ANNUAL MONITORING REPORT

Humboldt Bulk Facility
Highway 75 & Kittson County Road 6
Humboldt, MN

MPCA Site ID: LEAK00005361
WCEC Project: 92-405-30

November 11, 2004

Leaking Petroleum Storage Tanks

Minnesota Pollution Control Agency

http://www.pca.state.mn.us/programs/lust_p.html

Annual Monitoring Report

Fact Sheet 3.26

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After the Corrective Action Design (CAD) has been approved, update and submit this worksheet annually. If a remedial system has been installed, submit fact sheet 3.31 *CAD System Monitoring Worksheet* along with this worksheet.

Under certain circumstances Minnesota Pollution Control Agency (MPCA) staff may request submittal of the monitoring information on a quarterly schedule. This should be conducted according to fact sheet 3.25, *Quarterly Monitoring Report.*

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MPCA Site ID: **Leak0005361**

Date: **October 4, 2004**

Responsible Party: **Co-op Services (dissolved)**
Arlene Furseth, MPCA contact

R.P. phone #: **NA**
(218) 846-0732

Consultant: **West Central Environmental Consultants, Inc. (WCEC)**

Consultant phone #: **(320) 589-2039**

Consultant Project #: **92-405-30**

Facility Name: **Humboldt Bulk Facility**

Facility Address: **Hwy. 75 and Kittson County Road 6** City: **Humboldt**

County: **Kittson**

Zip Code: **56731**

Site location: The required coordinate scheme for reporting site location is Universal Transverse Mercator (UTM), Extended Zone 15, 1983 North American Datum (NAD83). Refer to **http://www.ot.state.mn.us/ot_files/handbook/standard/std17-1.html** for Minnesota spatial data standards, or **http://mac.usgs.gov/mac/isb/pubs/factsheets/fs15799.html** for more information about UTM Coordinates.

X coordinate (Easting)	**639597 meters**	200068.56	-97° 5' 40.4733"
Y coordinate (Northing)	**5420336 meters**	5426662.73	48° 55' 12.4908"

What feature does the coordinate represent? (i.e. center of parcel, approximate center of source area, etc. Please describe)
The UTM coordinates represent the center of the parcel.

What method was used to determine the coordinate? (i.e. GPS receiver, map interpolation, address matching, etc. Please describe)

TopoZone was used to view the USGS Humboldt Quad. The site was identified on the Humboldt Quad map and the UTM coordinates were recorded.

If a paper map, digital map, aerial photo or digital orthophotoquad was used to find the site location, please provide the scale of the map or photo (i.e. 1:24,000, etc.)

1:24K/25K Series Topo map. View Scale is 1:24000.

Section 1. GROUND WATER MONITORING

Discuss the groundwater monitoring results, including water level measurements and analytical results, performed since the remedial investigation (RI) report or the last progress report submitted. Indicate whether samples were purged or unpurged (see fact sheet 3.23). If purged, indicate purging method.

Twelve quarterly monitoring events were conducted at this site from March 1993 to December 1995. During this period no significant contaminant concentrations were detected in monitoring wells MW1 and MW3, however free product was observed in monitoring well MW2 during 8 events between September of 1993 and December of 1995. Free product thicknesses ranged from 0.6" to 6.0". Remedial actions were proposed to the MPCA to address the free product. However, after 1995, Co-op Services (the Responsible Party) experienced financial difficulties and was eventually dissolved. Therefore, no further investigation or remediation of the site was conducted until the MPCA took over the investigation.

WCEC was contracted by the MPCA in 2002 to continue the site investigation and determine what, if any, remedial actions should be taken. WCEC advanced additional Geoprobe borings and free-product-assessment hand auger borings to re-assess the extent of contamination and free product, and conducted another risk assessment. No free product was observed in any of the borings or monitoring wells and the risk assessment did not reveal any potential risks to water supply wells (Kittson County Rural Water is utilized by everyone within 500' of the site). No remediation efforts were deemed necessary. Results are included in the "Site Status Report" dated 06/30/03.

During the risk assessment conducted in 2003, a walking survey was performed. A "well" that had been identified at the Dennis Diamond residence located south of the site was inspected. Upon observation by WCEC personnel, it was determined that the "well" is located in the basement and is actually a cistern that is used to water the garden. Mrs. Diamond indicated that the alkalai water collecting in the cistern is not drinkable. A water sample was collected and was sent to NTS for analysis of VOCs, GRO, and DRO. Laboratory analysis detected 4.0 ppb tetrahydrofuran.

Four rounds of groundwater monitoring have been completed by WCEC personnel since the last Site Status Report dated 06/30/03. Monitoring wells MW1, MW2, and MW3 were sampled on 12/11/03, 03/09/04, 06/07/04, and 09/07/04 and analyzed for GRO, DRO, BTEX, and MTBE.

Groundwater elevations were below the screened interval during all of the monitoring events for MW1. Monitoring well MW1 has heaved significantly and is difficult to sample. An attempt was made to purge the required amount of water from the well during all events. Approximately one gallon was purged on 06/07/04 before a sample was obtained and one well volume was purged on 09/07/04 before a sample was obtained. Water samples were analyzed for BTEX, MTBE, GRO, and DRO by Northeast Technical Services (NTS). The laboratory detected small concentrations of DRO (300, 220, 220 and 120 ppb) in MW1 during this reporting period. All other parameters were below the laboratory reporting limits for MW1.

Groundwater elevations were above the screen interval in MW2 on 06/07/04 and 09/07/04. A minimum of 3 well volumes were purged with a plastic bailer from MW2 for all sampling events. Water samples were analyzed for BTEX, MTBE, GRO, and DRO. In monitoring well MW2, NTS detected benzene (250, 240, 110, and 170 ppb), toluene (<10, 5.0, <20, and 2.7 ppb), ethylbenzene (15, 4.4, 21 and 3.8 ppb), xylenes (53, 40, 50, and 22 ppb), GRO (9500, 2100, 3500, and 2300 ppb), and DRO compounds (28,000, 12,000, 53,000, and 19,000 ppb) during this monitoring period. MTBE was below reporting limits in MW2 during this reporting period. Benzene was above the HRL (10 ppb) in MW2 during all sampling events. All other contaminants found in MW2 were below their HRLs.

Groundwater elevations were above the screen interval in MW3 only on 06/07/04. A minimum of 3 well volumes were purged with a plastic bailer from MW3 for all sampling events. Water samples were analyzed for BTEX, MTBE, GRO, and DRO. Laboratory analysis of the samples from MW3 were below laboratory reporting limits for this reporting period.

Groundwater flow direction was calculated using water level elevations and was determined to be to northeasterly to northwesterly (Figures 3a - 3d) at gradients from 0.0159 to 0.0223.

Section 2. VAPOR IMPACT MONITORING

If vapor impacts were detected during previous assessments, discuss the results of follow-up vapor monitoring. Include in your discussion the sampling instrument and sampling method.

No vapor monitoring has been done at this site since there are no basements or nearby utilities that could be impacted by this release.

NOTE: If vapor concentrations exceed 10 percent of the lower explosive limit, exit the building and contact the local fire department immediately. Then contact the Minnesota Duty Officer (24 hours) at 651/649-5451 (metro and outside Minnesota) or 1-800/422-0798 (Greater Minnesota). TTY users call 651/297-5353 (V/TTY) or 1-800/627-3529 (V/TTY).

Section 3. RECOMMENDATIONS

Discuss your recommendations. Your recommendation should be based on fact sheet #3.1, *Leaking Underground Storage Tank Program.*

If additional corrective action is recommended, please provide your justification.

No additional corrective action is recommended.

If significant reduction of risk has been achieved at the site, recommendations and rationale for the reduction or termination of corrective actions may be presented.

There are low risks associated with remaining soil contamination. The horizontal extent of soil contamination appears to be localized, with the highest concentrations confined to the former AST storage and loading areas. The potential for contamination migrating further should be limited by the clay-rich soil and lacustrine deposits at and around the site.

There is little risk associated with impacted groundwater. Contaminated groundwater is not discharging to any surface waters.

There are no domestic water supply wells within 500 feet of the release source, and no industrial or municipal wells within ½ mile of the site. All residences and businesses near the site are connected to the Kittson County Rural Water supply. The high clay content of lacustrine deposits and soil prevent contaminated ground water from descending to a deeper aquifer.

If additional monitoring is recommended, indicate the proposed monitoring schedule and frequency.

No additional monitoring is recommended. WCEC

If closure is recommended, summarize significant site investigative events and describe how site specific risk issues have been adequately addressed or minimized to acceptable low risk levels.

Based on field and laboratory analyses of soil samples and laboratory analyses of water samples collected for the Site Status Report dated 06/30/03, contaminant concentrations appear to be consistent with the results of the 1993 investigation with the exception of the area around test hole TH13. No test holes were advanced in this location during the 1993 investigation. Results from the previous investigation indicate slightly higher contaminant concentrations than previously estimated in the area around test hole TH13, which causes the contaminant plume to be elongated more to the southeast.

There are no surface waters within 1/4 mile of the site. A 500-foot walking survey and groundwater receptor survey were completed for this site for the last Site Status Report. Kittson County Rural Water was contacted and verified that rural water is utilized by everyone within 500 feet of the site. During the walking survey, a "well" was identified at the Dennis Diamond residence, located south of the site. Upon observation by WCEC, it was determined that the well located in the basement is actually a cistern that is used to water the garden, and the alkalai water collecting in the cistern is not drinkable. A water sample was collected and was sent to NTS for analysis of VOCs, GRO, and DRO. Laboratory analysis detected 4.0 ppb tetrahydrofuran.

The main concern at this site has been the presence of free product and the contamination concentrations in the monitoring wells on site. No free product has been observed in monitoring well MW2 during this reporting period, and further, contamination levels suggest that the contamination may be stabilizing. The tanks have been removed from the site, therefore the potential for further contamination of the site has been eliminated. Since free product is no longer being detected at the site and there are minimal risks from this release, WCEC recommends closure of the site.

Table 2
Water Level Measurements

Well Number	Date Sampled	Depth of Water from Top of Riser	Product Thickness (in)	Depth of Water Below Grade	Relative Groundwater Elevation	Water Level Above Screen (Y/N)
MW1	03/11/93	7.65	0	4.27	94.97	N
	06/10/93	3.61	0	0.23	99.01	Y
	09/14/93	4.54	0	1.16	98.08	N
	12/15/93	7.89	0	4.51	94.73	N
	03/23/94	8.63	0	5.25	93.99	N
	06/20/94	4.12	0	0.74	98.50	N
	09/20/94	4.45	0	1.07	98.17	N
	12/20/94	6.21	0	2.83	96.41	N
	03/28/95	6.54	0	3.16	96.08	N
	06/08/95	4.61	0	1.23	98.01	N
	09/19/95	5.02	0	1.64	97.60	N
	12/11/95	6.90	0	3.52	95.72	N
	05/07/03	5.65	0	2.27	96.97	N
	12/11/03	8.56	0	5.18	94.06	N
	03/09/04	8.03	0	4.65	94.59	N
	06/07/04	4.02	0	0.64	98.60	N
	09/07/04	5.00	0	1.62	97.62	N
MW2	03/11/93	9.68	Petro odor	7.07	93.33	N
	06/10/93	Free Product	0.24			
	09/14/93	Free Product	6.00			
	12/15/93	Free Product	3.96			
	03/23/94	Free Product	3.60			
	06/20/94	Free Product	0.06			
	09/20/94	Free Product	2.40			
	12/20/94	Free Product	5.40			
	03/28/95	3.9	Petro odor	1.29	99.11	Y
	06/08/95	Free Product	2.40			
	09/19/95	Free Product	2.16			
	12/11/95	Free Product	4.80			
	05/07/03	4.59	Petro odor	1.98	98.42	N
	12/11/03	7.96	Petro odor	5.35	95.05	N
	03/09/04	9.02	Petro odor	6.41	93.99	N
	06/07/04	2.89	Petro odor	0.28	100.12	Y
	09/07/04	3.12	Petro odor	0.51	99.89	Y

Table 2 Cont.
Water Level Measurements

Well Number	Date Sampled	Depth of Water from Top of Riser	Product Thickness (in)	Depth of Water Below Grade	Relative Groundwater Elevation	Water Level Above Screen (Y/N)
MW3	03/11/93	7.89	0	4.35	95.25	N
	06/10/93	4.08	0	0.54	99.06	Y
	09/14/93	4.97	0	1.43	98.17	N
	12/15/93	7.43	0	3.89	95.71	N
	03/23/94	9.13	0	5.59	94.01	N
	06/20/94	4.39	0	0.85	98.75	Y
	09/20/94	4.89	0	1.35	98.25	N
	12/20/94	8.59	0	5.05	94.55	N
	03/28/95	6.07	0	2.53	97.07	N
	06/08/95	5.16	0	1.62	97.98	N
	09/19/95	5.31	0	1.77	97.83	N
	12/11/95	7.2	0	3.66	95.94	N
	05/07/03	5.49	0	1.95	97.65	N
	12/11/03	7.89	0	4.35	95.25	N
	03/09/04	7.73	0	4.19	95.41	N
	06/07/04	4.2	0	0.66	98.94	Y
	09/07/04	5.14	0	1.6	98.00	N

Notes:
Results reported in feet unless otherwise noted.
Empty Spaces = Not Applicable due to the presence of free product.

Table 3
Analytical Results of Water Samples

Well Number	Date Sampled	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE	GRO	DRO	Lab Type
MW1	03/11/93	BQL	BQL	BQL	BQL	BQL	BQL	BQL	Fixed
	06/10/93	BQL	BQL	BQL	BQL	NA	**200**	**5600**	Fixed
	09/14/93	BQL	BQL	BQL	BQL	NA	BQL	BQL	Fixed
	12/15/93	BDL	BDL	BDL	BDL	NA	BDL	BDL	Fixed
	03/23/94	BDL	BDL	BDL	BDL	NA	BDL	BDL	Fixed
	06/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	09/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	03/28/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	06/08/95	BDL	2.3	1.2	4.6	NA	BDL	NA	Fixed
	09/19/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/11/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	05/07/03	<1.0**	<1.0**	<1.0**	<3.0**	<1.0	<60	**150**	Fixed
	12/11/03	<2	<2	<1.4	<4	<2.3	<100	**300#**	Fixed
	03/09/04	<2	<2	<1.4	<4	<2.3	<100	**220**	Fixed
	06/07/04	<2	<2	<1.4	<4	<2.3	<100	**220#**	Fixed
	09/07/04	<2	<2	<1.4	<4	<2.3	<100	**120**	Fixed
MW2	03/11/93	**79.3**	**4.5**	**3**	**51.9**	BQL	**1100**	BQL	Fixed
	06/10/93	**245**	**7**	**6.6**	**239**	BQL	**4800**	**5900**	Fixed
	09/14/93	Free	Product						
	12/15/93	Free	Product						
	03/23/94	Free	Product						
	06/20/94@	**460**	BDL	BDL	**452**	BDL	NA	NA	Fixed
	06/20/94	**15.4**	BDL	BDL	**8.5**	NA	**1640**	**3700**	Fixed
	09/20/94	Free	Product						
	12/20/94	Free	Product						
	03/28/95	**851**	BDL	BDL	**202.5**	BDL	4300	**656000**	Fixed
	06/08/95	Free	Product						
	09/19/95	Free	Product						
	12/11/95	Free	Product						
	05/07/03	**150**	<5.0	<5.0	**61**	<5.0	**2400**	**35000***	Fixed
	12/11/03	**250**	<10	**15**	**53**	<12	**9500**	**28000**	Fixed
	03/09/04	**240**	**5**	**4.4**	**40**	<4.6	**2100**	**12000**	Fixed
	06/07/04	**110**	<20	**21**	**50**	<23	**3500**	**53000**	Fixed
	09/07/04	**170**	**2.7**	**3.8**	**22**	<2.3	**2300**	**19000**	Fixed

Table 3 Cont.
Analytical Results of Water Samples

Well Number	Date Sampled	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE	GRO	DRO	Lab Type
MW3	03/11/93	**3.4**	**1.5**	BQL	BQL	BQL	BQL	BQL	Fixed
	06/10/93	BQL	BQL	BQL	BQL	NA	BQL	BQL	Fixed
	09/14/93	BQL	**1.3**	BQL	BQL	NA	BQL	NA	Fixed
	12/15/93	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	03/23/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	06/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	09/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	03/28/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	06/08/95	BDL	**1.4**	BDL	BDL	NA	BDL	NA	Fixed
	09/19/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/11/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	05/07/03	<1.0	<1.0	<1.0	<3.0	<1.0	<60	<100	Fixed
	12/11/03	<1.0	<2	<1.4	<4	<2.3	<100	<100	Fixed
	03/09/04	<2	<2	<1.4	<4	<2.3	<100	<100	Fixed
	06/07/04	<2	<2	<1.4	<4	<2.3	<100	<100#	Fixed
	09/07/04	<2	<2	<1.4	<4	<2.3	<100	<110	Fixed
MW4	12/11/03	**250**	<10	**13**	**46**	<12	**7000**	**44000**	Fixed
Dup of MW2	03/09/04	**240**	**4.8**	**4.6**	**40**	<4.6	**2200**	**16000**	Fixed
	06/07/04	**110**	<20	**1.9**	**43**	<23	**2700**	**24000**	Fixed
	09/07/04	**170**	**2.4**	**3.2**	**21**	<2.3	**2200**	NA	Fixed
Trip Blank	09/14/93	BQL	BQL	BQL	BQL	NA	BQL	BQL	Fixed
	12/15/93	BDL	BDL	BDL	BDL	NA	BDL	BDL	Fixed
	03/23/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	06/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	09/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/20/94	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	03/28/95	NA	NA	NA	NA	NA	NA	NA	NA
	06/08/95	BDL	2.6	1.1	3.6	NA	100	NA	Fixed
	09/19/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	12/11/95	BDL	BDL	BDL	BDL	NA	BDL	NA	Fixed
	05/07/03	<1.0	<1.0	<1.0	<3.0	<1.0	<60	NA	Fixed
	12/11/03	<2	<2	<1.4	<4	<2.3	<100	NA	Fixed
	03/09/04	<2	<2	<1.4	<4	<2.3	<100	NA	Fixed
	06/07/04	<2	<2	<1.4	<4	<2.3	<100	NA	Fixed
	09/07/04	<2	<2	<1.4	<4	<2.3	<100	NA	Fixed

*Notes: Results reported in ug/L. BDL denotes Below Detectable Limits. BQL denotes Below Quantifiable Level. NA denotes Not Analyzed. * denotes sample preserved at pH of 3. ** denotes Laboratory Control Spike not within control limits. @ denotes samples were sent to Energy Labs for separate analysis.*

Table 4
Other Contaminants Detected in Water Samples
(Petroleum or Non-petroleum Derived)

Compound	HRL	MW2				MW3
		03/11/93	06/10/93	06/20/94	03/28/95	05/07/03
1,2-Dichloroethane		9.4	18.3	43	35.3	23
Chloroethane			1.3			
Ethyl ether			25.4			
1,2-Dichloropropane			1.2			
Methyl isobutyl ketone			14.5		712	
n-Butylbenzene		34.6	37.4	24	45.8	75
sec-Butylbenzene						13
Isopropylbenzene	300		9.1			14
p-Isopropyltoluene		1.9	4	13		9.5
n-Propylbenzene		1.2	6			14
Naphthalene	300	3.6	87.6		111	60
tert-Butylbenzene		1.3	2.5			
Tetrahydrofuran						57
1,2,4-Trimethylbenzene		6.2	100	36	83.9	34
1,3,5-Trimethylbenzene		68.8	46.2	120	36.8	18

Notes: Results reported in ug/L.

Table 5
Natural Attenuation Parameters

Not Applicable

Table 6
Results of Vapor Monitoring

Not Applicable

Attach Figures:

Figures - (all maps are to include a north arrow, scale and legend) *Approximate scales are not acceptable.*

- Site location map. Adapt this map from a U.S. Geological Survey 7.5 minute quadrangle and identify the name of the 7.5 minute quadrangle. **(Figure 1)**
- Site map showing the locations of all ground water and vapor monitoring points. **(Figure 2)**
- Updated ground water contour maps, using water level elevations from all rounds of water level measurements since the last report. Show all wells at the site, and differentiate wells constructed in different aquifers. Label ground water contours and elevations at each data point used for contouring. **(Figure 3)**
- Hydrograph for all monitoring and recovery wells. **(Figure 4)**
- Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells. **(Figure 5)**

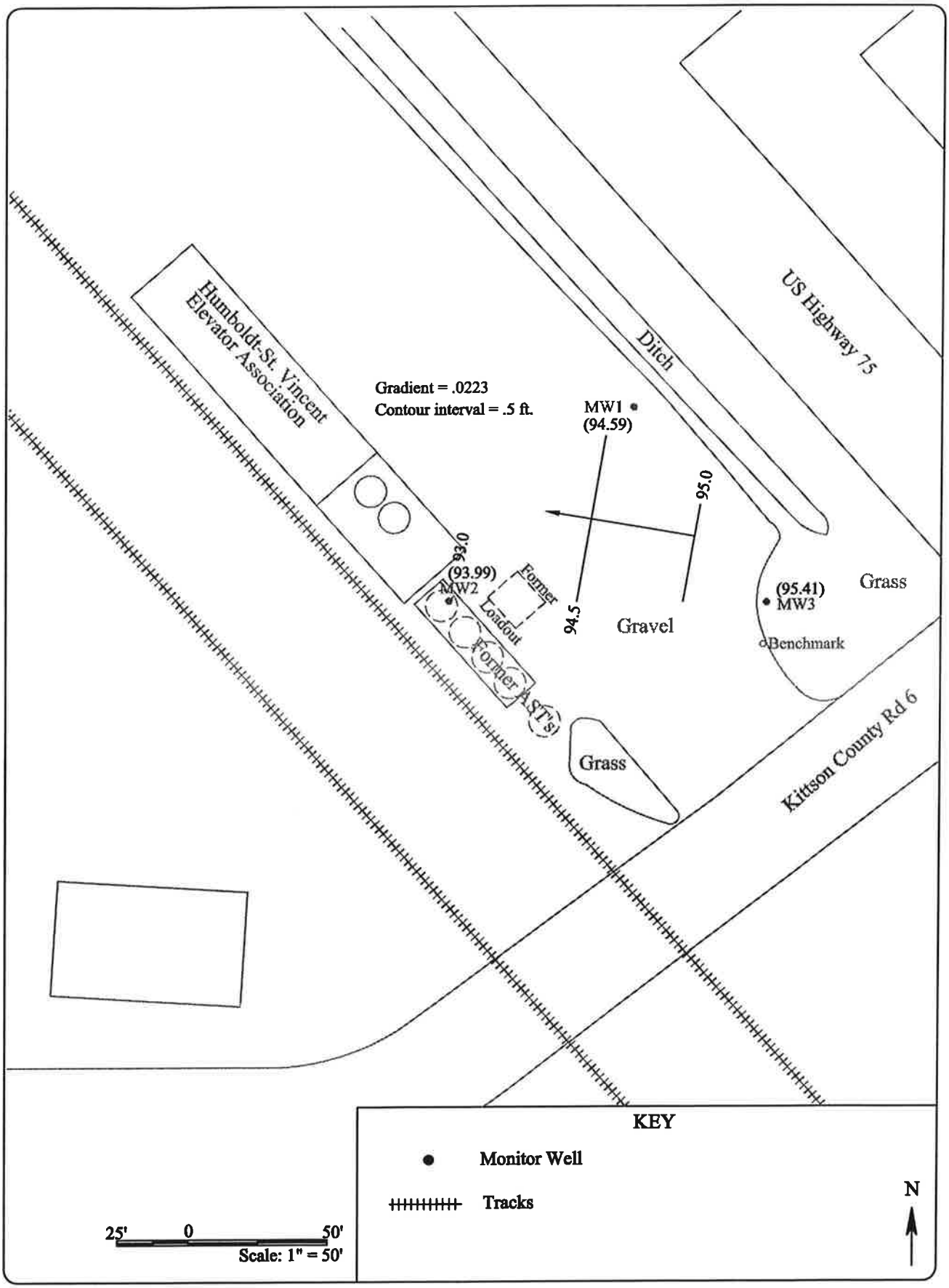
Attach Appendices:

The appendix section of the report contains sufficient information to document all activities completed since the last report. All reproduced data must be legible.

- Copies of most recent laboratory reports for ground water analyses, including a copy of the Chain of Custody and the MDH laboratory certification number.
- Sample collection information, including procedure, equipment, and decontamination.
- Field or sampling data sheets.

Web pages and phone numbers

MPCA staff	http://data.pca.state.mn.us/pca/emplsearch.html
MPCA toll free	**1-800-657-3864**
LUST web page	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Infor. Request	http://www.pca.state.mn.us/about/inforequest.html
PetroFund Web Page	http://www.commerce.state.mn.us/mainpf.htm
PetroFund Phone	**651-297-1119**, or **1-800-638-0418**
State Duty Officer	**651-649-5451 or 1-800-422-0798**



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PROJECT No. : 92-405-30 Former Cooperative Services, Humboldt Bulk Facility

FIGURE 3c: Groundwater Gradient Contour Map Using 03/09/04 Static Water Levels

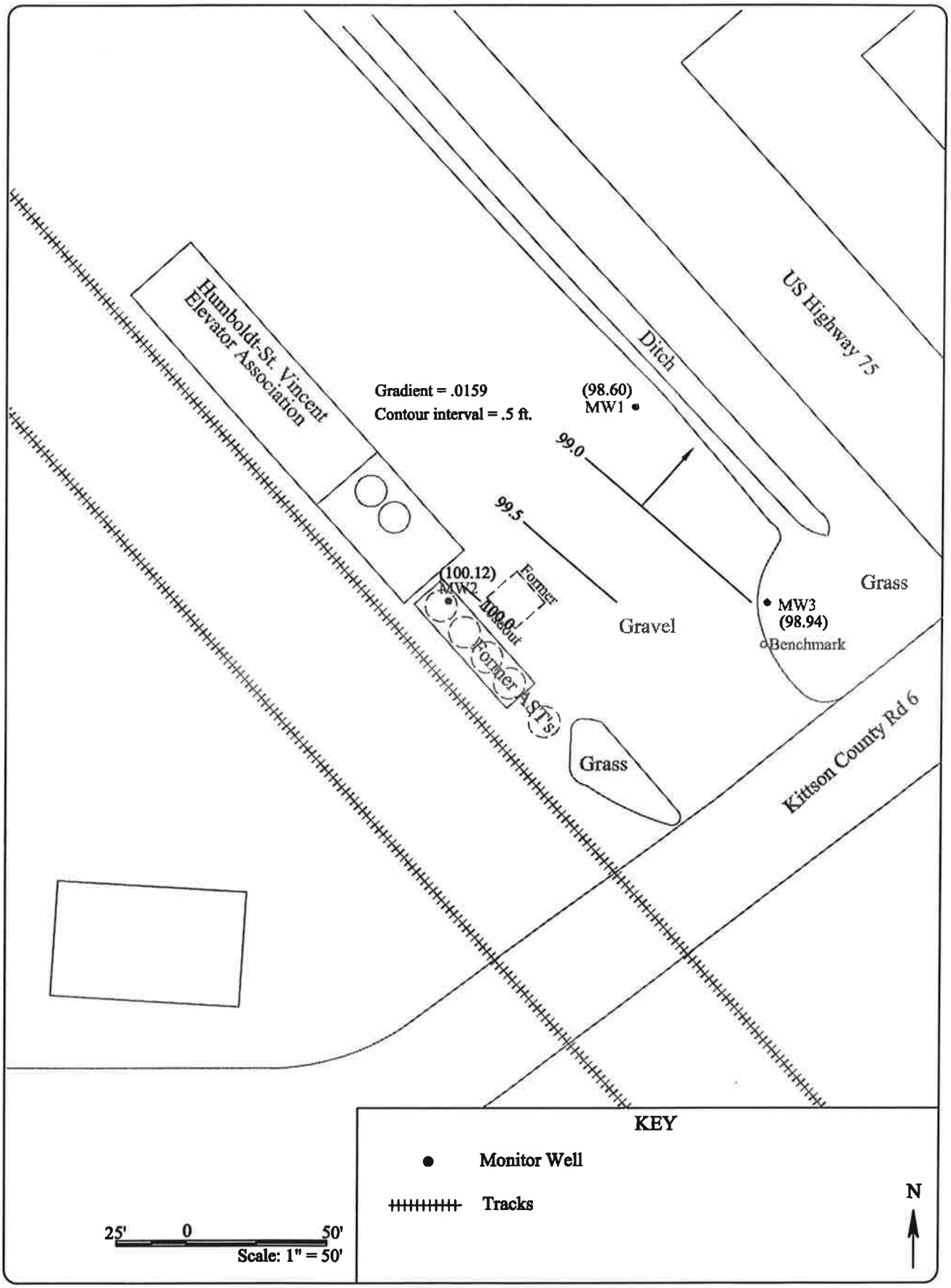

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FIGURE 3d: Groundwater Gradient Contour Map Using 6/07/04 Static Water Levels

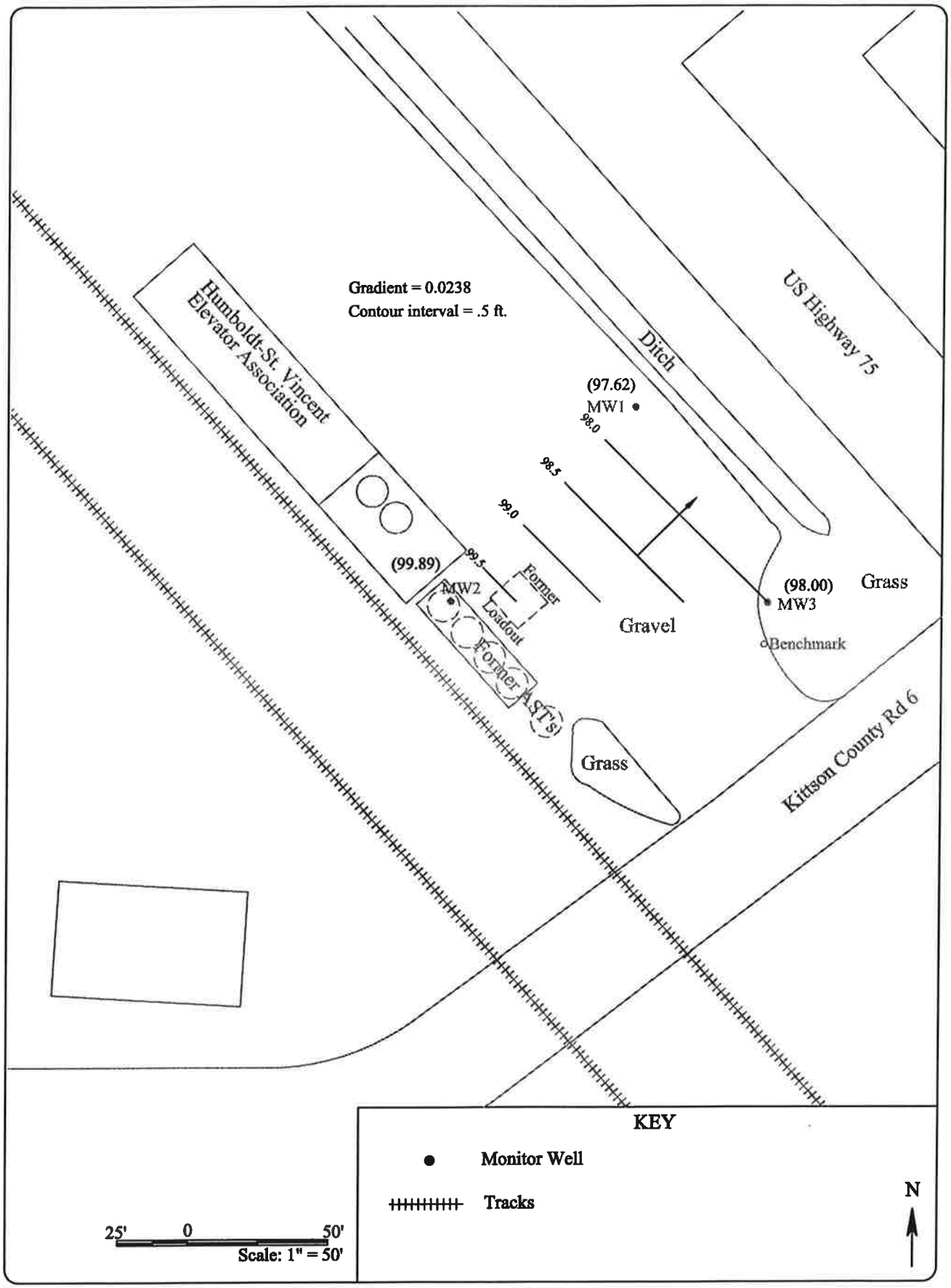

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FIGURE 3e: Groundwater Gradient Contour Map Using 9/07/04 Static Water Levels

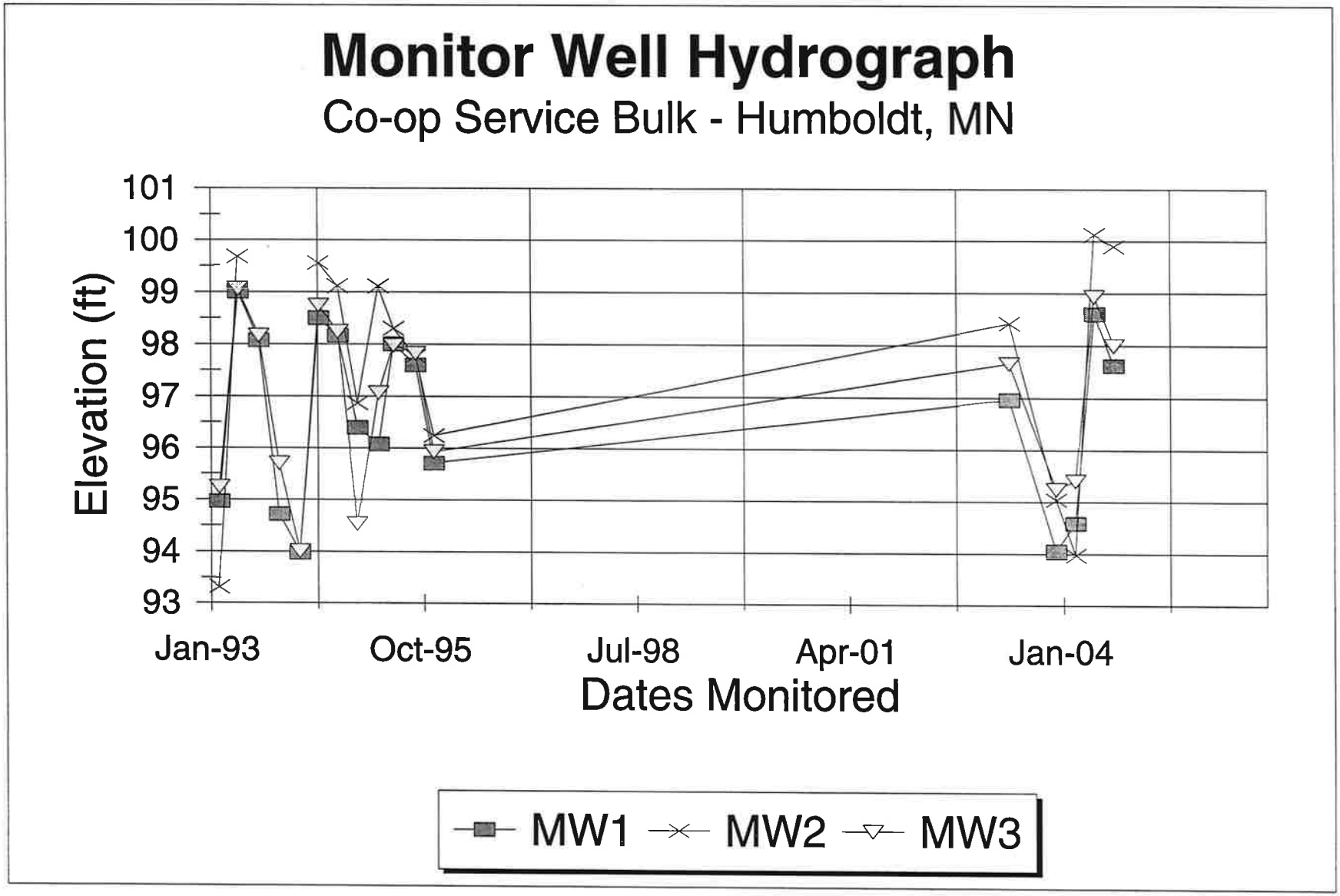
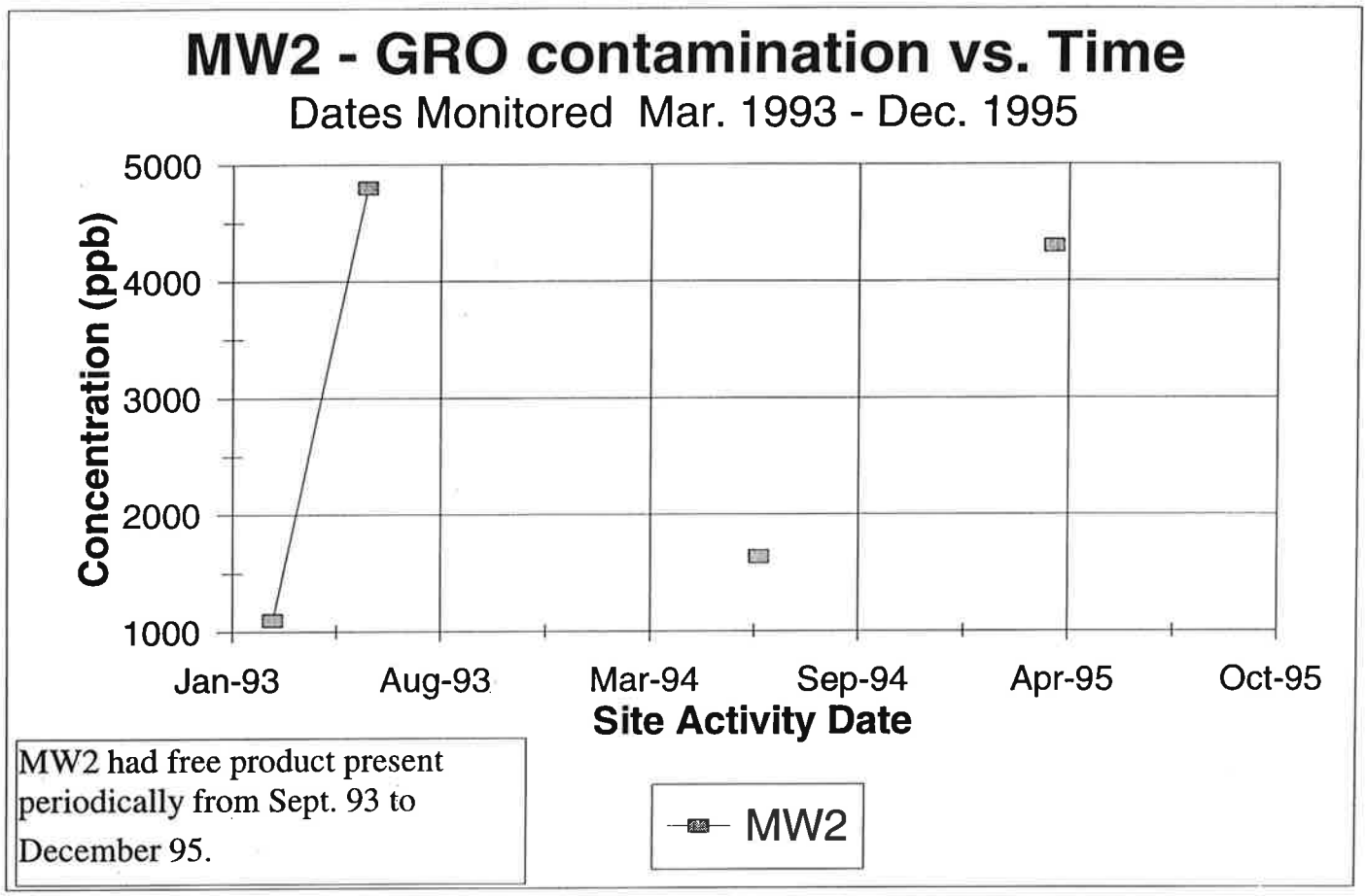
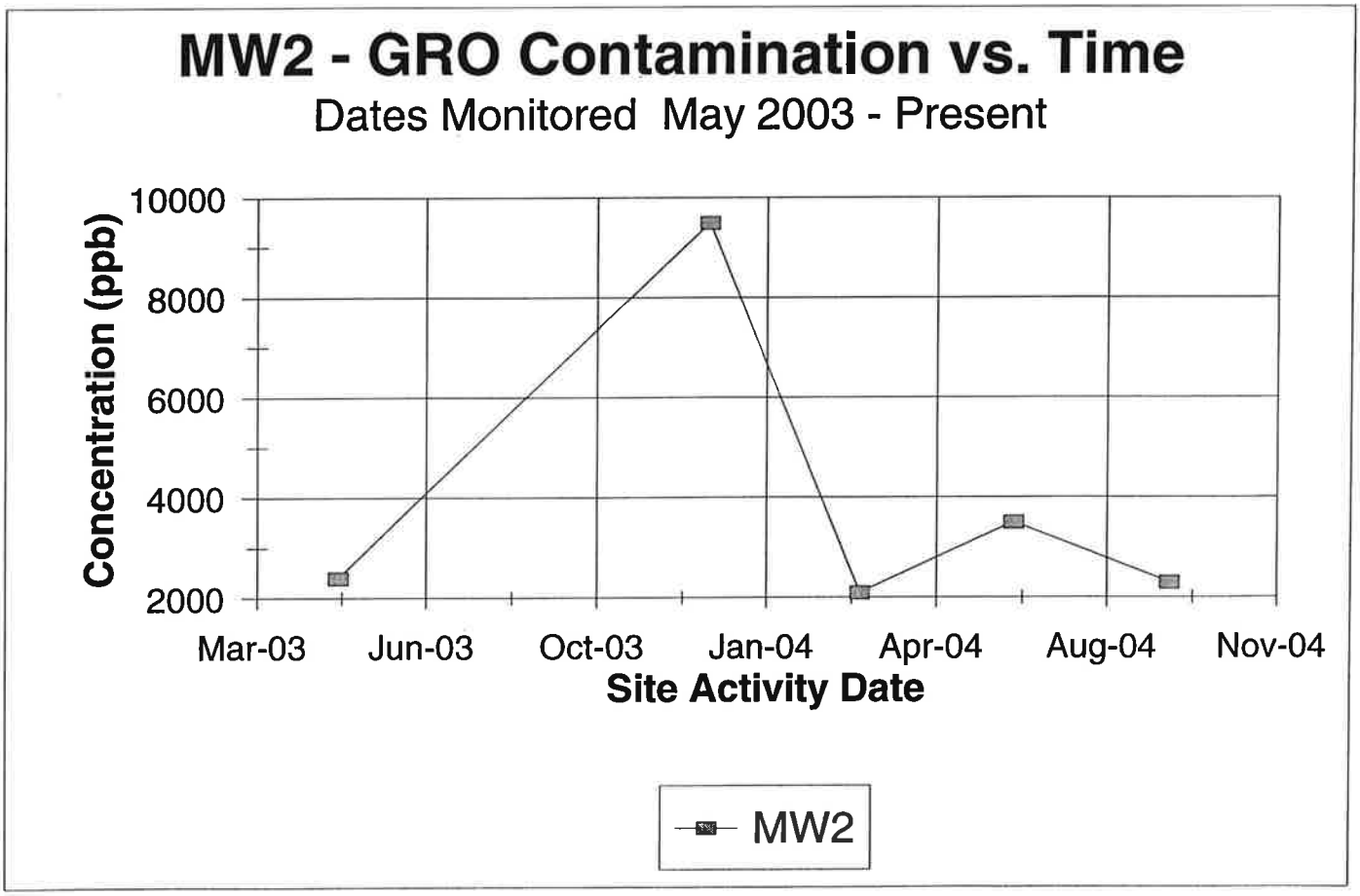
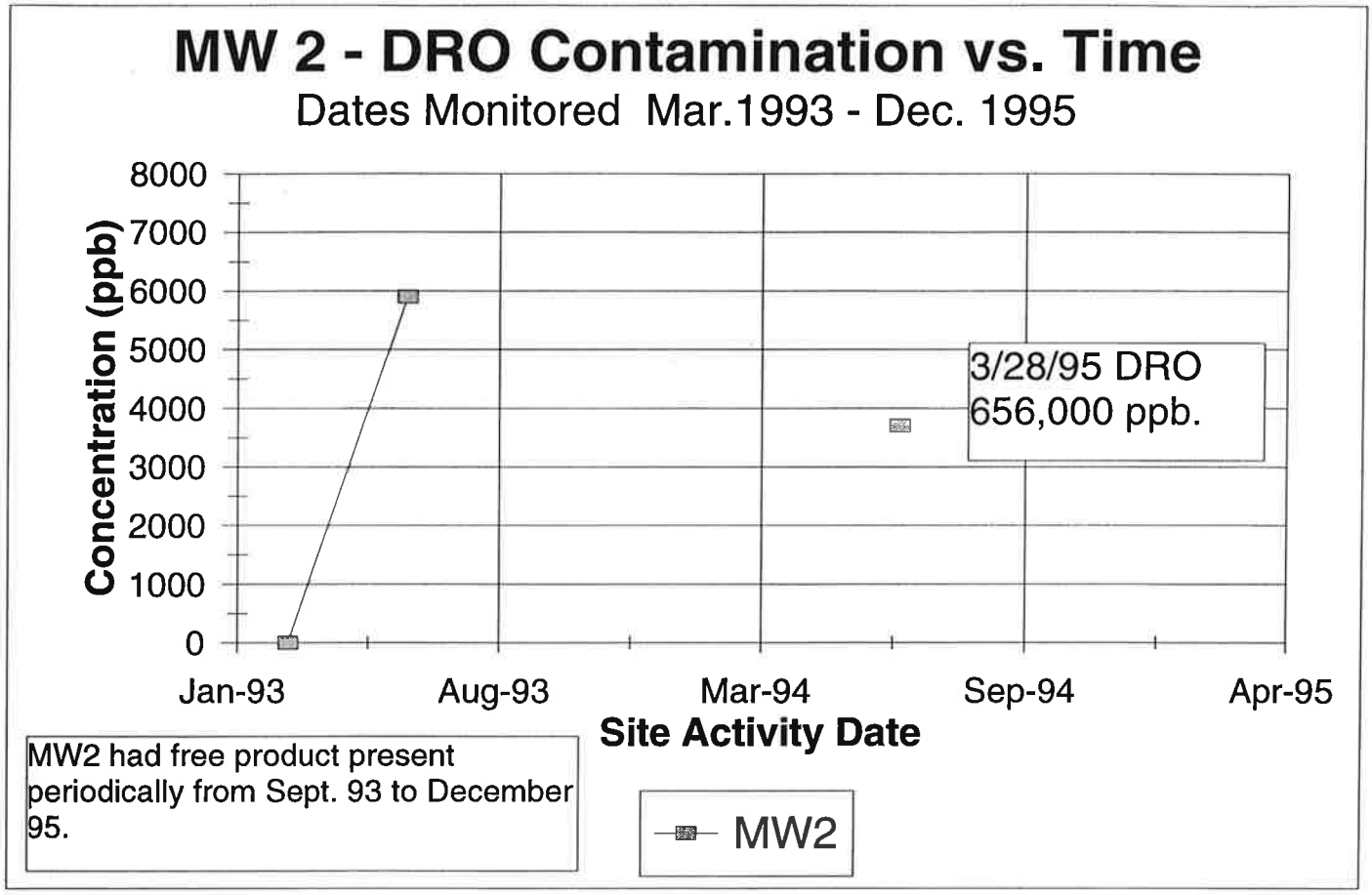

Monitor Well Hydrograph
Co-op Service Bulk - Humboldt, MN
Elevation (ft)
101
100
99
98
97
96
95
94
93
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Dates Monitored
MW1
MW2
MW3

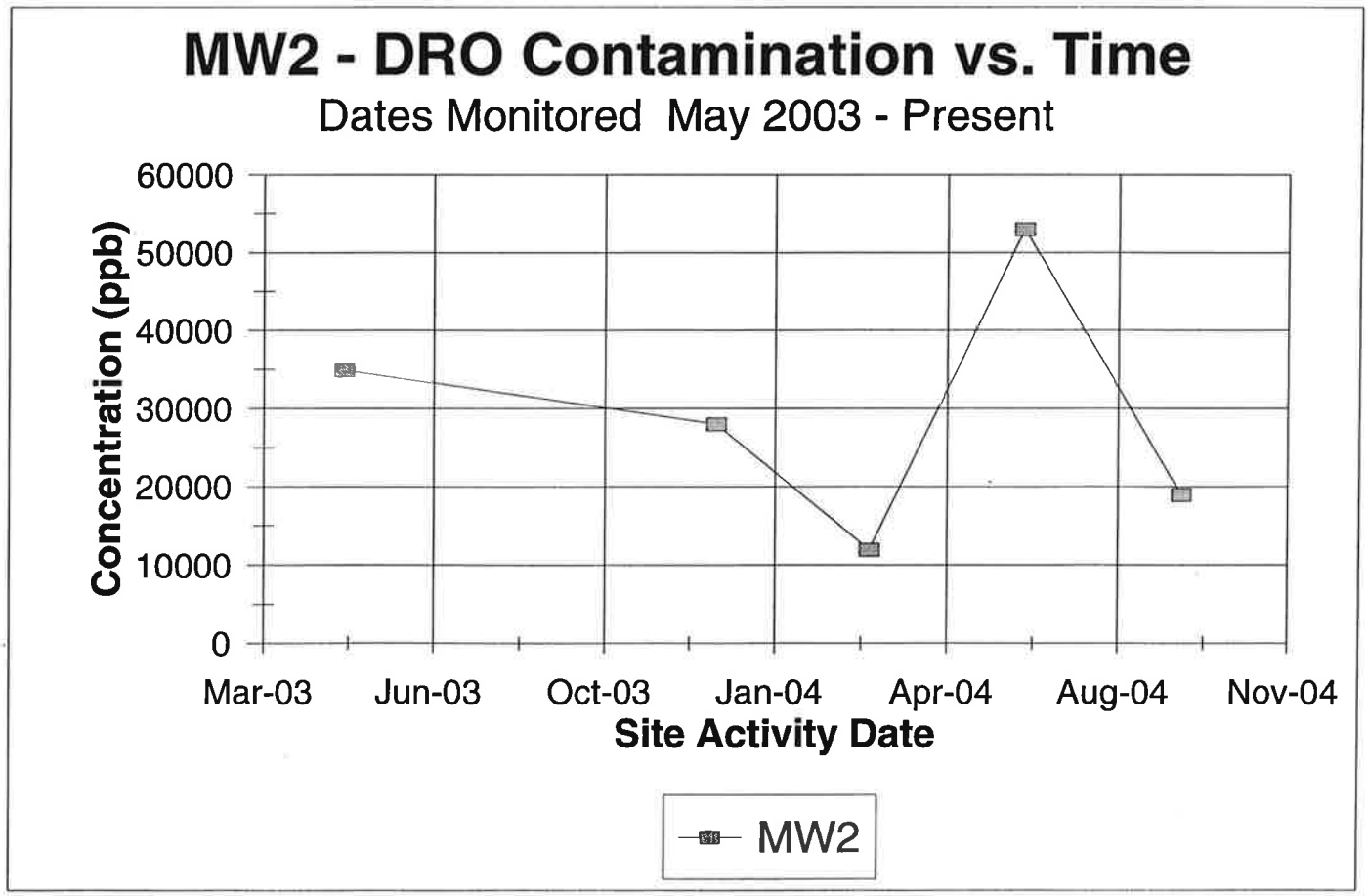
FIGURE 5

Graphs Showing Contaminant Concentrations Over Time


MW2 - GRO contamination vs. Time
Dates Monitored Mar. 1993 - Dec. 1995
Concentration (ppb)
5000
4000
3000
2000
1000
Jan-93
Aug-93
Mar-94
Sep-94
Apr-95
Oct-95
Site Activity Date
MW2 had free product present periodically from Sept. 93 to December 95.
MW2

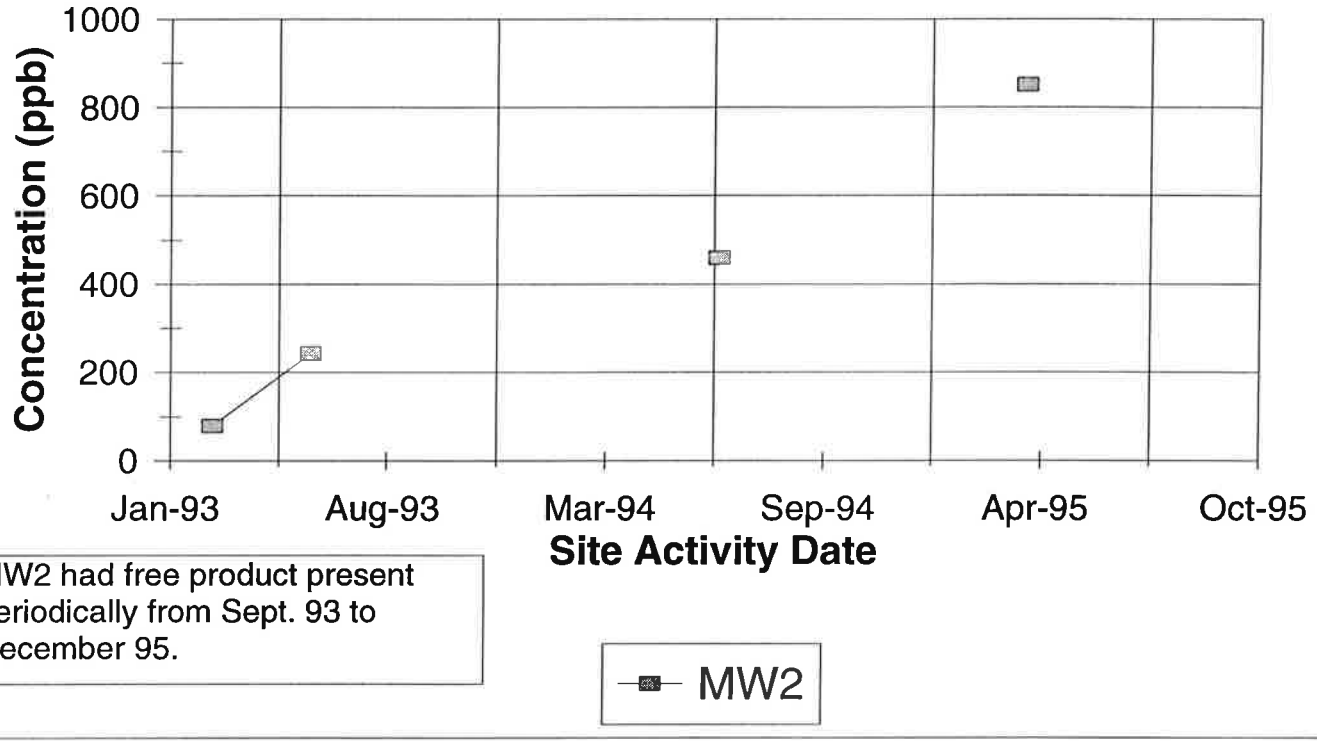

MW2 - GRO Contamination vs. Time
Dates Monitored May 2003 - Present
Concentration (ppb)
10000
8000
6000
4000
2000
Mar-03
Jun-03
Oct-03
Jan-04
Apr-04
Aug-04
Nov-04
Site Activity Date
MW2


MW 2 - DRO Contamination vs. Time
Dates Monitored Mar.1993 - Dec. 1995
Concentration (ppb)
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-93
Aug-93
Mar-94
Sep-94
Apr-95
Site Activity Date
3/28/95 DRO
656,000 ppb.
MW2 had free product present periodically from Sept. 93 to December 95.
MW2


MW2 - DRO Contamination vs. Time
Dates Monitored May 2003 - Present
Concentration (ppb)
60000
50000
40000
30000
20000
10000
0
Mar-03
Jun-03
Oct-03
Jan-04
Apr-04
Aug-04
Nov-04
Site Activity Date
MW2

MW2 - Benzene Contamination vs. Time

Dates Monitored Mar. 1993 - Dec. 1995



MW2 had free product present periodically from Sept. 93 to December 95.

MW2 - Benzene Contamination vs. Time

Dates Monitored May 2003 - Present

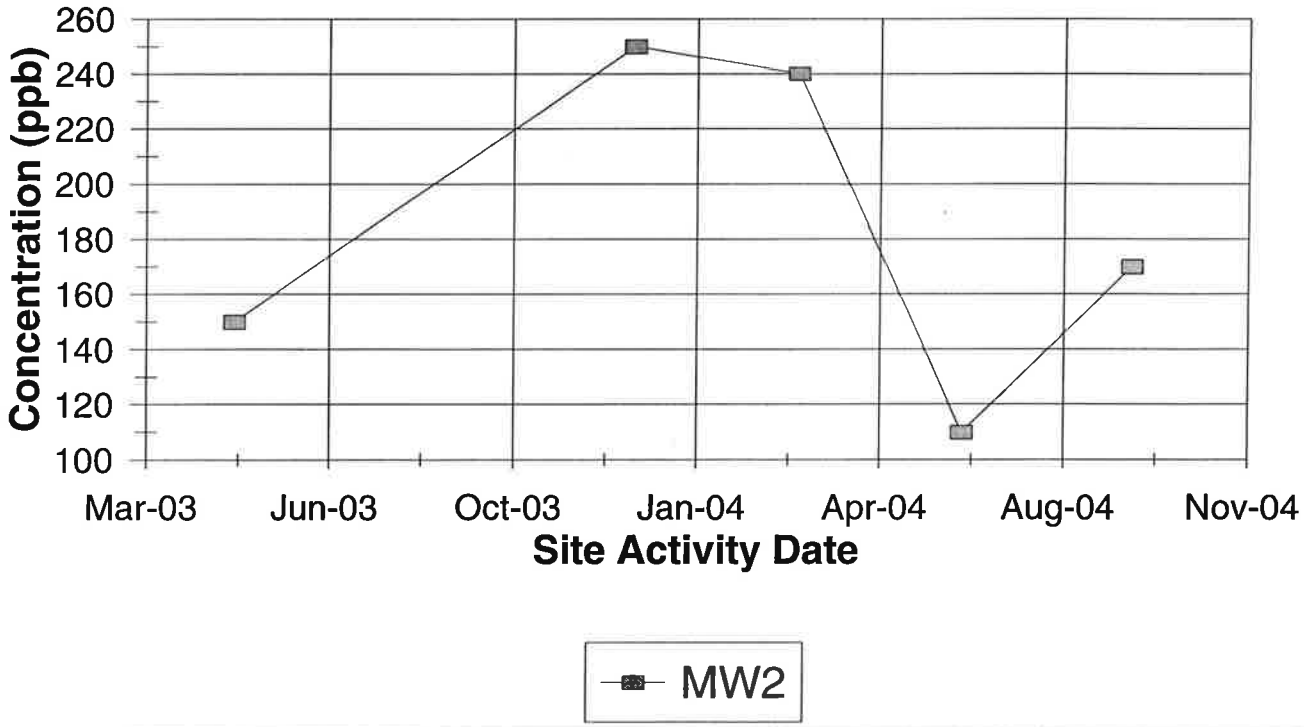


FIGURE 6

Geologic Cross Sections

Not Applicable

APPENDIX A

Laboratory Analytical Reports

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S042581648	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 43929	
Descript:	WCEC, Morris #405			Sampled: 9/7/2004 02:10 PM	
Location:	MW1-405-H2O-17			Completed: 09/22/2004	

Notes:

DRO extraction date: 09/14/04

** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	9/17/2004	* 0.12	mg/L	0.1	WI Method
GRO	9/15/2004	< 0.1	mg/L	0.1	WI Method
Benzene	9/15/2004	< 2	ug/L	2	8021B/601/602
Ethyl Benzene	9/15/2004	< 1.4	ug/L	1.4	8021B/601/602
Methyl tert-butyl ether	9/15/2004	< 2.3	ug/L	2.3	8021B/601/602
Toluene	9/15/2004	< 2	ug/L	2	8021B/601/602
Total Xylenes	9/15/2004	< 4	ug/L	4	8021B/601/602

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S042581650	Project #:	5527	Sampler: Client	Type: Grab
				Status: Normal	Matrix: Liquid
Client:	WCEC-Morris			NTS COC No: 43929	
Study:	Consultant			Sampled: 9/7/2004 02:40 PM	
Descript:	WCEC, Morris #405			Completed: 09/22/2004	
Location:	MW2-405-H2O-17				

Notes:

DRO extraction date: 09/14/04
p DRO sample pH 7

Analyte	Analysis Date	Result	Units	RL	Method
DRO	9/17/2004	p 19	mg/L	2	WI Method
GRO	9/16/2004	2.3	mg/L	0.1	WI Method
Benzene	9/16/2004	170	ug/L	2	8021B/601/602
Ethyl Benzene	9/16/2004	3.8	ug/L	1.4	8021B/601/602
Methyl tert-butyl ether	9/16/2004	<2.3	ug/L	2.3	8021B/601/602
Toluene	9/16/2004	2.7	ug/L	2	8021B/601/602
Total Xylenes	9/16/2004	22	ug/L	4	8021B/601/602

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S042581651	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 43929	
Descript:	WCEC, Morris #405			Sampled: 9/7/2004 01:30 PM	
Location:	MW3-405-H2O-17			Completed: 09/22/2004	

Notes:

DRO extraction date: 09/14/04
c The RL was raised due to insufficient sample volume.

Analyte	Analysis Date	Result	Units	RL	Method
DRO	9/16/2004	c <0.11	mg/L	0.11	WI Method
GRO	9/15/2004	<0.1	mg/L	0.1	WI Method
Benzene	9/15/2004	<2	ug/L	2	8021B/601/602
Ethyl Benzene	9/15/2004	<1.4	ug/L	1.4	8021B/601/602
Methyl tert-butyl ether	9/15/2004	<2.3	ug/L	2.3	8021B/601/602
Toluene	9/15/2004	<2	ug/L	2	8021B/601/602
Total Xylenes	9/15/2004	<4	ug/L	4	8021B/601/602

Approved By: _____
Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S04258165A	Project #: 5527	Sampler: Client	Type: Grab	
Client:	WCEC-Morris		Status: Normal	Matrix: Liquid	
Study:	Consultant		NTS COC No: 43929		
Descript:	WCEC, Morris #405		Sampled: 9/7/2004 03:00 PM		
Location:	MW4-405-H2O-17		Completed: 09/17/2004		

Notes:

Analyte	Analysis Date	Result	Units	RL	Method
GRO	9/16/2004	2.2	mg/L	0.1	WI Method
Benzene	9/16/2004	170	ug/L	2	8021B/601/602
Ethyl Benzene	9/16/2004	3.2	ug/L	1.4	8021B/601/602
Methyl tert-butyl ether	9/16/2004	<2.3	ug/L	2.3	8021B/601/602
Toluene	9/16/2004	2.4	ug/L	2	8021B/601/602
Total Xylenes	9/16/2004	21	ug/L	4	8021B/601/602

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S04258165B	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 43929	
Descript:	WCEC, Morris #405			Sampled: 9/7/2004	
Location:	TB-405			Completed: 09/17/2004	

Notes:

Analyte	Analysis Date	Result	Units	RL	Method
Benzene	9/15/2004	<2	ug/L	2	8021B/601/602
Ethyl Benzene	9/15/2004	<1.4	ug/L	1.4	8021B/601/602
Methyl tert-butyl ether	9/15/2004	<2.3	ug/L	2.3	8021B/601/602
Toluene	9/15/2004	<2	ug/L	2	8021B/601/602
Total Xylenes	9/15/2004	<4	ug/L	4	8021B/601/602

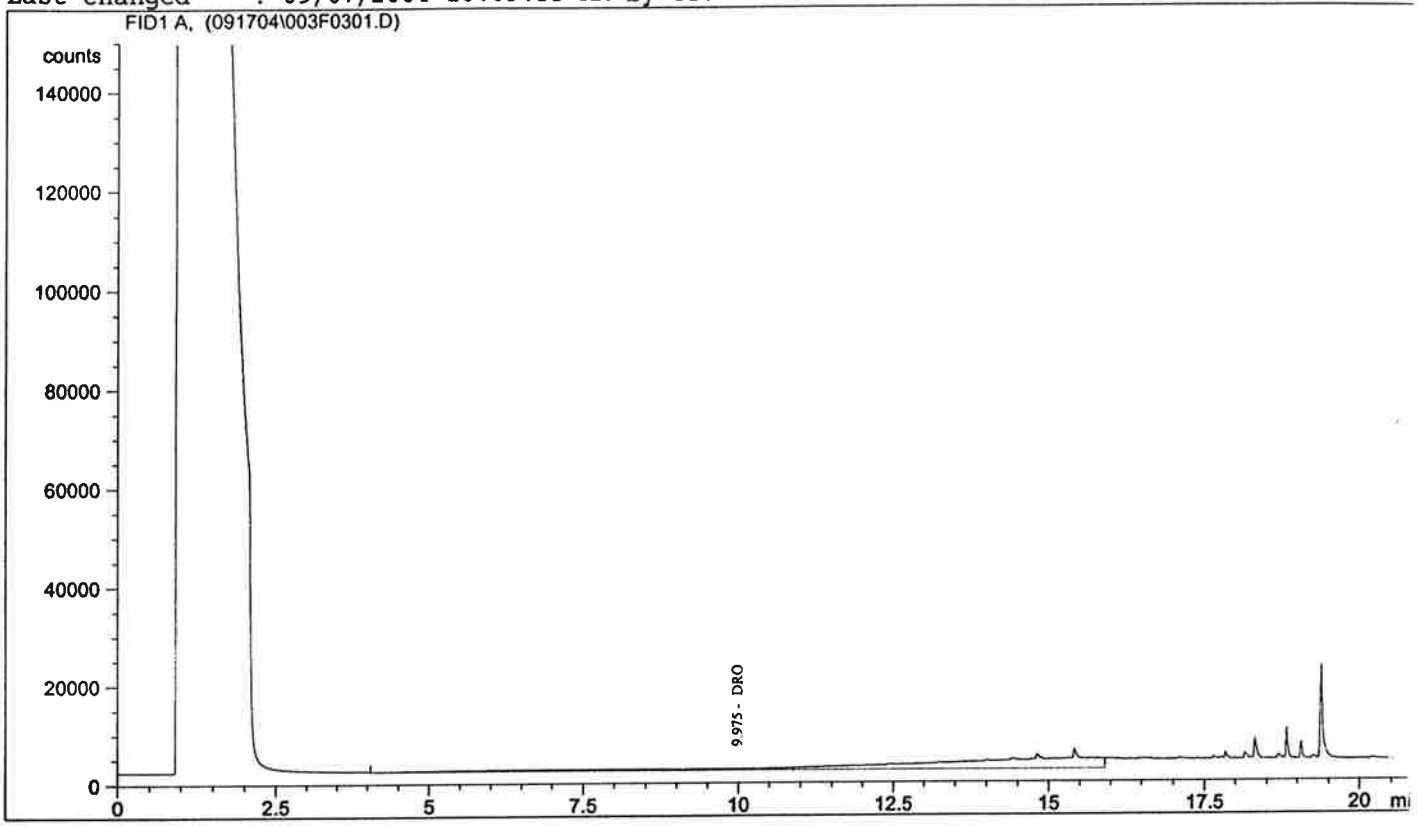
Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

```
Injection Date  : 09/17/2004 11:53:37 AM        Seq. Line :   3
Sample Name     : 042581648 wcec                    Vial :   3
Acq. Operator   : csd                               Inj :   1
                                               Inj Volume : 2 µl
Acq. Method     : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed    : 08/20/2004 3:57:47 PM by csd
Analysis Method : D:\HPCHEM\7\METHODS\D090204L.M
Last changed    : 09/07/2004 10:09:53 AM by csd
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      09/07/2004 10:09:49 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Sample Amount         :      1.00000  [ppm]   (not used in calc.)

Signal 1: FID1 A,
```

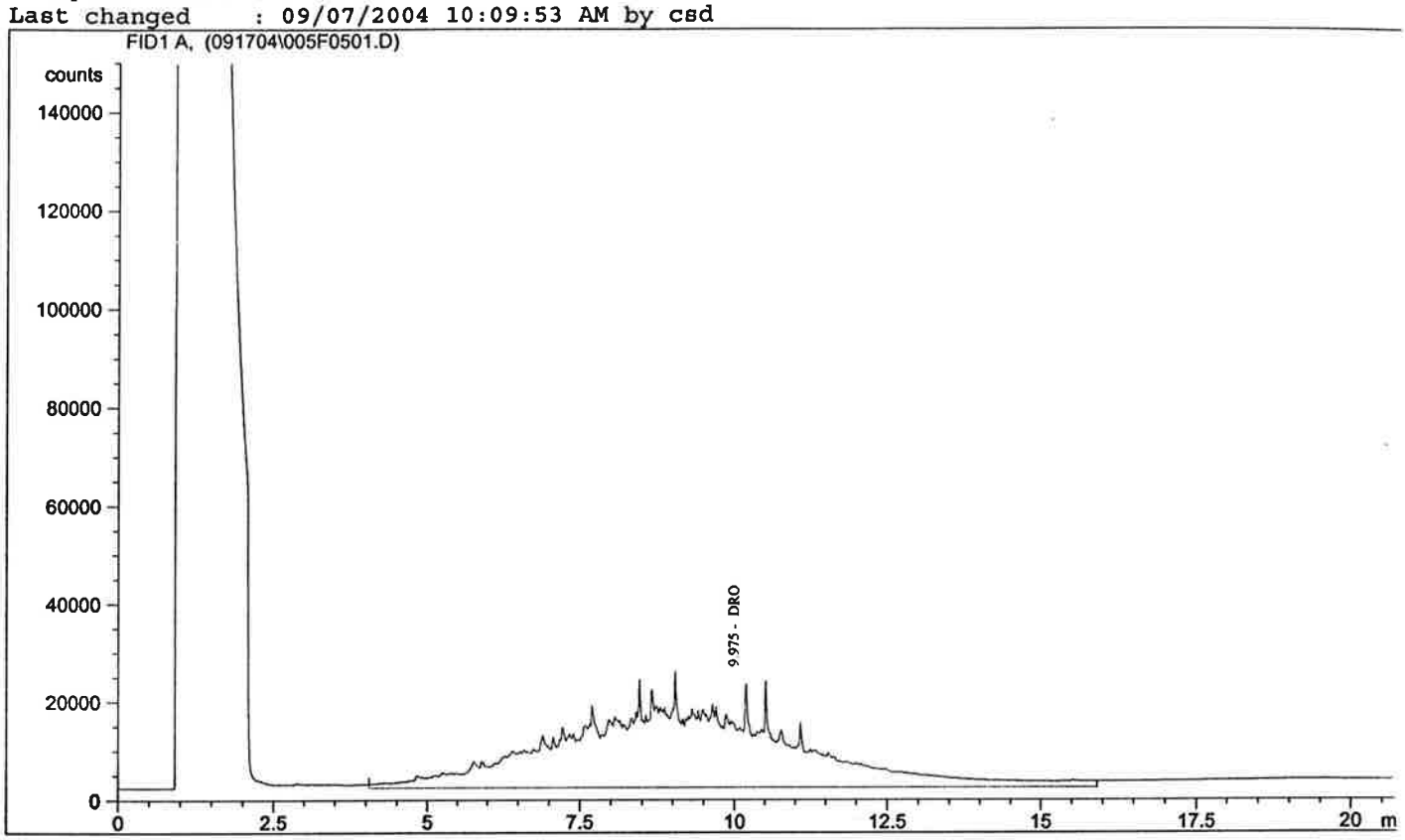
RetTime [min]	Type	Area counts*s	Amt/Area	Amount [ppm]	Grp	Name
9.975	HHA+	5.46891e5	2.25479e-7	1.23312e-1		DRO

```
Totals :                              1.23312e-1

 Results obtained with enhanced integrator!
```

*** End of Report ***

```
Injection Date   : 09/17/2004 1:05:24 PM          Seq. Line :   5
Sample Name      : 042581650 df=20                    Vial :   5
Acq. Operator    : csd                                 Inj :   1
                                                 Inj Volume : 2 µl
Acq. Method      : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed     : 08/20/2004 3:57:47 PM by csd
Analysis Method  : D:\HPCHEM\7\METHODS\D090204L.M
Last changed     : 09/07/2004 10:09:53 AM by csd
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      09/07/2004 10:09:49 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Sample Amount         :      1.00000  [ppm]   (not used in calc.)

Signal 1: FID1 A,

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          counts*s                [ppm]
-------|------|----------|----------|----------|--|------------------
  9.975 HHA+   4.64679e6  1.93821e-7 9.00648e-1    DRO

Totals :                              9.00648e-1

 Results obtained with enhanced integrator!
```

*** End of Report ***

Northeast Technical Services, Inc.
315 Chestnut Street
P.O. Box 1142
Virginia, Minnesota 55792
Phone: 218-741-4290
Fax: 218-742-1010

*Multisite/Superfund

COC# 43929

Page _____ of _____
Date Due: _____

CHAIN OF CUSTODY RECORD

Client Information	Report to: Matt Johnson
Client: WCEC	Address: WCEC
Contact Person: Matt Johnson	
Address: 14 Green River Road Morris MN 56267	Invoice to: Shellen Giese
Phone: 320 589-2039	Address: WCEC
Fax: 589-2814	
Project Information: Humboldt	

DRO GRO BTEX/MTBE

Lab Use Only Laboratory ID	Sample Description	Collection Date	Collection Time	Matrix Liquid	Matrix Solid	Matrix Other	Type Grab	Type Comp	Filtered	Analysis Required									Comments
504 258 1648	MW1-405-H20-17	9/3/04	2:10	X			X		N	X	X	X							
1650	MW2-405-H20-17		2:40	X			X		N	X	X	X							
1651	MW3-405-H20-17		1:30	X			X		N	X	X	X							
165A	MW4-405-H20-17		3:00	X			X		N		X	X							
165B	TB-405			X							X	X							

Sampled By: Josh Hellen	Date 9/3/04 Time 3:00	Received By: Charleen	Date 9/9/04 Time 1:15	Received for Laboratory By: Cindy Pogachnik	Date 9/10/04 Time 12:40pm	NTS Project #
Relinquished By: Charleen	Date 9/9/04 Time 11:30p	Received By:	Date Time	Temperature on Arrival: On Ice X ___ Degrees Celsius		Misc. Lab Information

Northeast Technical Services
Environmental Laboratory
Sample Receiving Non-Conformity Checklist

COC #: 43929 Project#: 5527
Date received: 9-10-04 Received by: CP

☐	Samples not received at 2-6 °C	Received @ ? °C	
☐	Samples not received on ice		
☐	Temperature blank not included		
☐	COC documents not included	☐	PM notified
☐	Sampling date/time not complete	☐	PM notified
* ☑	Required signatures not complete	☐	PM notified
☐	Custody tape/seals not intact	☐	PM notified
☐	Samples and COC did not match	☐	PM notified
☐	Samples not intact	☐	PM notified
☐	Requires quick turn around analysis	☐	Lab notified
☐	Short hold time tests	☐	Lab notified
☐	Samples near expiration of hold time	☐	Lab notified
☐	Samples were past holding time	☐	PM notified
☐	Filtration/preservation by lab required	☐	Lab notified
☐	Preservation of samples not correct	☐	PM notified
☐	Sample volumes not adequate	☐	PM notified
☐	VOCs not free of headspace	☐	PM notified

* Sampler did not relinquish samples.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S041631102	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 41802	
Descript: WCEC, Morris #92-405-30		Sampled: 6/7/2004 02:25 PM	
Location: MW1-405-H20-16		Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04

** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/17/2004	* 0.22	mg/L	0.1	WI Method
GRO	6/11/2004	< 0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	< 2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	< 1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	< 2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	< 2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	< 4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S041631106	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 41802	
Descript: WCEC, Morris #92-405-30		Sampled: 6/7/2004 03:00 PM	
Location: MW2-405-H20-16		Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04
p-DRO sample pH= 7

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/16/2004	p 53	mg/L	0.1	WI Method
GRO	6/14/2004	3.5	mg/L	0.1	WI Method
Benzene	6/14/2004	110	ug/L	2	SW846 8021
Ethyl Benzene	6/14/2004	21	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/14/2004	<23	ug/L	2.3	SW846 8021
Toluene	6/14/2004	<20	ug/L	2	SW846 8021
Total Xylenes	6/14/2004	50	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S041631107	**Project #:** 5527	
Client:	WCEC-Morris	**Sampler:** Client	**Type:** Grab
Study:	Consultant	**Status:** Normal	**Matrix:** Liquid
Descript:	WCEC, Morris #92-405-30	**NTS COC No:** 41802	
Location:	MW3-405-H20-16	**Sampled:** 6/7/2004 02:00 PM	
		Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04
** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/15/2004	* <0.1	mg/L	0.1	WI Method
GRO	6/11/2004	<0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	<2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	<4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S04163110A	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 41802	
Descript:	WCEC, Morris #92-405-30			Sampled: 6/7/2004 03:15 PM	
Location:	MW4-405-H20-16			Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04
p-DRO sample pH= 7

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/16/2004	p 24	mg/L	0.1	WI Method
GRO	6/14/2004	2.7	mg/L	0.1	WI Method
Benzene	6/14/2004	110	ug/L	2	SW846 8021
Ethyl Benzene	6/14/2004	1.9	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/14/2004	<23	ug/L	2.3	SW846 8021
Toluene	6/14/2004	<20	ug/L	2	SW846 8021
Total Xylenes	6/14/2004	43	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S04163110B | Project #: 5527
Client: WCEC-Morris
Study: Consultant
Descript: WCEC, Morris #92-405-30
Location: Trip Blank

Sampler: Client
Status: Normal
NTS COC No: 41802
Sampled: 6/7/2004
Completed: 06/16/2004

Type: Grab
Matrix: Liquid

Notes:

Analyte	Analysis Date	Result	Units	RL	Method
GRO	6/11/2004	<0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	<2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	<4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S041631102	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 41802	
Descript: WCEC, Morris #92-405-30		Sampled: 6/7/2004 02:25 PM	
Location: MW1-405-H20-16		Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04

** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/17/2004	* 0.22	mg/L	0.1	WI Method
GRO	6/11/2004	<0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	<2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	<4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

RECEIVED JUN 2 3 2004

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S041631106 | Project #: 5527
Client: WCEC-Morris
Study: Consultant
Descript: WCEC, Morris #92-405-30
Location: MW2-405-H20-16

Sampler: Client
Status: Normal
NTS COC No: 41802
Sampled: 6/7/2004 03:00 PM
Completed: 06/18/2004

Type: Grab
Matrix: Liquid

Notes:

DRO extraction date: 06/14/04

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/16/2004	53	mg/L	0.1	WI Method
GRO	6/14/2004	3.5	mg/L	0.1	WI Method
Benzene	6/14/2004	110	ug/L	2	SW846 8021
Ethyl Benzene	6/14/2004	21	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/14/2004	<23	ug/L	2.3	SW846 8021
Toluene	6/14/2004	<20	ug/L	2	SW846 8021
Total Xylenes	6/14/2004	50	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S041631107	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 41802	
Descript: WCEC, Morris #92-405-30		Sampled: 6/7/2004 02:00 PM	
Location: MW3-405-H20-16		Completed: 06/18/2004	

Notes:

DRO extraction date: 06/14/04
** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/15/2004	* < 0.1	mg/L	0.1	WI Method
GRO	6/11/2004	< 0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	< 2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	< 1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	< 2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	< 2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	< 4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S04163110A | Project #: 5527
Client: WCEC-Morris
Study: Consultant
Descript: WCEC, Morris #92-405-30
Location: MW4-405-H20-16

Sampler: Client
Status: Normal
NTS COC No: 41802
Sampled: 6/7/2004 03:15 PM
Completed: 06/18/2004

Type: Grab
Matrix: Liquid

Notes:

DRO extraction date: 06/14/04

Analyte	Analysis Date	Result	Units	RL	Method
DRO	6/16/2004	24	mg/L	0.1	WI Method
GRO	6/14/2004	2.7	mg/L	0.1	WI Method
Benzene	6/14/2004	110	ug/L	2	SW846 8021
Ethyl Benzene	6/14/2004	1.9	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/14/2004	<23	ug/L	2.3	SW846 8021
Toluene	6/14/2004	<20	ug/L	2	SW846 8021
Total Xylenes	6/14/2004	43	ug/L	4	SW846 8021

Approved By: _____
Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S04163110B	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 41802	
Descript:	WCEC, Morris #92-405-30			Sampled: 6/7/2004	
Location:	Trip Blank			Completed: 06/16/2004	

Notes:

Analyte	Analysis Date	Result	Units	RL	Method
GRO	6/11/2004	<0.1	mg/L	0.1	WI Method
Benzene	6/11/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	6/11/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	6/11/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	6/11/2004	<2	ug/L	2	SW846 8021
Total Xylenes	6/11/2004	<4	ug/L	4	SW846 8021

Approved By:

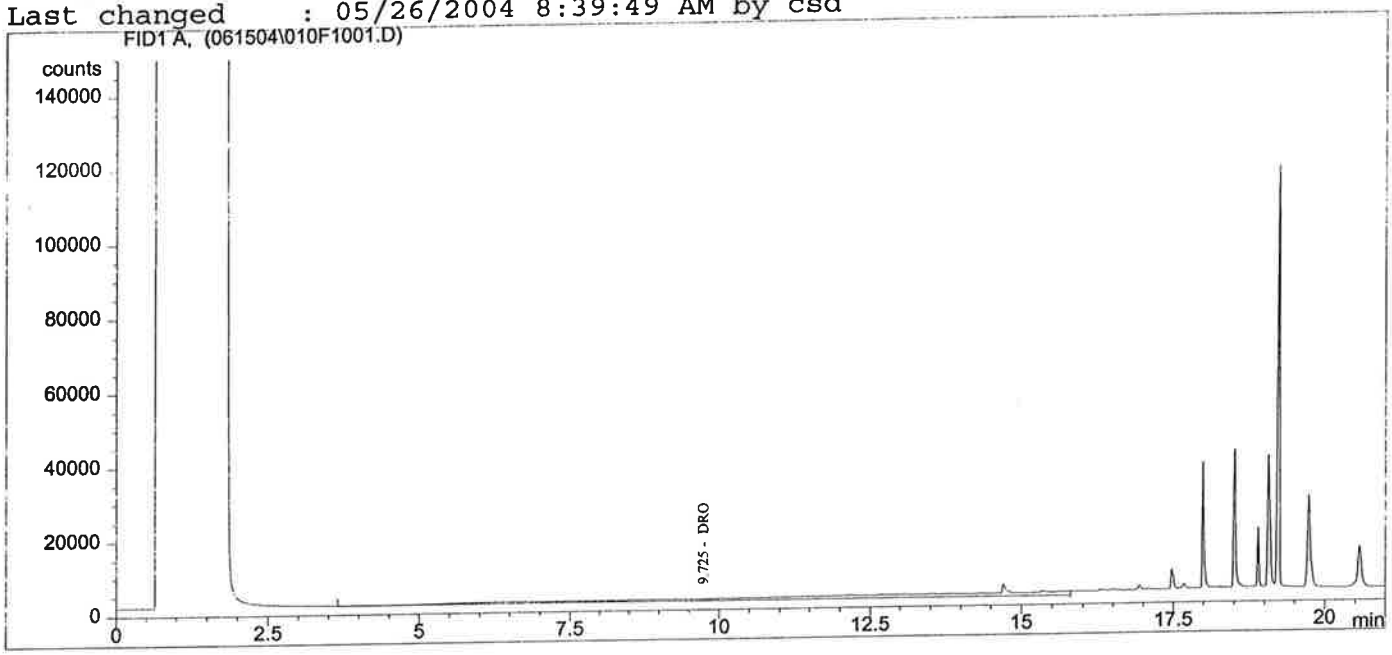
Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

Data File D:\HPCHEM\7\DATA\061504\010F1001.D Sample Name: s041631107 wcec

```
==========================================================================
Injection Date   : 06/15/2004 4:15:36 PM          Seq. Line :  10
Sample Name      : s041631107 wcec                    Vial :  10
Acq. Operator    : DJT                                Inj :   1
                                                  Inj Volume : 2 µl

Sequence File    : C:\HPCHEM\2\SEQUENCE\061504.S
Acq. Method      : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed     : 05/25/2004 12:15:55 PM by csd
Analysis Method  : D:\HPCHEM\7\METHODS\D041304L.M
Last changed     : 05/26/2004 8:39:49 AM by csd
```

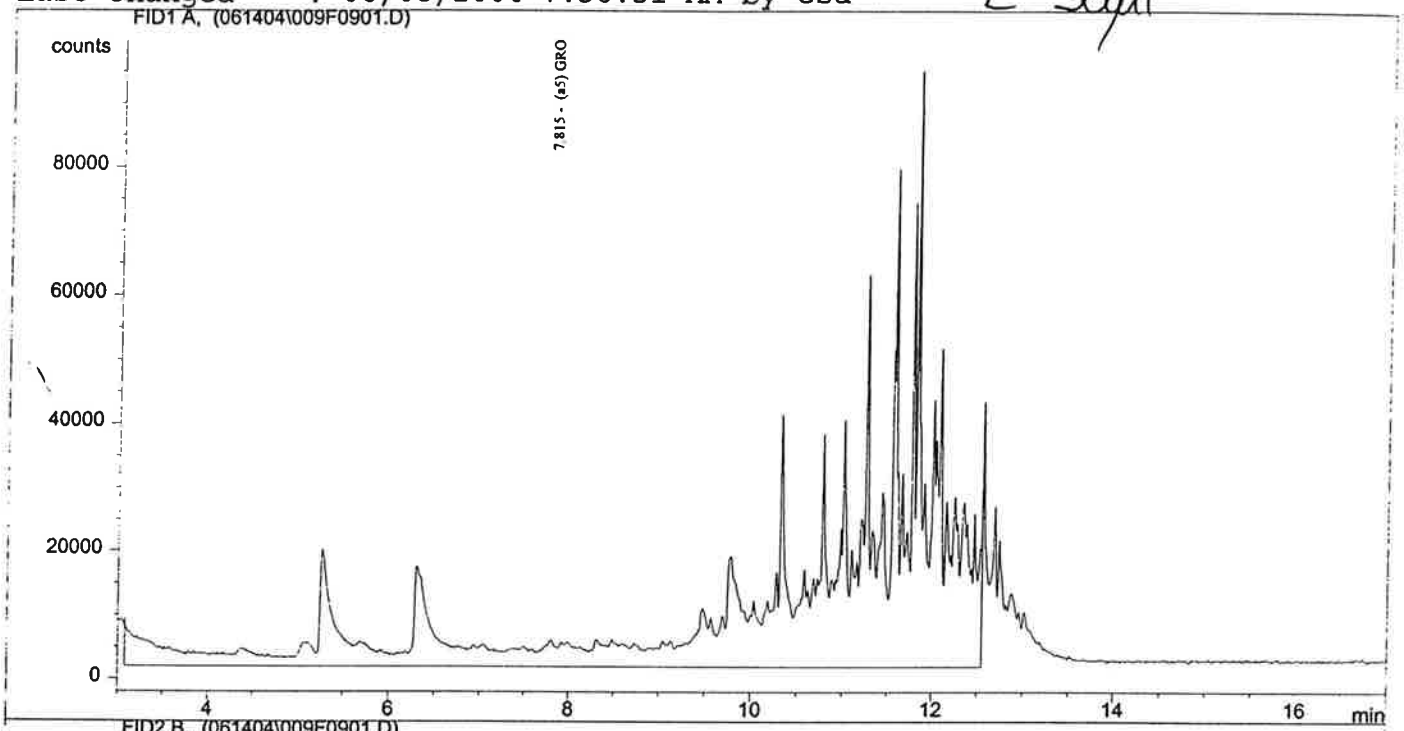


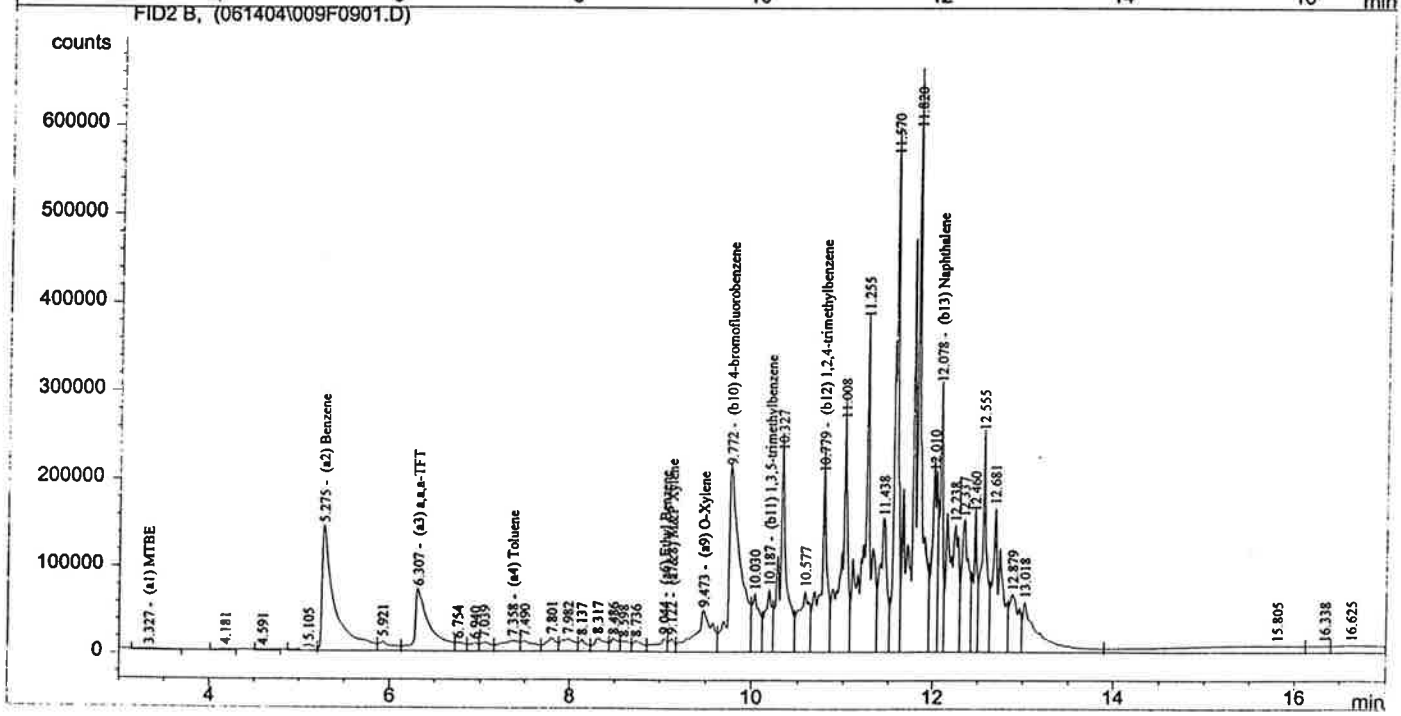

```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By                :      Signal
Calib. Data Modified     :      04/16/2004 2:04:16 PM
Multiplier               :      1.0000
Dilution                 :      1.0000
Sample Amount            :      1.00000  [ppm]    (not used in calc.)

Signal 1: FID1 A,

RetTime  Type      Area       Amt/Area     Amount    Grp   Name
 [min]          counts*s                    [ppm]
-------|------|----------|----------|----------|--|-----------------
  9.725 HHA+    4.63248e5  1.54060e-7 7.13679e-2-    DRO

Totals :                                  7.13679e-2

 Results obtained with enhanced integrator!
1 Warnings or Errors :

Warning : Amount limits exceeded

==========================================================================
                          *** End of Report ***
```

Data File D:\HPCHEM\4\DATA\061404\009F0901.D Sample Name: 041631/10a wcec

Injection Date : 06/14/2004 2:11:30 PM Seq. Line : 9
Sample Name : 041631/10a wcec Vial : 9
Acq. Operator : csd Inj : 1
Inj Volume : Manually

Acq. Method : D:\HPCHEM\4\METHODS\!GC4GRO5.M
Last changed : 04/16/2004 6:26:58 AM by csd
Analysis Method : D:\HPCHEM\4\METHODS\060304L.M
Last changed : 06/08/2004 7:36:51 AM by csd





C-4 06/14/2004 3:02:50 PM csd

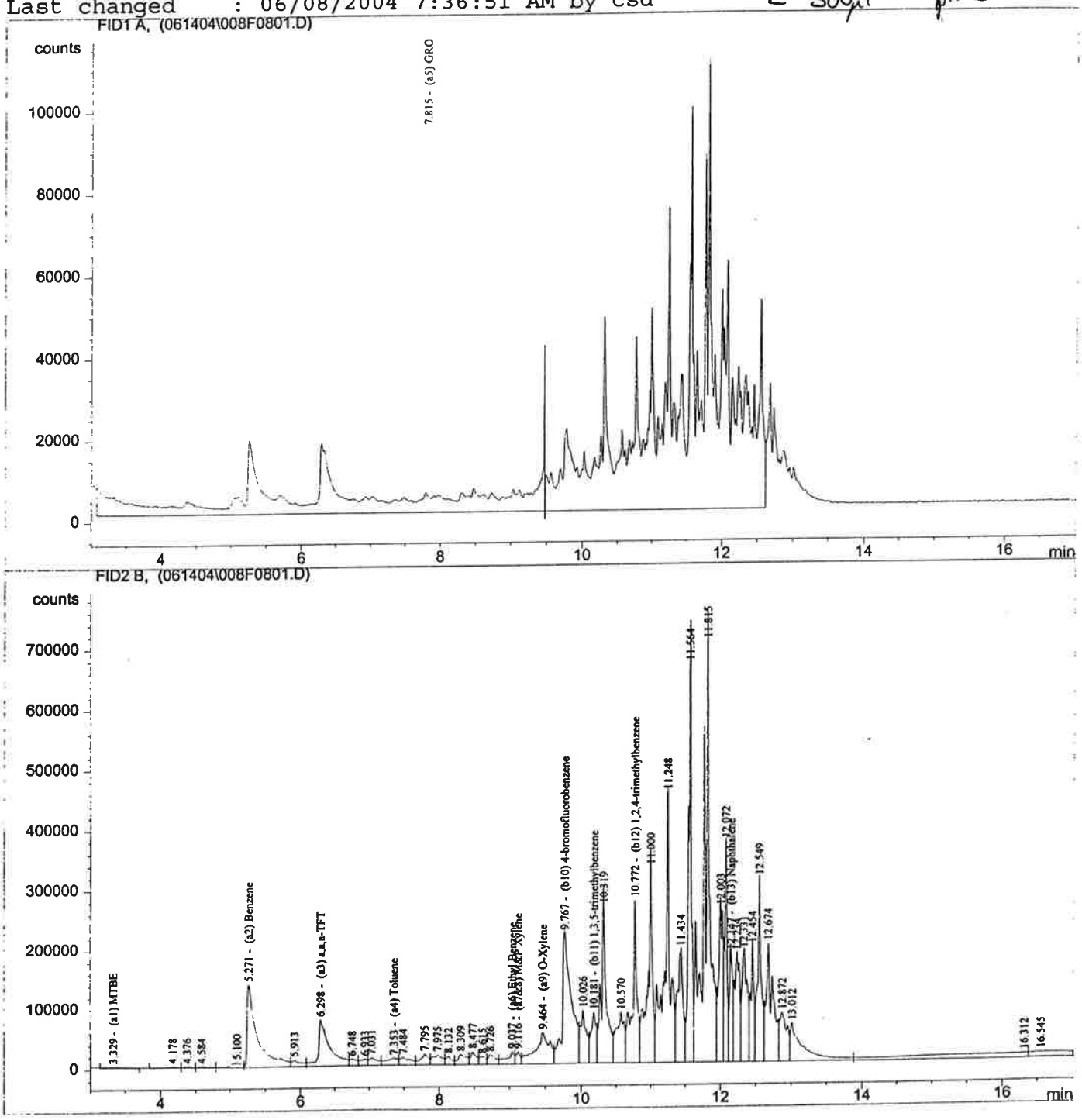
1106 DJT

Injection Date : 06/14/2004 1:44:59 PM
Sample Name : 041631106 wcec
Acq. Operator : csd 1106

Seq. Line : 8
Vial : 8
Inj : 1
Inj Volume : Manually

Acq. Method : D:\HPCHEM\4\METHODS\!GC4GRO5.M
Last changed : 04/16/2004 6:26:58 AM by csd
Analysis Method : D:\HPCHEM\4\METHODS\060304L.M
Last changed : 06/08/2004 7:36:51 AM by csd

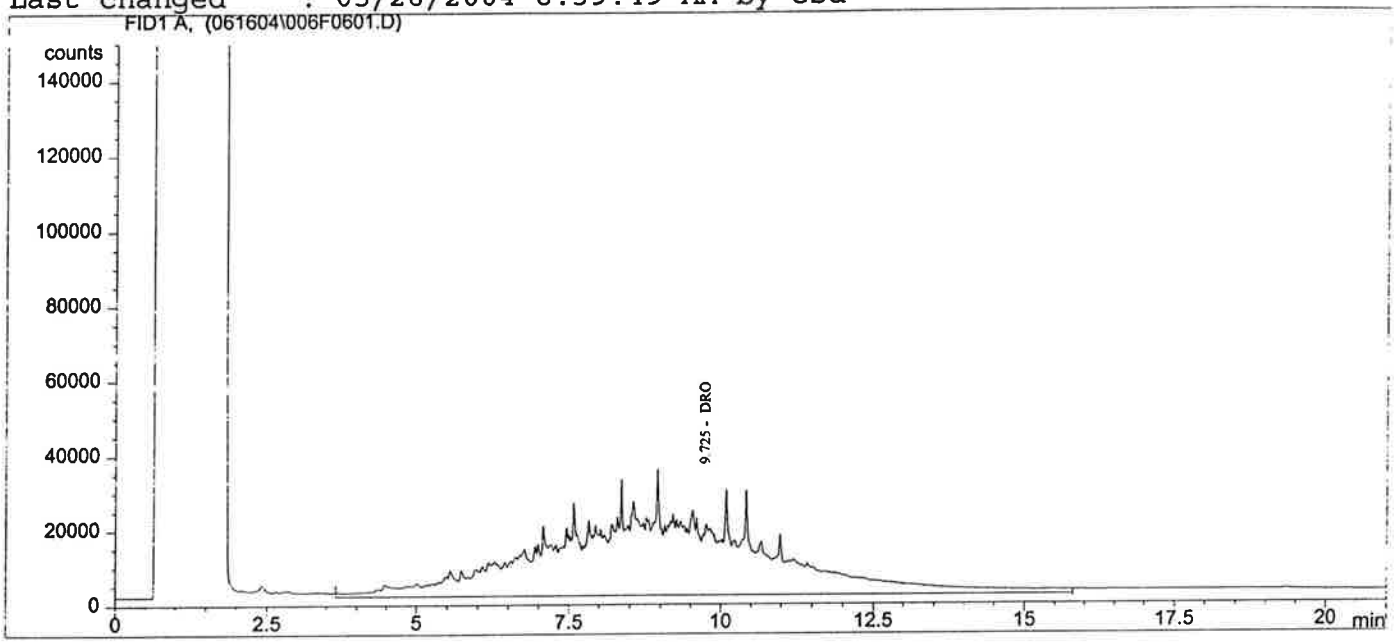
~ 500µl pH 3



Injection Date : 06/16/2004 2:17:38 PM
Sample Name : 1631106 DF=50
Acq. Operator : DJT

Seq. Line : 6
Vial : 6
Inj : 1
Inj Volume : 2 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\061604.S
Acq. Method : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed : 05/25/2004 12:15:55 PM by csd
Analysis Method : D:\HPCHEM\7\METHODS\D041304L.M
Last changed : 05/26/2004 8:39:49 AM by csd



External Standard Report

Sorted By : Signal
Calib. Data Modified : 04/16/2004 2:04:16 PM
Multiplier : 1.0000
Dilution : 1.0000
Sample Amount : 1.00000 [ppm] (not used in calc.)

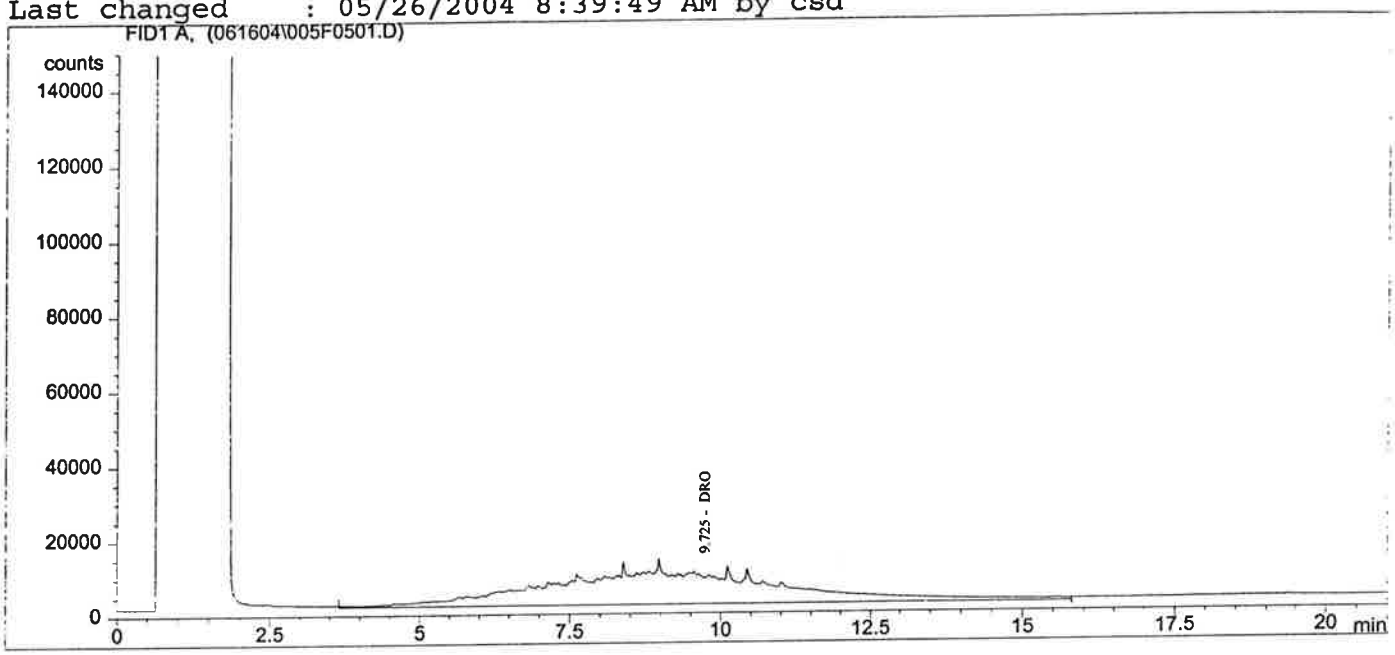
Signal 1: FID1 A,

RetTime [min]	Type	Area counts*s	Amt/Area	Amount [ppm]	Grp	Name
9.725	HHA+	5.86159e6	1.73106e-7	1.01468		DRO
Totals :				1.01468		

Results obtained with enhanced integrator!

*** End of Report ***

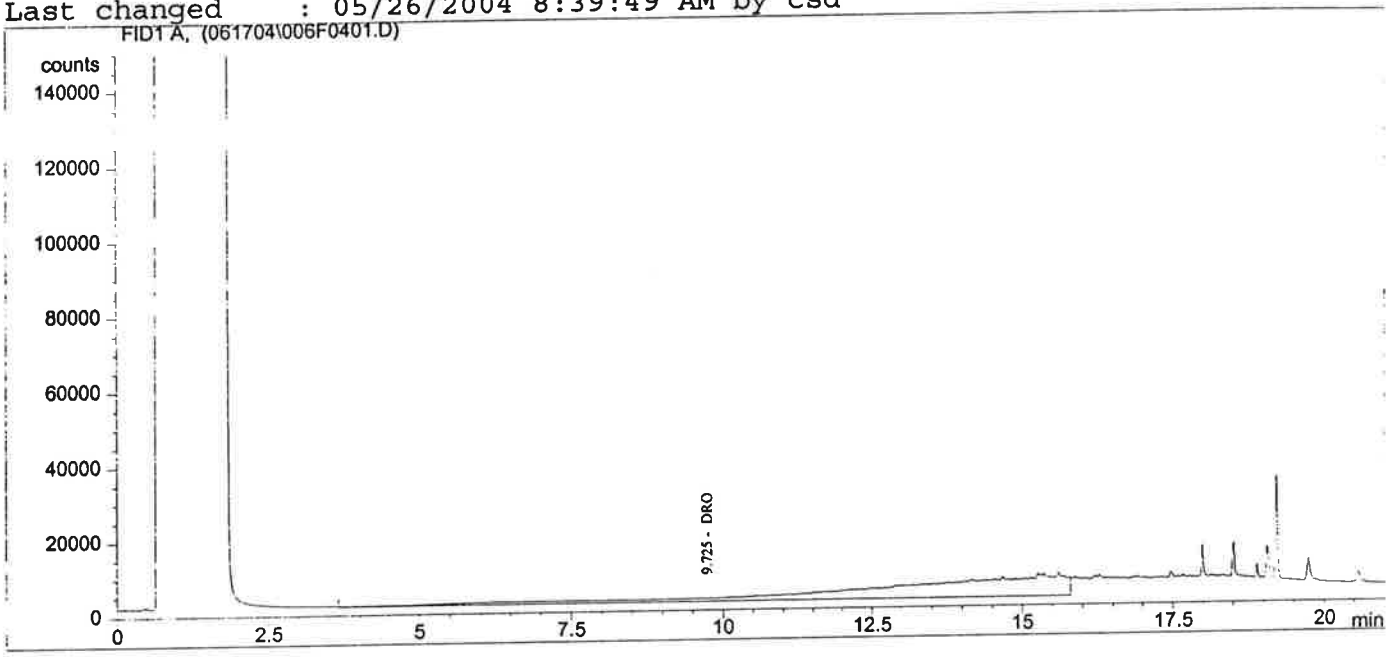
```
==========================================================================
Injection Date  : 06/16/2004 1:44:52 PM          Seq. Line :   5
Sample Name     : 163110A DF=50                       Vial :   5
Acq. Operator   : DJT                                  Inj :   1
                                                 Inj Volume : 2 µl

Sequence File   : C:\HPCHEM\2\SEQUENCE\061604.S
Acq. Method     : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed    : 05/25/2004 12:15:55 PM by csd
Analysis Method : D:\HPCHEM\7\METHODS\D041304L.M
Last changed    : 05/26/2004 8:39:49 AM by csd
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      04/16/2004 2:04:16 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Sample Amount         :      1.00000  [ppm]    (not used in calc.)

Signal 1: FID1 A,

RetTime  Type     Area       Amt/Area     Amount    Grp   Name
 [min]          counts*s                  [ppm]
-------|------|----------|----------|----------|--|-----------------
  9.725 HHA+   2.57464e6  1.71020e-7 4.40314e-1     DRO

Totals :                                4.40314e-1

 Results obtained with enhanced integrator!
==========================================================================
                          *** End of Report ***
```

Data File D:\HPCHEM\7\DATA\061704\006F0401.D Sample ...

```
==========================================================================
Injection Date   : 06/17/2004 11:24:55 AM          Seq. Line :   4
Sample Name      : 1631102 DF=1                        Vial :   6
Acq. Operator    : DJT                                  Inj :   1
                                                Inj Volume : 2 µl

Sequence File    : C:\HPCHEM\2\SEQUENCE\061704.S
Acq. Method      : D:\HPCHEM\7\METHODS\!GC7ACQ1.M
Last changed     : 05/25/2004 12:15:55 PM by csd
Analysis Method  : D:\HPCHEM\7\METHODS\D041304L.M
Last changed     : 05/26/2004 8:39:49 AM by csd
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      04/16/2004 2:04:16 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Sample Amount         :      1.00000  [ppm]   (not used in calc.)

Signal 1: FID1 A,

RetTime  Type      Area       Amt/Area     Amount    Grp   Name
 [min]          counts*s                   [ppm]
-------|------|----------|----------|----------|--|-----------------
  9.725 HHA+   1.26483e6  1.67166e-7 2.11436e-1     DRO

Totals :                                 2.11436e-1

 Results obtained with enhanced integrator!
==========================================================================
                          *** End of Report ***
```

Northeast Technical Services, Inc.
315 Chestnut Street
P.O. Box 1142
Virginia, Minnesota 55792
Phone: 218-741-4290
Fax: 218-742-1010

* Multisite/Superfund

COC# 41802

Page _____ of _____
Date Due: _____

CHAIN OF CUSTODY RECORD

Client Information	Report to: Matt Johnson
Client: WCEC	Address: WCEC
Contact Person: Matt Johnson	
Address: 14 Green River Road Morris MN 56267	Invoice to: Sheldon Giese
Phone: (320) 589-2039	Address: WCEC
Fax: (320) 589-2814	
Project Information: 405 - Humboldt	

Lab Use Only Laboratory ID	Sample Description	Collection Date	Collection Time	Matrix Liquid	Matrix Solid	Matrix Other	Type Grab	Type Comp	Filtered	DRO	GRO	BTEX/MTBE								Comments
S04116 31102	MW1-405-H20-16	6/7/04	2:25	X			X		N	X	X	X								* Fax results
1106	MW2-405-H20-16	"	3:00	X			X		N	X	X	X								and invoice
1107	MW3-405-H20-16	"	2:00	X			X		N	X	X	X								ASAP!!
110A	MW4-405-H20-16	"	3:15	X			X		N	X	X	X								
110B	Trip Blank-405	"		X							X	X								

Sampled By:	Date	Received By:	Date	Received for Laboratory By:	Date	NTS Project #
Josh Hollen	6/7/04	Char Mollica	6/10/04	Jim Matyska	6/10/04	
	Time 3:15		Time 12:30		Time 9P	Misc. Lab Information
Relinquished By:	**Date**	**Received By:**	**Date**	**Temperature on Arrival**		
Char Mollica	6/10/04	Jim Matyska	6-10-4	On Ice ____	5.2 Degrees Celsius	
	Time 12:45		Time 1:30P			

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S040711616	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 39904	
Descript:	WCEC, Morris #92-405-30			Sampled: 3/9/2004 02:00 PM	
Location:	MW1-405-H20-15			Completed: 03/25/2004	

Notes:

DRO extraction date: 03/15/04
p DRO sample pH 7
** Heavy hydrocarbon compounds detected outside the DRO window.*

Analyte	Analysis Date	Result	Units	RL	Method
DRO	3/15/2004	p * 0.22	mg/L	0.1	WI Method
GRO	3/17/2004	<0.1	mg/L	0.1	WI Method
Benzene	3/17/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	3/17/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	3/19/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	3/17/2004	<2	ug/L	2	SW846 8021
Total Xylenes	3/17/2004	<4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S040711619	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 39904	
Descript: WCEC, Morris #92-405-30		Sampled: 3/9/2004 02:30 PM	
Location: MW2-405-H20-15		Completed: 03/25/2004	

Notes:

DRO extraction date: 03/15/04
p DRO sample pH 7

Analyte	Analysis Date	Result	Units	RL	Method
DRO	3/16/2004	p 12	mg/L	1	WI Method
GRO	3/19/2004	2.1	mg/L	0.2	WI Method
Benzene	3/19/2004	240	ug/L	4	SW846 8021
Ethyl Benzene	3/19/2004	4.4	ug/L	2.8	SW846 8021
Methyl tert-butyl ether	3/19/2004	<4.6	ug/L	4.6	SW846 8021
Toluene	3/19/2004	5	ug/L	4	SW846 8021
Total Xylenes	3/19/2004	40	ug/L	8	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

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"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S04071161B	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 39904	
Descript:	WCEC, Morris #92-405-30			Sampled: 3/9/2004 02:30 PM	
Location:	MW2B-405-H20-15			Completed: 03/25/2004	

Notes:

DRO extraction date: 03/15/04
p DRO sample pH 7

Analyte	Analysis Date	Result	Units	RL	Method
DRO	3/16/2004	p 16	mg/L	1	WI Method
GRO	3/19/2004	2.2	mg/L	0.2	WI Method
Benzene	3/19/2004	240	ug/L	4	SW846 8021
Ethyl Benzene	3/19/2004	4.6	ug/L	2.8	SW846 8021
Methyl tert-butyl ether	3/19/2004	<4.6	ug/L	4.6	SW846 8021
Toluene	3/19/2004	4.8	ug/L	4	SW846 8021
Total Xylenes	3/19/2004	40	ug/L	8	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID:	S040711621	Project #:	5527	Sampler: Client	Type: Grab
Client:	WCEC-Morris			Status: Normal	Matrix: Liquid
Study:	Consultant			NTS COC No: 39904	
Descript:	WCEC, Morris #92-405-30			Sampled: 3/9/2004 01:30 PM	
Location:	MW3-405-H20-15			Completed: 03/25/2004	

Notes:

DRO extraction date: 03/15/04

Analyte	Analysis Date	Result	Units	RL	Method
DRO	3/15/2004	<0.1	mg/L	0.1	WI Method
GRO	3/18/2004	<0.1	mg/L	0.1	WI Method
Benzene	3/18/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	3/18/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	3/19/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	3/18/2004	<2	ug/L	2	SW846 8021
Total Xylenes	3/18/2004	<4	ug/L	4	SW846 8021

Approved By: _____

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

"Solutions for Technical Concerns"

MDH Laboratory # 027-137-157

Sample ID: S04071162A	Project #: 5527	Sampler: Client	Type: Grab
Client: WCEC-Morris		Status: Normal	Matrix: Liquid
Study: Consultant		NTS COC No: 39904	
Descript: WCEC, Morris #92-405-30		Sampled: 3/9/2004	
Location: Trip Blank		Completed: 03/25/2004	

Notes:

Analyte	Analysis Date	Result	Units	RL	Method
GRO	3/18/2004	<0.1	mg/L	0.1	WI Method
Benzene	3/18/2004	<2	ug/L	2	SW846 8021
Ethyl Benzene	3/18/2004	<1.4	ug/L	1.4	SW846 8021
Methyl tert-butyl ether	3/19/2004	<2.3	ug/L	2.3	SW846 8021
Toluene	3/18/2004	<2	ug/L	2	SW846 8021
Total Xylenes	3/18/2004	<4	ug/L	4	SW846 8021

Approved By:

Project Manager:

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties either expressed or implied.

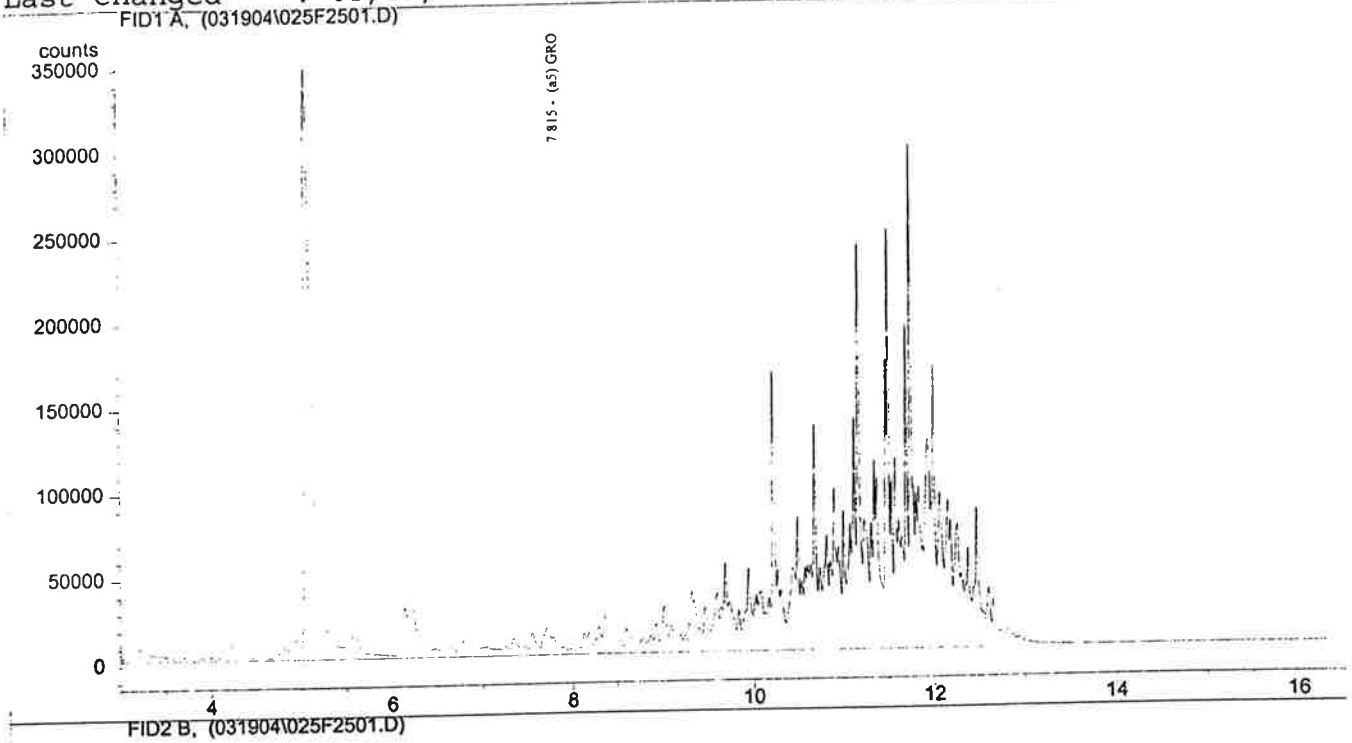
Data File D:\HPCHEM\4\DATA\031904\025F2501.D Sample Name: 040711619 wce

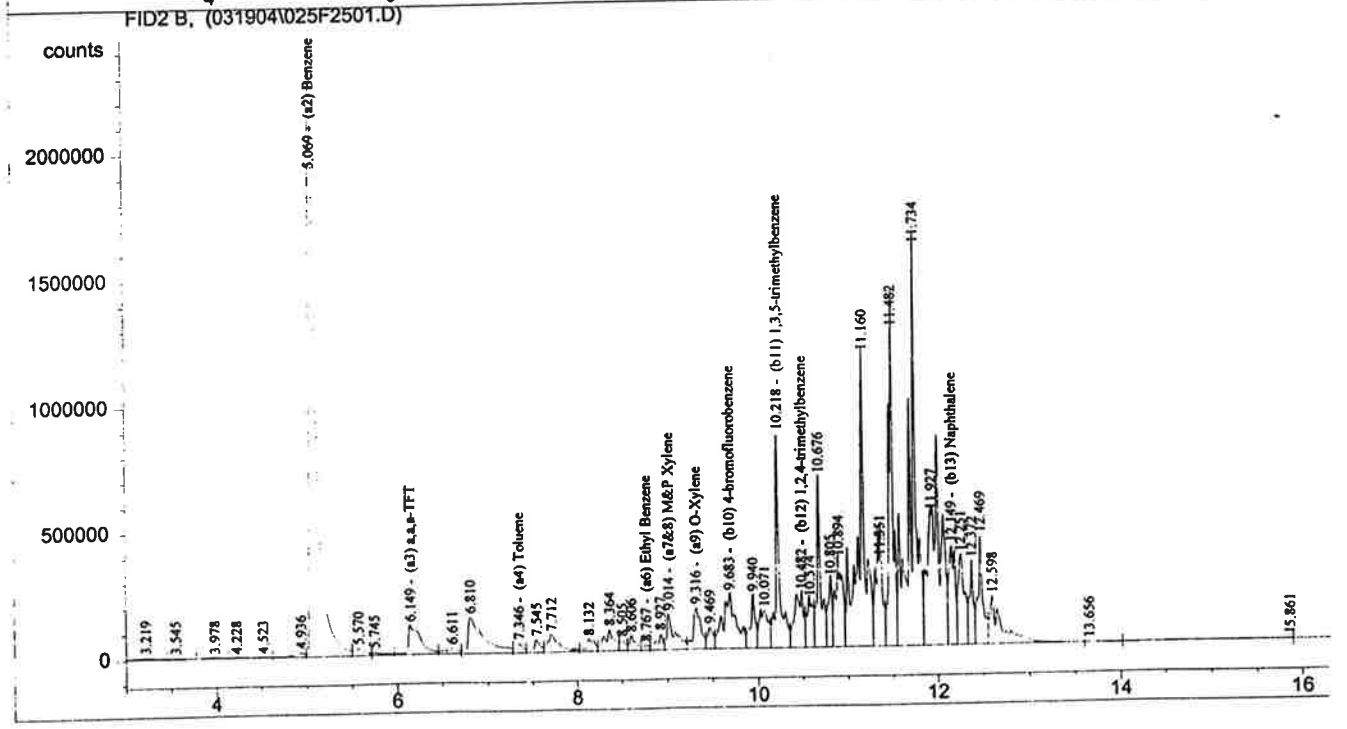
Injection Date : 03/19/2004 11:00:55 PM
Sample Name : 040711619 wcec
Acq. Operator : csd

Seq. Line : 25
Vial : 25
Inj : 1
Inj Volume : Manually

Sequence File : C:\HPCHEM\1\SEQUENCE\031904.S
Acq. Method : D:\HPCHEM\4\METHODS\!GC4GRO5.M
Last changed : 11/05/2003 12:09:16 PM by csd
Analysis Method : D:\HPCHEM\4\METHODS\031804LL.M
Last changed : 03/19/2004 11:44:31 AM by csd

L 2.5mL





Data File D:\HPCHEM\4\DATA\031904\026F2601.D Sample Name: 04071161b wcec

Injection Date	: 03/19/2004 11:33:50 PM	Seq. Line	: 26
Sample Name	: 04071161b wcec	Vial	: 26
Acq. Operator	: csd	Inj	: 1
		Inj Volume	: Manually
Sequence File	: C:\HPCHEM\1\SEQUENCE\031904.S		
Acq. Method	: D:\HPCHEM\4\METHODS\!GC4GRO5.M		
Last changed	: 11/05/2003 12:09:16 PM by csd		
Analysis Method	: D:\HPCHEM\4\METHODS\031804LL.M		
Last changed	: 03/19/2004 11:44:31 AM by csd		

L 2.5mL