TRONOX

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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

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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

ENSR | AECOM

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

ENSR | AECOM

**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 |
| | | | | | | | | | | | | | | | | | | ft-bgs | kg/m³ | ft-msl | ft-msl | shallow | deep | ft/ft | ft/ft |
| | | | NAD | NAD | inches | ft-msl | ft-msl | ft-bgs | ft-bgs | ft-msl | ft-msl | ft-msl | | mg/L | umho/cm | YES/NO | YES/NO | | | | | | | | |
| **BARRIER AND INTERCEPTOR WELL FIELD** | | | | | | | | | | | | | | | | | | | | | | | | | |
| M-74 | Qal | East Barrier | 828713.65100 | 26720062.17900 | 2 | 1744.380 | 9.2 | 38.8 | 39 | 1735.18 | 1705.58 | 1720.4 | 1/22/08 | -- | -- | NO | NO | 29.35 | 1,001.82 | 1,715.03 | 1,715.05 | M-74 | M-133 | -0.015 | -0.017 |
| | | | | | | | | | | | | | 2/6/08 | 5860 | -- | NO | NO | 29.33 | 1,001.82 | 1,715.05 | 1,715.07 | 1/22/08 | 1/17/08 | -0.008 | -0.010 |
| | | | | | | | | | | | | | 3/14/08 | -- | -- | NO | NO | 29.35 | 1,001.82 | 1,715.03 | 1,715.05 | 2/6/08 | 2/5/08 | -0.017 | -0.018 |
| | | | | | | | | | | | | | 5/8/08 | 5870 | -- | YES | NO | 29.45 | 1,001.83 | 1,714.93 | 1,714.95 | 5/8/08 | 5/12/08 | | |
| M-132 | MCf1 (middle) | East Barrier | 26720048.491 | 828714.609 | 2 | 1744.27 | 80 | 90 | 90 | 1664.27 | 1654.27 | 1659.3 | 1/17/08 | 2,540 | -- | YES | NO | 27.35 | 999.18 | 1,716.92 | 1,716.87 | | | | |
| | | | | | | | | | | | | | 2/5/08 | 2,890 | -- | NO | NO | 27.51 | 999.18 | 1,716.76 | 1,716.71 | | | | |
| | | | | | | | | | | | | | 5/12/08 | 2350 | -- | YES | NO | 27.28 | 999.18 | 1,716.99 | 1,716.94 | M-133 | M-132 | | |
| M-133 | MCf1 (middle) | East Barrier | 26720067.292 | 828698.608 | 2 | 1743.62 | 60 | 70 | 70 | 1683.62 | 1673.62 | 1678.6 | 1/17/08 | 3,310 | -- | YES | NO | 27.96 | 1,002.13 | 1,715.66 | 1,715.75 | 1/17/08 | 1/17/08 | -0.065 | -0.058 |
| | | | | | | | | | | | | | 2/5/08 | 4,800 | -- | NO | NO | 28.23 | 1,002.13 | 1,715.39 | 1,715.48 | 2/5/08 | 2/5/08 | -0.071 | -0.064 |
| | | | | | | | | | | | | | 5/12/08 | 6,270 | -- | YES | NO | 27.99 | 1,002.13 | 1,715.63 | 1,715.72 | 5/12/08 | 5/12/08 | -0.070 | -0.063 |
| M-134 | MCf1 (middle) | West Barrier | 26719889.138 | 827144.353 | 2 | 1752.14 | 60 | 70 | 70 | 1692.14 | 1682.14 | 1687.1 | 1/17/08 | 2,760 | -- | YES | NO | 34.51 | 999.52 | 1,717.63 | 1,717.62 | | | | |
| | | | | | | | | | | | | | 2/5/08 | 2,670 | -- | YES | NO | 34.64 | 999.52 | 1,717.50 | 1,717.49 | M-135 | M-134 | | |
| | | | | | | | | | | | | | 5/11/08 | 2,810 J | -- | YES | NO | 33.22 | 999.52 | 1,718.92 | 1,718.91 | 1/17/08 | 1/17/08 | -0.013 | -0.013 |
| M-135 | MCf1 (shallow) | West Barrier | 26719890.173 | 827154.482 | 2 | 1751.85 | 29 | 39 | 39 | 1722.85 | 1712.85 | 1717.9 | 1/17/08 | 3,260 | -- | YES | NO | 34.63 | 999.99 | 1,717.22 | 1,717.22 | | | | |
| | | | | | | | | | | | | | 2/5/08 | 3,420 | -- | YES | NO | 36.69 | 999.99 | 1,715.16 | 1,715.16 | 2/5/08 | 2/5/08 | -0.076 | -0.076 |
| | | | | | | | | | | | | | 5/11/08 | 6,620 J | -- | YES | NO | 33.14 | 999.99 | 1,718.71 | 1,718.71 | 5/11/08 | 5/11/08 | -0.007 | -0.006 |
| M-136 | MCf1 (middle) | West Barrier | 26719889.774 | 827165.342 | 2 | 1751.87 | 80 | 90 | 90 | 1671.87 | 1661.87 | 1666.9 | 1/17/08 | 7,120 | -- | YES | NO | 29.54 | 998.46 | 1,722.33 | 1,722.24 | M-134 | M-136 | | |
| | | | | | | | | | | | | | 2/5/08 | 1,380 | -- | YES | NO | 29.77 | 998.46 | 1,722.10 | 1,722.01 | 1/17/08 | 1/17/08 | -0.232 | -0.228 |
| | | | | | | | | | | | | | 5/11/08 | 1,400 J | -- | YES | NO | 29.16 | 998.46 | 1,722.71 | 1,722.62 | 2/5/08 | 2/5/08 | -0.227 | -0.223 |
| | | | | | | | | | | | | | | | | | | | | | | | 5/11/08 | 5/11/08 | -0.187 | -0.183 |
| **ATHENS ROAD** | | | | | | | | | | | | | | | | | | | | | | | | | |
| PC-134 | MCf1 (shallow) | Athens Road West Subchannel | 26728126.415 | 828776.171 | 2 | 1613.35 | 59.7 | 69.7 | 70 | 1553.65 | 1543.65 | 1548.7 | 1/18/08 | 1,830 | -- | YES | NO | 34.69 | 998.64 | 1,578.66 | 1,578.61 | | | | |
| | | | | | | | | | | | | | 2/13/08 | 1,780 | -- | YES | NO | 26.14 | 998.64 | 1,587.21 | 1,587.15 | | | | |
| | | | | | | | | | | | | | 5/11/08 | 1,640 J | -- | YES | NO | 25.95 | 998.64 | 1,587.40 | 1,587.34 | PC-135 | PC-134 | | |
| PC-135[12] | Qal | Athens Road West Subchannel | 26728123.177 | 828765.250 | 2 | 1612.79 | 19.7 | 49.7 | 50 | 1593.09 | 1563.09 | 1578.1 | 1/18/08 | 8,500 | -- | YES | NO | 28.71 | -- | 1,584.08 | -- | 1/18/08 | 1/18/08 | 0.184 | -- |
| | | | | | | | | | | | | | 2/13/08 | 8,100 | -- | YES | NO | 28.72 | -- | 1,584.07 | -- | 2/13/08 | 2/13/08 | -0.107 | -- |
| | | | | | | | | | | | | | 5/11/08 | -- | -- | NO | NO | -- | -- | -- | -- | 6/26/08 | 5/11/08 | -0.107 | -- |
| | | | | | | | | | | | | | 6/26/08 | -- | -- | NO | NO | 28.55 | -- | 1,584.24 | -- | | | | |
| PC-136 | Qal | Athens Road East Subchannel | 26728191.374 | 829517.888 | 2 | 1615.08 | 17.7 | 37.7 | 38 | 1597.38 | 1577.38 | 1587.4 | 1/18/08 | 1,420 | -- | YES | NO | 30.83 | 1,002.61 | 1,584.25 | 1,584.27 | | | | |
| | | | | | | | | | | | | | 2/13/08 | 7,300 | -- | YES | NO | 30.92 | 1,002.61 | 1,584.16 | 1,584.18 | PC-136 | PC-137 | | |
| | | | | | | | | | | | | | 5/14/08 | 6,920 | -- | YES | NO | 30.86 | 1,002.61 | 1,584.22 | 1,584.24 | 1/18/08 | 1/18/08 | -0.059 | -0.058 |
| | | | | | | | | | | | | | | | | | | | | | | | 2/13/08 | 2/13/08 | -0.069 | -0.068 |
| PC-137 | MCf1 (shallow) | Athens Road East Subchannel | 26728198.976 | 829517.568 | 2 | 1614.83 | 59.7 | 69.7 | 70 | 1555.13 | 1545.13 | 1550.1 | 1/18/08 | 2,950 | -- | YES | NO | 28.37 | 999.36 | 1,586.46 | 1,586.43 | | | | |
| | | | | | | | | | | | | | 2/14/08 | 3,140 | -- | YES | NO | 28.11 | 999.36 | 1,586.72 | 1,586.69 | | | | |
| | | | | | | | | | | | | | 5/11/08 | 2,590 J | -- | YES | NO | 28.11 | 999.36 | 1,586.72 | 1,586.69 | 5/14/08 | 5/11/08 | -0.067 | -0.066 |
| **WEST PROPERTY BOUNDARY - "TR" WELLS** | | | | | | | | | | | | | | | | | | | | | | | | | |
| M-5A | Qal | Western Property Boundary | 826179.28500 | 26719961.11800 | 2 | 1751.80 | 40 | 50 | 50 | 1711.8 | 1701.8 | 1706.8 | 5/6/99 | -- | 14,200 | NO | NO | 37.69 | 1,005.16 | 1,714.11 | 1,714.17 | | | | |
| | | | | | | | | | | | | | 5/5/00 | -- | 14,900 | NO | NO | 39.44 | | 1,712.36 | | | | | |
| | | | | | | | | | | | | | 5/4/01 | -- | 5,860 | NO | NO | 39.11 | | 1,712.69 | | | | | |
| | | | | | | | | | | | | | 4/30/02 | -- | 14,500 | NO | NO | 39.00 | | 1,712.80 | | | | | |
| | | | | | | | | | | | | | 9/10/02 | -- | -- | NO | NO | -- | | | | | | | |
| | | | | | | | | | | | | | 12/11/02 | -- | -- | NO | NO | 38.95 | | 1,712.85 | | | | | |
| | | | | | | | | | | | | | 5/7/03 | -- | 15,600 | NO | NO | 39.07 | | 1,712.73 | | | | | |
| | | | | | | | | | | | | | 7/9/03 | -- | 15,350 | NO | NO | -- | | | | | | | |
| | | | | | | | | | | | | | 5/3/04 | -- | 15,350 | NO | NO | -- | | | | | | | |
| | | | | | | | | | | | | | 8/3/04 | -- | 15,120 | NO | NO | -- | | | | | | | |
| | | | | | | | | | | | | | 5/3/05 | -- | 14,700 | NO | NO | 38.01 | 1,005.16 | 1,713.79 | 1,713.85 | M-5A | TR-2 | | |
| | | | | | | | | | | | | | 8/2/05 | -- | 14,700 | NO | NO | -- | | | | 5/3/05 | 2/18/05 | -0.082 | -0.078 |
| | | | | | | | | | | | | | 5/2/06 | 10800 | 16,200 | NO | NO | 37.91 | 1,005.53 | 1,713.89 | 1,713.96 | 5/2/06 | 2/4/06 | -0.089 | -0.086 |
| | | | | | | | | | | | | | 8/1/06 | 9330 | 15,800 | NO | NO | 38.60 | | 1,713.20 | | 5/2/07 | 1/18/07 | -0.094 | -0.091 |
| | | | | | | | | | | | | | 5/2/07 | 9250 | 16,000 | YES | NO | 38.26 | 1,004.36 | 1,713.54 | 1,713.59 | 5/8/08 | 5/14/08 | -0.131 | -0.128 |
| | | | | | | | | | | | | | 7/31/07 | 11100 | 16,700 | YES | NO | 38.62 | | 1,713.18 | | | | | |
| | | | | | | | | | | | | | 5/6/08 | 11100 | 17,100 | YES | NO | 42.12 | 1,005.75 | 1,709.68 | 1,709.73 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | TR-2 | TR-1 | | |

| 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 |
| | | | NAD | NAD | inches | ft-msl | ft-msl | ft-bgs | ft-bgs | ft-msl | ft-msl | ft-msl | | mg/L | umho/cm | YES/NO | YES/NO | ft-bgs | kg/m³ | 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 | -- | | -- | | TR-4 | TR-3 | | |
| | | | | | | | | | | | | | 1/18/07 | 652 | 1,150 | NO | YES | +2.75 | 997.89 | 1,775.59 | 1,775.06 | 2/18/05 | 2/18/05 | -0.394 | -0.390 |
| | | | | | | | | | | | | | 5/15/08 | 656 | 1,130 | YES | YES | +0.46 | 997.90 | 1,773.30 | 1,772.77 | 2/4/06 | 2/4/06 | -0.369 | -0.366 |
| | | | | | | | | | | | | | | | | | | | | | | | 1/18/07 | 1/18/07 | -0.396 | -0.393 |
| 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 | -- | | -- | | 5/15/08 | 5/15/08 | -0.375 | -0.372 |
| | | | | | | | | | | | | | 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] | DATE | | Water Level | Fresh Water Head |
| | | | NAD | NAD | inches | ft-msl | ft-msl | ft-bgs | ft-bgs | ft-msl | ft-msl | ft-msl | | mg/L | umho/cm | YES/NO | YES/NO | ft-bgs | kg/m³ | ft-msl | ft-msl | 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 | -- | | -- | | | | | |
| | | | | | | | | | | | | | 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 | TR-6 | TR-5 | | |
| | | | | | | | | | | | | | 5/14/08 | 748 | 1,220 | YES | YES | +0.23 | 997.97 | 1,800.50 | 1,799.99 | 2/18/05 | 2/18/05 | -0.198 ↑ | -0.194 ↑ |
| | | | | | | | | | | | | | | | | | | | | | | | 2/4/06 | 2/4/06 | -0.220 | -0.216 |
| | | | | | | | | | | | | | | | | | | | | | | | 1/18/07 | 1/18/07 | -0.228 | -0.225 |
| | | | | | | | | | | | | | | | | | | | | | | | 5/14/08 | 5/14/08 | -0.230 | -0.226 |
| 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 | -- | | -- | | | | | |
| | | | | | | | | | | | | | 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 | -- | 1369 | NO | NO | -- | | -- | | | | | |
| | | | | | | | | | | | | | 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 | TR-8 | TR-7 | | |
| | | | | | | | | | | | | | 5/14/08 | 800 | 1,290 | YES | YES | 17.83 | 998.01 | 1,811.20 | 1,807.59 | 2/18/05 | 2/18/05 | -0.125 ↑ | -0.123 ↑ |
| | | | | | | | | | | | | | | | | | | | | | | | 2/4/06 | 2/4/06 | -0.142 | -0.139 |
| 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 | | 1,778.73 | | | | | |
| | | | | | | | | | | | | | 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 | | 1,793.79 | | | | | |
| | | | | | | | | | | | | | 1/13/00 | -- | -- | NO | NO | 66.10 | | 1,788.19 | | | | | |
| | | | | | | | | | | | | | 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 | TR-10 | TR-9 | | |
| | | | | | | | | | | | | | 5/13/08 | 834 | 1,330 | YES | YES | 43.78 | 998.03 | 1,810.51 | 1,810.10 | 2/18/05 | 2/18/05 | -0.056 ↑ | -0.054 ↑ |
| | | | | | | | | | | | | | | | | | | | | | | | 2/4/06 | 2/4/06 | -0.076 | -0.074 |
| 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 | | 1,796.71 | | | | | |
| | | | | | | | | | | | | | 1/13/00 | -- | -- | NO | NO | 62.45 | | 1,791.61 | | | | | |
| | | | | | | | | | | | | | 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] | DATE | | Water Level | Fresh Water Head |
| | | | NAD | NAD | inches | ft-msl | ft-msl | ft-bgs | ft-bgs | ft-msl | ft-msl | ft-msl | | mg/L | umho/cm | YES/NO | YES/NO | ft-bgs | kg/m³ | ft-msl | ft-msl | shallow | deep | ft/ft | ft/ft |
| MC-9 | Qal | Western Property Boundary | 825446.92170 | 26721895.27910 | 4 | 1716.34 | -- | -- | 55.0 | -- | -- | -- | 10/18/99 | -- | -- | -- | -- | -- | | -- | | | | | |
| | | | | | | | | | | | | | 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 | | TR-11[13] | MC-9[13] | | |
| | | | | | | | | | | | | | 4/2/08 | -- | -- | -- | -- | 28.28 | | 1,688.06 | | 2/18/05 | 2/8/05 | -- | |
| | | | | | | | | | | | | | | | | | | | | | | | 2/4/06 | 2/15/06 | -- | |
| | | | | | | | | | | | | | | | | | | | | | | | 1/15/07 | 1/16/07 | -- | |
| | | | | | | | | | | | | | | | | | | | | | | | 5/13/08 | 4/2/08 | -- | |
| 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 | | | | | |
| | | | | | | | | | | | | | 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 | -- | -- | -- | -- | -- | | -- | | | | | |
| | | | | | | | | | | | | | 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 | | TR-12[14] | H-58A[14] | | |
| | | | | | | | | | | | | | 4/2/08 | -- | -- | -- | -- | 29.67 | | 1,686.67 | | 2/18/05 | 2/22/05 | -0.218 | |
| | | | | | | | | | | | | | | | | | | | | | | | 2/4/06 | 2/15/06 | -0.134 | |
| 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 | 10/18/99 | -- | 1,103 | NO | YES | +2.60 | | 1,698.44 | | | | | |
| | | | | | | | | | | | | | 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 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 1/15/07 | 1/18/07 | -0.117 | |
| | | | | | | | | | | | | | | | | | | | | | | | 5/15/08 | 4/2/08 | -0.129 | |

**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**

(1) 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.

(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

(3) Survey coordinates as provided in the June 2008 "all wells" database.

(4) Date as provided in the Tronox "Mother Hen" database. Inclusive of water level and groundwater sampling dates.

(5) 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.

(6) 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"

(7) Depth is assumed to be "positive" (vertically down from the measuring point). Those values shown with a "+" indicate distance above the measuring point (up).

(8) 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.

(9) 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.

(10) Fresh water head after Post, V., Looi, H., and Simmons, C., 2007, Using Hydraulic Head Measurments in Variable-Density Ground Water Flow Analyses: Groundwater Volume 45, No.6 November-December 2007 (pages 664-671).

$$h_{fi} = (\rho_i/\rho_f)h_i - [(\rho_i/\rho_f)/(\rho_i/\rho_f)]z_i$$

| | | |
|---|---|---|
| $h_{fi}$ | (ft) | "fresh water" head |
| $\rho_i$ | kg/m$^3$ | density at point of measurement |
| $\rho_f$ | kg/m$^3$ | fresh water density |
| $h_i$ | (ft) | hydraulic head (point water head, i.e., water level measurement) |
| $z_i$ | (ft) | elevation head (screen depth) |

(11) 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.

(12) 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.

(13) 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.

(14) 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.

| WELL[1] (Aquifer Unit) | SAMPLE DATE | pH | SPECIFIC CONDUCTANCE (umho/cm) | TOTAL DISSOLVED SOLIDS (TDS) | CATIONS[2] | | | | | | | | ANIONS[2] | | | | | | | | | | SUM OF CATIONS | SUM OF ANIONS | Cation/ Anion | Percent Difference[5] | ACCEPTANCE CRITERIA | | | TDS SUM[6] | 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 | 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 | % | % | Yes = X | Yes = X | PASS | mg/L | % | |
| **TR-1** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc2)** | 10/14/1999 | 7.9 | 1,283 | | **47.8** | 2.39 | **25.4** | 2.09 | **155** | 6.74 | **8.26** | 0.211 | **85.9** | 1.41 | **217** | 4.5 | **192** | 5.4 | ***1.18*** | ***0.02*** | <0.004 | | 11.4 | 11.4 | 101% | 0.3% | | | | 733 | | |
| | 1/13/2000 | | 1,040 | | | | | | | | | | | | | | | | | | <0.005 | | | | | | | | | | | |
| | 2/2/2001 | 6.8 | 1,130 | | | | | | | | | | | | | | | | | | <0.004 | | | | | | | | | | | |
| | 2/25/2002 | 8 | 1,130 | | **47** | 2.35 | **24** | 1.97 | **150** | 6.52 | **8.0** | 0.205 | **103** | 1.69 | **211** | 4.4 | **190** | 5.4 | ***1.08*** | ***0.02*** | **0.014** | 0.0001 | 11.0 | 11.5 | 96% | -1.8% | | | | 739 | | |
| | 2/19/2003 | 7.7 | 1,130 | | **45** | 2.25 | **22** | 1.81 | **150** | 6.52 | **7.5** | 0.192 | **111** | 1.82 | **200** | 4.2 | **190** | 5.4 | **--** | | <0.004 | | 10.8 | 11.3 | 95% | -2.6% | | | | 726 | | Missing $NO_3$ data |
| | 2/3/2004 | 7.6 | 1,190 | | **46** | 2.30 | **24** | 1.97 | **150** | 6.52 | **7.6** | 0.194 | **113** | 1.85 | **210** | 4.4 | **190** | 5.4 | <1 | | <0.004 | | 11.0 | 11.6 | 95% | -2.6% | | | | 741 | | |
| | 2/18/2005 | 7.9 | 1,120 | | **45** | 2.25 | **23** | 1.89 | **150** | 6.52 | **7.9** | 0.202 | **104** | 1.70 | **200** | 4.2 | **180** | 5.1 | <1 | | <0.004 | | 10.9 | 10.9 | 99% | -0.4% | | | | 710 | | |
| | 2/2/2006 | 7.9 | 1,170 | | **46** | 2.30 | **24** | 1.97 | **150** | 6.52 | **7.4** | 0.189 | ***88*** | *1.44* | **210** | 4.4 | **180** | 5.1 | **1.1** | 0.02 | <0.004 | | 11.0 | 10.9 | 101% | 0.4% | | | | 707 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/20/2006 | | | | | | | | | | | | **88** | 1.44 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/18/2007 | 7.8 | 1,190 | 678 | **46** | 2.30 | **25** | 2.06 | **160** | 6.96 | **7.4** | 0.189 | **100** | 1.64 | **190** | 4.0 | **200** | 5.6 | **1.1** | 0.02 | <0.004 | | 11.5 | 11.2 | 102% | 1.1% | | | | 730 | 93% | |
| | 5/14/2008 | 8.2 | 1,230 | 740 | **44** | 2.20 | **23** | 1.89 | **150** | 6.52 | **7.4** | 0.189 | **73.5** | 1.20 | **230** | 4.8 | **200** | 5.6 | **1.2** | 0.02 | <0.004 | | 10.8 | 11.6 | 93% | -3.8% | | | | 729 | 101% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TR-2** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCf1)** | 10/14/1999 | 7.5 | 4,080 | | **132** | 6.59 | **108** | 8.89 | **331** | 14.40 | **14.9** | 0.381 | **85.2** | 1.40 | **490** | 10.2 | **868** | 24.5 | ***0.23*** | *0.00* | <0.004 | | 30.3 | 36.1 | 84% | -8.8% | X | | | 2,029 | | |
| **(deep)** | 1/13/2000 | | | | | | | | | | | | | | | | | | | | **0.026** | 0.00026 | | | | | | | | | | |
| | 2/2/2001 | 7.6 | 932 | | | | | | | | | | | | | | | | | | <0.004 | | | | | | | | | | | |
| | 2/25/2002 | 8.2 | 941 | | **31** | 1.55 | **20** | 1.65 | **130** | 5.65 | **6.5** | 0.166 | **103** | 1.69 | **160** | 3.3 | **144** | 4.1 | ***1.4*** | *0.02* | **0.034** | 0.0003 | 9.0 | 9.1 | 99% | -0.5% | | | | 601 | | |
| | 2/19/2003 | 8.2 | 955 | | **84** | 4.19 | **96** | 7.90 | **120** | 5.22 | **13** | 0.332 | **108** | 1.77 | **180** | 3.7 | **150** | 4.2 | ***1.5*** | *0.02* | **0.0046** | 0.00005 | 17.6 | 9.8 | 181% | 28.7% | X | | | 753 | | Anomalous Ca and Mg data |
| | 2/3/2004 | 8.1 | 1,000 | | **32** | 1.60 | **22** | 1.81 | **140** | 6.09 | **6.5** | 0.166 | **104** | 1.70 | **170** | 3.5 | **140** | 3.9 | ***1.5*** | *0.02* | <0.004 | | 9.7 | 9.2 | 105% | 2.4% | | | | 615 | | |
| | 2/18/2005 | 8.1 | 933 | | **31** | 1.55 | **21** | 1.73 | **140** | 6.09 | **7.1** | 0.182 | **102** | 1.67 | **160** | 3.3 | **130** | 3.7 | **1.4** | 0.02 | **0.018** | 0.0002 | 9.5 | 8.7 | 110% | 4.7% | | | | 591 | | |
| | 2/2/2006 | 8.2 | 960 | | **29** | 1.45 | **19** | 1.56 | **130** | 5.65 | **6.1** | 0.156 | ***100*** | *1.64* | **180** | 3.7 | **140** | 3.9 | **1.4** | 0.02 | <0.004 | | 8.8 | 9.4 | 94% | -2.9% | | | | 606 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/20/2006 | | | | | | | | | | | | **100** | 1.64 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/18/2007 | 8.1 | 990 | 560 | **31** | 1.55 | **21** | 1.73 | **140** | 6.09 | **6.3** | 0.161 | **110** | 1.80 | **160** | 3.3 | **180** | 5.1 | **1.3** | 0.02 | <0.004 | | 9.5 | 10.2 | 93% | -3.6% | | | | 650 | 86% | |
| | 5/14/2008 | 8.2 | 965 | 566 | **29** | 1.45 | **20** | 1.65 | **130** | 5.65 | **6.2** | 0.159 | **92.3** | 1.51 | **180** | 3.7 | **140** | 3.9 | **1.5** | 0.02 | <0.004 | | 8.9 | 9.2 | 96% | -1.8% | | | | 599 | 94% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TR-3** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc2)** | 10/14/1999 | 8.1 | 1,330 | | **42.3** | 2.11 | **23.1** | 1.90 | **173** | 7.52 | **9.63** | 0.246 | **86.9** | 1.42 | **200** | 4.2 | **206** | 5.8 | ***0.96*** | *0.02* | <0.004 | | 11.8 | 11.4 | 103% | 1.6% | X | | | 742 | | |
| | 1/13/2000 | | | | | | | | | | | | | | | | | | | | **0.007** | 0.0001 | | | | | | | | | | |
| | 2/4/2001 | 7.8 | 1,060 | | | | | | | | | | | | | | | | | | **0.033** | 0.0003 | | | | | | | | | | |
| | 2/25/2002 | 7.9 | 1,080 | | **41** | 2.05 | **18** | 1.48 | **130** | 5.65 | **6** | 0.153 | **97.4** | 1.60 | **160** | 3.3 | **150** | 4.2 | ***1.6*** | *0.03* | **0.02** | 0.0002 | 9.3 | 9.2 | 102% | 0.8% | | | | 609 | | |
| | 2/19/2003 | 8 | 1,110 | | **42** | 2.10 | **19** | 1.56 | **140** | 6.09 | **5.9** | 0.151 | **99.7** | 1.63 | **210** | 4.4 | **190** | 5.4 | ***1.2*** | *0.02* | **0.011** | 0.0001 | 9.9 | 11.4 | 87% | -7.0% | X | | | 708 | | |
| | 2/3/2004 | 8 | 1,140 | | **47** | 2.35 | **22** | 1.81 | **150** | 6.52 | **6.8** | 0.174 | **100** | 1.64 | **190** | 4.0 | **180** | 5.1 | ***1.2*** | *0.02* | <0.004 | | 10.9 | 10.7 | 102% | 0.8% | | | | 696 | | |
| | 2/18/2005 | 8 | 1,080 | | **47** | 2.35 | **21** | 1.73 | **150** | 6.52 | **6.9** | 0.176 | **98.5** | 1.61 | **190** | 4.0 | **170** | 4.8 | **1.1** | 0.02 | **0.012** | 0.0001 | 10.8 | 10.4 | 104% | 1.9% | | | | 683 | | |
| | 2/2/2006 | 8 | 999 | | **43** | 2.15 | **20** | 1.65 | **140** | 6.09 | **6.2** | 0.159 | ***77*** | *1.26* | **190** | 4.0 | **180** | 5.1 | **1.0** | 0.02 | **0.0049** | 0.0000 | 10.0 | 10.3 | 97% | -1.3% | | | | 657 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/23/2006 | | | | | | | | | | | | **77** | 1.26 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/18/2007 | 7.9 | 1,150 | 560 | **45** | 2.25 | **21** | 1.73 | **150** | 6.52 | **6.4** | 0.164 | **100** | 1.64 | **190** | 4.0 | **180** | 5.1 | **1.1** | 0.02 | <0.004 | | 10.7 | 10.7 | 100% | -0.1% | | | | 694 | 81% | |
| | 5/14/2008 | 8.1 | 1,130 | 566 | **48** | 2.40 | **21** | 1.73 | **150** | 6.52 | **6.2** | 0.159 | **59.5** | 0.98 | **190** | 4.0 | **180** | 5.1 | **0.9** | 0.01 | <0.004 | | 10.8 | 10.0 | 108% | 3.8% | | | | 656 | 86% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TR-4** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCf1)** | 10/14/1999 | 8.7 | 1,930 | | **57.8** | 2.88 | **41.5** | 3.41 | **214** | 9.31 | **15.1** | 0.386 | **74.8** | 1.23 | **230** | 4.8 | **374** | 10.5 | ***1.32*** | *0.02* | **0.065** | 0.0007 | 16.0 | 16.6 | 96% | -1.8% | | | | 1,009 | | |
| **(deep)** | 1/13/2000 | | | | | | | | | | | | | | | | | | | | **0.029** | 0.0003 | | | | | | | | | | |
| | 2/4/2001 | 8 | 1,080 | | | | | | | | | | | | | | | | | | **0.011** | 0.0001 | | | | | | | | | | |
| | 2/25/2002 | 8.2 | 1,440 | | **94** | 4.69 | **21** | 1.73 | **160** | 6.96 | **17** | 0.435 | **78.9** | 1.29 | **150** | 3.1 | **300** | 8.5 | ***1.5*** | *0.02* | **0.015** | 0.0002 | 13.8 | 12.9 | 107% | 3.4% | | | | 827 | | |
| | 2/19/2003 | 8.2 | 1,700 | | **110** | 5.49 | **26** | 2.14 | **160** | 6.96 | **14** | 0.358 | **69.2** | 1.13 | **170** | 3.5 | **430** | 12.1 | ***1.5*** | *0.02* | **0.012** | 0.0001 | 14.9 | 16.8 | 89% | -5.9% | X | | | 981 | | |
| | 2/3/2004 | 7.2 | 1,760 | | **130** | 6.49 | **24** | 1.97 | **170** | 7.39 | **15** | 0.384 | **67.1** | 1.10 | **160** | 3.3 | **430** | 12.1 | ***1.6*** | *0.03* | **0.0081** | 0.0001 | 16.2 | 16.6 | 98% | -1.0% | | | | 996 | | |
| | 2/18/2005 | 8 | 1,520 | | **120** | 5.99 | **23** | 1.89 | **160** | 6.96 | **13** | 0.332 | **71.3** | 1.17 | **160** | 3.3 | **350** | 9.9 | **1.4** | 0.02 | **0.0078** | 0.0001 | 15.2 | 14.4 | 105% | 2.7% | | | | 897 | | |
| | 2/2/2006 | 8.2 | 1,430 | | **110** | 5.49 | **23** | 1.89 | **160** | 6.96 | **11** | 0.281 | ***58*** | *0.95* | **170** | 3.5 | **340** | 9.6 | **1.4** | 0.02 | **0.0075** | 0.0001 | 14.6 | 14.1 | 104% | 1.8% | | | | 873 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/23/2006 | | | | | | | | | | | | **58** | 0.95 | | | | | | | **0.0079** | 0.0001 | | | | | | | | | | |
| | 1/18/2007 | 8 | 1,560 | 894 | **110** | 5.49 | **23** | 1.89 | **160** | 6.96 | **9.9** | 0.253 | **74** | 1.21 | **180** | 3.7 | **350** | 9.9 | **1.5** | 0.02 | **0.0077** | 0.0001 | 14.6 | 14.8 | 98% | -0.9% | | | | 908 | 98% | |
| | 5/14/2008 | 8.1 | 1,470 | 868 | **100** | 4.99 | **22** | 1.81 | **150** | 6.52 | **9.2** | 0.235 | **36.4** | 0.60 | **170** | 3.5 | **330** | 9.3 | **1.5** | 0.02 | <0.004 | | 13.6 | 13.5 | 101% | 0.4% | | | | 819 | 106% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TR-5** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc2)** | 10/14/1999 | 8.1 | 1,447 | | **55.0** | 2.74 | **28.0** | 2.30 | **172** | 7.48 | **9.22** | 0.236 | **82.0** | 1.34 | **236** | 4.9 | **198** | 5.6 | **--** | | <0.004 | | 12.8 | 11.8 | 108% | 3.8% | | | | 780 | | Missing $NO_3$ data |
| | 1/13/2000 | | | | | | | | | | | | | | | | | | | | **0.013** | 0.0001 | | | | | | | | | | |
| | 2/4/2001 | 7.8 | 1,130 | | | | | | | | | | | | | | | | | | <0.004 | | | | | | | | | | | Missing $NO_3$ data |
| | 2/25/2002 | 8 | 1,180 | | **54** | 2.69 | **25** | 2.06 | **150** | 6.52 | **8.5** | 0.217 | **137** | 2.25 | **200** | 4.2 | **170** | 4.8 | **--** | | <0.004 | | 11.5 | 11.2 | 103% | 1.3% | | | | 745 | | |
| | 2/20/2003 | 8 | 1,210 | | **73** | 3.64 | **35** | 2.88 | **160** | 6.96 | **10** | 0.256 | **99.7** | 1.63 | **230** | 4.8 | **190** | 5.4 | ***1.2*** | *0.02* | <0.004 | | 13.7 | 11.8 | 116% | 7.6% | X | | | 799 | | Missing $NO_3$ data |
| | 2/3/2004 | 8 | 1,260 | | **52** | 2.59 | **25** | 2.06 | **150** | 6.52 | **7.5** | 0.192 | **95.8** | 1.57 | | 0.0 | **190** | 5.4 | **--** | | <0.004 | | 11.4 | 6.9 | 164% | 24.3% | X | | | 520 | | Missing $SO_4$ data |
| | 2/18/2005 | 8 | 1,210 | | **51** | 2.54 | **25** | 2.06 | **160** | 6.96 | **8.1** | 0.207 | **93.8** | 1.54 | **220** | 4.6 | **180** | 5.1 | **1.0** | 0.02 | **0.0052** | 0.0001 | 11.8 | 11.2 | 105% | 2.4% | | | | 738 | | |
| | 2/2/2006 | 8 | 991 | | **54** | 2.69 | **26** | 2.14 | **170** | 7.39 | **8** | 0.205 | ***90*** | *1.48* | **240** | 5.0 | **190** | 5.4 | **1.1** | 0.02 | <0.004 | | 12.4 | 11.8 | 105% | 2.4% | | | | 779 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/23/2006 | | | | | | | | | | | | **90** | 1.48 | | | | | | | **0.006** | 0.0001 | | | | | | | | | | |
| | 1/18/2007 | 8 | 1,240 | 742 | **48** | 2.40 | **24** | 1.97 | **160** | 6.96 | **7** | 0.179 | **96** | 1.57 | **231** | 4.8 | **210** | 5.9 | **1.2** | 0.02 | <0.004 | | 11.5 | 12.3 | 93% | -3.4% | | | | 777 | 95% | |
| | 5/14/2008 | 8.2 | 1,220 | 748 | **47** | 2.35 | **23** | 1.89 | **160** | 6.96 | **7.2** | 0.184 | **82.5** | 1.35 | **250** | 5.2 | **200** | 5.6 | **1.3** | 0.02 | <0.004 | | 11.4 | 12.2 | 93% | -3.5% | | | | 771 | 97% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| WELL[1] (Aquifer Unit) | SAMPLE DATE | pH | SPECIFIC CONDUCTANCE (umho/cm) | TOTAL DISSOLVED SOLIDS (TDS) | CATIONS[2] | | | | | | | | ANIONS[2] | | | | | | | | | | SUM OF CATIONS | SUM OF ANIONS | Cation/ Anion | Percent Difference[5] | ACCEPTANCE CRITERIA | | | TDS SUM[6] | 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 | 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 | % | % | Yes = X | Yes = X | PASS | mg/L | % | |
| **TR-6** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc1)** | 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 | | |
| **(middle)** | 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*** | | **0.21** | 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** | | **0.2** | 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** | | **0.21** | 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 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/17/07 | 8.1 | 1,300 | 778 | **59** | 2.94 | **23** | 1.89 | **170** | 7.39 | **9.1** | 0.233 | **110** | 1.80 | **240** | 5.0 | **200** | 5.6 | **1.2** | 0.02 | <0.004 | | 12.5 | 12.5 | 100% | 0.0% | | X | **PASS** | 812 | 96% | |
| | 5/14/08 | 8.1 | 1,330 | 834 | **55** | 2.74 | **22** | 1.81 | **160** | 6.96 | **8.2** | 0.210 | **76.5** | 1.25 | **270** | 5.6 | **197** | 5.5 | **1.3** | 0.02 | <0.004 | | 11.7 | 12.4 | 94% | -3.0% | | X | **PASS** | 789 | 106% | |
| **TR-10** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc1)** | 10/14/99 | 7.9 | 2,190 | | **113** | 5.64 | **43.8** | 3.60 | **323** | 14.05 | **12.60** | 0.322 | **79.3** | 1.30 | **930** | 19.4 | **112** | 3.2 | ***1.05*** | *0.02* | **1.20** | 0.012 | 23.6 | 23.9 | 99% | -0.5% | | X | **PASS** | 1,615 | | |
| | 2/21/00 | 8.7 | 2,100 | | | | | | | | | | | | | | | | | | **1.19** | 0.012 | | | | | | | | | | |
| | 2/4/01 | 7.8 | 2,060 | | | | | | | | | | | | | | | | | | **1.20** | 0.012 | | | | | | | | | | |
| | 2/25/02 | 7.8 | 2,060 | | **130** | 6.49 | **50** | 4.11 | **267** | 11.61 | **12** | 0.307 | **95** | 1.56 | **760** | 15.8 | **85** | 2.4 | ***0.64*** | *0.01* | **1.10** | 0.011 | 22.5 | 19.8 | 114% | 6.4% | X | | **PASS** | 1,406 | | |
| | 2/19/03 | 7.9 | 2,100 | | **150** | 7.49 | **70** | 5.76 | **260** | 11.31 | **16** | 0.409 | **94.9** | 1.56 | **910** | 19.0 | **110** | 3.1 | ***2*** | *0.03* | **1.00** | 0.010 | 25.0 | 23.7 | 106% | 2.7% | | X | **PASS** | 1,611 | | |
| | 2/3/04 | 7.9 | 2,150 | | **180** | 8.98 | **90** | 7.40 | **270** | 11.74 | **20** | 0.512 | **93.6** | 1.53 | **930** | 19.4 | **110** | 3.1 | ***0.78*** | *0.01* | **1.00** | 0.010 | 28.6 | 24.0 | 119% | 8.8% | X | | | 1,694 | | |
| | 2/18/05 | 7.9 | 2,050 | | **120** | 5.99 | **47** | 3.87 | **290** | 12.61 | **14** | 0.358 | **89.4** | 1.47 | **840** | 17.5 | **100** | 2.8 | **1.6** | 0.03 | **1.00** | 0.010 | 22.8 | 21.8 | 105% | 2.3% | | X | **PASS** | 1,500 | | |
| | 2/2/06 | 7.9 | 2,150 | | **120** | 5.99 | **47** | 3.87 | **280** | 12.18 | **13** | 0.332 | ***80*** | *1.31* | **910** | 19.0 | **120** | 3.4 | **1.5** | 0.02 | **0.88** | 0.009 | 22.4 | 23.7 | 94% | -2.9% | | X | **PASS** | 1,572 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/21/06 | | | | | | | | | | | | **80** | 1.31 | | | | | | | **0.92** | 0.009 | | | | | | | | | | |
| | 1/17/07 | 8 | 2,530 | 1840 | **160** | 7.98 | **62** | 5.10 | **340** | 14.79 | **14** | 0.358 | **92** | 1.51 | **1000** | 20.8 | **120** | 3.4 | **3.1** | 0.05 | **1.20** | 0.012 | 28.2 | 25.8 | 109% | 4.5% | | X | **PASS** | 1,791 | 103% | |
| | 5/14/08 | 8 | 2,440 | 1740 | **140** | 6.99 | **54** | 4.44 | **310** | 13.48 | **14** | 0.358 | **80.3** | 1.32 | **990** | 20.6 | **130** | 3.7 | **2.5** | 0.04 | **1.53** | 0.015 | 25.3 | 25.7 | 98% | -0.8% | | X | **PASS** | 1,718 | 101% | |

| WELL[1] (Aquifer Unit) | SAMPLE DATE | pH | SPECIFIC CONDUCTANCE (umho/cm) | TOTAL DISSOLVED SOLIDS (TDS) | CATIONs[2] | | | | | | | | ANIONs[2] | | | | | | | | | | SUM OF CATIONS | SUM OF ANIONS | Cation/ Anion | Percent Difference[5] | ACCEPTANCE CRITERIA | | | TDS SUM[6] | 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 | 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 | % | % | Yes = X | Yes = X | PASS | mg/L | % | |
| **TR-11** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc2)** | 10/14/99 | 8 | 1213 | | **42.8** | 2.14 | **26.2** | 2.16 | **167** | 7.26 | **8.71** | 0.223 | **82.8** | 1.36 | **212** | 4.4 | **173** | 4.9 | ***1.17*** | *0.02* | <0.004 | | 11.8 | 10.7 | 110% | 5.0% | | **X** | **PASS** | 714 | | |
| | 1/13/00 | | | | | | | | | | | | | | | | | | | | **0.037** | 0.0004 | | | | | | | | | | |
| | 2/2/01 | 7.7 | 1090 | | | | | | | | | | | | | | | | | | <0.004 | | | | | | | | | | | |
| | 2/25/02 | 8.1 | 1170 | | **43** | 2.15 | **24** | 1.97 | **160** | 6.96 | **8.5** | 0.217 | **99.7** | 1.63 | **220** | 4.6 | **180** | 5.1 | ***1.2*** | *0.02* | <0.004 | | 11.3 | 11.3 | 100% | 0.0% | | **X** | **PASS** | 736 | | |
| | 2/19/03 | 7.7 | 1200 | | **39** | 1.95 | **23** | 1.89 | **150** | 6.52 | **7.5** | 0.192 | **107** | 1.75 | **230** | 4.8 | **190** | 5.4 | ***1.1*** | *0.02* | **0.0089** | 0.0001 | 10.6 | 11.9 | 89% | -6.1% | **X** | | | 747 | | |
| | 2/3/04 | 8.1 | 1230 | | **44** | 2.20 | **26** | 2.14 | **170** | 7.39 | **8.1** | 0.207 | **101** | 1.66 | **240** | 5.0 | **190** | 5.4 | ***1.2*** | *0.02* | <0.004 | | 11.9 | 12.0 | 99% | -0.4% | | **X** | **PASS** | 779 | | |
| | 2/18/05 | 8.1 | 1180 | | **44** | 2.20 | **25** | 2.06 | **160** | 6.96 | **8.5** | 0.217 | **98.3** | 1.61 | **220** | 4.6 | **180** | 5.1 | **1.0** | 0.02 | <0.004 | | 11.4 | 11.3 | 101% | 0.7% | | **X** | **PASS** | 736 | | |
| | 2/2/06 | 8.1 | 1200 | | **43** | 2.15 | **26** | 2.14 | **160** | 6.96 | **8** | 0.205 | ***81*** | *1.33* | **210** | 4.4 | **180** | 5.1 | **1.1** | 0.02 | <0.004 | | 11.4 | 10.8 | 106% | 3.0% | | **X** | **PASS** | 709 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/22/06 | | | | | | | | | | | | **81** | 1.33 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/17/07 | 8.1 | 1210 | 684 | **44** | 2.20 | **26** | 2.14 | **160** | 6.96 | **8** | 0.205 | **110** | 1.80 | **210** | 4.4 | **170** | 4.8 | **1.0** | 0.02 | <0.004 | | 11.5 | 11.0 | 105% | 2.3% | | **X** | **PASS** | 729 | 94% | |
| | 5/14/08 | 8.1 | 1210 | 722 | **40** | 2.00 | **24** | 1.97 | **150** | 6.52 | **7.5** | 0.192 | **109** | 1.79 | **230** | 4.8 | **190** | 5.4 | **1.2** | 0.02 | <0.004 | | 10.7 | 11.9 | 89% | -5.6% | **X** | | | 751 | 96% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TR-12** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **(MCc2)** | 10/14/99 | 8.3 | 1103 | | **26.4** | 1.32 | **13.5** | 1.11 | **193** | 8.39 | **53.9** | 1.378 | **--** | | **185** | 3.9 | **90** | 2.5 | ***2.42*** | *0.04* | <0.004 | | 12.2 | 6.4 | 190% | 31.0% | **X** | | | 564 | | Balance is upset because of missing $HCO_3$ data |
| | 1/13/00 | | | | | | | | | | | | | | | | | | | | **0.005** | 0.0001 | | | | | | | | | | |
| | 2/2/01 | 7.8 | 755 | | | | | | | | | | | | | | | | | | <0.004 | | | | | | | | | | | |
| | 2/25/02 | 8.4 | 818 | | **26** | 1.30 | **15** | 1.23 | **120** | 5.22 | **6.5** | 0.166 | **93.2** | 1.53 | **190** | 4.0 | **78** | 2.2 | ***2.5*** | *0.04* | <0.004 | | 7.9 | 7.7 | 103% | 1.2% | | **X** | **PASS** | 531 | | |
| | 2/19/03 | 8.2 | 844 | | **25** | 1.25 | **14** | 1.15 | **130** | 5.65 | **6.4** | 0.164 | **98.3** | 1.61 | **200** | 4.2 | **82** | 2.3 | ***2.8*** | *0.05* | **0.016** | 0.0002 | 8.2 | 8.1 | 101% | 0.5% | | **X** | **PASS** | 556 | | |
| | 2/3/04 | 8.3 | 879 | | **25** | 1.25 | **15** | 1.23 | **130** | 5.65 | **6.2** | 0.159 | **94** | 1.54 | **200** | 4.2 | **83** | 2.3 | ***2.8*** | *0.05* | **0.0083** | 0.0001 | 8.3 | 8.1 | 103% | 1.2% | | **X** | **PASS** | 553 | | |
| | 2/18/05 | 8.3 | 847 | | **25** | 1.25 | **15** | 1.23 | **120** | 5.22 | **6.4** | 0.164 | **92.3** | 1.51 | **190** | 4.0 | **76** | 2.1 | **2.5** | 0.04 | <0.004 | | 7.9 | 7.7 | 103% | 1.4% | | **X** | **PASS** | 525 | | |
| | 2/2/06 | 8.3 | 851 | | **24** | 1.20 | **15** | 1.23 | **120** | 5.22 | **6.1** | 0.156 | ***81*** | *1.33* | **200** | 4.2 | **82** | 2.3 | **2.6** | 0.04 | <0.004 | | 7.8 | 7.8 | 100% | -0.2% | | **X** | **PASS** | 531 | | $HCO_3$ data from 3/20/06 was used in the cation/anion balance |
| | 3/22/06 | | | | | | | | | | | | **81** | 1.33 | | | | | | | <0.004 | | | | | | | | | | | |
| | 1/18/07 | 8.2 | 860 | 500 | **25** | 1.25 | **15** | 1.23 | **130** | 5.65 | **6.2** | 0.159 | **96** | 1.57 | **190** | 4.0 | **84** | 2.4 | **2.6** | 0.04 | <0.004 | | 8.3 | 7.9 | 104% | 2.2% | | **X** | **PASS** | 549 | 91% | |
| | 5/14/08 | 8.3 | 850 | 468 | **24** | 1.20 | **15** | 1.23 | **120** | 5.22 | **5.9** | 0.151 | **58.2** | 0.95 | **205** | 4.3 | **85** | 2.4 | **2.8** | 0.05 | <0.004 | | 7.8 | 7.7 | 102% | 0.9% | | **X** | **PASS** | 513 | 91% | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**NOTES**

**1** 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

**2** Data has not been validated

**3** $HCO_3$ data from the March 22, 2006 was used in the estimate of cation-anion balance for February 2, 2006.

**4** N03 data for 1999 through 2004 was reported as the sum of Nitrate and Nitrite data.

**5** Percent Difference equals 100*(Sum cations-Sum anions)/(Sum cations+Sum anions) (Standard Methods 1995)

**6** TDS sum equals the sum (mg/L) of the major cations and anions

**DEFINITIONS**

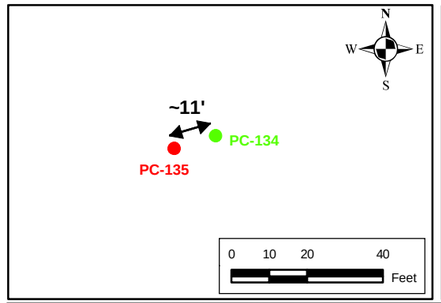
**ANIONS**
$HCO_3$ - bicarbonate
$SO_4$ - Sulfate
Cl - Chloride
$NO_3$ - Nitrate
$ClO_4$ - Perchlorate

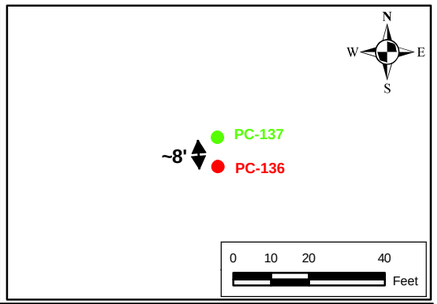
**CATIONs**
Ca - Calcium
Mg - Magnesium
Na - Sodium
K - Potassium

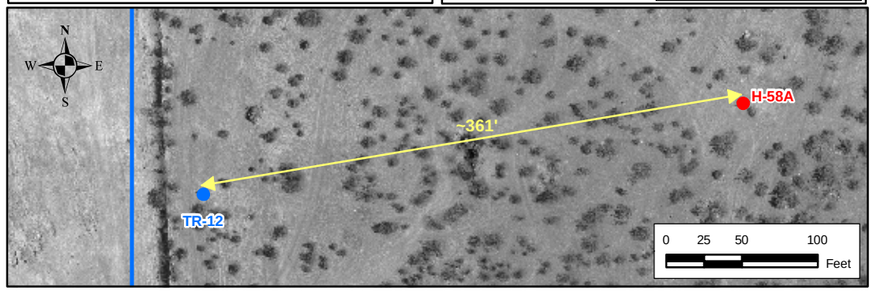
| | |
|---|---|
| meg/L | milliequivalents per liter (milliequivalents = concentration (mg/L) * 1 mole/moelcular weight * equivalence (ion valence)/1 mole) |
| mg/L | milligrams per kilogram |
| ml/min | milliliters per minute |
| TDS | Total Dissolved Solids |
| umho/cm | microohms per centimeter |
| -- | No data |

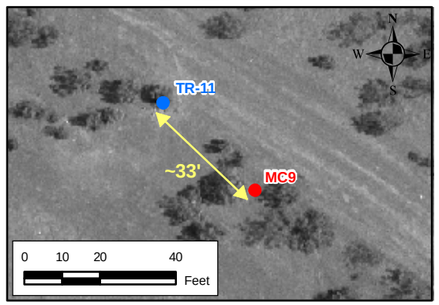
**REFERENCES**

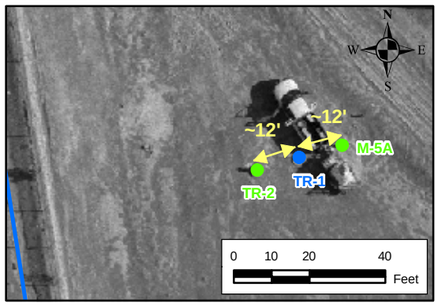
Standard Methods 1995, Standard Methods for the Examination of Water and Wastewater 1995, Joint Publication after the American Public Health Association, American Water Works Association and Water Enviornment Federation: Published by The American Health Association, Washington D.C.

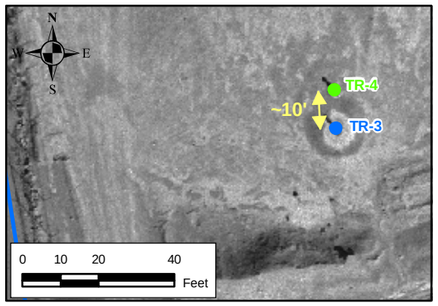


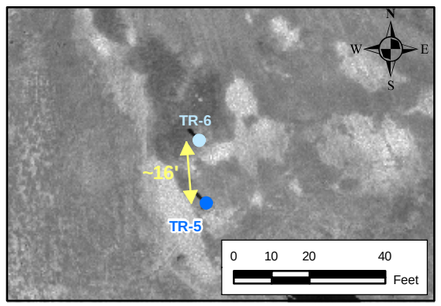



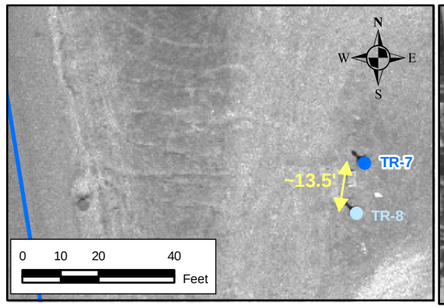



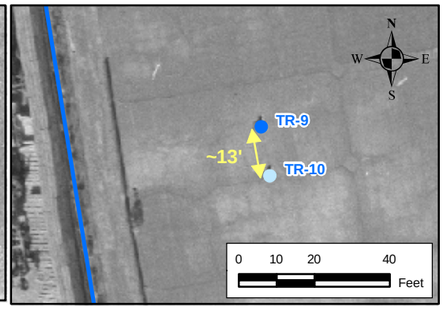



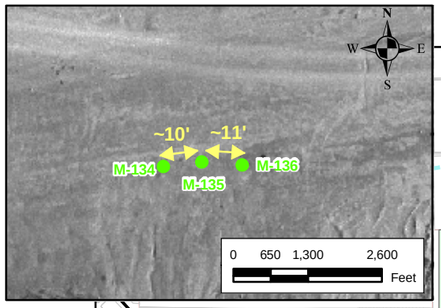



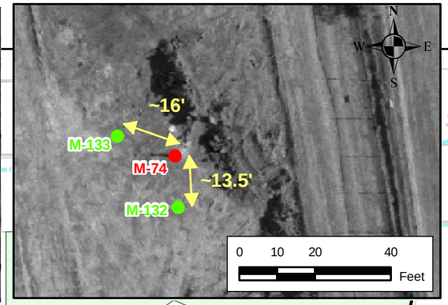



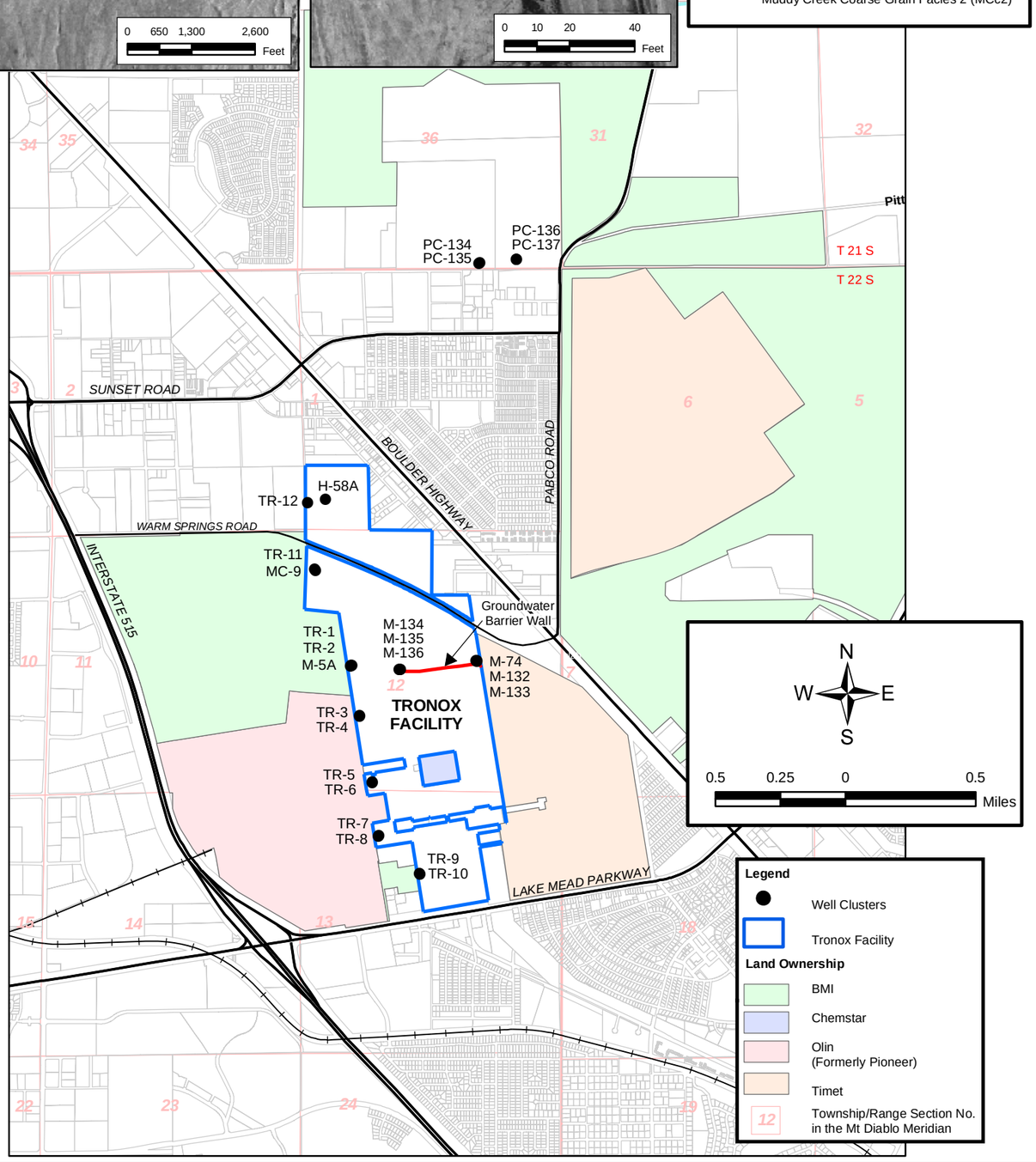




Monitor Well with Screen in the Alluvial Aquifer (Qal)

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)

| REVISIONS: | NO: | DESCRIPTION: | DATE: | BY: |
|---|---|---|---|---|
| | | | | |

| DESIGNED BY: | DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|---|
| M. Flack | M. Scop | M. Flack | M. Flack |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**WELL LOCATION MAP**

Vertical Gradient Assessment
Tronox Facility
Henderson, Nevada

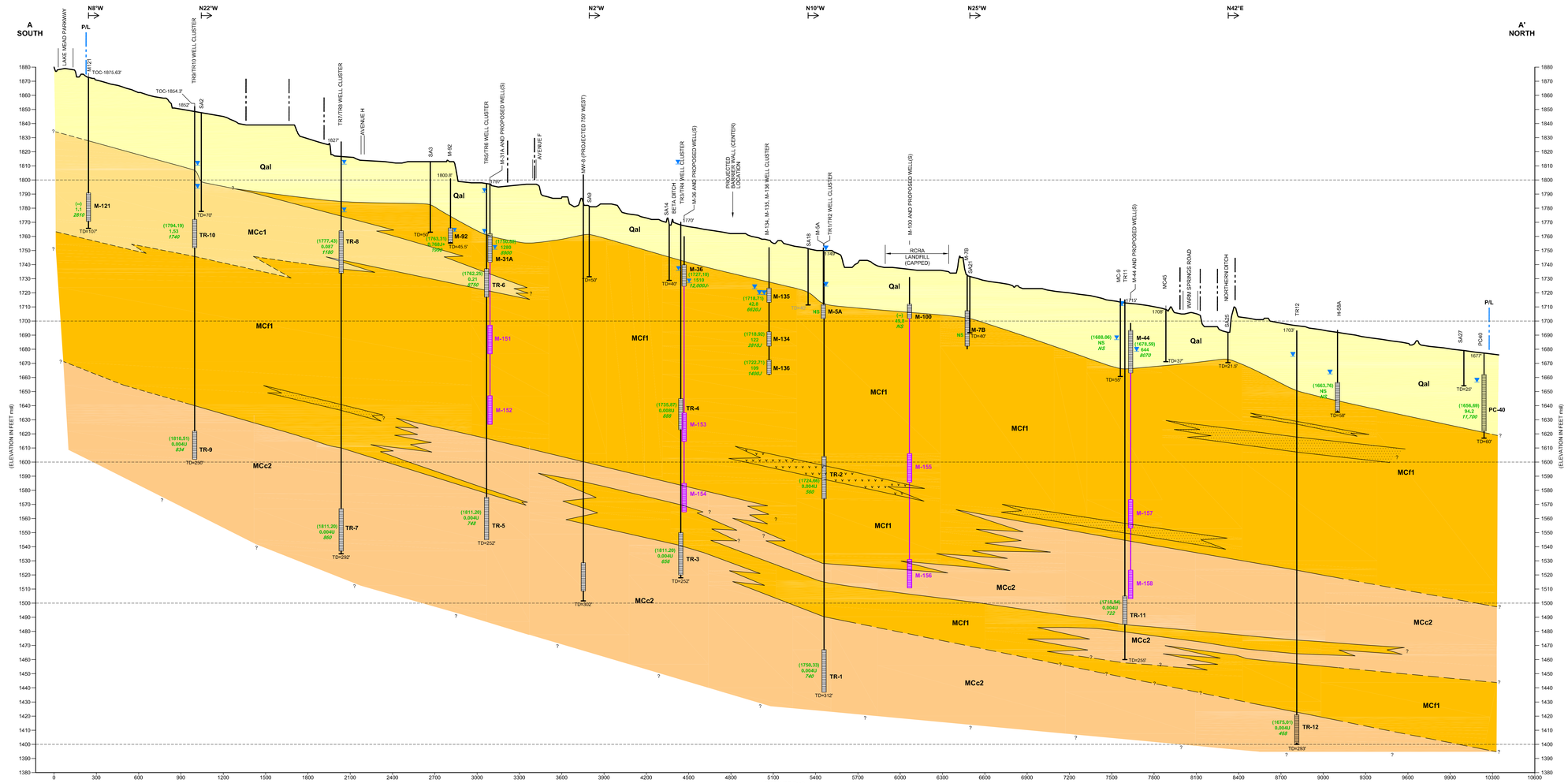
| SCALE: | DATE: | PROJECT NUMBER: |
|---|---|---|
| As Noted | 9/18/2008 | 04020-023-160 |

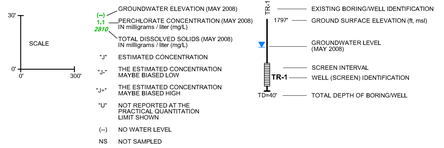
FIGURE NUMBER:

1

SHEET NUMBER:

X




(~) GROUNDWATER ELEVATION (MAY 2008)
1,1 2010 PERCHLORATE CONCENTRATION (MAY 2008) IN milligrams / liter (mg/L)
TOTAL DISSOLVED SOLIDS (MAY 2008) IN milligrams / liter (mg/L)
"J" ESTIMATED CONCENTRATION
"J+" THE ESTIMATED CONCENTRATION MAYBE BIASED LOW
"J+" THE ESTIMATED CONCENTRATION MAYBE BIASED HIGH
"U" NOT REPORTED AT THE PRACTICAL QUANTITATION LIMIT SHOWN
(~) NO WATER LEVEL
NS NOT SAMPLED

TR-1 EXISTING BORING/WELL IDENTIFICATION
1797' GROUND SURFACE ELEVATION (ft, msl)
GROUNDWATER LEVEL (MAY 2008)
SCREEN INTERVAL
TR-1 WELL (SCREEN) IDENTIFICATION
TD=40' 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 VOCANIC ASH DEPOSIT
- MCc1 — MUDDY CREEK FORMATION COARSE-GRAINED FACIES #1
- MCc2 — MUDDY CREEK FORMATION COARSE-GRAINED FACIES #2
- A — A' LINE OF GEOLOGICAL SECTION
- 1068 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)
- P/L TRONOX FACILITY BOUNDARY
- PROPOSED WELL LOCATION
- PROPOSED TOP OF CASING
- M-151 PROJECTED SCREEN INTERVAL
- PROPOSED WELL IDENTIFICATION
- PROJECTED TOTAL DEPTH

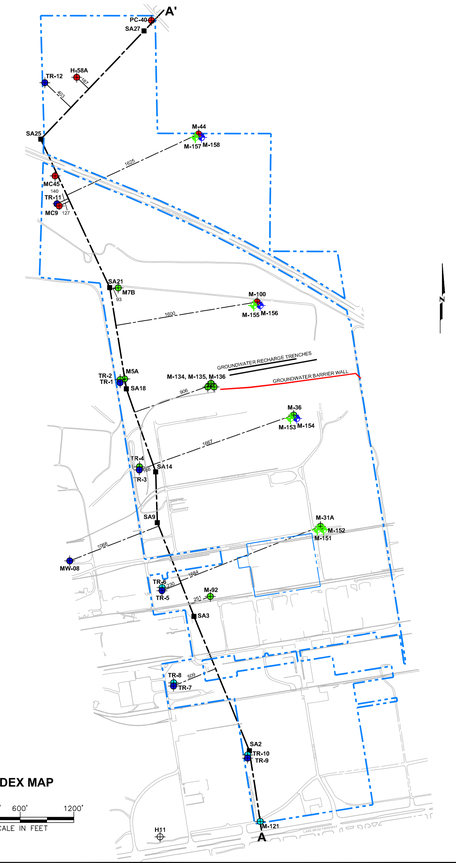
| WELL ID PROPOSED | WELL DEPTH SCREEN TOP | WELL DEPTH SCREEN BOTTOM | WELL ELEVATION SCREEN TOP | WELL ELEVATION SCREEN BOTTOM |
|---|---|---|---|---|
| M-151 | 100 | 120 | 1696 | 1676 |
| M-152 | 150 | 170 | 1646 | 1626 |
| M-153 | 125 | 145 | 1634 | 1614 |
| M-154 | 175 | 195 | 1584 | 1564 |
| M-155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

## REFERENCE:

APPENDIX A - ANNUAL REMEDIAL PERFORMANCE REPORT FOR CHROMIUM AND PERCHLORATE, JULY 2007 THROUGH JUNE 2008, TRONOX LLC, HENDERSON, NEVADA (AUGUST 2008)

HYDROSTRATIGRAPHIC NOMENCLATURE FOLLOWS WHAT TRONOX PROVIDED TO NDEP ON JUNE 27, IN RESPONSE TO PES PROPOSED HYDROSTRATIGRAPHY

INFORMATION ON WELLS MC-9 AND H58A PROVIDED TO TRONOX BY ED MODIANO IN AN EMAIL TO SUSAN CROWLEY (9-23-2008)




TRONOX

REVISIONS:

| NO.: | DATE: | BY: |
|---|---|---|
| | | |

DESCRIPTION:

| DESIGNED BY: | DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|---|
| B. Ho | M. Scop | E. Kilsh | M. Flack |

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**GEOLOGICAL CROSS SECTION A-A'**
**SOUTH TO NORTH**
Phase A Source Area Investigation
Tronox Facility
Henderson, Nevada

| SCALE: | DATE: | PROJECT NUMBER: |
|---|---|---|
| as noted | 9/11/2008 | 04020-023-160 |

PLATE NUMBER:
1
SHEET NUMBER:

J:\2008_Projects\04020-...Tronox\023-Henderson\Work Area\figures\cross section\cross section_A.dwg

# ATTACHMENT A

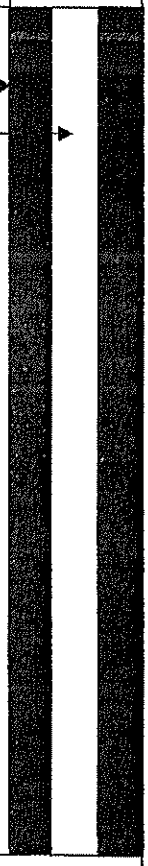
## Exploratory Boring Logs and Well Completion Information Groundwater Monitoring Wells MC-9 and H-58A

...CONTRACT DRILL BOG, Henderson, NV MC-9

BEGUN 9/82 FINISHED 6/9/82 LOGGED BY CAD DRILLED BY Converse Well... DRILL HOLE MC

ELEV. 1715.76 TOTAL DEPTH 55' LOCATION 250' East of well 36, on KM property

| FOOTAGE FROM | FOOTAGE TO | THICKNESS | RECOVERY | LITHOLOGY | REMARKS |
|---|---|---|---|---|---|
| 0 | 5 | | | sand & gravel - brown to black | drilled w/ bentonite mud |
| 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 duelley layer @ 41' & 43' @ 45-47 - caliche gyp interspersed w/ gravel | |
| 50 | | | | Muddy Creek - 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<br>Total Depth: 59 Feet Bgs<br>Depth to Bedrock: N/A<br>Depth to Water: 32 Feet Bgs<br>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

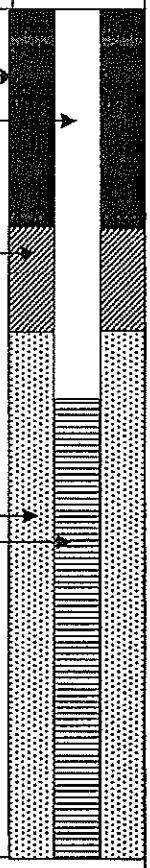
Comments:

**STEWART ENVIRONMENTAL, INC.**

File No.: 04-521.1

LOG OF BORING NO.: H-58A

| 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<br>Total Depth: 59 Feet Bgs<br>Depth to Bedrock: N/A<br>Depth to Water: 32 Feet Bgs<br>Groundwater Elevation (MSL): N/A | |
| 8:02 | | | | | 30 | SW | Brown fine to coarse sand with volcanics. Water | |
| 8:06 | | | | | 35 | | | |
| 8:11 | | | | | 40 | | | |
| 8:25 | | | | | 45 | SW | Dark brown clean coarse gravel. | |
| | | | | | | CL | 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

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Comments:

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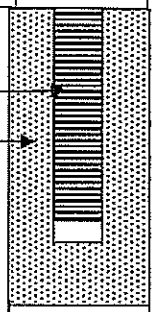
| | | | | | | | Borehole Location: H-58A<br>Total Depth: 59 Feet Bgs<br>Depth to Bedrock: N/A<br>Depth to Water: 32 Feet Bgs<br>Groundwater Elevation (MSL): N/A | |
| 9:03 | | | | | 55 | CH | Muddy Creek, brown clay |  |
| 9:05 | | | | | 60 | | End of boring | |
| | | | | | 65 | | | |
| | | | | | 70 | | | |
| | | | | | 75 | | | |

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File No 04-521.1

LOG OF BORING NO.: H-58A

| 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 |