03	9.10E+00	1.30E-05	1.00	1.00	1	1
delta-BHC	4.50E-03	5.40E-03	NC	NA	1.00	1.00	0.25	0.25
gamma-BHC	3.90E-03	1.50E-03	1.33E+00	3.00E-04	1.00	1.00	0.25	0.25
TAL METALS								
CADMIUM	5.00E-01	7.60E-01	NC	1.00E-03	1.00	1.00	0.001	0.01
MERCURY	2.26E-01	3.50E-01	NC	NA	1.00	1.00	0.001	0.01

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

APPENDIX M TABLE : 6

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : OLDER CHILDREN AND ADULTS (HIKERS AND HUNTERS)
EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (PRESENT CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	8.43E-11	1.85E-09	0.00E+00	0.00E+00	8.60E-10	6.29E-09	8.60E-09	6.29E-08
METHYLENE CHLORIDE	7.13E-11	1.60E-09	5.35E-13	1.20E-11	7.28E-10	5.46E-09	1.21E-08	9.10E-08
1,1,1-TRICHLOROETHANE	1.39E-11	1.85E-10	0.00E+00	0.00E+00	1.42E-10	6.29E-10	1.58E-09	6.98E-09
TCL SVOCs								
BENZO(a)ANTHRACENE	9.42E-10	4.27E-09	1.57E-09	7.13E-09	9.62E-09	1.45E-08	0.00E+00	0.00E+00
BENZO(a)PYRENE	1.07E-09	5.08E-09	1.23E-08	5.84E-08	1.09E-08	1.73E-08	0.00E+00	0.00E+00
BENZO(b)FLUORANTHENE	9.68E-10	6.51E-09	1.56E-09	1.05E-08	9.88E-09	2.21E-08	0.00E+00	0.00E+00
BENZO(k)FLUORANTHENE	1.01E-09	5.08E-09	7.66E-10	3.86E-09	1.03E-08	1.73E-08	0.00E+00	0.00E+00
CHRYSENE	9.08E-10	5.49E-09	4.59E-11	2.78E-10	9.27E-09	1.87E-08	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	1.10E-09	2.44E-08	1.53E-11	3.42E-10	1.12E-08	8.30E-08	5.60E-07	4.15E-06
FLUORANTHENE	8.63E-10	6.71E-09	0.00E+00	0.00E+00	8.81E-09	2.28E-08	2.20E-07	5.71E-07
PHENANTHRENE	8.16E-10	3.82E-09	0.00E+00	0.00E+00	8.33E-09	1.30E-08	0.00E+00	0.00E+00
PYRENE	8.55E-10	6.30E-09	0.00E+00	0.00E+00	8.73E-09	2.14E-08	2.91E-07	7.15E-07
TCL PESTICIDES								
4,4'-DDE	7.32E-12	1.83E-10	1.76E-12	4.39E-11	7.47E-11	6.23E-10	0.00E+00	0.00E+00
4,4'-DDT	1.76E-11	4.47E-11	5.99E-12	1.52E-11	1.80E-10	1.52E-10	0.00E+00	0.00E+00
ALDRIN	1.26E-11	9.72E-11	2.15E-10	1.65E-09	1.29E-10	3.31E-10	4.30E-06	1.10E-05
DIELDRIN	1.30E-11	1.12E-10	2.07E-10	1.79E-09	1.32E-10	3.80E-10	2.65E-06	7.61E-06
ENDOSULFAN II (1)	3.89E-11	3.79E-10	0.00E+00	0.00E+00	3.97E-10	1.29E-09	7.94E-06	2.58E-05
ENDRIN	1.62E-11	3.79E-10	0.00E+00	0.00E+00	1.65E-10	1.29E-09	5.51E-07	4.30E-06
HEPTACHLOR EPOXIDE	1.26E-11	1.51E-10	1.15E-10	1.37E-09	1.29E-10	5.13E-10	9.92E-06	3.94E-05
delta-BHC	6.10E-12	1.10E-10	0.00E+00	0.00E+00	6.23E-11	3.74E-10	0.00E+00	0.00E+00
gamma-BHC	5.29E-12	3.05E-11	7.03E-12	4.06E-11	5.40E-11	1.04E-10	1.80E-07	3.46E-07
TAL METALS								
CADMIUM	3.65E-10	8.57E-09	0.00E+00	0.00E+00	3.72E-09	2.92E-08	3.72E-06	2.92E-05
MERCURY	1.65E-10	3.95E-09	0.00E+00	0.00E+00	1.68E-09	1.34E-08	0.00E+00	0.00E+00

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

TOTAL LIFETIME ADDED CANCER RISK	1.68E-08	8.55E-08	HAZARD INDEX:	3.04E-05 1.23E-04

APPENDIX M TABLE : 7

EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{INTAKE (mg/kg-day)} = \left(\frac{CS \times CP \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (OLDER CHILD OR ADULT) (mg/exposure)	100	100	RAGS (1)
SA (OLDER CHILD/ADULT) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	RAGS (1)
EF (days/year)	26	52	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - (CARCINOGEN) (yrs)	10	20	PROFESSIONAL JUDGEMENT
ED - (NON-CARC.) (yr)	1	1	RAGS (1)
BW (OLDER CHILD)	48	48	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	HAWLEY (3)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			HAWLEY (3)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE : 8

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : OLDER CHILDREN (RECREATIONAL ACTIVITES)
EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	2.60E-02	3.80E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	2.20E-02	3.30E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	4.30E-03	3.80E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TCL SVOCs								
BENZO(a)ANTHRACENE	6.95E-01	2.10E-01	1.67E+00	NA	1.00	1.00	0.25	0.25
BENZO(a)PYRENE	7.90E-01	2.50E-01	1.15E+01	NA	1.00	1.00	0.25	0.25
BENZO(b)FLUORANTHENE	7.14E-01	3.20E-01	1.61E+00	NA	1.00	1.00	0.25	0.25
BENZO(k)FLUORANTHENE	7.45E-01	2.50E-01	7.59E-01	NA	1.00	1.00	0.25	0.25
CHRYSENE	6.70E-01	2.70E-01	5.06E-02	NA	1.00	1.00	0.25	0.25
bis(2-ETHYLHEXYL)PHTHALATE	8.09E-01	1.20E+00	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25
FLUORANTHENE	6.37E-01	3.30E-01	NC	4.00E-02	1.00	1.00	0.25	0.25
PHENANTHRENE	6.02E-01	1.80E-01	NC	NA	1.00	1.00	0.25	0.25
PYRENE	6.31E-01	3.10E-01	NC	3.00E-02	1.00	1.00	0.25	0.25
TCL PESTICIDES								
4,4'-DDE	5.40E-03	9.00E-03	2.40E-01	NA	1.00	1.00	0.25	0.25
4,4'-DDT	1.30E-02	2.20E-03	3.40E-01	NA	1.00	1.00	0.25	0.25
ALDRIN	3.90E-03	2.00E-03	1.70E+01	3.00E-05	1.00	1.00	1	1
DIELDRIN	4.00E-03	2.30E-03	1.60E+01	5.00E-05	1.00	1.00	1	1
ENDOSULFAN II (1)	1.20E-02	7.80E-03	NC	5.00E-05	1.00	1.00	1	1
ENDRIN	5.00E-03	7.80E-03	NC	3.00E-04	1.00	1.00	1	1
HEPTACHLOR EPOXIDE	3.90E-03	3.10E-03	9.10E+00	1.30E-05	1.00	1.00	1	1
delta-BHC	4.50E-03	5.40E-03	NC	NA	1.00	1.00	0.25	0.25
gamma-BHC	3.90E-03	1.50E-03	1.33E+00	3.00E-04	1.00	1.00	0.25	0.25
TAL METALS								
CADMIUM	5.00E-01	7.60E-01	NC	1.00E-03	1.00	1.00	0.001	0.01
MERCURY	2.26E-01	3.50E-01	NC	NA	1.00	1.00	0.001	0.01

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

APPENDIX M TABLE : 9

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : OLDER CHILDREN (RECREATIONAL ACTIVITES)
EXPOSURE SCENARIO : TRESPASSER - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	2.46E-10	3.59E-09	0.00E+00	0.00E+00	1.72E-09	1.26E-08	1.72E-08	1.26E-07
METHYLENE CHLORIDE	2.08E-10	3.12E-09	1.56E-12	2.34E-11	1.46E-09	1.09E-08	2.43E-08	1.82E-07
1,1,1-TRICHLOROETHANE	4.06E-11	3.59E-10	0.00E+00	0.00E+00	2.84E-10	1.26E-09	3.16E-09	1.40E-08
TCL SVOCs								
BENZO(a)ANTHRACENE	2.75E-09	8.30E-09	4.59E-09	1.39E-08	1.92E-08	2.91E-08	0.00E+00	0.00E+00
BENZO(a)PYRENE	3.12E-09	9.88E-09	3.59E-08	1.14E-07	2.19E-08	3.46E-08	0.00E+00	0.00E+00
BENZO(b)FLUORANTHENE	2.82E-09	1.26E-08	4.54E-09	2.04E-08	1.98E-08	4.43E-08	0.00E+00	0.00E+00
BE[illegible]E)FLUORANTHENE	2.94E-09	9.88E-09	2.24E-09	7.50E-09	2.06E-08	3.46E-08	0.00E+00	0.00E+00
CHRYSENE	2.65E-09	1.07E-08	1.34E-10	5.40E-10	1.85E-08	3.74E-08	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	3.20E-09	4.74E-08	4.48E-11	6.64E-10	2.24E-08	1.66E-07	1.12E-06	8.30E-06
FLUORANTHENE	2.52E-09	1.30E-08	0.00E+00	0.00E+00	1.76E-08	4.57E-08	4.41E-07	1.14E-06
PHENANTHRENE	2.38E-09	7.12E-09	0.00E+00	0.00E+00	1.67E-08	2.49E-08	0.00E+00	0.00E+00
PYRENE	2.49E-09	1.23E-08	0.00E+00	0.00E+00	1.75E-08	4.29E-08	5.82E-07	1.43E-06
TCL PESTICIDES								
4,4'-DDE	2.13E-11	3.56E-10	5.12E-12	8.54E-11	1.49E-10	1.25E-09	0.00E+00	0.00E+00
4,4'-DDT	5.14E-11	8.70E-11	1.75E-11	2.96E-11	3.60E-10	3.04E-10	0.00E+00	0.00E+00
ALDRIN	3.69E-11	1.89E-10	6.27E-10	3.21E-09	2.58E-10	6.62E-10	8.60E-06	2.21E-05
DIELDRIN	3.78E-11	2.17E-10	6.05E-10	3.48E-09	2.65E-10	7.61E-10	5.29E-06	1.52E-05
ENDOSULFAN II (1)	1.13E-10	7.37E-10	0.00E+00	0.00E+00	7.94E-10	2.58E-09	1.59E-05	5.16E-05
ENDRIN	4.73E-11	7.37E-10	0.00E+00	0.00E+00	3.31E-10	2.58E-09	1.10E-06	8.60E-06
HEPTACHLOR EPOXIDE	3.69E-11	2.93E-10	3.35E-10	2.67E-09	2.58E-10	1.03E-09	1.98E-05	7.89E-05
delta-BHC	1.78E-11	2.13E-10	0.00E+00	0.00E+00	1.25E-10	7.47E-10	0.00E+00	0.00E+00
gamma-BHC	1.54E-11	5.93E-11	2.05E-11	7.89E-11	1.08E-10	2.08E-10	3.60E-07	6.92E-07
TAL METALS								
CADMIUM	1.06E-09	1.67E-08	0.00E+00	0.00E+00	7.45E-09	5.83E-08	7.45E-06	5.83E-05
MERCURY	4.81E-10	7.68E-09	0.00E+00	0.00E+00	3.37E-09	2.69E-08	0.00E+00	0.00E+00

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

TOTAL LIFETIME ADDED CANCER RISK	4.91E-08	1.66E-07	HAZARD INDEX:	6.07E-05 2.47E-04

APPENDIX M TABLE : 10

EXPOSURE SCENARIO : RESIDENTIAL EXPOSURE - SURFACE SOIL (FUTURE CONDITION)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CS \times CF \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (1-6 YRS) (mg soil/day)	200	200	RAGS (1)
IR (OVER 6 YRS) (mg soil/day)	100	100	RAGS (1)
SA (1-6 YRS) (cm2)	1780	1780	RAGS (1)
SA (OVER 6 YRS) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	SEAM (2)
EF (days/year)	200	200	RAGS (1) &
ED - 5 AS CHILD (CARCINOGEN) (yrs)	10	30	RAGS (1)
ED - ALL AS CHILD (NON-CARC.) (yr)	1	1	RAGS (1)
BW YOUNGER CHILD (UNDER 6 YRS) (kg)	16	16	RAGS (1)
BW (ADULT) (kg)	70	70	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	SEAM (2)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			RAGS (1)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.10	0.25	

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ASSESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE : 11

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENTS)
POPULATION : RESIDENTS IN HOMES
EXPOSURE SCENARIO : RESIDENTIAL EXPOSURE - SURFACE SOIL (FUTURE CONDITION)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	2.60E-02	3.80E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	2.20E-02	3.30E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	4.30E-03	3.80E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TCL SVOCs								
BENZO(a)ANTHRACENE	6.95E-01	2.10E-01	1.67E+00	NA	1.00	1.00	0.25	0.25
BENZO(a)PYRENE	7.90E-01	2.50E-01	1.15E+01	NA	1.00	1.00	0.25	0.25
BENZO(b)FLUORANTHENE	7.14E-01	3.20E-01	1.61E+00	NA	1.00	1.00	0.25	0.25
BENZO(k)FLUORANTHENE	7.45E-01	2.50E-01	7.59E-01	NA	1.00	1.00	0.25	0.25
CHRYSENE	6.70E-01	2.70E-01	5.06E-02	NA	1.00	1.00	0.25	0.25
bis(2-ETHYLHEXYL)PHTHALATE	8.09E-01	1.20E+00	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25
FLUORANTHENE	6.37E-01	3.30E-01	NC	4.00E-02	1.00	1.00	0.25	0.25
PHENANTHRENE	6.02E-01	1.88E-01	NC	NA	1.00	1.00	0.25	0.25
PYRENE	6.31E-01	3.10E-01	NC	3.00E-02	1.00	1.00	0.25	0.25
TCL PESTICIDES								
4,4'-DDE	5.40E-03	9.00E-03	2.40E-01	NA	1.00	1.00	0.25	0.25
4,4'-DDT	1.30E-02	2.20E-03	3.40E-01	NA	1.00	1.00	0.25	0.25
ALDRIN	3.90E-03	2.00E-03	1.70E+01	3.00E-05	1.00	1.00	1	1
DIELDRIN	4.00E-03	2.30E-03	1.60E+01	5.00E-05	1.00	1.00	1	1
ENDOSULFAN II (1)	1.20E-02	7.80E-03	NC	5.00E-05	1.00	1.00	1	1
ENDRIN	5.00E-03	7.80E-03	NC	3.00E-04	1.00	1.00	1	1
HEPTACHLOR EPOXIDE	3.90E-03	3.10E-03	9.10E+00	1.30E-05	1.00	1.00	1	1
delta-BHC	4.50E-03	5.40E-03	NC	NA	1.00	1.00	0.25	0.25
gamma-BHC	3.90E-03	1.50E-03	1.33E+00	3.00E-04	1.00	1.00	0.25	0.25
TAL METALS								
CADMIUM	5.00E-01	7.60E-01	NC	1.00E-03	1	1	0.001	0.001
MERCURY	2.26E-01	3.50E-01	NC	2.00E-03	1	1	0.001	0.001

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

APPENDIX M TABLE : 12

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENTS)
POPULATION : RESIDENTS IN HOMES
EXPOSURE SCENARIO : RESIDENTIAL EXPOSURE - SURFACE SOIL (FUTURE CONDITION)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	4.38E-09	2.55E-08	0.00E+00	0.00E+00	5.23E-08	1.91E-07	5.23E-07	1.91E-06
METHYLENE CHLORIDE	3.71E-09	2.21E-08	2.78E-11	1.66E-10	4.42E-08	1.66E-07	7.37E-07	2.76E-06
1,1,1-TRICHLOROETHANE	7.25E-10	2.55E-09	0.00E+00	0.00E+00	8.65E-09	1.91E-08	9.61E-08	2.12E-07
TCL SVOCs								
BENZO(a)ANTHRACENE	5.77E-08	6.55E-08	9.64E-08	1.09E-07	7.06E-07	5.34E-07	0.00E+00	0.00E+00
BENZO(a)PYRENE	6.56E-08	7.80E-08	7.54E-07	8.96E-07	8.03E-07	6.35E-07	0.00E+00	0.00E+00
BENZO(b)FLUORANTHENE	5.93E-08	9.98E-08	9.54E-08	1.61E-07	7.26E-07	8.13E-07	0.00E+00	0.00E+00
BENZO(k)FLUORANTHENE	6.19E-08	7.80E-08	4.69E-08	5.92E-08	7.57E-07	6.35E-07	0.00E+00	0.00E+00
CHRYSENE	5.56E-08	8.42E-08	2.81E-09	4.26E-09	6.81E-07	6.86E-07	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	6.72E-08	3.74E-07	9.40E-10	5.24E-09	8.22E-07	3.05E-06	4.11E-05	1.52E-04
FLUORANTHENE	5.29E-08	1.03E-07	0.00E+00	0.00E+00	6.47E-07	8.39E-07	1.62E-05	2.10E-05
PHENANTHRENE	5.00E-08	5.86E-08	0.00E+00	0.00E+00	6.12E-07	4.78E-07	0.00E+00	0.00E+00
PYRENE	5.24E-08	9.67E-08	0.00E+00	0.00E+00	6.41E-07	7.88E-07	2.14E-05	2.63E-05
TCL PESTICIDES								
4,4'-DDE	4.48E-10	2.81E-09	1.08E-10	6.74E-10	5.49E-09	2.29E-08	0.00E+00	0.00E+00
4,4'-DDT	1.08E-09	6.86E-10	3.67E-10	2.33E-10	1.32E-08	5.59E-09	0.00E+00	0.00E+00
ALDRIN	6.57E-10	1.34E-09	1.12E-08	2.28E-08	7.84E-09	1.01E-08	2.61E-04	3.35E-04
DIELDRIN	6.74E-10	1.54E-09	1.08E-08	2.47E-08	8.04E-09	1.16E-08	1.61E-04	2.31E-04
ENDOSULFAN II (1)	2.02E-09	5.23E-09	0.00E+00	0.00E+00	2.41E-08	3.92E-08	4.83E-04	7.84E-04
ENDRIN	8.43E-10	5.23E-09	0.00E+00	0.00E+00	1.01E-08	3.92E-08	3.35E-05	1.31E-04
HEPTACHLOR EPOXIDE	6.57E-10	2.08E-09	5.98E-09	1.89E-08	7.84E-09	1.56E-08	6.03E-04	1.20E-03
delta-BHC	3.74E-10	1.68E-09	0.00E+00	0.00E+00	4.57E-09	1.37E-08	0.00E+00	0.00E+00
gamma-BHC	3.24E-10	4.68E-10	4.31E-10	6.22E-10	3.96E-09	3.81E-09	1.32E-05	1.27E-05
TAL METALS								
CADMIUM	2.73E-08	1.46E-07	0.00E+00	0.00E+00	3.43E-07	1.30E-06	3.43E-04	1.30E-03
MERCURY	1.23E-08	6.74E-08	0.00E+00	0.00E+00	1.55E-07	6.00E-07	7.75E-05	3.00E-04
TOTAL LIFETIME ADDED CANCER RISK			1.03E-06	1.30E-06	HAZARD INDEX:		2.06E-03	4.50E-03

APPENDIX M TABLE : 13

EXPOSURE SCENARIO : WORKER - SEDIMENTS (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{INTAKE (mg/kg-day)} = \left(\frac{CS \times CF \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (ADULT WORKER) (mg/work day)	100	480	RAGS (1)
SA (OLDER CHILD/ADULT) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	RAGS (1)
EF (days/year)	30	120	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - (CARCINOGEN) (yrs)	2	4	PROFESSIONAL JUDGEMENT
ED - (NON-CARC.) (yr)	1	1	RAGS (1)
BW (OLDER CHILD)	70	70	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	HAWLEY (3)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			HAWLEY (3)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.1	0.25	PROFESSIONAL JUDGEMENT

NOTE:
(1) "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ASSESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE : 14

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : WORKERS ON-SITE
EXPOSURE SCENARIO : WORKER - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	2.60E-02	3.80E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	2.20E-02	3.30E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	4.30E-03	3.80E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TCL SVOCs								
BENZO(a)ANTHRACENE	6.95E-01	2.10E-01	1.67E+00	NA	1.00	1.00	0.250	0.250
BENZO(a)PYRENE	7.90E-01	2.50E-01	1.15E+01	NA	1.00	1.00	0.250	0.250
BENZO(b)FLUORANTHENE	7.14E-01	3.20E-01	1.61E+00	NA	1.00	1.00	0.250	0.250
BENZO(k)FLUORANTHENE	7.45E-01	2.50E-01	7.59E-01	NA	1.00	1.00	0.250	0.250
CHRYSENE	6.70E-01	2.70E-01	5.06E-02	NA	1.00	1.00	0.250	0.250
bis(2-ETHYLHEXYL)PHTHALATE	8.09E-01	1.20E+00	1.40E-02	2.00E-02	1.00	1.00	0.250	0.250
FLUORANTHENE	6.37E-01	3.30E-01	NC	4.00E-02	1.00	1.00	0.250	0.250
PHENANTHRENE	6.02E-01	1.80E-01	NC	NA	1.00	1.00	0.250	0.250
PYRENE	6.31E-01	3.10E-01	NC	3.00E-02	1.00	1.00	0.250	0.250
TCL PESTICIDES								
4,4'-DDE	5.40E-03	9.00E-03	2.40E-01	NA	1.00	1.00	0.250	0.250
4,4'-DDT	1.30E-02	2.20E-03	3.40E-01	NA	1.00	1.00	0.250	0.250
ALDRIN	3.90E-03	2.00E-03	1.70E+01	3.00E-05	1.00	1.00	1.000	1.000
DIELDRIN	4.00E-03	2.30E-03	1.60E+01	5.00E-05	1.00	1.00	1.000	1.000
ENDOSULFAN II (1)	1.20E-02	7.80E-03	NC	5.00E-05	1.00	1.00	1.000	1.000
ENDRIN	5.00E-03	7.80E-03	NC	3.00E-04	1.00	1.00	1.000	1.000
HEPTACHLOR EPOXIDE	3.90E-03	3.10E-03	9.10E+00	1.30E-05	1.00	1.00	1.000	1.000
delta-BHC	4.50E-03	5.40E-03	NC	NA	1.00	1.00	0.250	0.250
gamma-BHC	3.90E-03	1.50E-03	1.33E+00	3.00E-04	1.00	1.00	0.250	0.250
TAL METALS								
CADMIUM	5.00E-01	7.60E-01	NC	1.00E-03	1.00	1.00	0.001	0.010
MERCURY	2.26E-01	3.50E-01	NC	NA	1.00	1.00	0.001	0.010

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

APPENDIX M TABLE : 15

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENT)
POPULATION : WORKERS ON-SITE
EXPOSURE SCENARIO : WORKER - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	3.89E-11	2.11E-09	0.00E+00	0.00E+00	1.36E-09	3.68E-08	1.36E-08	3.68E-07
METHYLENE CHLORIDE	3.29E-11	1.83E-09	2.47E-13	1.37E-11	1.15E-09	3.20E-08	1.92E-08	5.33E-07
1,1,1-TRICHLOROETHANE	6.43E-12	2.11E-10	0.00E+00	0.00E+00	2.25E-10	3.68E-09	2.50E-09	4.09E-08
TCL SVOCs								
BENZO(a)ANTHRACENE	4.35E-10	7.98E-09	7.26E-10	1.33E-08	1.52E-08	1.40E-07	0.00E+00	0.00E+00
BE[illegible])PYRENE	4.94E-10	9.50E-09	5.68E-09	1.09E-07	1.73E-08	1.66E-07	0.00E+00	0.00E+00
BE[illegible]B)FLUORANTHENE	4.47E-10	1.22E-08	7.19E-10	1.96E-08	1.56E-08	2.13E-07	0.00E+00	0.00E+00
BENZO(k)FLUORANTHENE	4.66E-10	9.50E-09	3.54E-10	7.21E-09	1.63E-08	1.66E-07	0.00E+00	0.00E+00
CHRYSENE	4.19E-10	1.03E-08	2.12E-11	5.19E-10	1.47E-08	1.80E-07	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	5.06E-10	4.56E-08	7.08E-12	6.39E-10	1.77E-08	7.98E-07	8.86E-07	3.99E-05
FLUORANTHENE	3.98E-10	1.25E-08	0.00E+00	0.00E+00	1.39E-08	2.19E-07	3.49E-07	5.49E-06
PHENANTHRENE	3.77E-10	6.84E-09	0.00E+00	0.00E+00	1.32E-08	1.20E-07	0.00E+00	0.00E+00
PYRENE	3.95E-10	1.18E-08	0.00E+00	0.00E+00	1.38E-08	2.06E-07	4.60E-07	6.87E-06
TCL PESTICIDES								
4,4'-DDE	3.38E-12	3.42E-10	8.11E-13	8.21E-11	1.18E-10	5.99E-09	0.00E+00	0.00E+00
4,4'-DDT	8.13E-12	8.36E-11	2.76E-12	2.84E-11	2.85E-10	1.46E-09	0.00E+00	0.00E+00
ALDRIN	5.83E-12	1.11E-10	9.92E-11	1.88E-09	2.04E-10	1.94E-09	6.81E-06	6.46E-05
DIELDRIN	5.98E-12	1.27E-10	9.57E-11	2.04E-09	2.09E-10	2.23E-09	4.19E-06	4.46E-05
ENDOSULFAN II (1)	1.79E-11	4.32E-10	0.00E+00	0.00E+00	6.28E-10	7.56E-09	1.26E-05	1.51E-04
ENDRIN	7.48E-12	4.32E-10	0.00E+00	0.00E+00	2.62E-10	7.56E-09	8.72E-07	2.52E-05
HEPTACHLOR EPOXIDE	5.83E-12	1.72E-10	5.31E-11	1.56E-09	2.04E-10	3.01E-09	1.57E-05	2.31E-04
delta-BHC	2.81E-12	2.05E-10	0.00E+00	0.00E+00	9.85E-11	3.59E-09	0.00E+00	0.00E+00
gamma-BHC	2.44E-12	5.70E-11	3.24E-12	7.58E-11	8.54E-11	9.98E-10	2.85E-07	3.33E-06
TAL METALS								
CADMIUM	1.68E-10	2.47E-08	0.00E+00	0.00E+00	5.89E-09	4.31E-07	5.89E-06	4.31E-04
MERCURY	7.61E-11	1.14E-08	0.00E+00	0.00E+00	2.66E-09	1.99E-07	0.00E+00	0.00E+00

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

TOTAL LIFETIME ADDED CANCER RISK	7.76E-09	1.56E-07	HAZARD INDEX:	4.80E-05 1.00E-03

APPENDIX M TABLE : 16

EXPOSURE SCENARIO : PARKLAND - SEDIMENTS (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CS \times CF \times SA \times AF \times MF \times ABS \times EF \times ED}{BW \times AT} + \frac{CS \times IR \times ABS \times CF \times EF \times ED}{BW \times AT}\right) \times PTF$$

where :
CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
SA = Skin Surface Area Available for Contact (cm2/event)
CF = Conversion Factor (10E-06 kg/mg)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)
AF = Soil to Skin Adherence Factor (mg/cm2)
ABS = Absorption Factor (unitless)
MF = Matrix Factor; partt of chemical on soil that is in contact with skin (%/100)
PTF = Percent of Time Factor: Percent of time in contaminated area. (%/100)

VARIABLE ASSUMPTIONS	LEVEL 1	LEVEL 2	REFERENCES
CS (mg/kg)	MEAN	RME	
IR (1-6 YRS) (mg soil/exposure)	100	100	RAGS (1)
IR (OVER 6 YRS) (mg soil/exposure)	50	50	RAGS (1)
SA (1-6 YRS) (cm2)	1780	1780	RAGS (1)
SA (OVER 6 YRS) (cm2)	1590	1590	RAGS (1)
CF (kg/mg)	0.000001	0.000001	RAGS (1)
EF (days/year)	4	16	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - 5 AS CHILD (CARCINOGEN) (yrs)	9	30	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - ALL AS CHILD (NON-CARC.) (yr)	1	1	RAGS (1)
BW YOUNGER CHILD (UNDER 6 YRS) (kg)	16	16	RAGS (1)
BW (ADULT) (kg)	70	70	RAGS (1)
AT (CARCINOGEN) (yrs x days/yr)	25550	25550	RAGS (1)
AT (NON-CARCINOGEN) (yrs x days/yr)	365	365	RAGS (1)
AF (mg/cm2)	1.45	1.45	HAWLEY (3)
MF	0.15	0.15	HAWLEY (3)
ABS ORAL (CHEMICAL SPECIFIC)			HAWLEY (3)
DERMAL (CHEMICAL SPECIFIC)			HAWLEY (3)
PTF	0.1	0.25	PROFESSIONAL JUDGEMENT

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND MANUAL, DECEMBER 1989, EPA/540/1-89/002.
(2) EPA SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988, EPA/540/1-88/001.
(3) ASSESSMENT OF HEALTH RISK FROM EXPOSURE TO CONTAMINATED SOIL, HAWLEY, J.K.. RISK ANALYSIS, VOL.4 NO.5, 1985.

APPENDIX M TABLE : 17

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENTS)
POPULATION : PARKLAND VISITORS
EXPOSURE SCENARIO : PARKLAND - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATION MEAN mg/kg	MEDIA CONCENTRATION RME mg/kg	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	2.60E-02	3.80E-02	NC	1.00E-01	1.00	1.00	1.000	1.000
METHYLENE CHLORIDE	2.20E-02	3.30E-02	7.50E-03	6.00E-02	1.00	1.00	1.000	1.000
1,1,1-TRICHLOROETHANE	4.30E-03	3.80E-03	NC	9.00E-02	1.00	1.00	1.000	1.000
TCL SVOCs								
BENZO(a)ANTHRACENE	6.95E-01	2.10E-01	1.67E+00	NA	1.00	1.00	0.250	0.250
BENZO(a)PYRENE	7.90E-01	2.50E-01	1.15E+01	NA	1.00	1.00	0.250	0.250
BENZO(b)FLUORANTHENE	7.14E-01	3.20E-01	1.61E+00	NA	1.00	1.00	0.250	0.250
BENZO(k)FLUORANTHENE	7.45E-01	2.50E-01	7.59E-01	NA	1.00	1.00	0.250	0.250
C[illegible]NE	6.70E-01	2.70E-01	5.06E-02	NA	1.00	1.00	0.250	0.250
bis(2-ETHYLHEXYL)PHTHALATE	8.09E-01	1.20E+00	1.40E-02	2.00E-02	1.00	1.00	0.250	0.250
FLUORANTHENE	6.37E-01	3.30E-01	NC	4.00E-02	1.00	1.00	0.250	0.250
PHENANTHRENE	6.02E-01	1.80E-01	NC	NA	1.00	1.00	0.250	0.250
PYRENE	6.31E-01	3.10E-01	NC	3.00E-02	1.00	1.00	0.250	0.250
TCL PESTICIDES								
4,4'-DDE	5.40E-03	9.00E-03	2.40E-01	NA	1.00	1.00	0.250	0.250
4,4'-DDT	1.30E-02	2.20E-03	3.40E-01	NA	1.00	1.00	0.250	0.250
ALDRIN	3.90E-03	2.00E-03	1.70E+01	3.00E-05	1.00	1.00	1.000	1.000
DIELDRIN	4.00E-03	2.30E-03	1.60E+01	5.00E-05	1.00	1.00	1.000	1.000
ENDOSULFAN II (1)	1.20E-02	7.80E-03	NC	5.00E-05	1.00	1.00	1.000	1.000
ENDRIN	5.00E-03	7.80E-03	NC	3.00E-04	1.00	1.00	1.000	1.000
HEPTACHLOR EPOXIDE	3.90E-03	3.10E-03	9.10E+00	1.30E-05	1.00	1.00	1.000	1.000
delta-BHC	4.50E-03	5.40E-03	NC	NA	1.00	1.00	0.250	0.250
gamma-BHC	3.90E-03	1.50E-03	1.33E+00	3.00E-04	1.00	1.00	0.250	0.250
TAL METALS								
CADMIUM	5.00E-01	7.60E-01	NC	1.00E-03	1	1	0.001	0.010
MERCURY	2.26E-01	3.50E-01	NC	2.00E-03	1	1	0.001	0.010

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

APPENDIX M TABLE : 18

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SEDIMENTS - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE SOIL (SEDIMENTS)
POPULATION : PARKLAND VISITORS
EXPOSURE SCENARIO : PARKLAND - SEDIMENTS (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	7.12E-11	1.75E-09	0.00E+00	0.00E+00	8.68E-10	1.27E-08	8.68E-09	1.27E-07
METHYLENE CHLORIDE	6.02E-11	1.52E-09	4.52E-13	1.14E-11	7.34E-10	1.10E-08	1.22E-08	1.84E-07
1,1,1-TRICHLOROETHANE	1.18E-11	1.75E-10	0.00E+00	0.00E+00	1.43E-10	1.27E-09	1.59E-09	1.41E-08
TCL SVOCs								
BENZO(a)ANTHRACENE	7.54E-10	3.62E-09	1.26E-09	6.05E-09	9.37E-09	2.83E-08	0.00E+00	0.00E+00
BENZO(a)PYRENE	8.57E-10	4.31E-09	9.86E-09	4.96E-08	1.06E-08	3.37E-08	0.00E+00	0.00E+00
BENZO(b)FLUORANTHENE	7.75E-10	5.52E-09	1.25E-09	8.89E-09	9.62E-09	4.31E-08	0.00E+00	0.00E+00
BENZO(k)FLUORANTHENE	8.08E-10	4.31E-09	6.13E-10	3.27E-09	1.00E-08	3.37E-08	0.00E+00	0.00E+00
CHRYSENE	7.27E-10	4.66E-09	3.68E-11	2.36E-10	9.03E-09	3.64E-08	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	8.78E-10	2.07E-08	1.23E-11	2.90E-10	1.09E-08	1.62E-07	5.45E-07	8.09E-06
FLUORANTHENE	6.91E-10	5.69E-09	0.00E+00	0.00E+00	8.59E-09	4.45E-08	2.15E-07	1.11E-06
PHENANTHRENE	6.53E-10	3.11E-09	0.00E+00	0.00E+00	8.11E-09	2.43E-08	0.00E+00	0.00E+00
PYRENE	6.85E-10	5.35E-09	0.00E+00	0.00E+00	8.50E-09	4.18E-08	2.83E-07	1.39E-06
TCL PESTICIDES								
4,4'-DDE	5.86E-12	1.55E-10	1.41E-12	3.73E-11	7.28E-11	1.21E-09	0.00E+00	0.00E+00
4,4'-DDT	1.41E-11	3.80E-11	4.79E-12	1.29E-11	1.75E-10	2.97E-10	0.00E+00	0.00E+00
ALDRIN	1.07E-11	9.19E-11	1.81E-10	1.56E-09	1.30E-10	6.67E-10	4.34E-06	2.22E-05
DIELDRIN	1.09E-11	1.06E-10	1.75E-10	1.69E-09	1.33E-10	7.67E-10	2.67E-06	1.53E-05
ENDOSULFAN II (1)	3.28E-11	3.59E-10	0.00E+00	0.00E+00	4.00E-10	2.60E-09	8.01E-06	5.21E-05
ENDRIN	1.37E-11	3.59E-10	0.00E+00	0.00E+00	1.67E-10	2.60E-09	5.56E-07	8.68E-06
HEPTACHLOR EPOXIDE	1.07E-11	1.42E-10	9.72E-11	1.30E-09	1.30E-10	1.03E-09	1.00E-05	7.96E-05
delta-BHC	4.88E-12	9.32E-11	0.00E+00	0.00E+00	6.07E-11	7.28E-10	0.00E+00	0.00E+00
gamma-BHC	4.23E-12	2.59E-11	5.63E-12	3.44E-11	5.26E-11	2.02E-10	1.75E-07	6.74E-07
TAL METALS								
CADMIUM	2.68E-10	6.13E-09	0.00E+00	0.00E+00	3.44E-09	5.41E-08	3.44E-06	5.41E-05
MERCURY	1.21E-10	2.82E-09	0.00E+00	0.00E+00	1.55E-09	2.49E-08	7.77E-07	1.25E-05

(1) TOXICITY VALUES BASED ON ENDOSULFAN.

TOTAL LIFETIME ADDED CANCER RISK	1.35E-08	7.30E-08	HAZARD INDEX:	3.10E-05 2.56E-04

APPENDIX M TABLE : 19

EXPOSURE SCENARIO : TRESPASSER - SEEP WATER (PRESENT CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - SEEPS
LOCATION : ON- AND OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT}\right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR OLDER CHILD (liter/hr)	0.01	0.025	RAGS (1)
IR ADULT (liter/hr)	0.01	0.025	RAGS (1)
SA OLDER CHILD (cm2)	1590	1590	EPH (2)
SA ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	0.25	1	EPH (2)
EF (days/yr)	2	6	RAGS &
ED - CARCINOGEN - OLDER CHILD	5	12	PROFESSIONAL JUDGEMENT
ED - CARCINOGEN - ADULT	4	18	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - NONCARCINOGEN - OLDER CHILD	1	1	RAGS (1)
BW OLDER CHILD (kg)	48	48	RAGS (1)
BW ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.05	0.10	PROFESSIONAL JUDGEMENT

NOTES :
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 20

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - SEEPS
LOCATION: ON- AND OFF-SITE
MEDIA: SURFACE WATER
POPULATION: OLDER CHILDREN AND ADULTS
EXPOSURE SCENARIO: TRESPASSER - SEEP WATER (PRESENT CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TLC VOCs								
ACETONE	3.94E-01	1.02E+00	NC	1.00E-01	1.00	1.00	1.00	1.00
BENZENE	2.10E-02	3.80E-02	2.90E-02	NA	1.00	1.00	1.00	1.00
2-BUTANONE	3.25E-01	3.97E-01	NC	5.00E-02	1.00	1.00	1.00	1.00
CHLOROBENZENE	2.10E-02	3.80E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
ETHYLBENZENE	1.16E-01	3.08E-01	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
BENZOIC ACID	2.35E+00	3.07E+00	NC	4.00E+00	1.00	1.00	1.00	1.00
DI-n-BUTYLPHTHALATE	4.40E-03	4.40E-03	NC	1.00E-02	1.00	1.00	1.00	1.00
2,4-DIMETHYLPHENOL	1.94E-01	4.61E-01	NC	NA	1.00	1.00	1.00	1.00
bis(2-ETHYLHEXYL)PHTHALATE	3.70E-03	5.60E-03	1.40E-02	2.00E-02	1.00	1.00	1.00	1.00
2-METHYLPHENOL	3.80E-01	4.58E-01	NA	5.00E-02	1.00	1.00	1.00	1.00
4-METHYLPHENOL	1.17E+00	1.98E+00	NA	5.00E-02	1.00	1.00	1.00	1.00
NAPHTHALENE	2.20E-02	4.70E-02	NC	4.00E-03	1.00	1.00	1.00	1.00
PHENOL	5.89E-01	7.64E-01	NC	6.00E-01	1.00	1.00	1.00	1.00
TCL PESTICIDES								
4,4'-DDT	1.35E-04	1.10E-04	3.40E-01	5.00E-04	1.00	1.00	1.00	1.00
HEPTACHLOR	1.05E-04	2.50E-04	4.50E+00	5.00E-04	1.00	1.00	1.00	1.00
TAL METALS								
BARIUM	1.70E+00	2.12E+00	NC	5.00E-02	1.00	1.00	1.00	1.00
CHROMIUM	5.20E-02	5.50E-02	NC	5.00E-03	1.00	1.00	1.00	1.00
COBALT	4.60E-02	3.10E-02	NC	NA	1.00	1.00	1.00	1.00
LEAD	3.04E-01	3.86E-01	NA	NA	1.00	1.00	1.00	1.00
MAGNESIUM	2.62E+02	2.75E+02	NC	1.00E-01	1.00	1.00	1.00	1.00
MANGANESE	9.67E-01	1.20E+00	NC	2.00E-03	1.00	1.00	1.00	1.00
NICKEL	8.90E-02	9.60E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
VANADIUM	1.80E-02	1.90E-02	NC	7.00E-03	1.00	1.00	1.00	1.00
ZINC	6.31E-01	6.76E-01	NC	2.00E-02	1.00	1.00	1.00	1.00

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 21

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - SEEPS
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE WATER
POPULATION : OLDER CHILDREN AND ADULTS
EXPOSURE SCENARIO : TRESPASSER - SEEP WATER (PRESENT CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TLC VOCs								
ACETONE	7.91E-11	8.45E-08	0.00E+00	0.00E+00	6.34E-09	4.58E-07	7.91E-10	8.45E-07
BENZENE	4.22E-12	3.16E-09	1.22E-13	9.15E-11	3.38E-10	1.71E-08	0.00E+00	0.00E+00
2-BUTANONE	6.52E-11	3.30E-08	0.00E+00	0.00E+00	5.23E-09	1.79E-07	1.30E-09	6.59E-07
CHLOROBENZENE	4.22E-12	3.16E-09	0.00E+00	0.00E+00	3.38E-10	1.71E-08	2.11E-10	1.58E-07
ETHYLBENZENE	2.33E-11	2.56E-08	0.00E+00	0.00E+00	1.87E-09	1.39E-07	2.33E-10	2.56E-07
TCL SVOCs								
BENZOIC ACID	4.71E-10	2.55E-07	0.00E+00	0.00E+00	3.78E-08	1.38E-06	1.18E-10	6.38E-08
DI-n-BUTYLPHTHALATE	8.83E-13	3.65E-10	0.00E+00	0.00E+00	7.08E-11	1.98E-09	8.83E-11	3.65E-08
2,4-DIMETHYLPHENOL	3.89E-11	3.83E-08	0.00E+00	0.00E+00	3.12E-09	2.07E-07	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	7.43E-13	4.65E-10	1.04E-14	6.51E-12	5.95E-11	2.52E-09	3.71E-11	2.33E-08
2-METHYLPHENOL	7.63E-11	3.80E-08	NONE	NONE	6.11E-09	2.06E-07	1.53E-09	7.61E-07
4-METHYLPHENOL	2.36E-10	1.64E-07	NONE	NONE	1.89E-08	8.89E-07	4.71E-09	3.28E-06
NAPHTHALENE	4.42E-12	3.90E-09	0.00E+00	0.00E+00	3.54E-10	2.11E-08	1.10E-09	9.76E-07
PHENOL	1.18E-10	6.35E-08	0.00E+00	0.00E+00	9.47E-09	3.44E-07	1.97E-10	1.06E-07
TCL PESTICIDES								
4,4'-DDT	2.71E-14	9.14E-12	9.22E-15	3.11E-12	2.17E-12	4.95E-11	5.42E-11	1.83E-08
HEPTACHLOR	2.11E-14	2.08E-11	9.49E-14	9.34E-11	1.69E-12	1.12E-10	4.22E-11	4.15E-08
TAL METALS								
BARIUM	3.41E-10	1.76E-07	0.00E+00	0.00E+00	2.73E-08	9.52E-07	6.83E-09	3.51E-06
CHROMIUM	1.04E-11	4.57E-09	0.00E+00	0.00E+00	8.36E-10	2.47E-08	2.09E-09	9.14E-07
COBALT	9.24E-12	2.57E-09	0.00E+00	0.00E+00	7.40E-10	1.39E-08	0.00E+00	0.00E+00
LEAD	6.10E-11	3.21E-08	NONE	NONE	4.89E-09	1.74E-07	0.00E+00	0.00E+00
MAGNESIUM	5.26E-08	2.29E-05	0.00E+00	0.00E+00	4.21E-06	1.24E-04	5.26E-07	2.29E-04
MANGANESE	1.94E-10	9.97E-08	0.00E+00	0.00E+00	1.56E-08	5.40E-07	9.71E-08	4.98E-05
NICKEL	1.79E-11	7.97E-09	0.00E+00	0.00E+00	1.43E-09	4.32E-08	8.93E-10	3.99E-07
VANADIUM	3.61E-12	1.58E-09	0.00E+00	0.00E+00	2.90E-10	8.55E-09	5.16E-10	2.25E-07
ZINC	1.27E-10	5.61E-08	0.00E+00	0.00E+00	1.01E-08	3.04E-07	6.33E-09	2.81E-06
ADDED TOTAL LIFETIME CANCER RISK :	2.37E-13	1.95E-10			HAZARD INDEX :		6.50E-07	2.94E-04

APPENDIX M TABLE : 22

EXPOSURE SCENARIO : TRESPASSER - SEEP WATER (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - SEEP LEACHATE
LOCATION : ON-SITE

$$\text{INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT}\right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR OLDER CHILD (liter/hr)	0.01	0.025	RAGS (1)
SA OLDER CHILD AND ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	0.50	1	EPH (2)
EF (days/yr)	4	12	RAGS &
ED - CARCINOGEN - OLDER CHILD	5	12	PROFESSIONAL JUDGEMENT
ED - NONCARCINOGEN - OLDER CHILD	1	1	RAGS (1)
BW OLDER CHILD (kg)	48	48	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTES :
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 23

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - SEEP LEACHATE
LOCATION: ON-SITE
MEDIA: SURFACE WATER
POPULATION: OLDER CHILDREN
EXPOSURE SCENARIO: TRESPASSER - SEEP WATER (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
ACETONE	3.94E-01	1.02E+00	NC	1.00E-01	1	1	1	1
BENZENE	2.10E-02	3.80E-02	2.90E-02	NA	1	1	1	1
2-BUTANONE	3.25E-01	3.97E-01	NC	5.00E-02	1	1	1	1
CHLOROBENZENE	2.10E-02	3.80E-02	NC	2.00E-02	1	1	1	1
ETHYLBENZENE	1.16E-01	3.08E-01	NC	1.00E-01	1	1	1	1
TCL SVOCs								
BE[redacted] ACID	2.35E+00	3.07E+00	NC	4.00E+00	1	1	0.25	0.25
DI-n-BUTYLPHTHALATE	4.40E-03	4.40E-03	NC	1.00E-02	1	1	0.25	0.25
2,4-DIMETHYLPHENOL	1.94E-01	4.61E-01	NC	NA	1	1	0.25	0.25
bis(2-ETHYLHEXYL)PHTHALATE	3.70E-03	5.60E-03	1.40E-02	2.00E-02	1	1	0.25	0.25
2-METHYLPHENOL	3.80E-01	4.58E-01	NA	5.00E-02	1	1	0.25	0.25
4-METHYLPHENOL	1.17E+00	1.98E+00	NA	5.00E-02	1	1	0.25	0.25
NAPHTHALENE	2.20E-02	4.70E-02	NC	4.00E-03	1	1	0.25	0.25
PHENOL	5.89E-01	7.64E-01	NC	6.00E-01	1	1	0.25	0.25
TCL PESTICIDES					1	1		
4,4'-DDT	1.35E-04	1.10E-04	3.40E-01	5.00E-04	1	1	0.25	0.25
HEPTACHLOR	1.05E-04	2.50E-04	4.50E+00	5.00E-04	1	1	1	1
TAL METALS					1	1		
BARIUM	1.70E+00	2.12E+00	NC	5.00E-02	1	1	0.001	0.01
CHROMIUM	5.20E-02	5.50E-02	NC	5.00E-03	1	1	0.001	0.01
COBALT	4.60E-02	3.10E-02	NC	NA	1	1	0.001	0.01
LEAD	3.04E-01	3.86E-01	NA	NA	1	1	0.001	0.01
MAGNESIUM	2.62E+02	2.75E+02	NC	1.00E-01	1	1	0.001	0.01
MANGANESE	9.67E-01	1.20E+00	NC	2.00E-03	1	1	0.001	0.01
NICKEL	8.90E-02	9.60E-02	NC	2.00E-02	1	1	0.001	0.01
VANADIUM	1.80E-02	1.90E-02	NC	7.00E-03	1	1	0.001	0.01
ZINC	6.31E-01	6.76E-01	NC	2.00E-02	1	1	0.001	0.01

NC = [redacted]T A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 24

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - SEEP LEACHATE
LOCATION : ON-SITE
MEDIA : SURFACE WATER
POPULATION : OLDER CHILDREN
EXPOSURE SCENARIO : TRESPASSER - SEEP WATER (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
ACETONE	3.62E-09	7.84E-07	0.00E+00	0.00E+00	5.07E-08	4.58E-06	3.62E-08	7.84E-06
BENZENE	1.93E-10	2.93E-08	5.60E-12	8.50E-10	2.70E-09	1.71E-07	0.00E+00	0.00E+00
2-BUTANONE	2.99E-09	3.06E-07	0.00E+00	0.00E+00	4.18E-08	1.79E-06	5.97E-08	6.12E-06
CHLOROBENZENE	1.93E-10	2.93E-08	0.00E+00	0.00E+00	2.70E-09	1.71E-07	9.65E-09	1.47E-06
ETHYLBENZENE	1.07E-09	2.38E-07	0.00E+00	0.00E+00	1.49E-08	1.39E-06	1.07E-08	2.38E-06
TCL SVOCs								
BENZOIC ACID	1.97E-08	2.28E-06	0.00E+00	0.00E+00	2.76E-07	1.33E-05	4.94E-09	5.71E-07
DI-n-BUTYLPHTHALATE	3.70E-11	3.27E-09	0.00E+00	0.00E+00	5.18E-10	1.91E-08	3.70E-09	3.27E-07
2,4-DIMETHYLPHENOL	1.63E-09	3.43E-07	0.00E+00	0.00E+00	2.29E-08	2.00E-06	0.00E+00	0.00E+00
bis(2-ETHYLHEXYL)PHTHALATE	3.11E-11	4.16E-09	4.36E-13	5.83E-11	4.36E-10	2.43E-08	1.56E-09	2.08E-07
2-METHYLPHENOL	3.20E-09	3.40E-07	NONE	NONE	4.48E-08	1.99E-06	6.39E-08	6.81E-06
4-METHYLPHENOL	9.87E-09	1.47E-06	NONE	NONE	1.38E-07	8.57E-06	1.97E-07	2.94E-05
NAPHTHALENE	1.85E-10	3.49E-08	0.00E+00	0.00E+00	2.59E-09	2.04E-07	4.63E-08	8.73E-06
PHENOL	4.96E-09	5.68E-07	0.00E+00	0.00E+00	6.94E-08	3.31E-06	8.26E-09	9.46E-07
TCL PESTICIDES								
4,4'-DDT	1.14E-12	8.18E-11	3.86E-13	2.78E-11	1.59E-11	4.77E-10	2.27E-09	1.64E-07
HEPTACHLOR	9.65E-13	1.93E-10	4.34E-12	8.68E-10	1.35E-11	1.12E-09	1.93E-09	3.86E-07
TAL METALS								
BARIUM	1.39E-08	1.55E-06	0.00E+00	0.00E+00	1.94E-07	9.06E-06	2.77E-07	3.11E-05
CHROMIUM	4.24E-10	4.04E-08	0.00E+00	0.00E+00	5.94E-09	2.36E-07	8.48E-08	8.08E-06
COBALT	3.75E-10	2.28E-08	0.00E+00	0.00E+00	5.25E-09	1.33E-07	0.00E+00	0.00E+00
LEAD	2.48E-09	2.83E-07	NONE	NONE	3.47E-08	1.65E-06	0.00E+00	0.00E+00
MAGNESIUM	2.14E-06	2.02E-04	0.00E+00	0.00E+00	2.99E-05	1.18E-03	2.14E-05	2.02E-03
MANGANESE	7.89E-09	8.81E-07	0.00E+00	0.00E+00	1.10E-07	5.14E-06	3.94E-06	4.41E-04
NICKEL	7.26E-10	7.05E-08	0.00E+00	0.00E+00	1.02E-08	4.11E-07	3.63E-08	3.52E-06
VANADIUM	1.47E-10	1.40E-08	0.00E+00	0.00E+00	2.06E-09	8.14E-08	2.10E-08	1.99E-06
ZINC	5.15E-09	4.96E-07	0.00E+00	0.00E+00	7.20E-08	2.90E-06	2.57E-07	2.48E-05
TOTAL ADDED LIFETIME CANCER RISKS :			6.03E-12	9.08E-10	HAZARD INDEX :		4.42E-07	6.48E-05

APPENDIX M TABLE : 25

EXPOSURE SCENARIO : TRESPASSER - SURFACE WATER (PRESENT CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT}\right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR OLDER CHILD (liter/hr)	0.01	0.025	RAGS (1)
IR ADULT (liter/hr)	0.01	0.025	RAGS (1)
SA YOUNGER CHILD (cm2)	1590	1590	EPH (2)
SA OLDER CHILD AND ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	0.50	1	EPH (2)
EF (days/yr)	4	12	RAGS &
ED - CARCINOGEN - OLDER CHILD	5	10	PROFESSIONAL JUDGEMENT
ED - CARCINOGEN - ADULT	4	20	RAGS (1)
ED - NONCARCINOGEN - OLDER CHILD	1	1	RAGS (1)
BW OLDER CHILD (kg)	16	16	RAGS (1)
BW ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTES :
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 26

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - DRAINAGE DITCHES
LOCATION: ON- AND OFF-SITE
MEDIA: SURFACE WATER
POPULATION: CHILDREN AND ADULTS
EXPOSURE SCENARIO: TRESPASSER - SURFACE WATER (PRESENT CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
CARBON DISULFIDE	2.70E-03	4.00E-03	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	1.16E-01	3.50E-03	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25
TAL METALS								
COBALT	8.30E-03	1.30E-02	NC	NA	1.00	1.00	0.01	0.001
COPPER	2.50E-02	4.40E-02	NC	3.70E-02	1.00	1.00	0.01	0.001
CYANIDE	1.20E-02	2.00E-02	NC	2.00E-02	1.00	1.00	1.00	1.000
IRON	8.22E+00	1.72E+01	NC	NA	1.00	1.00	0.01	0.001
LEAD	6.30E-02	3.52E-01	NA	NA	1.00	1.00	0.01	0.001
MAGNESIUM	5.80E+01	7.60E+01	NC	1.00E-01	1.00	1.00	0.01	0.001
MANGANESE	4.34E-01	8.46E-01	NC	2.00E-03	1.00	1.00	0.01	0.001
NICKEL	2.20E-02	3.50E-02	NC	2.00E-02	1.00	1.00	0.01	0.001
VANADIUM	1.80E-02	3.00E-02	NC	7.00E-03	1.00	1.00	0.01	0.001
ZINC	2.89E-01	7.58E-01	NC	2.00E-02	1.00	1.00	0.01	0.001

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 27

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE WATER
POPULATION : CHILDREN AND ADULTS
EXPOSURE SCENARIO : TRESPASSER - SURFACE WATER (PRESENT CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
CARBON DISULFIDE	8.64E-12	2.51E-09	0.00E+00	0.00E+00	1.04E-09	5.40E-08	8.64E-11	2.51E-08
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	3.71E-10	1.10E-09	5.20E-12	1.53E-11	4.48E-08	4.72E-08	1.86E-08	5.48E-08
TAL METALS								
COBALT	2.66E-11	2.76E-09	0.00E+00	0.00E+00	3.20E-09	1.75E-07	0.00E+00	0.00E+00
COPPER	8.00E-11	9.34E-09	0.00E+00	0.00E+00	9.65E-09	5.94E-07	2.16E-09	2.52E-07
CYANIDE	3.84E-11	1.25E-08	0.00E+00	0.00E+00	4.63E-09	2.70E-07	1.92E-09	6.27E-07
IRON	2.63E-08	3.65E-06	0.00E+00	0.00E+00	3.17E-06	2.32E-04	0.00E+00	0.00E+00
LEAD	2.02E-10	7.47E-08	NONE	NONE	2.43E-08	4.75E-06	0.00E+00	0.00E+00
MAGNESIUM	1.86E-07	1.61E-05	0.00E+00	0.00E+00	2.24E-05	1.03E-03	1.86E-06	1.61E-04
MANGANESE	1.39E-09	1.80E-07	0.00E+00	0.00E+00	1.68E-07	1.14E-05	6.94E-07	8.98E-05
NICKEL	7.04E-11	7.43E-09	0.00E+00	0.00E+00	8.49E-09	4.72E-07	3.52E-09	3.71E-07
VANADIUM	5.76E-11	6.37E-09	0.00E+00	0.00E+00	6.95E-09	4.05E-07	8.23E-09	9.10E-07
ZINC	9.25E-10	1.61E-07	0.00E+00	0.00E+00	1.12E-07	1.02E-05	4.62E-08	8.04E-06
TOTAL ADDED LIFETIME CANCER RISKS :			5.20E-12	1.53E-11	HAZARD INDEX :		2.63E-06	2.61E-04

APPENDIX M TABLE : 28

EXPOSURE SCENARIO : TRESPASSER - SURFACE WATER (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT} \right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR OLDER CHILD (liter/hr)	0.01	0.025	RAGS (1)
IR ADULT (liter/hr)	0.01	0.025	RAGS (1)
SA OLDER CHILD (cm2)	1590	1590	EPH (2)
SA ADULT (cm2)	1590	1590	
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	
ET (hrs/day)	0.50	1	EPH (2)
EF (days/yr)	8	24	RAGS &
ED - CARCINOGEN - OLDER CHILD	5	12	PROFESSIONAL JUDGEMENT
ED - CARCINOGEN - ADULT	5	18	RAGS (1)
ED - NONCARCINOGEN - OLDER CHILD	1	1	RAGS (1)
BW OLDER CHILD (kg)	48	48	RAGS (1)
BW ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTES :
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 29

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - DRAINAGE DITCHES
LOCATION: ON- AND OFF-SITE
MEDIA: SURFACE WATER
POPULATION: CHILDREN AND ADULTS
EXPOSURE SCENARIO: TRESPASSER - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TLC VOCs								
CARBON DISULFIDE	2.70E-03	4.00E-03	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	1.16E-01	3.50E-03	1.40E-02	2.00E-02	1.00	1.00	1.00	1.00
TAL METALS								
[redacted]	8.30E-03	1.30E-02	NC	NA	1.00	1.00	1.00	1.00
[redacted]	2.50E-02	4.40E-02	NC	3.70E-02	1.00	1.00	1.00	1.00
CYANIDE	1.20E-02	2.00E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
IRON	8.22E+00	1.72E+01	NC	NA	1.00	1.00	1.00	1.00
LEAD	6.30E-02	3.52E-01	NA	NA	1.00	1.00	1.00	1.00
MAGNESIUM	5.80E+01	7.60E+01	NC	1.00E-01	1.00	1.00	1.00	1.00
MANGANESE	4.34E-01	8.46E-01	NC	2.00E-03	1.00	1.00	1.00	1.00
NICKEL	2.20E-02	3.50E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
VANADIUM	1.80E-02	3.00E-02	NC	7.00E-03	1.00	1.00	1.00	1.00
ZINC	2.89E-01	7.58E-01	NC	2.00E-02	1.00	1.00	1.00	1.00

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 30

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE WATER
POPULATION : CHILDREN AND ADULTS
EXPOSURE SCENARIO : TRESPASSER - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TLC VOCs								
CARBON DISULFIDE	8.37E-11	1.25E-08	0.00E+00	0.00E+00	6.95E-10	3.60E-08	8.37E-10	1.25E-07
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	3.59E-09	1.10E-08	5.03E-11	1.53E-10	2.99E-08	3.15E-08	1.80E-07	5.48E-07
TAL METALS								
COBALT	2.57E-10	4.07E-08	0.00E+00	0.00E+00	2.14E-09	1.17E-07	0.00E+00	0.00E+00
COPPER	7.75E-10	1.38E-07	0.00E+00	0.00E+00	6.43E-09	3.96E-07	2.09E-08	3.72E-06
CYANIDE	3.72E-10	6.26E-08	0.00E+00	0.00E+00	3.09E-09	1.80E-07	1.86E-08	3.13E-06
IRON	2.55E-07	5.38E-05	0.00E+00	0.00E+00	2.11E-06	1.55E-04	0.00E+00	0.00E+00
LEAD	1.95E-09	1.10E-06	NONE	NONE	1.62E-08	3.17E-06	0.00E+00	0.00E+00
MAGNESIUM	1.80E-06	2.38E-04	0.00E+00	0.00E+00	1.49E-05	6.83E-04	1.80E-05	2.38E-03
MANGANESE	1.34E-08	2.65E-06	0.00E+00	0.00E+00	1.12E-07	7.61E-06	6.72E-06	1.32E-03
NICKEL	6.82E-10	1.10E-07	0.00E+00	0.00E+00	5.66E-09	3.15E-07	3.41E-08	5.48E-06
VANADIUM	5.58E-10	9.39E-08	0.00E+00	0.00E+00	4.63E-09	2.70E-07	7.97E-08	1.34E-05
ZINC	8.96E-09	2.37E-06	0.00E+00	0.00E+00	7.44E-08	6.82E-06	4.48E-07	1.19E-04
	TOTAL LIFETIME ADDED CANCER RISKS :		5.03E-11	1.53E-10			2.55E-05	3.85E-03

APPENDIX M TABLE : 31

EXPOSURE SCENARIO : RESIDENTIAL AREA - SURFACE WATER (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT}\right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR YOUNGER CHILD (liter/hr)	0.01	0.025	RAGS (1)
IR OLDER CHILD AND ADULT (liter/hr)	0.01	0.01	RAGS (1)
SA YOUNGER CHILD (cm2)	1780	1780	EPH (2)
SA OLDER CHILD AND ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	1	2	EPH (2)
EF (days/yr)	7	26	RAGS & PROFESSIONAL JUDGEMENT
ED - carcinogen (yrs) 5 as a child	9	30	RAGS (1)
ED - non-carc. (yrs) all as a child	1	1	RAGS (1)
BW YOUNGER CHILD (kg)	16	16	RAGS (1)
BW OLDER CHILD AND ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTES:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 32

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - DRAINAGE DITCHES
LOCATION: OFF-SITE
MEDIA: SURFACE WATER
POPULATION: CHILDREN AND ADULTS
EXPOSURE SCENARIO: RESIDENTIAL AREA - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSP 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
CARBON DISULFIDE	2.70E-03	4.00E-03	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	1.16E-01	3.50E-03	1.40E-02	2.00E-02	1.00	1.00	1.00	1.00
TAL METALS								
COBALT	8.30E-03	1.30E-02	NC	NA	1.00	1.00	1.00	1.00
COPPER	2.50E-02	4.40E-02	NC	3.70E-02	1.00	1.00	1.00	1.00
CYANIDE	1.20E-02	2.00E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
IRON	8.22E+00	1.72E+01	NC	NA	1.00	1.00	1.00	1.00
LEAD	6.30E-02	3.52E-01	NA	NA	1.00	1.00	1.00	1.00
MAGNESIUM	5.80E+01	7.60E+01	NC	1.00E-01	1.00	1.00	1.00	1.00
MANGANESE	4.34E-01	8.46E-01	NC	2.00E-03	1.00	1.00	1.00	1.00
NICKEL	2.20E-02	3.50E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
VANADIUM	1.80E-02	3.00E-02	NC	7.00E-03	1.00	1.00	1.00	1.00
ZINC	2.89E-01	7.58E-01	NC	2.00E-02	1.00	1.00	1.00	1.00

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 33

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE WATER
POPULATION : CHILDREN AND ADULTS
EXPOSURE SCENARIO : RESIDENTIAL AREA - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
CARBON DISULFIDE	5.83E-10	1.11E-07	0.00E+00	0.00E+00	3.70E-09	2.35E-07	5.83E-09	1.11E-06
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	2.50E-08	9.68E-08	3.50E-10	1.36E-09	1.59E-07	2.06E-07	1.25E-06	4.84E-06
TAL METALS								
COBALT	1.79E-09	3.60E-07	0.00E+00	0.00E+00	1.14E-08	7.65E-07	0.00E+00	0.00E+00
COPPER	5.39E-09	1.22E-06	0.00E+00	0.00E+00	3.42E-08	2.59E-06	1.46E-07	3.29E-05
CYANIDE	2.59E-09	5.53E-07	0.00E+00	0.00E+00	1.64E-08	1.18E-06	1.29E-07	2.77E-05
IRON	1.77E-06	4.76E-04	0.00E+00	0.00E+00	1.12E-05	1.01E-03	0.00E+00	0.00E+00
LEAD	1.36E-08	9.74E-06	NONE	NONE	8.63E-08	2.07E-05	0.00E+00	0.00E+00
MAGNESIUM	1.25E-05	2.10E-03	0.00E+00	0.00E+00	7.94E-05	4.47E-03	1.25E-04	2.10E-02
MANGANESE	9.36E-08	2.34E-05	0.00E+00	0.00E+00	5.94E-07	4.98E-05	4.68E-05	1.17E-02
NICKEL	4.75E-09	9.68E-07	0.00E+00	0.00E+00	3.01E-08	2.06E-06	2.37E-07	4.84E-05
VANADIUM	3.88E-09	8.30E-07	0.00E+00	0.00E+00	2.46E-08	1.76E-06	5.55E-07	1.19E-04
ZINC	6.24E-08	2.10E-05	0.00E+00	0.00E+00	3.96E-07	4.46E-05	3.12E-06	1.05E-03
TOTAL ADDED LIFETIME CANCER RISKS :			3.50E-10	1.36E-09	HAZARD INDEX :		1.77E-04	3.40E-02

APPENDIX M TABLE : 34

EXPOSURE SCENARIO : WORKER - SURFACE WATER (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT} \right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR ADULT (liter/hr)	0.01	0.025	RAGS (1)
SA ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	0.50	1	EPH (2)
EF (days/yr)	5	20	RAGS & PROFESSIONAL JUDGEMENT
ED - CARCINOGEN - ADULT	2	4	RAGS (1) & PROFESSIONAL JUDGEMENT
ED - NONCARCINOGEN	1	1	RAGS (1)
BW ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTES :
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 35

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - DRAINAGE DITCHES
LOCATION: ON- AND OFF-SITE
MEDIA: SURFACE WATER
POPULATION: ADULT WORKER
EXPOSURE SCENARIO: WORKER - SURFACE WATER (FUTURE CONDITIONS)

	MEDIA CONCENTRATIONS		CANCER		ORAL BIOAVAIL. FACTOR		DERMAL BIOAVAIL. FACTOR	
			ORAL	ORAL				
CHEMICAL	MEAN mg/l	RME mg/l	CSF 1/(mg/kg/d)	RfD mg/kg/d	MEAN %/100	RME %/100	MEAN %/100	RME %/100
TCL VOCs								
CARBON DISULFIDE	2.70E-03	4.00E-03	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	1.16E-01	3.50E-03	1.40E-02	2.00E-02	1.00	1.00	0.25	0.25
TAL METALS								
[redacted]	8.30E-03	1.30E-02	NC	NA	1.00	1.00	0.01	0.001
COPPER	2.50E-02	4.40E-02	NC	3.70E-02	1.00	1.00	0.01	0.001
CYANIDE	1.20E-02	2.00E-02	NC	2.00E-02	1.00	1.00	1.00	1.000
IRON	8.22E+00	1.72E+01	NC	NA	1.00	1.00	0.01	0.001
LEAD	6.30E-02	3.52E-01	NA	NA	1.00	1.00	0.01	0.001
MAGNESIUM	5.80E+01	7.60E+01	NC	1.00E-01	1.00	1.00	0.01	0.001
MANGANESE	4.34E-01	8.46E-01	NC	2.00E-03	1.00	1.00	0.01	0.001
NICKEL	2.20E-02	3.50E-02	NC	2.00E-02	1.00	1.00	0.01	0.001
VANADIUM	1.80E-02	3.00E-02	NC	7.00E-03	1.00	1.00	0.01	0.001
ZINC	2.89E-01	7.58E-01	NC	2.00E-02	1.00	1.00	0.01	0.001

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 36

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : ON- AND OFF-SITE
MEDIA : SURFACE WATER
POPULATION : ADULT WORKER
EXPOSURE SCENARIO : WORKER - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
CARBON DISULFIDE	8.51E-12	1.18E-09	0.00E+00	0.00E+00	2.98E-10	2.06E-08	8.51E-11	1.18E-08
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	3.66E-10	1.03E-09	5.12E-12	1.44E-11	1.28E-08	1.80E-08	1.83E-08	5.14E-08
TAL METALS								
COBALT	2.62E-11	3.82E-09	0.00E+00	0.00E+00	9.15E-10	6.68E-08	0.00E+00	0.00E+00
COPPER	7.88E-11	1.29E-08	0.00E+00	0.00E+00	2.76E-09	2.26E-07	2.13E-09	3.49E-07
CYANIDE	3.78E-11	5.88E-09	0.00E+00	0.00E+00	1.32E-09	1.03E-07	1.89E-09	2.94E-07
IRON	2.59E-08	5.05E-06	0.00E+00	0.00E+00	9.06E-07	8.84E-05	0.00E+00	0.00E+00
LEAD	1.99E-10	1.03E-07	NONE	NONE	6.95E-09	1.81E-06	0.00E+00	0.00E+00
MAGNESIUM	1.83E-07	2.23E-05	0.00E+00	0.00E+00	6.39E-06	3.91E-04	1.83E-06	2.23E-04
MANGANESE	1.37E-09	2.49E-07	0.00E+00	0.00E+00	4.79E-08	4.35E-06	6.84E-07	1.24E-04
NICKEL	6.93E-11	1.03E-08	0.00E+00	0.00E+00	2.43E-09	1.80E-07	3.47E-09	5.14E-07
VANADIUM	5.67E-11	8.81E-09	0.00E+00	0.00E+00	1.99E-09	1.54E-07	8.10E-09	1.26E-06
ZINC	9.11E-10	2.23E-07	0.00E+00	0.00E+00	3.19E-08	3.90E-06	4.55E-08	1.11E-05
	TOTAL ADDED							
	LIFETIME CANCER RISKS :		5.12E-12	1.44E-11	HAZARD INDEX :		2.59E-06	3.61E-04

APPENDIX M TABLE : 37

EXPOSURE SCENARIO : PARKLAND - SURFACE WATER (FUTURE CONDITIONS)
SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : OFF-SITE

$$\text{EQUATION : INTAKE (mg/kg-day)} = \left(\frac{CW \times SA \times PC \times CF \times ET \times EF \times ED}{BW \times AT} + \frac{CW \times IR \times ABS \times ET \times EF \times ED}{BW \times AT} \right) \times PTF$$

where:
CW = Chemical Concentration in Water (mg/liter)
SA = Surface Area of exposed skin (cm2)
PC = Chemical - specific dermal Permeability Constant (cm/hr)
CF = Volume Conversion Factor - cm3/hr to liters/hr (0.001)
IR = Inhalation Volume/rate (liters/hour)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged)
ABS = Absorption Factor (unitless)

VARIABLE	LEVEL 1	LEVEL 2	REFERENCE
CW (mg/liter)	MEAN CONC.	RME CONC.	RAGS (1)
IR YOUNGER CHILD (liter/hr)	0.01	0.025	RAGS (1)
IR OLDER CHILD AND ADULT (liter/hr)	0.01	0.01	RAGS (1)
SA YOUNGER CHILD (cm2)	1780	1780	EPH (2)
SA OLDER CHILD AND ADULT (cm2)	1590	1590	EPH (2)
PC WATER (cm/hr)	0.0008	0.0008	SEAM (3)
CF	0.001	0.001	RAGS (1)
ET (hrs/day)	0.50	1	EPH (2)
EF (days/yr)	4	16	RAGS & PROFESSIONAL JUDGEMENT
ED - carcinogen (yrs) 5 as a child	9	30	RAGS (1)
ED - non-carc. (yrs) all as a child	1	1	RAGS (1)
BW YOUNGER CHILD (kg)	16	16	RAGS (1)
BW OLDER CHILD AND ADULT (kg)	70	70	RAGS (1)
AT - carcinogen (years x days)	25550	25550	RAGS (1)
AT - non-carcinogen (years x days)	365	365	RAGS (1)
PTF	0.10	0.25	PROFESSIONAL JUDGEMENT

NOTE:
(1) EPA "RISK ASSESSMENT GUIDANCE FOR SUPERFUND" MANUAL, SEPTEMBER 1989; OSWER DIRECTIVE 9285, 7-01A.
(2) EPA EXPOSURE FACTORS HANDBOOK, JULY 1989; EPA/600/8-89/043.
(3) SUPERFUND EXPOSURE ASSESSMENT MANUAL, APRIL 1988: EPA/540/1-88/001.

APPENDIX M TABLE : 38

MEDIA CONCENTRATIONS AND CHEMICAL CONSTANTS

SITE: NCR, WHEATFIELD, NEW YORK
SECTOR: SURFACE WATER - DRAINAGE DITCHES
LOCATION: OFF-SITE
MEDIA: SURFACE WATER
POPULATION: CHILDREN AND ADULTS
EXPOSURE SCENARIO: PARKLAND - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	MEDIA CONCENTRATIONS MEAN mg/l	MEDIA CONCENTRATIONS RME mg/l	CANCER ORAL CSF 1/(mg/kg/d)	ORAL RfD mg/kg/d	ORAL BIOAVAIL. FACTOR MEAN %/100	ORAL BIOAVAIL. FACTOR RME %/100	DERMAL BIOAVAIL. FACTOR MEAN %/100	DERMAL BIOAVAIL. FACTOR RME %/100
TCL VOCs								
CARBON DISULFIDE	2.70E-03	4.00E-03	NC	1.00E-01	1.00	1.00	1.00	1.00
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	1.16E-01	3.50E-03	1.40E-02	2.00E-02	1.00	1.00	1.00	1.00
TAL METALS								
COBALT	8.30E-03	1.30E-02	NC	NA	1.00	1.00	1.00	1.00
COPPER	2.50E-02	4.40E-02	NC	3.70E-02	1.00	1.00	1.00	1.00
CYANIDE	1.20E-02	2.00E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
IRON	8.22E+00	1.72E+01	NC	NA	1.00	1.00	1.00	1.00
LEAD	6.30E-02	3.52E-01	NA	NA	1.00	1.00	1.00	1.00
MAGNESIUM	5.80E+01	7.60E+01	NC	1.00E-01	1.00	1.00	1.00	1.00
MANGANESE	4.34E-01	8.46E-01	NC	2.00E-03	1.00	1.00	1.00	1.00
NICKEL	2.20E-02	3.50E-02	NC	2.00E-02	1.00	1.00	1.00	1.00
VANADIUM	1.80E-02	3.00E-02	NC	7.00E-03	1.00	1.00	1.00	1.00
ZINC	2.89E-01	7.58E-01	NC	2.00E-02	1.00	1.00	1.00	1.00

NC - NOT A CARCINOGEN
NA = NOT AVAILABLE

APPENDIX M TABLE : 39

EXPOSURE, RISK AND HAZARD CALCULATIONS

SITE : NCR, WHEATFIELD, NEW YORK
SECTOR : SURFACE WATER - DRAINAGE DITCHES
LOCATION : OFF-SITE
MEDIA : SURFACE WATER
POPULATION : CHILDREN AND ADULTS
EXPOSURE SCENARIO : PARKLAND - SURFACE WATER (FUTURE CONDITIONS)

CHEMICAL	LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)		LIFETIME UPPER BOUND EXCESS CANCER RISK		ANNUAL AVERAGE DAILY INTAKE (mg/kg/d)		HAZARD QUOTIENT CDI/RfD	
	MEAN	RME	MEAN	RME	MEAN	RME	MEAN	RME
TCL VOCs								
CARBON DISULFIDE	1.66E-10	3.41E-08	0.00E+00	0.00E+00	1.06E-09	7.24E-08	1.66E-09	3.41E-07
TCL SVOCs								
bis(2-ETHYLHEXYL)PHTHALATE	7.15E-09	2.98E-08	1.00E-10	4.17E-10	4.54E-08	6.33E-08	3.58E-07	1.49E-06
TAL METALS								
COBALT	5.12E-10	1.11E-07	0.00E+00	0.00E+00	3.25E-09	2.35E-07	0.00E+00	0.00E+00
COPPER	1.54E-09	3.75E-07	0.00E+00	0.00E+00	9.78E-09	7.96E-07	4.17E-08	1.01E-05
CYANIDE	7.40E-10	1.70E-07	0.00E+00	0.00E+00	4.69E-09	3.62E-07	3.70E-08	8.51E-06
IRON	5.06E-07	1.46E-04	0.00E+00	0.00E+00	3.21E-06	3.11E-04	0.00E+00	0.00E+00
LEAD	3.88E-09	3.00E-06	NONE	NONE	2.46E-08	6.37E-06	0.00E+00	0.00E+00
MAGNESIUM	3.57E-06	6.47E-04	0.00E+00	0.00E+00	2.27E-05	1.37E-03	3.57E-05	6.47E-03
MANGANESE	2.68E-08	7.20E-06	0.00E+00	0.00E+00	1.70E-07	1.53E-05	1.34E-05	3.60E-03
NICKEL	1.36E-09	2.98E-07	0.00E+00	0.00E+00	8.61E-09	6.33E-07	6.78E-08	1.49E-05
VANADIUM	1.11E-09	2.55E-07	0.00E+00	0.00E+00	7.04E-09	5.43E-07	1.59E-07	3.65E-05
ZINC	1.78E-08	6.45E-06	0.00E+00	0.00E+00	1.13E-07	1.37E-05	8.91E-07	3.23E-04
TOTAL ADDED LIFETIME CANCER RISKS :			1.00E-10	4.17E-10	HAZARD INDEX :		5.07E-05	1.05E-02

APPENDIX N

CONCENTRATION OF CONSTITUENTS IN LEACHATE FROM MUNICIPAL SOLID WASTE LANDFILLS

Table 4-21. PRELIMINARY DATA ON CONCENTRATIONS OF ORGANIC CONSTITUENTS IN LEACHATE FROM MUNICIPAL SOLID WASTE LANDFILLS

Compound	Number of Sites at Which Constituent was Detected	Concentration Range (ppb)	Median Concentration (ppb)	Promulgated Standards or Criteria (ppb)
Acetone	12	8 - 11,000	430	4,000[a]
Acrolein	1	270 - 270	270	21[b]
Benzene	18	4 - 1,080	37	5[c]
Bromomethane	1	170-170	170	10[a]
Butanol	1	1,000-1,000	1,000	
1-Butanol	2	320-360	340	
Butylbenzylphenol	2	21 - 150	125	
Carbon tetrachloride	2	6-398	202	5[c]
Chlorobenzene	8	1 - 685	7	1,000[a]
Chloroethane	7	11 - 860	28	
Bis-(2-Chloroethoxy) methane	2	18 - 25	22	
2-Chloroethylvinyl ether	1	2 - 1,100	551	
Chloroform	8	27-31	29	5.9[d]
Chloromethane	3	170 - 400	175	
Bis-(Chloromethyl) ether	1	250.- 250	250	0.0037[d]
2-Chloronaphthalene	1	46 - 46	46	
p-Cresol	5	45-5,100	2,305	2,000[a]
2,4-D	5	7 - 220	130	400[a]
4,4-DDT	5	0.042 - 0.22	0.105	0.1[d]
Dibromomethane	1	5-5	5	
1,2-Dichlorobenzene	5	3-22	12	3,000[a]
1,4-Dichlorobenzene	8	1 - 52	7	75[c]
Dichlorodifluoromethane	5	10-450	274	7,000[a]
1,1-Dichloroethane	20	4 - 44,000	165	0.58[d]
1,2-Dichloroethane	6	1 - 11,000	10	5[c]
Cis-1,2-Dichloroethylene	2	190-470	330	
Trans-1,2-Dichloroethylene	21	2-4,800	92	
1,2-Dichloropropane	9	0.03-500	9	5,700[b]
1,3-Dichloropropene	2	18 - 30	124	0.19[d]
Diethyl phthalate	12	3 - 330	83	460,000[a]
2,4-Dimethylphenol	2	10 - 28	19	2,120[b]
Dimethyl phthalate	2	30 - 55	43	313,000[b]
Di-n-Butyl phthalate	5	12 - 150	49	400[a]
Endrin	3	0.04-50	0.25	0.2[c]
Ethanol	1	2,300-2,300	2,300	
Ethyl acetate	2	42-130	86	

Table 4-21. (continued)

Compound	Number of Sites at Which Constituent was Detected	Concentration Range (ppb)	Median Concentration (ppb)	Promulgated Standards or Criteria (ppb)
Ethylbenzene	25	6 - 4,900	58.5	4,000[a]
Bis-(2-ethylhexyl) phthalate	8	16-750	80	70[a]
2-Hexanone	6	6 - 690	88	
Isophorone	6	4 - 16,000	76	5,200[b]
Lindane	1	0.017-0.023	0.020	4[c]
Methyl ethyl ketone	13	110-27,000	1,550	2,000[a]
Methyl isobutyl ketone	7	10 - 710	270	2,000[a]
Methylene chloride	32	2-220,000	440	4.8[d]
Naphthalene	13	2 - 202	12	620[b]
Nitrobenzene	3	4 - 120	40	20[a]
4-Nitrophenol	1	17 - 17	17	150[b]
Pentachlorophenol	2	3 - 470	45	1,000[a]
Phenol	21	7 - 28,800	378	1,000[a]
1-Propanol	1	11,000-11,000	11,000	
2-Propanol	4	94-26,000	8,450	
1,1,2,2-Tetrachloroethane	1	210 - 210	210	1.7[d*]
Tetrachloroethylene	11	2 - 620	55	6.7[d*]
Tetrahydrofuran	6	18-1,300	260	
Toluene	32	6-18,000	413	10,000[a]
Toxaphene	1	1-1	1	5[c]
1,1,1-Trichloroethane	13	1-13,000	86	200[c]
1,1,2-Trichloroethane	3	30 - 630	426	6.3[d*]
Trichloroethylene	17	1-1,300	43	5[c]
Trichlorofluoromethane	9	4-150	34	10,000[a]
1,2,3-Trichloropropane	1	230-230	230	7,000[a]
Vinyl chloride	6	8 - 61	40	2[c]
m-Xylene	7	10-171	68	
Xylenes	6	32 - 310	71	70,000[a]

SOURCE: Reference 5, Reference 7, Reference 8, Reference 9, Reference 10, Reference 11, Reference 12, Reference 13, Reference 14, Reference 15, Reference 16, Reference 17, Reference 18

a Concentration based on U.S. EPA verified reference dose for systemic toxicants and the assumption of a 70-kg adult consuming 2 liters of water per day.
b EPA water quality criteria.
c Maximum contaminant level, EPA's drinking water standard.
d Constituent is considered a carcinogen by the oral route. Concentration is based on a unit risk of 10^{-6} except where noted.
* Concentration based on a 10^{-5} risk level (this is a class C carcinogen).

NOTE: The EPA is presently evaluating these data in a separate report titled Summary of Data on Municipal Solid Waste Landfill Leachate Characteristics. This report is being prepared by NUS Corp. under contract 68-01-7310 as a background document for the work assignment "Criteria for Municipal Solid Waste Landfills."

Table 4-22. RANGE OF VARIOUS INORGANIC CONSTITUENT AND PARAMETER CONCENTRATIONS IN LEACHATE FROM MUNICIPAL SOLID WASTE LANDFILLS

Compound	Number of Sites at Which Constituent was Detected	Concentration Range (ppm)	Median Concentration (ppm)	Promulgated Standards or Criteria (ppm)
Alkalinity	29	470-57,850	2,650	
Aluminum	7	0.01 - 5.8	2.4	
Ammonia	44	0.39-1,200	209	
Antimony	9	0.0015-47	0.066	0.01[a]
Arsenic	36	0.0002-0.982	0.0135	0.05[b]
Barium	36	0.11 - 5	0.58	1.0[b]
Beryllium	6	0.001 - 0.01	0.005	0.2[a]
Biological Oxygen Demand	33	7-29,200	2,310	
Boron	8	0.63-12	4	
Cadmium	31	0.007-0.15	0.0135	0.01[b]
Calcium	19	96-2,100	320	
Chemical Oxygen Demand	52	42-50,450	2,800	
Chloride	52	31 - 5,475	594	
Chromium (Total)	43	0.0005-1.9	0.06	0.05[b]
Cobalt	2	0.04-0.13	0.08	
Conductivity (µmhos/cm)	55	300 - 36,000	5,600	
Copper	33	0.003-2.8	0.054	0.012[a]
Cyanide	13	0.004 - 0.02	0.03	0.7[a]
Eh (millivolts)	6	383-804	481	
Fluoride	18	0.11-302	0.39	
Hardness	26	0.8-9,380	1,665	
Iron	55	0.22-2,280	95	1,000[c]
Lead	45	0.005-1.6	0.063	0.05[b]
Magnesium	18	74 - 927	136	
Manganese	43	0.03 - 79	3.7	0.05[c]
Mercury	16	0.0001 - 0.01	0.0006	0.002[b]
Nickel	37	0.02 - 2.2	0.17	0.5[a]

Table 4-22. (continued)

Compound	Number of Sites at Which Constituent was Detected	Concentration Range (ppm)	Median Concentration (ppm)	Promulgated Standards or Criteria (ppm)
Nitrate	31	0.01 - 51	0.22	10[c]
Nitrite	8	0.005 - 0.2	0.03	
Nitrogen (Kjeldahl)	21	34-1,470	270	
Nitrogen (Organic)	9	4 - 100	50	
Nitrogen (Total)	1	505-505	505	
Phosphate	4	0.42-7	1.2	
Phosphorus	14	0.29-117	1.4	
Potassium	19	18-1,175	382	
Selenium	17	0.0008-0.05	0.02	0.01[b]
Silver	17	0.0008 - 0.035	0.012	0.05[b]
Sodium	37	12 - 2,574	693	
Sulfate	39	8-1,400	111	
Temperature (°C)	6	5-25	11	
Thallium	11	0.004 - 0.86	0.08	0.01[a]
Tin	3	0.16 - 2.0	0.23	
Total Dissolved Solids	28	390 - 31,800	4,890	20[c]
Total Organic Carbon (Nonpurgeable)	33	20-14,500	1,000	
Total Solids	8	1,900-33,050	10,658	
Total Suspended Solids	32	23 - 17,800	276	
Vanadium	6	0.009 - 0.029	0.08	
Zinc	50	0.03 - 350	0.68	0.110[c]
pH (standard units)	59	5.4 - 12.5	6.69	6.5-9[c]

SOURCE: Reference 5, Reference 7, Reference 8, Reference 9, Reference 10, Reference 11, Reference 12, Reference 13, Reference 14, Reference 15, Reference 16, Reference 17, Reference 18, Reference 19

a Concentration based on U.S. EPA verified reference dose from systemic toxicants and the assumption of a 70-kg adult consuming a liter of water per day.
b Maximum contaminant level, EPA's drinking water standard.
c EPA's water quality criteria.

NOTE: The EPA is presently evaluating these data in a separate report titled Summary of Data on Municipal Solid Waste Landfill Leachate Characteristics. This report is being prepared by NUS Corp. under contract 68-01-7310 as a background document for the work assignment "Criteria for Municipal Solid Waste Landfills."

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