



100.26.043

**ENVIRONMENTAL & ENGINEERING CONSULTANTS**  
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Anch: 206 E. Fireweed Ln, Suite 200, 99503 907.222.2445 Fax: 222.0915  
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**RECEIVED**

February 11, 2003

JUL 24 2003

Fairbanks International Airport  
6450 Airport Way  
Fairbanks, AK 99709  
ATTN: Ms. Kristin Dubois, Environmental Engr.

**CONTAMINATED  
SITES  
FAIRBANKS**

Fax: 474-2583

**RE: Summary Report of Monitoring Well Demolition, Installation, and Groundwater Sampling at Air Cargo Express (former MarkAir Hangar), Block 1, Lot 6, of the Fairbanks International Airport**

**NORTECH** Environmental and Engineering Consultants, Inc. (**NORTECH**) has completed its work related to the demolition of monitoring well MW-5, installation of replacement well MW-6, and a single groundwater monitoring event of site wells at Air Cargo Express (the Site), formerly known as the MarkAir Hangar, located at Block 1, Lot 6 of the Fairbanks International Airport (FIA), in Fairbanks, Alaska (Figure 1). This report summarizes our field activities and groundwater results. All field work was performed in accordance with our proposal dated September 9, 2002 and the State of Alaska's Bid Schedule/Construction Contract Award, authorized September 10, 2002.

### Background

Air Cargo Express is located southwest of the FIA terminal on Airport Industrial Road. The site of the former MarkAir facility has been known to have groundwater contamination since the early 1990's. Five monitoring wells were installed, and a groundwater monitoring program has been ongoing at the Site since at least 1993. One of those original wells, MW-5, was subsequently damaged and eventually deemed unreliable for groundwater quality monitoring. **NORTECH's** scope of work included the in-place demolition of monitoring well MW-5, its nearby replacement with a new direct-push monitoring well, hereafter cited as MW-6, groundwater sampling and testing of the five on-site wells, and preparation of this summary report of results, including an abbreviated historical data table of previous groundwater results for easy comparison. The Site vicinity, layout and monitoring well locations are shown on Figures 2 and 3.

### Field Activities

In early September 2002, Toos Omtzigt, an environmental scientist with **NORTECH**, visited the Site to locate damaged well MW-5. Surface conditions and apparent loss of the well cover made it difficult to locate this particular well; well MW-2 also was not located because of surface conditions. The other three wells were promptly found and identified for sampling. Several pieces of concrete that resembled a well monument were found pushed off to the side at a nearby parking area, suggesting that the well cover for MW-5 had been ripped from the ground during winter or spring snow plowing. On September 13, 2002, Thadd Williamson, a **NORTECH** field technician, located and decommissioned well MW-5 by cutting off the casing a couple of inches below grade and





backfilling the entire well with sand atop a bentonite seal. The Drilling Company was subcontracted to install a replacement well MW-6 as a 1.5-inch diameter direct-push well. This well was installed approximately 4 feet from decommissioned well MW-5.

Toos Omtzigt performed a groundwater sampling event of the available monitoring wells on September 19, 2002. Groundwater monitoring was conducted in general accordance with the Alaska Department of Environmental Conservation's (ADEC) Standard Sampling Procedures Guidance. A low-flow peristaltic pump was used to obtain representative groundwater samples from the four monitoring wells. Field sampling activities included measuring the depth to water at each well to assess relative groundwater levels, collection and documentation (jar labeling and chain-of-custody record) of a groundwater sample from each well, storage of field samples in a chilled cooler for preservation, and delivery of the samples to CT&E Environmental Services, Inc. (CTE) in Fairbanks for analytical testing. Using historical groundwater information, and specific direction from Kris Dubois, FIA Environmental, the sampling protocol for this sampling event was established as follows:

Sample Identification	Total Lead by SW846-6020	VOC by SW846-8260B	DRO/RRO by AK 102/103
MW-1	X		
MW-3	X	X	
MW-4	X		
MW-6	X		X
Trip Blank		X	

DRO – diesel range organics; RRO – residual range organics; VOC – volatile organic compounds

The purge water from well sampling was placed in a drum for temporary storage at **NORTECH**, pending the sampling results. Analytical results confirmed that the water met the Golden Heart Utility requirements for acceptance and disposal at their wastewater treatment plant.

## Results

The September 19, 2002 groundwater analytical results are compiled together with previous results reported by others from 1993-94 and 2001 in Table 1. Historical data indicated lead contamination was present in groundwater at the original five wells in 2001. Chlorinated compounds were detected in groundwater at well MW-2 in 1993, 1994 and 2001. Residual range organics (RRO) in groundwater slightly exceeded the ADEC cleanup level in well MW-5 in May 2001.

On September 19, 2002, lead in groundwater was not detected above practical quantitation limits (PQL) or the 18 AAC 75.345 ADEC (State) cleanup level at monitoring wells MW-1, MW-3, or MW-4; lead was also detected below the State cleanup level at 0.00213 mg/L of water from new well MW-6. Diesel range organics (DRO) and RRO were not detected above PQL or State cleanup levels in the same well.





Traces of trichlorofluoromethane, 1,1 dichloroethane, and 1,1,1 trichloroethane were reported at 0.0369, 0.00143 and 0.0012 mg/L of water from monitoring well MW-3; these concentrations are below the 18 AAC 75.345 ADEC cleanup levels.

### Limitations

This report contains historical groundwater analytical data reported by others, and results from a recent (September 19, 2002) sampling event performed by **NORTECH**.

Groundwater samples were intended to evaluate the presence or absence of only those contaminants analyzed for, at the locations where collected, and the results can be construed to adequately represent groundwater quality on the collection date(s). The data are compiled for comparison purpose; it is not the intent of this report to formulate trends or make conclusions about the data presented. Changes in site conditions can occur with time because of natural processes or human activity.

Please do not hesitate to call us if you have questions or concerns related to this report. We thank you for the opportunity to have worked on this project and appreciate your confidence in our Firm.

Sincerely,

**NORTECH**

Dennis M. Filler, PE  
Senior Engineer

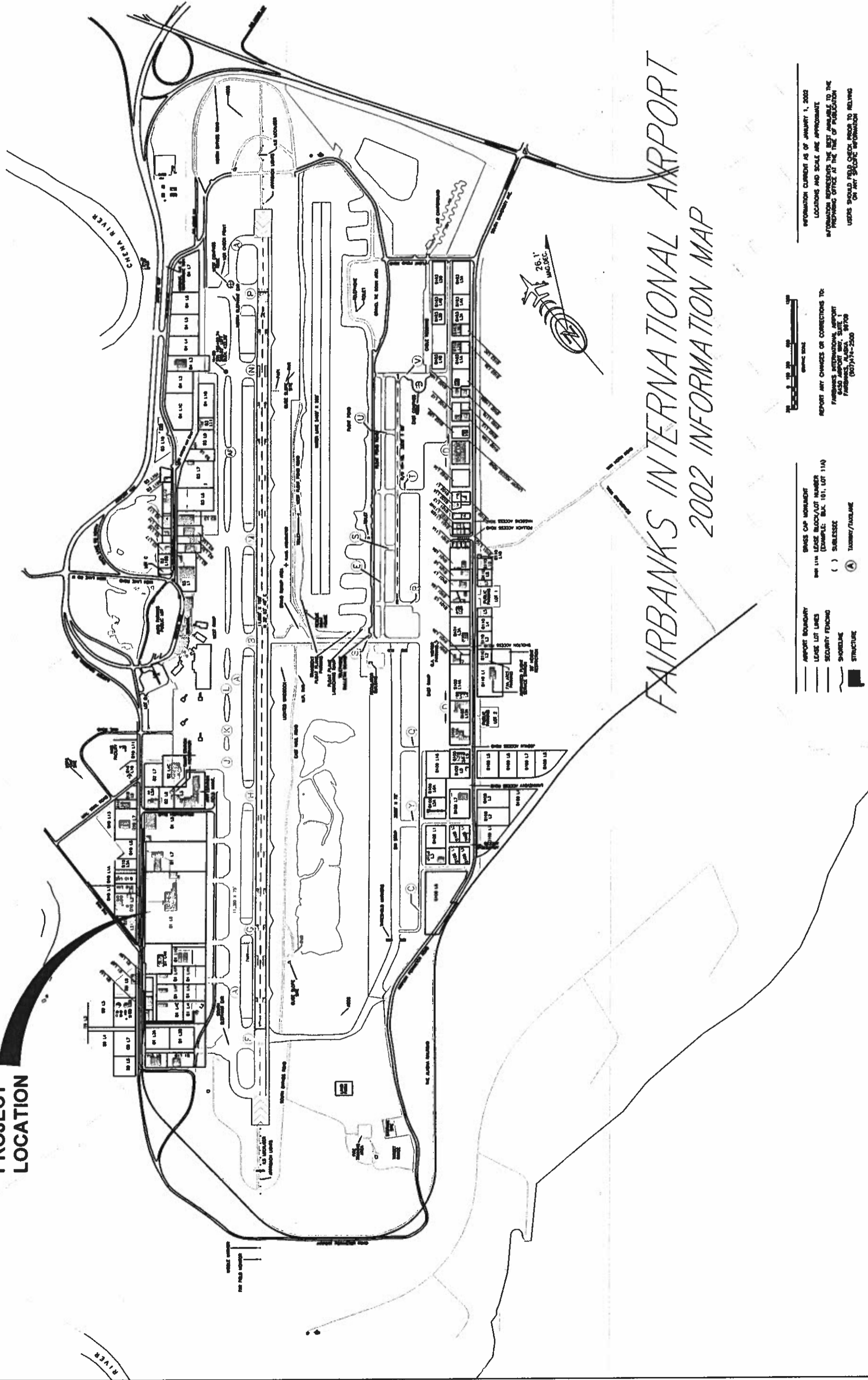
Clark Milne, PE  
Senior Engineer

### Attachments:

- |          |                                                                                         |
|----------|-----------------------------------------------------------------------------------------|
| Figure 1 | Site Location Map                                                                       |
| Figure 2 | Site Vicinity Map (with Monitoring Wells)                                               |
| Table 1  | Summary of Historical and Recent Groundwater Monitoring Results (Former MarkAir Hanger) |



**PROJECT  
LOCATION**



*FAIRBANKS INTERNATIONAL AIRPORT  
2002 INFORMATION MAP*

- AIRPORT BOUNDARY
  - LEASE LOT LINES
  - SECURITY FENCING
  - SHORELINE
  - STRUCTURE
  - BRASS CAP MONUMENT
  - WITH LEASE BLOCK/LOT NUMBER (EXAMPLE: 08 10; LOT 11A)
  - ( ) SUBLEASE
  - Ⓐ TAXIDY/TAXIDUNE
- REPORT ANY CHANGES OR CORRECTIONS TO:  
FAIRBANKS INTERNATIONAL AIRPORT  
6440 UNIVERSITY BLVD., SUITE 100  
FAIRBANKS, ALASKA 99709  
(907) 474-2500
- INFORMATION CURRENT AS OF JANUARY 1, 2002  
LOCATIONS AND SCALE ARE APPROXIMATE  
INFORMATION REPRESENTS THE BEST AVAILABLE TO THE  
PREPARING OFFICE AT THE TIME OF PUBLICATION  
USERS SHOULD PERFORM CHECKS PRIOR TO RELIING  
ON ANY SPECIFIC INFORMATION
- 26.1°  
MAG. DEC.

	<b>ENVIRONMENTAL &amp; ENGINEERING CONSULTANTS</b> 2400 College Road, Fairbanks, Alaska 99709 (907) 452-5688 FAX: (907) 452-5694		SITE LOCATION MAP AIR CARGO EXPRESS		DATE: 01/27/03 PROJ MGR: DMF DRAWN: DRB	SCALE: See Scale Bar PROJECT: 022016.1 DWG. NO.: 022016.1a(01)	FIGURE 1



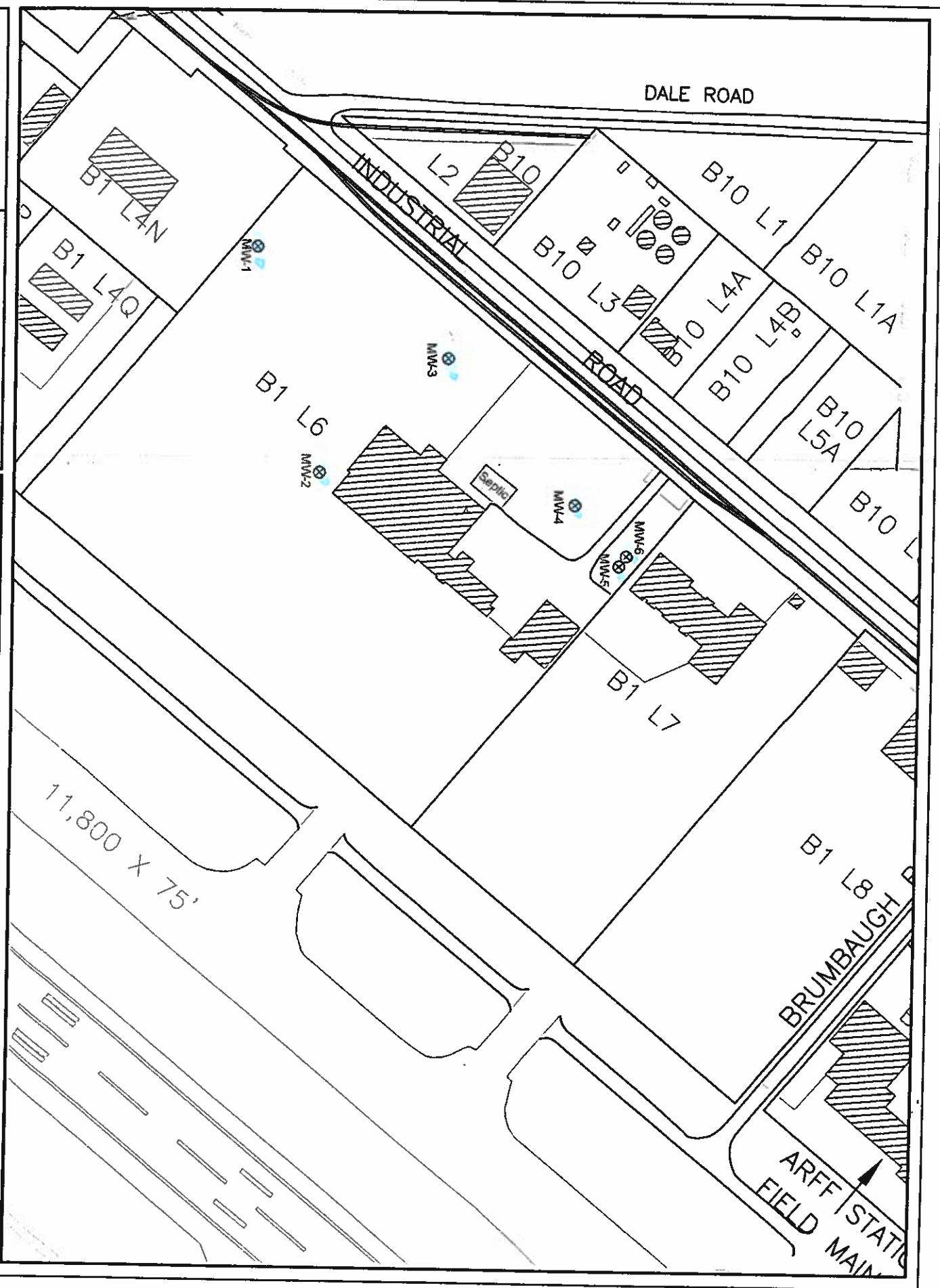
**ENVIRONMENTAL & ENGINEERING CONSULTANTS**  
 2400 College Road, Folsom, Alaska 99709  
 (907) 452-8688 FAX: (907) 452-8694

**SITE VICINITY MAP**  
 MONITORING WELLS  
 AIR CARGO EXPRESS



DATE:	01/27/03	SCALE:	
DESIGN:	DMF	PROJECT:	022016.1
DRAWN:	DRB	DWG:	022016.1A(02)

FIGURE  
2





**Table 1**  
Summary of Historical and Recent (2002) Groundwater Monitoring Results  
(Former MarkAir Hanger, FIA)

NORTECH  
2/11/2003

**MW-1**

Contaminant	ADEC Cleanup Level	Units	EMI 6/30/1993		EMI 9/30/1993		EMI 12/30/1993		EMI 3/30/1994		EMI 6/30/1994		Rockwell 5/25/01	NORTECH 9/19/2002
			6/30/1993	9/30/1993	12/30/1993	3/30/1994	6/30/1994	6/30/1994						
DRO	1.5	mg/L	<0.1	0.32	<0.1	<0.1	<0.1	0.13	<0.495					
GRO	1.3	mg/L	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.090					
RRO	1.1	mg/L							<0.990					
Benzene	0.005	mg/L	<b>0.016</b>	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					
Toluene	1.0	mg/L	<1.0	<0.0005	<1.0	<0.0005	<0.0005	<1.0	<0.002					
Ethylbenzene	0.7	mg/L	<0.7	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.002					
Xylenes	10.0	mg/L	<10.0	<0.0015	<0.0005	<0.0005	<0.0005	<10.0	<0.002					
Chlorinated solvents		mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005						
Chromium	0.1	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02						
Cadmium	0.005	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						
Arsenic	0.05	mg/L	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05						
Lead	0.015	mg/L	<0.05	<0.005	<0.1	<0.05	<0.05	<b>0.0209</b>	<0.005				<0.00205	

Notes:  
 1. <MCL implies measurable analyte concentrations were below Maximum [allowable] Contaminant Levels.  
 2. Blank cells imply analyte not analyzed for.  
 3. Bold result indicates concentration exceeds ADEC 18 AAC 75.345, Table C groundwater cleanup level. Bold values preceded by "<" denote instances when the practical quantitation limit was higher than the applicable cleanup level.

**MW-2**

Contaminant	ADEC Cleanup Level	Units	EMI 6/30/1993		EMI 9/30/1993		EMI 12/30/1993		EMI 3/30/1994		EMI 6/30/1994		Rockwell 5/25/01	AMEC 10/19/2001 (Filtered)	AMEC Duplicate 10/19/2001 (filtered)	AMEC 10/19/2001 (unfiltered)	AMEC Duplicate 10/19/2001 (unfiltered)	NORTECH 9/19/02
			6/30/1993	9/30/1993	12/30/1993	3/30/1994	6/30/1994	6/30/1994										
DRO	1.5	mg/L	0.47	0.42	<0.1	<0.1	<0.1	1.1	<0.495									
GRO	1.3	mg/L	<0.1	0.09	0.052	0.05	0.2	<0.090										
RRO	1.1	mg/L						<0.990										
Benzene	0.005	mg/L	<0.001	<0.005	<b>0.013</b>	<b>0.0086</b>	<0.005	<0.0005										
Toluene	1.0	mg/L	<1.0	<0.0005	<1.0	<1.0	<1.0	<0.002										
Ethylbenzene	0.7	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.002	<0.002										
Xylenes	10.0	mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<0.002										
Trichlorofluoromethane	1.3	mg/L						<0.001										
1,1 Dichloroethane	0.005	mg/L						<b>0.0208</b>										
cis 1,2 Dichloroethene	0.07	mg/L						0.00685										
1,1,1 Trichloroethane	0.2	mg/L						0.00718										
Trichloroethene	0.005	mg/L	<b>0.02</b>	<b>0.028</b>	<b>0.037</b>	<b>0.0195</b>	<b>0.011</b>	<b>0.0144</b>										
1,1,2 Trichloroethane	0.005	mg/L						0.00272										
Chromium	0.1	mg/L	<0.05	<0.05	<0.05	<0.1	<0.02											
Cadmium	0.005	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01											
Arsenic	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05											
Lead	0.015	mg/L	<0.05	<0.05	<0.1	<0.05	<0.05	<b>0.0441</b>										

Well not found





**Table 1**  
Summary of Historical and Recent (2002) Groundwater Monitoring Results  
(Former MarkAir Hanger, FIA)

Contaminant	ADEC Cleanup Level	Units	EMI 6/30/1993			EMI 9/30/1993			EMI 12/30/1993			EMI 3/30/1994			EMI 6/30/1994			Rockwell 5/25/2001	AMEC 10/19/2001	NORTECH 9/19/2002
			6/30/1993	9/30/1993	12/30/1993	3/30/1994	6/30/1994	6/30/1994	9/30/1994	12/30/1994	3/30/1994	6/30/1994	9/30/1994	12/30/1994						
DRO	1.5	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
GRO	1.3	mg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
RRO	1.1	mg/L	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Benzene	0.005	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Toluene	1.0	mg/L	<0.001	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	
Ethylbenzene	0.7	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Xylenes	10.0	mg/L	<0.003	<0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Chlorinated solvents		mg/L			<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	<MCL	
Trichlorofluoromethane	1.3	mg/L																		
1,1 Dichloroethane	0.005	mg/L																		
cis 1,2 Dichloroethene	0.07	mg/L																		
1,1,1 Trichloroethane	0.2	mg/L																		
Trichloroethene	0.005	mg/L																		
1,1,2 Trichloroethane	0.005	mg/L																		
Chromium	0.1	mg/L			<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Cadmium	0.005	mg/L			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Arsenic	0.05	mg/L			<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Lead	0.015	mg/L			<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

**MW-4**

Contaminant	ADEC Cleanup Level	Units	EMI 6/30/1993			EMI 9/30/1993			EMI 12/30/1993			EMI 3/30/1994			EMI 6/30/1994			Rockwell 5/25/2001	Rockwell Duplicate 5/25/2001	AMEC 10/19/2001	NORTECH 9/19/2002
			6/30/1993	9/30/1993	12/30/1993	3/30/1994	6/30/1994	6/30/1994	9/30/1994	12/30/1994	3/30/1994	6/30/1994	9/30/1994	12/30/1994							
DRO	1.5	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
GRO	1.3	mg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
RRO	1.1	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Benzene	0.005	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Toluene	1.0	mg/L	<0.001	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.0005	<1.0		
Ethylbenzene	0.7	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Xylenes	10.0	mg/L	<0.003	<0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Chlorinated solvents		mg/L																			
Trichlorofluoromethane	1.3	mg/L																			
1,1 Dichloroethane	0.005	mg/L																			
cis 1,2 Dichloroethene	0.07	mg/L																			
1,1,1 Trichloroethane	0.2	mg/L																			
Trichloroethene	0.005	mg/L																			
1,1,2 Trichloroethane	0.005	mg/L																			
Chromium	0.1	mg/L																			
Cadmium	0.005	mg/L																			
Lead	0.015	mg/L																			



**Table 1**  
 Summary of Historical and Recent (2002) Groundwater Monitoring Results  
 (Former MarkAir Hanger, FIA)

**MW-5** (Decommissioned Sept. 13, 2002)

Contaminant	ADEC Cleanup Level	Units	EMI 6/30/1993	EMI 9/30/1993	EMI 12/30/1993	EMI 3/30/1994	EMI 6/30/1994	Rockwell 5/25/01	AMEC 10/19/2001	AMEC 10/19/2001
DRO	1.5	mg/L	<0.1	<0.1	<0.1	<0.1	0.2	0.665		
GRO	1.3	mg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.090		
RRO	1.1	mg/L						1.38		
Benzene	0.005	mg/L	<0.001	<0.0005	<0.0005	<0.005	<0.005	<0.0005		
Toluene	1.0	mg/L	<1.0	<0.0005	<1.0	<0.0005	<1.0	<0.002		
Ethylbenzene	0.7	mg/L	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.002		
Xylenes	10.0	mg/L	<0.003	<0.0015	<0.0005	<0.0005	<0.0005	<0.002		
Chlorinated solvents		mg/L						NA		
Trichlorofluoromethane	1.3	mg/L						<0.001		
1,1 Dichloroethane	0.005	mg/L						<0.001		
cis 1,2 Dichloroethane	0.07	mg/L						<0.001		
1,1,1 Trichloroethane	0.2	mg/L						<0.001		
Trichloroethene	0.005	mg/L						<0.001		
1,1,2 Trichloroethane	0.005	mg/L						<0.001		
Chromium	0.1	mg/L						<0.001		
Cadmium	0.005	mg/L								
Lead	0.015	mg/L						0.576	<0.0003 (filtered)	0.0564 (unfiltered)

**MW-6** (Installed Sept. 2002)

Contaminant	ADEC Cleanup Level	Units	NORTECH 9/19/02
DRO	1.5	mg/L	<0.552
RRO	1.1	mg/L	<1.10
Lead	0.015	mg/L	0.002

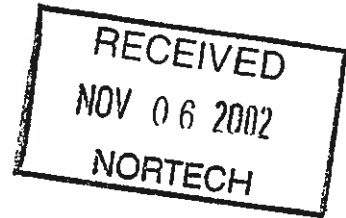
- Notes:
1. <MCL implies measurable analyte concentrations were below Maximum [allowable] Contaminant Levels.
  2. Blank cells imply analyte not analyzed for.
  3. Bold result indicates concentration exceeds ADEC 18 AAC 75.345, Table C groundwater cleanup level. Bold values preceded by "<" denote instances when the practical quantitation limit was higher than the applicable cleanup level.





**CTE Environmental Services  
Alaska Division  
Level I Data Report**

**Project:** ADOT-FIA GW Monit.  
**Client:** Nortech  
**CT&E Work Order:** 1025757



**Contents:**

**Chain of Custody/Sample Rec Form**  
**Case Narrative**  
**Final Report Pages**  
**QC Summary Pages**

**Note:**

**Unless otherwise noted, all quality assurance/quality control criteria are in compliance with the proper regulatory authority and/or CTE's Quality Assurance Program Plan.**



Case Narrative

Client NORTECH Nortech  
Workorder 1025757 ADOT-FIA GW Monit.

Printed Date/Time 10/1/2002 16:06

Sample ID Client Sample ID

---

457047 CCV

8260 - CCV recovery for 4-methyl-2-pentanone is biased high and does not meet laboratory QC goals. Results are not affected as this analyte is not found in the associated samples.

457261 CCV

8260 - CCV recovery for 4-methyl-2-pentanone is biased high and does not meet laboratory QC goals. Results are not affected as this analyte is not detected in the associated samples.

;

CHAIN OF CUSTODY RECORD

**CT&E Environmental Services Inc.**  
 Laboratory Division

CT&E Reference:

1 CLIENT: **NORTECH**      PHONE NO: **(907) 452-5688**

CONTACT: **Toos Omtzigt**      PWSID#:

PROJECT: **ADOT - FIA GW monit.**

REPORTS TO:

INVOICE TO:      FAX NO: **(907) 452-5694**

                                         QUOTE#      P.O. NUMBER: **02216.1**

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used	Analysis Required	REMARKS
1	MW-1	9/19/02	10:30 AM	Water	1	G			
2	MW-3	"	11:00 AM	"	4	"			
3	MW-4	"	12:00 PM	"	1	"			
4	MW-6	"	12:40 PM	"	3	"			
5	Trip Blank				2	"			

2

3

4

5

Shipping Carrier: **Hand**      Temperature C: **4.9°C**

Shipping Ticket No: **Hand**      Chain of Custody Seal: (Circle) **INTACT** **BROKEN** **ABSENT**

Data Deliverables: **Level I** Level II Level III EDD Type:

Requested Turnaround Time and Special Instructions:

Collected/Relinquished By: (1) **Melody Deberhan**      Received By: **Melody Deberhan**

Relinquished By: (2) **Melody Deberhan**      Received By: **[Signature]**

Relinquished By: (3) **[Signature]**      Received By: **[Signature]**

Relinquished By: (4) **[Signature]**      Received For Laboratory By: **[Signature]**



Yes  No   
 Are samples RUSH, priority, or within 72 hrs. of hold time? NA  
 If yes have you done e-mail notification? NA  
 Are samples within 24 hrs. of hold time or due date? NA  
 If yes, have you spoken with Supervisor? NA  
 Archiving bottles - if required, are they properly marked? ✓  
 Are there any problems (e.g., ids, analyses)? ✓  
 Were samples preserved correctly and pH verified? ✓  
\* 1-M HCl added to 4 B and 4C

Has Project Manager been notified of problems? ✓  
 Is this a DOD project? (USACE, Navy, AFCEE): Level 1  
 If yes, complete page 2 of Sample Receipt Form  
 Will a data package be required? 5777  
 If this is for PWS, provide PWSID.  
 Is there a quote for this project?  
 Will courier charges apply?  
 Method of payment?

Completed by (sign): Melody Debenham (print): Melody Debenham  
 Login proof (check one): waived  required  performed by Christy Taylor  
 Notes:

- # of each Container Received:
- 950 ml amber unpres'd
  - 950 ml amber w / HCl 2
  - 500 ml amber w / H<sub>2</sub>SO<sub>4</sub>
  - 1L cubies unpres'd
  - 1L Cubitainers w / HNO<sub>3</sub>
  - 1L Cubitainers w / H<sub>2</sub>SO<sub>4</sub>
  - 1L Cubitainers w / NaOH + ZnAc 4
  - 250 mL Nalgene NaOH
  - 120 ml coli bottles
  - 60 ml Nalgene unpres'd
  - 60 mL Nalgene w/ H<sub>2</sub>SO<sub>4</sub>
  - 8 oz amber unpres'd
  - 4 oz amber unpres'd
  - 4 oz w / septa w / MeOH
  - 40 ml vials w / HCl
  - 40 mL ascorbic acid + HCl 5

TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS OR HAWAII.  
 NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.  
 Notes:

DATE / TIME: 9/26/02 0900  
 COOLER AND TEMP BLANK READINGS\*  
 Cooler ID 2 Temp Blank 4.0 Cooler 4.5  
 Cooler ID 2 Temp Blank 4.0 Cooler 4.5

CUSTODY SEALS INTACT: YES / NO # / WHERE: 204 (204-5)  
 COMPLETED BY (INITIALS): MD

Due Date: 9/26/02  
 Received Date/Time: 9/19/02 @ 1:20  
 Received Temperature\*: \_\_\_\_\_  
 Thermometer ID: Probe C  
 Cooler ID \_\_\_\_\_ Temp Blank \_\_\_\_\_ Cooler Temp \_\_\_\_\_  
 \_\_\_\_\_ Temp Blank \_\_\_\_\_ Cooler Temp \_\_\_\_\_  
 \_\_\_\_\_ Temp Blank \_\_\_\_\_ Cooler Temp \_\_\_\_\_  
 \_\_\_\_\_ Temp Blank \_\_\_\_\_ Cooler Temp \_\_\_\_\_  
 Matrix of each Sample: \_\_\_\_\_  
 " " " " \_\_\_\_\_  
 " " " " \_\_\_\_\_  
 " " " " \_\_\_\_\_  
 " " " " \_\_\_\_\_  
 Trip Blank #5  
 BMS/BMSD \_\_\_\_\_  
 Additional Sample Remarks \_\_\_\_\_  
 Extra Sample Volume? \_\_\_\_\_  
 Limited Sample Volume? \_\_\_\_\_  
 Field pres'd for volatiles? \_\_\_\_\_  
 Field-filtered for dissolved? \_\_\_\_\_  
 Lab-filtered for dissolved? \_\_\_\_\_  
 Ref Lab required? \_\_\_\_\_



CT&E Environmental Services Inc.  
CUSTODY SEAL

Signature: Melody Debenhan Date/Time: 9/19/02 @ 4:30

 CT&E Environmental Services Inc.  
CUSTODY SEAL

Signature: Melody Debenhan Date/Time: 9/19/02 @ 4:30

#2



200 W. Potter Drive  
Anchorage, AK 99518-1605  
Tel: (907) 562-2343  
Fax: (907) 561-5301  
Web: <http://www.cteesi.com>

Toos Omtzigt  
Nortech  
2400 College Rd.  
Fairbanks, AK 99709

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**Work Order:** 1025757  
ADOT-FIA GW Monit.  
**Client:** Nortech  
**Report Date:** October 01, 2002

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Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U Indicates the analyte was analyzed for but not detected.
- F Indicates an estimated value that falls below PQL, but is greater than the MDL.
- J Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B Indicates the analyte is found in the blank associated with the sample.
- \* The analyte has exceeded allowable limits.
- GT Greater Than
- D Secondary Dilution
- LT Less Than
- ! Surrogate out of range



CT&E Ref.# 1025757001  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Client Sample ID MW-1  
 Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06  
 Collected Date/Time 09/19/2002 10:30  
 Received Date/Time 09/19/2002 13:20  
 Technical Director Stephen C. Ede

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Metals by ICP/MS</b>								
Lead	2.05 U	2.05	ug/L	SW846 6020		09/26/02	09/27/02	KGF



CT&E Ref.# 1025757002  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Client Sample ID MW-3  
 Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06  
 Collected Date/Time 09/19/2002 11:00  
 Received Date/Time 09/19/2002 13:20  
 Technical Director Stephen C. Ede

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Metals by ICP/MS</b>								
Lead	2.00 U	2.00	ug/L	SW846 6020		09/26/02	09/27/02	KGF
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Chloromethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Vinyl chloride	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Bromomethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Chloroethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Trichlorofluoromethane	0.0369	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1-Dichloroethene	0.00255	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Methylene chloride	0.00500 U	0.00500	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Carbon disulfide	0.00200 U	0.00200	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1-Dichloroethane	0.00143	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Bromochloromethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Chloroform	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1,1-Trichloroethane	0.00120	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Benzene	0.000500 U	0.000500	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2-Dichloroethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Trichloroethene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Dibromomethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Bromodichloromethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
2-Chloroethyl Vinyl Ether	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
cis-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH



CT&E Ref.# 1025757002  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Client Sample ID MW-3  
 Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06  
 Collected Date/Time 09/19/2002 11:00  
 Received Date/Time 09/19/2002 13:20  
 Technical Director Stephen C. Ede

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Toluene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,3-Dichloropropane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Dibromochloromethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Chlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1,1,2-Tetrachloroethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Ethylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
P & M -Xylene	0.00200 U	0.00200	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
o-Xylene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Styrene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Bromoform	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Bromobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,1,2,2-Tetrachloroethane	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2,3-Trichloropropane	0.00200 U	0.00200	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,4-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
Naphthalene	0.00200 U	0.00200	mg/L	SW846-8260B		09/29/02	09/30/02	MAH



CT&E Ref.# 1025757002  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Client Sample ID MW-3  
 Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06  
 Collected Date/Time 09/19/2002 11:00  
 Received Date/Time 09/19/2002 13:20  
 Technical Director Stephen C. Ede

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
2-Hexanone	0.0100 U	0.0100	mg/L	SW846-8260B		09/29/02	09/30/02	MAH
<b>Surrogates</b>								
Dibromofluoromethane <surr>	110		%	SW846-8260B	85-118	09/29/02	09/30/02	MAH
1,2-Dichloroethane-D4 <surr>	113		%	SW846-8260B	68-130	09/29/02	09/30/02	MAH
Toluene-d8 <surr>	103		%	SW846-8260B	76-120	09/29/02	09/30/02	MAH
4-Bromofluorobenzene <Surr>	99.8		%	SW846-8260B	75-131	09/29/02	09/30/02	MAH



**CT&E Ref.#** 1025757003  
**Client Name** Nortech  
**Project Name/#** ADOT-FIA GW Monit.  
**Client Sample ID** MW-4  
**Matrix** Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

**Printed Date/Time** 10/01/2002 16:06  
**Collected Date/Time** 09/19/2002 12:00  
**Received Date/Time** 09/19/2002 13:20  
**Technical Director** Stephen C. Ede

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Metals by ICP/MS</b>								
Lead	2.00 U	2.00	ug/L	SW846 6020		09/26/02	09/27/02	KGF



CT&E Ref.# 1025757004  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Client Sample ID MW-6  
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/02/2002 17:16  
Collected Date/Time 09/19/2002 12:40  
Received Date/Time 09/19/2002 13:20  
Technical Director Stephen C. Ede

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Diesel Range Organics	0.552 U	0.552	mg/L	AK102/103		09/23/02	09/24/02	DS
Residual Range Organics GC	1.10 U	1.10	mg/L	AK102/103		09/23/02	09/24/02	DS
<b>Surrogates</b>								
n-Triacontane-d62 <Surr>	109		%	AK102/103	50-150	09/23/02	09/24/02	DS
5a Androstane <surr>	98.7		%	AK102/103	50-150	09/23/02	09/24/02	DS
<b>Metals by ICP/MS</b>								
Lead	2.13	2.00	ug/L	SW846 6020		09/26/02	09/27/02	KGF





CT&E Ref.# 1025757005
Client Name Nortech
Project Name/# ADOT-FIA GW Monit.
Client Sample ID Trip Blank
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:00
Collected Date/Time 09/19/2002 0:00
Received Date/Time 09/19/2002 13:20
Technical Director Stephen C. Ede

Released By Stephen C. Ede

Sample Remarks:

Table with 9 columns: Parameter, Results, PQL, Units, Method, Allowable Limits, Prep Date, Analysis Date, Init. Section: Volatile Gas Chromatography/Mass Spectroscopy. Lists various chemical compounds and their detection results.



CT&E Ref.# 1025757005
Client Name Nortech
Project Name/# ADOT-FLA GW Monit.
Client Sample ID Trip Blank
Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06
Collected Date/Time 09/19/2002 0:00
Received Date/Time 09/19/2002 13:20
Technical Director Stephen C. Ede

Table with 10 columns: Parameter, Results, PQL, Units, Method, Allowable Limits, Prep Date, Analysis Date, Init. Section: Volatile Gas Chromatography/Mass Spectroscopy. Lists various chemical compounds and their detection results.

Surrogates



CT&E Ref.# 1025757005  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Client Sample ID Trip Blank  
 Matrix Water (Surface, Eff., Ground)

All Dates/Times are Alaska Standard Time

Printed Date/Time 10/01/2002 16:06  
 Collected Date/Time 09/19/2002 0:00  
 Received Date/Time 09/19/2002 13:20  
 Technical Director Stephen C. Ede

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Dibromofluoromethane <sur>	113		%	SW846-8260B	85-118	09/29/02	09/30/02	MAH
1,2-Dichloroethane-D4 <sur>	115		%	SW846-8260B	68-130	09/29/02	09/30/02	MAH
Toluene-d8 <sur>	99		%	SW846-8260B	76-120	09/29/02	09/30/02	MAH
4-Bromofluorobenzene <Surr>	92.7		%	SW846-8260B	75-131	09/29/02	09/30/02	MAH



CT&E Ref.# 457043 Method Blank  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:06  
Prep Batch VXX 9651  
Method SW5030  
Date 09/29/2002

QC results affect the following production samples:  
1025757002, 1025757005

Sample Remarks:

Parameter	Results	Reporting Limit	Units	Analysis Date	Init
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**Volatile Gas Chromatography/Mass Spectroscopy**



CT&E Ref.# 457043 Method Blank  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:06  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	Results	Reporting Limit	Units	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>					
Dichlorodifluoromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Chloromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Vinyl chloride	0.000500 U	0.000500	mg/L	09/30/02	MAH
Bromomethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Chloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Trichlorofluoromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1-Dichloroethene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Methylene chloride	0.00250 U	0.00250	mg/L	09/30/02	MAH
Carbon disulfide	0.00100 U	0.00100	mg/L	09/30/02	MAH
trans-1,2-Dichloroethene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1-Dichloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
2,2-Dichloropropane	0.000500 U	0.000500	mg/L	09/30/02	MAH
cis-1,2-Dichloroethene	0.000500 U	0.000500	mg/L	09/30/02	MAH
2-Butanone (MEK)	0.00500 U	0.00500	mg/L	09/30/02	MAH
Bromochloromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Chloroform	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1,1-Trichloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Carbon tetrachloride	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1-Dichloropropene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Benzene	0.000250 U	0.000250	mg/L	09/30/02	MAH
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Trichloroethene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2-Dichloropropane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Dibromomethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Bromodichloromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
2-Chloroethyl Vinyl Ether	0.000500 U	0.000500	mg/L	09/30/02	MAH
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Toluene	0.000500 U	0.000500	mg/L	09/30/02	MAH
trans-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1,2-Trichloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Tetrachloroethene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,3-Dichloropropane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Dibromochloromethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2-Dibromoethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Chlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
Ethylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
p & m -Xylene	0.00100 U	0.00100	mg/L	09/30/02	MAH
o-Xylene	0.000500 U	0.000500	mg/L	09/30/02	MAH



CT&E Ref.# 457043 Method Blank  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:06  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	Results	Reporting Limit	Units	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>					
Styrene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Bromoform	0.000500 U	0.000500	mg/L	09/30/02	MAH
Isopropylbenzene (Cumene)	0.000500 U	0.000500	mg/L	09/30/02	MAH
Bromobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	09/30/02	MAH
n-Propylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
2-Chlorotoluene	0.000500 U	0.000500	mg/L	09/30/02	MAH
4-Chlorotoluene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,3,5-Trimethylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
tert-Butylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2,4-Trimethylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
sec-Butylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,3-Dichlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
4-Isopropyltoluene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2-Dichlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
n-Butylbenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
1,2-Dibromo-3-chloropropane	0.00100 U	0.00100	mg/L	09/30/02	MAH
1,2,4-Trichlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Hexachlorobutadiene	0.000500 U	0.000500	mg/L	09/30/02	MAH
Naphthalene	0.00100 U	0.00100	mg/L	09/30/02	MAH
1,2,3-Trichlorobenzene	0.000500 U	0.000500	mg/L	09/30/02	MAH
4-Methyl-2-pentanone (MIBK)	0.00500 U	0.00500	mg/L	09/30/02	MAH
2-Hexanone	0.00500 U	0.00500	mg/L	09/30/02	MAH
<b>Surrogates</b>					
Dibromofluoromethane <surr>	103		%	09/30/02	MAH
1,2-Dichloroethane-D4 <surr>	107		%	09/30/02	MAH
Toluene-d8 <surr>	96.8		%	09/30/02	MAH
4-Bromofluorobenzene <Surr>	83.7		%	09/30/02	MAH

Batch VMS 5467  
 Method SW846-8260B  
 Instrument HP 5890 Series II MSS VLA



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

QC results affect the following production samples:  
 1025757002, 1025757005

Sample Remarks:  
 LCS  
 LCSD

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
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**Volatile Gas Chromatography/Mass Spectroscopy**







CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Dichlorodifluoromethane	LCS 0.0376	125	( 67-161 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0370	123		2	(< 20 )	0.03 mg/L	09/30/02	MAH
Chloromethane	LCS 0.0292	97	( 60-150 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0274	91		6	(< 20 )	0.03 mg/L	09/30/02	MAH
Vinyl chloride	LCS 0.0298	99	( 72-140 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0292	97		2	(< 20 )	0.03 mg/L	09/30/02	MAH
Bromomethane	LCS 0.0293	98	( 79-172 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0281	94		4	(< 20 )	0.03 mg/L	09/30/02	MAH
Chloroethane	LCS 0.0311	104	( 72-151 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0315	105		1	(< 20 )	0.03 mg/L	09/30/02	MAH
Trichlorofluoromethane	LCS 0.0314	105	( 67-140 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0310	103		1	(< 20 )	0.03 mg/L	09/30/02	MAH
1,1-Dichloroethene	LCS 0.0323	108	( 86-141 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0325	108		1	(< 20 )	0.03 mg/L	09/30/02	MAH
Methylene chloride	LCS 0.0317	106	( 67-158 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0325	108		3	(< 20 )	0.03 mg/L	09/30/02	MAH
Carbon disulfide	LCS 0.0472	105	( 65-134 )			0.045 mg/L	09/30/02	MAH
	LCSD 0.0477	106		1	(< 20 )	0.045 mg/L	09/30/02	MAH
trans-1,2-Dichloroethene	LCS 0.0316	105	( 88-146 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0324	108		2	(< 20 )	0.03 mg/L	09/30/02	MAH
1,1-Dichloroethane	LCS 0.0335	112	( 90-138 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0341	114		2	(< 20 )	0.03 mg/L	09/30/02	MAH
2,2-Dichloropropane	LCS 0.0326	109	( 73-149 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0325	108		0	(< 20 )	0.03 mg/L	09/30/02	MAH
cis-1,2-Dichloroethene	LCS 0.0307	102	( 88-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0312	104		1	(< 20 )	0.03 mg/L	09/30/02	MAH
2-Butanone (MEK)	LCS 0.0474	105	( 51-168 )			0.045 mg/L	09/30/02	MAH



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
	LCSD 0.0505	112		6	(< 20)	0.045 mg/L	09/30/02	MAH
Bromochloromethane	LCS 0.0325	108	( 84-137 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0336	112		3	(< 20)	0.03 mg/L	09/30/02	MAH
Chloroform	LCS 0.0313	104	( 85-132 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0315	105		1	(< 20)	0.03 mg/L	09/30/02	MAH
1,1,1-Trichloroethane	LCS 0.0312	104	( 80-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0318	106		2	(< 20)	0.03 mg/L	09/30/02	MAH
Carbon tetrachloride	LCS 0.0326	109	( 81-140 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0341	114		5	(< 20)	0.03 mg/L	09/30/02	MAH
1,1-Dichloropropene	LCS 0.0321	107	( 86-130 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0333	111		4	(< 20)	0.03 mg/L	09/30/02	MAH
Benzene	LCS 0.0312	104	( 87-130 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0319	106		2	(< 20)	0.03 mg/L	09/30/02	MAH
1,2-Dichloroethane	LCS 0.0325	108	( 78-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0335	112		3	(< 20)	0.03 mg/L	09/30/02	MAH
Trichloroethene	LCS 0.0305	102	( 86-133 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0312	104		2	(< 20)	0.03 mg/L	09/30/02	MAH
1,2-Dichloropropane	LCS 0.0315	105	( 83-133 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0324	108		3	(< 20)	0.03 mg/L	09/30/02	MAH
Dibromomethane	LCS 0.0324	108	( 80-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0328	109		1	(< 20)	0.03 mg/L	09/30/02	MAH
Bromodichloromethane	LCS 0.0303	101	( 84-131 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0306	102		1	(< 20)	0.03 mg/L	09/30/02	MAH
2-Chloroethyl Vinyl Ether	LCS 0.0489	109	( 21-160 )			0.045 mg/L	09/30/02	MAH
	LCSD 0.0496	110		1	(< 20)	0.045 mg/L	09/30/02	MAH
cis-1,3-Dichloropropene	LCS 0.0325	108	( 87-130 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0331	110		2	(< 20)	0.03 mg/L	09/30/02	MAH

F-70



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name## ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Toluene	LCS 0.0309	103	( 79-128 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0317	106		3	(< 20 )	0.03 mg/L	09/30/02	MAH
trans-1,3-Dichloropropene	LCS 0.0326	109	( 74-126 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0331	110		2	(< 20 )	0.03 mg/L	09/30/02	MAH
1,1,2-Trichloroethane	LCS 0.0312	104	( 80-129 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0317	106		2	(< 20 )	0.03 mg/L	09/30/02	MAH
Tetrachloroethene	LCS 0.0311	104	( 71-125 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0323	108		4	(< 20 )	0.03 mg/L	09/30/02	MAH
1,3-Dichloropropane	LCS 0.0320	107	( 78-131 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0337	112		5	(< 20 )	0.03 mg/L	09/30/02	MAH
Dibromochloromethane	LCS 0.0326	109	( 80-123 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0332	111		2	(< 20 )	0.03 mg/L	09/30/02	MAH
1,2-Dibromoethane	LCS 0.0328	109	( 80-128 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0340	113		4	(< 20 )	0.03 mg/L	09/30/02	MAH
Chlorobenzene	LCS 0.0313	104	( 87-124 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0316	105		1	(< 20 )	0.03 mg/L	09/30/02	MAH
1,1,1,2-Tetrachloroethane	LCS 0.0308	103	( 84-125 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0318	106		3	(< 20 )	0.03 mg/L	09/30/02	MAH
Ethylbenzene	LCS 0.0316	105	( 85-129 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0324	108		3	(< 20 )	0.03 mg/L	09/30/02	MAH
P & M -Xylene	LCS 0.0630	105	( 81-134 )			0.06 mg/L	09/30/02	MAH
	LCSD 0.0644	107		2	(< 20 )	0.06 mg/L	09/30/02	MAH
o-Xylene	LCS 0.0313	104	( 80-129 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0320	107		2	(< 20 )	0.03 mg/L	09/30/02	MAH
Styrene	LCS 0.0317	106	( 84-132 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0322	107		2	(< 20 )	0.03 mg/L	09/30/02	MAH



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
Bromoform	LCS 0.0339	113	( 77-128 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0349	116		3	(< 20)	0.03 mg/L	09/30/02	MAH
Isopropylbenzene (Cumene) ♦	LCS 0.0316	105	( 79-126 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0323	108		2	(< 20)	0.03 mg/L	09/30/02	MAH
Bromobenzene	LCS 0.0311	104	( 81-130 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0303	101		3	(< 20)	0.03 mg/L	09/30/02	MAH
1,1,2,2-Tetrachloroethane	LCS 0.0333	111	( 73-134 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0328	109		1	(< 20)	0.03 mg/L	09/30/02	MAH
1,2,3-Trichloropropane	LCS 0.0337	112	( 77-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0342	114		2	(< 20)	0.03 mg/L	09/30/02	MAH
n-Propylbenzene	LCS 0.0316	105	( 81-134 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0308	103		3	(< 20)	0.03 mg/L	09/30/02	MAH
2-Chlorotoluene	LCS 0.0311	104	( 75-129 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0300	100		4	(< 20)	0.03 mg/L	09/30/02	MAH
4-Chlorotoluene	LCS 0.0312	104	( 76-131 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0301	100		3	(< 20)	0.03 mg/L	09/30/02	MAH
1,3,5-Trimethylbenzene	LCS 0.0318	106	( 80-132 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0306	102		4	(< 20)	0.03 mg/L	09/30/02	MAH
tert-Butylbenzene	LCS 0.0318	106	( 78-133 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0299	100		6	(< 20)	0.03 mg/L	09/30/02	MAH
1,2,4-Trimethylbenzene	LCS 0.0313	104	( 83-136 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0300	100		4	(< 20)	0.03 mg/L	09/30/02	MAH
sec-Butylbenzene	LCS 0.0331	110	( 83-135 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0317	106		4	(< 20)	0.03 mg/L	09/30/02	MAH
1,3-Dichlorobenzene	LCS 0.0315	105	( 82-129 )			0.03 mg/L	09/30/02	MAH
	LCSD 0.0300	100		5	(< 20)	0.03 mg/L	09/30/02	MAH
4-Isopropyltoluene	LCS 0.0318	106	( 77-130 )			0.03 mg/L	09/30/02	MAH



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
	LCS	0.0306	102					
	LCSD	0.0306	102	4	(< 20)	0.03 mg/L	09/30/02	MAH
1,4-Dichlorobenzene	LCS	0.0323	108			0.03 mg/L	09/30/02	MAH
	LCSD	0.0313	104			0.03 mg/L	09/30/02	MAH
				3	(< 20)			
1,2-Dichlorobenzene	LCS	0.0307	102			0.03 mg/L	09/30/02	MAH
	LCSD	0.0302	101			0.03 mg/L	09/30/02	MAH
				2	(< 20)			
n-Butylbenzene	LCS	0.0320	107			0.03 mg/L	09/30/02	MAH
	LCSD	0.0306	102			0.03 mg/L	09/30/02	MAH
				4	(< 20)			
1,2-Dibromo-3-chloropropane	LCS	0.0317	106			0.03 mg/L	09/30/02	MAH
	LCSD	0.0316	105			0.03 mg/L	09/30/02	MAH
				0	(< 20)			
1,2,4-Trichlorobenzene	LCS	0.0328	109			0.03 mg/L	09/30/02	MAH
	LCSD	0.0314	105			0.03 mg/L	09/30/02	MAH
				4	(< 20)			
Hexachlorobutadiene	LCS	0.0337	112			0.03 mg/L	09/30/02	MAH
	LCSD	0.0328	109			0.03 mg/L	09/30/02	MAH
				3	(< 20)			
Naphthalene	LCS	0.0344	115			0.03 mg/L	09/30/02	MAH
	LCSD	0.0344	115			0.03 mg/L	09/30/02	MAH
				0	(< 20)			
1,2,3-Trichlorobenzene	LCS	0.0331	110			0.03 mg/L	09/30/02	MAH
	LCSD	0.0323	108			0.03 mg/L	09/30/02	MAH
				3	(< 20)			
4-Methyl-2-pentanone (MIBK)	LCS	0.0530	118			0.045 mg/L	09/30/02	MAH
	LCSD	0.0556	124			0.045 mg/L	09/30/02	MAH
				5	(< 20)			
2-Hexanone	LCS	0.0502	112			0.045 mg/L	09/30/02	MAH
	LCSD	0.0524	117			0.045 mg/L	09/30/02	MAH
				4	(< 20)			
<b>Surrogates</b>								
Dibromofluoromethane <surr>	LCS		102			0.03 mg/L	09/30/02	MAH
	LCSD		106			0.03 mg/L	09/30/02	MAH
				4				
1,2-Dichloroethane-D4 <surr>	LCS		106			0.03 mg/L	09/30/02	MAH
	LCSD		109			0.03 mg/L	09/30/02	MAH
				3				
Toluene-d8 <surr>	LCS		101			0.03 mg/L	09/30/02	MAH



CT&E Ref.# 457044 Lab Control Sample  
 457045 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch VXX 9651  
 Method SW5030  
 Date 09/29/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>								
	LCSD	103		2		0.03 mg/L	09/30/02	MAH
4-Bromofluorobenzene <Surr>	LCS	100	( 75-131 )			0.03 mg/L	09/30/02	MAH
	LCSD	97		2		0.03 mg/L	09/30/02	MAH

Batch VMS 5467  
 Method SW846-8260B  
 Instrument HP 5890 Series II MS5 VLA



CT&E Ref.# 457226 Matrix Spike

Printed Date/Time 10/01/2002 16:07
Prep Batch VXX 9651
Method Volatiles Extraction 8240/826
Date 09/29/2002

Original 1026427001
Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:
1025757002, 1025757005

Sample Remarks:

Table with 10 columns: Parameter, Original Result, QC Result, Pct Recov, MS/MSD Limits, RPD, RPD Limits, Spiked Amount, Analysis Date, Init. Rows include Dibromofluoromethane, 1,2-Dichloroethane-D4, Toluene-d8, and 4-Bromofluorobenzene.

Batch VMS 5470
Method SW846-8260B
Instrument HP 5890 Series II MS5 VLA



CT&E Ref.# 456238 Method Blank  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:06  
Prep Batch MXX 10656  
Method SW3015  
Date 09/26/2002

QC results affect the following production samples:  
1025757001, 1025757002, 1025757003, 1025757004

Sample Remarks:

Parameter	Results	Reporting Limit	Units	Analysis Date	Init
Phosphorus	250 U	250	ug/L	09/27/02	KGF
Batch	MMS 2221				
Method	SW846 6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				

Metals by ICP/MS

Aluminum	119	10.0	ug/L	09/27/02	KGF
Antimony	0.722	0.500	ug/L	09/27/02	KGF
Arsenic	2.50 U	2.50	ug/L	09/27/02	KGF
Barium	1.80 U	1.80	ug/L	09/27/02	KGF
Beryllium	0.500 U	0.500	ug/L	09/27/02	KGF
Cadmium	1.00 U	1.00	ug/L	09/27/02	KGF
Calcium	500 U	500	ug/L	09/27/02	KGF
Chromium	3.73F	4.00	ug/L	09/27/02	KGF
Copper	3.00 U	3.00	ug/L	09/27/02	KGF
Iron	500 U	500	ug/L	09/27/02	KGF
Lead	1.00 U	1.00	ug/L	09/27/02	KGF
Potassium	500 U	500	ug/L	09/27/02	KGF
Selenium	3.00 U	3.00	ug/L	09/27/02	KGF
Silver	1.00 U	1.00	ug/L	09/27/02	KGF
Sodium	500 U	500	ug/L	09/27/02	KGF
Thallium	0.500 U	0.500	ug/L	09/27/02	KGF
Vanadium	10.0 U	10.0	ug/L	09/27/02	KGF
Zinc	25.0 U	25.0	ug/L	09/27/02	KGF
Cobalt	0.400 U	0.400	ug/L	09/27/02	KGF
Magnesium	500 U	500	ug/L	09/27/02	KGF
Manganese	4.00 U	4.00	ug/L	09/27/02	KGF
Molybdenum	4.00 U	4.00	ug/L	09/27/02	KGF
Nickel	1.18	1.00	ug/L	09/27/02	KGF
Batch	MMS 2221				
Method	SW846 6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				





CT&E Ref.# 456239 Lab Control Sample  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
Prep Batch MXX 10656  
Method SW3015  
Date 09/26/2002

QC results affect the following production samples:  
1025757001, 1025757002, 1025757003, 1025757004

Sample Remarks:

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
Batch	MMS	2221						
Method	SW846	6020						
Instrument	Perkin Elmer	Sciex ICP-MS P3						

Metals by ICP/MS



CT&E Ref.# 456239 Lab Control Sample  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
Prep Batch MXX 10656  
Method SW3015  
Date 09/26/2002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Metals by ICP/MS</b>								
Aluminum	LCS 1180	104	( 85-115 )			1140 ug/L	09/27/02	KGF
Antimony	LCS 1130	99	( 85-115 )			1140 ug/L	09/27/02	KGF
Arsenic	LCS 1200	105	( 85-115 )			1140 ug/L	09/27/02	KGF
Barium	LCS 1100	97	( 85-115 )			1140 ug/L	09/27/02	KGF
Beryllium	LCS 456	100	( 85-115 )			455 ug/L	09/27/02	KGF
Cadmium	LCS 543	96	( 85-115 )			568 ug/L	09/27/02	KGF
Calcium	LCS 11900	104	( 85-115 )			11400 ug/L	09/27/02	KGF
Chromium	LCS 1190	105	( 85-115 )			1140 ug/L	09/27/02	KGF
Copper	LCS 1130	99	( 85-115 )			1140 ug/L	09/27/02	KGF
Iron	LCS 1290	114	( 85-115 )			1140 ug/L	09/27/02	KGF
Lead	LCS 1140	100	( 85-115 )			1140 ug/L	09/27/02	KGF
Potassium	LCS 11600	102	( 85-115 )			11400 ug/L	09/27/02	KGF
Selenium	LCS 1150	101	( 85-115 )			1140 ug/L	09/27/02	KGF
Silver	LCS 224	99	( 85-115 )			227 ug/L	09/27/02	KGF
Sodium	LCS 11400	100	( 85-115 )			11400 ug/L	09/27/02	KGF
Thallium	LCS 1120	99	( 85-115 )			1140 ug/L	09/27/02	KGF
Vanadium	LCS 1200	106	( 85-115 )			1140 ug/L	09/27/02	KGF
Zinc	LCS 1080	95	( 85-115 )			1140 ug/L	09/27/02	KGF
Cobalt	LCS 1120	99	( 85-115 )			1140 ug/L	09/27/02	KGF
Magnesium	LCS 11500	101	( 85-115 )			11400 ug/L	09/27/02	KGF
Manganese	LCS 1170	103	( 85-115 )			1140 ug/L	09/27/02	KGF



CT&E Ref.# 456239 Lab Control Sample

Printed Date/Time 10/01/2002 16:07

Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.

Prep Batch MXX 10656  
Method SW3015  
Date 09/26/2002

Matrix Water (Surface, Eff., Ground)

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
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Metals by ICP/MS

Molybdenum LCS 3.07 U 0 \* (85-115) 1140 ug/L 09/27/02 KGF

Nickel LCS 1130 ♦ 100 (85-115) 1140 ug/L 09/27/02 KGF

Batch MMS 2221  
Method SW846 6020  
Instrument Perkin Elmer Sciex ICP-MS P3



CT&E Ref.# 456241 Matrix Spike

Printed Date/Time 10/01/2002 16:07  
Prep Batch MXX 10656  
Method Waters Digest for Metals by N  
Date 09/26/2002

Original 1025757001  
Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:  
1025757001, 1025757002, 1025757003, 1025757004

Sample Remarks:

Parameter	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
Batch	MMS 2221								
Method	SW846 6020								
Instrument	Perkin Elmer Sciex ICP-MS P3								

Metals by ICP/MS

Lead	MS	2.05 U	1170	103	(75-125)		1140 ug/L	09/27/02	KGf
	MSD		1140	100		3 (<20)	1140 ug/L	09/27/02	KGf

Batch MMS 2221  
Method SW846 6020  
Instrument Perkin Elmer Sciex ICP-MS P3



CT&E Ref.# 455148 Method Blank  
Client Name Nortech  
Project Name/# ADOT-FIA GW Monit.  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:06  
Prep Batch XXX 10791  
Method SW3510C  
Date 09/23/2002

QC results affect the following production samples:  
1025757004

Sample Remarks:

Parameter	Results	Reporting Limit	Units	Analysis Date	Init
<b>Semivolatile Organic Fuels Department</b>					
Diesel Range Organics	0.180F	0.500	mg/L	09/24/02	DS
Residual Range Organics GC	0.312F	1.00	mg/L	09/24/02	DS
<b>Surrogates</b>					
n-Triacontane-d62 <Surr>	95.7		%	09/24/02	DS
5a Androstane <surr>	80.5		%	09/24/02	DS
Batch	XFC 5556				
Method	AK102/103				
Instrument	HP 5890 Series II FID SV A F				



CT&E Ref.# 455149 Lab Control Sample  
 455150 Lab Control Sample Duplicate  
 Client Name Nortech  
 Project Name/# ADOT-FIA GW Monit.  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/01/2002 16:07  
 Prep Batch XXX 10791  
 Method SW3510C  
 Date 09/23/2002

QC results affect the following production samples:  
 1025757004

Sample Remarks:  
 LCS  
 LCSD

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date	Init
<b>Semivolatile Organic Fuels Department</b>								
Diesel Range Organics	LCS 4.93	99	( 75-125 )			5 mg/L	09/24/02	DS
	LCSD 5.57	111		12	(< 20 )	5 mg/L	09/24/02	DS
Residual Range Organics GC	LCS 3.96	79	( 60-120 )			5 mg/L	09/24/02	DS
	LCSD 4.19	84		6	(< 20 )	5 mg/L	09/24/02	DS
<b>Surrogates</b>								
5a Androstane <surr>	LCS	84	( 60-120 )			0.1 mg/L	09/24/02	DS
	LCSD	91		8		0.1 mg/L	09/24/02	DS
n-Triacontane-d62 <Surr>	LCS	92	( 60-120 )			0.1 mg/L	09/24/02	DS
	LCSD	85		8		0.1 mg/L	09/24/02	DS

Batch XFC 5556  
 Method AK102/103  
 Instrument HP 5890 Series II FID SV A F