DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Doncasters (Former INCO)
Facility Address: 36 Spring Lane, Farmington, CT
Facility EPA ID #: CTD059831479

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X___ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Hexavalent chromium, nickel
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			Hexavalent chromium, nickel
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			Hexavalent chromium, nickel
Air (outdoors)		X		

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

_____ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): **Soil** – Residual nickel, and hexavalent and total chromium is present in soils beneath the eastern portions of the building, the result of releases of metal-containing brine solution from "Tank No. 15". This area is subject to an Environmental Land Use Restriction (ELUR), which prohibits the removal of the overlying building. Concentrations of nickel and chromium are documented on page 6 of the February 1997 Environmental Condition Assessment Form (ECAF), (attached). Other releases (nickel) from former facility operations to soils in the electro-chemical machining (ECM) sludge staging area was remediated via excavation in 1994.
Groundwater – Overburden groundwater has been documented to have been affected by hexavalent chromium. The present condition of the groundwater is summarized on Table 2 of the 2009 Semi-Annual Natural Attenuation Groundwater Monitoring Report (see attached). The affected overburden groundwater (located primarily in the deep overburden) has not reached any adjacent parcel.
Surface Water – Overburden groundwater has not reached or affected surface water, as noted in the 2009 Report (noted above). Groundwater appears to have reached steady state, and no movement of contamination in the overburden aquifer has been observed for a period of at least five (5) years.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	___	___	___	**No**			___
~~Air (indoors)~~	___	___	___				
Soil (surface e.g., <2 ft	___	___	___	**No**	___	___	___
~~Surface Water~~	___	___			___	___	___
~~Sediment~~	___	___			___	___	___
Soil (subsurface e.g., >2 ft)				**No**			___
~~Air (outdoors)~~	___	___	___	___	___		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__X__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): Groundwater condition is essentially "static", with insufficient mass loading of contaminants at the source to affect downgradient or off-site receptors. Affected soil beneath competent slab. Institutional controls in place to preclude disturbance. Reference: Section 4.2.1 of the 1999 "Supplemental Investigation Report, New England Airfoil Facility, 36 Spring Lane, Farmington, CT (portions attached)

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_X_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Doncasters (former New England Airfoil) Facility, EPA ID # (CTD059831479, located at (36 Spring Lane, Farmington, CT) under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Prepared by (signature) _____ Date July 16, 2010
(print) Robert J. Drake, PE, Ph.D., LEP
(title) Senior Project Manager

DEP reviewed by (signature) _____ Date July 26, 2010
(print) SANDY BRUNELLI
(title) EA3

DEP Supervisor (signature) _____ Date 9-27-10
(print) DAVID RINGQUIST
(title) SEA

(EPA Region or State) CTDEP

Reviewed and Approved
Chief
RCRA Corrective Action
USEPA 11/30/10

All References may be found at:
Connecticut Department of Environmental Protection located at 79 Elm Street, Hartford, Connecticut

DEP file room contact telephone and e-mail numbers

Name: Terry Parker
Phone: 860 424-3936
E-mail: terry.parker@ct.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Part V: Contaminants in the Environment (cont.)

6. List for each release area the codes for contaminants of concern, and for each contaminant the following: the number of samples in which the contaminant was detected / the maximum and mean concentrations of the contaminant / and depth at which the maximum concentration was detected: (Check box if an addendum table is used ☒) Reference Addendum No. 7

Provide site name, address and town from Part I, Item I: INCO Engineering Products Inc.
36 Spring Lane Farmington, CT. 06032

Release Area	Contaminants of concern tested	Contaminants in soil/waste	Contaminants in ground water	Contaminants in surface water
Brine solution Tank No. 4 (Northeast corner of bldg.)	Cl	ND	4 GW samples 30,000mg/l max. 10,000mg/l mean	6 samples 30.2mg/l max. 11.0mg/l mean
Brine solution Tank No. 15 (East side of bldg.)	Cl	6 samples, 0-3ft. 1,200mg/kg max. 697mg/kg mean	2 samples 3,500mg/l max. 2,500mg/l mean	ND
	Na	6 samples, 0-3ft. 2,100mg/kg max. 1,221mg/kg mean	ND	ND
	Cr	6 samples, 0-3ft. 1,110mg/kg max. 463mg/kg mean	ND	ND
	Ni	6 samples, 0-3ft. 2,350mg/kg max. 854mg/kg mean	ND	ND

SUPPLEMENTAL INVESTIGATION REPORT

New England Airfoil Facility
36 Spring Lane
Farmington, Connecticut

August 17, 1999

Prepared For:

INMETCO, Inc.
c/o INCO United States, Inc.
PO Box 720
245 Portersville Road
Ellwood City, Pennsylvania 16117

Prepared By:

ENVIRONMENTAL RESOURCES MANAGEMENT, Inc.
74 Batterson Park Road
Farmington, Connecticut 06032

4.0 *EVALUATION OF POTENTIAL RECEPTORS AND CONTAMINATION RISK*

The following issues are addressed in this Section:

- The potential for the presence of an on-going release of contamination at the Site;
- The identification of critical potential receptors of the identified contamination; and
- An evaluation of the likelihood of exposure/risk associated with this contamination.

4.1 *EVALUATION OF ON-GOING RELEASE POTENTIAL*

The defined area of residual soil contamination (see "Decision Document", Appendix F) is an area of approximately 50 feet by 210 feet located beneath the eastern wing of the building. This is an area where a brine solution was released from facility operations, and where chromium and nickel are assumed to exceed Direct Exposure Criteria (DEC) and Pollutant Mobility Criteria (PMC). This release area is the subject of an Environmental Land Use Restriction (ELUR).

As noted in the Decision Document, "Such polluted soil does not pose a risk to human health provided the building is not demolished and soil is not excavated or disturbed such that people come into contact with it. Such polluted soil does not pose a risk to groundwater quality provided the building is not demolished".

Based on the foregoing, it appears that there is residual contamination in soils on the Site, but that on-going releases are unlikely, due to the impervious cover provided by the building and surrounding pavement. The tanks from which the historical release of brine occurred have been removed, and no longer serve as an on-going source of contaminants. Review of the Conceptual Model of the Aquifer (Section 3.0) indicates that recharge for the overburden aquifer is derived primarily from areas up-gradient of the identified release areas. The identified release areas, and the areas affected by the contaminant plume in the overburden aquifer, are located beneath buildings or impervious pavement. No direct recharge in these areas, which could mobilize soil contaminants, is indicated.

4.2 *CRITICAL POTENTIAL RECEPTORS*

ERM has identified the following critical potential receptors for the contamination identified on the Site:

- Employees of the active facility, who may be exposed to residual contaminants in the Site soils;

- Scott Swamp Brook, the watercourse located east of the Site, which is the assumed discharge location for the overburden aquifer; and

- Connecticut Spring, which may initiate a groundwater recovery/treatment system in the near future, and could be affected by contaminants in the overburden aquifer.

The CT DEP also indicated that various off-site water supply wells, located over 1,000 feet to the south on Spring Lane, should be evaluated as well. However, as no contaminant transport in the bedrock aquifer is indicated, there is no transport mechanism for the contamination to reach these wells, and no further evaluation is indicated.

4.2.1 Employees of the Facility

The primary means of contact for the employees at the facility is direct exposure (dermal and/or ingestion) to contaminated Site soils. However, as noted in the ELUR Decision Document, the presence of the building and the restrictions on its removal and/or disturbance of the identified contaminated soils will serve to prevent such exposure. So long as the ELUR remains in force and its limitations complied with, there is no indication of significant risk associated with the contaminated soil.

4.2.2 Scott Swamp Brook

The concern with this potential receptor is the discharge of brine and/or chromium and nickel to this water body from the overburden aquifer. Based on ERM's analysis of contaminant transport in the overburden aquifer, there is no documented lateral or downgradient movement of significant concentrations of contaminants in the overburden aquifer. The most critical parameter, hexavalent chromium, can be seen to have reached steady state in the overburden aquifer (see Figure 6). Historically, samples collected from Scott Swamp Brook have shown no evidence of brine or chromium.

Based on this absence of transport in the overburden aquifer, there appears to be no significant risk to Scott Swamp Brook.

4.2.3 Connecticut Spring

The concern with this potential receptor is the transport of brine in the capture zone of the groundwater recovery system anticipated for this property. Here, the data indicates that there is no significant transport of contaminants in the overburden aquifer onto this adjacent property. Further, the overburden aquifer along the property boundary is extremely thin, and frequently non-existent. Under these conditions, future

transport of contaminants through the overburden aquifer onto the Connecticut Spring property is not considered likely.

The absence of significant flow in the bedrock aquifer suggests that transport through this medium would be similarly constrained.

Based on the foregoing, there appears to be no significant risk of transport of brine or metals through the overburden or bedrock aquifers onto Connecticut Spring property in quantities which would affect the performance of the anticipated groundwater recovery system.

In summary, the documented soil contamination is isolated form direct exposure through the use of the ELUR, while significant groundwater contamination has not (and appears not to be likely to) spread beyond the property boundary.

Environmental
Resources
Management

77 Hartland Street, Suite 300
East Hartford, CT 06108
(860) 466-8500
(860) 466-8501 (fax)

1 February 2010
Reference: 0101729

Mr. Rich Krystanowicz
Director, Human Resources
Doncasters, Inc.
36 Spring Lane
Farmington, Connecticut 06032

Re: Semi-Annual Natural Attenuation Groundwater Monitoring Report – Summer & Winter 2009
New England Airfoil Facility
36 Spring Lane, Farmington, Connecticut

Dear Mr. Krystanowicz:

ERM Consulting & Engineering, Inc. (ERM) is pleased to submit this *Semi-Annual Natural Attenuation Groundwater Monitoring Report* for the New England Airfoil Facility located at 36 Spring Lane in Farmington, Connecticut (the "Site"). This letter report summarizes the current and historical groundwater quality data, describes the calculated direction of groundwater flow, and provides an assessment of current progress of the natural attenuation process.

REVIEW OF MONITORING PROGRAM

The revised (and approved) Natural Attenuation Monitoring Program (NAMP) consists of the semi-annual collection and analysis of samples from the following locations:

- *Monitoring Wells* MW-6a, MW-8, MW-9, and MW-13.

Sampling of these wells was conducted on July 8 and December 11, 2009. Prior to collection of groundwater samples, groundwater elevations were determined in all accessible on-site and off-site wells. Bedrock elevations were not determined prior to collection of groundwater samples due to accessibility issues. The water level data determinations are included in the attached Table 1.

Laboratory analysis was conducted as follows:

- Sodium, chloride, soluble chromium, and hexavalent chromium at wells MW-6A, MW-9, and MW-13; and
- Total Petroleum Hydrocarbons (TPH) at MW-8 and MW-13.

FINDINGS AND ANALYSIS

The following is a summary of the notable observations during the July and December 2009 natural attenuation monitoring events.

Groundwater Flow Direction

Figure 1 and Figure 2 show the overburden water table elevation contours for July and December, respectively, flowing to the southeast, similar to historical sampling events.

Groundwater Analytical Results

The analytical results from the NAMP sampling and historical analytical results can be found in the attached Table 2. As was the case during the previous sampling events, water samples contained excessive amounts of silt and other fine materials. All samples were filtered in the laboratory and all reported results reflect soluble concentrations only. Based on this data, the following observations are made:

- Soluble chromium was detected in MW-9 and MW-6a at concentrations above the GA Groundwater Protection Criteria (GWPC) of 0.05 milligrams per liter (mg/L) for the July and December 2009 sampling events, respectively. Analytical results for the July 2009 sampling event indicated a decrease in soluble chromium concentrations in groundwater samples collected from MW-6a, MW-9 and MW-13 relative to the previous December 2008 sampling event, however, the concentration of soluble chromium in groundwater samples collected from MW-9 remained above the GWPC at 0.172 mg/L. Analytical results for the December 2009 sampling event indicated an increase in soluble chromium concentrations in groundwater samples collected from MW-6a and MW-13, where the MW-6a sample exceeded the GWPC at 0.0522 mg/L and a decrease in soluble chromium concentrations for the MW-9 sample below laboratory detection limits.

- Hexavalent chromium was detected in groundwater samples collected from MW-6a, MW-9 and MW-13 at concentrations in excess of the SWPC of 0.11 mg/L for the July 2009 sampling event and was not detected in excess of the SWPC of 0.11 mg/L for the December 2009 sampling event. Analytical results for the July 2009 sampling event indicated an increase in hexavalent chromium concentrations in groundwater samples collected from MW-13, a decrease in hexavalent chromium concentrations in groundwater samples collected from MW-9 and hexavalent concentrations remained unchanged in groundwater samples collected from MW-6a relative to the previous December 2008 sampling event. Analytical results for the December 2009 sampling event indicated a decrease in hexavalent chromium concentrations in groundwater samples collected from MW-6a, MW-9 and MW-13 to below the SWPC of 0.11 mg/L.

- As indicated by analytical results, TPH was detected above laboratory Method Detection Limits (MDLs), normally the same value as the GA GWPC, for the July and December 2009 sampling event. TPH in groundwater collected from MW-8 exceeded the GA GWPC value of 0.1 mg/L. Overall, the July and December 2009 sampling events indicated decreasing levels of TPH from the December 2008 sampling event.

SUMMARY AND CONCLUSIONS

The sixteenth and seventeenth semi-annual sampling events of the NAMP at the former New England Airfoil facility in Farmington Connecticut were conducted on July 8, 2009 and December 11, 2009. Based on these results and observations, the following assumptions have been made:

- Overburden groundwater samples indicate that concentrations appear to be generally similar to previous levels;

- Groundwater flow directions are consistent with former findings; and

- Continuation of the revised NAMP sampling effort appears warranted, due to residual concentrations of chromium and TPH remaining above applicable standards.

Please call the undersigned with any questions regarding this submittal.

Regards,

Robert Drake, PE, Ph.D., LEP
Senior Project Manager

Michael B. Teetsel, C.P.G.
Principal

Enclosures:

Table 1	Groundwater Elevation Determination
Table 2	Summary of Groundwater Analysis Data Since 1992
Figure 1	Overburden Groundwater Contours, July 2009
Figure 2	Overburden Groundwater Contours, December 2009
Appendix A	Laboratory Certificates of Analysis

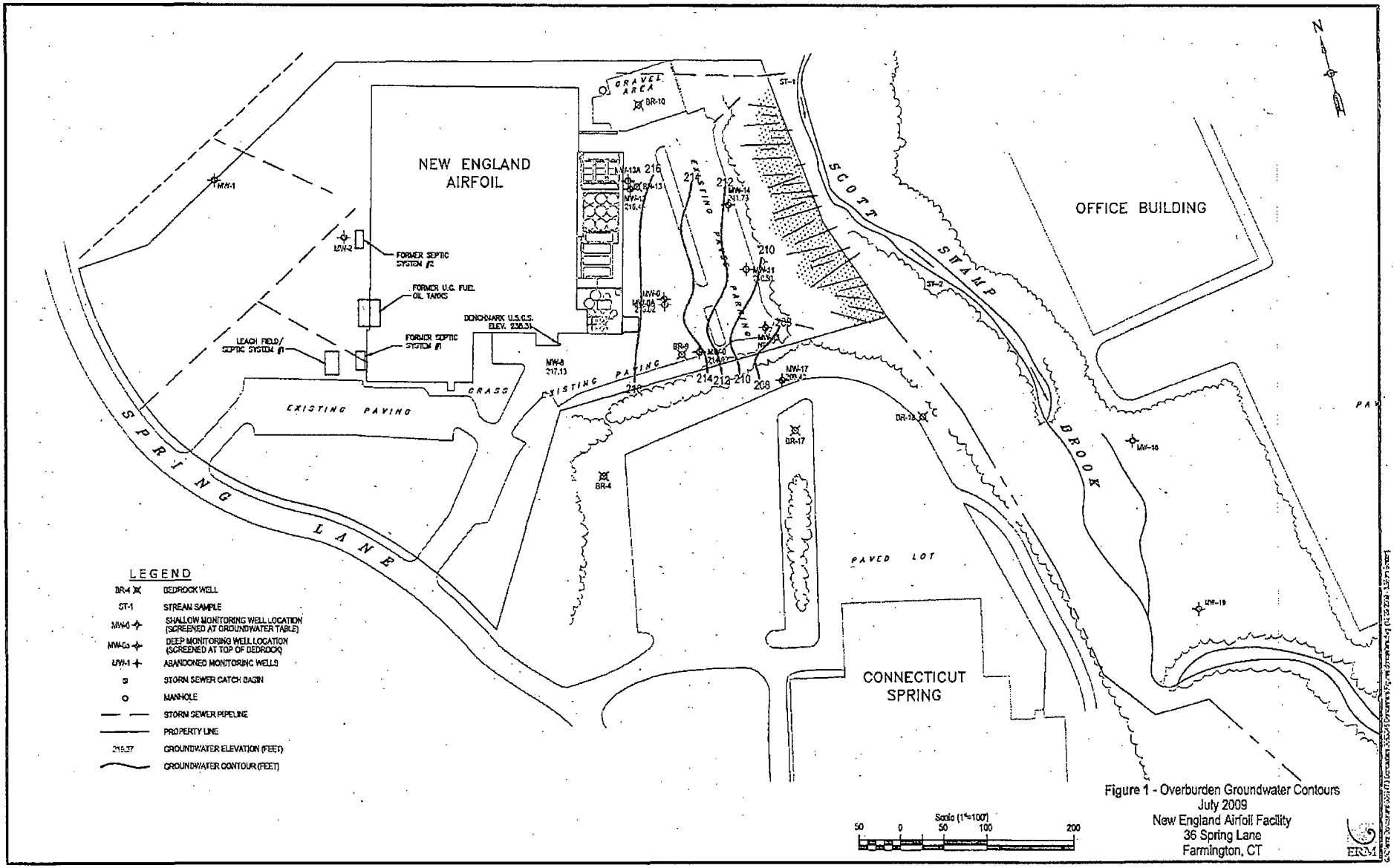

Figure 1 - Overburden Groundwater Contours
July 2009
New England Airfoil Facility
36 Spring Lane
Farmington, CT

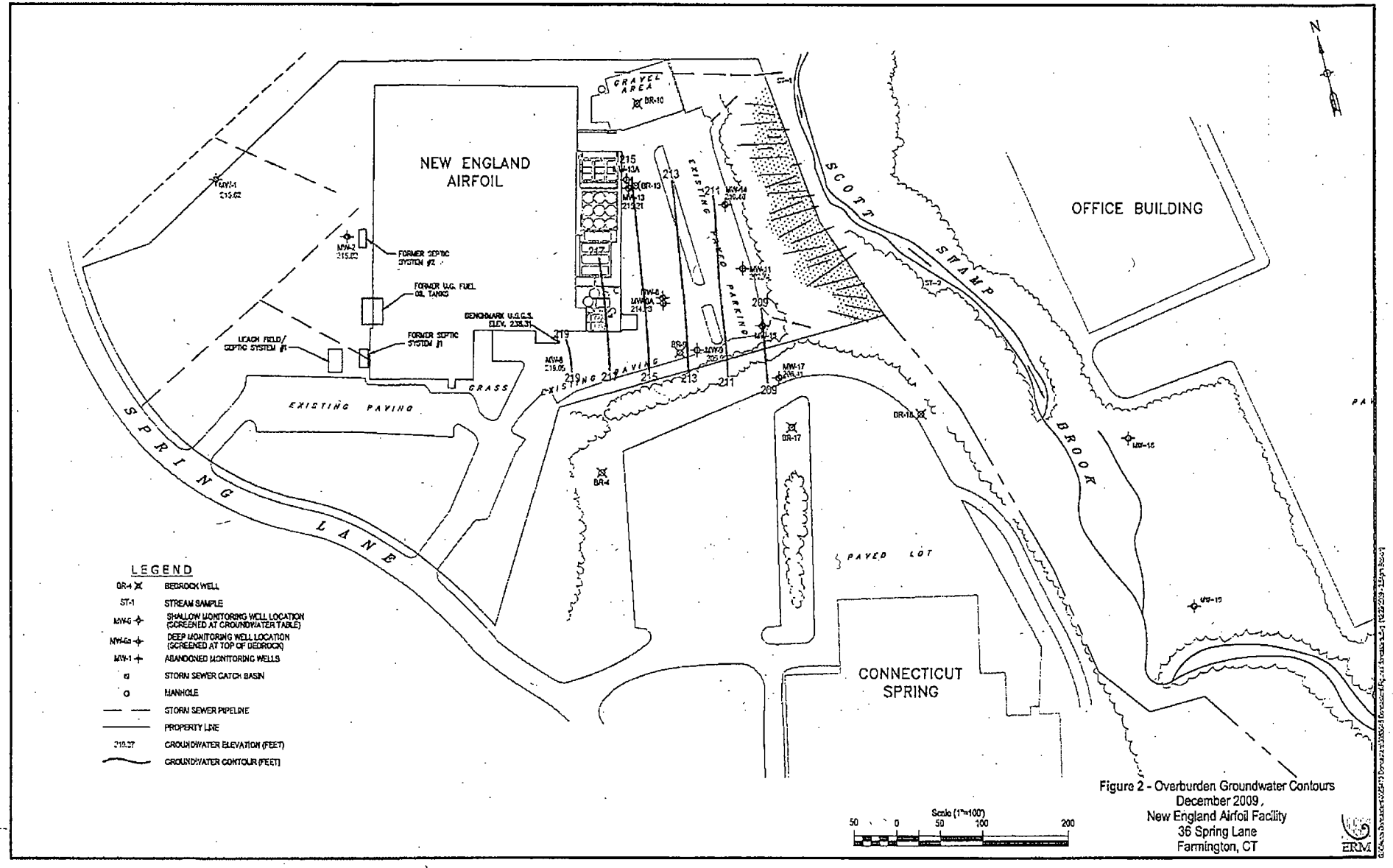

Figure 2 - Overburden Groundwater Contours
December 2009,
New England Airfoil Facility
36 Spring Lane
Farmington, CT

Table 1: Groundwater Elevation Determination
New England Airfoil
36 Spring Lane, Farmington, CT
Work Order No. 0017573

OVERBURDEN WELL SUMMARY TABLE

Well ID	Casing Elevation (ft)	DTW (ft) 7/8/2009	Groundwater Elevation	DTW (ft) 12/11/2009	Groundwater Elevation
MW-14	228.44	16.65	211.79	17.98	210.46
MW-13A	232.73	destroyed		destroyed	
MW-13	233.11	16.61	216.5	17.9	215.21
MW-15	226.42	NF	-	NF	-
MW-11	227.56	22.67	204.89	24.82	202.74
MW-9	231.57	24.9	206.67	26.01	205.56
MW-6a	232.27	16.03	216.24	17.29	214.98
MW-8	233.78	14.28	219.5	14.73	219.05
MW-17	223.08	14.22	208.86	14.67	208.41

BEDROCK WELL SUMMARY TABLE

Well ID	Casing Elevation (ft)	DTW (ft) 7/8/2009	Groundwater Elevation	DTW (ft) 12/11/2009	Groundwater Elevation
BR-9	233.43	destroyed		destroyed	
BR-17	224.3	NM	-	NM	-
BR-18	219.52	NF	-	NF	-
BR-4	228.50	NM	-	NM	-

Well ID	Casing Elevation (ft)	DTW (ft) 7/8/2009	DTB (ft)	DTW (ft) 12/11/2009	DTB (ft)
MW-1	Unknown	16.23	24.14	17.38	24.14
MW-2	Unknown	17.27	26.03	18.4	26.03
MW-6	Unknown	15.08	22.21	15.77	22.21

NM = Not Measured
NF = Not Found

TABLE 2
SUMMARY OF INORGANIC GROUND WATER ANALYSIS SINCE 1992
New England Airfoil, 36 Spring Lane, Farmington, CT

Sampling Date †

WELL ID	ANALYTE	GA GWPC mg/l	SWPC mg/l	19-Jul-93	8 & 12-Feb-94	18-Jul-94	24-Oct-94	18-Jan-95	7-Jun-95	9-Nov-95	1-Dec-95	4-Jan-96	5-Feb-96 *F	4 & 6-Mar-96	10-Apr-96	9-May-96	10-Jun-96	07-Jul-96	8-Aug-96	10-Sep-96	9-Oct-96	6-Nov-96	21-Dec-96	9-Jan-97	12-Mar-97	12-Mar-97 *F	14 & 6-Jun-97 *F	24 & 25-Sep-97 *F	3-Feb-98 *F	10 & 19-Feb-98 *F	6-May-98	25-Jul-98	22-Dec-98	23&25-Mar-99
MW-6A	Sodium	NE	NE	167	1,869	2,250	2,170	2,200	2,108		1,700	1,400	1,330	690	1,875	1,810	1,900	1,900	2,100	2,000	1,900	1,900	1,700	1,700	1,700	1,600	1,900	1,400	1,170		1,460		1,280	494
	Chloride	NE	NE	1,500	3,600	2,500	3,400	4,500	3,400		4,018	3,550	3,270	3,900	3,550	4,300	3,800	4,200	4,100	3,500	3,700	3,500	3,200	2,900	2,300		3,700	2,700	3,400		2,300	2,300	1,900	1,000
	Total Cr	0.05	NE								0.83	1.50	0.91	0.97	1.59	1.20	2.70	1.60	1.40	1.60	1.60	1.90	2.20	2.00	1.80	1.70	1.70	2.40	2.42		2.66	1.63	2.79	2.33
	Hexavalent Cr	NE	0.11								0.82	0.63	0.90	0.69	0.79	0.93	1.60	1.60	1.40	1.60	1.50	1.90	2.00	2.00	1.50			3.00			2.80	2.30	2.40	3.40
	Nickel	0.1	0.88								0.14	0.20	0.01	0.03	0.31	0.12	0.15	0.14	0.08	<0.05	0.07	0.11	0.07	<0.05	<0.05	<0.05					<0.01	0.02	0.02	0.01
MW-8	TPH	0.1	NE																															
MW-9	Sodium	NE	NE	554	2,720	3,440	3,050	2,900	2,170		1,030	**	1,125	1,300	725	1,330	1,500	1,500	1,700	1,600	1,600	1,500	**	1,600	1,400	1,400	1,600	1,500	**		1,430	1,420	1,020	322
	Chloride	NE	NE	3,600	4,400	2,500	3,500	4,500	2,300		2,450		1,880	2,840	1,240	2,300	2,400	2,600	2,400	2,400	2,300	2,200		2,400	2,000		2,400	2,600			1,700	1,600	1,200	1,100
	Total Cr	0.05	NE								4.36		5.08	5.06	6.56	4.26	5.80	5.50	5.80	5.60	5.80	4.70		4.80	4.20	4.10	4.10	3.80			3.54	3.08	4.15	2.90
	Hexavalent Cr	NE	0.11								5.01		4.79	4.52	4.58	3.87	0.50	7.50	5.30	5.30	5.60	4.60		4.30	3.80			5.00			3.70	3.20	2.60	3.60
	Nickel	0.1	0.88								0.02		<0.01	0.11	0.30	0.07	0.13	0.09	0.07	0.03	0.08	<0.05		<0.05	0.06	<0.05					<0.01	0.02	0.02	0.02
MW-11	Sodium	NE	NE	182	700	810	690	650	490		320	350	373	210	300	440	480	410	470	430	450	490	360	330	350	400	380	340	239		277	258	308	246
	Chloride	NE	NE	1,400	1,200	1,000	1,000	1,000	740		637	852	710	675	710	640	680	630	660	560	650	710	470	410	450		310	560	520		420	280	390	400
	Total Cr	0.05	NE								0.02	0.30	0.03	0.05	0.19	0.05	0.12	0.09	0.12	0.09	0.12	0.12	0.09	0.08	0.09	0.07	0.06	0.08	0.104		0.094	0.119	0.129	0.126
	Hexavalent Cr	NE	0.11								0.07	0.12	0.08	0.04	0.14	0.05	0.15	0.10	0.10	0.05	0.02	<0.02	<0.02	0.03	0.07			0.09			0.07	0.11	0.11	0.12
	Nickel	0.1	0.88								0.02	0.10	<0.01	0.02	0.10	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05					<0.01	0.02	<0.01	0.02
MW-13	TPH	0.1	NE																															
	Sodium	NE	NE		620				19,000	9,000	7,200	13,500	730	280	600	1,060	1,300	6,700	8,800	6,200	6,200	8,600	5,800	330	5,400	1,200	3,400	2,800	2,760		879		1,400	763
	Chloride	NE	NE		720				34,000	37,000	42,140	26,300	1,600	1,020	1,700	1,700	2,600	13,000	18,000	12,000	18,000	18,000	13,000	1,400	10,000		7,900	6,500	5,500		1,200		1,900	1,600
	Total Cr	0.05	NE							3.15	2.95	3.57	0.03	0.65	0.55	0.69	0.58	2.10	1.90	2.20	2.20	2.90	0.92	0.03	1.10	0.16	0.33	0.32	0.49		0.152		0.36	0.34
	Hexavalent Cr	NE	0.11							3.59	3.85	2.04	0.07	ND	0.08	0.13	0.22	2.50	1.70	2.20	2.00	1.50	1.00	<0.02	0.78			0.40			0.150	0.18	0.31	0.35
	Nickel	0.1	0.88							0.02	0.02	0.15	<0.01	0.21	0.21	0.30	0.16	0.06	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.48	<0.05					0.024		0.02	<0.003
MW-13a ‡	TPH	0.1	NE																															
	Sodium	NE	NE											17,000	22,000										13,000	13,000	11,000	7,300	12,700			6,860	4,870	249
	Chloride	NE	NE											35,500	41,000										26,000		27,000	18,000	28,000			11,000	7,600	1,800
	Total Cr	0.05	NE											3.27	7.75										2.60	1.70	1.70	0.83	0.78			0.897	1.040	1.550
	Hexavalent Cr	NE	0.11											1.79	1.69										2.00			1.30				1.00	1.00	0.26
	Nickel	0.1	0.88											0.45	1.55										0.33	<0.05						0.017	0.025	0.061
MW-14 ‡	Sodium	NE	NE											170													140	370	99					
	Chloride	NE	NE											550													200	650	220					
	Total Cr	0.05	NE											0.07													<0.03	0.07	0.025					
	Hexavalent Cr	NE	0.11											0.07														0.08						
	Nickel	0.1	0.88											0.01																				
MW-15	Nickel	0.1	0.88											0.80											0.14	<0.05						0.02		0.06
MW-17	Sodium	NE	NE																								79	85	67		90		112	79
	Chloride	NE	NE																								89	80	57		85		55	97
	Total Cr	0.05	NE																								<0.03	<0.05	0.022		0.033		0.073	0.092
	Hexavalent Cr	NE	0.11																									0.03			0.03		0.2	0.02
	Nickel	0.1	0.88																															
BR-9	Sodium	NE	NE																										251	291	327	345	206	132
	Chloride	NE	NE																										440	380	450	400	210	150
	Total Cr	0.05	NE																										0.73	0.57	0.85	0.82	0.69	0.42
	Hexavalent Cr	NE	0.11																											0.09	0.85	0.90	0.45	0.44
	Nickel	0.1	0.88																															
BR-17	Sodium	NE	NE																															13
	Chloride	NE	NE																															53
	Total Cr	0.05	NE																															0.003
	Hexavalent Cr	NE	0.11																															ND
	Nickel	0.1	0.88																															
BR-19	Sodium	NE	NE																															29.1
	Chloride	NE	NE																															51.7
	Total Cr	0.05	NE																															0.018
	Hexavalent Cr	NE	0.11																															0.03
	Nickel	0.1	0.88																															
ST-1	Sodium	NE	NE																															
	Total Cr	0.05	NE																															
	Total Ni	0.1	0.88																															
ST-2	Sodium	NE	NE																															
	Total Cr	0.05	NE																															
	Total Ni	0.1	0.88																															

NAMP

WELL ID	ANALYTE	7-Jun-01	17-Dec-01	18-Jun-02	11-Dec-02	9-Sep-03	22-Dec-03	25-Jun-04	28-Dec-04	31-May-05	27-Jun-05	23-Dec-05	31-July-06	26-Dec-06	26-Jul-07	12-Dec-07	14-July-08	11-Dec-08	8-July-09 (*)	11-Dec-09 (*)
MW-6A	Sodium	293	64.4	33	188.0	134.0	212	162	434	143		161	146	132	138	330	99.8	95.3	218	151
	Chloride	380	230	36	292	150	769	241	553	156		126	162	142	120	437	58.6	116	318	690
	Total Cr	1.69	1.06	0.02	0.358	0.100	0.733	0.215	0.239	0.204		0.4	0.21	0.252	0.166	0.166	0.0691	0.064	0.0457	0.0533
	Hexavalent Cr	1.60	1.20	0.03	0.42	0.05	0.950	0.23	0.21	0.19		0.42	0.12	0.169	0.17	0.25	0.19	<0.25	<0.25	<0.050
	Nickel	<0.010	<0.005	<0.0111	<0.025	<0.0030	<0.0050	0.0094	<0.0173	<0.0025		<0.010								
MW-8	TPH	12	<0.1	<0.1	<0.1	<0.1	<0.1	1	<0.1	<0.1		<0.1	0.7	<0.1	1.2	<0.1	<0.1	1.7	1.1	0.5
MW-9	Sodium	550	629	490	366	400	217	393	375	+	319	390	277	252	282	286	241	264	721	72.6
	Chloride	900	800	580	610	464	332	528	512		193	450	346	247	303	309	291	327	470	201
	Total Cr	1.67	1.56	0.856	0.993	1.000	0.323	0.46	0.545		0.378	0.845	0.393	0.359	0.337	0.566	0.257	0.445	0.172	<0.0100
	Hexavalent Cr	2.00	1.70	1.15	1.20	1.27	0.900	0.57	0.66		0.275	0.78	0.78	0.262	0.31	0.65	0.25	0.45	0.300	<0.050
	Nickel	<0.010	<0.005	<0.0111	<0.005	<0.0030	0.0063	0.005	<0.0175		<0.0026	<0.0100								
MW-11	Sodium	193	31.0	220	211	230	229	219	213	220		227								
	Chloride	210	270	130	280	217	240	101	235	233		714								
	Total Cr	0.0654	0.13	0.059	0.0996	0.0324	0.0523	0.0368	0.0515	0.0319		0.0471								
	Hexavalent Cr	<0.10	0.11	0.067	0.08	0.055	0.070	0.044	0.2	<0.050		<0.030								
	Nickel	<0.010	<0.005	<0.0111	<0.0039	<0.0050	<0.0050	<0.005	<0.0173	<0.0025		<0.010								
MW-13	TPH	+	<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
	Sodium		1,120	359	293	511	363	254	434	434		232					298	195	473	272
	Chloride		1,100	370	380	514	434	345	579	473		213					473	246	1210	375
	Total Cr		0.127	0.035	0.0361	0.267	0.0376	0.0344	0.0914	0.293		0.0631					0.0321	0.0472	<0.0100	0.0384
	Hexavalent Cr		0.19	0.14	0.07	<0.100	0.070	0.041	0.093	<0.250		0.07					<0.125	<0.005	<0.250	<0.050
	Nickel		<0.005	<0.005	<0.017	<0.0050	<0.0050	<0.005	<0.0175	<0.0025		<0.01								
MW-13a ‡	TPH	<0.5	++	++	++	++	++	++	++	++	++		<0.1	<0.2	1	<0.1				
	Sodium	1,050											299	256	353	296				
	Chloride	1,900											335	207	361	209				
	Total Cr	0.494											0.0964	0.145	0.14	0.21				
	Hexavalent Cr	0.75											0.11	0.154	0.19	0.6				
	Nickel	<0.010																		
MW-14 ‡	Sodium	128				127	115	144		160										
	Chloride	160				107	52.8	224		247										
	Total Cr	0.0135	DRY	DRY	DRY	0.0147	0.0305	0.0084	DRY	0.0028										
	Hexavalent Cr	0.12				<0.100	<0.500	0.016		<0.010										
	Nickel	<0.010				<0.0050	<0.0050	<0.005		<0.0025										
MW-15	Nickel	<0.010	<0.010	<0.010	<0.0043	<0.0100	+	<0.01	<0.0175	<0.0100		<0.01								
MW-17	Sodium	15.7	40.9	29.8	22.9	29.6	29.7	43.9	33.9	62.6		41.2								
	Chloride	6.0	2.1	20	6.0	14.1	29.0	55.2	33.7	134		47.5								
	Total Cr	<0.010	<0.005	<0.0111	<0.0032	<0.005	<0.005	<0.003	<0.0340	<0.0025		<0.010								
	Hexavalent Cr	<0.010	0.006	<0.025	<0.008	<0.050	<0.500	0.003	<0.025	<0.010		<0.010								
	Nickel	<0.000	<0.003	<0.0111	<0.003	<0.003	<0.005	<0.005	<0.0173	0.006		<0.005								
BR-9	Sodium	40.0	51.1	129	125	132	183	232	45.3	37.2		162								
	Chloride	58	250	120	120	164	443	247	64	66.8		157								
	Total Cr	0.02	0.41	0.18	0.184	0.136	0.0990	0.112	<0.0340	<0.0025		0.121								
	Hexavalent Cr	<0.010	0.44	0.301	0.17	0.155	<0.250	0.18	<0.010	0.012		0.18								
	Nickel	<0.010	<0.005	<0.0111	<0.0023	<0.0030	<0.0050	<0.005	<0.0175	0.0084		<0.010								
BR-17	Sodium	10.0	16.3	13.8	13.5	13.3	13.5	<16	19.6	13.2										
	Chloride	44.0	41.0	44	46	47.6	50.3	54.7	54.2	57.6										
	Total Cr	<0.010	0.006	<0.0111	<0.0082	<0.0050	0.0063	<0.005	<0.0340	0.033										
	Hexavalent Cr	<0.010	0.01	<0.005	0.01	<0.0050	0.011	0.04	0.007	0.005										
	Nickel	<0.010	<0.005	<0.0111	<0.0041	<0.0050	<0.0050	<0.005	<0.0175	<0.0025										
BR-19	Sodium	6.30	3.42	9.41	13.0	37.0	44.0	69.5	145	+	60.8	4.08								
	Chloride	8.5	1.0	<0.50	16	55.9	76.5	183	293		136	245								
	Total Cr	<0.010	<0.005	<0.0111	<0.0023	<0.0050	<0.0050	<0.005	<0.0340		<0.0025	<0.0100								
	Hexavalent Cr	<0.10	<0.005	<0.005	<0.005	<0.010	<0.005	<0.008	0.023		<0.025	<0.005								
	Nickel	<0.010	<0.005	<0.0111	<0.0116	0.0309	0.0161	0.0053	<0.0175		0.003	<0.01								
ST-1	Sodium	11.5	51.1	18.9	15.3	14.0	14.4	20.8	15.9	14.3		18.6								
	Total Cr	0.007	<0.006	<0.005	<0.0023	<0.0050	<0.0050	<0.005	<0.005	<0.0025		<0.005								
	Total Ni	<0.005	<0.013	<0.005	<0.0023	<0.0050	<0.0050	<0.005	<0.005	<0.0023		<0.005								
ST-2	Sodium	11.9	42.2	19.5	19.6	14.0	14.6	21.2	16.1	13.5		19.8								
	Total Cr	<0.005	<0.005	<0.005	<0.0015	<0.0050	<0.0050	0.0066	<0.005	<0.0025		<0.005								
	Total Ni	<0.005	<0.005	<0.005	<0.0021	<0.0050	<0.0050	<0.005	<0.005	<0.0025		<0.005								

Notes

Blank Cell: No analysis performed. ND : Not detected. NE: Criteria not established. Bold type indicates exceedence of one or more criteria

* : Analysis performed according to EPA method SW 846 (Method 200.7 for the metals, 325.2 for chloride) since Nov. 95.

** : Wells were buried under large piles of snow pushed at the edges of the parking lot. Wells could not be accessed.

(*) : Sample was analysed for soluble Cr

"F" : Ground water samples were filtered in the field for the metal analysis (except hexavalent Cr) to compare with unfiltered results.

† : Sampling events conducted by HRP Associates until June 95 and by ERM thereafter.

‡ : Wells installed in February 1996.

+: well could not be accessed

+ +: Access to MW-13 was available and MW-13a was not sampled

NAMP: Natural Attenuation Monitoring Program