



Susan Crowley
Staff Environmental Specialist

(702) 651-2234
Fax (405) 302-4607
susan.crowley@tronox.com

September 26, 2008

Mr. Brian Rakvica, P.E.
Nevada Division of Environmental Protection
2030 East Flamingo Road, Suite 230
Las Vegas, Nevada 89119-0818

Subject: BMI Plant Sites and Common Areas Projects, Henderson, Nevada
Response to August 4, 2008 NDEP Comments - Vertical Delineation of Contaminant Plumes and Hydraulic Gradients

Dear Mr. Rakvica:

On August 4, 2008, the Nevada Division of Environmental Protection (NDEP) provided comments on the Tronox LLC (Tronox) transmittal regarding vertical gradients beneath the Tronox facility in Henderson, Nevada. This correspondence transmits the Tronox response to those comments. Additionally, Tronox has provided a conceptual-level approach toward further investigation of the deeper hydrogeologic units below the Tronox site. Our proposed approach consists of a phased installation of deeper monitoring wells and is shown on the attached plate included with this transmittal. Upon your concurrence with the approach, Tronox will provide a work plan for implementation of this deeper investigation. If it would be helpful, a teleconference can be scheduled in which the approach can be fully discussed. Please let me know if this is desired.

If you have any comments or questions concerning this correspondence please contact me at (702) 651-2234. Thank you.

Sincerely

Susan M. Crowley
Staff Environmental Specialist

Overnight Mail

Attachment: As stated

cc: See attached Distribution List

Tronox. Adding value beyond the product.

Tronox Document Distribution List

Updated: 22-Sep-08

Document Name: ECA General Docs - addressee highlighted in yellow

Name (Last, First)		Firm	Distribution		
			Hard	e-Copy	Cvr Only
Croft	Todd	NDEP		X	
King	Val	NDEP			
Najima	Jim	NDEP		X	
Rakvica	Brian	NDEP	X	X	
Sous	Nadir	NDEP			
Tinney	Al	NDEP		X	
Palm	Jon	NDEP		X	
Harbour	Shannon	NDEP	X	X	
Black	Paul	Neptune	X	X	
Hackenberry	Paul	Hackenberry	X	X	
Copeland	Teri		X	X	
Gratson	Dave	Neptune	X	X	
Otani-Fehling	Joanna	Neptune	X	X	
Pohlmann	Brenda	COH		X	
Conaty	Barry	COH Counsel		X	
Mulroy	Pat	SNWA			
Goff	Mike	SNWA			
Liesing	Joe	SNWA			
Kaplan	Mitch	EPA, Reg 9		X	
Compliance Coordinator		NDEP			
Compliance Coordinator		DAQEM			
Juma	Ebrahim	CCDAQEM			
Public Repository		Library	X	X	

Name (Last, First)		Firm	Distribution		
			Hard	e-Copy	Cvr Only
Corbett	Pat	Tronox		X	
Paque	Matt	Tronox Counsel		X	
Hatmaker	John	Tronox		X	
Reed	Tom	Tronox	X	X	
Stater	Rick	Tronox		X	
Crowley	Susan	Tronox	2	2	
			& Hard Data		
Bailey	Keith	Environ Answers	X	X	
Krish	Ed	ENSR	X	X	
Bilodeau	Sally	ENSR	X	X	
Flack	Mike	ENSR	X	X	
Ho	Brian	ENSR	X	X	
Kennedy	Robert	ENSR	X	X	
Bradley	Lisa	ENSR	X	X	
Lambeth	Jeff	Veolia			
Guerriero	Joe	AIG		X	
Giroux	Barry	GEI		X	
Stowers	Kirk	Broadbent		X	
Sahu	Rahnijit	BMI		X	
Crouse	George	Syngenta		X	
Erickson	Lee	Stauffer		X	
Kelly	Joe	Montrose			
Sundberg	Paul	Montrose		X	
Gibson	Jeff	AmPac			
Richards	Curt	Olin		X	
Bellotti	Michael	Olin		X	
Wilkinson	Craig	Timet		X	
Mack	Joel	Montrose Counsel			

Prepared for:
Tronox LLC
Henderson, Nevada

Response to NDEP Comments Vertical Delineation of Contaminant Plumes and Hydraulic Gradients

ENSR Corporation
September 2008
Document No.: 04020-023-130

Prepared for:
Tronox LLC
Henderson, Nevada

Response to NDEP Comments Vertical Delineation of Contaminant Plumes and Hydraulic Gradients

ENSR Corporation
September 2008
Document No.: 04020-023-130



Tronox Response to Comments
August 4, 2008 NDEP Letter
Vertical Delineation of Contaminant Plumes and Hydraulic Gradients
Dated June 27, 2008

NDEP comment

1 General Comment, it is not clear that any of the gradient evaluations considered the density of the groundwater. This can be significant and must be considered. NDEP can provide guidance on performing these calculations if TRX has any questions.

Tronox Response

Consistent with the information NDEP provided to Tronox on September 4, 2008, vertical gradients were calculated following the methodology using fresh water heads. **Table 1** (attached), has been revised from the prior submittal to reflect these calculations. In general, the vertical gradient estimates did not change significantly.

NDEP Comment

2 General Comment, TRX has not discussed the validation status of the data presented. Please clarify this in the revised submittal.

Tronox Response

Table 1 (attached), has been modified to indicate the validation status of the data presented. Most of the data collected from the wells shown on **Table 1** prior to 2007 and 2008 was not validated. In general, the data since 2007 has been validated at the request of NDEP. While groundwater samples were analyzed for general minerals, the data prior to 2007 was collected with the purpose to establish trends in the perchlorate concentration in the shallow and deeper wells along the west side of the site.

NDEP comment

3 General comment, TRX has not discussed if a cation-anion balance has been conducted on the data sets and the results of the cation-anion balance needs discussion in the revised report.

Tronox Response

In response to this comment, Tronox performed a cation-anion balance using available data from the "TR" wells and samples collected between 1999 and 2008. The data used in the analysis are summarized in **Table 2** (attached). In general, the analysis shows that about 75% of the samples collected yearly since 1999 from these wells passed the acceptance criteria of not more than a five percent difference between the sum of major cations and anions. Where there was an upset to the balance beyond the criteria, in some cases the cause was missing data or anomalously high concentrations in one or more of the major ions. Of the 25% that did not pass, in some cases there were missing analytes such as sulfate and bicarbonate. While nitrate was not analyzed in some wells prior to 2005, its absence in these cases did not seem to affect the cation-anion balance negatively.

Additional evaluation of general minerals data was performed using cation and anion balance from groundwater samples collected during the Phase A investigation of the site. This data was provided as Table M-1 in the draft Phase A Report submitted to NDEP on September 27, 2007.

NDEP comment

4 General comment, in the revised report, please provide a schematic drawing which presents the various hydrogeologic units and the nomenclature that is being ascribed to these units by TRX.

Tronox Response

Tronox has prepared a cross section to illustrate the hydrogeologic units that have been interpreted below the site (see attached **Plate 1**). The cross section shows the distribution of these units with depth and their stratigraphy below the site. The nomenclature follows what Tronox provided to NDEP on June 27 regarding the proposed hydrostratigraphic nomenclature for the Black Mountain Industrial Complex. Tronox has interpreted four hydrostratigraphic units below the site from the drilling program completed to date. These four units shown on **Plate 1** are as follows:

- Qal Quaternary alluvium
- MCf1 Muddy Creek fine-grain facies No.1
- MCc1 Muddy Creek coarse-grain facies No.1
- MCc2 Muddy Creek coarse-grain facies No. 2

NDEP comment

5 General comment, Most of the well clusters do not address the five hydrogeologic formations described by TRX. TRX should review this matter and propose to install additional wells to address the vertical delineation issues at the Site.

Tronox Response

Four well nests are proposed to respond to this request from NDEP. The location of the well nests and their proposed completion depths are illustrated on **Plate 1**. The wells are proposed on the Tronox site, roughly down the spine of the complex beginning near the north side of the “unit” buildings and ending at the northern property boundary. The depths of the wells were selected based on the perchlorate data from the May 2008 sampling event and in consideration of the hydrostratigraphy illustrated on **Plate 1**.

The objective of these wells is to further delineate the vertical extent of perchlorate and to better understand the vertical hydraulic gradients below the site eastward from the line of wells on the western property boundary. It is our intent to initially drill and sample the shallow wells, then as necessary drill and install the deeper wells if perchlorate is detected in the shallow well water samples. Tronox will prepare a formal work plan for submittal to NDEP upon concurrence with these proposed locations.

These wells will additionally be sampled for general minerals to further evaluate the groundwater geochemistry below the site. It is anticipated that these data along with the results of the Phase A investigation and additional groundwater sampling proposed as part of the Phase B investigation will significantly improve the understanding in groundwater geochemistry within the four hydrostratigraphic units.

NDEP comment

6 Page 2, TRX notes that the construction information from wells MC-9 and H-58A are unclear. Please note that these wells should not be used in any way until the construction information is verified. Alternately, these wells can be replaced. Please advise the NDEP how the well clusters at location TR-11 and TR-12 will be addressed (i.e.: well construction will be determined or wells will be replaced).

Tronox Response

Table 1 summarizes the information gathered to date for these wells. Tronox is working to gather additional information on water chemistry for both wells and the well completion data for well MC-9. It is our intent to secure the necessary information from these wells so that they can be used as companion wells to TR-11 and TR-12, and thus, support an understanding of vertical gradients in these areas. The exploratory boring logs and available information on the well completion is provided in **Attachment A**.

NDEP comment

7 Figure 1, Please revise the Figure to indicate the hydrogeologic formation addressed by each well location. Please note that the format of the Figure submitted by Hargis on June 25, 2008 for the Companies associated with the Olin Site is very helpful.

Tronox Response

This figure has been revised as requested and is attached.

WELL NUMBER ⁽¹⁾	AQUIFER UNIT ⁽²⁾	WELL LOCATION	NORTHING ⁽³⁾	EASTING ⁽³⁾	WELL DIAMETER	TOP OF CASING	DEPTH TO TOP OF SCREEN	DEPTH TO BOTTOM OF SCREEN	TOTAL WELL DEPTH	ELEVATION TOP OF SCREEN	ELEVATION BOTTOM OF SCREEN	ELEVATION MID-POINT OF SCREEN	Sample Date ⁽⁴⁾	LABORATORY DATA		DATA VALIDATION STATUS	CATION/ANION BALANCE PERFORMED ⁽⁶⁾	GROUNDWATER				VERTICAL GRADIENT ⁽¹¹⁾																
														TDS	EC (Lab)			Measured DTW ⁽⁷⁾	Water Density ⁽⁸⁾	GW Elevation ⁽⁹⁾	Fresh Water Head ⁽¹⁰⁾	DATE		Water Level	Fresh Water Head													
														mg/L	umho/cm			ft-bgs	kg/m ³	ft-msl	ft-msl	shallow	deep	ft/ft	ft/ft													
TR-1	MCc2	Western Property Boundary	826168.04000	26719957.91000	4	1752.18	281.5	311.5	312.0	1470.68	1440.68	1455.7	9/2/99	--	903	NO	NO	--	--	--	--	2/18/05	2/18/05	-0.394	-0.391													
													9/3/99	--	1,840	NO	NO	--	--	--	--	2/4/06	2/4/06	-0.385	-0.382													
													9/7/99	--	1,392	NO	NO	--	--	--	--	1/18/07	1/18/07	-0.336	-0.333													
													9/23/99	--	1,283	NO	NO	--	--	--	--	5/14/08	5/14/08	-0.215	-0.213													
													10/7/99	--	1,283	NO	YES	+4.5	--	1,756.68	--																	
													1/13/00	--	--	NO	NO	+10.9	--	1,763.08	--																	
													2/2/01	--	1,040	NO	NO	+13.42	--	1,765.60	--																	
													2/25/02	--	1,130	NO	YES	+18.71	--	1,770.89	--																	
													2/19/03	--	--	NO	YES	+16.89	--	1,769.07	--																	
													2/3/04	--	1,190	NO	YES	+20.91	--	1,773.09	--																	
													2/18/05	--	1,120	NO	YES	+24.72	997.94	1,776.90	1,776.21																	
													2/4/06	--	1,170	NO	YES	+24.49	997.94	1,776.67	1,775.98																	
													3/20/06	--	--	NO	YES	--	--	--	--																	
													1/18/07	678	1,190	NO	YES	+18.02	997.91	1,770.20	1,769.51																	
													5/14/08	740	1,230	YES	YES	+1.85	997.96	1,754.03	1,753.39																	
TR-2	MCf1 (deep)	Western Property Boundary	826156.85000	26719954.57000	4	1751.79	144.5	174.5	175.0	1607.29	1577.29	1592.3	9/9/99	--	3,950	NO	NO	--	--	--	--																	
													9/23/99	--	4,080	NO	NO	--	--	--	--																	
													10/7/99	--	4,080	NO	YES	28.00	--	1,723.79	--																	
													1/13/00	--	--	NO	NO	31.20	--	1,720.59	--																	
													2/4/01	--	932	NO	NO	39.03	--	1,712.76	--																	
													2/25/02	--	941	NO	YES	30.11	--	1,721.68	--																	
													2/19/03	--	--	NO	YES	29.50	--	1,722.29	--																	
													2/3/04	--	1,000	NO	YES	29.38	--	1,722.41	--																	
													2/18/05	--	933	NO	YES	28.66	997.83	1,723.13	1,722.81																	
													2/4/06	--	960	NO	YES	27.70	997.83	1,724.09	1,723.77																	
													3/22/06	--	--	NO	YES	--	--	--	--																	
													1/18/07	560	990	NO	YES	27.49	997.83	1,724.30	1,723.98																	
													5/14/08	566	965	YES	YES	27.13	997.83	1,724.66	1,724.34																	
													TR-3	MCc2	Western Property Boundary	826342.89000	26718941.61000	4	1772.84	219.5	249.5	250.0	1553.34	1523.34	1538.3	10/7/99	--	1,330	NO	YES	5.40	--	1,767.44	--				
																										1/13/00	--	--	NO	NO	6.20	--	1,766.64	--				
2/4/01	--	1,060	NO	NO	3.58	--	1,769.26	--																														
2/25/02	--	1,080	NO	YES	1.79	--	1,771.05	--																														
2/19/03	--	--	NO	YES	+0.42	--	1,773.26	--																														
2/3/04	--	1,140	NO	YES	0.30	--	1,772.54	--																														
2/18/05	--	1,080	NO	YES	+2.50	997.90	1,775.34	1,774.81																														
2/4/06	--	999	NO	YES	+0.40	997.90	1,773.24	1,772.71																														
3/22/06	--	--	NO	YES	--	--	--	--																														
1/18/07	652	1,150	NO	YES	+2.75	997.89	1,775.59	1,775.06																														
5/15/08	656	1,130	YES	YES	+0.46	997.90	1,773.30	1,772.77																														
TR-4	MCf1 (deep)	Western Property Boundary	826342.53000	26718951.58000	4	1772.55	124.5	144.5	145.0	1648.05	1628.05	1638.1														9/15/99	--	3720	NO	NO	--	--	--	--				
																										9/23/99	--	1,930	NO	NO	--	--	--	--				
																										10/7/99	--	1,930	NO	YES	34.00	--	1,738.55	--				
																										1/13/00	--	--	NO	NO	38.75	--	1,733.80	--				
													2/4/01	--	1,080	NO	NO	37.73	--	1,734.82	--																	
													2/25/02	--	1,440	NO	YES	38.17	--	1,734.38	--																	
													2/19/03	--	--	NO	YES	37.92	--	1,734.63	--																	
													2/3/04	--	1,760	NO	YES	38.40	--	1,734.15	--																	
													2/18/05	--	1,520	NO	YES	36.45	998.07	1,736.10	1,735.89																	
													2/4/06	--	1,430	NO	YES	36.15	998.07	1,736.40	1,736.19																	
													3/20/06	--	--	NO	YES	--	--	--	--																	
													1/18/07	894	1,560	NO	YES	36.42	998.08	1,736.13	1,735.92																	
													5/15/08	868	1,470	YES	YES	36.68	998.06	1,735.87	1,735.66																	

WELL NUMBER ⁽¹⁾	AQUIFER UNIT ⁽²⁾	WELL LOCATION	NORTHING ⁽³⁾	EASTING ⁽³⁾	WELL DIAMETER	TOP OF CASING	DEPTH TO TOP OF SCREEN	DEPTH TO BOTTOM OF SCREEN	TOTAL WELL DEPTH	ELEVATION TOP OF SCREEN	ELEVATION BOTTOM OF SCREEN	ELEVATION MID-POINT OF SCREEN	Sample Date ⁽⁴⁾	LABORATORY DATA		DATA VALIDATION STATUS	CATION/ANION BALANCE PERFORMED ⁽⁶⁾	GROUNDWATER				VERTICAL GRADIENT ⁽¹¹⁾																		
														TDS	EC (Lab)			Measured DTW ⁽⁷⁾	Water Density ⁽⁸⁾	GW Elevation ⁽⁹⁾	Fresh Water Head ⁽¹⁰⁾																			
														mg/L	umho/cm			ft-bgs	kg/m ³	ft-msl	ft-msl	DATE	Water Level	Fresh Water Head																
																						shallow	deep	ft/ft	ft/ft															
TR-5	MCc2	Western Property Boundary	826595.86000	26717592.13000	4	1800.27	221.0	251.0	251.5	1579.27	1549.27	1564.3	9/23/99	--	1,353	NO	NO	--	--	--	TR-6	TR-5	-0.198 ↑	-0.194 ↑																
													9/24/99	--	1,447	NO	NO	--	--	--																				
													10/7/99	--	1,447	NO	YES	12.00	--	1,788.27					--															
													1/13/00	--	--	NO	NO	16.50	--	1,783.77					--															
													2/4/01	--	1,130	NO	NO	13.44	--	1,786.83					--															
													2/25/02	--	1,180	NO	YES	10.97	--	1,789.30					--															
													2/20/03	--	--	NO	YES	8.70	--	1,791.57					--															
													2/3/04	--	1,260	NO	YES	6.65	--	1,793.62					--															
													2/18/05	--	1,210	NO	YES	4.01	997.97	1,796.26					1,795.76															
													2/4/06	--	991	NO	YES	0.88	997.97	1,799.39					1,798.88															
													3/20/06	--	--	NO	YES	--	--	--					--															
													1/18/07	742	1,240	NO	YES	+0.10	997.96	1,800.37					1,799.86															
													5/14/08	748	1,220	YES	YES	+0.23	997.97	1,800.50					1,799.99															
													TR-6	MCc1	Western Property Boundary	826594.34000	26717608.38000	4	1800.36	60.0					80.0	80.0	1740.36	1720.36	1730.4	9/24/99	--	8,240	NO	NO	--	--	TR-6	TR-5	-0.220 ↑	-0.216 ↑
9/25/99	--	7,930	NO	NO	--	--	--																																	
10/7/99	--	8,240	NO	YES	34.75	--	1,765.61	--																																
1/13/00	--	--	NO	NO	39.75	--	1,760.61	--																																
2/4/01	--	6,480	NO	NO	38.48	--	1,761.88	--																																
2/25/02	--	6,970	NO	YES	35.45	--	1,764.91	--																																
2/20/03	--	--	NO	YES	39.47	--	1,760.89	--																																
2/3/04	--	9,310	NO	YES	40.22	--	1,760.14	--																																
2/18/05	--	11,700	NO	YES	36.93	1,002.80	1,763.43	1,763.55																																
2/4/06	--	5,910	NO	YES	37.5	1,002.80	1,762.86	1,762.98																																
3/20/06	--	--	NO	YES	--	--	--	--																																
1/18/07	5590	8,600	NO	YES	37.94	1,001.62	1,762.42	1,762.49																																
5/14/08	8750	10,330	YES	YES	38.11	1,003.99	1,762.25	1,762.42																																
TR-7	MCc2	Western Property Boundary	826724.99000	26716525.47000	4	1829.03	260.0	290.0	290.5	1569.03	1539.03	1554.0									9/26/99	--	1,369	NO						NO	--	--	TR-8	TR-7	-0.125 ↑	-0.123 ↑				
													9/28/99	--	1,438	NO	NO	--	--	--																				
													10/7/99	--	1,438	NO	YES	37.10	--	1,791.93	--																			
													1/13/00	--	--	NO	NO	40.25	--	1,788.78	--																			
													2/22/00	--	1,600	NO	NO	39.99	--	1,789.04	--																			
													2/4/01	--	1,240	NO	NO	37.22	--	1,791.81	--																			
													2/25/02	--	1,250	NO	YES	34.66	--	1,794.37	--																			
													2/20/03	--	--	NO	YES	32.04	--	--	--																			
													2/3/04	--	1,310	NO	YES	29.46	--	1,799.57	--																			
													2/18/05	--	1,260	NO	YES	26.67	997.99	1,802.36	1,801.83																			
													2/4/06	--	1,290	NO	YES	23.12	997.99	1,805.91	1,802.27																			
													3/20/06	--	--	NO	YES	--	--	--	--																			
													1/18/07	746	1,300	NO	YES	20.74	997.97	1,808.29	1,804.61																			
													5/14/08	800	1,290	YES	YES	17.83	998.01	1,811.20	1,807.59																			
TR-8	MCc1	Western Property Boundary	826722.81000	26716512.15000	4	1829.08	63.0	93.0	93.5	1766.08	1736.08	1751.1	10/7/99	--	2,340	NO	YES	50.35	--	TR-8	TR-7	-0.142 ↑	-0.139 ↑																	
													1/13/00	--	--	NO	NO	55.45	--					1,773.63	--															
													2/23/00	--	2,500	NO	NO	54.91	--					1,774.17	--															
													2/4/01	--	1,830	NO	NO	54.46	--					1,774.62	--															
													2/25/02	--	1,770	NO	YES	52.81	--					1,776.27	--															
													2/20/03	--	--	NO	YES	53.47	--					1,775.61	--															
													2/3/04	--	1,970	NO	YES	53.98	--					1,775.10	--															
													2/18/05	--	1,820	NO	YES	51.33	998.28					1,777.75	1,777.68															
													2/4/06	--	1,670	NO	YES	51.21	998.28					1,777.87	1,774.81															
													3/20/06	--	--	NO	YES	--	--					--	--															
													1/17/07	1140	1,770	NO	YES	51.90	998.26					1,777.18	1,774.09															
													5/14/08	1180	1,740	YES	YES	51.65	998.29					1,777.43	1,774.40															
													TR-9	MCc2	Western Property Boundary	827560.22000	26715752.71000	4	1854.29					230.0	250.0	250.5	1624.29	1604.29	1614.3	10/9/99	--	1,378	NO	YES	60.50	--	TR-10	TR-9	-0.056 ↑	-0.054 ↑
																														1/13/00	--	--	NO	NO	66.10	--				
2/22/00	--	1,600	NO	NO	65.74	--	1,788.55	--																																
2/4/01	--	1,220	NO	NO	63.08	--	1,791.21	--																																
2/25/02	--	1,220	NO	YES	60.61	--	1,793.68	--																																
2/19/03	--	--	NO	YES	58.07	--	1,796.22	--																																
2/3/04	--	1,310	NO	YES	55.42	--	1,798.87	--																																
2/18/05	--	1,270	NO	YES	52.78	998.01	1,801.51	1,801.12																																
2/4/06	--	1,240	NO	YES	49.16	998.01	1,805.13	1,804.73																																
3/20/06	--	--	NO	YES	--	--	--	--																																
1/17/07	778	1,300	NO	YES	46.81	997.99	1,807.48	1,807.07																																
5/13/08	834	1,330	YES	YES	43.78	998.03	1,810.51	1,810.10																																
TR-10	MCc1	Western Property Boundary	827562.53000	26715739.77000	4	1854.06	80.0	100.0	100.5	1774.06	1754.06	1764.1								10/9/99	--	2,190	NO							YES	57.35	--	TR-10	TR-9	-0.076 ↑	-0.074 ↑				
																				1/13/00	--	--	NO							NO	62.45	--								
													2/21/00	--	2,100	NO	NO	62.15	--	1,791.91	--																			
													2/4/01	--	2,060	NO	NO	61.09	--	1,792.97	--																			
													2/25/02	--	2,060	NO	YES	61.19	--	1,792.87	--																			
													2/19/03	--	--	NO	YES	60.75	--	1,793.31	--																			
													2/3/04	--	2,150	NO	YES	60.89	--	1,793.17	--																			
													2/18/05	--	2,050	NO	YES	60.92	998.75	1,793.14	1,793.09																			
													2/4/06	--	2,150	NO	YES	60.33	998.75	1,793.73	1,793.68																			
													3/20/06	--	--	NO	YES	--	--	--	--																			
													1/17/07	1840	2,530	NO	YES	61.91	998.79	1,792.15	1,792.10																			
													5/13/08	1740	2,440	YES	YES	59.87	998.72	1,794.19	1,794.14																			

WELL NUMBER ⁽¹⁾	AQUIFER UNIT ⁽²⁾	WELL LOCATION	NORTHING ⁽³⁾	EASTING ⁽³⁾	WELL DIAMETER	TOP OF CASING	DEPTH TO TOP OF SCREEN	DEPTH TO BOTTOM OF SCREEN	TOTAL WELL DEPTH	ELEVATION TOP OF SCREEN	ELEVATION BOTTOM OF SCREEN	ELEVATION MID-POINT OF SCREEN	Sample Date ⁽⁴⁾	LABORATORY DATA		DATA VALIDATION STATUS	CATION/ANION BALANCE PERFORMED ⁽⁶⁾	GROUNDWATER				VERTICAL GRADIENT ⁽¹¹⁾						
														TDS	EC (Lab)			Measured DTW ⁽⁷⁾	Water Density ⁽⁸⁾	GW Elevation ⁽⁹⁾	Fresh Water Head ⁽¹⁰⁾							
														mg/L	umho/cm			ft-bgs	kg/m ³	ft-msl	ft-msl	DATE	Water Level	Fresh Water Head				
																						shallow	deep	ft/ft	ft/ft			
MC-9	Qal	Western Property Boundary	825446.92170	26721895.27910	4	1716.34	--	--	55.0	--	--	--	10/18/99	--	--	--	--	--	--	--	TR-11 ¹³	MC-9 ¹³	--	--				
													1/13/00	--	--	--	--	--	--	--					--	--	--	--
													2/2/01	--	--	--	--	--	--	--					--	--	--	--
													2/25/02	--	--	--	--	--	--	--					--	--	--	--
													2/19/03	--	--	--	--	--	--	--					--	--	--	--
													2/3/04	--	--	--	--	--	--	--					--	--	--	--
													2/8/05	--	--	--	--	--	--	27.36					--	1,688.98	--	--
													2/15/06	--	--	--	--	--	--	26.82					--	1,689.52	--	--
													3/20/06	--	--	--	--	--	--	--					--	--	--	--
													1/16/07	--	--	--	--	--	--	27.20					--	1,689.14	--	--
4/2/08	--	--	--	--	--	--	28.28	--	1,688.06	--	--																	
TR-11	MCC2	Western Property Boundary	825422.57000	26721918.29000	4	1717.12	210.0	230.0	230.5	1507.12	1487.12	1497.1	10/13/99	--	1,213	NO	YES	+2.45	--	1,719.57	TR-11 ¹³	MC-9 ¹³	--	--				
													1/13/00	--	--	NO	NO	+3.70	--	1,720.82								
													2/2/01	--	1,090	NO	NO	+3.93	--	1,721.05								
													2/25/02	--	1,170	NO	YES	+7.73	--	1,724.85								
													2/19/03	--	--	NO	YES	+5.94	--	1,723.06								
													2/3/04	--	1,230	NO	YES	+8.57	--	1,725.69								
													2/18/05	--	1,180	NO	YES	+9.47	997.93	1,726.59								
													2/4/06	--	1,200	NO	YES	+11.20	997.93	1,728.32								
													3/20/06	--	--	NO	YES	--	--	--								
													1/15/07	684	1,210	NO	YES	+8.78	997.92	1,725.90								
5/13/08	722	1,210	YES	YES	+6.70	997.95	1,723.82																					
H-58A	Qal	Western Property Boundary	825642.55000	26723331.8800	4	1693.43	37.0	57.0	59.0	1656.43	1636.430	1646.4	10/13/99	--	--	--	--	--	--	TR-12 ¹⁴	H-58A ¹⁴	--	--					
													1/13/00	--	--	--	--	--	--					--	--	--	--	
													2/2/01	--	--	--	--	--	--					--	--	--	--	
													2/25/02	--	--	--	--	--	--					--	--	--	--	
													2/19/03	--	--	--	--	--	--					--	--	--	--	
													2/3/04	--	--	--	--	--	--					--	--	--	--	
													2/22/05	--	--	--	--	--	--					33.69	--	1,666.07	--	--
													2/15/06	--	--	--	--	--	--					30.72	--	1,685.62	--	--
													3/20/06	--	--	--	--	--	--					--	--	--	--	--
													1/18/07	--	--	--	--	--	--					30.16	--	1,686.18	--	--
4/2/08	--	--	--	--	--	--	29.67	--	1,686.67	--	--																	
TR-12	MCC2	Western Property Boundary	825286.37000	26723271.82000	4	1695.84	272.0	292.0	292.5	1423.84	1403.84	1413.8	10/13/99	--	1,103	NO	YES	+2.60	--	1,698.44	TR-12 ¹⁴	H-58A ¹⁴	--	--				
													1/13/00	--	--	NO	NO	+15.60	--	1,711.44								
													2/2/01	--	755	NO	NO	+20.91	--	1,716.75								
													2/25/02	--	818	NO	YES	+22.47	--	1,718.31								
													2/19/03	--	--	NO	YES	+4.9	--	1,700.74								
													2/3/04	--	879	NO	YES	+2.31	--	1,698.15								
													2/18/05	--	847	NO	YES	+21.94	997.77	1,717.78								
													2/4/06	--	851	NO	YES	+20.91	997.77	1,716.75								
													3/20/06	--	--	NO	YES	--	--	--								
													1/15/07	500	860	NO	YES	+17.56	997.78	1,713.40								
5/15/08	468	850	YES	YES	+20.79	997.76	1,716.63																					

DEFINITIONS

NAD North American Datum
ft-msl feet above mean sealevel
ft-bgs feet below ground surface
mg/L milligrams per liter
umohs/cm micromohs per centimeter
ft/ft feet per foot
-- data not available or not reported

NOTES

- Wells locations are shown on Figure 1. The "TR" wells, well M-5A, M-134, M-135 and M-136 are shown in cross section on Figure 2.
- Aquifer units designated by Tronox following the hydrostratigraphic nomenclature provided in the Tronox letter to NDEP dated June 27, 2008 "Proposed Hydrostratigraphic Nomenclature - BMI Complex":
Qal - Alluvium (includes saturated uppermost MCF1)
MCF1 - Muddy Creek Formation - first fine-grained facies
MCC1- Muddy Creek Formation - first coarse-grained facies
MCC2- Muddy Creek Formation - second coarse-grained facies
- Survey coordinates as provided in the June 2008 "all wells" database.
- Date as provided in the Tronox "Mother Hen" database. Inclusive of water level and groundwater sampling dates.
- Data reported in 2008 should be considered as "PRELIMINARY" (Not Validated). Data validation for these data is not complete. These data will be transmitted as validated in the annual report.
- Cation/Anion Balance is shown on Table 2 for those wells that have been sampled for wet chemistry. In some cases the sampling dates for TDS and general minerals differed by a few days. If the dates were within a week of each other, the cation/anion balance was noted with a "YES"
- Depth is assumed to be "positive" (vertically down from the measuring point). Those values shown with a "+" indicate distance above the measuring point (up).
- Water density estimated following online density calculation (<http://csgnetwork.com/h20denscalc.html>) and using the water temperature and total dissolved solids concentration reported during sampling. If temperature or TDS was not reported the average value was used.
- Values reported in psi (measured from the well head pressure gauge) were converted to elevation by multiplying by 2.31 (conversion factor) and adding to the top of casing elevation.
- Fresh water head after Post, V., Looi, H., and Simmons, C., 2007, Using Hydraulic Head Measurements in Variable-Density Ground Water Flow Analyses: Groundwater Volume 45, No.6 November-December 2007 (pages 664-671).

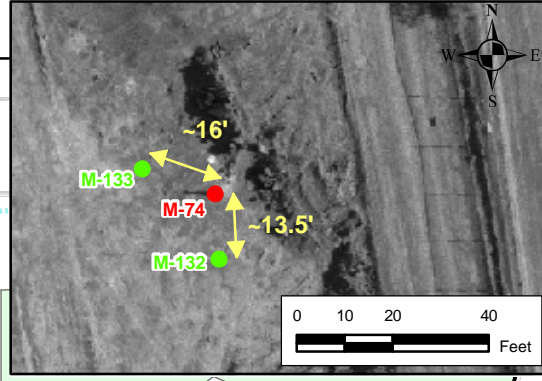
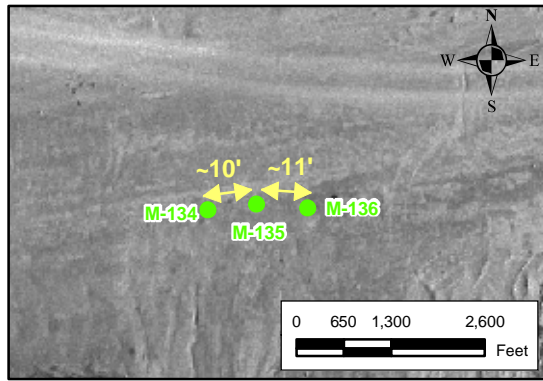
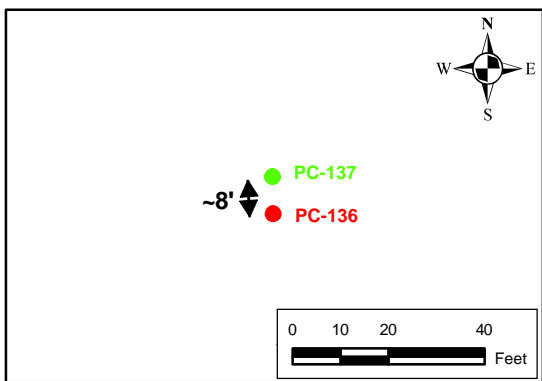
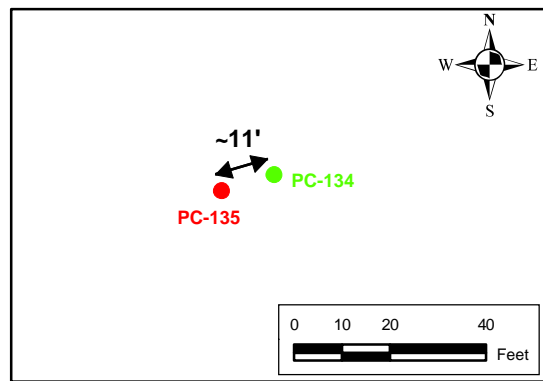
$$h_n = (\rho_w/\rho_f)h_f - [(\rho_w/\rho_f)z_f]$$

h_n (ft) "fresh water" head
 ρ_f kg/m³ density at point of measurement
 ρ_w kg/m³ fresh water density
 h_f (ft) hydraulic head (point water head, i.e., water level measurement)
 z_f (ft) elevation head (screen depth)

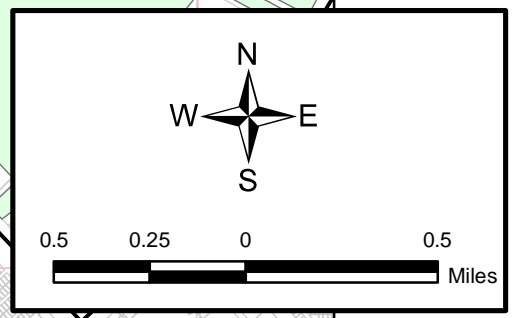
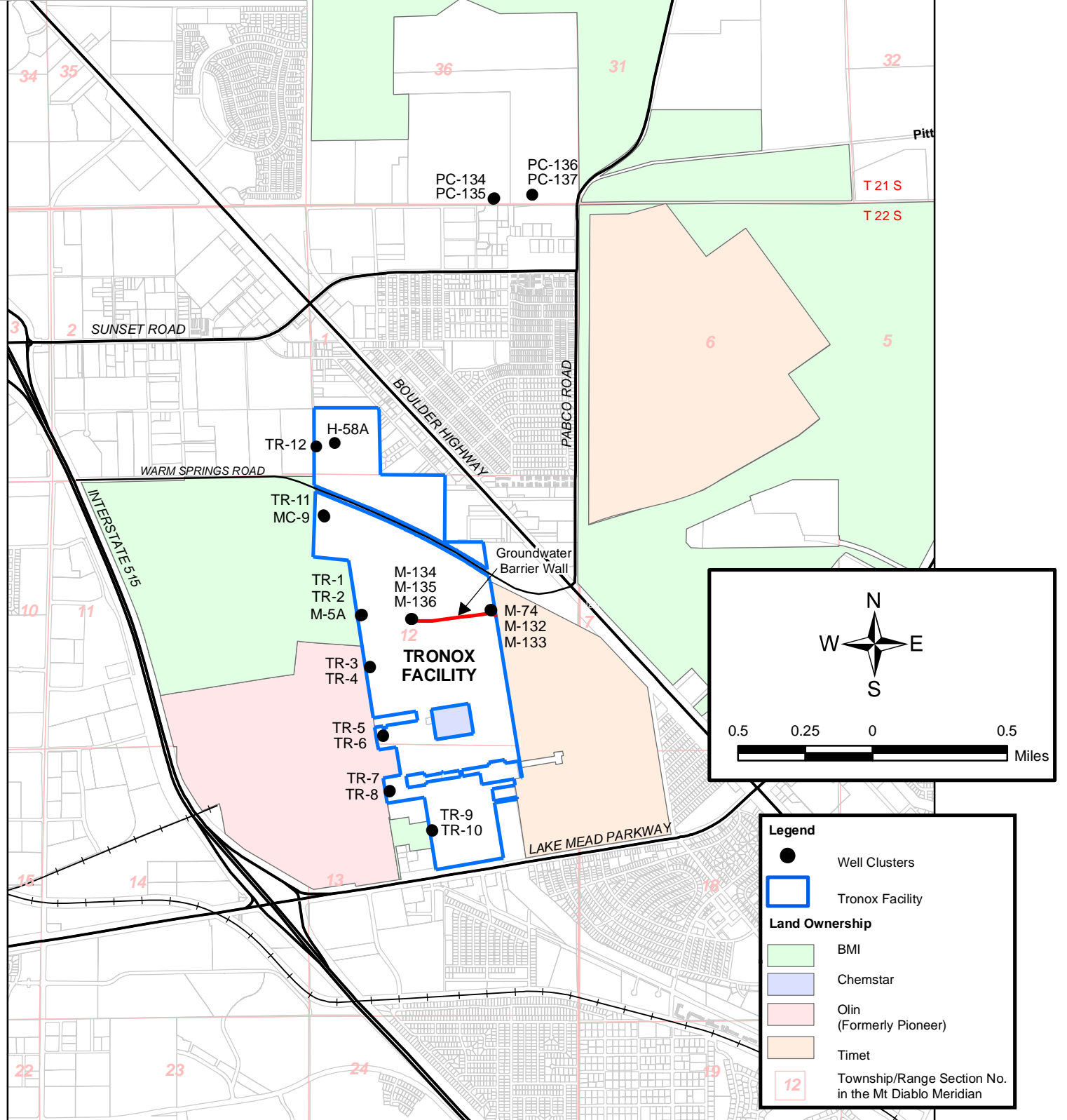
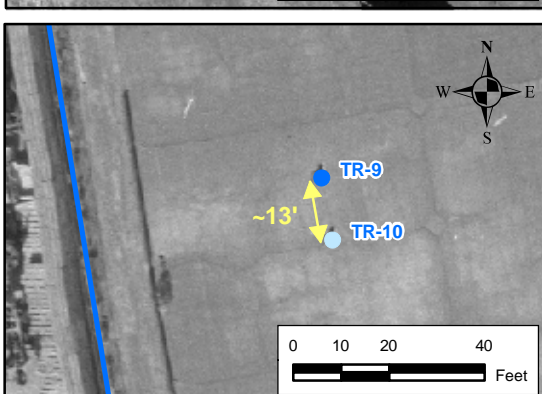
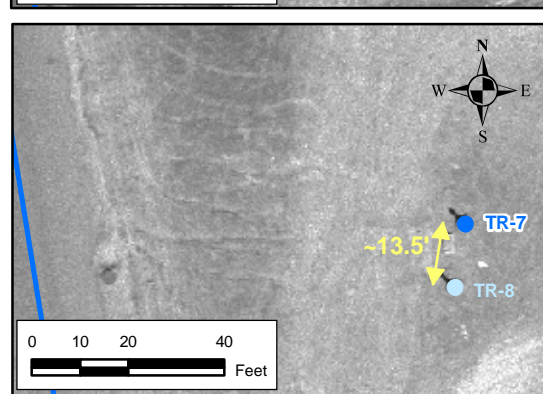
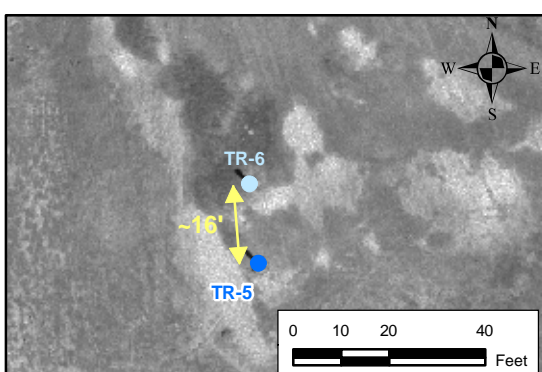
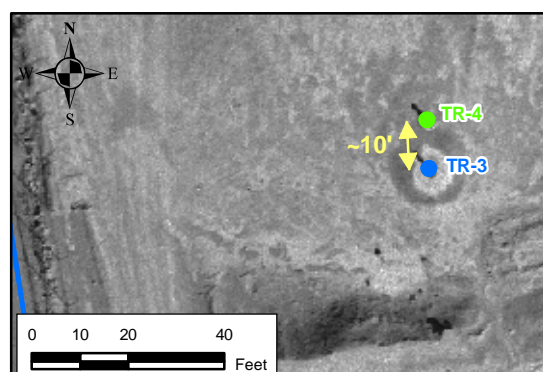
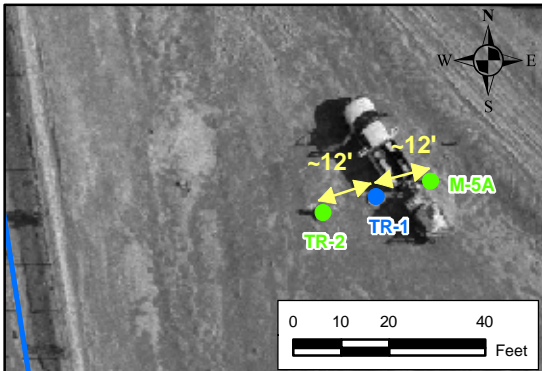
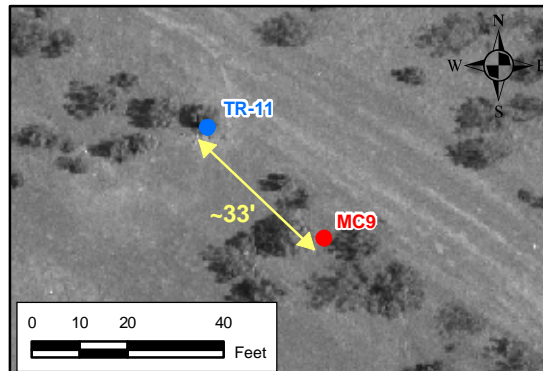
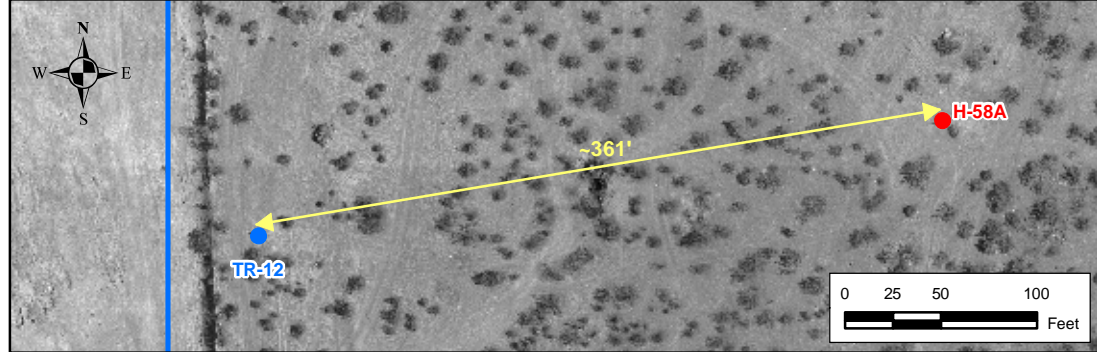
- Vertical gradient estimated as the difference between the groundwater elevations of shallow and deep wells divided by the distance between the mid-point elevations of their screen intervals.
- There has not been temperature data collected from well PC-135 since its installation. As such, water density could not be estimate and fresh water head calculated.
- Additional information on the well completion and water quality from groundwater samples (temperature and TDS) is required for MC-9 in order to complete the evaluation of vertical gradients. Tronox is working with the well owner to gather this information, and once secured will update the table accordingly.
- Additional information on water quality from groundwater samples (temperature and TDS) is required for H-58A in order to complete the evaluation of vertical gradient using fresh water heads. Tronox is working with the well owner to gather this information, and once secured will update the table accordingly.

TABLE 2
EVALUATION OF GEOCHEMICAL DATA - "TR" WELLS
1999 through 2008 SAMPLING EVENTS
TRONOX, HENDERSON, NEVADA
2 of 3

WELL ¹ (Aquifer Unit)	SAMPLE DATE	pH	SPECIFIC CONDUCTANCE (umho/cm)	TOTAL DISSOLVED SOLIDS (TDS) mg/L	CATIONS ²								ANIONS ²								SUM OF CATIONS meq/L	SUM OF ANIONS meq/L	Cation/Anion %	Percent Difference ⁵ %	ACCEPTANCE CRITERIA			TDS SUM ⁶ mg/L	TDS Lab/ TDS Sum %	COMMENTS			
					Ca		Mg		Na		K		HCO ₃ ³		SO ₄		Cl		NO ₃ ⁴						ClO ₄		>5% Difference				<5% Difference	QA/QC Criteria	
					mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L					mg/L	meq/L	meq/L				meq/L	%	%
TR-6 (MCc1) (middle)	10/14/99	7.7	8,240		245	12.23	122	10.04	1110	48.28	19.7	0.504	77.8	1.28	1490	31.0	1710	48.2	1.63	0.03	0.12	0.0012	71.0	80.5	88%	-6.2%	X			4,776			
	1/13/00																				0.208	0.0021											
	2/4/01	7.8	6,480																		0.23	0.0023											
	2/25/02	7.4	6,970		380	18.96	191	15.71	975	42.41	21	0.537	75.6	1.24	1500	31.2	2000	56.3	4.1	0.07	0.19	0.0019	77.6	88.9	87%	-6.8%	X			5,152			
	2/20/03	7.5	9,410		470	23.45	250	20.57	1200	52.20	26	0.665	81.7	1.34	1400	29.2	2900	81.7	<2	0.02	0.21	0.0021	96.9	112.2	86%	-7.3%	X			6,328			
	2/3/04	7.5	9,310		510	25.45	260	21.39	1200	52.20	28	0.716	80	1.31	6000	125.0	3700	104.2	2	0.03	0.2	0.0020	99.8	230.6	43%	-39.6%	X			11,778		Anomalous SO ₄ data	
	2/18/05	7.6	11,700		540	26.95	280	23.04	1400	60.90	32	0.818	73.8	1.21	1400	29.2	3700	104.2	<10	0.02	0.2	0.0020	111.7	134.6	83%	-9.3%	X			7,426			
	2/2/06	8	5,910		370	18.46	180	14.81	730	31.75	19	0.486	69	1.13	1569	32.7	1000	28.2	2.1	0.03	0.22	0.0022	65.5	62.0	106%	2.7%		X	PASS	3,939		HCO ₃ data from 3/20/06 was used in the cation/anion balance	
	3/23/06												69	1.13							0.22	0.0022											
	1/18/07	7.2	8,600	5,590	630	31.44	310	25.50	840	36.54	24	0.614	66	1.08	1000	20.8	2000	56.3	2.6	0.04	0.227	0.0023	94.1	78.3	120%	9.2%	X			4,873	115%		
	5/14/08	7.6	10,330	8,750	690	34.43	330	27.15	1100	47.85	28	0.716	74.3	1.22	2000	41.7	3000	84.5	<0.1	0.02	0.21	0.0021	110.1	127.4	86%	-7.3%	X			7,222	121%		
TR-7 (MCc2)	10/14/99	8.2	1,438		57.0	2.84	24.8	2.04	176	7.66	9.44	0.241	82.8	1.36	241	5.0	197	5.5	--	<0.004			12.8	11.9	107%	3.5%		X	PASS	788		Missing NO ₃ data	
	2/22/00	7.9	1,600																		0.0016	0.00002											
	2/4/01	7.7	1,240																		<0.004												
	2/25/02	7.9	1,250		60	2.99	26	2.14	165	7.18	10	0.256	110	1.80	260	5.4	210	5.9	--		0.0029	0.00003	12.6	13.1	96%	-2.2%		X	PASS	841		Missing NO ₃ data	
	2/20/03	7.9	1,270		54	2.69	24	1.97	150	6.52	8	0.205	114	1.87	260	5.4	210	5.9	1.2	0.02	0.0013	0.00001	11.4	13.2	86%	-7.4%	X			820			
	2/3/04	7.9	1,310		59	2.94	26	2.14	160	6.96	9.3	0.238	109	1.79	250	5.2	200	5.6	--		0.0044	0.00004	12.3	12.6	97%	-1.4%		X	PASS	813		Missing NO ₃ data	
	2/18/05	8	1,260		57	2.84	25	2.06	160	6.96	9.5	0.243	104	1.70	230	4.8	190	5.4	1.0	0.02	0.0044	0.00004	12.1	11.9	102%	1.0%		X	PASS	776			
	2/2/06	8	1,290		58	2.89	25	2.06	160	6.96	9.1	0.233	91	1.49	240	5.0	190	5.4	0.98	0.02	<0.004		12.1	11.9	102%	1.2%		X	PASS	774		HCO ₃ data from 3/20/06 was used in the cation/anion balance	
	3/20/06												91	1.49							<0.004												
	1/17/07	8	1,300	746	64	3.19	27	2.22	160	6.96	9.1	0.233	120	1.97	240	5.0	190	5.4	1.0	0.02	<0.004		12.6	12.3	102%	1.1%		X	PASS	811	92%		
	5/14/08	8.1	1,290	800	57	2.84	25	2.06	160	6.96	9.1	0.233	109	1.79	260	5.4	210	5.9	1.2	0.02	<0.004		12.1	13.1	92%	-4.1%		X	PASS	830	96%		
TR-8 (MCc1)	10/14/99	8.5	2,340		121	6.04	60.0	4.94	277	12.05	12.0	0.307	74.8	1.23	780	16.2	207	5.8	2.53	0.04	0.06	0.0006	23.3	23.3	100%	0.0%		X	PASS	1,534			
	2/23/00	7.6	2,500																		0.104	0.0010											
	2/4/01	7.8	1,830																		0.08	0.0008											
	2/25/02	8	1,770		91	4.54	46	3.78	220	9.57	10	0.256	99.7	1.63	580	12.1	180	5.1	2	0.03	0.076	0.0008	18.2	18.8	96%	-1.8%		X	PASS	1,234			
	2/20/03	7.9	1,940		270	13.47	200	16.45	230	10.00	27	0.691	102	1.67	660	13.7	230	6.5	2.7	0.04	0.087	0.0009	40.6	21.9	185%	29.9%	X			1,719		Anomalous Ca, Mg and K data	
	2/3/04	7.9	1,970		200	9.98	140	11.52	250	10.87	22	0.563	100	1.64	650	13.5	210	5.9	2.7	0.04	0.077	0.0008	32.9	21.1	156%	21.8%	X			1,572		Anomalous Ca, Mg and K data	
	2/18/05	7.9	1,820		100	4.99	52	4.28	240	10.44	12	0.307	98.8	1.62	560	11.7	200	5.6	2.6	0.04	0.08	0.0008	20.0	19.0	106%	2.7%		X	PASS	1,263			
	2/2/06	8.1	1,670		83	4.14	42	3.46	220	9.57	10	0.256	85	1.39	560	11.7	150	4.2	2.4	0.04	0.065	0.0007	17.4	17.3	101%	0.3%		X	PASS	1,152		HCO ₃ data from 3/20/06 was used in the cation/anion balance	
	3/20/06												85	1.39							0.066	0.0007											
	1/17/07	8	1,770	1140	91	4.54	44	3.62	230	10.00	10	0.256	100	1.64	588	12.2	150	4.2	2.4	0.04	0.071	0.0007	18.4	18.2	101%	0.7%		X	PASS	1,215	94%		
	5/14/08	8	1,740	1180	83	4.14	42	3.46	220	9.57	9.8	0.251	83.9	1.38	621	12.9	150	4.2	2.3	0.04	0.087	0.0009	17.4	18.6	94%	-3.2%	X			1,210	98%		
TR-9 (MCc2)	10/14/99	7.8	1,378		59.2	2.95	22.9	1.88	177	7.70	9.46	0.242	80.0	1.31	254	5.3	187	5.3	1.24	0.02	<0.004		12.8	11.9	107%	3.6%		X	PASS	791			
	2/22/00	7.8	1,600																		0.024	0.0002											
	2/4/01	8.3	1,220																		<0.004												
	2/25/02	8	1,220		57	2.84	22	1.81	166	7.22	9.8	0.251	99.7	1.63	270	5.6	200	5.6	1.6	0.03	0.0077	0.0001	12.1	12.9	94%	-3.2%		X	PASS	831			
	2/19/03	8.2	1,260		130	6.49	55	4.52	160	6.96	12	0.307	111	1.82	270	5.6	200	5.6	1.5	0.02	0.0047	0.0000	18.3	13.1	140%	16.5%	X			938		Anomalous Ca data	
	2/3/04	8.2	1,310		55	2.74	22	1.81	180	7.83	13	0.332	106	1.74	250	5.2	180	5.1	1.3	0.02	0.0053	0.0001	12.7	12.0	106%	2.7%		X	PASS	806			
	2/18/05	8	1,270		57	2.84	22	1.81	170	7.39	9.8	0.251	101	1.66	240	5.0	180	5.1	1.2	0.02	0.0055	0.0001	12.3	11.7	105%	2.3%		X	PASS	780			
	2/2/06	8.1	1,240		54	2.69	22	1.81	170	7.39	12	0.307	90	1.48	260	5.4	190	5.4	1.2	0.02	0.0055	0.0001	12.2	12.3	100%	-0.2%		X	PASS	799		HCO ₃ data from 3/20/06 was used in the cation/anion balance	
	3/21/06												90	1.48																			



- Monitor Well with Screen in the Alluvial Aquifer (Qal)
- Monitor Well with Screen in the Muddy Creek Fine Grain Facies (MCf1)
- Monitor Well with Screen in the Muddy Creek Coarse Grain Facies 1 (MCc1)
- Monitor Well with Screen in the Muddy Creek Coarse Grain Facies 2 (MCc2)



- Legend**
- Well Clusters
 - Tronox Facility
- Land Ownership**
- BMI
 - Chemstar
 - Olin (Formerly Pioneer)
 - Timet
 - 12 Township/Range Section No. in the Mt Diablo Meridian

DESIGNED BY:	NO:	DESCRIPTION:	DATE:	BY:
M. Flack				
DRAWN BY:				
M. Scop				
CHECKED BY:				
M. Flack				
APPROVED BY:				
M. Flack				

ENSR AECOM

ENSR CORPORATION
 1220 AVENIDA ACASO
 CAMARILLO, CALIFORNIA 93012
 PHONE: (805) 388-3775
 FAX: (805) 388-3577
 WEB: HTTP://WWW.ENSR-AECOM.COM

WELL LOCATION MAP

Vertical Gradient Assessment
 Tronox Facility
 Henderson, Nevada

SCALE: As Noted
 DATE: 9/18/2008
 PROJECT NUMBER: 04020-023-160

FIGURE NUMBER:
1

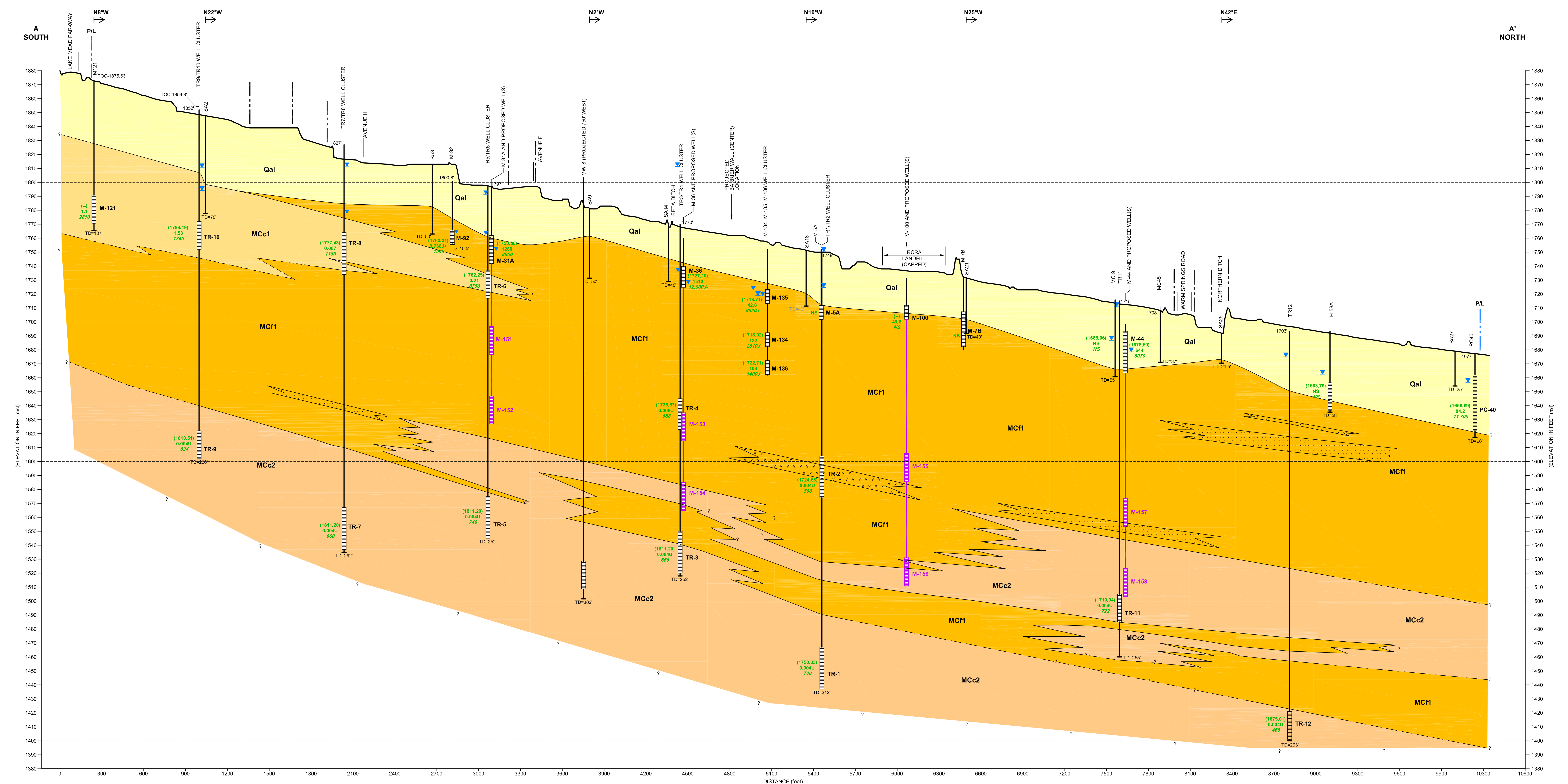
SHEET NUMBER:
 X

DESIGNED BY:	B. Ho
DRAWN BY:	M. Scopp
CHECKED BY:	E. Kish
APPROVED BY:	M. Flisk
NO.:	
DATE:	
DESCRIPTION:	

ENSR	AECOM
ENSR CORPORATION 1225 AVENUE CASS CAMARILLO, CALIFORNIA 93012 PHONE: (805) 488-3577 FAX: (805) 488-3577 WEB: HTTP://WWW.ENSR-AECOM.COM	

GEOLOGICAL CROSS SECTION A-A'	
Phase A Source Area Investigation Tronox Facility Henderson, Nevada	
SCALE:	AS SHOWN
DATE:	9/11/2008
PROJECT NUMBER:	04020-023-00

PLATE NUMBER:	1
SHEET NUMBER:	



30' SCALE

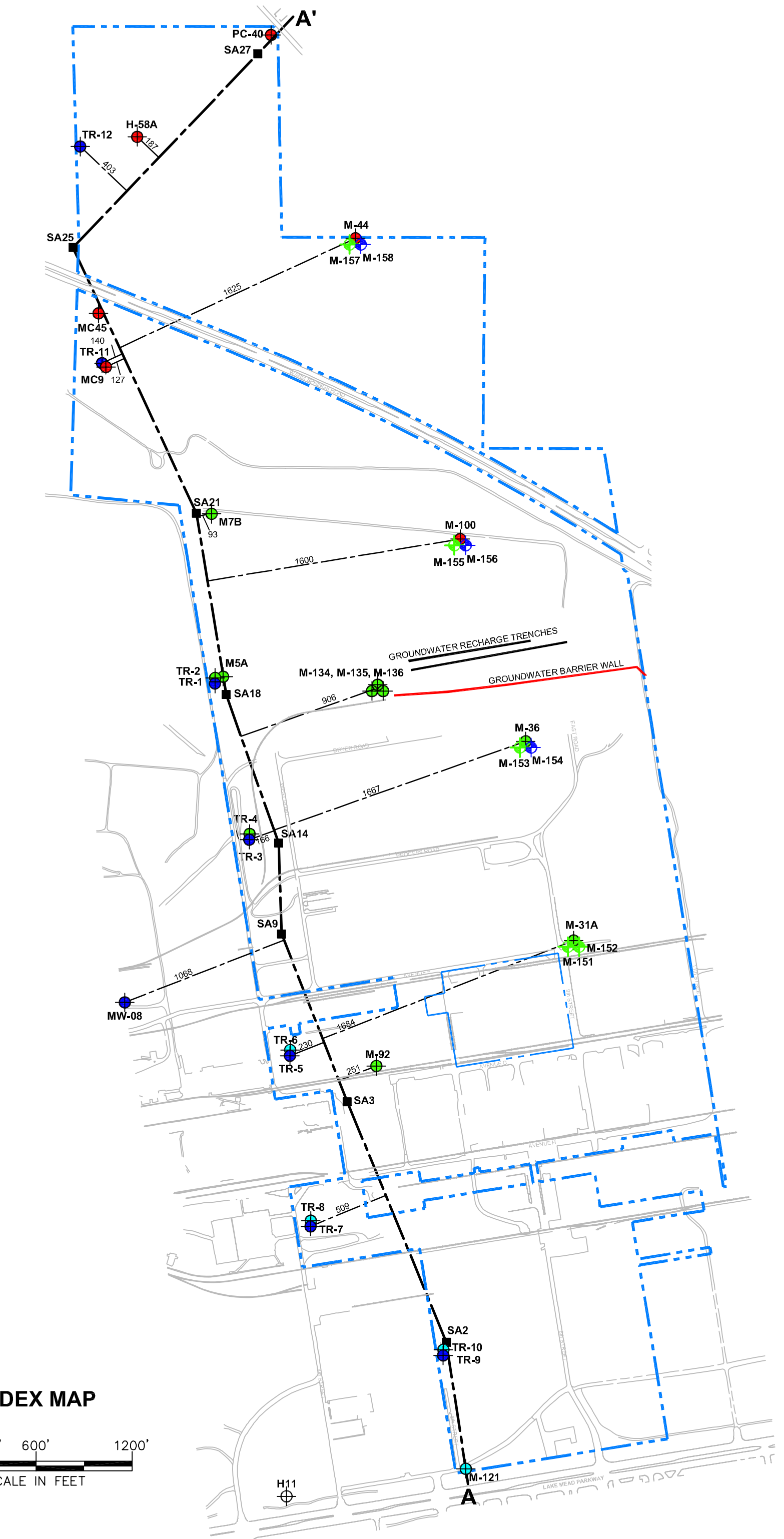
GROUNDWATER ELEVATION (MAY 2008)
PERCHLORATE CONCENTRATION (MAY 2008)
TOTAL DISSOLVED SOLIDS (MAY 2008)
ESTIMATED CONCENTRATION
THE ESTIMATED CONCENTRATION MAY BE BIASED LOW
THE ESTIMATED CONCENTRATION MAY BE BIASED HIGH
NOT REPORTED AT THE PRACTICAL QUANTITATION LIMIT SHOWN
(-) NO WATER LEVEL
NS NOT SAMPLED

EXISTING BORING WELL IDENTIFICATION
GROUND SURFACE ELEVATION (ft. msl)
GROUNDWATER LEVEL (MAY 2008)
SCREEN INTERVAL
WELL (SCREEN) IDENTIFICATION
TOTAL DEPTH OF BORING WELL

LEGEND

- Qal QUATERNARY ALLUVIUM
- MCF1 MUDDY CREEK FORMATION FINE-GRAINED FACIES #1
- MUDDY CREEK FORMATION FINE-GRAINED FACIES #1 SILTY SAND AND SANDY BED
- MUDDY CREEK FORMATION FINE-GRAINED FACIES #1 VOLCANIC ASH DEPOSIT
- MCC1 MUDDY CREEK FORMATION COARSE-GRAINED FACIES #1
- MCC2 MUDDY CREEK FORMATION COARSE-GRAINED FACIES #2
- TRONOX FACILITY BOUNDARY (PIL)
- PROJECTED DISTANCE IN FEET BETWEEN WELLS AND LINE OF SECTION
- PROPERTY BOUNDARY
- MONITORING WELL WITH SCREEN IN THE ALLUVIAL AQUIFER (Qal)
- MONITORING WELL WITH SCREEN IN THE MUDDY CREEK FINE-GRAIN FACIES (MCF1)
- MONITORING WELL WITH SCREEN IN THE MUDDY CREEK COARSE GRAIN FACIES 1 (MCC1)
- MONITORING WELL WITH SCREEN IN THE MUDDY CREEK COARSE GRAIN FACIES 2 (MCC2)
- PROPOSED MONITORING WELL SCREEN IN THE MUDDY CREEK FINE-GRAIN FACIES 1 (MCF1)
- PROPOSED MONITORING WELL SCREEN IN THE MUDDY CREEK COARSE GRAIN FACIES 2 (MCC2)

WELL ID PROPOSED	WELL DEPTH TOP	WELL DEPTH BOTTOM	WELL ELEVATION TOP	WELL ELEVATION BOTTOM
M-151	100	120	1696	1676
M-152	150	170	1646	1626
M-153	125	145	1634	1614
M-154	175	195	1584	1564
M-155	125	145	1605	1585
M-156	200	220	1530	1510
M-157	125	145	1573	1553
M-158	175	195	1523	1503



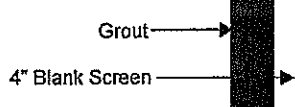
INDEX MAP
SCALE IN FEET

ATTACHMENT A

**Exploratory Boring Logs and Well Completion Information
Groundwater Monitoring Wells MC-9 and H-58A**

BEGUN 9/82 FINISHED 6/9/82 LOGGED BY CAD DRILLED BY Converse, Wkd... DRILL HOLE MC
 ELEV. 1715.76 TOTAL DEPTH 55' LOCATION 250' East of well 36, on KM property

FOOTAGE		THICK- NESS	RECOV- ERY	LITHOLOGY	REMARKS
FROM	TO				
0	5			sand & gravel - brown to black	drilled w/ kentonite. vms
5	10			sand & gravel - as above, local lt tan coating	
10	20			sand & gravel - as above, local lt tan coating, local clayey intervals rare gyp between 15-20'	odor @ 20' water level 7/8/82: 25.1 ft.
20	40			sand & gravel - local tan coating @ 31-32' rare gyp @ 35' & 38' @ 39' ^{local} tan coating	
40	50			sand & gravel - black to brown, rare tan coating local thin harder ducting layers @ 41 & 43' @ 45-47 - caliche layers interspersed w/ gravel	
50				Mudstone - clay reddish brown	

Time	PID Reading (ppmv)	Blow Count (per 6 inches)	Sample Number	Sample Interval	Depth (ft)	Lithology	DESCRIPTION OF SUBSURFACE MATERIALS	Well Construction
							Borehole Location: H-58A Total Depth: 59 Feet Bgs Depth to Bedrock: N/A Depth to Water: 32 Feet Bgs Groundwater Elevation (MSL): N/A	
7:26						GM	Tan silty sand with small gravel. 	
7:32				5				
7:40				10				
7:47				15				
7:51				20				
7:57				25				
Date Started/Completed: 7/12/04 Drilling Agency/Driller: WDC Exploration & Wells Equipment Used: CME- 85 Drilling Method/Fluid: Hollow Stem Auger Hammer Weight/Drop Distance: 140 lb./ 30 Inches Borehole Diameter: 10 Inches Completion: Groundwater Monitoring Well							Logged by: Keith Stewart Checked by: Keith Stewart Comments:	
							STEWART ENVIRONMENTAL, INC.	
							File No.: 04-521.1	
							LOG OF BORING NO.: H-58A	
							Page 1 of 3	

Time	PID Reading (ppmv)	Blow Count (per 6 inches)	Sample Number	Sample Interval	Depth (ft)	Lithology	DESCRIPTION OF SUBSURFACE MATERIALS	Well Construction
							Borehole Location: H-58A Total Depth: 59 Feet Bgs Depth to Bedrock: N/A Depth to Water: 32 Feet Bgs Groundwater Elevation (MSL): N/A	
8:02					30	SW	<p>Grout</p> <p>4" Blank Screen</p> <p>Bentonite</p> <p>Sand</p> <p>4" 0.020 Slotted Screen</p>	
8:06				35		Brown fine to coarse sand with volcanics. Water		
8:11				40				
8:25				45	SW CL	Dark brown clean coarse gravel. Heavily cemented volcanic sand and gravel.		
8:45				50				
Date Started/Completed: 7/12/04 Drilling Agency/Driller: WDC Exploration & Wells Equipment Used: CME- 85 Drilling Method/Fluid: Hollow Stem Auger Hammer Weight/Drop Distance: 140 lb./30 Inches Borehole Diameter: 10 Inches Completion: Groundwater Monitoring Well							Logged by: Keith Stewart Checked by: Keith Stewart Comments:	
							STEWART ENVIRONMENTAL, INC. File No.: 04-521.1	
							LOG OF BORING NO.: H-58A Page 2 of 3	

Time	PID Reading (ppmv)	Blow Count (per 6 inches)	Sample Number	Sample Interval	Depth (ft)	Lithology	DESCRIPTION OF SUBSURFACE MATERIALS	Well Construction
							Borehole Location: H-58A Total Depth: 59 Feet Bgs Depth to Bedrock: N/A Depth to Water: 32 Feet Bgs Groundwater Elevation (MSL): N/A	
9:03					55	CH	Muddy Creek, brown clay 4" 0.020 Slotted Screen Sand	
9:05					60		End of boring	
					65			
					70			
					75			
Date Started/Completed: 7/12/04 Drilling Agency/Driller: WDC Exploration & Wells Equipment Used: CME- 85 Drilling Method/Fluid: Hollow Stem Auger Hammer Weight/Drop Distance: 140 lb./30 Inches Borehole Diameter: 10 Inches Completion: Groundwater Monitoring Well							Logged by: Keith Stewart Checked by: Keith Stewart Comments:	
							STEWART ENVIRONMENTAL, INC. File No 04-521.1	
							LOG OF BORING NO.: H-58A Page 3 of 3	

Well No.: H58A Construction Table	
Blank PVC Size	Four Inch
Blank PVC Interval	+2 Feet to 37 Feet
Screen PVC Size	Four Inch 0.020
Screen PVC Interval	37 Feet to 57 Feet
Sand Size	10 x 20
Sand Interval	35 Feet to 58 Feet
Bentonite Interval	32 Feet to 35 Feet
Grout Interval	0 Feet to 32 Feet