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4th Water Sampling Report MarkAir Facility, Fairbanks, Alaska

Introduction

A groundwater evaluation is being performed as the first step of corrective action for the MarkAir Facility located at Fairbanks International Airport. The evaluation consists of quarterly water sampling events and analysis. This report summarizes sampling procedures and the results of the fourth water sampling event. These activities were carried out in accordance with Environmental Management, Inc.'s (EMI) Quality Assurance Program Plan (QAPP).

Nine monitoring wells were installed around the Fairbanks, MarkAir Facility during the week of June 21, 1993. On June 30, 1993, EMI collected the first water samples from these wells and the results of this phase of work were submitted in a report titled MarkAir Fairbanks Monitoring Well Report.

On September 30, 1993, the second water samples from the nine monitoring wells around the MarkAir facilities were collected by EMI. The results from this sampling event were submitted in a report titled 2nd Water Sampling Report MarkAir Facility, Fairbanks, Alaska.

On December 30, 1993, EMI collected the third water samples from the nine monitoring wells around the MarkAir facilities. The results from this sampling event were submitted in a report titled 3rd Water Sampling Report MarkAir Facility, Fairbanks, Alaska.

These sampling events are being performed on a quarterly basis, so that, contamination can be monitored for the seasonal cycle of water table fluctuations.

Summary of Findings

The following is a summary of findings. Please consult the main body of the report and attachments for supporting information.

- Some monitoring wells detected petroleum constituents which were not detected in previous sampling. In other cases, some monitoring wells did not detect contaminants that were detected in previous sampling.
- Metals such as Arsenic and Lead were detected, but below the Maximum Contaminant Levels (MCLs) stated in 18 AAC 80.070. The quality of groundwater in the Fairbanks region is naturally impaired, where concentrations of heavy metals such as, arsenic and lead in the water exceeds the State's drinking-water standard of 50 ppb.
- Water quality was checked for pH, temperature, dissolved oxygen, and conductivity. All water quality parameters were within the State's drinking water standards.
- Monitoring well casing elevations ranged in difference from 0.0 ft. to 0.06 ft. from the original elevation survey.

Water Sampling Procedures

On March 29, 1994, monitoring wells were purged by removing 3 well casing volumes of water.

On March 30, 1994 monitoring well samples were collected by Stan Dolloff of EMI following techniques were used as described in EMI's QAPP. All samples were then sent to Superior Precision Analytical, Inc. in Martinez, California for laboratory analysis. Monitoring well water samples were tested for Diesel Range Petroleum Hydrocarbons (EPA Method 3540/8100 Modified), Gasoline Range Petroleum Hydrocarbons (EPA Method 5030/8015 Modified), Total BTEX (EPA Method 5030/602), Total Range Petroleum Hydrocarbons (EPA Method 3550/418.1), PCB's (EPA Method 3550/8080), Volatile Chlorinated Solvents (EPA Method 5030/601), and Leachable Metals (Arsenic EPA Method 3020/7060), (Cadmium EPA Method 3010/6010), (Chromium EPA Method 3010/6010), (Lead EPA Method 3020/7421). Summary results may be found in Appendix C Tables #2 - #14. The chain of custody and complete analytical results can be found in Appendix D.

On April 7, 1994 monitoring well elevations were surveyed and tied into the existing airport elevation coordinate system.

Water Quality

Petroleum contaminant concentrations that are above the maximum contaminant levels (MCL) (18 AAC 80, Drinking Water Standards, March 18, 1993) are depicted on sheet 2 of 3 and sheet 3 of 3 of Appendix A. No monitoring well contained detectable amounts of petroleum products above their MCL which were not detected in the previous sampling event on December 30, 1993.

MW #1, #2, #4 at the Weaver Brothers Building and MW# 1, and #2 at the MarkAir Hanger showed a decline in detectable amounts of petroleum contaminants from the previous sampling event on December 30, 1993.

The metals arsenic, cadmium, chromium, and lead were tested for and the results are presented in Appendix C, Tables #12 to #15.

Temperature, pH, dissolved oxygen, and conductivity were checked by the use of a Hana Temperature/pH meter and a Hana Dissolved Oxygen/Conductivity meter. Temperature values from the three sampling events ranged between 38 degrees F to 42 degrees F. pH values from the three sampling events ranged between 6.22 pH to 7.1 pH. Dissolved oxygen values ranged between 36% to 45.6% for the second and third sampling events. Conductivity values from the three sampling events ranged between 340 uS to 410 uS. Temperature, pH, dissolved oxygen, and conductivity results are presented in Appendix C Tables 16 and 17.

Elevation Survey

The raising of piles and wells out of the ground (pile jacking) through the ratcheting affect of frost heaving commonly occurs in the Fairbanks area. Due to the possibility of vertical displacement of the monitoring wells from the freezing and thawing of the active soil layer, an elevation survey was performed on April 7, 1994 and compared to

the original survey conducted on June 25, 1993. The monitoring well elevations ranged in difference from 0.0 ft. to 0.06 ft. from the first survey. Monitoring well elevations are listed on the second page of Table #1 in Appendix C.

Discussion of Findings

Due to the changing pattern of detection and non-detection of petroleum hydrocarbons, the plume of contamination seems to be migrant. Up gradient monitoring wells (MW#4 @ the Weaver Brothers Bldg. and MW#5 @ the MarkAir Hangar) are showing detectable amounts of petroleum hydrocarbons. MW #4 @ the Weaver Brothers Building shows detectable amounts of Benzene above its MCL of 5.0 parts per billion (ppb). Therefore, contamination from nearby sources could be encroaching on to MarkAir properties. The furthest down gradient monitoring wells (MW#1 @ the Weaver Brothers Bldg. and MW#1 @ the MarkAir Hangar) show no detectable amounts of any contaminant above its MCL. Naturally occurring high metal concentrations are consistently found in the groundwater in the Fairbanks area. Concentrations of arsenic in the water from many wells in the Fairbanks area exceeds the State's drinking-water standards of 50 parts per billion (ppb). Arsenic is showing up in detectable amounts in water samples from MW #1 and MW#2 @ the Weaver Brothers Building and MW#2 @ the Mark Air Hanger, however in all cases the amounts are below this standard.

Microorganisms are naturally present in the soil and water, existing over a broad range of conditions. Optimization of growth of these microbes is in large part determined by oxygen availability, temperature, and pH. Temperature changes have a twofold effect on the proliferation of the organisms, deviations from optimum temperatures directly affects growth rates and dissolved oxygen content is in part affected by water temperature values. Only MW #1 through MW #3 at the Weaver Brothers Building and MW #1 at the MarkAir Hanger showed pH levels within the MCL range of 6.5 to 8.5. All other samples were more acidic with pH values below 6.5.

Monitoring well elevations around the Weaver Brothers Building ranged in difference from 0.01 to 0.02 ft. Monitoring well elevations around the MarkAir Hangar ranged in

difference from 0.0 ft. to 0.06 ft. Some displacement of the monitoring wells is shown by this survey. These differences seem very small and could also be due to the accuracy of the survey. The airport benchmarks should also be re-surveyed and taken into account for the monitoring well elevations.

Data Presentation and Validation

Laboratory results are compiled and summarized in Appendix C, Tables #2 to #14. Data validation calculations were performed in accordance with EMI' QAPP. and summarized in Appendix C Tables #17 to #19. The complete laboratory data deliverables are presented in Appendix D.

Only two QA/QC objectives was not satisfied; the field precision of BTEX and Arsenic. These results fell outside the acceptable values by 45% and 20%.

Recommendations

EMI recommends the continued quarterly sampling of the monitoring wells until June 30, 1994, so that, contamination can be monitored for one seasonal cycle of water table fluctuations. Results from this monitoring will aid in the establishment of the plume migration pattern. Also the change in hydrocarbon levels from one sampling event to the next can be used to assess the effectiveness of natural biodegradation. Site specific information obtained during this sampling event, previous sampling events, and future sampling events, should be compiled and reviewed to better define the extent and levels of hydrocarbons prior to developing a remediation plan. A decision in conjunction with the ADEC regarding further action can be made once a better history of quantitative contamination is established based on data from the monitoring wells.

Closure

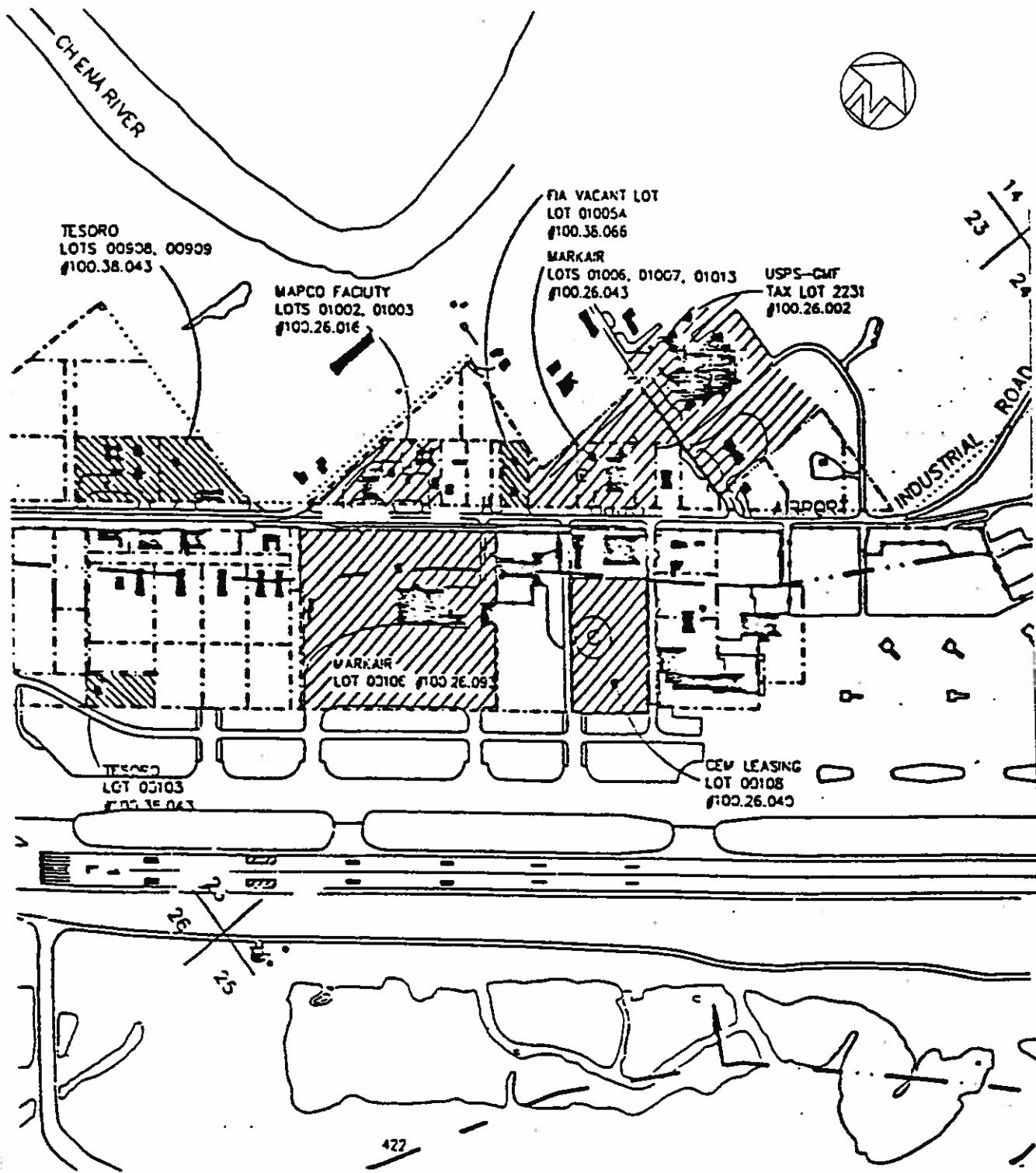
The discussion presented in this report is based on our understanding of ADEC guidelines, our investigations, our Quality Assurance Program Plan, and other pertinent information referred to herein.

Findings representative of the site at any particular time are the result of services rendered within the scope authorized by the client. Changes due to natural processes and human activity will affect the conditions described herein.

EMI prepared these tasks in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No warranty, express or implied, beyond exercise of reasonable care and professional diligence, is made.

APPENDIX A

FIGURES



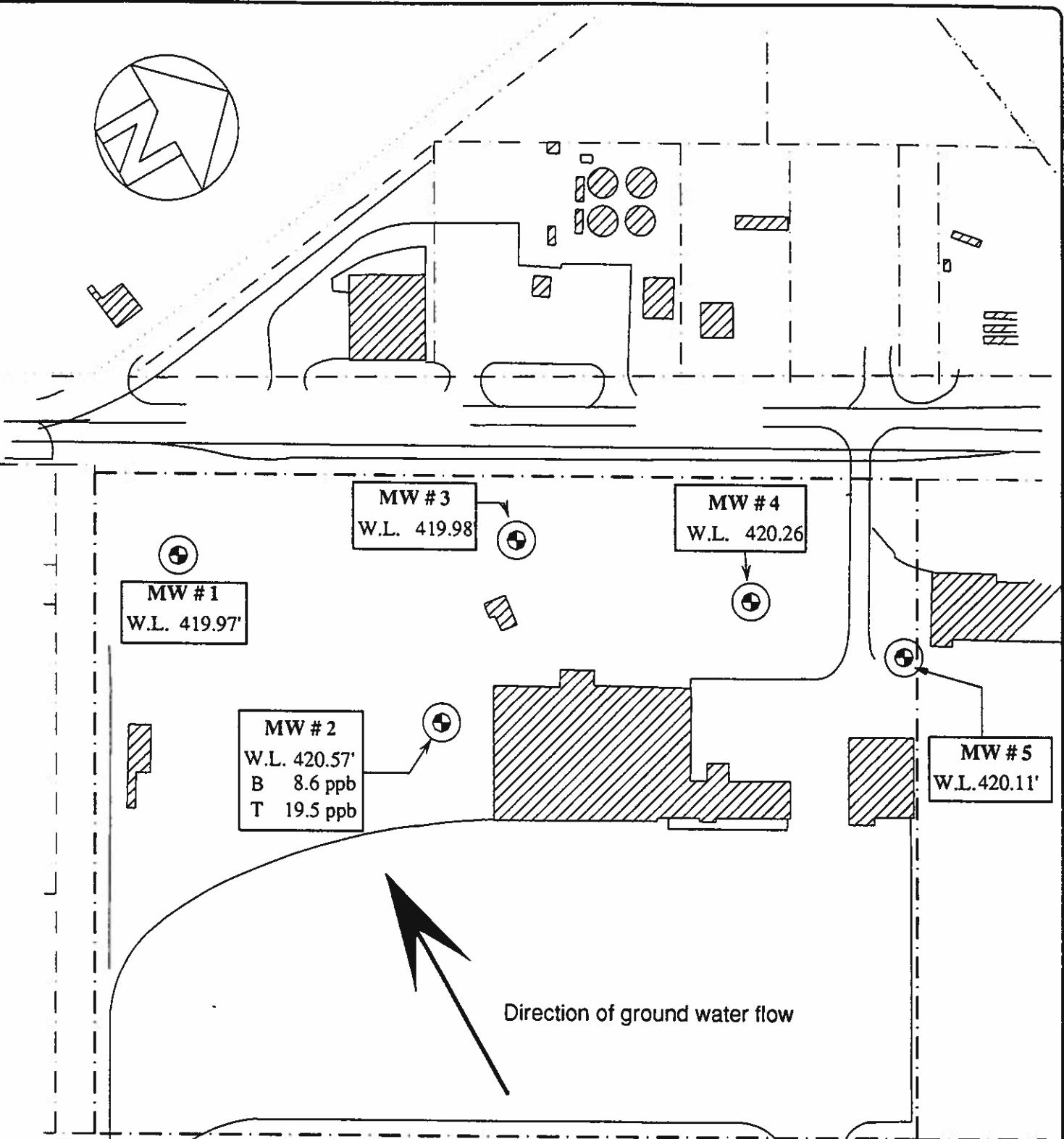
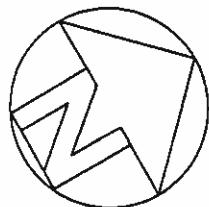
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REVISIONS

	ENVIRONMENTAL MANAGEMENT INCORPORATED
2060 WEST FIREWEED LANE	
ANCHORAGE, ALASKA 99503	
(907) 272-9336 -FAX 272-4159	

MARKAIR FAIRBANKS FACILITY
Vicinity Map
Range 2 West, Township 1 South
Fairbanks Meridian, Alaska

DATE <u>4/1/94</u>
EMI NO. <u>5240</u>
A
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1 OF 3



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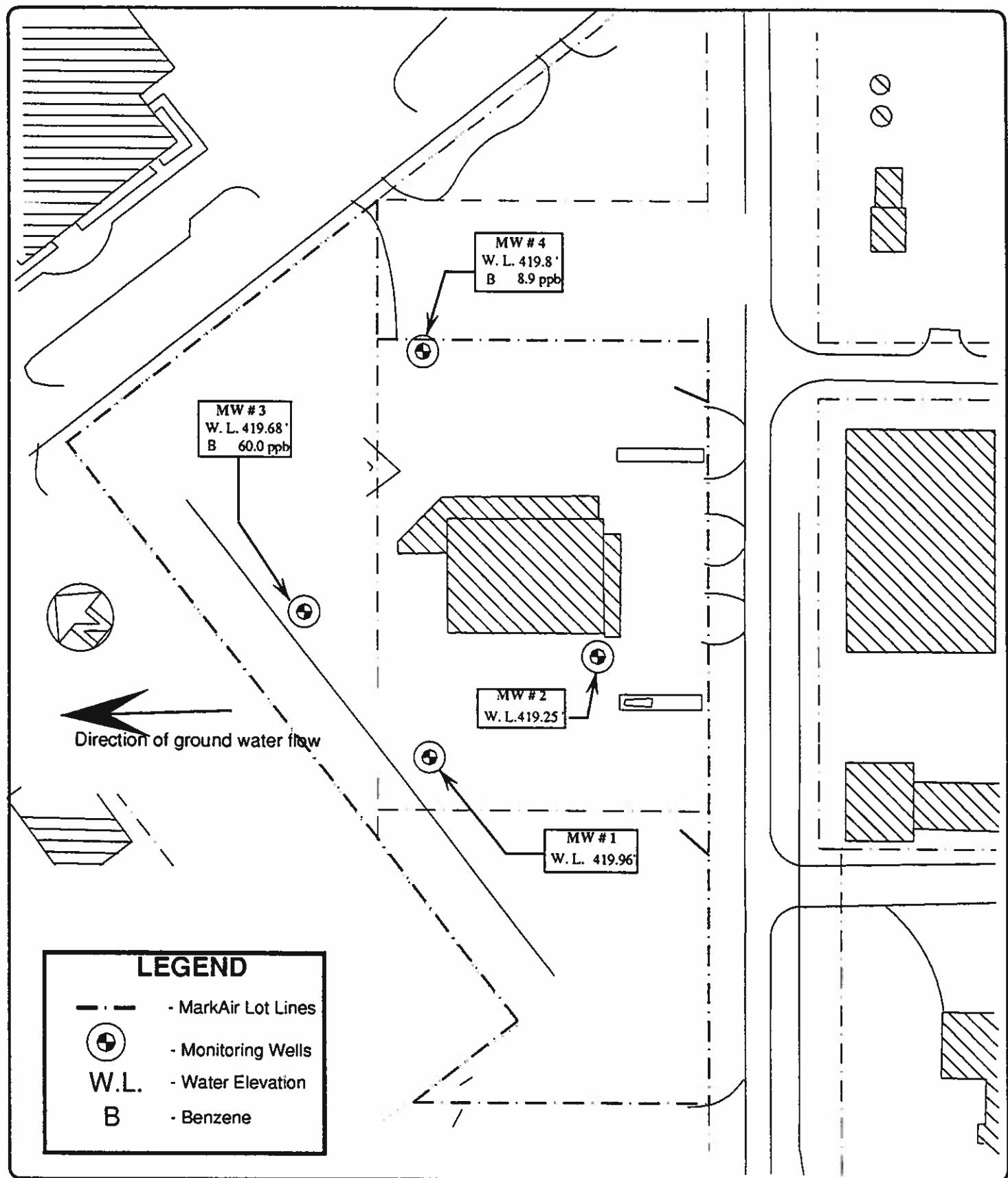
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206 EAST FIREWEED LANE - SUITE 201
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MARKAIR FAIRBANKS FACILITY
MONITORING WELL RESULTS
March 30, 1994
HANGAR/OFFICE BUILDING
Not to scale

DATE 4/1/94
EMI NO. 6240

A
SHEET 2 OF 3



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 2060 EAST FIREWEED LANE - SUITE 201
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 (907) 272-9336 -FAX 272-4159

MARKAIR FAIRBANKS FACILITY
 Monitoring Well Results
 March 30, 1994
 Weaver Brothers Building
 Not to Scale

DATE 4/1/94
EMI NO. 5240
A
SHEET 3 OF 3

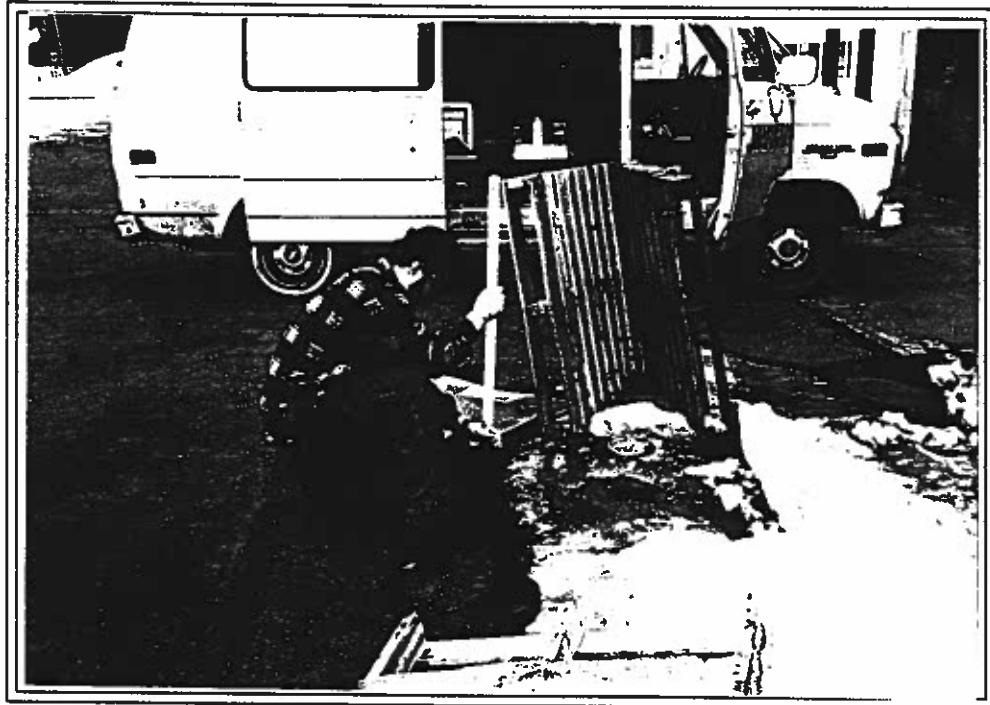
APPENDIX B

PHOTOGRAPHS



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PHOTO PAGE
MARKAIR FAIRBANKS, ALASKA
MARCH 30, 1993



Water sample collection from MW #2 located on the southwest side of the Weaver Brothers Bldg.



Water sample collection from MW #2 located on the northwest side of the MarkAir Hangar.



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PHOTO PAGE
MARKAIR FAIRBANKS, ALASKA
MARCH 30, 1993



Water sample collection from MW #3 located on the northwest side of the MarkAir Hangar. Field testing for temperature, pH, conductivity, and dissolved oxygen is also being conducted.



Another view of the water sample collection and field quality parameter check collected from MW#3, located at the MarkAir Hangar.

APPENDIX C

TABLES

Table #1
Summary of Field Analysis of Monitoring Well Water Elevations
June 30, 1993 thru March 30, 1994

Well ID	Runway Station	Offset Left	MW Elevation (feet)	Water Elevation (6/30/93) (feet)	Water Elevation (9/30/93) (feet)	Water Elevation (12/30/93) (feet)
MW#1 @ WB	101+47	2081	428.79	421.21	420.91	418.83
MW#2 @ WB	102+50	1941	431.48	422.44	421.19	420.10
MW#3 @ WB	102+62	2191	427.33	420.44	420.79	418.50
MW#4 @ WB	104+86	2142	428.49	421.74	421.16	420.00
MW#1 @ H	87+26	1603	429.72	423.22	422.14	420.76
MW#2 @ H	90+83	1391	434.57	423.65	422.40	421.57
MW#3 @ H	91+32	1653	430.04	423.37	422.37	420.87
MW#4 @ H	93+86	1582	430.94	423.53	422.32	421.16
MW#5 @ H	96+16	1571	430.78	423.78	422.70	420.90

Table #1
Summary of Field Analysis of Monitoring Well Water Elevations
June 30, 1993 thru March 30, 1994

Well ID	Runway Station	Offset Left	MW Elevation (6/25/93) (feet)	MW Elevation (4/7/94) (feet)	Water Elevation (3/30/94) (feet)	Water Elevation (6/30/94) (feet)
MW#1 @ WB	101+47	2081	428.79	428.8	419.96	
MW#2 @ WB	102+50	1941	431.48	431.5	419.25	
MW#3 @ WB	102+62	2191	427.33	427.35	416.43	
MW#4 @ VVB	104+86	2142	428.49	428.47	415.8	
MW#1 @ H	87+26	1603	429.72	429.68	419.97	
MW#2 @ H	90+83	1391	434.57	434.57	420.57	
MW#3 @ H	91+32	1653	430.04	429.98	419.98	
MW#4 @ H	93+86	1582	430.94	431	420.26	
MW#5 @ H	96+16	1571	430.78	430.78	420.11	

LEGEND:
WB = Weaver Bros.
H = Hanger

Table #2
Summary of Analytical Monitoring Well Water Samples for Diesel
Samples Collected on June 30, 1993 Thru March 30,1994

Well ID	Sample ID#	DRPH(6/30/93) 3510/8100M(ppb)	DRPH(9/30/93) 3510/8100M(ppb)	DRPH(12/30/93) 3510/8100M(ppb)	DRPH(3/30/94) 3510/8100M(ppb)	DRPH(6/30/94) 3510/8100M(ppb)
MW#1 @ WB	6240-04	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
Duplicate	6240-05	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#2 @ WB	6240-03	210	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#3 @ WB	6240-02	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#4 @ WB	6240-01	140	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#1 @ H	6240-09	ND (100 ppb)	320	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#2 @ H	6240-08	470	420	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#3 @ H	6240-07	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#4 @ H	6240-06	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)
MW#5 @ H	6240-10	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)	ND (100 ppb)

LEGEND: WB = Weaver Brothers Bldg.
 Duplicate = Duplicate of MW#1
 H = Hanger
 DRPH = Diesel Range Petroleum Hydrocarbons
 ND () = Not Detected (Detection Limit)
 ppb = parts per billion

Table #3
Summary of Analytical Monitoring Well Water Samples for Gasoline
Samples Collected on June 30, 1993 thru March 30, 1994

Well ID	Sample ID#	GRPH(6/30/93) 5030/8015M(ppb)	GRPH(9/30/93) 5030/8015M(ppb)	GRPH(12/30/93) 5030/8015M(ppb)	GRPH(3/30/94) 5030/8015M(ppb)	GRPH(6/30/94) 5030/8015M(ppb)
MW#1 @ WB	6240-04	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)
Duplicate	6240-05	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)
MW#2 @ WB	6240-03	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)
MW#3 @ WB	6240-02	130	350	99	110	
MW#4 @ WB	6240-01	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)
MW#1 @ H	6240-09	150	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)
MW#2 @ H	6240-08	ND (100 ppb)	90	52	50	
MW#3 @ H	6240-07	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	
MW#4 @ H	6240-06	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	
MW#5 @ H	6240-10	ND (100 ppb)	ND (50 ppb)	ND (50 ppb)	ND (50 ppb)	

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1

H = Hanger

GRPH = Gasoline Range Petroleum Hydrocarbons

ND () = Not Detected (Detection Limit)

ppb = parts per billion

Table #4
Summary of Analytical Monitoring Well Water Samples for PCBs
Samples Collected on June 30, 1993 thru March 30, 1994

Well ID	Sample ID#	PCBs(6/30/93) 3550/8080(ppb)	PCBs(9/30/93) 3550/8080(ppb)	PCBs(12/30/93) 3550/8080(ppb)	PCBs(3/30/94) 3550/8080(ppb)	PCBs(6/30/94) 3550/8080(ppb)
MW#1 @ WB	6240-04	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)
Duplicate	6240-05	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)
MW#2 @ WB	6240-03	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	NA
MW#2 @ H	6240-08	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)
MW#3 @ H	6240-07	NA	NA	ND (0.1 ppb)	ND (0.1 ppb)	ND (0.1 ppb)
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1

H = Hanger

PCB's = Polychlorinated Biphenyls

ND () = Not Detected (Detection Limit)

ppb = parts per billion

NA = Not Analyzed

Table #5
Summary of Analytical Monitoring Well Water Samples for TPH
Samples Collected on June 30, 1993 thru March 30, 1994

Well ID	Sample ID#	TPH (6/30/93) 418.1 (ppm)	TPH (9/30/93) 418.1 (ppm)	TPH (12/30/93) 418.1 (ppm)	TPH (3/30/94) 418.1 (ppm)	TPH (6/30/94) 418.1 (ppm)
MW#1 @ WB	6240-04	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)
Duplicate	6240-05	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)
MW#2 @ WB	6240-03	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)
MW#2 @ H	6240-08	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)	ND (1 ppm)
MW#3 @ H	6240-07	NA	NA	NA	ND (1 ppm)	ND (1 ppm)
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.
 Duplicate = Duplicate of MW#1
 H = Hanger
 TPH = Total Range Petroleum Hydrocarbons
 ND () = Not Detected (Detection Limit)
 ppm = parts per million
 NA = Not Analyzed

Table #6
Summary of Analytical Monitoring Well Water Samples for VCS
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	VCS (6/30/93) 5030/601 (ppb)	VCS (9/30/93) 5030/601 (ppb)	VCS (12/30/93) 5030/601 (ppb)	VCS (3/30/94) 5030/601 (ppb)	VCS (6/30/94) 5030/601 (ppb)
MW#1 @ WB	6240-04	ND (1.0 ppb)	ND (0.5 ppb)*	ND (0.5 ppb)*	ND (0.5 ppb)*	†
Duplicate	6240-05	ND (1.0 ppb)	ND (0.5 ppb)*	ND (0.5 ppb)*	ND (0.5 ppb)*	†
MW#2 @ WB	6240-03	ND (1.0 ppb)	†	†	†	†
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	ND (1.0 ppb)	ND (0.5 ppb)*	ND (0.5 ppb)*	ND (0.5 ppb)**	ND (0.5 ppb)**
MW#2 @ H	6240-08	a	b	c	d	d
MW#3 @ H	6240-07	NA	NA	†	†	†
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1

H = Hanger

VCS = Volatile Chlorinated Solvents

ND () = Not Detected (Detection Limit)

* Detection Limit for all compounds except for Vinyl Chloride which is 1.0 ppb

** Detection Limit for all compounds varies from 0.2 ppb to 0.5 ppb

ppb = parts per billion
NA = Not Analyzed

Notes: a Trichloroethene (Trichloroethylene) - 20 ppb

b Trichloroethene - 28 ppb

c Trichloroethene - 37 ppb

d Trichloroethene (Trichloroethylene) - 19.5 ppb

† All detected contaminants below their Maximum Contaminant Level

Table #7
Summary of Analytical Monitoring Well Water Samples for Benzene
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Ben(6/30/93) 5030/602 (ppb)	Ben(9/30/93) 5030/602 (ppb)	Ben(12/30/93) 5030/602 (ppb)	Ben(3/30/94) 5030/602 (ppb)	Ben(6/30/94) 5030/602 (ppb)
MW#1 @ WB	6240-04	ND (1 ppb)	†	ND (0.5 ppb)	†	†
Duplicate	6240-05	ND (1 ppb)	†	†	†	ND (0.5 ppb)
MW#2 @ WB	6240-03	ND (1 ppb)	ND (0.5 ppb)	†	70	60
MW#3 @ WB	6240-02	52	240	70	60	60
MW#4 @ WB	6240-01	†	6.1	12	8.9	8.9
MW#1 @ H	6240-09	16	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#2 @ H	6240-08	ND (1 ppb)	†	13	8.6	8.6
MW#3 @ H	6240-07	†	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#4 @ H	6240-06	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#5 @ H	6240-10	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	†	†

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1

H = Hanger

ND () = Not Detected (Detection limit)

ppb = parts per billion

Ben = Benzene

† = below maximum contaminant level of 5.0 ppb

Table #8
Summary of Analytical Monitoring Well Water Samples for Ethyl Benzene
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	EB(6/30/93) 5030/602 (ppb)	EB(9/30/93) 5030/602 (ppb)	EB(12/30/93) 5030/602 (ppb)	EB(3/30/94) 5030/602 (ppb)	EB(6/30/94) 5030/602 (ppb)
MW#1 @ WB	6240-04	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
Duplicate	6240-05	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#2 @ WB	6240-03	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#3 @ WB	6240-02	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#4 @ WB	6240-01	ND (1 ppb)	†	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#1 @ H	6240-09	†	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#2 @ H	6240-08	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#3 @ H	6240-07	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#4 @ H	6240-06	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)
MW#5 @ H	6240-10	ND (1 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1
H = Hanger
ND () = Not Detected (Detection limit)

ppb = parts per billion

EB = Ethyl Benzene

† = Below maximum contaminant level of 0.7 ppm

Table #9
Summary of Analytical Monitoring Well Water Samples for Toluene
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Tol(6/30/93) 5030/602 (ppb)	Tol(9/30/93) 5030/602 (ppb)	Tol(12/30/93) 5030/602 (ppb)	Tol(3/30/94) 5030/602 (ppb)	Tol(6/30/94) 5030/602 (ppb)
MW#1 @ WB	6240-04	†	†	†	†	†
Duplicate	6240-05	†	†	†	†	ND (0.5 ppb)
MW#2 @ WB	6240-03	†	†	†	†	†
MW#3 @ WB	6240-02	†	†	†	†	†
MW#4 @ WB	6240-01	†	†	†	†	†
MW#1 @ H	6240-09	†	†	ND (0.5 ppb)	†	ND (0.5 ppb)
MW#2 @ H	6240-08	†	†	ND (0.5 ppb)	†	†
MW#3 @ H	6240-07	ND (1 ppb)	ND (1 ppb)	ND (0.5 ppb)	†	ND (0.5 ppb)
MW#4 @ H	6240-06	ND (1 ppb)	ND (1 ppb)	ND (0.5 ppb)	†	ND (0.5 ppb)
MW#5 @ H	6240-10	†	ND (0.5 ppb)	ND (0.5 ppb)	†	ND (0.5 ppb)

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1

H = Hanger

ND () = Not Detected (Detection limit)

ppb = parts per billion

Tol = Toluene

† = Below maximum contaminant level of 1.0 ppm

Table #10
Summary of Analytical Monitoring Well Water Samples for Xylenes
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Xyl(6/30/93) 5030/602 (ppb)	Xyl(9/30/93) 5030/602 (ppb)	Xyl(12/30/93) 5030/602 (ppb)	Xyl(3/30/94) 5030/602 (ppb)	Xyl(6/30/94) 5030/602 (ppb)
MW#1 @ WB	6240-04	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
Duplicate	6240-05	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#2 @ WB	6240-03	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#3 @ WB	6240-02	†	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#4 @ WB	6240-01	ND (3 ppb)	†	ND (0.5 ppb)	ND (0.5 ppb)	
MW#1 @ H	6240-09	†	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#2 @ H	6240-08	†	†	†	†	
MW#3 @ H	6240-07	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#4 @ H	6240-06	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	
MW#5 @ H	6240-10	ND (3 ppb)	ND (1.5 ppb)	ND (0.5 ppb)	ND (0.5 ppb)	

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of MW#1
H = Hanger
ND () = Not Detected (Detection limit)
ppb = parts per billion
Xyl = Xylenes

† = Below maximum contaminant level of 10.0 ppm

Table #11
Summary of Analytical Monitoring Well Water Samples for Arsenic
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	As(6/30/93) 3020/7060 (ppm)	As(9/30/93) 3020/7060 (ppm)	As(12/30/93) 3020/7060 (ppm)	As(3/30/94) 3020/7060 (ppm)	As(6/30/94) 3020/7060 (ppm)
MW#1 @ WB	6240-04	ND (0.01ppm)	ND (0.01ppm)	†	†	†
Duplicate	6240-05	ND (0.01ppm)	†	†	†	†
MW#2 @ WB	6240-03	†	†	†	†	†
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	†	†	ND(0.01ppm)	†	†
MW#2 @ H	6240-08	†	†	ND(0.01ppm)	†	†
MW#3 @ H	6240-07	NA	NA	NA	†	†
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of WB #1

H = Hanger

ND () = Not Detected (Detection Limit)

ppm = parts per million

As = Arsenic

NA = Not Analyzed

† = Below maximum contaminant level of 0.05 ppm

Table #12
Summary of Analytical Monitoring Well Water Samples for Cadmium
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Cd(6/30/93) 3010/6010 (ppm)	Cd(9/30/93) 3010/6010 (ppm)	Cd(12/30/93) 3010/6010 (ppm)	Cd(3/30/94) 3010/6010 (ppm)	Cd(6/30/94) 3010/6010 (ppm)
MW#1 @ WB	6240-04	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)
Duplicate	6240-05	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)
MW#2 @ WB	6240-03	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)
MW#2 @ H	6240-08	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)	ND (0.01ppm)
MW#3 @ H	6240-07	NA	NA	NA	ND (0.01ppm)	ND (0.01ppm)
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of WB #1

H = Hanger

ND () = Not Detected (Detection Limit)

ppm = parts per million

Cd = Cadmium

NA = Not Analyzed

Table #13
Summary of Analytical Monitoring Well Water Samples for Chromium
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Cr(6/30/93) 3010/6010 (ppm)	Cr(9/30/93) 3010/6010 (ppm)	Cr(12/30/93) 3010/6010 (ppm)	Cr(3/30/94) 3010/6010 (ppm)	Cr(6/30/94) 3010/6010 (ppm)
MW#1 @ WB	6240-04	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.02 ppm)	
Duplicate	6240-05	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.02 ppm)	
MW#2 @ WB	6240-03	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.02 ppm)	
MW#3 @ WB	6240-02	NA	NA	NA	NA	
MW#4 @WB	6240-01	NA	NA	NA	NA	
MW#1 @ H	6240-09	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	
MW#2 @ H	6240-08	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	ND (0.05 ppm)	
MW#3 @ H	6240-07	NA	NA	NA	ND (0.02 ppm)	
MW#4 @ H	6240-06	NA	NA	NA	NA	
MW#5 @ H	6240-10	NA	NA	NA	NA	

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of WB #1

H = Hanger

ND () = Not Detected (Detection Limit)

ppm = parts per million

Cr = Chromium

NA = Not Analyzed

† = Below maximum contaminant level of 0.1 ppm

Table #14
Summary of Analytical Monitoring Well Water Samples for Lead
Samples Collected on June 30, 1993 Thru March 30, 1994

Well ID	Sample ID#	Pb(6/30/93) 3020/7421 (ppm)	Pb(9/30/93) 3020/7421 (ppm)	Pb(12/30/93) 3020/7421 (ppm)	Pb(3/30/94) 3020/7421 (ppm)	Pb(6/30/94) 3020/7421 (ppm)
MW#1 @ WB	6240-04	†	ND (0.005 ppm)	ND (0.1 ppm)	ND (0.005 ppm)	ND (0.005 ppm)
Duplicate	6240-05	†	ND (0.005 ppm)	ND (0.1 ppm)	ND (0.005 ppm)	ND (0.005 ppm)
MW#2 @ WB	6240-03	†	†	ND (0.1 ppm)	ND (0.005 ppm)	ND (0.005 ppm)
MW#3 @ WB	6240-02	NA	NA	NA	NA	NA
MW#4 @ WB	6240-01	NA	NA	NA	NA	NA
MW#1 @ H	6240-09	†	ND (0.005 ppm)	ND (0.1 ppm)	ND (0.1 ppm)	†
MW#2 @ H	6240-08	†	†	ND (0.1 ppm)	ND (0.1 ppm)	†
MW#3 @ H	6240-07	NA	NA	ND (0.1 ppm)	NA	†
MW#4 @ H	6240-06	NA	NA	NA	NA	NA
MW#5 @ H	6240-10	NA	NA	NA	NA	NA

LEGEND: WB = Weaver Brothers Bldg.

Duplicate = Duplicate of WB #1

H = Hanger

ND () = Not Detected (Detection Limit)

ppm = parts per million

Pb = Lead

NA = Not Analyzed

† = Below maximum contaminant level of 0.05 ppm

Table #15
Summary of Field Analysis of Monitoring Well Water
Samples Collected on June 30 1993 & September 30, 1993

Well ID	June 30 1993				September 30 1993			
	Temp degrees C (F)	pH	Cond. uS	D.O. %	Temp degrees C (F)	pH	Cond. uS	D.O. %
MW#1 @ WB	4.5 (40)	6.41	380	R	4.5 (40)	†	360	44.2
MW#2 @ WB	5.0 (41)	†	370	R	4.5 (40)	†	390	42.1
MW#3 @ WB	5.5 (42)	†	410	R	5.0 (41)	†	390	38
MW#4 @ WB	5.0 (41)	†	380	R	4.5 (40)	†	400	38.5
MW#1 @ H	3.5 (38)	†	340	R	3.5 (38)	†	360	44.5
MW#2 @ H	3.5 (38)	†	400	R	3.5 (38)	†	390	42.3
MW#3 @ H	4.0 (39)	†	400	R	4.0 (39)	†	400	44.1
MW#4 @ H	3.5 (38)	†	360	R	3.5 (38)	†	370	45.3
MW#5 @ H	3.5 (38)	†	390	R	3.5 (38)	†	400	38.7

LEGEND: WB = Weaver Bros.

H = Hanger

uS = micro Siemans

ppm = parts per million

Cond. = Conductivity

D.O. = Dissolved Oxygen

R = Results were rejected

† = Within maximum contaminant level range of 6.5 to 8.5

Table #16
Summary of Field Analysis of Monitoring Well Water
Samples Collected on December 30 1993 & March 30,1994

Well ID	December 30 1993				March 30 1994			
	Temp degrees C (F)	pH	Cond. uS	D.O. %	Temp degrees C (F)	pH	Cond. uS	D.O. ppm
MW#1 @ WB	3.9 (39.0)	†	365	44.5	4.7 (40.5)	†	287	6.0
MW#2 @ WB	3.8 (38.8)	†	350	44.1	4.7 (40.5)	†	400	5.6
MW#3 @ WB	3.9 (39.0)	†	390	36.3	4.7 (40.5)	†	493	5.5
MW#4 @ WB	4.1 (39.4)	6.49	360	36.0	4.8 (40.6)	†	188	3.0
MW#1 @ H	3.7 (38.7)	†	320	45.6	2.8 (37.0)	†	310	3.0
MW#2 @ H	4.3 (39.7)	6.37	370	40.2	3.3 (37.9)	†	258	2.8
MW#3 @ H	3.7 (38.7)	6.22	375	47.4	3.4 (38.1)	†	238	3.6
MW#4 @ H	3.8 (38.8)	6.38	340	47.4	2.9 (37.2)	†	215	4.6
MW#5 @ H	3.8 (38.8)	6.46	375	36.0	3.1 (37.6)	†		

LEGEND:

WB = Weaver Bros.

H = Hanger

uS = micro Siemans

ppm = parts per million

Cond. = Conductivity

D.O. = Dissolved Oxygen

R = Results were rejected

† = Within maximum contaminant level range of 6.5 to 8.5

Table #17
Laboratory and Field Precision

QC Designation	Tolerance +/-	Results for this Project +/-
Laboratory Precision		
8100M,DRPH,water	30%	12%
8015M,GRPH,water	30%	3%
418.1,TPH,water	30%	3%
8020,BTEX,water	30%	5% - 6%
8010,HVO,water	30%	14%
8080,PCBs,water	30%	10%
7060,Arsenic,water	20%	2%
6010,Cadmium,water	20%	3%
6010,Chromium,water	20%	1%
7421,Lead,water	20%	2%
Field Precision		
8100M,DRPH,water	30%	0%
8015M,GRPH,water	30%	0%
418.1,TPH,water	30%	0%
8020,BTEX,water	30%	75%
8010,HVO,water	30%	8%
8080,PCBs,water	30%	0%
7060,Arsenic,water	20%	40%
6010,Cadmium,water	20%	0%
6010,Chromium,water	20%	0%
7421,Lead,water	20%	0%

Table #18
Holding Times and Surrogate Recovery

QC DESIGNATION	TOLERANCE	RESULTS FOR THIS PROJECT
Holding Times		
8100M,DRPH,water	extraction 14 days max. analysis 40 days max.	< 14 days < 14 days
8015M,GRPH,water	analysis 14 days max.	< 14 days
418.1,TPH,water	extraction 14 days max. analysis 40 days max.	< 14 days < 14 days
8020,BTEX,water	analysis 14 days max.	< 14 days
8010,HVO,water	analysis 14 days max.	< 14 days
8080,PCBs,water	extraction 14 days max. analysis 40 days max.	< 14 days < 14 days
7060,Arsenic,water	analysis 6 months max.	< 14 days
6010,Cadmium,water	analysis 6 months max.	< 14 days
6010,Chromium,water	analysis 6 months max.	< 14 days
7421,Lead,water	analysis 6 months max.	< 14 days
Surrogate Recovery		
8100M,DRPH,water	60% - 140%	95% - 102%
8015M,GRPH,water	60% - 140%	110% - 120%

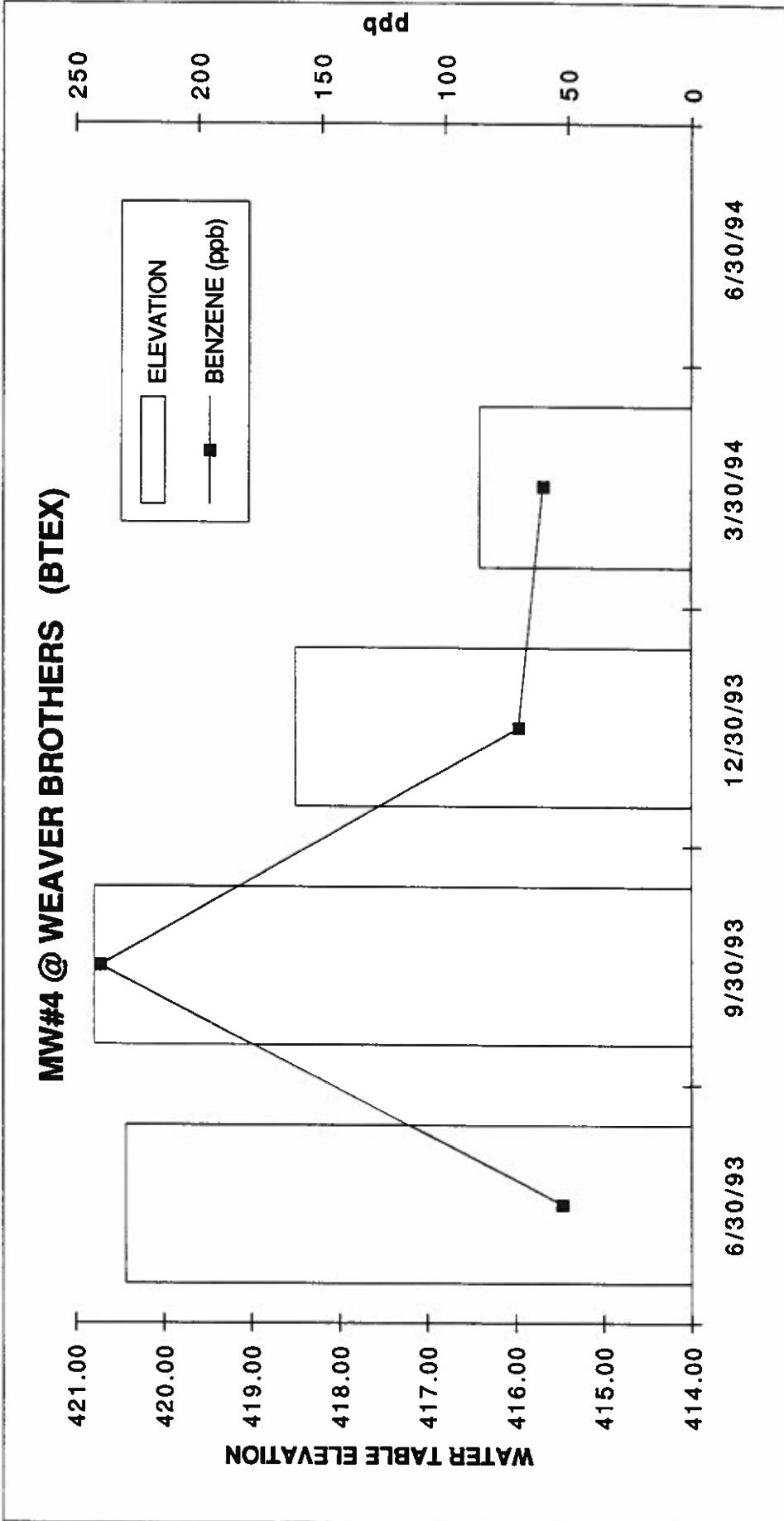
Table #19
Laboratory Accuracy and Completeness

QC Designation	Tolerance	Results for this Project
Laboratory Accuracy		
8100M, DRPH, water	60% - 130%	94%-106%
8015M, GRPH, water	60% - 130%	72% - 74%
418.1, TPH, water	60% - 130%	105%-108%
8020, BTEX, water	60% - 130%	90% - 103%
8010, HVO, water	40% - 130%	98% - 123%
8080, PCBs, water	60% - 140%	82% - 91%
7060, Arsenic, water	80% - 120%	101% - 103%
6010, Cadmium, water	80% - 120%	94% - 97%
6010, Chromium, water	80% - 120%	90% - 91%
7421, Lead, water	80% - 120%	100% - 102%
Completeness		
8100M, DRPH, water	85% min.	100%
8015M, GRPH, water	85% min.	100%
418.1, TPH, water	85% min.	100%
8020, BTEX, water	85% min.	100%
8010, HVO, water	85% min.	100%
8080, PCBs, water	85% min.	100%
7060, Arsenic, water	85% min.	100%
6010, Cadmium, water	85% min.	100%
6010, Chromium, water	85% min.	100%
7421, Lead, water	85% min.	100%

Table #20

Water Elevations and Benzene Levels
MW #3 at Weaver Brothers Bldg.

SAMPLE DATE	ELEVATION	BENZENE (ppb)
6/30/93	420.44	52
9/30/93	420.79	240
12/30/93	418.50	70
3/30/94	416.41	60
6/30/94		



APPENDIX D

LABORATORY RESULTS



Superior Precision Analytical, Inc.

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RECEIVED APR 21 1994

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

DIESEL RANGE ORGANICS by EPA Method 8100 Modified.
Diesel range quantitated as all compounds from C10 to C28.

Chronology		Laboratory Number 91406				
Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
6240-1	03/30/94	04/04/94	04/06/94	04/08/94		1
6240-2	03/30/94	04/04/94	04/06/94	04/08/94		2
6240-3	03/30/94	04/04/94	04/06/94	04/08/94		3
6240-4	03/30/94	04/04/94	04/06/94	04/08/94		4
6240-5	03/30/94	04/04/94	04/06/94	04/08/94		5
6240-6	03/30/94	04/04/94	04/06/94	04/08/94		6
6240-7	03/30/94	04/04/94	04/06/94	04/08/94		7
6240-8	03/30/94	04/04/94	04/06/94	04/08/94		8
6240-9	03/30/94	04/04/94	04/06/94	04/08/94		9
6240-10	03/30/94	04/04/94	04/06/94	04/08/94		10



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ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 09-April-1994

DIESEL RANGE ORGANICS by EPA Method 8100 Modified.

Laboratory Number	Sample Identification	Matrix
91406- 1	6240-1	Water
91406- 2	6240-2	Water
91406- 3	6240-3	Water
91406- 4	6240-4	Water
91406- 5	6240-5	Water
91406- 6	6240-6	Water
91406- 7	6240-7	Water
91406- 8	6240-8	Water
91406- 9	6240-9	Water
91406-10	6240-10	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 1 91406- 2 91406- 3 91406- 4 91406- 5

Diesel: ND<100 ND<100 ND<100 ND<100 ND<100

Concentration: ug/L ug/L ug/L ug/L ug/L

-- Surrogate % Recoveries --

Tetracosane Recovery: 95 98 97 100 100

Laboratory Number: 91406- 6 91406- 7 91406- 8 91406- 9 91406-10

Diesel: ND<100 ND<100 ND<100 ND<100 ND<100

Concentration: ug/L ug/L ug/L ug/L ug/L

-- Surrogate % Recoveries --

Tetracosane Recovery: 98 100 99 102 102



Superior Precision Analytical, Inc.

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DIESEL RANGE ORGANICS by EPA Method 8100 Modified. Quality Assurance and Control Data - Water

Laboratory Number 91406

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Diesel:	ND<100	100	94/106	70-130	12%

Definitions:

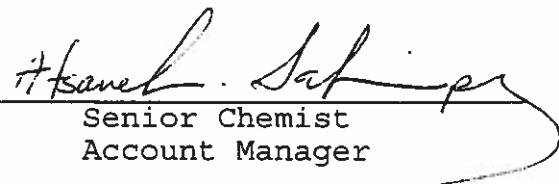
ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

ug/L = Parts per billion (ppb)

QC File No. 91406


Farrah L. Safipour
Senior Chemist
Account Manager



Superior Precision Analytical, Inc.

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Project 6240
Reported 11-April-1994

TOTAL RECOVERABLE HYDROCARBONS by EPA Method 418.1

Chronology		Laboratory Number 91406					
Identification		Sampled	Received	Extracted	Analyzed	Run #	Lab #
6240-3		03/30/94	04/04/94	04/09/94	04/09/94		3
6240-4		03/30/94	04/04/94	04/09/94	04/09/94		4
6240-5		03/30/94	04/04/94	04/09/94	04/09/94		5
6240-7		03/30/94	04/04/94	04/09/94	04/09/94		7
6240-8		03/30/94	04/04/94	04/09/94	04/09/94		8
6240-9		03/30/94	04/04/94	04/09/94	04/09/94		9



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Project 6240
Reported 09-April-1994

TOTAL RECOVERABLE HYDROCARBONS by EPA Method 418.1

Laboratory Number	Sample Identification	Matrix
91406- 3	6240-3	Water
91406- 4	6240-4	Water
91406- 5	6240-5	Water
91406- 7	6240-7	Water
91406- 8	6240-8	Water
91406- 9	6240-9	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 3 91406- 4 91406- 5 91406- 7 91406- 8

PETROLEUM HYDROCARBONS:ND<1 ND<1 ND<1 ND<1 ND<1

Concentration: mg/L mg/L mg/L mg/L mg/L

Laboratory Number: 91406- 9

PETROLEUM HYDROCARBONS:ND<1

Concentration: mg/L



Superior Precision Analytical, Inc.

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TOTAL RECOVERABLE HYDROCARBONS by EPA Method 418.1 Quality Assurance and Control Data - Water

Laboratory Number 91406

Compound	Method Blank (mg/L)	RL (mg/L)	Spike Recovery (%)	Limits (%)	RPD (%)
PETROLEUM HYDROCARBONS:	ND<1	1	105/108	75-125	3%

Definitions:

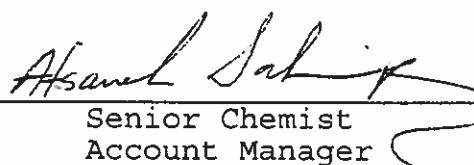
ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

mg/L = Parts per million (ppm)

QC File No. 91406


Asmael Salip
Senior Chemist
Account Manager



Superior Precision Analytical, Inc.

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ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

VOLATILE PETROLEUM HYDROCARBONS

Sample preparation by Purge and Trap (EPA SW-846 method 5030). Gasoline analysis by SW-846 method 8015 modified. Gasoline range quantified as all compounds between C6 and C10. Benzene, Toluene, Ethyl Benzene, and Xylenes analyses by EPA SW-846 method 8020.

Chronology

Laboratory Number 91406

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
6240-1	03/30/94	04/04/94	04/05/94	04/05/94		1
6240-2	03/30/94	04/04/94	04/04/94	04/04/94		2
6240-3	03/30/94	04/04/94	04/04/94	04/04/94		3
6240-4	03/30/94	04/04/94	04/04/94	04/04/94		4
6240-5	03/30/94	04/04/94	04/04/94	04/04/94		5
6240-6	03/30/94	04/04/94	04/04/94	04/04/94		6
6240-7	03/30/94	04/04/94	04/04/94	04/04/94		7
6240-8	03/30/94	04/04/94	04/04/94	04/04/94		8
6240-9	03/30/94	04/04/94	04/04/94	04/04/94		9
6240-10	03/30/94	04/04/94	04/04/94	04/04/94		10
TRIP BLANK	03/30/94	04/04/94	04/04/94	04/04/94		11



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

VOLATILE PETROLEUM HYDROCARBONS

Laboratory Number	Sample Identification	Matrix
91406- 1	6240-1	Water
91406- 2	6240-2	Water
91406- 3	6240-3	Water
91406- 4	6240-4	Water
91406- 5	6240-5	Water
91406- 6	6240-6	Water
91406- 7	6240-7	Water
91406- 8	6240-8	Water
91406- 9	6240-9	Water
91406-10	6240-10	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 1 91406- 2 91406- 3 91406- 4 91406- 5

Gasoline:	ND<50	110	ND<50	ND<50	ND<50
Benzene:	8.9	60	ND<0.5	0.9	0.6
Toluene:	1.2	0.7	0.6	1.1	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Total Xylenes:	0.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

-- Surrogate % Recoveries --

Trifluorotoluene (SS): 110 120 120 120 120

Laboratory Number: 91406- 6 91406- 7 91406- 8 91406- 9 91406-10

Gasoline:	ND<50	ND<50	50	ND<50	ND<50
Benzene:	ND<0.5	ND<0.5	8.6	ND<0.5	0.7
Toluene:	ND<0.5	ND<0.5	2.8	ND<0.5	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Total Xylenes:	ND<0.5	ND<0.5	4.9	ND<0.5	ND<0.5
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

-- Surrogate % Recoveries --

Trifluorotoluene (SS): 120 120 MI* 110 120

* - Matrix Interference



Superior Precision Analytical, Inc.

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ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

VOLATILE PETROLEUM HYDROCARBONS

Laboratory Number	Sample Identification	Matrix
91406-11	TRIP BLANK	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406-11

Gasoline:	ND<50
Benzene:	ND<0.5
Toluene:	ND<0.5
Ethyl Benzene:	ND<0.5
Total Xylenes:	ND<0.5

Concentration: ug/L

-- Surrogate % Recoveries --
Trifluorotoluene (SS): 120



Superior Precision Analytical, Inc.

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VOLATILE PETROLEUM HYDROCARBONS Quality Assurance and Control Data - Water

Laboratory Number 91406

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline:	ND<50	50	74/72	70-130	3%
Benzene:	ND<0.5	0.5	97/92	70-130	5%
Toluene:	ND<0.5	0.5	95/90	70-130	5%
Ethyl Benzene:	ND<0.5	0.5	95/90	70-130	5%
Total Xylenes:	ND<0.5	0.5	103/97	70-130	6%

Definitions:

ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

ug/L = Parts per billion (ppb)

QC File No. 91406

Afsaneh Sakhavv
Senior Chemist
Account Manager



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 08-April-1994

Polychlorinated Biphenyls by EPA Method 8080

Chronology

Laboratory Number 91406

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
6240-3	03/30/94	04/04/94	04/05/94	04/06/94		3
6240-3	03/30/94	04/04/94	04/05/94	04/06/94		4
6240-5	03/30/94	04/04/94	04/05/94	04/06/94		5
6240-7	03/30/94	04/04/94	04/05/94	04/06/94		7
6240-8	03/30/94	04/04/94	04/05/94	04/07/94		8
6240-9	03/30/94	04/04/94	04/05/94	04/07/94		9



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 08-April-1994

Polychlorinated Biphenyls by EPA Method 8080

Laboratory Number	Sample Identification	Matrix
91406- 3	6240-3	Water
91406- 4	6240-3	Water
91406- 5	6240-5	Water
91406- 7	6240-7	Water
91406- 8	6240-8	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 3 91406- 4 91406- 5 91406- 7 91406- 8

AROCLOR 1016:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1221:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1232:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1242:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1248:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1254:	ND<1	ND<1	ND<1	ND<1	ND<1
AROCLOR 1260:	ND<1	ND<1	ND<1	ND<1	ND<1

Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L
----------------	------	------	------	------	------

-- Surrogate % Recoveries --

Tetrachloro-m-xylene:	91	96	111	116	117
Decachlorobiphenyl:	106	109	133	133	118



Superior Precision Analytical, Inc.

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ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 08-April-1994

Polychlorinated Biphenyls by EPA Method 8080

Laboratory Number	Sample Identification	Matrix
91406- 9	6240-9	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 9

AROCLOL 1016:	ND<1
AROCLOL 1221:	ND<1
AROCLOL 1232:	ND<1
AROCLOL 1242:	ND<1
AROCLOL 1248:	ND<1
AROCLOL 1254:	ND<1
AROCLOL 1260:	ND<1

Concentration: ug/L

-- Surrogate % Recoveries --

Tetrachloro-m-xylene: 100
Decachlorobiphenyl: 52



Superior Precision Analytical, Inc.

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Polychlorinated Biphenyls by EPA Method 8080 Quality Assurance and Control Data - Water

Laboratory Number 91406

Compound	Method	Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
AROCLOR 1016:		ND<1	1			
AROCLOR 1221:		ND<1	1			
AROCLOR 1232:		ND<1	1			
AROCLOR 1242:		ND<1	1			
AROCLOR 1248:		ND<1	1			
AROCLOR 1254:		ND<1	1	91/82	59-142	10%
AROCLOR 1260:		ND<1	1			
Tetrachloro-m-xylene:		93				
Decachlorobiphenyl:		96				

Definitions:

ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

ug/L = Parts per billion (ppb)

QC File No. 91406



Senior Chemist
Account Manager



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

ANALYSIS FOR ARSENIC, CADMIUM, CHROMIUM, LEAD
by EPA Method SW-846 6010 & 7000 Series

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
6240-3	03/30/94	04/04/94	04/05/94	04/07/94		3
6240-4	03/30/94	04/04/94	04/05/94	04/07/94		4
6240-5	03/30/94	04/04/94	04/05/94	04/07/94		5
6240-7	03/30/94	04/04/94	04/05/94	04/07/94		7
6240-8	03/30/94	04/04/94	04/05/94	04/07/94		8
6240-9	03/30/94	04/04/94	04/05/94	04/07/94		9



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ENVIRONMENTAL MANAGEMENT INC
Attn: STAN DOLLOFF

Project 6240
Reported 11-April-1994

ANALYSIS FOR ARSENIC, CADMIUM, CHROMIUM, LEAD

Laboratory Number	Sample Identification	Matrix
91406- 3	6240-3	Water
91406- 4	6240-4	Water
91406- 5	6240-5	Water
91406- 7	6240-7	Water
91406- 8	6240-8	Water
91406- 9	6240-9	Water

RESULTS OF ANALYSIS

Laboratory Number: 91406- 3 91406- 4 91406- 5 91406- 7 91406- 8

Arsenic	(As):	0.016	0.006	0.009	0.006	0.036
Cadmium	(Cd):	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01
Chromium	(Cr):	ND<0.02	ND<0.02	ND<0.02	ND<0.02	0.02
Lead	(Pb):	ND<.005	ND<.005	ND<.005	0.007	0.035

Concentration: mg/L mg/L mg/L mg/L mg/L

Laboratory Number: 91406- 9

Arsenic	(As):	0.015
Cadmium	(Cd):	ND<0.01
Chromium	(Cr):	0.05
Lead	(Pb):	0.015

Concentration: mg/L



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

ANALYSIS FOR ARSENIC, CADMIUM, CHROMIUM, LEAD Quality Assurance and Control Data - Water

Laboratory Number 91406

Compound	Method	Blank (mg/L)	RL (mg/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Arsenic	(As):	ND<.005	.005	101/103	75-125	2%
Cadmium	(Cd):	ND<0.01	0.01	97/94	75-125	3%
Chromium	(Cr):	ND<0.02	0.02	91/90	75-125	1%
Lead	(Pb):	ND<.005	.005	102/100	75-125	2%

Definitions:

ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

mg/L = Parts per million (ppm)

QC File No. 91406

Afsaneh S.

Senior Chemist
Account Manager
KS

71404

Analytic Request and Chain of Custody

Environmental Management, Inc. 206 East Fireweed Lane, Suite 201 Anchorage, AK 99503-2703 (907) 272-9336			STAT = 5 day	Superior Precision Analytical, Inc. P.O. Box 1545 Martinez, CA 94553 San Francisco Lab: (415) 647-2081 Martinez Lab: (510) 229-1512 Client Services: (800) 521-6129				
P.M.: Stan Dolloff								
A.C.: Bill Patterson								
EMI No. 6240		P.O.: 2860						
<i>Note AK 547 wet Packed in rice chest</i>								
Sample ID	Date	Time	DRPH	GRPH/BTEX	TRPH	PCBs	As, Cd, Cr, Pb	Matrix
			8100 M	8015 M / 602	418.1	8080	7060, 6010, 6010, 7421	HCl WRP
Trip Blank	---	---		1 x 40 mL				
6240-01	3/30/94	10:00	1 x 1 L					Water
.				3 x 40 mL				Chill
6240-02	3/30/94	11:35	1 x 1 L					Water
.				3 x 40 mL				Chill
6240-03	3/30/94	12:20	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-04	3/30/94	14:25	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-05	3/30/94	15:10	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-06	3/30/94	15:45	1 x 1 L					Water
.				3 x 40 mL				Chill
6240-07	3/30/94	16:25	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-08	3/30/94	17:00	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-09	3/30/94	17:30	1 x 1 L					Water
.				3 x 40 mL				Chill
.					1 x 1 L			Water
.						1 x 1 L		H2SO4
.							Water	Chill
.							1 x 500 mL	HNO3
6240-10	3/30/94	19:00	1 x 1 L					Water
.				3 x 40 mL				Chill
Transfer #1			Transfer #2	Packed Corrugated			Lab: Initial	KC
Relinquished By: Stan Dolloff			Relinquished By: Bill Patterson	Ice, 4°C?			yes/no	
Date/Time: 4-1-94 / 11:45 a.m.			Date/Time: 4-1-94 / 12:00 p.m.	Containers?			OK	
Received By: Bill Patterson			Received By: T. Parleyon	Preserved?			yes	
Date/Time: 4-1-94 / 11:30 a.m.			Date/Time: Page 1 4/2/94 10:30 AM	VOA Headspace?			ND	

Note: April snow from Alaska

61 cont. total
(with received + on



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456-3116 • FAX 456-3125
(907) 277 8378 • FAX 274 9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: -
Collected By: S.Dolloff

Our Lab #: A130059
Location/Project: 6240-FAI Quarterly
Your Sample ID: Travel Blank
Sample Matrix: Water
Comments:

* Definitions *
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Estimated Value
M = Matrix Interference
D = Lost to Dilution
MDL = Method Detection Limit

Lab

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130059	EPA 601/624	Bromodichloromethane	ug/l	<MDL		0.20		04/08/94
		Bromoform	ug/l	<MDL		0.50		
		Bromomethane	ug/l	<MDL		0.50		
		Carbon Tetrachloride	ug/l	<MDL		0.20		
		Chlorobenzene	ug/l	<MDL		0.20		
		Chloroethane	ug/l	<MDL		0.50		
		2-Chloroethylvinylether	ug/l	<MDL		0.50		
		Chloroform	ug/l	<MDL		0.20		
		Chloromethane	ug/l	<MDL		0.50		
		Dibromochloromethane	ug/l	<MDL		0.20		
		1,2-Dichlorobenzene	ug/l	<MDL		0.20		
		1,3-Dichlorobenzene	ug/l	<MDL		0.20		
		1,4-Dichlorobenzene	ug/l	<MDL		0.20		
		Dichlorodifluoromethane	ug/l	<MDL		0.50		
		1,1-Dichloroethane	ug/l	<MDL		0.20		
		1,2-Dichloroethane	ug/l	<MDL		0.20		
		1,1-Dichloroethylene	ug/l	<MDL		0.20		
		trans-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		1,2-Dichloropropane	ug/l	<MDL		0.20		
		cis-1,3-Dichloropropene	ug/l	<MDL		0.20		
		trans-1,3-Dichloropropene	ug/l	<MDL		0.20		
		Methylene Chloride	ug/l	<MDL		0.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		0.30		
		Tetrachloroethylene	ug/l	<MDL		0.20		
		1,1,1-Trichloroethane	ug/l	<MDL		0.20		
		1,1,2-Trichloroethane	ug/l	<MDL		0.20		
		Trichloroethylene	ug/l	<MDL		0.20		
		Trichlorofluoromethane	ug/l	<MDL		0.50		
		Vinyl Chloride	ug/l	<MDL		0.50		
		cis-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		Surrogate Recovery	%			99		


Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1220
Collected By: S.Dolloff

* Definitions *

B = Below Regulatory Min.

H = Above Regulatory Max.

E = Estimated Value

M = Matrix Interference

D = Lost to Dilution

MDL = Method Detection Limit

Our Lab #: A130053
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-03
Sample Matrix: Water
Comments:

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130053	EPA 601/624	Bromodichloromethane	ug/l	<MDL		0.20		04/08/94
		Bromoform	ug/l	<MDL		0.50		
		Bromomethane	ug/l	<MDL		0.50		
		Carbon Tetrachloride	ug/l	<MDL		0.20		
		Chlorobenzene	ug/l	<MDL		0.20		
		Chloroethane	ug/l	<MDL		0.50		
		2-Chloroethylvinylether	ug/l	<MDL		0.50		
		Chloroform	ug/l	<MDL		0.20		
		Chloromethane	ug/l	<MDL		0.50		
		Dibromochloromethane	ug/l	<MDL		0.20		
		1,2-Dichlorobenzene	ug/l	<MDL		0.20		
		1,3-Dichlorobenzene	ug/l	<MDL		0.20		
		1,4-Dichlorobenzene	ug/l	<MDL		0.20		
		Dichlorodifluoromethane	ug/l	<MDL		0.50		
		1,1-Dichloroethane	ug/l	<MDL		0.20		
		1,2-Dichloroethane	ug/l	<MDL		0.20		
		1,1-Dichloroethylene	ug/l	<MDL		0.20		
		trans-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		1,2-Dichloropropane	ug/l	<MDL		0.20		
		cis-1,3-Dichloropropene	ug/l	<MDL		0.20		
		trans-1,3-Dichloropropene	ug/l	<MDL		0.20		
		Methylene Chloride	ug/l	<MDL		0.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		0.30		
		Tetrachloroethylene	ug/l	<MDL		0.20		
		1,1,1-Trichloroethane	ug/l	0.35		0.20		
		1,1,2-Trichloroethane	ug/l	<MDL		0.20		
		Trichloroethylene	ug/l	<MDL		0.20		
		Trichlorofluoromethane	ug/l	<MDL		0.50		
		Vinyl Chloride	ug/l	<MDL		0.50		
		cis-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		Surrogate Recovery	%	123				


Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1425
Collected By: S.Dolloff

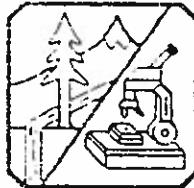
Our Lab #: A130054
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-04
Sample Matrix: Water
Comments:

* Definitions *
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Estimated Value
M = Matrix Interference
D = Lost to Dilution
MDL = Method Detection Limit

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130054	EPA 601/624	Bromodichloromethane	ug/l	<MDL		0.20		04/08/94
		Bromoform	ug/l	<MDL		0.50		
		Bromomethane	ug/l	<MDL		0.50		
		Carbon Tetrachloride	ug/l	<MDL		0.20		
		Chlorobenzene	ug/l	<MDL		0.20		
		Chloroethane	ug/l	<MDL		0.50		
		2-Chloroethylvinylether	ug/l	<MDL		0.50		
		Chloroform	ug/l	<MDL		0.20		
		Chloromethane	ug/l	<MDL		0.50		
		Dibromochloromethane	ug/l	<MDL		0.20		
		1,2-Dichlorobenzene	ug/l	<MDL		0.20		
		1,3-Dichlorobenzene	ug/l	<MDL		0.20		
		1,4-Dichlorobenzene	ug/l	<MDL		0.20		
		Dichlorodifluoromethane	ug/l	<MDL		0.50		
		1,1-Dichloroethane	ug/l	<MDL		0.20		
		1,2-Dichloroethane	ug/l	<MDL		0.20		
		1,1-Dichloroethylene	ug/l	<MDL		0.20		
		trans-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		1,2-Dichloropropane	ug/l	<MDL		0.20		
		cis-1,3-Dichloropropene	ug/l	<MDL		0.20		
		trans-1,3-Dichloropropene	ug/l	<MDL		0.20		
		Methylene Chloride	ug/l	<MDL		0.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		0.30		
		Tetrachloroethylene	ug/l	<MDL		0.20		
		1,1,1-Trichloroethane	ug/l	<MDL		0.20		
		1,1,2-Trichloroethane	ug/l	<MDL		0.20		
		Trichloroethylene	ug/l	<MDL		0.20		
		Trichlorofluoromethane	ug/l	<MDL		0.50		
		Vinyl Chloride	ug/l	<MDL		0.50		
		cis-1,2-Dichloroethylene	ug/l	0.37		0.20		
		Surrogate Recovery	%	102				

At L

Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456 3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1510
Collected By: S.Dolloff

* Definitions *

B = Below Regulatory Min.

H = Above Regulatory Max.

E = Estimated Value

M = Matrix Interference

D = Lost to Dilution

MDL = Method Detection Limit

Our Lab #: A130055
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-05
Sample Matrix: Water
Comments:

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130055	EPA 601/624	Bromodichloromethane	ug/l	<MDL		0.20		04/08/94
		Bromoform	ug/l	<MDL		0.50		
		Bromomethane	ug/l	<MDL		0.50		
		Carbon Tetrachloride	ug/l	<MDL		0.20		
		Chlorobenzene	ug/l	<MDL		0.20		
		Chloroethane	ug/l	<MDL		0.50		
		2-Chloroethylvinylether	ug/l	<MDL		0.50		
		Chloroform	ug/l	<MDL		0.20		
		Chloromethane	ug/l	<MDL		0.50		
		Dibromochloromethane	ug/l	<MDL		0.20		
		1,2-Dichlorobenzene	ug/l	<MDL		0.20		
		1,3-Dichlorobenzene	ug/l	<MDL		0.20		
		1,4-Dichlorobenzene	ug/l	<MDL		0.20		
		Dichlorodifluoromethane	ug/l	<MDL		0.50		
		1,1-Dichloroethane	ug/l	<MDL		0.20		
		1,2-Dichloroethane	ug/l	<MDL		0.20		
		1,1-Dichloroethylene	ug/l	<MDL		0.20		
		trans-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		1,2-Dichloropropane	ug/l	<MDL		0.20		
		cis-1,3-Dichloropropene	ug/l	<MDL		0.20		
		trans-1,3-Dichloropropene	ug/l	<MDL		0.20		
		Methylene Chloride	ug/l	<MDL		0.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		0.30		
		Tetrachloroethylene	ug/l	<MDL		0.20		
		1,1,1-Trichloroethane	ug/l	<MDL		0.20		
		1,1,2-Trichloroethane	ug/l	<MDL		0.20		
		Trichloroethylene	ug/l	<MDL		0.20		
		Trichlorofluoromethane	ug/l	<MDL		0.50		
		Vinyl Chloride	ug/l	<MDL		0.50		
		cis-1,2-Dichloroethylene	ug/l	0.40		0.20		
		Surrogate Recovery	%			106		


Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1625
Collected By: S.Dolloff

Attn: Stan Dolloff

Our Lab #: A130056
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-07
Sample Matrix: Water
Comments:

* Definitions *
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Estimated Value
M = Matrix Interference
D = Lost to Dilution
MDL = Method Detection Limit

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130056	EPA 601/624	Bromodichloromethane	ug/l	<MDL		1.00		04/08/94
		Bromoform	ug/l	<MDL		2.50		
		Bromomethane	ug/l	<MDL		2.50		
		Carbon Tetrachloride	ug/l	<MDL		1.00		
		Chlorobenzene	ug/l	<MDL		1.00		
		Chloroethane	ug/l	<MDL		2.50		
		2-Chloroethylvinylether	ug/l	<MDL		2.50		
		Chloroform	ug/l	<MDL		1.00		
		Chloromethane	ug/l	<MDL		2.50		
		Dibromochloromethane	ug/l	<MDL		1.00		
		1,2-Dichlorobenzene	ug/l	<MDL		1.00		
		1,3-Dichlorobenzene	ug/l	<MDL		1.00		
		1,4-Dichlorobenzene	ug/l	<MDL		1.00		
		Dichlorodifluoromethane	ug/l	<MDL		2.50		
		1,1-Dichloroethane	ug/l	4.02		1.00		
		1,2-Dichloroethane	ug/l	<MDL		1.00		
		1,1-Dichloroethylene	ug/l	<MDL		1.00		
		trans-1,2-Dichloroethylene	ug/l	<MDL		1.00		
		1,2-Dichloropropane	ug/l	<MDL		1.00		
		cis-1,3-Dichloropropene	ug/l	<MDL		1.00		
		trans-1,3-Dichloropropene	ug/l	<MDL		1.00		
		Methylene Chloride	ug/l	<MDL		2.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		1.50		
		Tetrachloroethylene	ug/l	<MDL		1.00		
		1,1,1-Trichloroethane	ug/l	6.70		1.00		
		1,1,2-Trichloroethane	ug/l	<MDL		1.00		
		Trichloroethylene	ug/l	<MDL		1.00		
		Trichlorofluoromethane	ug/l	53.3		2.50		
		Vinyl Chloride	ug/l	<MDL		2.50		
		cis-1,2-Dichloroethylene	ug/l	<MDL		1.00		
		Surrogate Recovery	%	98				

Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
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(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

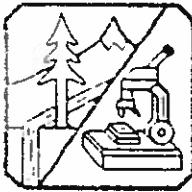
Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1700
Collected By: S.Dolloff

Our Lab #: A130057
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-08
Sample Matrix: Water
Comments:

* Definitions *
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Estimated Value
M = Matrix Interference
D = Lost to Dilution
MDL = Method Detection Limit

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130057	EPA 601/624	Bromodichloromethane	ug/l	<MDL		1.00		04/08/94
		Bromoform	ug/l	<MDL		2.50		
		Bromomethane	ug/l	<MDL		2.50		
		Carbon Tetrachloride	ug/l	<MDL		1.00		
		Chlorobenzene	ug/l	<MDL		1.00		
		Chloroethane	ug/l	<MDL		2.50		
		2-Chloroethylvinylether	ug/l	<MDL		2.50		
		Chloroform	ug/l	<MDL		1.00		
		Chloromethane	ug/l	<MDL		2.50		
		Dibromochloromethane	ug/l	<MDL		1.00		
		1,2-Dichlorobenzene	ug/l	<MDL		1.00		
		1,3-Dichlorobenzene	ug/l	<MDL		1.00		
		1,4-Dichlorobenzene	ug/l	<MDL		1.00		
		Dichlorodifluoromethane	ug/l	<MDL		2.50		
		1,1-Dichloroethane	ug/l	41.5		1.00		
		1,2-Dichloroethane	ug/l	<MDL		1.00		
		1,1-Dichloroethylene	ug/l	<MDL		1.00		
		trans-1,2-Dichloroethylene	ug/l	<MDL		1.00		
		1,2-Dichloropropane	ug/l	<MDL		1.00		
		cis-1,3-Dichloropropene	ug/l	<MDL		1.00		
		trans-1,3-Dichloropropene	ug/l	<MDL		1.00		
		Methylene Chloride	ug/l	<MDL		2.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		1.50		
		Tetrachloroethylene	ug/l	<MDL		1.00		
		1,1,1-Trichloroethane	ug/l	40.6		1.00		
		1,1,2-Trichloroethane	ug/l	1.12		1.00		
		Trichloroethylene	ug/l	19.5		1.00		
		Trichlorofluoromethane	ug/l	<MDL		2.50		
		Vinyl Chloride	ug/l	<MDL		2.50		
		cis-1,2-Dichloroethylene	ug/l	5.11		1.00		
		Surrogate Recovery	%	98				


Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

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(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

Environmental Management, Inc.
206 E. Fireweed Ln #201
Anchorage Ak 99503

Report Date: 04/13/94

Attn: Stan Dolloff

Date Arrived: 04/01/94
Date Sampled: 03/30/94
Time Sampled: 1730
Collected By: S.Dolloff

* Definitions *

B = Below Regulatory Min.

H = Above Regulatory Max.

E = Estimated Value

M = Matrix Interference

D = Lost to Dilution

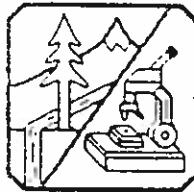
MDL = Method Detection Limit

Our Lab #: A130058
Location/Project: 6240-FAI Quarterly
Your Sample ID: 6240-09
Sample Matrix: Water
Comments:

Lab Number	Method	Parameter	Units	Result	*	MDL	Date Prepared	Date Analyzed
A130058	EPA 601/624	Bromodichloromethane	ug/l	<MDL		0.20		04/08/94
		Bromoform	ug/l	<MDL		0.50		
		Bromomethane	ug/l	<MDL		0.50		
		Carbon Tetrachloride	ug/l	<MDL		0.20		
		Chlorobenzene	ug/l	<MDL		0.20		
		Chloroethane	ug/l	<MDL		0.50		
		2-Chloroethylvinylether	ug/l	<MDL		0.50		
		Chloroform	ug/l	<MDL		0.20		
		Chloromethane	ug/l	<MDL		0.50		
		Dibromochloromethane	ug/l	<MDL		0.20		
		1,2-Dichlorobenzene	ug/l	<MDL		0.20		
		1,3-Dichlorobenzene	ug/l	<MDL		0.20		
		1,4-Dichlorobenzene	ug/l	<MDL		0.20		
		Dichlorodifluoromethane	ug/l	<MDL		0.50		
		1,1-Dichloroethane	ug/l	<MDL		0.20		
		1,2-Dichloroethane	ug/l	<MDL		0.20		
		1,1-Dichloroethylene	ug/l	<MDL		0.20		
		trans-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		1,2-Dichloropropane	ug/l	<MDL		0.20		
		cis-1,3-Dichloropropene	ug/l	<MDL		0.20		
		trans-1,3-Dichloropropene	ug/l	<MDL		0.20		
		Methylene Chloride	ug/l	<MDL		0.50		
		1,1,2,2-Tetrachloroethane	ug/l	<MDL		0.30		
		Tetrachloroethylene	ug/l	<MDL		0.20		
		1,1,1-Trichloroethane	ug/l	<MDL		0.20		
		1,1,2-Trichloroethane	ug/l	<MDL		0.20		
		Trichloroethylene	ug/l	<MDL		0.20		
		Trichlorofluoromethane	ug/l	<MDL		0.50		
		Vinyl Chloride	ug/l	<MDL		0.50		
		cis-1,2-Dichloroethylene	ug/l	<MDL		0.20		
		Surrogate Recovery	%			97		

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Reported By: Anthony J. Lange
Chemistry Supervisor



NORTHERN TESTING LABORATORIES, INC.

3330 INDUSTRIAL AVENUE
2505 FAIRBANKS STREET

FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503

(907) 456-3116 • FAX 456-3125
(907) 277-8378 • FAX 274-9645

VOLATILE QUALITY CONTROL SUMMARY

Analyst: LAL

Instrument: Saturn GC/MS

Date April 9, 1994

Compound	QC 1130 True Value	CC			Blank	LCS1127		LCSD1127			% Difference In Spikes
		CC Found	% Recovery	TRUE Value		LCS Found	% Recovery	TRUE Value	LCSD Found	% Recovery	
1,1-Dichloroethene	5.65	4.34	77	0	5.40	4.52	84	5.40	4.70	87	4
Chloroform	6.85	5.24	76	0	6.60	4.58	69	6.60	5.48	83	18
1,1,1-Trichloroethane	6.25	4.54	73	0	6.00	4.78	80	6.00	5.05	84	5
Carbon Tetrachloride	6.80	4.86	71	0	5.78	4.65	80	5.78	4.91	85	5
1,2-Dichloroethane	7.75	6.38	82	0	7.45	5.83	78	7.45	6.41	86	9
Benzene	7.40	6.27	85	0	6.52	5.41	83	6.52	5.83	89	7
1,2-Dichloropropane	7.08	5.37	76	0	7.20	5.32	74	7.20	5.83	81	9
Trichloroethylene	6.80	4.92	72	0	7.15	5.30	74	7.15	6.18	86	15
Bromodichloromethane	10.63	8.32	78	0	7.45	5.54	74	7.45	6.22	83	12
Toluene	7.83	6.66	85	0	6.95	5.75	83	6.95	6.35	91	10
Tetrachloroethylene	6.88	4.92	72	0	7.08	5.67	80	7.08	6.07	86	7
Dibromochloromethane	12.05	10.15	84	0	17.98	14.47	80	17.98	16.07	89	10
Chlorobenzene	8.23	6.47	79	0	8.15	6.42	79	8.15	7.10	87	10
Ethylbenzene	7.40	6.30	85	0	7.60	6.49	85	7.60	7.08	93	9
p,m-Xylene	6.78	5.95	88	0	7.58	5.99	79	7.58	6.50	86	8
o-Xylene	7.38	6.11	93	0	8.18	6.61	81	8.18	7.34	90	10
Styrene	9.88	8.77	89	0	7.98	6.81	85	7.98	7.47	94	9
Bromoform	20.55	18.57	90	0	21.93	19.62	89	21.93	21.85	100	11
1,4-Dichlorobenzene	8.33	6.76	81	0	3.63	3.20	88	3.63	3.04	84	5
1,2-Dichlorobenzene	9.78	8.35	85	0	9.08	7.28	80	9.08	8.37	92	14
DBCP	13.08	11.53	88	0	27.02	24.69	91	27.02	27.92	103	12
1,2,4-Trichlorobenzene	7.9	6.62	84	0	8.18	7.07	86	8.18	7.69	94	8

% Spike Recovery Limits: 70-125

% Difference in Spike Limits: +/- 30

LCS: Laboratory Control Sample

LCSD: Laboratory Control Sample Duplicate



NORTHERN TESTING LABORATORIES, INC.

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VOLATILE QUALITY CONTROL SUMMARY

Analyst: LAL

Instrument: Saturn GC/MS

Date April 8, 1994

Compound	QC 1130			LCS1127			LCSD1127			% Difference In Spikes
	True Value	QC Found	% Recovery	Blank	TRUE Value	LCS Found	% Recovery	TRUE Value	LCSD Found	
1,1-Dichloroethene	5.65	4.71	83	0	5.40	4.39	81	5.40	4.60	85
Chloroform	6.85	4.68	68	0	6.60	4.47	68	6.60	4.53	69
1,1,1-Trichloroethane	6.25	4.83	77	0	6.00	4.63	77	6.00	4.63	77
Carbon Tetrachloride	6.80	5.34	78	0	5.78	4.70	81	5.78	4.74	82
1,2-Dichloroethane	7.75	5.83	75	0	7.45	5.66	76	7.45	5.80	78
Benzene	7.40	5.98	81	0	6.52	4.85	74	6.52	5.57	85
1,2-Dichloropropane	7.08	4.62	65	0	7.20	5.24	73	7.20	5.53	77
Trichloroethylene	6.80	5.23	77	0	7.15	5.80	81	7.15	5.55	78
Bromodichloromethane	10.63	7.83	74	0	7.45	5.20	70	7.45	5.53	74
Toluene	7.83	6.46	83	0	6.95	5.61	81	6.95	5.70	82
Tetrachloroethylene	6.88	5.46	79	0	7.08	5.70	81	7.08	5.79	82
Dibromochloromethane	12.05	9.59	80	0	17.98	14.31	80	17.98	14.68	82
Chlorobenzene	8.23	6.09	74	0	8.15	6.25	77	8.15	6.44	79
Ethylbenzene	7.40	6.13	83	0	7.60	6.30	83	7.60	6.44	85
p,m-Xylene	6.78	5.71	84	0	7.58	6.35	84	7.58	6.01	79
o-Xylene	7.38	5.94	80	0	8.18	6.46	79	8.18	6.78	83
Styrene	9.88	8.19	83	0	7.98	6.47	81	7.98	6.86	86
Bromoform	20.55	18.51	90	0	21.93	20.02	91	21.93	20.10	92
1,4-Dichlorobenzene	8.33	6.40	77	0	3.63	3.04	84	3.63	3.09	85
1,2-Dichlorobenzene	9.78	7.898	81	0	9.08	7.153	79	9.08	7.451	82
DBCP	13.08	11.639	89	0	27.02	26.463	98	27.02	26.386	98
1,2,4-Trichlorobenzene	7.9	6.379	81	0	8.18	7.075	86	8.18	7.035	86

% Spike Recovery Limits: 70-125

% Difference in Spike Limits: +/- 30

LCS: Laboratory Control Sample

LCSD: Laboratory Control Sample Duplicate



NORTHERN TESTING LABORATORIES, INC.

**3330 INDUSTRIAL AVENUE
2605 FAIRBANKS STREET**

**FAIRBANKS, ALASKA 99701
ANCHORAGE, ALASKA 99503**

**(907) 456-3116 • FAX 456-3126
(907) 777-8378 • FAX 774-8646**

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Retransmitted by: (Signature)	Date/Time 3-31-94 / 2:45 p.m.	Received By: (Signature) <i>[Signature]</i>	Distinguished by: (Signature)	Date/Time	Received By: (Signature)
Retransmitted by: (Signature)	Date/Time 3-31-94 / 1625	Received By: (Signature) <i>[Signature]</i>	Retransmitted by: (Signature)	Date/Time	Received By: (Signature)
Retransmitted by: (Signature)	Date/Time	Received by Laboratory & By: (Signature)		Date/Time	Owner:
ABX Number:	Received by Laboratory & By: (Signature)	Date/Time			

Post-It™ brand fax transmittal memo 7671		# of pages > 1
To Env. Mgmt	From NTL	
Co. Ctn Stm	Co. Angie	
Dept.	Phone #	
Fax # 272 4159	Fax # 274 9645	