LA-UR-10-1363
March 2010
EP2010-0112

2010 General Facility Information

Los Alamos
NATIONAL LABORATORY
EST.1943

Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy under Contract No. DE-AC52-06NA25396, has prepared this document pursuant to the Compliance Order on Consent, signed March 1, 2005. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

LA-UR-10-1363
EP2010-0112

2010 General Facility Information

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1.0 INTRODUCTION

Pursuant to Section IV.A.2 of the Compliance Order on Consent (the Consent Order), Los Alamos National Laboratory (LANL or the Laboratory) is providing this annual update to the General Facility Information (GFI) in a format similar to the report submitted in 2009. This annual update includes an explanatory document and a set of plates.

Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with U.S. Department of Energy (DOE) policy.

2.0 SCOPE

Section IV.A.2 of the Consent Order states,

> The Respondents shall submit to the Department the following information. These submittals are one-time submittals, unless new information becomes available. In that case, the affected submittals shall be updated and resubmitted annually:
>
> 1. Facility-wide topographic map;
> 2. Facility-wide geologic maps, surface geology, and structure contour maps;
> 3. Maps and tables indicating the surveyed coordinates and locations of all existing springs, wells, and surface water gaging stations;
> 4. Fault and high-fracture density zone maps;
> 5. Maps presenting the discharge points of seeps and springs, with tables indicating estimated flow, associated stratigraphic units, and discharge point elevations;
> 6. Alluvial groundwater maps depicting known saturated aquifer thickness and extent and suspected extent of contamination;
> 7. Perched-intermediate groundwater maps presenting aquifer thickness and flow direction data, and known and suspected vertical and lateral extents of contamination;
> 8. Regional groundwater maps depicting measured groundwater elevations and known flow direction(s);
> 9. The Facility's existing Hydrogeologic Atlas, including water-level contour map of regional aquifer and known radii-of-effects from pumping of municipal supply wells;
> 10. Diagrams using representative data showing groundwater flow regimes as indicated by water chemistry (e.g., Stiff, Piper diagrams) for all groundwater zones; and
> 11. Periodic water level data presented graphically and in tabular format.
>
> The information shall be submitted to the Department in hardcopy and CD-ROM beginning 30 days after the effective date of this Consent Order, and no later than March 31 of each subsequent calendar year.

This annual report includes only those items that have been updated since March 31, 2009. Table 2.0-1 describes those items provided as part of this annual update.

3.0 DESCRIPTION OF ITEMS INCLUDED IN THE ANNUAL UPDATE

The following sections describe the submittal for each of the requirements provided in this annual update.

3.1 Requirement 1: Facility-Wide Topographic Map

The topographic map showing the Laboratory within its boundaries has not changed. Therefore, a new map has not been generated.

3.2 Requirement 2: Facility-Wide Geologic Maps, Surface Geology, and Structure Contour Maps

The 2009 Hydrogeologic Site Atlas was published in June 2009 (LANL 2009, 106589). The update provided in Appendix C contains new information for calendar year 2009 regarding drill hole contact data for wells newly completed in 2009 and new information regarding the regional water table.

3.3 Requirement 3: Maps and Tables Indicating the Surveyed Coordinates and Locations of All Existing Springs, Wells, and Surface-Water Gaging Stations

Plates 1 and 2—one for springs and one for monitoring and water-supply wells—and Appendix A are provided to meet this requirement. Plate 1 was generated in 2007 and has not changed, but it is included in this report to show the locations of the springs on Laboratory property.

Springs

Plate 1 shows the surveyed locations of springs at the Laboratory. The U.S. Environmental Protection Agency (EPA) defines seepage as "[p]ercolation of water through the soil from unlined canals, ditches, laterals, watercourses, or water storage facilities," and it defines a spring as "[g]round water seeping out of the earth where the water table intersects the ground surface" (available at http://www.epa.gov/OCEPAterms/sterms.html). The collection of coordinate-location data for seeps and springs at the Laboratory has historically not distinguished between these features and has classified all water-discharge points from the earth or soil as springs. These spring locations and surface-water gaging stations were reviewed by subject matter experts (including the NMED-DOE Oversight Bureau) for appropriateness of the location survey method, validity of horizontal coordinate values, classification of seeps/springs, periodic migration of the point of discharge, and consistency in site naming and identification. The point locations were overlain with a digital elevation model to collect the discharge-point elevation and with publicly available geologic maps to obtain the associated stratigraphic unit. A unique feature identification value (the label, as reported in Table A-1 in Appendix A) is provided to link the feature data to database tables containing information, including spring water flow rate, effluent pH, specific conductance, dissolved oxygen, temperature, oxidation-reduction potential, and chemical constituents. Plate 1 and Table A-1 also satisfy Requirement 5 (maps presenting the discharge points of seeps and springs, with tables indicating estimated flow, associated stratigraphic units, and discharge point elevations).

The seeps and springs feature data presented in Appendix A were derived from the following sources:

- AVLIB Springs, Shapefile WQH_avlib_springs_pnt, ArcView Library, Water Quality and Hydrology Group, Environmental Stewardship Division, 1996
- National Hydrography Dataset Program, Medium Resolution, SubBasins 13020101, 13020102, 13020202, and 13020201; U.S. Geological Survey, 08 October 2004
- Springs, MS Excel Spreadsheet, New Mexico Environment Department, U.S. Department of Energy Oversight Bureau, Los Alamos, New Mexico, 03 November 2004
- Springs, Shapefile ER_springs_pnt (2002-0593), Information Management, Environmental Restoration Project, Los Alamos National Laboratory, Los Alamos, New Mexico, November 2002
- Updates for Springs Feature Data Set, New Mexico Environment Department, U.S. Department of Energy Oversight Bureau; Los Alamos National Laboratory Environmental Remediation and Surveillance Program, ER Document Number ER2005-0495, July 2005
- Water-Quality Database, Shapefile WQH_springs_pnt, Water Quality and Hydrology Group, Environmental Stewardship Division, November 2003

Monitoring and Supply Wells

Plate 2 shows the surveyed locations of groundwater-monitoring wells and water-supply wells. The data contain locations and unique descriptive feature attributes for monitoring and supply wells at the Laboratory. The data were compiled from various sources, including field survey, global positioning system units, a historical Laboratory document (Purtymun 1995, 045344), and various technical well reports. Appendix A (Table A-2) presents the data used to develop this map.

3.4 Requirement 4: Fault and High-Fracture Density Zone Maps

No fault or high-fracture density zone maps were produced during calendar year 2009 that changed the overall understanding of faults or fracture systems at the Laboratory since the report by Gardner et al. (2008, 104727), which was included in the 2009 GFI report.

3.5 Requirement 5: Maps Presenting the Discharge Points of Seeps and Springs, with Tables Indicating Estimated Flow, Associated Stratigraphic Units, and Discharge Point Elevations

Requirement 5 is addressed in section 3.3 of this report, shown on Plate 1, and detailed in Appendix A.

3.6 Requirement 6: Alluvial Groundwater Maps Depicting Known Saturated Aquifer Thickness and Extent of Contamination

Plate 3 is provided as an update to Map 09-0010-3 of the 2009 GFI report (LANL 2009, 105632). All alluvial wells were drilled to define the nature and extent of chromium contamination in the alluvial aquifer and to aid in constraining the extent of alluvial saturation.

Filtered analytical data collected between January 1, 2009, and January 1, 2010, were evaluated to update the maps in this report. Plate 3 shows those locations where the 2009 data indicated analytes with high concentrations above Consent Order screening levels. The highest concentration is shown for 2009. Appendix B contains the supporting data that contains all values above the Consent Order screening levels. The data can also be found at http://www.lanl.gov/environment/all/racer.shtml.

Subject matter experts used this most recent water-quality data and their knowledge of the alluvial systems at the Laboratory to identify general areas where concentrations of analytes are known or suspected (i.e., expected) to exceed screening levels. The concentrations of analytes in alluvial groundwater are known only at locations where alluvial wells exist. Plate 3 represents the best current understanding of known areas of contamination but is not intended to be exact. The Laboratory's understanding of the extent of contamination will continue to change over time as new data become available.

Although the analytical chemical data used as a basis for this map are quantitative, extrapolation of contamination between and beyond measurement points is speculative, especially at the lateral extent of contamination in alluvial groundwater. This map is considered semiqualitative and should not be used quantitatively. The data presented for each location on the map should be used to describe alluvial aquifer thickness at a single point; information is not available to link the lateral extent of alluvial groundwater from one location to another.

3.7 Requirement 7: Intermediate Groundwater Maps Presenting Aquifer Thickness and Flow Direction Data and Known Extent of Contamination

Plate 4 provides an update to Map 09-0010-4 of the 2009 GFI report (LANL 2009, 105632). The new CdV-37-1(i), PCI-2, R-27i, R-40i, and R-47i intermediate wells have been added in this year's report. Filtered analytical data obtained between January 1, 2009, and January 1, 2010, were used to update this map. Key validated analytes above Consent Order screening levels are shown on the map as point-source information. The highest concentration is shown for 2009. Appendix B contains the supporting data that is also available at http://www.lanl.gov/environment/all/racer.shtml.

The levels of contamination in intermediate groundwater are known where intermediate wells exist; no data are currently available that demonstrate the presence of connections between intermediate groundwater zones, thus precluding flow-direction data and aquifer thickness.

The data presented for each location on the map should be used to describe groundwater conditions at a single point; information is not available to link the chemistry or the lateral extent of intermediate groundwater from one location to another. In addition, the direction of intermediate groundwater flow cannot be determined because multiple measurement points in a common intermediate zone are not available.

3.8 Requirement 8: Regional Groundwater Maps Depicting Measured Groundwater Elevations and Known Flow Direction(s)

Plate 5 contains tables showing analytes detected at concentrations above screening levels or standards in groundwater. Characterization wells R-37, R-40, R-44, R-45, R-46, R-48, and R-49 were completed in 2009. The highest concentration is shown for 2009. Appendix B contains the supporting data with values above the Consent Order screening levels. The data can also be found at http://www.lanl.gov/environment/all/racer.shtml.

3.9 Requirement 9: The Facility's Existing Hydrogeologic Atlas, Including Water-Level Contour Map of Regional Aquifer and Known Radii-of-Effects from Pumping of Municipal Supply Wells

The 2009 Hydrogeologic Site Atlas (LANL 2009, 106589) was provided as a standalone document in June 2009. Updates to the regional water-table elevation map are shown on Plate 6 and are described in

Appendix C. Also included in Appendix C is a description of the known radii-of-effects from pumping of municipal supply wells. Water-table elevation data shown on the map are representative of monthly average water levels in March 2009. This period was selected because observed water levels in March are generally the highest for 2009. The direction of groundwater flow in the regional aquifer is also shown on the map. Explanatory text regarding the generation of this map is included in Appendix C.

3.10 Requirement 10: Diagrams Using Representative Data Showing Groundwater Flow Regimes as Indicated by Water Chemistry for All Groundwater Zones

Filtered analytical data from sampling year 2009 were obtained from the Laboratory's most recent water-quality data set and were used to create Stiff diagrams (using AquaChem version 5.0) to geometrically represent point-source water quality. For consistency, these locations are the same as those plotted in the 2009 GFI report (LANL 2009, 105632). The Stiff diagrams shown on Plates 7 through 9 are placed next to each well location. The Stiff plots are displayed using one of three color schemes: yellow, green, and blue diagrams and backgrounds help to distinguish among the alluvial, intermediate, and regional groundwater flow regimes, respectively.

The Stiff diagrams presented for each location on the map describe general groundwater hydrochemistry at a single point in space and time. Although the data used to generate the Stiff diagrams are quantitative, the horizontal axis presents the data in equivalents. The hydrochemical data are provided in Appendix D (also available at http://www.lanl.gov/environment/all/racer.shtml).

3.11 Requirement 11: Periodic Water-Level Data Presented Graphically and in Tabular Format

Plate 10 shows groundwater levels in the alluvial aquifer, and Plate 11 shows water-level data obtained from the perched intermediate aquifer. Plate 12 shows water-level data obtained from wells completed in the regional aquifer. The time-variant plots in these maps were generated using automated transducer records and manual or sampling measurements showing piezometric levels in the alluvial, perched intermediate, and regional groundwater zones from October 2008 to October 2009. Plots colored yellow, green, and blue correspond to the groundwater zones discussed in section 3.10. All time-variant plots, including individual plots for locations with multiple zones, are provided in Appendix E-1. The data used to generate these graphs are provided in Appendix E-2 and are also available in the Groundwater Level Status Report for 2009, Los Alamos National Laboratory (Koch and Schmeer 2010, 108926).

The plots presented on the map represent point-source data specific to a particular location and time. Further interpretation must be considered to delineate equipotentiometric surfaces within the aquifer. The primary purpose of these maps is to illustrate the variability of hydraulic head with depth over time throughout the Laboratory.

4.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to

review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

Gardner, J.N., E.S. Schultz-Fellenz, F.A. Caporuscio, C.J. Lewis, R.E. Kelley, and M.K. Greene, October 2008. "Geology and Structure of the Chemistry and Metallurgy Research Facility Replacement Site, Los Alamos National Laboratory, New Mexico," Los Alamos National Laboratory report LA-14378, Los Alamos, New Mexico. (Gardner et al. 2008, 104727)

Koch, R.J., and S. Schmeer, March 2010. "Groundwater Level Status Report for 2009, Los Alamos National Laboratory," Los Alamos National Laboratory report LA-14416-PR, Los Alamos, New Mexico. (Koch and Schmeer 2010, 108926)

LANL (Los Alamos National Laboratory), March 2009. "2009 General Facility Information," Los Alamos National Laboratory document LA-UR-09-1341, Los Alamos, New Mexico. (LANL 2009, 105632)

LANL (Los Alamos National Laboratory), June 2009. "2009 Hydrogeologic Site Atlas," Los Alamos National Laboratory document LA-UR-09-3763, Los Alamos, New Mexico. (LANL 2009, 106589)

Purtymun, W.D., January 1995. "Geologic and Hydrologic Records of Observation Wells, Test Holes, Test Wells, Supply Wells, Springs, and Surface Water Stations in the Los Alamos Area," Los Alamos National Laboratory report LA-12883-MS, Los Alamos, New Mexico. (Purtymun 1995, 045344)

Table 2.0-1
General Facility Information Requirements

Section IV.A.2 Requirement Number	Description	Provided in This Annual Update
1	Facility-wide topographic map	No update is necessary because the information has not changed.
2	Facility-wide geologic maps, surface geology, and structure contour maps	Appendix C contains an update of the 2009 Hydrogeologic Site Atlas.
3	Maps and tables indicating the surveyed coordinates and locations of all existing springs, wells, and surface-water gaging stations	See Plates 1 and 2 (one each for springs and wells) and Appendix A.
4	Fault and high-fracture density zone maps	No update is necessary because the information has not changed.
5	Maps presenting the discharge points of seeps and springs, with tables indicating estimated flow, associated stratigraphic units, and discharge-point elevations	See Requirement 3 and Appendix A.
6	Alluvial groundwater maps depicting known saturated aquifer thickness and extent and suspected extent of contamination	See Plate 3 and Appendix B.
7	Perched intermediate groundwater maps presenting aquifer thickness and flow direction data and known and suspected vertical and lateral extents of contamination	See Plate 4 and Appendix B.
8	Regional groundwater maps depicting measured groundwater elevations and known flow direction(s)	See Plate 5 and Appendix B. Plate 5 depicts known saturated aquifer thickness and extent and suspected extent of contamination. Known flow directions have not changed since the 2009 GFI report.
9	The facility's existing Hydrogeologic Site Atlas, including water-level contour map of regional aquifer and known radii-of-effects from pumping of municipal supply wells	See Plate 6 and Appendix C.
10	Diagrams using representative data showing groundwater flow regimes as indicated by water chemistry (e.g., Stiff diagrams) for all groundwater zones	See Plates 7 through 9 and Appendix D.
11	Periodic water-level data presented graphically and in tabular format	See Plates 10 through 12 and Appendix E.

Appendix A

Data Sets for Requirement #3

Table A-1
Locations of Springs at Los Alamos National Laboratory

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Agua Piedra Spring	NMEDDOE OB2004 073	1618238.28	1799902.59	unknown	8128.9	na*	2.4 ft, average resolution	Ttc, Caballo lavas, Tshicoma Formation (Tertiary)	8–10 (estimated)	6 (estimated)
AL-10.6 Spring	NMEDDOE OB2004 159	1586782.126	1752840.12	±16 ft	8393.4	na	2.4 ft, average resolution	Qtr, Rabbit Mountain rhyolite, Cerro Toledo rhyolite, Tewa Group (Pleistocene)	na	na
AL-11.0 Spring	NMEDDOE OB2005070 1 03	1585812.402	1754157.664	unknown	na	8579.8	Unknown	Bandelier Tuff	na	na
Alamo Spring	GNIS 00903049	1515596.366	1758161.156	±168.5 ft of true position	na	2292.7	10 m, resolution	Qcpa	na	na
Allvsee P 100E16-2659	NMEDDOE OB2004 076	1616812.08	1765035.06	unknown	7294.5	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
American Spring	NMEDDOE OB2004 127	1601080.9	1760073.01	±16 ft	8269.3	na	2.4 ft, average resolution	na	6–12 (estimated)	4 (estimated)
Ancha Spring	NMEDDOE OB2004 007	1669351.76	1750112.4	±16 ft	5699.5	na	4.7 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	0–4 (estimated)	<2 (estimated)
Ancho Spring	NMEDDOE OB2004 037	1647208.26	1737200.304	±16 ft	5656	na	2.4 ft, average resolution	Tcb2, basalt flows (Pliocene)	150–200 (estimated)	8 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Anderson Spring	NMEDDOE OB2004 080	1615965.26	1771449.02	±16 ft	7422.6	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	1.73 (measured)	<2 (estimated)
Antler Spring	NMEDDOE OB2004 154	1591844.446	1756709.108	±16 ft	7919.1	na	2.4 ft, average resolution	na	19 (estimated)	10 (estimated)
Apache Spring	NMEDDOE OB2004 140	1598799.05	1755428.59	±16 ft	8247	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	17 (estimated)	10 (estimated)
Armstead Spring	NMEDDOE OB2004 136	1599839.29	1762691.49	±16 ft	8210	na	2.4 ft, average resolution	na	4–8 (estimated)	<2 (estimated)
Barbara Spring	NMEDDOE OB2004 147	1593101.22	1754219.24	±16 ft	7734.4	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	na	na
Basalt Spring	NMEDDOE OB2004 028	1656440.295	1770853.108	±16 ft	6011	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	30–100 (estimated	30 (estimated)
Bonito Spring	GNIS 00913783	1501534.932	1859399.491	±168.5 ft of true position	na	2523.7	10 m, resolution	na	na	na
Bryan Spring	NMEDDOE OB2004 088	1614096.66	1767940.87	±16 ft	7411.7	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	8–12 (estimated)	8 (estimated)
Buck 1 Spring	NMEDDOE OB2004 009	1669149.68	1750935.42	±16 ft	5709.6	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	na	na

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Buck 2 Spring	NMEDDOE OB2004 008	1669338.09	1750042.56	±16 ft	5710.8	na	4.7 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	na	na
Bulldog Spring	NMEDDOE OB2004 083	1614808.72	1767195.69	±16 ft	7394.7	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	40–50 (estimated)	10 (estimated)
Burning Ground Spring	NMEDDOE OB2004 085	1614268	1764633	unknown	7417.3	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
Butterfly Spring	NMEDDOE OB2004 069	1622484.71	1795883.58	±16 ft	7394.3	na	2.4 ft, average resolution	Qtal, undifferentiated terrace and alluvium deposits (Quaternary)	<2 (estimated)	<2 (estimated)
Campground Spring	GNIS 00913825	1501722.921	1856248.643	±168.5 ft of true position	na	2484.2	10 m, resolution	na	na	na
Campsite Springs	NMEDDOE OB2004 111	1603673.95	1796416.85	±16 ft	8601.5	na	2.4 ft, average resolution	Ttr, Rendija lavas (Tertiary)	150–200 (estimated)	75 (estimated)
Canada Spring	NMEDDOE OB2004 002	1671968.278	1748829.761	±16 ft	na	1754.8	10 m, resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	<2 (estimated)	<2 (estimated)
CC-0.04 Spring	NMEDDOE OB2004 110	1603756.06	1796629.43	±16 ft	8603	na	2.4 ft, average resolution	Ttr, Rendija lavas (Tertiary)	8–12 (estimated)	8 (estimated)
CdV-0.8 Spring	NMEDDOE OB2004 071	1621704	1760855	unknown	6987.1	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–8 (estimated)	4 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
CdV-5.0 Spring	NMEDDOE OB2004 120	1601806.342	1767986.45	±16 ft	8406.6	na	2.4 ft, average resolution	na	8–12 (estimated)	4 (estimated)
CdV-5.29 Spring	NMEDDOE OB2004 138	1599482.17	1769730.42	±16 ft	8556.8	na	2.4 ft, average resolution	na	2–4 (estimated)	<2 (estimated)
CdV-5.76 Spring	NMEDDOE OB2004 141	1597382.87	1771371.03	±16 ft	8806.4	na	2.4 ft, average resolution	na	2–4 (estimated)	<2 (estimated)
CdV-5.97 Spring	NMEDDOE OB2004 142	1596469.15	1771945.34	±16 ft	8920.8	na	2.4 ft, average resolution	na	2–4 (estimated)	<2 (estimated)
CdV-6.05 Spring	NMEDDOE OB2004 143	1596083.34	1772183.15	±16 ft	8966.5	na	2.4 ft, average resolution	na	10–16 (estimated)	4 (estimated)
Cebollita Spring	GNIS 00887311	1500180.048	1758386.429	±168.5 ft of true position	na	2473.4	10 m, resolution	Qal, Quaternary alluvium	na	na
Charlie's Spring	NMEDDOE OB2004 094	1613558.58	1767804.51	±16 ft	7455.8	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	4–5 (estimated)	4 (estimated)
Cochiti Spring	GNIS 00905230	1625789.998	1668388.719	±168.5 ft of true position	5312.1	na	4.7 ft, average resolution	na	na	na
Coffman Springs	NMEDDOE OB2004 153	1591864.15	1757508.3	±16 ft	7982.6	na	2.4 ft, average resolution	na	85 (estimated)	85 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
CV Spring 1	ER2002-0593 002	1604144	1766462	unknown	8168.7	na	2.4 ft, average resolution	Tphd, hornblende dacite of Cerro Grande, Tschicoma Formation (Pliocene)	na	na
CV Spring 2	ER2002-0593 003	1604344	1766562	unknown	8183.7	na	2.4 ft, average resolution	Tphd, hornblende dacite of Cerro Grande, Tschicoma Formation (Pliocene)	na	na
Dave Spring	NMEDDOE OB2004 102	1606402.577	1752242.584	±16 ft	7074.3	na	2.4 ft, average resolution	Tphd, hornblende dacite of Cerro Grande, Tschicoma Formation (Pliocene)	6 (estimated)	6 (estimated)
Doe Spring	NMEDDOE OB2004 052	1642347.12	1733725.61	±16 ft	5547.9	na	2.4 ft, average resolution	Tcbm, basalt and interlayered phreatomagmatic deposits (Pliocene)	4–6 (estimated)	<2 (estimated)
DP Spring	NMEDDOE OB2004 059	1636477.58	1773651.18	unknown	6896.4	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–15 (estimated)	10 (estimated)
DP-0.0 Spring	NMEDDOE OB2004 058	1637615.31	1772979.79	unknown	6614.2	na	2.4 ft, average resolution	Qal, alluvium (mostly Holocene)	<2 (estimated)	<2 (estimated)
Dunlap Spring	GNIS 00913804	1512795.982	1829555.309	±168.5 ft of true position	na	2725	10 m, resolution	na	na	na

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Fish Ladder Spring	NMEDDOE OB2004 075	1616851	1763184	unknown	7352.2	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	4–8 (estimated)	<2 (estimated)
Flavjo Spring	GNIS 00937099	1554416.299	1851681.11	±168.5 ft of true position	na	2901.9	10 m, resolution	na	na	na
FR-10.01 Spring	NMEDDOE OB2004 145	1593468.27	1754075.73	±16 ft	7718	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	9 (estimated)	4 (estimated)
FR-10.26 Spring	NMEDDOE OB2004 150	1592277.161	1756073.344	±16 ft	7862.9	na	2.4 ft, average resolution	Tphd, hornblende dacite, Tschicoma Formation (Pliocene-Miocene)	15 (estimated)	6 (estimated)
FR-10.35 Spring	NMEDDOE OB2004 148	1592690.78	1754962.22	±16 ft	7784.1	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	9 (estimated)	4 (estimated)
FR-10.36 Spring	NMEDDOE OB2004 149	1592484.49	1757701.81	±16 ft	8026.2	na	2.4 ft, average resolution	na	6 (estimated)	4 (estimated)
FR-6.6 Spring	NMEDDOE OB2004 097	1611144.238	1749737.356	±16 ft	6839.6	na	2.4 ft, average resolution	Qal, alluvium (mostly Holocene)	4 (estimated)	4 (estimated)
FR-7.7 Spring	NMEDDOE OB2004 100	1606915.939	1752186.83	±16 ft	7037.8	na	2.4 ft, average resolution	Tphd, hornblende dacite of Cerro Grande, Tschicoma Formation (Pliocene)	15 (estimated)	6 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
FR-8.1 Spring	NMEDDOE OB2004 112	1603298.462	1752631.098	±16 ft	7213.2	na	2.4 ft, average resolution	Qbt(?), upper Bandelier Tuff, Tshirege Member (Pleistocene)	<2 (estimated)	<2 (estimated)
FR-8.4 Spring	NMEDDOE OB2004 125	1601158.559	1751863.082	±16 ft	7299.5	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	<2 (estimated)	<2 (estimated)
FR-9.6 Spring	NMEDDOE OB2004 144	1594580.06	1752805.09	±16 ft	7630.2	na	2.4 ft, average resolution	Qls, landslide (Quaternary)	<2 (estimated)	<2 (estimated)
FR-9.9 Spring	NMEDDOE OB2004 146	1593448.86	1753950.8	±16 ft	7704.4	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	3–5 (estimated)	3 (estimated)
Frijoles Spring 1	NMEDDOE OB2004 151	1591940.54	1759584.95	±16 ft	8376.1	na	2.4 ft, average resolution	na	300 (estimated)	25 (estimated)
Frijoles Spring 2	NMEDDOE OB2004 157	1589897.53	1758627.2	±16 ft	8298.5	na	2.4 ft, average resolution	na	350 (estimated)	30 (estimated)
FRWT-0.15 Spring	NMEDDOE OB2004 156	1591161.62	1757591.65	±16 ft	8017.1	na	2.4 ft, average resolution	na	15 (estimated)	4 (estimated)
FRWT-0.16 Spring	NMEDDOE OB2004 155	1591813.886	1754772.731	±16 ft	7915	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	22 (estimated)	22 (estimated)
FRWT-1.01 Spring	NMEDDOE OB2004 158	1588869.87	1761568.24	±16 ft	8729.8	na	2.4 ft, average resolution	na	4 (estimated)	4 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
GA-0.36 Spring	NMEDDOE OB2004 065	1628646	1804264	unknown	7288.5	na	4.7 ft, average resolution	Qcta, Cerro Toledo interval with younger alluvium and/or colluvium (Quaternary)	na	na
Garvey Spring	NMEDDOE OB2004 091	1613744.15	1767903.64	±16 ft	7450.7	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	<2 (estimated)	<2 (estimated)
GU-0.01 Spring	NMEDDOE OB2004 013	1666463.109	1777215.241	±16 ft	5654.8	na	2.4 ft, average resolution	Qtp, piedmont alluvium (Holocene)	0–15 (estimated)	6 (estimated)
GU-13.4 Spring	NMEDDOE OB2004 104	1605129.59	1795587.76	±16 ft	8492.2	na	2.4 ft, average resolution	Ttr, Rendija lavas (Tertiary)	8–12 (estimated)	8 (estimated)
GU-13.6 Spring	NMEDDOE OB2004 106	1604400.87	1796189.73	±16 ft	8564.7	na	2.4 ft, average resolution	Ttr, Rendija lavas (Tertiary)	<2 (estimated)	<2 (estimated)
GU-13.8 Spring	NMEDDOE OB2004 117	1602681.327	1796734.161	±16 ft	8673.4	na	2.4 ft, average resolution	na	<2 (estimated)	<2 (estimated)
GU-13.85 Spring	NMEDDOE OB2004 115	1602687.395	1796566.725	±16 ft	8667.8	na	2.4 ft, average resolution	na	10–14 (estimated)	10 (estimated)
GU-14.0 Spring	NMEDDOE OB2004 118	1602290.137	1796617.797	±16 ft	8702.2	na	2.4 ft, average resolution	na	15–20 (estimated)	4 (estimated)
Guaje Spring 1	NMEDDOE OB2004 131	1600653.518	1797624.575	±16 ft	8839	na	2.4 ft, average resolution	na	100 (estimated)	10 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Guaje Spring 2	NMEDDOE OB2004 132	1600495.653	1795990.476	±16 ft	8819.6	na	2.4 ft, average resolution	na	150 (estimated)	40 (estimated)
Guardia Spring	GNIS 00913814	1507704.137	1838233.364	±168.5 ft of true position	na	2691.1	10 m, resolution	na	na	na
GUNT-0.20 Spring	NMEDDOE OB2004 122	1601420.227	1797452.945	±16 ft	8798.7	na	2.4 ft, average resolution	na	10–14 (estimated)	10 (estimated)
GUNT-0.24 Spring	NMEDDOE OB2004 124	1601249.216	1797626.345	±16 ft	8817.2	na	2.4 ft, average resolution	na	<2 (estimated)	<2 (estimated)
GUSF-0.3 Spring	NMEDDOE OB2004 130	1600706.001	1796071.929	±16 ft	8801.6	na	2.4 ft, average resolution	na	<2 (estimated)	<2 (estimated)
GUSF-0.4 Spring	NMEDDOE OB2004 135	1600236.871	1795912.037	±16 ft	8836.1	na	2.4 ft, average resolution	na	3–5 (estimated)	<2 (estimated)
Hamilton Bend Spring	NMEDDOE OB2004 050	1642643	1776209	±16 ft	6493.4	na	2.4 ft, average resolution	Qtp5, piedmont alluvium (Holocene to late Pleistocene(?))	0–8 (estimated)	<2 (estimated)
Hanlon Spring	NMEDDOE OB2004 081	1615437.49	1771631.48	±16 ft	7481.9	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–2 (estimated)	<2 (estimated)
Hollow Spring	NMEDDOE OB2004 070	1622326	1762412	unknown	7156.8	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	<2 (estimated)	<2 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Homestead Spring	NMEDDOE OB2004 087	1614176.32	1768659.27	±16 ft	7440.1	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	10–30 (estimated)	6 (estimated)
Indian Spring	NMEDDOE OB2004 011	1667390.37	1777251.42	unknown	5660.6	na	2.4 ft, average resolution	Qtp5, piedmont alluvium (Holocene to late Pleistocene(?))	2–6 (estimated)	4 (estimated)
Jemez Canyon Hot Spr	NMEDDOE OB2004 165	1522544	1757562	±328 ft	na	2083.5	10 m, resolution	Pm, Madera Formation (Permian)	na	na
Jemez Hot Spring Orig	GNIS 00914428	1510033.047	1737214.692	±168.5 ft of true position	0	1895.3	10 m, resolution	Qal, alluvium (mostly Holocene)	na	na
Jemez Village Spring JS2/3	NMEDDOE OB2004 169	1509544	1735762	±328 ft	na	1896.5	10 m, resolution	Qal, alluvium (mostly Holocene)	na	na
Jemez Village Spring JS4/5	NMEDDOE OB2004 167	1511044	1741162	±328 ft	na	1923	10 m, resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	na	na
Josie Spring	NMEDDOE OB2004 086	1614227.03	1767981.42	±16 ft	7411.6	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–4 (estimated)	4 (estimated)
Katz's Spring	NMEDDOE OB2005070 1 01	1648958.919	1736628.561	unknown	na	5474	Unknown	Colluvium derived from Tp formation		
KIeling Spring	NMEDDOE OB2004 084	1614502.26	1767223.06	±16 ft	7417.4	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	8–20 (estimated)	8 (estimated)
La Cueva Spring	NMEDDOE OB2004 162	1523844	1772862	±328 ft	na	2336.6	10 m, resolution	Qal, alluvium (mostly Holocene)	na	na

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
La Jara Spring	GNIS 00937103	1557180.814	1851078.393	±168.5 ft of true position	na	2908.7	10 m, resolution	na	na	na
La Mesita Spring	NMEDDOE OB2004 003	1671887.79	1772266.86	±16 ft	5549.6	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	30–50 (estimated)	8 (estimated)
LA-12.6 Spring	NMEDDOE OB2004 103	1606240.73	1780669.97	±16 ft	7966.5	na	2.4 ft, average resolution	Qal, alluvium (Quaternary)	8–12 (estimated)	6 (estimated)
LA-13.8 Spring	NMEDDOE OB2004 137	1599734.37	1781437.13	unknown	8876.7	na	2.4 ft, average resolution	na	12–18 (estimated)	<2 (estimated)
LA-5.19 Spring	NMEDDOE OB2004 045	1643975.751	1771875.755	±16 ft	6471.1	na	2.4 ft, average resolution	Qa 3(?), alluvial deposit (Holocene)	0–18 (estimated)	4 (estimated)
Las Vegitas Spring	GNIS 00918230	1509979.612	1693095.11	±168.5 ft of true position	na	1791.2	10 m, resolution	na	na	na
Leche Spring	GNIS 00937104	1539445.313	1824735.758	±168.5 ft of true position	na	2791.7	10 m, resolution	na	na	na
Los Alamos Spring	NMEDDOE OB2004 024	1657368.09	1771080.46	±16 ft	5976.8	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	2–4 (estimated)	<2 (estimated)
Madrid Spring	GNIS 00937107	1546491.195	1840918.359	±168.5 ft of true position	na	2978	10 m, resolution	na	na	na
Martin Spring	NMEDDOE OB2004 082	1614837	1761965	unknown	7442.7	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–20 (measured)	<2 (estimated)
McCauley Spring	GNIS 00914324	1528522.576	1753944.976	±168.5 ft of true position	na	2241.9	10 m, resolution	Qls, landslide deposit (Holocene to late Pliocene)	na	na

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Ojito Palo Duro	GNIS 00909273	1557439.601	1857728.068	±168.5 ft of true position	na	2849.2	10 m, resolution	na	na	na
Ojo Chamisa	GNIS 00915871	1522132.963	1667248.311	±168.5 ft of true position	na	1866	10 m, resolution	na	na	na
Otowi Spring	NMEDDOE OB2004 001	1672317.503	1773647.958	±16 ft	5492.2	na	2.4 ft, average resolution	Qa3, alluvial deposit (Holocene)	4–10 (estimated)	4 (estimated)
Pajarito Ski Chair	NMEDDOE OB2004 116	1602684.305	1779176.594	±16 ft	8982.9	na	2.4 ft, average resolution	na	na	na
Pajarito Ski Shop	NMEDDOE OB2004 139	1599397.343	1780625.405	±16 ft	9221.3	na	2.4 ft, average resolution	na	na	na
PBTR-0.71 Spring	NMEDDOE OB2004 079	1616088.78	1781785.31	unknown	7529.2	na	2.4 ft, average resolution	Qbt, upper Bandelier, Tshirege Member (Quaternary)	<2 (estimated)	<2 (estimated)
PC Spring	NMEDDOE OB2004 128	1601022.14	1772943.43	±16 ft	8789.6	na	2.4 ft, average resolution	na	20–40 (estimated)	10 (estimated)
PC1 Spring	NMEDDOE OB2004 121	1601495.89	1773149	±16 ft	8699.4	na	2.4 ft, average resolution	na	2–4 (estimated)	<2 (estimated)
PC2 Spring	NMEDDOE OB2004 123	1601397.36	1773142.24	±16 ft	8716.2	na	2.4 ft, average resolution	na	2–4 (estimated)	<2 (estimated)
Pedro Spring	GNIS 00913805	1519919.946	1827044.221	±168.5 ft of true position	na	2758.4	10 m, resolution	na	na	na
Perkins Spring	NMEDDOE OB2004 092	1613734.08	1767897.77	±16 ft	7446.4	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–4 (estimated)	<2 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Peter Spring	NMEDDOE OB2004 093	1613674	1764863	unknown	7439.5	na	2.4 ft, average resolution	Qbt(?), upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–10 (estimated)	<2 (estimated)
Pine Rock Spring	NMEDDOE OB2005070 1 02	1659730.303	1757513.502	unknown	na	6075	Unknown	Ta, Pleistocene(?) and Pliocene lacustrine deposits	na	na
Pine Spring (SRC)	NMEDDOE OB2004 068	1624150.31	1804195.49	unknown	7726.9	na	4.7 ft, average resolution	Ttc, Caballo lavas, Tshicoma Formation (Tertiary)	na	na
Pine Spring Cabin	NMEDDOE OB2004 064	1630080.15	1803405.72	unknown	7248.1	na	4.7 ft, average resolution	Tkv, Keres volcanic rocks (Miocene)	na	na
QMZ-1.7 Spring	NMEDDOE OB2004 119	1601940.765	1789459.245	±16 ft	8815.3	na	2.4 ft, average resolution	na	<2 (estimated)	<2 (estimated)
Quemazon Spring	NMEDDOE OB2004 114	1602713.136	1788722.773	±16 ft	8693.6	na	2.4 ft, average resolution	na	30–35 (estimated)	12 (estimated)
Reservoir Spring	NMEDDOE OB2004 101	1606859.97	1779056.92	±16 ft	7844	na	2.4 ft, average resolution	Qal, alluvium (Quaternary)	80–100 (estimated	10 (estimated)
Rincon Spring	GNIS 00913784	1496937.415	1864442.27	±168.5 ft of true position	na	2543.1	10 m, resolution	na	na	na
RN-0.9 Spring	NMEDDOE OB2004 096	1612410	1787236.41	±16 ft	8061.3	na	2.4 ft, average resolution	Ttr, Rendija lavas (Tertiary)	<2 (estimated)	<2 (estimated)
Sacred Spring	NMEDDOE OB2004 006	1669915.437	1780252.86	unknown	5634.2	na	4.7 ft, average resolution	Qtp5, piedmont alluvium (Holocene to late Pleistocene(?))	30–50 (estimated)	6 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
San Antonio Hot Spring	GNIS 00910605	1523218.264	1796917.48	±168.5 ft of true position	na	2549.7	10 m, resolution	na	na	na
San Antonio Warm Spring	GNIS 00902625	1548348.629	1809040.624	±168.5 ft of true position	na	2575.2	10 m, resolution	na	na	na
San Lorenzo Spring	GNIS 00910653	1627986.098	1834319.016	±168.5 ft of true position	na	2216.8	10 m, resolution	na	na	na
Sandia Spring	NMEDDOE OB2004 015	1663153.545	1761836.2	±16 ft	5682.8	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	60 (estimated)	<2 (estimated)
Sino Spring	GNIS 00911091	1513174.037	1754503.541	±168.5 ft of true position	na	2326.8	10 m, resolution	Qcbt	na	na
Skate Spring	NMEDDOE OB2004 074	1617127.82	1776078.03	unknown	7312.9	na	2.4 ft, average resolution	Qbt, upper Bandelier, Tshirege Member (Quaternary)	3–5 (estimated)	4 (estimated)
Skull Spring	NMEDDOE OB2004 152	1591938.394	1754352.713	±16 ft	7879.9	na	2.4 ft, average resolution	Qbo, lower Bandelier Tuff, Otowi Member (Pleistocene)	65 (estimated)	20 (estimated)
SM-30 Spring	ER2002-0593 045	1616519.894	1773124.025	unknown	7411.2	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–2 (estimated)	<2 (estimated)
SM-30A Spring	ER2002-0593 046	1616498.114	1772856.123	unknown	7389.1	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–2 (estimated)	<2 (estimated)
Soda Dam Hot Spr JF5	NMEDDOE OB2004 168	1510844	1743662	±328 ft	na	1956.8	10 m, resolution	Qt(?)	na	na
Spence Hot Spring	GNIS 00914429	1528054.959	1764672.829	±168.5 ft of true position	na	2240.7	10 m, resolution	Pa, Abo Formation (Permian)	na	na

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
SPET-1.7 Spring	NMEDDOE OB2004 160	1584650.347	1751892.294	±16 ft	8651.8	na	4.7 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
Spring 1	NMEDDOE OB2004 010	1667772.279	1767986.085	±16 ft	5622	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	40 (estimated)	<2 (estimated)
Spring 10	NMEDDOE OB2004 057	1638008.43	1728240.08	±16 ft	5368.8	na	4.7 ft, average resolution	na	<2 (estimated)	<2 (estimated)
Spring 2	NMEDDOE OB2004 012	1667216.958	1766472.822	±16 ft	5585	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	20 (estimated)	<2 (estimated)
Spring 2A	NMEDDOE OB2004 016	1662644	1754862	±328 ft	5517.2	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	na	na
Spring 2B	WQH SPR ULI 14111	1661936	1754700	±0 ft	5432.9	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	<2 (estimated)	<2 (estimated)
Spring 3	NMEDDOE OB2004 020	1661216.24	1753718.34	±16 ft	5534.6	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	60–80 (estimated)	6 (estimated)
Spring 3A	NMEDDOE OB2004 019	1661229.5	1753534.16	±16 ft	5511.6	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	131–133 (measured	100 (estimated)
Spring 3AA	NMEDDOE OB2004 021	1660966.8	1751344.95	±16 ft	5459.7	na	2.4 ft, average resolution	Qls, Landslide deposit (Holocene to late Pliocene)	<2 (estimated)	<2 (estimated)
Spring 3B	NMEDDOE OB2004 018	1661354	1749814	±328 ft	5457.8	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	0–10 (estimated)	8 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Spring 3C	NMEDDOE OB2004 022	1658441.84	1748762.52	±16 ft	5421.8	na	2.4 ft, average resolution	Qls(?), landslide deposit (Holocene to late Pliocene)	16–20 (estimated)	18 (estimated)
Spring 4	NMEDDOE OB2004 023	1657414.67	1748291.71	±16 ft	5426.6	na	2.4 ft, average resolution	Qls(?), landslide deposit (Holocene to late Pliocene)	184 (measured)	180 (estimated)
Spring 4A	NMEDDOE OB2004 030	1656064.01	1748068.89	±16 ft	5617.1	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	924 (measured)	50 (estimated)
Spring 4AA	NMEDDOE OB2004 029	1656115.51	1748461.51	±16 ft	5634.2	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	15–20 (estimated)	10 (estimated)
Spring 4B	NMEDDOE OB2004 026	1656962.59	1748270.68	±16 ft	5506.2	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	10 (estimated)	<2 (estimated)
Spring 4C	NMEDDOE OB2004 025	1657251.15	1748374.13	±16 ft	5463.8	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	80 (estimated)	60 (estimated)
Spring 4D	NMEDDOE OB2004 027	1656650.056	1746334.817	±16 ft	5416.4	na	2.4 ft, average resolution	Qls(?), landslide deposit (Holocene to late Pliocene)	<2 (estimated)	<2 (estimated)
Spring 5	NMEDDOE OB2004 033	1655026.92	1743190.17	±16 ft	5554.4	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	44 (measured)	20 (estimated)
Spring 5A	NMEDDOE OB2004 032	1655489.13	1741920.45	±16 ft	5414.6	na	2.4 ft, average resolution	Qls(?), landslide deposit (Holocene to late Pliocene)	10 (estimated)	<2 (estimated)
Spring 5AA	NMEDDOE OB2004 035	1651144	1742562	±328 ft	5787.4	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	na	0 (pooled)(estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Spring 5B	NMEDDOE OB2004 034	1651802.897	1738172.63	±16 ft	5393.2	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	25–35 (estimated)	15 (estimated)
Spring 5C	NMEDDOE OB2004 031	1655911.944	1742125.492	±16 ft	5411.3	na	2.4 ft, average resolution	Qa2(?), alluvial and lacustrine deposit (Holocene and late Pleistocene)	<2 (estimated)	<2 (estimated)
Spring 6	WQH SPR ULI 2941	1648882	1735517	±300 ft	5380.9	na	2.4 ft, average resolution	Qls(?), landslide deposit (Holocene to late Pliocene)	40–50 (estimated)	20 (estimated)
Spring 6A	NMEDDOE OB2004 038	1647047.11	1734368.47	±16 ft	5370.7	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	50–70 (estimated)	18 (estimated)
Spring 6AA	NMEDDOE OB2004 040	1646733.018	1734352.815	±16 ft	5368.9	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	120–180 (estimate	120 (estimated)
Spring 6AAA	NMEDDOE OB2004 041	1646632.745	1734336.373	±16 ft	5374.7	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	10–100 (estimated	50 (estimated)
Spring 7	WQH SPR ULI 2961	1645317	1733782	±15 ft	5366.7	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	6–10 (estimated)	<2 (estimated)
Spring 8	NMEDDOE OB2004 044	1644664	1733615.96	±16 ft	5366.4	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	6–10 (estimated)	<2 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Spring 8A	NMEDDOE OB2004 046	1643802.216	1734004.86	unknown	5472.4	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	20–30 (estimated)	4 (estimated)
Spring 8B	NMEDDOE OB2004 048	1643464.945	1733751.985	unknown	5458.7	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	<2 (estimated)	<(estimated)
Spring 9	WQH SPR ULI 3011	1643134.734	1733631.205	unknown	5460.3	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	30–40 (estimated)	8 (estimated)
Spring 9A	NMEDDOE OB2004 051	1642542.55	1733606.12	±16 ft	5563.1	na	2.4 ft, average resolution	Qls, landslide deposit (Holocene to late Pliocene)	30–50 (estimated)	12 (estimated)
Spring 9B	NMEDDOE OB2004 054	1642129	1732281	±16 ft	5500.4	na	2.4 ft, average resolution	Tcm, Phreatomagmatic deposit (Pliocene)	<2 (estimated)	<2 (estimated)
Spring 9BB	NMEDDOE OB2004 056	1641424.91	1732332.73	unknown	6139.4	na	2.4 ft, average resolution	Tcba, basaltic andesite and related flows (Pliocene)	na	na
Spring 9C	NMEDDOE OB2004 053	1642164.239	1731520.068	±16 ft	5403.4	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	<2 (estimated)	<2 (estimated)
Spring 9D	NMEDDOE OB2004 055	1642082	1731021	unknown	5363.6	na	2.4 ft, average resolution	Qc, colluvial deposit (Holocene to middle Pleistocene)	<2 (estimated)	<2 (estimated)
Starmer Spring	NMEDDOE OB2004 090	1613806.09	1767878.8	±16 ft	7446.5	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	20–50 (estimated)	10 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Stone Spring	NMEDDOE OB2004 105	1604647.36	1760047.17	±16 ft	7793.3	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	4–12 (estimated)	4 (estimated)
SWSC Spring	ER2002-0593 036	1613900.587	1764757.192	unknown	7433.6	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–65 (measured)	<2 (estimated)
TA-18 Spring	NMEDDOE OB2005070 1 04	1634208.51	1760732.94	unknown	na	6763.6	Unknown	Qal, alluvium (mostly Holocene)	na	na
Threemile Spring	NMEDDOE OB2005070 1 05	1631925.84	1761621.639	unknown	na	6846	Unknown	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
TS-1.42 Spring	NMEDDOE OB2004 066	1626815	1768810	unknown	7173.9	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	<2 (estimated)	<2 (estimated)
TW-1.72 Spring	NMEDDOE OB2005070 1 06	1618788.678	1771125.871	unknown	na	7401	Unknown	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
Upper Starmer Spring	NMEDDOE OB2004 095	1613443.63	1767779.07	±16 ft	7467.1	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	0–15 (estimated)	4 (estimated)
WA-6.25 Spring	NMEDDOE OB2004 067	1624989.87	1757503.12	unknown	6796.2	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	2–6 (estimated)	4 (estimated)

Table A-1 (continued)

Spring	Label	Easting (ft)	Northing (ft)	Positional Accuracy	Elevation (NGVD29, ft)	Elevation (NAVD88, ft)	Elevation Accuracy	Geology	Total Flow (L/m)	Flow at Sample Point (L/m)
Warner Spring	NMEDDOE OB2004 004	1670018	1775728	±3280 ft	5562.1	na	2.4 ft, average resolution	Qc, colluvium (Holocene to middle Pleistocene)	na	na
Water Canyon Gallery	NMEDDOE OB2004 108	1604172.61	1762507.18	±16 ft	7948.2	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
WC Seeps below SR501	NMEDDOE OB2004 098	1608230.198	1760269.42	±16 ft	7500	na	2.4 ft, average resolution	Qbt, upper Bandelier Tuff, Tshirege Member (Pleistocene)	na	na
Yak Spring	NMEDDOE OB2004 113	1602884.282	1788491.755	±16 ft	8674.1	na	2.4 ft, average resolution	na	8–12 (estimated)	6 (estimated)
Young Spring	NMEDDOE OB2004 099	1608157.39	1777653.32	±16 ft	7731.8	na	2.4 ft, average resolution	Ttp, Pajarito lavas, Tshicoma Formation (Tertiary)	8–12 (estimated)	4 (estimated)

*na = Not available.

Table A-2
Locations of Monitoring and Supply Wells at Los Alamos National Laboratory

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
03-B-10	1616682.08	1773307.21	Intermediate	Monitoring Well
03-B-13	1616691.69	1773317.07	Intermediate	Monitoring Well
03-B-9	1616671.9	1773331.38	Intermediate	Monitoring Well
18-BG-1	1634152.9	1762575.36	Alluvial	Monitoring Well
18-BG-4	1633510	1760760	Alluvial	Monitoring Well
18-MW-11	1636001.69	1761139.83	Alluvial	Monitoring Well
18-MW-17	1637778.2	1759717.1	Alluvial	Monitoring Well
18-MW-18	1639925	1758247.2	Alluvial	Monitoring Well
18-MW-7	1634846.28	1761791.52	Alluvial	Monitoring Well
18-MW-8	1634714.26	1760658.14	Alluvial	Monitoring Well
18-MW-9	1635949.81	1760893.56	Alluvial	Monitoring Well
39-DM-6	1637094	1747228	Alluvial	Monitoring Well
39-UM-3	1637032	1747663	Alluvial	Monitoring Well
3MAO-2	1635406.23	1760917.71	Alluvial	Monitoring Well
APCO-1	1649209.62	1773020.12	Alluvial	Monitoring Well
Black Mesa Well	1680202	1784504	Regional	Supply Well
Buckman 1	1667364.6	1759256.1	Regional	Supply Well
Buckman 2	1668132.45	1757102.84	Regional	Supply Well
Buckman 3	1665604.89	1758411.87	Regional	Supply Well
Buckman 4	1672353.22	1757372.68	Regional	Supply Well
Buckman 5	1722797.05	1714961.17	Regional	Supply Well
Buckman 6	1672132.3	1753407.9	Regional	Supply Well
Buckman 7	1669553	1758821	Regional	Supply Well
Buckman 8	1665614.6	1758471.3	Regional	Supply Well
Buckman NW	1722797.05	1714961.17	Regional	Supply Well
CDBO-1	1637968.59	1760943.96	Alluvial	Monitoring Well
CDBO-2	1638119.02	1761103.11	Alluvial	Monitoring Well
CDBO-3	1640677.11	1759611.02	Alluvial	Monitoring Well
CDBO-4	1645474.9	1758546.9	Alluvial	Monitoring Well
CDBO-5	1633583.37	1765818.37	Alluvial	Monitoring Well
CDBO-6	1636209.25	1764759.75	Alluvial	Monitoring Well
CDBO-7	1637400	1763301	Alluvial	Monitoring Well
CDBO-8	1639294	1762366	Alluvial	Monitoring Well
CDBO-9	1642119.12	1759702.87	Alluvial	Monitoring Well
CdV-16-1(i)	1615078.2	1764415.2	Intermediate	Monitoring Well
CdV-16-2(i)[a]	1616741.2	1764237.2	Intermediate	Monitoring Well
CdV-16-2(i)r	1616673.24	1764219.4	Intermediate	Monitoring Well
CdV-16-2(i)r	1616673.24	1764219.4	Intermediate	Monitoring Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
CDV-37-1(i)	not surveyed	not surveyed	Intermediate	Monitoring Well
CDV-MW-1	1611299.09	1764153.13	Alluvial	Monitoring Well
CDV-MW-2	1613634.46	1764932.79	Alluvial	Monitoring Well
CDV-MW-3	1613813.19	1764850.1	Alluvial	Monitoring Well
CDV-MW-4	1615071.38	1764469.56	Alluvial	Monitoring Well
CDV-MW-5	1616712.08	1765035.06	Alluvial	Monitoring Well
CdV-R-15-3	1623222.3	1762347.5	Intermediate	Monitoring Well
CdV-R-37-2	1619216.7	1759320.8	Intermediate	Monitoring Well
Don Juan Playhouse Well	1675966	1774595	Regional	Supply Well
Eastside Artesian Well	1673860	1775705	Regional	Supply Well
FCO-1	1642409	1751177	Alluvial	Monitoring Well
G-1A	1655240.87	1784353.25	Regional	Supply Well
G-2A	1651973.83	1786166.25	Regional	Supply Well
G-3A	1649661.54	1786585.25	Regional	Supply Well
G-4A	1647318.22	1787112.89	Regional	Supply Well
G-5A	1644877.21	1789636	Regional	Supply Well
Halladay House Well	1670392.12	1774846.5	Regional	Supply Well
J. Martinez House Well	1675261	1783737	Regional	Supply Well
LA-2	1666924.25	1777219.12	Regional	Supply Well
LA-5	1659826.25	1772533.12	Regional	Supply Well
LADP-3	1632989	1773469.1	Intermediate	Monitoring Well
LADP-5	1634648.96	1774600.47	Intermediate	Monitoring Well
LAO-0.3	1624799	1774511.6	Alluvial	Monitoring Well
LAO-0.6	1626748.1	1774332.9	Alluvial	Monitoring Well
LAO-0.7	1627212.25	1774260.37	Alluvial	Monitoring Well
LAO-1	1629395	1773956.37	Alluvial	Monitoring Well
LAO-1.6g	1636083.42	1772557.63	Alluvial	Monitoring Well
LAO-1.8	1635446.25	1772661.37	Alluvial	Monitoring Well
LAO-2	1637607.75	1773095.87	Alluvial	Monitoring Well
LAO-3a	1637980.87	1773099.75	Alluvial	Monitoring Well
LAO-4	1640752	1772729.5	Alluvial	Monitoring Well
LAO-4.5	1643659.12	1772087.62	Alluvial	Monitoring Well
LAO-4.5c	1643547.37	1772076.5	Alluvial	Monitoring Well
LAO-5	1646202.25	1771424.12	Alluvial	Monitoring Well
LAO-6	1646222.12	1771329.5	Alluvial	Monitoring Well
LAO-6a	1646221.62	1771344	Alluvial	Monitoring Well
LAO-B	1615148.8	1775170.4	Alluvial	Monitoring Well
LAO-C	1622157.87	1775249.75	Alluvial	Monitoring Well
LAOI(a)-1.1	1629427.38	1773924.51	Intermediate	Monitoring Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
LAOI-3.2	1637642.1	1773066.93	Intermediate	Monitoring Well
LAOI-3.2a	1637619.97	1773100.91	Intermediate	Monitoring Well
LAOI-7	1644788.53	1771584.11	Intermediate	Monitoring Well
LAUZ-1	1633435.13	1774809.81	Alluvial	Monitoring Well
LLAO-1b	1659738.7	1772381.65	Alluvial	Monitoring Well
LLAO-4	1671820.23	1774468.01	Alluvial	Monitoring Well
Martinez House Well	1675261	1783737	Regional	Supply Well
MCA-1	1626586.5	1770410.77	Alluvial	Monitoring Well
MCA-2	1634097.23	1768585.88	Alluvial	Monitoring Well
MCA-4	1625945.5	1770129.55	Alluvial	Monitoring Well
MCA-5	1627354.17	1770233.59	Alluvial	Monitoring Well
MCB-1	1625585.6	1770129.7	Alluvial	Monitoring Well
MCB-10	1635606.7	1768644.1	Alluvial	Monitoring Well
MCB-11	1635620.1	1768535.9	Alluvial	Monitoring Well
MCB-12	1635632.7	1768435.8	Alluvial	Monitoring Well
MCB-14	1634513.5	1768498.9	Alluvial	Monitoring Well
MCB-16	1641075.8	1767054.1	Alluvial	Monitoring Well
MCB-2	1626624.5	1770334	Alluvial	Monitoring Well
MCB-5	1631545.7	1769770.2	Alluvial	Monitoring Well
MCB-6	1632604.1	1769471.5	Alluvial	Monitoring Well
MCB-7	1633607.7	1769057.3	Alluvial	Monitoring Well
MCB-8	1634701.4	1768627.5	Alluvial	Monitoring Well
MCB-9	1634844.4	1768548.7	Alluvial	Monitoring Well
MCO-0.6	1623987.8	1771179.5	Alluvial	Monitoring Well
MCO-12	1640326.32	1768206.21	Alluvial	Monitoring Well
MCO-13	1641174.29	1767501.88	Alluvial	Monitoring Well
MCO-2	1625919.25	1770135.12	Alluvial	Monitoring Well
MCO-3	1627362.5	1770236.75	Alluvial	Monitoring Well
MCO-4B	1632036.37	1769697	Alluvial	Monitoring Well
MCO-5	1632466.12	1769538	Alluvial	Monitoring Well
MCO-6	1633635.37	1769012.75	Alluvial	Monitoring Well
MCO-6.8	na[b]	na	Alluvial	Monitoring Well
MCO-6B	1633630.5	1768983.62	Alluvial	Monitoring Well
MCO-7	1634517.87	1768509.87	Alluvial	Monitoring Well
MCO-7.5	1635454.87	1768440.5	Alluvial	Monitoring Well
MCO-7A	1634503.5	1768509.25	Alluvial	Monitoring Well
MCO-9	1638056.24	1768370.63	Alluvial	Monitoring Well
MCOBT-4.4[a]	1634189.8	1768514.67	Intermediate	Monitoring Well
MCOI-1	1628044.5	1769957.4	Intermediate	Monitoring Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
MCOI-10	1635356.6	1767640.9	Intermediate	Monitoring Well
MCOI-4	1634128.53	1768542.01	Intermediate	Monitoring Well
MCOI-5	1635247.94	1768300.46	Intermediate	Monitoring Well
MCOI-6	1635345.65	1768428.06	Intermediate	Monitoring Well
MCOI-8	1633329.74	1769214.4	Intermediate	Monitoring Well
MCRES-2	1634062.7	1768632.1	Intermediate	Monitoring Well
MCRES-3	1633161.4	1769329.9	Intermediate	Monitoring Well
MCRES-4	1632873.3	1769472.8	Intermediate	Monitoring Well
MCWB-4	1631740.56	1769745.66	Alluvial	Monitoring Well
MCWB-6.2B	1633685.09	1768897.84	Alluvial	Monitoring Well
MCWB-6.5D	1633878.05	1768536.19	Alluvial	Monitoring Well
MCWB-6.5E	1633833.36	1768583.81	Alluvial	Monitoring Well
MCWB-6.6	1634020.98	1768565.73	Alluvial	Monitoring Well
MCWB-7.7A	1635902.25	1768700.71	Alluvial	Monitoring Well
MCWB-7A	1634356.62	1768551.02	Alluvial	Monitoring Well
MCWB-8.1A	1636552.36	1768704.12	Alluvial	Monitoring Well
MCWB-8.1B	1636559.97	1768618.31	Alluvial	Monitoring Well
MCWB-8.1C	1636565.71	1768531.74	Alluvial	Monitoring Well
MCWB-9A	1638123.04	1768627.67	Alluvial	Monitoring Well
MCWB-9B	1638069	1768490.99	Alluvial	Monitoring Well
MSC-16-06293	1615809.67	1761331.78	Alluvial	Monitoring Well
MSC-16-06294	1617848.17	1761298.78	Alluvial	Monitoring Well
MSC-16-06295	1618630.67	1761004.78	Alluvial	Monitoring Well
MT-1	1635262.86	1768493.96	Alluvial	Monitoring Well
MT-2	1636019.79	1768544.59	Alluvial	Monitoring Well
MT-3	1635980.95	1768657.83	Alluvial	Monitoring Well
MT-4	1636558.75	1768634.37	Alluvial	Monitoring Well
New Community Well	1680050.75	1782919.25	Regional	Supply Well
O-1	1649396.25	1772232.12	Regional	Supply Well
O-4	1637337.37	1772995.12	Regional	Supply Well
Otowi House Well	1672418	1774580	Regional	Supply Well
Pajarito Well (Pump 1)	1676281.75	1785718.12	Regional	Supply Well
PAO-1	1624165.85	1778988.72	Alluvial	Monitoring Well
PAO-2	1625040.9	1778710	Alluvial	Monitoring Well
PAO-3	1637747.7	1776856.31	Alluvial	Monitoring Well
PAO-4	1646090.28	1775098.35	Alluvial	Monitoring Well
PCAO-5	1627047.37	1765955.68	Alluvial	Monitoring Well
PCAO-6	1627610.363	1765888.716	Alluvial	Monitoring Well
PCAO-7a	1636938.564	1760549.162	Alluvial	Monitoring Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
PCAO-7b	1636776.59	1760551.93	Alluvial	Monitoring Well
PCAO-7b1	1636831.469	1760490.097	Alluvial	Monitoring Well
PCAO-7b2	1636846.446	1760481.058	Alluvial	Monitoring Well
PCAO-7c	1636681.52	1760349.51	Alluvial	Monitoring Well
PCAO-8	1643674.19	1756504.89	Alluvial	Monitoring Well
PCAO-9	1645540.814	1755980.245	Alluvial	Monitoring Well
PCI-2	1627648.27	1765872.63	Intermediate	Monitoring Well
PCO-1	1637919.25	1759990.62	Alluvial	Monitoring Well
PCO-2	1641700.37	1757442.75	Alluvial	Monitoring Well
PCO-3	1646088.62	1755489.37	Alluvial	Monitoring Well
PM-1	1647734.25	1768112.12	Regional	Supply Well
PM-2	1636697.5	1760406.37	Regional	Supply Well
PM-3	1642631	1769426.12	Regional	Supply Well
PM-4	1635623	1764740	Regional	Supply Well
PM-5	1633083.25	1767809.12	Regional	Supply Well
POI-4	1649432.46	1772587.08	Intermediate	Monitoring Well
PRB-MW-01	1632194.71	1769698.88	Alluvial	Monitoring Well
PRB-MW-02	1632251.52	1769661.8	Alluvial	Monitoring Well
R-1	1632354.13	1769600.84	Regional	Monitoring Well
R-10	1653465.92	1764766.46	Regional	Monitoring Well
R-10a	1653411.63	1764782.29	Regional	Monitoring Well
R-11	1639959.31	1769353.57	Regional	Monitoring Well
R-12	1647424.2	1767913.4	Intermediate	Monitoring Well
R-13	1640991.66	1766994.17	Regional	Monitoring Well
R-14	1629855.01	1768953.12	Regional	Monitoring Well
R-15	1635308.6	1768272.5	Regional	Monitoring Well
R-16	1659283.61	1756710.97	Regional	Monitoring Well
R-16r	1659289.39	1756730.68	Regional	Monitoring Well
R-17	1627795.96	1765861.23	Regional	Monitoring Well
R-17i	na	na	Intermediate	Monitoring Well
R-18	1617254.37	1766545.47	Regional	Monitoring Well
R-19	1629918.4	1760252.1	Regional	Monitoring Well
R-2	1629519.57	1778281.56	Regional	Monitoring Well
R-20	1637835.4	1759694.51	Regional	Monitoring Well
R-21	1641284.17	1759143.06	Regional	Monitoring Well
R-22	1645324.4	1757111.1	Regional	Monitoring Well
R-23	1647913.6	1755165.37	Regional	Monitoring Well
R-23i	1647898.02	1755148.04	Intermediate	Monitoring Well
R-24	1643554.46	1777591.35	Regional	Monitoring Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
R-25	1615178.42	1764060.5	Regional	Monitoring Well
R-25b	1615125.598	1764074.699	Regional	Monitoring Well
R-25c	1615073.719	1764083.071	Regional	Monitoring Well
R-26	1610267.23	1764721.12	Regional	Monitoring Well
R-27	1629230.52	1756296.28	Regional	Monitoring Well
R-27i	not surveyed	not surveyed	Intermediate	Monitoring Well
R-28	1638988.73	1768358.57	Regional	Monitoring Well
R-29	1646480	1745258	Regional	Monitoring Well
R-3	1649298.1	1772229.23	Regional	Monitoring Well
R-30	1626498	1755437	Regional	Monitoring Well
R-31	1637353.8	1745648.4	Regional	Monitoring Well
R-32	1640797.67	1757730.25	Regional	Monitoring Well
R-33	1633401.71	1768532.65	Regional	Monitoring Well
R-34	1643595.82	1764028.77	Regional	Monitoring Well
R-35a	1642321.7	1769316.2	Regional	Monitoring Well
R-35b	1642321.7	1769316.2	Regional	Monitoring Well
R-36	1643912.085	1767731.485	Regional	Monitoring Well
R-37	1637828.13	1762616.71	Regional	Monitoring Well
R-38	1641038.364	1760081.849	Regional	Monitoring Well
R-39	1645185.934	1756682.219	Regional	Monitoring Well
R-3i	1649197.04	1772597.05	Intermediate	Monitoring Well
R-4	1639287.98	1776530.28	Regional	Monitoring Well
R-40	1636628.23	1760801.14	Intermediate and Regional	Monitoring Well
R-42	1637732	1768778	Regional	Monitoring Well
R-43	1637188	1769684	Regional	Monitoring Well
R-44	1640061.34	1767109.85	Regional	Monitoring Well
R-45	1640249.62	1768017.72	Regional	Monitoring Well
R-46	1627433.85	1768183.02	Regional	Monitoring Well
R-47i (CdV R-15-1)	not surveyed	not surveyed	Intermediate	Monitoring Well
R-48	1615980.5	1762434.9	Regional	Monitoring Well
R-49	1643900.9	1756401.85	Regional	Monitoring Well
R-5	1646707	1773063	Regional	Monitoring Well
R-6	1636011.02	1773884.07	Regional	Monitoring Well
R-6i	1635992.34	1773889.89	Intermediate	Monitoring Well
R-7	1631666	1773653	Intermediate	Monitoring Well
R-8	1641139.01	1772554.62	Regional	Monitoring Well
R-9	1648236.5	1770847.1	Regional	Monitoring Well
R-9i	1648202.7	1770837.8	Intermediate	Monitoring Well
Sanchez House Well	1678977	1789115.37	Regional	Supply Well

Table A-2 (continued)

Location	X, Easting (ft)	Y, Northing (ft)	Zone	Well Type
SCA-1	1622482.87	1773264.37	Alluvial	Monitoring Well
SCA-2	1636115.02	1770282.78	Alluvial	Monitoring Well
SCA-3	1637200.75	1769917.84	Alluvial	Monitoring Well
SCA-4	1638261.23	1769566.62	Alluvial	Monitoring Well
SCA-5	1639878.28	1769725.47	Alluvial	Monitoring Well
SCI-1	1636823.65	1770297.05	Intermediate	Monitoring Well
SCI-2	1637178	1769684	Intermediate	Monitoring Well
SCO-1	1642297.62	1769502.25	Alluvial	Monitoring Well
SCO-2	1647259	1767864	Alluvial	Monitoring Well
Test Well 1	1650041.5	1772076.87	Regional	Monitoring Well
Test Well 1A	1650056.87	1772065.87	Intermediate	Monitoring Well
Test Well 2	1634231.12	1777267.87	Regional	Monitoring Well
Test Well 2A	1634184.87	1777288.12	Intermediate	Monitoring Well
Test Well 3	1637727.5	1773138.12	Regional	Monitoring Well
Test Well 4	1624028.12	1777680.12	Regional	Monitoring Well
Test Well 8[a]	1632573.87	1769506.62	Regional	Monitoring Well
Test Well DT-10	1628988.5	1754448.75	Regional	Monitoring Well
Test Well DT-5A	1625310	1754789.37	Regional	Monitoring Well
Test Well DT-9	1628993.62	1751492.62	Regional	Monitoring Well
TMO-1	1626781.95	1766161.83	Alluvial	Monitoring Well
TSCA-6	1632954.6	1768471.44	Alluvial	Monitoring Well
TSWB-6	1633383.09	1768490.75	Alluvial	Monitoring Well
WCO-1	1632758.75	1755069.12	Alluvial	Monitoring Well
WCO-2	1636870.37	1753228.37	Alluvial	Monitoring Well
WCO-3	1640212.5	1750620.25	Alluvial	Monitoring Well
Westside Artesian Well	1680503	1792766	Regional	Supply Well

[a] Plugged and abandoned in 2009.

[b] na = Not available.

Appendix B

Data Sets for Requirements #6, #7, and #8

Table B-1
Radionuclide Aquifer Contaminants above Standards or Screening Levels

Zone	Location Name	Port Depth (ft)	Start Date	Analyte	Result	Uncertainty	Minimum Detectable Activity	Unit	DOE Drinking Water Derived Concentration Guidelines Screening Level	EPA Primary Drinking Water Standard	EPA Secondary Drinking Water Level	Field Preparation Code	Field Quality Control Type Code
Alluvial Spring	DP Spring	0	07/21/09	GROSSB	101	9.2	3.4	pCi/L	—[a]	—	50	UF[b]	—
Alluvial Spring	DP Spring	0	07/21/09	Sr-90	48.8	4.1	0.65	pCi/L	40	8	—	UF	—
Alluvial	LAUZ-1	5.35	07/17/09	GROSSB	92.1	7.9	2.8	pCi/L	—	—	50	UF	—
Alluvial	LAUZ-1	5.35	07/17/09	Sr-90	49.2	4	0.37	pCi/L	40	8	—	UF	—
Alluvial	LAO-2	7	07/15/09	Sr-90	12.2	1	0.41	pCi/L	—	8	—	UF	—
Alluvial	LAO-3a	4.7	07/15/09	Sr-90	21.8	1.8	0.45	pCi/L	—	8	—	UF	FD[c]
Alluvial	LAO-3a	4.7	07/15/09	Sr-90	20.8	1.7	0.4	pCi/L	—	8	—	UF	—
Alluvial	MCO-3	2	08/12/09	GROSSB	76.2	7	2	pCi/L	—	—	50	UF	—
Alluvial	MCO-3	2	08/12/09	Sr-90	13.5	1.2	0.33	pCi/L	—	8	—	UF	—
Alluvial	MCO-4B	8.9	08/18/09	GROSSB	91.3	8.2	2.5	pCi/L	—	—	50	UF	—
Alluvial	MCO-4B	8.9	08/18/09	Sr-90	44.8	3.7	0.63	pCi/L	40	8	—	UF	—
Alluvial	MCO-5	21	08/17/09	GROSSB	96.5	8.6	2.2	pCi/L	—	—	50	UF	—
Alluvial	MCO-5	21	08/17/09	Sr-90	45.3	3.8	0.26	pCi/L	40	8	—	UF	—
Alluvial	MCO-6	27	08/12/09	GROSSB	84.7	7.7	2	pCi/L	—	—	50	UF	—
Alluvial	MCO-6	27	08/12/09	Sr-90	39.4	3.2	0.32	pCi/L	—	8	—	UF	—
Intermediate Spring	Pine Rock Spring	0	05/13/09	U	30	—	—	µg/L	30	—	—	UF	—
Regional	R-48	1500	11/23/09	Ra-228	9.19	1.4	0.89	pCi/L	4	5	—	UF	—

[a] — = Not applicable.

[b] UF = Unfiltered.

[c] FD = Field duplicate.

Table B-2
Chemical Quality Species Aquifer Contaminants above Standards or Screening

Zone	Location Name	Port Depth (ft)	Start Date	Analyte	Result	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Consent Order Screening Level	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Regional	R-4	792.9	01/22/09	ClO4	4.26	µg/L	—[b]	—	—	4	F[c]	FD[d]	—
Regional	R-4	792.9	01/22/09	ClO4	4.26	µg/L	—	—	—	4	F	—	—
Regional	R-4	792.9	07/16/09	ClO4	4.45	µg/L	—	—	—	4	F	FD	—
Regional	R-4	792.9	07/16/09	ClO4	4.57	µg/L	—	—	—	4	F	—	—
Intermediate	R-6i	602	01/20/09	ClO4	6.62	µg/L	—	—	—	4	F	FD	—
Intermediate	R-6i	602	01/20/09	ClO4	6.39	µg/L	—	—	—	4	F	—	—
Intermediate	R-6i	602	07/14/09	ClO4	7	µg/L	—	—	—	4	F	—	—
Intermediate	LAOI-3.2	153.3	01/12/09	ClO4	4.62	µg/L	—	—	—	4	F	—	—
Intermediate	LAOI-3.2	153.3	07/08/09	ClO4	4.45	µg/L	—	—	—	4	F	—	—
Water Supply	O-4	1115	02/17/09	NO3+NO2-N	575	mg/L	10	58	10	—	UF[e]	—	—
Intermediate Spring	Basalt Spring	0	01/13/09	ClO4	4.39	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-0.6	1.05	02/05/09	Cl(-1)	329	mg/L	—	—	250	—	F	—	—
Alluvial	MCO-2	2	02/10/09	Cl(-1)	444	mg/L	—	—	250	—	F	FD	—
Alluvial	MCO-2	2	02/10/09	Cl(-1)	442	mg/L	—	—	250	—	F	—	—
Alluvial	MCO-3	2	11/05/09	TDS	1290	mg/L	—	—	1000	—	F	—	—
Alluvial	MCO-4B	8.9	02/04/09	ClO4	5.68	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-4B	8.9	05/04/09	ClO4	4.71	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-4B	8.9	08/18/09	ClO4	9.23	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-4B	8.9	11/09/09	ClO4	6.05	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-5	21	02/11/09	ClO4	6.76	µg/L	—	—	—	4	F	—	J[f]
Alluvial	MCO-5	21	08/17/09	ClO4	8.78	µg/L	—	—	—	4	F	—	—

Table B-2 (continued)

Zone	Location Name	Port Depth (ft)	Start Date	Analyte	Result	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Consent Order Screening Level	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Alluvial	MCO-6	27	02/04/09	ClO4	7.82	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-6	27	05/05/09	ClO4	6.34	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-6	27	08/12/09	ClO4	7.26	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-6	27	11/10/09	ClO4	7.82	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7	39	02/03/09	ClO4	10.4	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7	39	05/04/09	ClO4	9.97	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7	39	08/13/09	ClO4	12	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7	39	11/10/09	ClO4	11.7	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7.5	35	02/03/09	ClO4	13.8	µg/L	—	—	—	4	F	FD	—
Alluvial	MCO-7.5	35	02/03/09	ClO4	13.6	µg/L	—	—	—	4	F	—	—
Alluvial	MCO-7.5	35	08/05/09	ClO4	21.9	µg/L	15	—	—	4	F	FD	—
Alluvial	MCO-7.5	35	08/05/09	ClO4	21.3	µg/L	15	—	—	4	F	—	—
Intermediate	MCOI-4	499	02/11/09	ClO4	63.8	µg/L	15	26	—	4	F	—	J
Intermediate	MCOI-4	499	02/11/09	NO3+NO2-N	10.5	mg/L	10	—	10	—	F	—	—
Intermediate	MCOI-4	499	05/05/09	ClO4	61.7	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-4	499	05/05/09	NO3+NO2-N	10.1	mg/L	10	—	10	—	F	—	—
Intermediate	MCOI-4	499	08/07/09	ClO4	64.8	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-4	499	11/05/09	ClO4	61.1	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-5	689	02/09/09	ClO4	68.7	µg/L	15	26	—	4	F	—	J
Intermediate	MCOI-5	689	05/04/09	ClO4	83.7	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-5	689	08/06/09	ClO4	85.6	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-5	689	11/03/09	ClO4	88.3	µg/L	15	26	—	4	F	—	—

Table B-2 (continued)

Zone	Location Name	Port Depth (ft)	Start Date	Analyte	Result	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Consent Order Screening Level	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Intermediate	MCOI-6	686	02/10/09	ClO4	90.9	µg/L	15	26	—	4	F	—	J
Intermediate	MCOI-6	686	02/10/09	NO3+NO2-N	15.1	mg/L	10	—	10	—	F	—	—
Intermediate	MCOI-6	686	05/05/09	ClO4	102	µg/L	15	26	—	4	F	FD	—
Intermediate	MCOI-6	686	05/05/09	NO3+NO2-N	13.6	mg/L	10	—	10	—	F	FD	—
Intermediate	MCOI-6	686	05/05/09	ClO4	96.7	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-6	686	05/05/09	NO3+NO2-N	13.6	mg/L	10	—	10	—	F	—	—
Intermediate	MCOI-6	686	08/19/09	ClO4	104	µg/L	15	26	—	4	F	FD	—
Intermediate	MCOI-6	686	08/19/09	NO3+NO2-N	11.7	mg/L	10	—	10	—	F	FD	—
Intermediate	MCOI-6	686	08/19/09	ClO4	95.2	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-6	686	08/19/09	NO3+NO2-N	11.6	mg/L	10	—	10	—	F	—	—
Intermediate	MCOI-6	686	11/06/09	ClO4	88.2	µg/L	15	26	—	4	F	FD	—
Intermediate	MCOI-6	686	11/06/09	NO3+NO2-N	11	mg/L	10	—	10	—	F	FD	J
Intermediate	MCOI-6	686	11/06/09	ClO4	90.5	µg/L	15	26	—	4	F	—	—
Intermediate	MCOI-6	686	11/06/09	NO3+NO2-N	11.2	mg/L	10	—	10	—	F	—	J
Intermediate Spring	Pine Rock Spring	0	05/13/09	NO3+NO2-N	740	mg/L	10	58	10	—	F	—	J-[g]
Regional	R-15	958.6	02/17/09	ClO4	7.06	µg/L	—	—	—	4	F	—	J
Regional	R-15	958.6	05/04/09	ClO4	6.39	µg/L	—	—	—	4	F	—	—
Regional	R-15	958.6	08/06/09	ClO4	7.38	µg/L	—	—	—	4	F	FD	—
Regional	R-15	958.6	08/06/09	ClO4	7.01	µg/L	—	—	—	4	F	—	—
Regional	R-15	958.6	11/05/09	ClO4	6.54	µg/L	—	—	—	4	F	FD	—
Regional	R-15	958.6	11/05/09	ClO4	6.9	µg/L	—	—	—	4	F	—	—
Alluvial	PCAO-7b2	10	03/06/09	Cl(-1)	578	mg/L	—	—	250	—	F	—	—

Table B-2 (continued)

Zone	Location Name	Port Depth (ft)	Start Date	Analyte	Result	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Consent Order Screening Level	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Alluvial	PCAO-7b2	10	03/06/09	TDS	1360	mg/L	—	—	1000	—	F	—	J-
Alluvial	PCAO-7b2	10	06/04/09	Cl(-1)	994	mg/L	—	—	250	—	F	—	—
Alluvial	PCAO-7b2	10	06/04/09	TDS	2140	mg/L	—	—	1000	—	F	—	—
Alluvial	PCAO-7b2	10	09/15/09	Cl(-1)	764	mg/L	—	—	250	—	F	—	—
Alluvial	PCAO-7b2	10	09/15/09	TDS	1690	mg/L	—	—	1000	—	F	—	—
Alluvial	18-MW-18	12.5	03/02/09	Cl(-1)	291	mg/L	—	—	250	—	F	FD	—
Alluvial	18-MW-18	12.5	03/02/09	Cl(-1)	292	mg/L	—	—	250	—	F	—	—
Alluvial	18-MW-18	12.5	05/29/09	Cl(-1)	320	mg/L	—	—	250	—	F	FD	—
Alluvial	18-MW-18	12.5	05/29/09	Cl(-1)	312	mg/L	—	—	250	—	F	—	—
Alluvial	18-MW-18	12.5	09/02/09	Cl(-1)	275	mg/L	—	—	250	—	F	—	—

Note: Perchlorate values above 4 µg/L are listed, in reference to Consent Order screening level.

[a] NMWQCC = New Mexico Water Quality Control Commission.

[b] — = Not applicable.

[c] F = Filtered.

[d] FD = Field duplicate.

[e] UF = Unfiltered.

[f] J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

[g] J- = The analyte was positively identified, and the result is likely to be biased low.

Table B-3
Metal Species Aquifer Contaminants above Standards or Screening

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Alluvial	PAO-4	1.97	07/20/09	Fe	5210	30	µg/L	—[b]	1000	F[c]	—	—
Alluvial	PAO-4	1.97	07/20/09	Mn	1520	2	µg/L	—	200	F	—	—
Alluvial	APCO-1	4.7	07/20/09	As	12	1.5	µg/L	10	—	F	—	J[d]
Alluvial	APCO-1	4.7	07/20/09	Mn	957	2	µg/L	—	200	F	—	—
Intermediate	Test Well 2A	123	07/21/09	Fe	6090	30	µg/L	—	1000	F	—	—
Intermediate	Test Well 2A	123	07/21/09	Mn	828	2	µg/L	—	200	F	—	—
Intermediate	Test Well 2A	123	07/21/09	Cd	8.18	0.11	µg/L	5	—	UF[e]	—	J+[f]
Intermediate	Test Well 2A	123	07/21/09	Pb	321	0.5	µg/L	15	—	UF	—	J
Alluvial	LAUZ-1	5.35	07/17/09	Mn	1750	2	µg/L	—	200	F	—	—
Intermediate	R-9i	198.8	07/08/09	Mn	244	2	µg/L	—	200	F	—	—
Alluvial	SCA-1-DP	2.16	02/20/09	Mn	792	2	µg/L	—	200	F	—	—
Alluvial	SCA-1-DP	2.16	04/29/09	Mn	717	2	µg/L	—	200	F	—	—
Alluvial	SCA-1-DP	2.16	08/03/09	Mn	677	2	µg/L	—	200	F	—	—
Alluvial	SCA-1-DP	2.16	11/02/09	Mn	559	2	µg/L	—	200	F	—	—
Alluvial	SCA-1	1.3	02/18/09	Fe	1120	25	µg/L	—	1000	F	—	—
Alluvial	SCA-1	1.3	02/18/09	Mn	438	2	µg/L	—	200	F	—	—
Alluvial	SCA-1	1.3	04/29/09	Fe	1210	25	µg/L	—	1000	F	—	—
Alluvial	SCA-1	1.3	04/29/09	Mn	421	2	µg/L	—	200	F	—	—
Alluvial	SCA-4	37	04/28/09	As	10.1	1.5	µg/L	10	—	F	—	—
Intermediate	SCI-2	548	02/13/09	Cr	593	1.5	µg/L	100	50	F	—	—
Intermediate	SCI-2	548	05/06/09	Cr	586	15	µg/L	100	50	F	—	—

Table B-3 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Intermediate	SCI-2	548	05/06/09	Cr	658	15	µg/L	—	—	F	—	—
Intermediate	SCI-2	548	08/04/09	Cr	506	2.5	µg/L	100	50	F	FD[g]	—
Intermediate	SCI-2	548	08/04/09	Cr	502	2.5	µg/L	100	50	F	—	—
Intermediate	SCI-2	548	08/04/09	Cr	510	2.5	µg/L	100	50	F	—	—
Alluvial	MCO-0.6	1.05	02/05/09	Fe	2960	25	µg/L	—	1000	F	—	—
Alluvial	MCO-0.6	1.05	02/05/09	Mn	1840	2	µg/L	—	200	F	—	—
Alluvial	MCO-0.6	1.05	08/06/09	Fe	8770	30	µg/L	—	1000	F	—	—
Alluvial	MCO-0.6	1.05	08/06/09	Mn	2290	2	µg/L	—	200	F	—	—
Alluvial	MCO-2	2	02/10/09	Fe	3420	25	µg/L	—	1000	F	FD	—
Alluvial	MCO-2	2	02/10/09	Mn	462	2	µg/L	—	200	F	FD	—
Alluvial	MCO-2	2	02/10/09	Fe	3450	25	µg/L	—	1000	F	—	—
Alluvial	MCO-2	2	02/10/09	Mn	458	2	µg/L	—	200	F	—	—
Alluvial	MCO-2	2	08/12/09	Fe	1130	30	µg/L	—	1000	F	FD	—
Alluvial	MCO-2	2	08/12/09	Mn	506	2	µg/L	—	200	F	FD	—
Alluvial	MCO-2	2	08/12/09	Fe	1130	30	µg/L	—	1000	F	—	—
Alluvial	MCO-2	2	08/12/09	Mn	506	2	µg/L	—	200	F	—	—
Alluvial	MCA-1	2.4	08/06/09	Fe	2220	30	µg/L	—	1000	F	—	—
Intermediate	MCOI-6	686	11/06/09	Cr	51.8	2.5	µg/L	—	50	F	FD	—
Intermediate	MCOI-6	686	11/06/09	Cr	51.5	2.5	µg/L	—	50	F	—	—
Regional	R-46	1340	05/13/09	Sb	6.88	0.5	µg/L	6	—	UF	—	J
Regional	R-42	931.8	02/20/09	Cr	830	1.5	µg/L	100	50	F	—	—
Regional	R-42	931.8	05/11/09	Cr	863	1.5	µg/L	100	50	F	—	—

Table B-3 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Regional	R-42	931.8	05/11/09	Cr	886	1.5	µg/L	—	—	F	—	—
Regional	R-42	931.8	08/14/09	Cr	955	25	µg/L	100	50	F	—	—
Regional	R-42	931.8	08/14/09	Cr	1000	63	µg/L	100	50	F	—	—
Regional	R-42	931.8	11/05/09	Cr	885	2.5	µg/L	100	50	F	—	—
Regional	R-42	931.8	11/05/09	Cr	961	5	µg/L	100	50	F	—	—
Regional	R-28	934.3	02/10/09	Cr	380	1.5	µg/L	100	50	F	—	—
Regional	R-28	934.3	05/01/09	Cr	388	7.5	µg/L	100	50	F	—	—
Regional	R-28	934.3	08/13/09	Cr	383	2.5	µg/L	100	50	F	—	—
Regional	R-28	934.3	11/05/09	Cr	358	2.5	µg/L	100	50	F	—	—
Alluvial Spring	TW-1.72 Spring	0	09/16/09	Al	24400	68	µg/L	—	5000	F	—	—
Alluvial Spring	TW-1.72 Spring	0	09/16/09	Fe	14100	30	µg/L	—	1000	F	—	—
Alluvial	PCAO-5	14.7	06/09/09	Mn	11000	40	µg/L	—	200	F	—	—
Alluvial	PCAO-5	14.7	09/02/09	Fe	7210	30	µg/L	—	1000	F	—	—
Alluvial	PCAO-5	14.7	09/02/09	Mn	9570	2	µg/L	—	200	F	—	—
Alluvial	PCAO-7b2	10	03/06/09	Ba	1230	1	µg/L	—	1000	F	—	—
Alluvial	PCAO-7b2	10	06/04/09	Ba	2580	1	µg/L	2000	1000	F	—	—
Alluvial	PCAO-7b2	10	09/15/09	Ba	1740	1	µg/L	—	1000	F	—	—
Intermediate	03-B-10	20.6	06/10/09	Al	5390	68	µg/L	—	5000	F	—	J+
Intermediate	03-B-10	20.6	06/10/09	Fe	2810	25	µg/L	—	1000	F	—	—
Intermediate	03-B-10	20.6	06/10/09	Pb	18.1	0.5	µg/L	15	—	UF	—	—
Intermediate	03-B-10	20.6	09/14/09	Al	17200	68	µg/L	—	5000	F	—	—
Intermediate	03-B-10	20.6	09/14/09	Fe	10400	30	µg/L	—	1000	F	—	—

Table B-3 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Intermediate	03-B-10	20.6	09/14/09	Pb	17.4	0.5	µg/L	15	—	UF	—	—
Intermediate	03-B-13	21.5	03/11/09	Fe	1000	25	µg/L	—	1000	F	—	J
Intermediate	03-B-13	21.5	06/10/09	Al	9420	68	µg/L	—	5000	F	FD	J+
Intermediate	03-B-13	21.5	06/10/09	Fe	4910	25	µg/L	—	1000	F	FD	—
Intermediate	03-B-13	21.5	06/10/09	Al	19600	68	µg/L	—	5000	F	—	J+
Intermediate	03-B-13	21.5	06/10/09	Fe	10500	25	µg/L	—	1000	F	—	—
Intermediate	03-B-13	21.5	06/10/09	Pb	15.5	0.5	µg/L	15	—	UF	FD	—
Intermediate	03-B-13	21.5	06/10/09	Pb	15.9	0.5	µg/L	15	—	UF	—	—
Intermediate	03-B-13	21.5	09/11/09	Al	9600	68	µg/L	—	5000	F	FD	—
Intermediate	03-B-13	21.5	09/11/09	Fe	5850	30	µg/L	—	1000	F	FD	—
Intermediate	03-B-13	21.5	09/11/09	Al	8070	68	µg/L	—	5000	F	—	—
Intermediate	03-B-13	21.5	09/11/09	Fe	4780	30	µg/L	—	1000	F	—	—
Intermediate	03-B-13	21.5	09/11/09	Pb	16.6	0.5	µg/L	15	—	UF	FD	—
Intermediate	03-B-13	21.5	09/11/09	Pb	16.9	0.5	µg/L	15	—	UF	—	—
Intermediate	R-40	649.7	06/10/09	Mn	209	2	µg/L	—	200	F	—	—
Intermediate	R-40	649.7	08/31/09	Fe	1320	30	µg/L	—	1000	F	—	—
Intermediate	R-40	649.7	08/31/09	Mn	313	2	µg/L	—	200	F	—	—
Regional	R-22	907.1	02/24/09	Fe	8670	25	µg/L	—	1000	F	—	—
Regional	R-22	907.1	02/24/09	Fe	14800	25	µg/L	—	1000	F	—	—
Regional	R-22	907.1	02/24/09	Mn	2580	2	µg/L	—	200	F	—	—
Regional	R-22	907.1	02/24/09	Mn	4000	2	µg/L	—	200	F	—	—
Alluvial	CDV-16-02655	2.3	04/01/09	Fe	1580	25	µg/L	—	1000	F	—	—

Table B-3 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Alluvial	CDV-16-02656	3	03/30/09	Ba	3260	1	µg/L	2000	1000	F	FD	—
Alluvial	CDV-16-02656	3	03/30/09	Ba	3180	1	µg/L	2000	1000	F	—	—
Alluvial	CDV-16-02656	3	10/09/09	Ba	3180	1	µg/L	2000	1000	F	FD	—
Alluvial	CDV-16-02656	3	10/09/09	Ba	3210	1	µg/L	2000	1000	F	—	—
Alluvial	CDV-16-02658	1.9	03/31/09	Ba	5720	1	µg/L	2000	1000	F	—	—
Alluvial	CDV-16-02659	1.7	03/26/09	Ba	5190	1	µg/L	2000	1000	F	—	—
Alluvial	CDV-16-02659	1.7	10/07/09	Ba	5870	1	µg/L	2000	1000	F	—	—
Alluvial	FLC-16-25280	2.6	04/02/09	Al	11900	68	µg/L	—	5000	F	—	J+
Alluvial	FLC-16-25280	2.6	04/02/09	Fe	6830	25	µg/L	—	1000	F	—	—
Alluvial	FLC-16-25280	2.6	04/02/09	Pb	18.6	0.5	µg/L	15	—	UF	—	—
Alluvial	FLC-16-25279	2.7	04/01/09	Al	8390	68	µg/L	—	5000	F	—	—
Alluvial	FLC-16-25279	2.7	04/01/09	Fe	5230	25	µg/L	—	1000	F	—	—
Alluvial	FLC-16-25278	1.6	04/02/09	Al	5430	68	µg/L	—	5000	F	—	J+
Alluvial	FLC-16-25278	1.6	04/02/09	Fe	3220	25	µg/L	—	1000	F	—	—
Alluvial	MSC-16-06294	2.5	10/14/09	Al	11700	68	µg/L	—	5000	F	—	—
Alluvial	MSC-16-06294	2.5	10/14/09	Fe	5740	30	µg/L	—	1000	F	—	—
Alluvial	MSC-16-06294	2.5	10/14/09	Pb	17.3	0.5	µg/L	15	—	UF	—	—
Alluvial	MSC-16-06295	1.5	10/13/09	Al	10900	68	µg/L	—	5000	F	—	J+
Alluvial	MSC-16-06295	1.5	10/13/09	Fe	5560	30	µg/L	—	1000	F	—	—
Intermediate Spring	Martin Spring	0	03/24/09	B	1270	10	µg/L	—	750	F	—	—
Intermediate Spring	Martin Spring	0	10/16/09	B	1380	15	µg/L	—	750	F	—	—
Intermediate	R-25	754.8	03/31/09	Ni	731	5	µg/L	—	200	F	—	—

Table B-3 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	NMWQCC[a] Standard	Field Preparation Code	Field Quality Control Type Code	Validation Flag Code
Regional Spring	Spring 2	0	09/28/09	As	13.2	1.5	µg/L	10	—	F	—	—
Regional Spring	Spring 2	0	09/28/09	As	14.4	1.5	µg/L	10	—	UF	—	—
Regional Spring	Spring 10	0	04/20/09	Mn	762	2	µg/L	—	200	F	—	—
Water Supply	Pajarito Well (Pump 1)	-1	07/14/09	As	21.2	1.5	µg/L	10	—	UF	—	—
Water Supply	Buckman 1	258	05/19/09	As	11	1.5	µg/L	10	—	UF	—	—

[a] NMWQCC = New Mexico Water Quality Control Commission.

[b] — = Not applicable.

[c] F = Filtered.

[d] J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

[e] UF = Unfiltered.

[f] J+ = The analyte was positively identified, and the result is likely to be biased high.

[g] FD = Field duplicate.

Table B-4
Organic Species Aquifer Contaminants above Standards or Screening

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Field Quality Control Type Code	Field Preparation Code	Validation Flag Code
Intermediate	R-6i	602	07/14/09	Benzo(a)pyrene	2.12	0.22	µg/L	0.2	0.029	0.7	—[b]	UF[c]	—
Intermediate	R-6i	602	07/14/09	Benzo(b)fluoranthene	3.68	0.22	µg/L	—	0.29	—	—	UF	—
Intermediate	R-6i	602	07/14/09	Indeno(1,2,3-cd)pyrene	0.837	0.22	µg/L	—	0.29	—	—	UF	J[d]
Intermediate	TA-53i	600	05/21/09	Bis(2-ethylhexyl)phthalate	15.6	2.1	µg/L	6	—	—	FD[e]	UF	—
Intermediate	TA-53i	600	05/21/09	Bis(2-ethylhexyl)phthalate	16.3	2.3	µg/L	6	—	—	—	UF	—
Intermediate	TA-53i	600	07/20/09	Bis(2-ethylhexyl)phthalate	10.8	2	µg/L	6	—	—	FD	UF	—
Intermediate	TA-53i	600	07/20/09	Bis(2-ethylhexyl)phthalate	9.79	2.2	µg/L	6	—	—	—	UF	J
Intermediate	R-12	504.5	04/29/09	Bis(2-ethylhexyl)phthalate	25.1	2.2	µg/L	6	—	—	—	UF	—
Regional	R-36	766.9	02/05/09	Bis(2-ethylhexyl)phthalate	12.2	2.2	µg/L	6	—	—	—	UF	J
Regional	R-36	766.9	04/28/09	Bis(2-ethylhexyl)phthalate	9.36	2.1	µg/L	6	—	—	—	UF	J
Regional	R-36	766.9	08/05/09	Bis(2-ethylhexyl)phthalate	8.12	2.1	µg/L	6	—	—	FD	UF	J
Regional	R-36	766.9	08/05/09	Bis(2-ethylhexyl)phthalate	10.7	2.2	µg/L	6	—	—	—	UF	J
Regional	R-46	1340	05/13/09	Bis(2-ethylhexyl)phthalate	77.4	2.1	µg/L	6	48	—	—	UF	—
Regional	R-46	1340	05/13/09	Bis(2-ethylhexyl)phthalate	96.4	2.3	µg/L	6	48	—	—	UF	—
Regional	R-46	1340	06/17/09	Bis(2-ethylhexyl)phthalate	38.2	2.2	µg/L	6	—	—	FD	UF	—
Regional	R-46	1340	06/17/09	Bis(2-ethylhexyl)phthalate	30.8	2.2	µg/L	6	—	—	—	UF	—
Regional	R-46	1340	08/10/09	Bis(2-ethylhexyl)phthalate	39.1	2	µg/L	6	—	—	FD	UF	—
Regional	R-46	1340	08/10/09	Bis(2-ethylhexyl)phthalate	26	2.1	µg/L	6	—	—	—	UF	—
Regional	R-46	1340	11/13/09	Bis(2-ethylhexyl)phthalate	32.8	2.4	µg/L	6	—	—	—	UF	—
Regional	R-38	821.2	02/06/09	Bis(2-ethylhexyl)phthalate	7.33	2.1	µg/L	6	—	—	FD	UF	J

Table B-4 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Field Quality Control Type Code	Field Preparation Code	Validation Flag Code
Regional	R-38	821.2	02/06/09	Benzene	23.8	0.3	µg/L	5	4.1	10	FD	UF	—
Regional	R-38	821.2	02/06/09	Bis(2-ethylhexyl)phthalate	6.14	2.3	µg/L	6	—	—	—	UF	J
Regional	R-38	821.2	02/06/09	Benzene	6.34	0.3	µg/L	5	4.1	—	—	UF	—
Regional	R-38	821.2	05/01/09	Bis(2-ethylhexyl)phthalate	7.38	2.1	µg/L	6	—	—	FD	UF	J
Regional	R-38	821.2	05/01/09	Bis(2-ethylhexyl)phthalate	7.09	2.1	µg/L	6	—	—	—	UF	J
Regional	R-38	821.2	05/01/09	Bis(2-ethylhexyl)phthalate	35.6	2.2	µg/L	6	—	—	—	UF	—
Intermediate	03-B-10	20.6	03/11/09	Trichloroethane[1,1,1-]	173	0.65	µg/L	—	—	60	—	UF	—
Intermediate	03-B-10	20.6	06/10/09	Dichloroethene[1,1-]	9.58	0.3	µg/L	7	—	5	—	UF	—
Intermediate	03-B-10	20.6	06/10/09	Dichloroethene[1,1-]	9.86	0.6	µg/L	7	—	5	—	UF	J
Intermediate	03-B-10	20.6	06/10/09	Trichloroethane[1,1,1-]	145	0.65	µg/L	—	—	60	—	UF	—
Intermediate	03-B-10	20.6	09/14/09	Trichloroethane[1,1,1-]	87.8	0.33	µg/L	—	—	60	—	UF	—
Intermediate	03-B-13	21.5	03/11/09	Trichloroethane[1,1,1-]	105	0.65	µg/L	—	—	60	FD	UF	—
Intermediate	03-B-13	21.5	03/11/09	Trichloroethane[1,1,1-]	115	0.65	µg/L	—	—	60	—	UF	—
Intermediate	03-B-13	21.5	06/10/09	Dichloroethene[1,1-]	5.98	0.3	µg/L	—	—	5	FD	UF	—
Intermediate	03-B-13	21.5	06/10/09	Trichloroethane[1,1,1-]	87.6	0.33	µg/L	—	—	60	FD	UF	—
Intermediate	03-B-13	21.5	06/10/09	Dichloroethene[1,1-]	5.84	0.3	µg/L	—	—	5	—	UF	—
Intermediate	03-B-13	21.5	06/10/09	Trichloroethane[1,1,1-]	95.6	0.33	µg/L	—	—	60	—	UF	—
Intermediate	03-B-13	21.5	09/11/09	Trichloroethane[1,1,1-]	65.1	0.33	µg/L	—	—	60	—	UF	—
Alluvial	CDV-16-02657	0.4	03/31/09	RDX	50.4	9.2	µg/L	—	6.1	—	—	UF	—
Alluvial	CDV-16-02659	1.7	03/26/09	RDX	15.4	0.33	µg/L	—	6.1	—	—	UF	J
Alluvial	CDV-16-02659	1.7	10/07/09	RDX	13.5	0.26	µg/L	—	6.1	—	—	UF	J

Table B-4 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Field Quality Control Type Code	Field Preparation Code	Validation Flag Code
Alluvial	FLC-16-25280	2.6	04/02/09	Trichloroethene	10.3	0.25	µg/L	5	—	—	—	UF	—
Alluvial	FLC-16-25280	2.6	04/02/09	Tetrachloroethene	200	2.3	µg/L	5	1.1	20	—	UF	—
Alluvial	FLC-16-25280	2.6	04/02/09	Trichloroethene	10.9	1.3	µg/L	5	—	—	—	UF	J
Alluvial	MSC-16-06293	2	04/09/09	Bis(2-ethylhexyl)phthalate	6.58	2.5	µg/L	6	—	—	—	UF	J
Intermediate Spring	SWSC Spring	0	03/24/09	RDX	43.4	0.65	µg/L	—	6.1	—	—	UF	J
Intermediate Spring	SWSC Spring	0	10/15/09	RDX	56.7	1	µg/L	—	6.1	—	—	UF	J
Intermediate Spring	Burning Ground Spring	0	03/24/09	RDX	25.3	0.65	µg/L	—	6.1	—	FD	UF	J
Intermediate Spring	Burning Ground Spring	0	03/24/09	RDX	28.9	0.65	µg/L	—	6.1	—	—	UF	J
Intermediate Spring	Burning Ground Spring	0	10/15/09	RDX	37.6	1	µg/L	—	6.1	—	FD	UF	J
Intermediate Spring	Burning Ground Spring	0	10/15/09	RDX	37.5	1	µg/L	—	6.1	—	—	UF	J
Intermediate Spring	Martin Spring	0	03/24/09	RDX	102	1.6	µg/L	—	6.1	—	—	UF	J
Intermediate Spring	Martin Spring	0	10/16/09	RDX	143	2.6	µg/L	—	6.1	—	—	UF	J
Intermediate	R-25b	750	06/08/09	RDX	10.2	0.13	µg/L	—	6.1	—	—	UF	—
Intermediate	R-25b	750	10/09/09	RDX	7.02	0.1	µg/L	—	6.1	—	—	UF	J
Intermediate	R-25	754.8	03/31/09	RDX	41.8	0.65	µg/L	—	6.1	—	—	UF	J
Intermediate	R-25	891.8	04/01/09	RDX	7.74	0.13	µg/L	—	6.1	—	—	UF	—

Table B-4 (continued)

Zone	Location	Port Depth (ft)	Start Date	Analyte	Result	Method Detection Limit	Unit	EPA Primary Drinking Water Standard	EPA Tap Water Screening Level	NMWQCC[a] Groundwater Standard	Field Quality Control Type Code	Field Preparation Code	Validation Flag Code
Intermediate	R-25	891.8	10/16/09	RDX	7.57	0.1	µg/L	—	6.1	—	—	UF	J
Intermediate	R-25	1192.4	03/31/09	RDX	21.1	0.33	µg/L	—	6.1	—	—	UF	J
Intermediate	R-25	1192.4	10/19/09	RDX	18.9	0.26	µg/L	—	6.1	—	—	UF	—
Intermediate	CdV-16-1(i)	624	04/08/09	RDX	25.9	0.65	µg/L	—	6.1	—	FD	UF	—
Intermediate	CdV-16-1(i)	624	04/08/09	RDX	26.8	0.65	µg/L	—	6.1	—	—	UF	—
Intermediate	CdV-16-1(i)	624	10/14/09	RDX	29	0.52	µg/L	—	6.1	—	FD	UF	J
Intermediate	CdV-16-1(i)	624	10/14/09	RDX	27.9	0.52	µg/L	—	6.1	—	—	UF	J
Intermediate	CdV-16-2(i)r	850	03/31/09	RDX	78.9	1.3	µg/L	—	6.1	—	FD	UF	J
Intermediate	CdV-16-2(i)r	850	03/31/09	RDX	56.2	0.65	µg/L	—	6.1	—	—	UF	—
Intermediate	CdV-16-2(i)r	850	10/08/09	RDX	67.2	1	µg/L	—	6.1	—	FD	UF	J
Intermediate	CdV-16-2(i)r	850	10/08/09	RDX	70	1	µg/L	—	6.1	—	—	UF	J
Regional Spring	Sacred Spring	0	09/22/09	Dibenz(a,h)anthracene	2.09	0.22	µg/L	—	0.029	—	FB[f]	UF	J
Regional Spring	Sacred Spring	0	09/22/09	Indeno(1,2,3-cd)pyrene	0.605	0.22	µg/L	—	0.29	—	FB	UF	J
Regional Spring	La Mesita Spring	0	09/22/09	Dibenz(a,h)anthracene	1.63	0.22	µg/L	—	0.029	—	—	UF	J

[a] NMWQCC = New Mexico Water Quality Control Commission.

[b] — = Not applicable.

[c] UF = Unfiltered.

[d] J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

[e] FD = Field duplicate.

[f] FB = Field blank.

Appendix C

Mapping of the Regional Water-Table Elevation

C-1.0 INTRODUCTION

The regional aquifer beneath Los Alamos National Laboratory (LANL or the Laboratory) is a complex hydrogeological system. The top of the aquifer is predominantly under phreatic (water-table) conditions. However, areas of localized confinement are caused by local-scale hydrogeological conditions (for example, near wells R-4 and R-25). In general, the top of the regional aquifer (regional zone of saturation) is defined by the elevation of the regional water table. In the areas of local confinement, a regional piezometric surface represents the elevation of hydraulic heads in the confined zones. In general, the regional piezometric surface can be considered to represent a spatial continuation of the water table in the confined areas. Since the regional aquifer is predominantly under phreatic conditions, the term "regional water table" will be applied in the text below for the entire aquifer even though in some areas the term piezometric surface is more appropriate.

The general shape of the regional water table is predominantly controlled by the areas of regional recharge to the west (the flanks of Sierra de los Valles and the Pajarito fault zone) and discharge to the east (the Rio Grande and the White Rock Canyon Springs). At more local scales, the structure of the regional phreatic flow is also expected to be influenced by (1) local infiltration zones (e.g., beneath wet canyons); (2) heterogeneity and anisotropy in the aquifer properties; and (3) discharge zones (water-supply wells and springs).

C-2.0 WATER-LEVEL DATA

Information about the elevation of the regional water table is available from monitoring wells (water levels) and selected springs (for example, the White Rock Canyon springs). Discharge elevations of the springs interpreted to be regional aquifer water are applied as an estimate of the local elevation of the regional water table. Monitoring-well data are predominantly applied to map the elevation of the regional water table; spring discharge elevations are used in the vicinity of White Rock Canyon to provide additional constraints on the water-table elevation.

Water-table elevations vary in time as a result of transient effects that include pumping of the water-supply wells and large- and small-scale variability in aquifer recharge. In general, water-level maps are representative of specific periods of time. Based on analysis of 2009 water-level data, it has been observed that the water levels generally reached their maxima in March 2009. Water-level data from the March 2009 time frame are considered most representative of the flow conditions without the potential influences of water-supply pumping. Therefore, average monthly water-level data for March 2009 are predominantly used to construct the water-table map discussed below.

Representative water-levels are computed for 49 regional aquifer wells and presented in Table C-1. For some wells, water-level data are not available for March 2009 (Table C-1), and alternative periods of representative measurements have been selected. The interpretation of water-level data not representative for the same period of time is a source of uncertainty in the mapping process. The general trend of decreased hydraulic heads (water levels) with depth, the depth of well screens below the water table, and local hydrogeologic conditions also complicate the interpretation of the water-level data and include the following.

1. Some screens are substantially below the top of regional saturation (more than 60 ft); as a result, the collected water-level data may not be representative of the actual water-table elevations (R-10a, R-13, R-18, R-20, R-21, R-24, R-26, R-32, R-34 and R-48; Table C-1).

2. Some screens are long (more than 50 ft) and may represent composite water-levels within the aquifer (DT wells, R-8, R-13, and R-15, Table C-1).
3. Some screens are within zones that have confined or semiconfined conditions and represent piezometric surface elevations (for example, R-4, R-24, and R-39).
4. Well R-25 is drilled in a complicated hydrogeological setting with a substantial zone of intermittent saturation within the vadose zone, and it is therefore uncertain which of the R-25 screens (4 or 5) defines the regional water-table elevation in that area; in the analyses below it is assumed that water-level data from screen 5 represents the regional water table.
5. Well R-9 is screened in a zone (basalts within Santa Fe Group, Tb 2) that, based on the available information, is expected to be in poor hydraulic connection with the regional aquifer (similar hydrogeological conditions may have been observed at the abandoned regional screen of R-12).
6. Water-table screens are located in various hydrostratigraphic units, including sedimentary and volcanic rocks with contrasting hydrogeologic properties (Tables C-2 and C-3). Consequently, the structure of the regional water table is probably influenced by groundwater flow through hydrostratigraphic units with very different properties. Lavas occur at or near the regional water table at R-5, R-9 and R-12 (Miocene basalts, Tb 2) and at DT-5A, DT-9, DT-10, R-32, R-20, R-22, R-49, and R-39 (Cerros del Rio basalts, Tb 4).

Related to issue 5 above, the regional water levels observed at R-9 and at the former R-12 regional screen are substantially lower than water levels observed at nearby wells (the regional screen at R-12, screen 3, was abandoned in December 2007 and was replaced by R-36). Monitoring wells R-9 and R-12 are located near water-supply well PM-1. However, water levels at regional screens of R-9 and R-12 do not respond to daily or seasonal variation in pumping from PM-1. For a comparison, PM-1 pumping has been detected at screen 4 of monitoring well R-5; PM-1 pumping is not detected at screen 3 of R-5 (Allen and Koch 2008, 101613). Screen 4 of R-5 and the single screen of R-9 are located at similar elevations (Allen and Koch 2008, 101613); however, R-5 is located much farther from PM-1 than R-9 and R-1. This analysis indicates the low hydraulic heads observed at R-9 and R-12 may represent a deep compartmentalized zone within the basalts of the Santa Fe Group that is in poor hydraulic connection with the rest of the aquifer.

C-3.0 WATER-LEVEL CONTOURING

The process of water-table contouring is theoretically constrained by conformity rules (Freeze and Cherry 1979, 088742): (1) the contour lines should be perpendicular to the flow paths; (2) the length and the width of the flow-net cells formed by the contour lines between two adjacent flow paths should have the same ratios. These rules are theoretically valid only for the case of a uniform isotropic aquifer with no recharge/discharge sources within flow-net cells. Deviations from the conformity rules are caused by aquifer heterogeneity and anisotropy as well as recharge/discharge sources within flow-net cells. Here, the regional water table is contoured by attempting to satisfy four goals simultaneously: (1) to represent the water-level data at the monitoring wells, (2) to account for issues of data representativeness caused by local hydrogeological conditions, variations in well-screen placement, and screen length, (3) to preserve flow-net conformity, and (4) to account for more local-scale conceptual models of groundwater flow in the regional aquifer. A series of alternative conceptual-model assumptions pertaining to the regional groundwater flow have been evaluated. Plate 6 presents a contour map of the regional water table that attempts to satisfy all these goals. The actual contouring is performed using a combination of manual and automated techniques. The automated contouring is performed using the Minimum Curvature method. Table C-1 lists the deviations between observed and predicted water levels (based on the

modeled water-table map). Most of the differences are minor and within 3 ft. The most notable differences are estimated for locations at which the water-level data are most uncertain: R-9, R-25, and R-41. Previous versions of the regional water-table map are presented in various Laboratory reports (LANL 2005, 091139; LANL 2006, 093570; LANL 2006, 093196; LANL 2007, 095364; LANL 2008, 101932; LANL 2009, 105632; LANL 2009, 106589). The current analysis includes new water-level data for 12 new regional monitoring wells (R-37, R-38, R-39, R-40, R-41, R-42, R-43, R-44, R-45, R-46, R-48, and R-49).

The existing water-level data and the contour map (Plate 6) indicate potential mounding of the regional water-table near R-42, R-8, and R-36. The water-level at R-36 is slightly higher than the water-levels at the wells that are potentially upgradient (to the west of R-36) such as R-43, R-42, R-28, R-11, R-44, R-45, and R-13. An explanation for this observation is local recharge of the regional aquifer along Sandia Canyon. Well R-42 water level appears to be about 1 ft higher than the water level at R-43, screen 1, which is potentially upgradient (to the west) of R-42. This head difference may be caused by localized recharge near R-42. Water level at R-8, screen 1 is about 20 ft higher than any of the nearby wells, and most probably indicates local recharge along the Los Alamos Canyon. Previous versions of the regional water-table map (LANL 2006, 093570, LANL 2006, 093196; LANL 2007, 095364; LANL 2008, 101932) also represented local mounding from recharge along Los Alamos Canyon around TW-1 (shown on Plate 6 near well O-1). Since 2006, no water-level data are available for the water table at TW-1. As a result, the current map presented on Plate 6 does not show mounding in this area.

The existing water-level data suggests that the water table is relatively flat in the area near R-43, R-35b, R 36, and R-13 (Plate 6); the water levels across these wells are all within a few feet of each other. The contour map cannot represent the detail of the gradient in this area due to the map scale. However, the general flow direction appears to be to the E-SE (LANL 2009, 107453). The cause for this flattening of the regional water table in this area is uncertain. The low gradient in this area may be related to (1) the relatively high permeability of Puye Formation sediments, (2) anisotropy of the regional aquifer, (3) localized aquifer recharge along the canyons above the regional aquifer, and/or (4) nearby water-supply pumping. In the latter case, the flattening of the gradients may be caused by a local cone of depression because of pumping upgradient from this area. However, the transients in the water levels observed at the nearby monitoring wells (e.g., R-28, R-11, R-36, R-35b, R-42, and R-43) do not appear to be substantially affected by the water-supply pumping at the nearby production wells (PM-3, PM-5, PM-2, O-4, and PM-4) (LANL 2009, 107453).

The existing water-level data represented by the contour map indicate that thick lavas in a region close to R-32 and R-22 may be the cause of the increased hydraulic gradients near the regional water table in this area. The higher gradients may be the result of lower transmissive properties of lavas compared to more transmissive deeper sediments (Puye Formation, Santa Fe Group, fluvial deposits, and lavas). The hydrogeologic properties of the lavas may be also responsible for diverting the phreatic groundwater flow to the northeast near R-40 and R-37. The increased lateral hydraulic gradients in the east near R-32 and R-21 may also be an indication of recharge in lower Pajarito Canyon that causes local mounding in the lavas, which are expected to be of low storativity compared to the Puye Formation and Santa Fe Group sediments.

In addition, water levels observed in the Cerros del Rio basalt in the area near R-20, R-32, and R-22 appear to be higher than the water levels observed in the sediments beneath the basalts. This phenomenon is observed in R-22 (head difference ~60ft), R-20 (~30ft), R-32 (~4 ft) and R-49 (~24 ft) based on comparison of water levels observed at screens placed in the basalts and the sediments beneath the basalts. The water-level contrast indicates the possibility of relatively poor hydraulic connection between the basalts and sediments beneath them. This stratification of the regional aquifer may be caused by low-permeability zones within the basalts or low-permeability strata at the contact

between the basalts and the sediments. Water levels near R-20, R-38, R-49, R-22, and R-41 may also be impacted by complex geologic structures in this area (e.g., volcanic vents and dikes or faults).

At R-41, screen 2, the regional water table is observed in the sediments below the basalts at an elevation of ~5699 ft. Screen 1 of R-41 is also placed in the sediments below the basalts, but this screen appears to be dry. These observations indicate that near R-41 the Cerros del Rio basalts are either very tight (low permeability) or unsaturated. The Cerros del Rio basalts are a part of the regional aquifer at nearby R-22 and R-39 (Plate 6). Because of saturation within the basalts, the regional water table has much higher elevation (~60 ft at R-22) than the water levels in the sediments below the basalts. The contrasting water-table elevations at R-22 and R-41 (~5699 ft at screen 2 of R-41 and ~5761 ft at screen 1 of R-22) are potentially impacted by local geologic structures, and they are difficult to account for in the contouring process. On Plate 6, the R-22 water-table elevation is represented more accurately than the R-41 water-table elevation (Table C-1).

It is important to note that R-41 water-table data (~5699 ft) are consistent with the water levels observed in the sediments at R-22, screen 3 (~5699 ft), R-23 (~5697ft), and R-16r (~5692 ft), indicating relatively flat lateral hydraulic gradients in the sediments to east of R-22 and west of R-23.

4.0 REFERENCES

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Copies of the master reference set are maintained at the New Mexico Environment Department Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

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Table C-1
Water-Level Data and Construction of Regional Monitoring Wells, Including Differences between Observed and Modeled Water-Level Elevations

Well	Screen	Surface Elevation (ft)	Screen Top (ft bgs)	Screen Bottom (ft bgs)	Screen Length (ft)	Geologic Unit	Screen Top Elevation (ft)	Water Level Average (ft)	Representative Time Period	Top of Screen from Water Table (ft)	Differences between Observed and Contoured Water-Level Elevations (ft)	Comments
CdV-R-15-3	4	7258.90	1235.1	1278.9	43.8	Tp	6023.8	6019.35	May-09	4.4	1.09	Screen straddles water table
CdV-R-37-2	2	7330.60	1188.7	1213.8	25.1	Tt	6141.9	6136.92	Mar-09	5.0	0.21	Screen straddles water table
DT-5A	Single	7143.86	1171.5	1788.5	617.0	Tb4	5972.4	5957.93	Mar-09	14.4	0.67	Screen straddles water table
DT-9	Single	6935.00	819.0	1500.0	681.0	Tb4	6116.0	5915.00	Feb-09	201.0	-0.40	Screen straddles water table
DT-10	Single	7019.90	1078.4	1408.0	329.6	Tb4	5941.5	5918.47	Mar-09	23.0	0.30	Screen straddles water table
R-1	Single	6881.21	1031.1	1057.4	26.3	Tp	5850.1	5878.05	Mar-09	-28.0	2.19	Screen below water table
R-2	Single	6770.38	906.5	929.6	23.1	Tpf	5863.9	5870.13	Mar-09	-6.2	-0.33	Screen below water table
R-4	Single	6577.49	792.9	816.0	23.1	Tp	5784.6	5830.77	Mar-09	-46.2	0.06	Screen below water table
R-5	3	6472.60	676.9	720.3	43.4	Tsf/Tsfb	5795.7	5766.13	Mar-09	29.6	-0.42	Screen straddles water table
R-6	Single	6995.80	1205.0	1228.0	23.0	Tf	5790.8	5837.77	Mar-09	-47.0	1.98	Screen below water table
R-7	3	6779.20	895.5	937.4	41.9	Tp	5883.7	5876.80	Mar-09	6.9	-1.89	Screen straddles water table
R-8	1	6544.74	705.3	755.7	50.4	Tp	5839.4	5852.93	Mar-09	-13.5	0.99	Screen below water table
R-9	Single	6382.80	683.0	748.5	65.5	Tsfb	5699.8	5691.30	Mar-09	8.5	-73.60	Screen straddles water table
R-10a	Single	6363.74	690.0	700.0	10.0	Tsf	5673.7	5740.18	Mar-09	-66.4	0.06	Screen significantly below water table
R-11	Single	6673.72	855.0	877.9	22.9	Tp	5818.7	5836.98	Mar-09	-18.3	0.21	Screen below water table
R-13	Single	6673.05	958.3	1018.7	60.4	Tp	5714.7	5835.12	Mar-09	-120.4	1.22	Screen significantly below water table
R-14	1	7062.08	1200.6	1233.2	32.6	Tp	5861.5	5879.43	Mar-09	-17.9	2.67	Screen below water table
R-15	Single	6820.00	958.6	1020.3	61.7	Tp	5861.4	5849.00	Mar-09	12.4	1.02	Screen straddles water table
R-16r	Single	6256.97	600.0	617.6	17.6	Tpt	5657.0	5692.38	Mar-09	-35.4	-0.06	Screen below water table
R-17	1	6921.51	1057.0	1080.0	23.0	Tpf	5864.5	5884.63	Mar-09	-20.1	0.10	Screen below water table
R-18	Single	7404.83	1358.0	1381.0	23.0	Tpf	6046.8	6117.01	Mar-09	-70.2	-5.05	Screen significantly below water table
R-19	3	7066.30	1171.4	1215.4	44.0	Tpf	5894.9	5887.39	Mar-09	7.5	-0.68	Screen straddles water table
R-20	1	6694.35	904.6	912.2	7.6	Tb4	5789.8	5864.12	Mar-09	-74.4	-0.35	Screen significantly below water table
R-21	Single	6656.24	888.8	906.8	18.0	Tp	5767.4	5854.33	Mar-09	-86.9	0.02	Screen significantly below water table
R-22	1	6650.50	872.3	914.2	41.9	Tb4	5778.2	5761.54	Mar-09	16.7	-0.78	Screen straddles water table
R-23	Single	6527.75	816.0	873.2	57.2	Tsf	5711.8	5697.06	Mar-09	14.7	-0.73	Screen straddles water table
R-24	Single	6547.38	825.0	848.0	23.0	Tsf	5722.4	5829.75	Mar-09	-107.4	0.67	Screen significantly below water table
R-25	5	7516.10	1294.7	1304.7	10.0	Tpf	6221.4	6233.41	Mar-09	-12.0	7.42	Screen below water table
R-26	2	7641.69	1422.0	1445.0	23.0	Tp	6219.7	6532.52	Mar-09	-312.8	3.56	Screen significantly below water table
R-27	Single	6713.72	852.0	875.0	23.0	Tpf	5861.7	5898.51	Mar-09	-36.8	-1.00	Screen below water table
R-28	Single	6728.61	934.3	958.1	23.8	Tpf	5794.3	5837.42	Mar-09	-43.1	0.24	Screen below water table
R-31	2	6362.50	515.0	545.7	30.7	Tb4	5847.5	5827.18	Mar-09	20.3	-0.74	Screen straddles water table
R-32	1	6637.63	867.5	875.2	7.7	Tb4	5770.1	5852.66	Mar-09	-82.5	0.05	Screen significantly below water table
R-33	1	6853.33	995.5	1018.5	23.0	Tpp	5857.8	5871.12	Mar-09	-13.3	0.85	Screen below water table
R-34	Single	6629.99	883.7	906.6	22.9	Tpp	5746.3	5833.97	Mar-09	-87.7	1.21	Screen significantly below water table
R-35b	Single	6625.21	825.4	848.5	23.10	Tsfu	5799.8	5836.38	Mar-09	-36.6	0.45	Screen below water table

Table C-1 (continued)

Well	Screen	Surface Elevation (ft)	Screen Top (ft bgs)	Screen Bottom (ft bgs)	Screen Length (ft)	Geologic Unit	Screen Top Elevation (ft)	Water Level Average (ft)	Representative Time Period	Top of Screen from Water Table (ft)	Differences between Observed and Contoured Water-Level Elevations (ft)	Comments
R-36	Single	6589.91	766.9	789.9	23.00	Tsfu	5823.0	5840.46	Mar-09	-17.4	0.89	Screen below water table
R-37	2	6870.59	1026.0	1046.6	20.68	Tpf	5844.6	5856.00	Nov-09	-11.4	-0.78	Screen below water table; recently installed well.
R-38	Single	6668.58	821.2	831.2	10.00	Tb4	5847.4	5857.67	Mar-09	-10.3	-0.10	Screen below water table; recently installed well.
R-39	Single	6580.86	859.0	869.0	10.00	Tb4 + Sed	5721.8	5753.69	May-09	-31.9	-1.68	Screen below water table; Recently installed well
R-40	2	6719.24	849.3	870	20.73	Tpf	5870.0	5865.00	Aug-09	5.0	-0.22	Screen straddles water table; Recently installed well
R-41	2	6660.53	965.3	975	9.70	Tpf	5695.2	5699.47	May-09	-4.2	-73.29	Screen below water table; Recently installed well
R-42	Single	6759.02	931.8	952.9	21.10	Tsfu	5827.2	5839.06	Mar-09	-11.8	0.24	Screen below water table; Recently installed well
R-43	1	6732.65	903.9	924.6	20.70	Tsfu	5828.8	5838.15	Jun-09	-9.4	-1.30	Screen below water table; Recently installed well
R-44	1	6714.91	895.0	905	10.00	Tpf	5819.9	5835.50	Jul-09	-15.6	-0.63	Screen below water table; Recently installed well
R-45	1	6704.02	880.0	890	10.00	Tpf	5824.0	5835.40	Jun-09	-11.4	0.30	Screen below water table; Recently installed well
R-46	Single	7213.33	1340.0	1360.7	20.7	Tpf	5873.3	5884.75	Jun-09	-11.4	0.61	Screen below water table; Recently installed well
R-48	Single	7486.78	1500.0	1520.6	20.6	Tt	5986.8	6134.00	Nov-09	-147.2	-6.97	Screen significantly below water table; Recently installed well
R-49	1	6584.54	845.0	855	10.0	Tb4	5739.5	5775.10	Aug-09	-35.6	-0.90	Screen below water table; Recently installed well

Table C-2
Contact Depths Identified in the New Drill Holes for Calendar Year 2009

Well ID	R-37	R-38	R-39	R-40	R-41	R-42	R-43	R-44	R-45	R-46	R-49	PCI-2
Data Source	(LANL 2009, 107116)	(LANL 2009, 105298)	(LANL 2009, 106589)	(LANL 2009, 106432)	(LANL 2009, 106453)	(LANL 2009, 105026)	(LANL 2009, 105296)	(LANL 2009, 106418)	(LANL 2009, 106427)	(LANL 2009, 105592)	(LANL 2009, 107450)	(LANL 2009, 107342)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1637828.13	1640998.66	1644995.985	1636628.23	1645217.12	1637732.00	1637188.00	1640020.00	1640260.00	1627465.00	1643900.90	1627648.27.
Northing	1762616.71	1760235.07	1756488.997	1760801.14	1757745.55	1768778.00	1769684.00	1767109.00	1768079.00	1768217.00	1756401.85	1765872.63
Top Elevation (ft above mean sea level)	6870.59	6668.58	6580.86	6719.24	6660.53	6759.10	6730.00	6718.00	6699.00	7212.00	6584.54	6920.95
Bottom Elevation (ft above mean sea level)	5770.59	5753.88	5684.86	5905.00		5731.10	5795.00	5624.00	564200.00	5797.00	5607.54	6354.95
Total Depth (ft)	1100.00	914.7	896	813.00		10028.00	935.00	1094.00	1057.00	1415.00	977.5	566.00
Regolith (t)	6870.59(s)	6668.58(s)	6580.86(s)	6718(s)	6660.53 (s)	6759.1(s)	6730(s)	6718(s)	6699(s)	7212.0(s)	6584.54(s)	6920.95(s)
Regolith (b)	6818.59 (b)	6616.58(i)	6555.86(i)	6678(i)	6660.53 (i)	6689.1(i)	6690(i)	6671(i)	6619(i)	7202.0(i)	6539.54(b)	6887.95(b)
Qvf(t)												
Qvf (b)												
Qbt4 (t)												
Qbt4 (b)												
Qbt3t (t)												
Qbt3t (b)												
Qbt3 (t)										7202.0(i)		
Qbt3 (b)										7097(c)		
Qbt2 (t)	6818.59(i)				6660.53(i)					7097(c)		
Qbt2 (b)	6725.59(c)				6627.53(c)					7007(c)		
Qbt1vu (t)					6627.53(c)					7007(c)		
Qbt1vu (b)										7006.9(i)		
Qbt1vc (t)										6957.1(i)		
Qbt1vc (b)					6695.53(c)					6957(c)		
Qbt1g (t)	6725.59(c)	6616.58(i)	655586(i)	6678(i)	6695.53(c)		6690(i)	6671(i)		6957(c)	6539.54(i)	6887.95(i)
Qbt1g (b)	6642.59(c)	6532.58(c)	6503.86(c)	6564(c)	6545.53(c)		6650(c)	6648(c)		6868(c)	6480.54(c)	6789.95(c)
Qbtt (t)					6545.53(c)							
Qbtt (b)												
Qbt (t)												
Qbt (b)												
Qct (t)	6642.59(c)	6532.58(c)		6564(c)			6650(c)	6648(c)		6868(c)		6789.95(c)
Qct (b)	6639.59(c)	6512.58(c)		6546(c)			6618(c)	6624(c)		6762(c)		6764.95(c)
Qbof (t)	6639.59(c)	6512.58(c)	6503.86(c)	6546(c)	6545.53(c)	6689.1(i)	6618(c)	6624(c)	6619(i)	6762(c)	6480.54(c)	6764.95(c)
Qbof (b)	6380.59(c)	6438.58(c)	6441.86(c)	6288(c)	6500.53(c)	6392.1(c)	6393(c)	6422(c)	6466 (c)	6532(c)	6418.54(c)	6436.95(c)
Qbog (t)	6380.59(c)	6438.58(c)	6441.86(c)	6288(c)	6500.53(c)	6392.1(c)	6393(c)	6422(c)	6466 (c)	6532(c)	6418.54(c)	6436.95(c)
Qbog (b)	6369.59(c)	6428.58(c)	6433.86(c)	6270(c)	6491.53(c)	6376.1(c)	6380(c)	6405(c)	6451(c)	6516(c)	6399.54(c)	6422.95(c)
Tpf (t)	5937.59(c)	6428.58(c)		5923(c)		6376.1(c)	6380(c)	6405(c)	6012 (c)	6272(c)		6422.95(c)

Table C-2 (continued)

Well ID	R-37	R-38	R-39	R-40	R-41	R-42	R-43	R-44	R-45	R-46	R-49	PCI-2
Data Source	(LANL 2009, 107116)	(LANL 2009, 105298)	(LANL 2009, 106589)	(LANL 2009, 106432)	(LANL 2009, 106453)	(LANL 2009, 105026)	(LANL 2009, 105296)	(LANL 2009, 106418)	(LANL 2009, 106427)	(LANL 2009, 105592)	(LANL 2009, 107450)	(LANL 2009, 107342)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1637828.13	1640998.66	1644995.985	1636628.23	1645217.12	1637732.00	1637188.00	1640020.00	1640260.00	1627465.00	1643900.90	1627648.27.
Northing	1762616.71	1760235.07	1756488.997	1760801.14	1757745.55	1768778.00	1769684.00	1767109.00	1768079.00	1768217.00	1756401.85	1765872.63
Top Elevation (ft above mean sea level)	6870.59	6668.58	6580.86	6719.24	6660.53	6759.10	6730.00	6718.00	6699.00	7212.00	6584.54	6920.95
Bottom Elevation (ft above mean sea level)	5770.59	5753.88	5684.86	5905.00		5731.10	5795.00	5624.00	564200.00	5797.00	5607.54	6354.95
Total Depth (ft)	1100.00	914.7	896	813.00		10028.00	935.00	1094.00	1057.00	1415.00	977.5	566.00
Tb4 (t)	6369.59(c)	6413.58(c)	6433.86(c)	6270(c)	6491.53(c)	6344.1(c)	6334(c)	6374(c)	6451 (c)		6399.54(c)	
Tb4 (b)	5937.59(c)	5834.58(c)	6207.86(c)	5923(c)	5735.53(c)	6077.1(c)	6100(c)	6011(c)	6012 (c)		5697.54(c)	
Qta (t)												
Qta (b)												
QTasr (t)												
QTasr (b)												
Tvt2 (t)			6207.86(c)							6516(c)		6365.95(c)
Tvt2 (b)			5684.86(c)							6272(c)		6356.95(i)
Tvt1 (t)												
Tvt1 (b)												
Tpf (b)	5770(i)	5753.58(i)		5905 (i)		5859.1(c)	5900(c)	5715(c)	5734(c)	5807(c)		
Tpt (t)					5735.53(c)						5697.54(c)	
Tpt (b)					5636.53(i)						5607.04(i)	
Tjfp (t)						5859.1(c)	5900(c)	5715(c)	5734(c)	5807(c)		
Tjfp (b)						5769.1(c)	5825(c)	5630(c)	5657(c)	5797(i)		
Tvk (t)												
Tvk (b)												
Tcac (t)												
Tcac (b)												
Ttca(t)												
Ttca(b)												
Tcara (t)		5805(c)				5769.1(c)	5825(c)	5630(c)	5657(c)			
Tcara (b)												
Tcar (t)												
Tb2 (t)												
Tb2 (b)												
Tb1b (t)		5760.00				5731.1(i)	5795(i)	5624(i)	5642(i)			
Tb1b (b)												
Tcar (b)												
Ttc (t)												

Table C-2 (continued)

Well ID	R-37	R-38	R-39	R-40	R-41	R-42	R-43	R-44	R-45	R-46	R-49	PCI-2
Data Source	(LANL 2009, 107116)	(LANL 2009, 105298)	(LANL 2009, 106589)	(LANL 2009, 106432)	(LANL 2009, 106453)	(LANL 2009, 105026)	(LANL 2009, 105296)	(LANL 2009, 106418)	(LANL 2009, 106427)	(LANL 2009, 105592)	(LANL 2009, 107450)	(LANL 2009, 107342)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1637828.13	1640998.66	1644995.985	1636628.23	1645217.12	1637732.00	1637188.00	1640020.00	1640260.00	1627465.00	1643900.90	1627648.27.
Northing	1762616.71	1760235.07	1756488.997	1760801.14	1757745.55	1768778.00	1769684.00	1767109.00	1768079.00	1768217.00	1756401.85	1765872.63
Top Elevation (ft above mean sea level)	6870.59	6668.58	6580.86	6719.24	6660.53	6759.10	6730.00	6718.00	6699.00	7212.00	6584.54	6920.95
Bottom Elevation (ft above mean sea level)	5770.59	5753.88	5684.86	5905.00		5731.10	5795.00	5624.00	564200.00	5797.00	5607.54	6354.95
Total Depth (ft)	1100.00	914.7	896	813.00		10028.00	935.00	1094.00	1057.00	1415.00	977.5	566.00
Tb1a (t)												
Tb1a (b)												
Ttc (b)												
Ttsc (t)												
Ttsc (b)												
Ttsf (t)												
Ttsf (b)												
Ttb(t)												
Ttb (b)												
Tta1 (t)												
Tta1 (b)												
Tt1c (t)												
Tt1c (b)												
Bedr (t)												
Bedr (b)												

Note: Blank cells indicate not applicable.

Table C-3
Revised Contact Depths Identified in Older Drill Holes

Well ID	R-24	R-26	R-27	R-33	R-34	R-35a	R-36	SCC-1	SCC-2	SCC-3	SCC-4	SCC-5	SCC-6	TW-8
Data Source	(Kleinfelder 2006, 092489)	(Kleinfelder 2005, 087846)	(Kleinfelder 2006, 092488)	(Kleinfelder 2005, 092385)	(Kleinfelder 2004, 092199)	(LANL 2007, 098129)	(LANL 2008, 102185)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Baltz et al. 1963, 008402)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1643554.46	1610269.2	1629230.52	1633401.71	1643596	1642321.7	1643935(E)	1636822.89	1637145.53	1637740.85	1637906.5	1639331.58	1642266.73	1632573.9
Northing	1777591.35	1764724	1756296.28	1768532.65	1764029	1769316.2	1767707(E)	1770298.16	1769868.04	1769575.7	1769635.6	1769450.89	1769505.8	1769506.8
Top Elevation (ft above mean sea level)	6547.38	7641.6	6713.72	6853.33	6629.99	6623.06	6593(E)	6738.27	6723.74	6712.99	6709.16	6683.61	6619.29	6875.1
Bottom Elevation (ft above mean sea level)	5666.38	6151.1	5726.72	5713.33	5564.99	5481.06	5728	6338.27	6335.14	6369	6386.16	6393.61	6359.79	5810.1
Total Depth (ft)	881	1490.5	987	1140	1065	1143	865	400	388.6	344	323	290	259.5	1065
Regolith (t)	6547.4(s)	7641.6(s)	6713.7(s)	6853.3(s)	6629.0(s)	6623.1(s)	6593.0(s)	6738.3(s)	6723.7(s)	6713.0(s)	6709.2(s)	6683.6(s)	6619.3(s)	6875.1(s)
Regolith (b)	6528.9(b)	7581.6(b)	6692.7(b)	6787.3(i)	6611.0(b)	6578.1(b)	6581.0(b)	6680.3(b)	6705.7(b)	6668.0(b)	6652.2(b)	6633.6(b)	6542.3(b)	6835.1(b)
Qvf(t)														
Qvf (b)														
Qbt4 (t)		7581.6(i)												
Qbt4 (b)		7521.6(c)												
Qbt3t (t)		7521.6(c)												
Qbt3t (b)		7341.6(c)												
Qbt3 (t)		7341.6(c)												
Qbt3 (b)		7276.6(c)												
Qbt2 (t)		7276.6(c)												
Qbt2 (b)		7176.6(c)												
Qbt1vu (t)		7176.6(c)												
Qbt1vu (b)		7169.7(i)												
Qbt1vc (t)														
Qbt1vc (b)														
Qbt1g (t)			6692.7(i)		6611.99(i)				6705.7(i)	6668.0(i)	6652.2(i)			
Qbt1g (b)			6633.7(c)		6533.9(c)				6668.7(c)	6648.0(c)	6642.2(c)			
Qbtt (t)														
Qbtt (b)														
Qbt (t)														
Qbt (b)														
Qct (t)		7169.6(i)	6633.7(c)	6787.3(i)					6668.7(c)	6648.0(c)	6642.2(c)	6633.6(i)		
Qct (b)		6776.6(c)	6381.7(c)	6763.3(c)					6618.7(c)	6623.0(c)	6604.2(c)	6623.6(c)		
Qbof (t)		6776.6(c)	6381.7(c)	6763.3(c)	6533.99(c)	6578.1(i)	6581.0(i)	6680.3(i)	6618.7(c)	6623.0(c)	6604.2(c)	6623.6(c)	6542.3(i)	
Qbof (b)		6711.6(c)	6193.7(c)	6385.3(c)	6495.99(c)	6423.1(c)	6433.0(c)	6420.3(c)	6410.7(c)	6413.0(c)	6422.2(c)	6437.6(c)	6425.3(c)	
Qbog (t)	6528.9(i)	6711.6(c)	6193.7(c)	6385.3(c)	6495.99(c)	6423.1(c)	6433.0(c)	6420.3(c)	6410.7(c)	6413.0(c)	6422.2(c)	6437.6(c)	6425.3(c)	6430.1(i)
Qbog (b)	6517.4(c)	6686.6(c)	6184.7(c)	6369.3(c)	6483.99(c)	6403.1(c)	6418.0(c)	6405.3(c)	6391.7(c)	6394.0(c)	6402.2(c)	6417.6(c)	6408.3(c)	6400.1(c)
Tpf (t)	6517.4(c)	6686.6(c)	6184.7(c)	6369.3(c)		6403.1(c)	6418.0(c)	6405.3(c)	6391.7(c)	6394.0(c)	6402.2(c)	6417.6(c)	6408.3(c)	6400.1(c)

Table C-3 (continued)

Well ID	R-24	R-26	R-27	R-33	R-34	R-35a	R-36	SCC-1	SCC-2	SCC-3	SCC-4	SCC-5	SCC-6	TW-8
Data Source	(Kleinfelder 2006, 092489)	(Kleinfelder 2005, 087846)	(Kleinfelder 2006, 092488)	(Kleinfelder 2005, 092385)	(Kleinfelder 2004, 092199)	(LANL 2007, 098129)	(LANL 2008, 102185)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Baltz et al. 1963, 008402)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1643554.46	1610269.2	1629230.52	1633401.71	1643596	1642321.7	1643935(E)	1636822.89	1637145.53	1637740.85	1637906.5	1639331.58	1642266.73	1632573.9
Northing	1777591.35	1764724	1756296.28	1768532.65	1764029	1769316.2	1767707(E)	1770298.16	1769868.04	1769575.7	1769635.6	1769450.89	1769505.8	1769506.8
Top Elevation (ft above mean sea level)	6547.38	7641.6	6713.72	6853.33	6629.99	6623.06	6593(E)	6738.27	6723.74	6712.99	6709.16	6683.61	6619.29	6875.1
Bottom Elevation (ft above mean sea level)	5666.38	6151.1	5726.72	5713.33	5564.99	5481.06	5728	6338.27	6335.14	6369	6386.16	6393.61	6359.79	5810.1
Total Depth (ft)	881	1490.5	987	1140	1065	1143	865	400	388.6	344	323	290	259.5	1065
Tb4 (t)			6079.7(c)	6324.3(c)	6483.99(c)	6367.1(c)	6398.0(c)	6347.8(c)	6346.7(c)	6385.0(c)	6387.2(c)	6403.1(c)	6370.3(c)	6295.1(c)
Tb4 (b)			5948.7(c)	6122.3(i)	5951.99(c)	6021.1(c)	6048.0(c)	6338.3(i)	6335.1(i)	6369.0(i)	6386.2(c)	6393.6(i)	6359.8(i)	6150.1(c)
Qta (t)														
Qta (b)														
QTasr (t)														
QTasr (b)														
Tvt2 (t)														
Tvt2 (b)														
Tvt1 (t)														
Tvt1 (b)														
Tpf (b)	6242.4(c)	6151.1(i)	5726.7(i)	6066.3(i)		5743.1(c)	6018.0(c)							5906.1(c)
Tpt (t)				5731.3(c)	5602.0(c)									
Tpt (b)				5713.3(i)	5587.0(i)									
Tjfp (t)				5889.3(c)	5927.0(c)									5906.1(c)
Tjfp (b)				5731.3(c)	5602.0(c)									5810.1(i)
Tvk (t)														
Tvk (b)														
Tcac (t)														
Tcac (b)														
Ttca(t)														
Ttca(b)														
Tcara (t)	6242.4(c)			5731.3(c)	5951.99(c)	5743.1(c)	6018.0(c)							
Tcara (b)	5879.4(c)					5487.1(c)								
Tcar (t)	5666.4(i)					5481.1(i)								
Tb2 (t)														
Tb2 (b)														
Tb1b (t)	5879.4(c)			5723.3(i)	5564.99(i)	5487.1(c)	5728.0(i)							
Tb1b (b)														
Tcar (b)						5487.1(i)	5728.0(i)							
Ttc (t)														

Table C-3 (continued)

Well ID	R-24	R-26	R-27	R-33	R-34	R-35a	R-36	SCC-1	SCC-2	SCC-3	SCC-4	SCC-5	SCC-6	TW-8
Data Source	(Kleinfelder 2006, 092489)	(Kleinfelder 2005, 087846)	(Kleinfelder 2006, 092488)	(Kleinfelder 2005, 092385)	(Kleinfelder 2004, 092199)	(LANL 2007, 098129)	(LANL 2008, 102185)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Kleinfelder 2006, 095121)	(Baltz et al. 1963, 008402)
Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Easting	1643554.46	1610269.2	1629230.52	1633401.71	1643596	1642321.7	1643935(E)	1636822.89	1637145.53	1637740.85	1637906.5	1639331.58	1642266.73	1632573.9
Northing	1777591.35	1764724	1756296.28	1768532.65	1764029	1769316.2	1767707(E)	1770298.16	1769868.04	1769575.7	1769635.6	1769450.89	1769505.8	1769506.8
Top Elevation (ft above mean sea level)	6547.38	7641.6	6713.72	6853.33	6629.99	6623.06	6593(E)	6738.27	6723.74	6712.99	6709.16	6683.61	6619.29	6875.1
Bottom Elevation (ft above mean sea level)	5666.38	6151.1	5726.72	5713.33	5564.99	5481.06	5728	6338.27	6335.14	6369	6386.16	6393.61	6359.79	5810.1
Total Depth (ft)	881	1490.5	987	1140	1065	1143	865	400	388.6	344	323	290	259.5	1065
Tb1a (t)														
Tb1a (b)														
Ttc (b)														
Ttsc (t)														
Ttsc (b)														
Ttsf (t)														
Ttsf (b)														
Ttb(t)														
Ttb (b)	6242.4(c)													
Tta1 (t)														
Tta1 (b)														
Tt1c (t)														
Tt1c (b)														
Bedr (t)														
Bedr (b)														

Notes: Blank cells indicate not applicable. Red values indicate revised data.

Appendix D

Hydrochemistry Data for Groundwater Flow Regimes

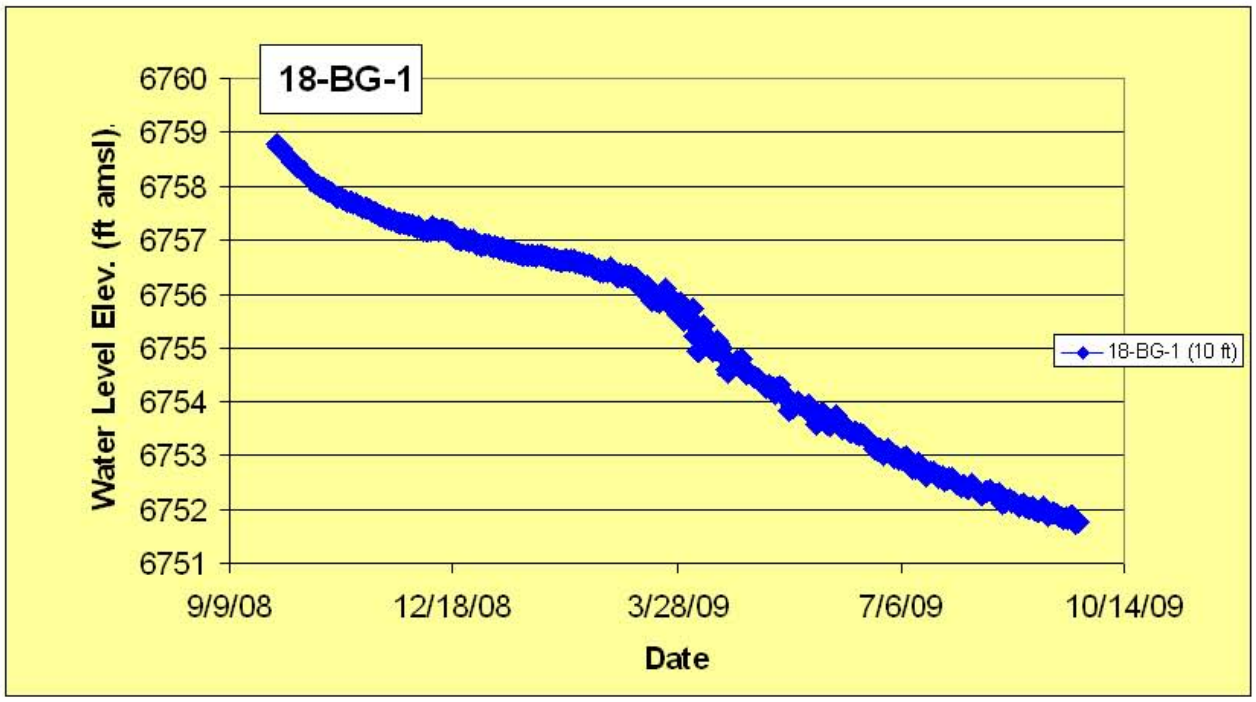
Location	Port Depth (ft)	Zone	Sample (filtered)	Collection Date	Br(-1) mg/L	Ca mg/L	Cl(-1) mg/L	K mg/L	Mg mg/L	Na mg/L	NO3+NO2 mg/L	SO4(-2) mg/L
03-B-10	20.6	Intermediate	CAPA-09-4126	3/11/2009	<0.2	12.7	166	6.65	2.6	105	0.0865	7.34
18-MW-11	27	Alluvial	CAPA-09-12132	9/4/2009	<0.2	18.1	28.4	3.65	5.77	16.9	3.29	9.3
3MAO-2	14.7	Alluvial	CAPA-09-9400	6/4/2009	<0.2	13.6	17.1	1.91	4.52	13.7	0.191	16.4
APCO-1	4.7	Alluvial	CAPU-09-11229	7/20/2009	0.126	25	40.3	16.6	5.68	72.6	<0.05	21.7
CDV-16-02656	3	Alluvial	CAWA-09-13774	10/9/2009	<0.2	18	16.7	3.41	4.89	18.1	<0.272	8.13
CdV-R-37-2	1359.3	Regional	CAWA-09-14165	10/15/2009	<0.2	10	1.59	1.25	2.97	10.8	0.364	1.52
LAO-1	8	Alluvial	CALA-09-11112	7/16/2009	<0.2	22	84.6	4.45	4.75	50.9	<0.05	7.29
LAO-1.6g	10.47	Alluvial	CALA-09-11115	7/16/2009	<0.2	22.2	78.2	5.83	6.24	44.7	<0.05	8.76
MCA-1	2.4	Alluvial	CAMO-09-9486	8/6/2009	<0.2	11	30.2	4.34	3.03	23.6	<0.25	2.93
MCO-4B	8.9	Alluvial	CAMO-09-9500	8/18/2009	<0.2	29.3	58.4	9.97	2.28	50.2	1.51	8.31
MCO-5	21	Alluvial	CAMO-09-9501	8/17/2009	<0.2	40	61.9	14.5	3.31	58	1.74	8.8
MCO-7	39	Alluvial	CAMO-09-9512	8/13/2009	<0.2	26.4	59.5	17.7	5.59	53.8	1.3	10.1
MCOI-4	499	Intermediate	CAMO-09-9528	8/7/2009	0.394	27.2	18.7	0.701	4.29	19.1	9.68	22
MCOI-5	689	Intermediate	CAMO-10-3118	11/3/2009	0.119	18.3	5.5	0.479	3.44	12.9	4.07	11.3
MCOI-6	686	Intermediate	CAMO-09-9535	8/19/2009	0.61	63.8	46.7	0.823	12.7	23	11.6	63.6
PAO-1	5.89	Alluvial	CAPU-09-11221	7/7/2009	<0.2	18.5	66.9	4.97	2.9	69.6	0.237	6.43
PAO-4	1.97	Alluvial	CAPU-09-11226	7/20/2009	0.123	37.7	41.1	13.7	7.58	73.2	<0.143	8.84
PCAO-5	14.7	Alluvial	CAPA-09-9387	6/9/2009	<0.2	89.9	24.5	11.3	19.2	20.2	<0.05	12.8
PCAO-6	8	Alluvial	CAPA-09-9424	6/1/2009	<0.2	42.5	22	5.26	7.38	16.5	<0.05	10.5
PCAO-7b2	10	Alluvial	CAPA-09-9431	6/4/2009	0.106	257	994	17.5	71.5	298	4.69	17.2
PCAO-7c	9.7	Alluvial	CAPA-09-9394	6/3/2009	<0.2	17.7	30.9	2.34	4.94	19.8	0.54	10.6
R-1	1031.1	Regional	CAMO-09-2606	2/17/2009	<0.2	11.5	1.85	1.68	4.2	12.2	0.294	2.52
R-11	855	Regional	CASA-09-2784	2/5/2009	<0.2	21.8	3.97	1.39	6.07	12.3	5.01	8.16
R-14	1200.6	Regional	CAMO-09-2863	2/18/2009	<0.2	11.4	1.68	2.05	3.46	11	0.232	2.03
R-15	958.6	Regional	CAMO-09-8174	5/4/2009	<0.2	13.7	4.4	1.63	3.69	10.6	2.25	6.71
R-16	1018.4	Regional	CAMO-09-2622	2/3/2009	<0.2	24.5	2.41	3.24	1.16	14.7	0.288	3.29
R-18	1358	Regional	CAPA-09-4346	3/12/2009	<0.2	9.95	1.26	1.08	3.39	8.6	0.22	1.87

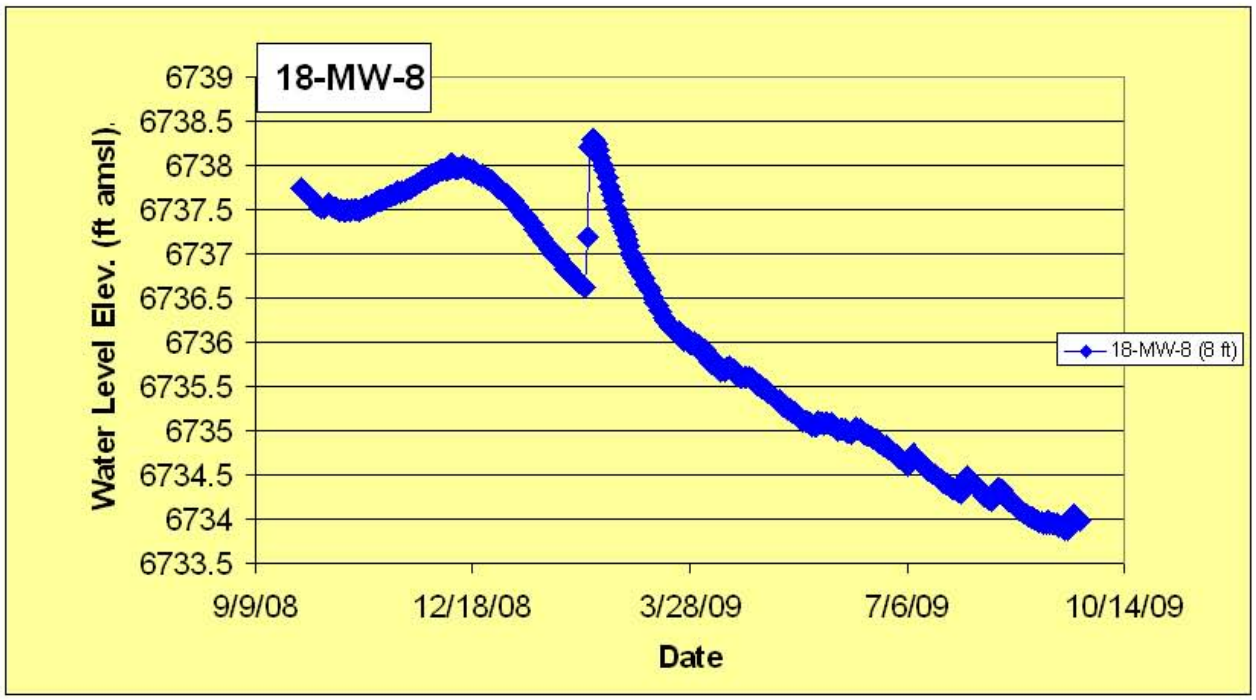
Location	Port Depth (ft)	Zone	Sample (filtered)	Collection Date	Br(-1) mg/L	Ca mg/L	Cl(-1) mg/L	K mg/L	Mg mg/L	Na mg/L	NO3+NO2 mg/L	SO4(-2) mg/L
R-19	1412.9	Regional	CAPA-09-9379	6/1/2009	<0.2	9.3	1.59	1.52	2.83	9.87	0.382	1.44
R-2	918	Regional	CAPU-09-11258	7/10/2009	<0.2	11.6	2.41	1.11	3.11	13.7	0.497	2.53
R-21	888.8	Regional	CAMO-09-2632	2/18/2009	<0.2	11.6	1.82	1.62	3.14	9.83	0.313	1.96
R-22	1273.5	Regional	CAPA-09-4378	2/27/2009	0.067	20.7	4.46	5.37	5.41	14.9	0.72	6.67
R-23	816	Regional	CAPA-09-9416	6/4/2009	<0.2	17.4	3.58	1.86	4.35	11.8	1.3	5.2
R-28	934.3	Regional	CAMO-09-2626	2/10/2009	0.232	44.3	31.7	1.85	11.3	16.9	4.3	46.3
R-32	867.5	Regional	CAPA-09-4356	2/26/2009	0.089	15.9	3.09	1.59	4.72	10.7	0.98	5.42
R-33	1112.4	Regional	CAMO-09-2867	2/3/2009	<0.2	11.3	2.04	2.35	4.13	11.4	0.304	2.16
R-34	883.7	Regional	CAMO-10-3146	11/12/2009	<0.2	15.9	2.23	1.69	3.65	9.63	0.461	2.67
R-35a	1013.1	Regional	CASA-09-10390	8/3/2009	<0.2	21.5	6.18	4.01	5.69	17.7	0.85	5.34
R-35b	825.4	Regional	CASA-09-3017	2/2/2009	<0.2	16.1	2.82	2.05	5.06	12.1	1.31	3.47
R-36	766.9	Regional	CASA-09-3024	2/5/2009	0.091	18.3	5.82	1.95	4.37	14.6	2.4	7.08
R-42	931.8	Regional	CAMO-09-2871	2/20/2009	0.102	44.7	28.7	2.19	12.9	16.8	6.03	60.9
R-45	974.9	Regional	CAMO-09-11411	7/16/2009	<0.2	17.2	3.31	1.44	4.78	13.3	0.296	6.17
R-49	845	Regional	CAMO-09-10842	6/23/2009	<0.2	13.4	2.75	1.48	3.77	15.9	0.447	7.89
R-6	1205	Regional	CALA-09-11163	7/14/2009	<0.2	14.4	2.09	1.24	3.91	12.7	<0.132	2.43
SCA-2	10.3	Alluvial	CASA-10-3624	11/3/2009	0.338	23.3	83.6	11.7	6.35	70.9	1.53	18.8
SCA-4	37	Alluvial	CASA-09-8263	4/28/2009	0.526	16.9	76.4	3.35	4.1	90	1.42	17.7
SCI-1	358.4	Intermediate	CASA-09-2780	2/17/2009	1.27	76.1	86.8	1.51	11.7	50.7	2.37	106
SCI-2	548	Intermediate	CASA-09-8315	5/6/2009	0.194	64.8	54.3	3.38	14.7	21.2	4.36	87.1
TMO-1	3.5	Alluvial	CAPA-09-9397	6/9/2009	<0.2	26.4	27	6.79	5.43	21.4	0.561	17.8

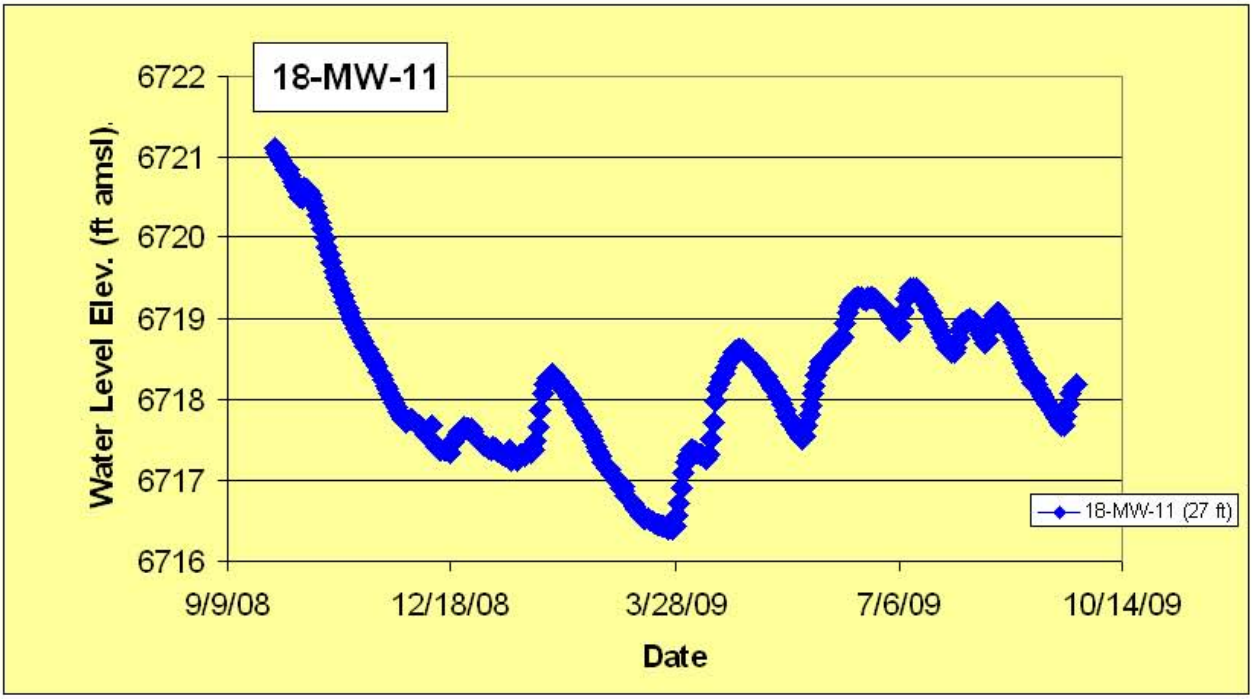
Appendix E-1

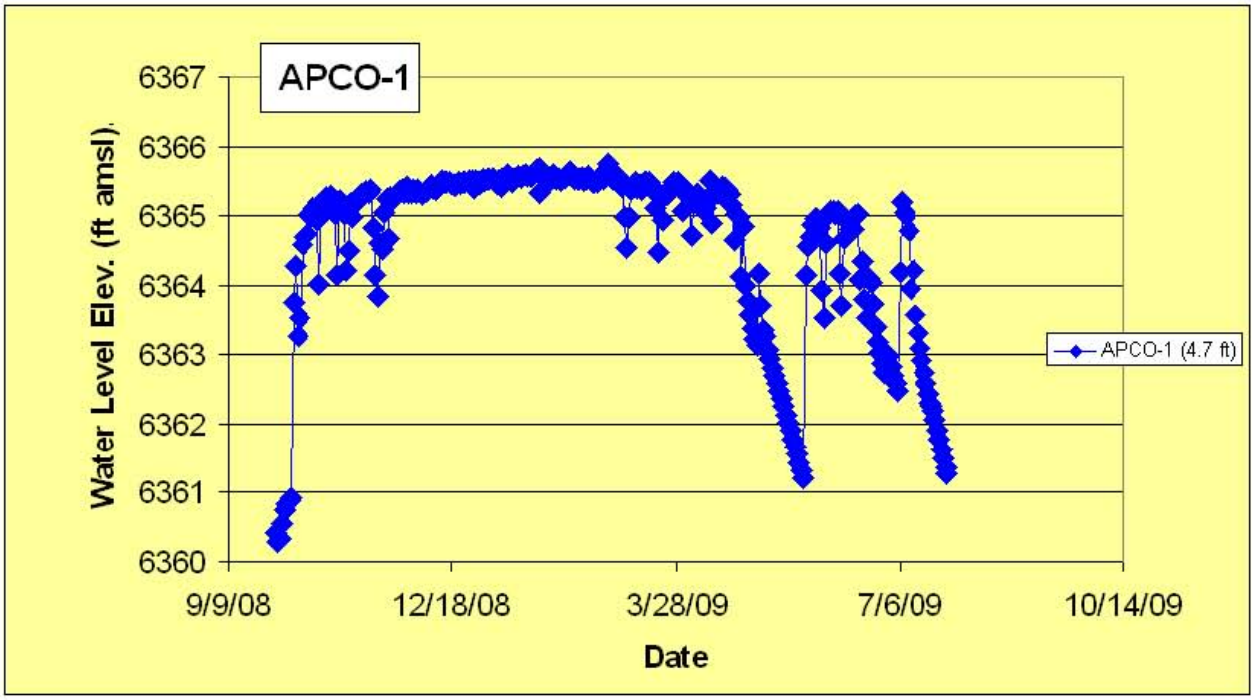
Periodic Water-Level Graphs (Fiscal Year 2009)

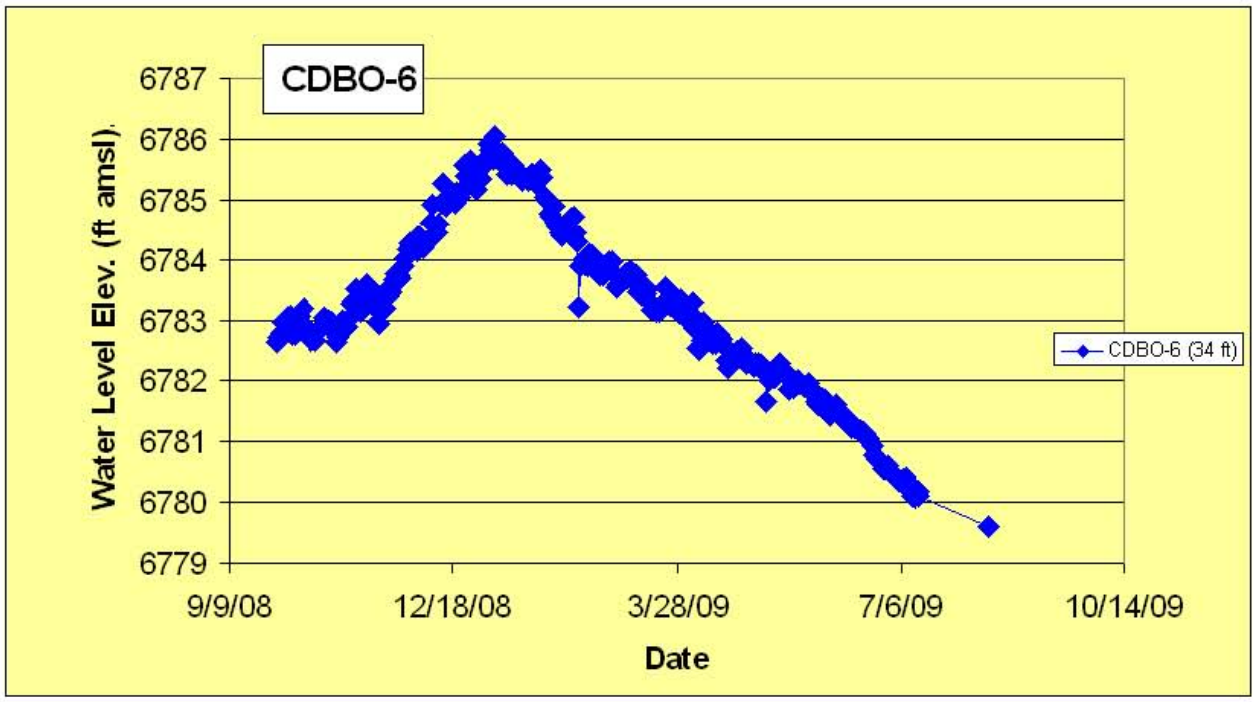
ALLUVIAL

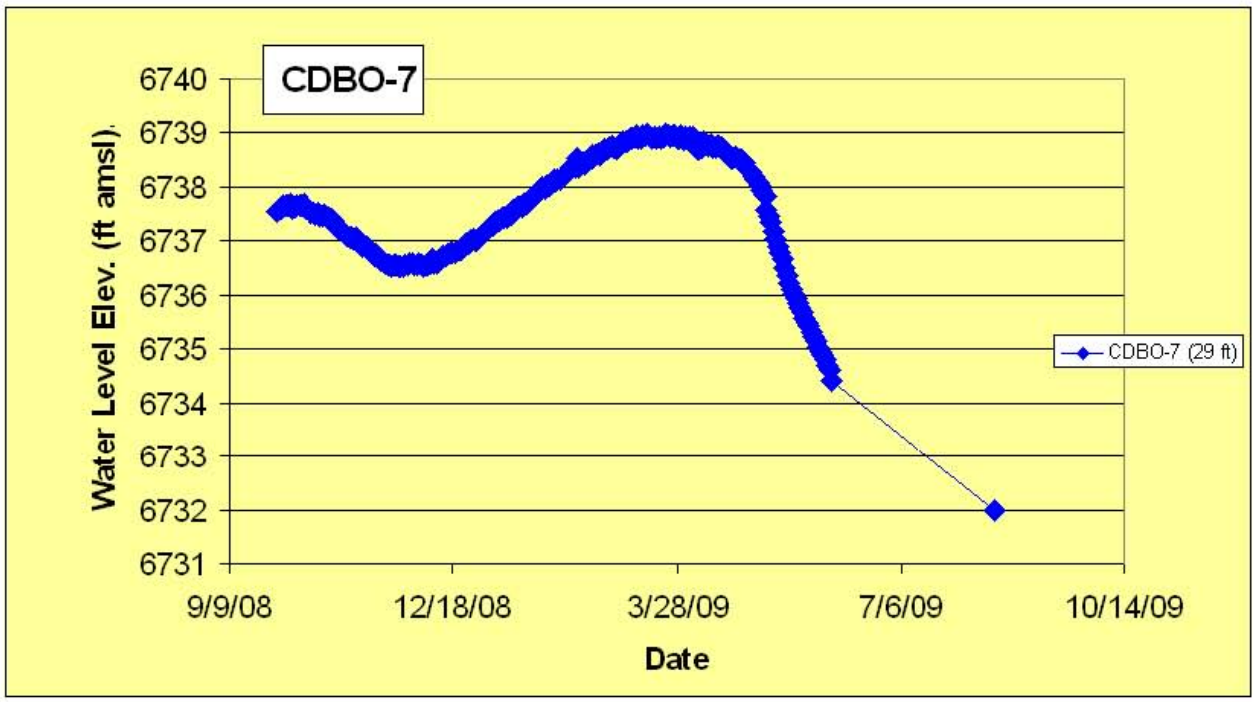

18-BG-1
Water Level Elev. (ft amsl)
6760
6759
6758
6757
6756
6755
6754
6753
6752
6751
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
18-BG-1 (10 ft)

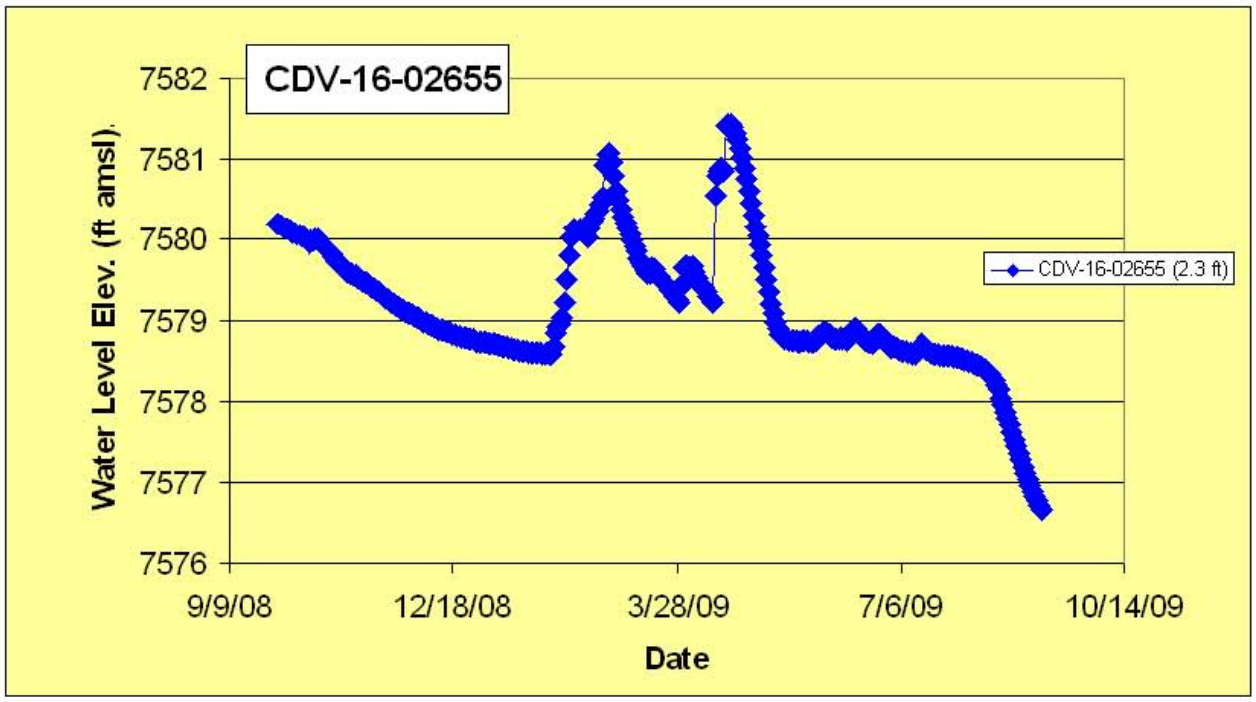

18-MW-8
Water Level Elev. (ft amsl)
6739
6738.5
6738
6737.5
6737
6736.5
6736
6735.5
6735
6734.5
6734
6733.5
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
18-MW-8 (8 ft)

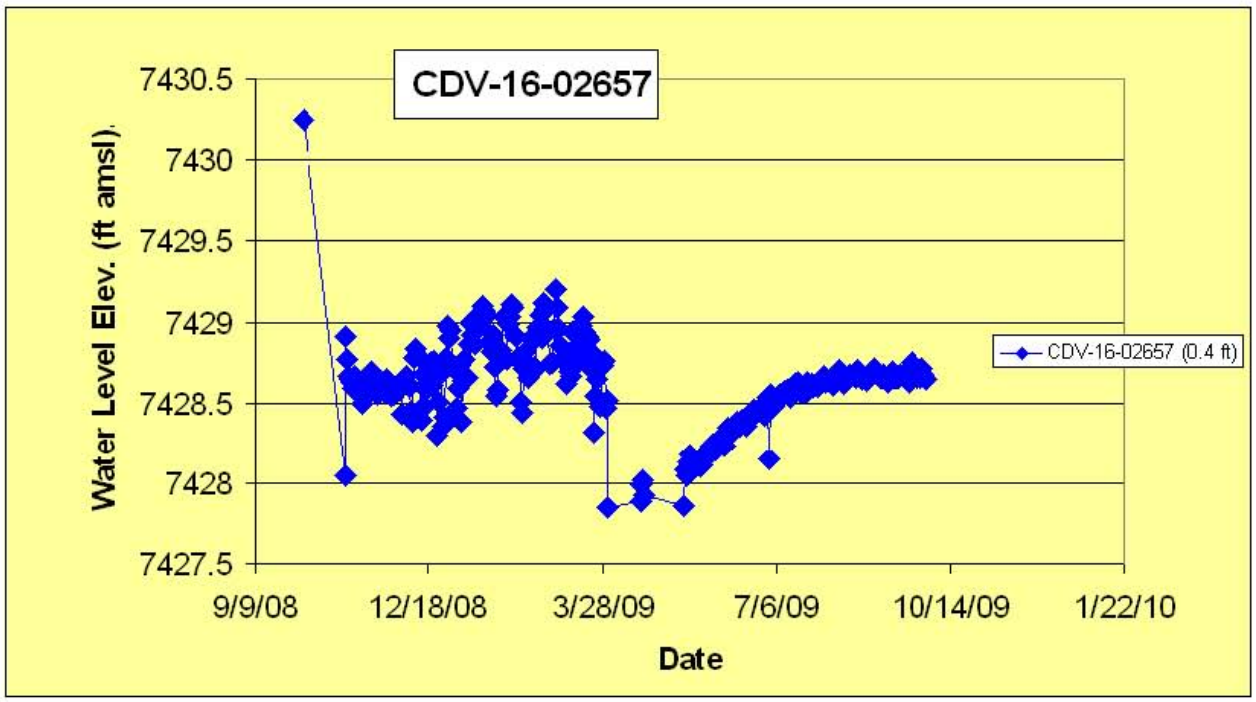

18-MW-11
Water Level Elev. (ft amsl)
6722
6721
6720
6719
6718
6717
6716
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
18-MW-11 (27 ft)

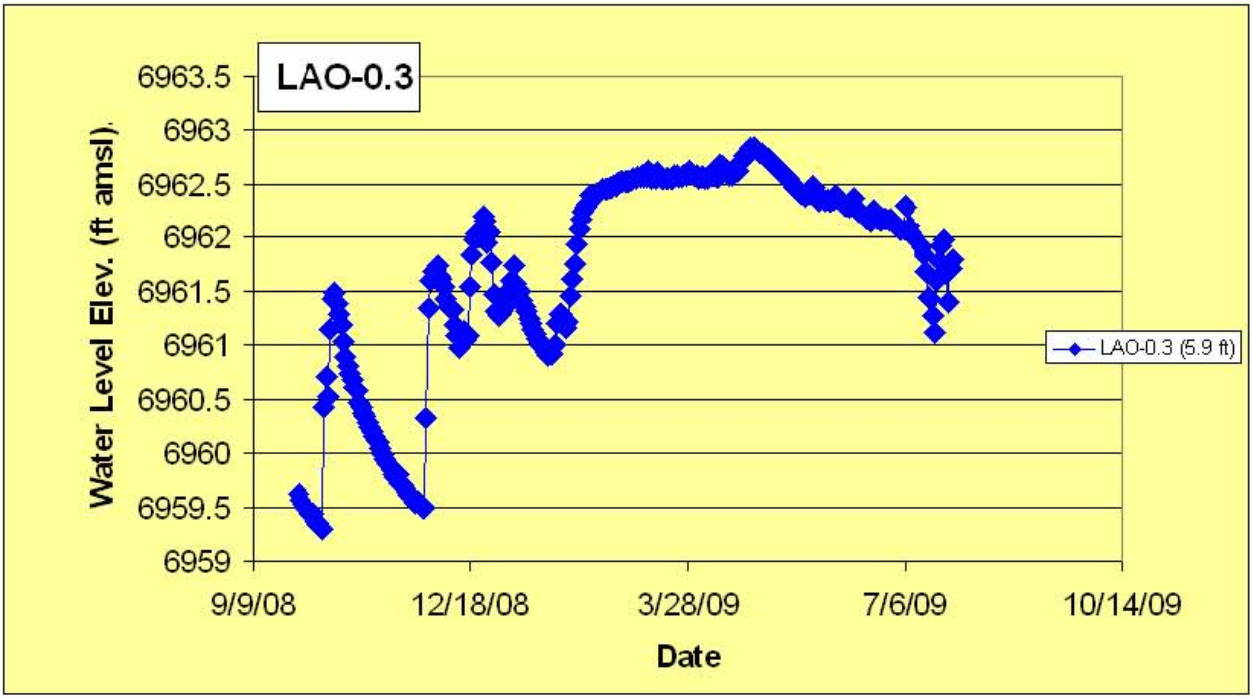

APCO-1
Water Level Elev. (ft amsl)
6367
6366
6365
6364
6363
6362
6361
6360
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
APCO-1 (4.7 ft)

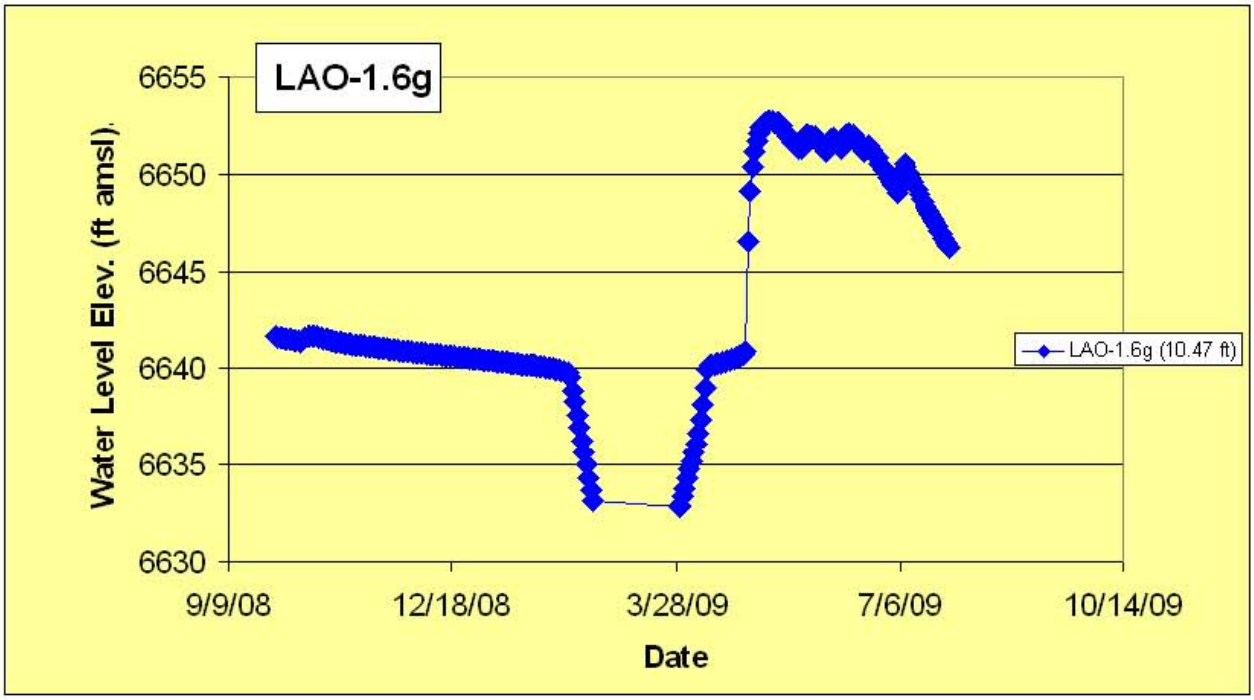

CDBO-6
Water Level Elev. (ft amsl)
6787
6786
6785
6784
6783
6782
6781
6780
6779
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
CDBO-6 (34 ft)

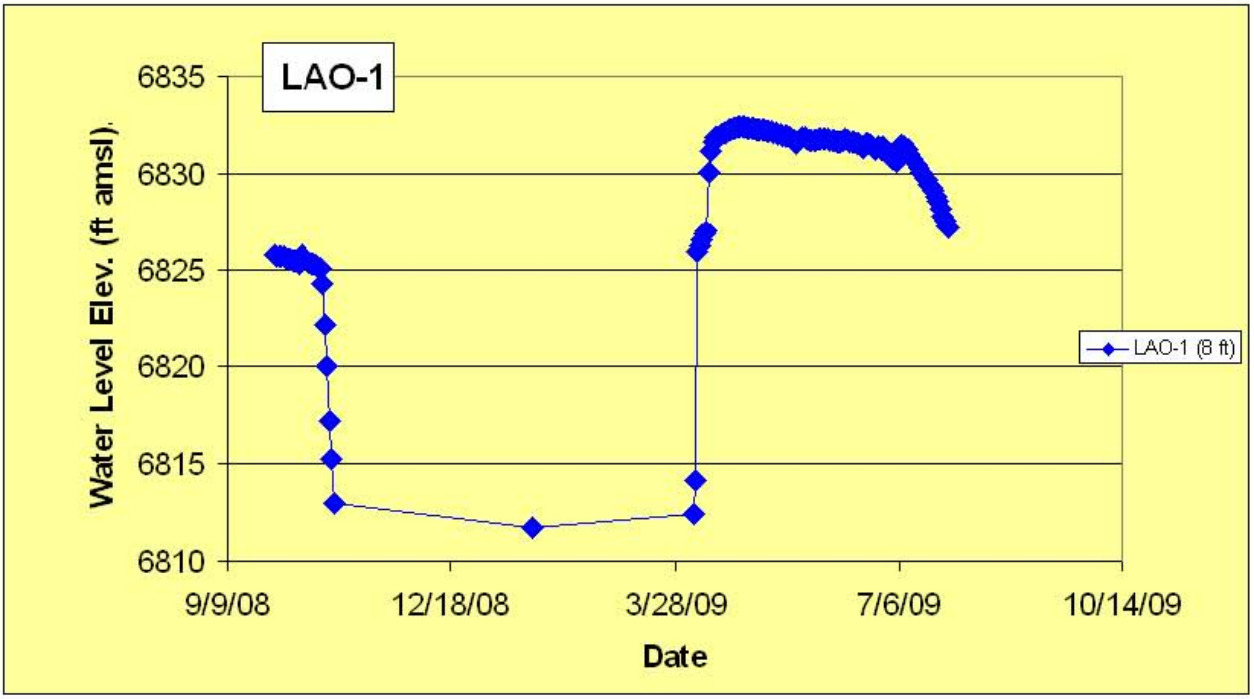

CDBO-7
Water Level Elev. (ft amsl)
6740
6739
6738
6737
6736
6735
6734
6733
6732
6731
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
CDBO-7 (29 ft)

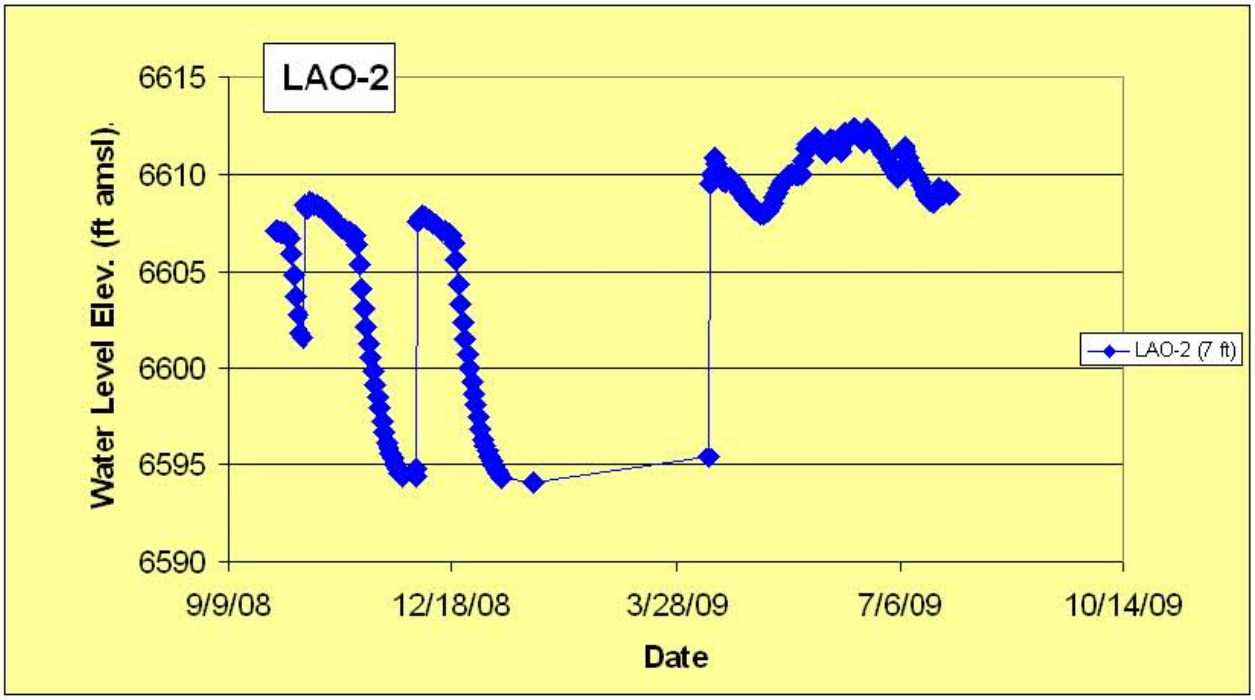

CDV-16-02655
Water Level Elev. (ft amsl)
7582
7581
7580
7579
7578
7577
7576
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
CDV-16-02655 (2.3 ft)

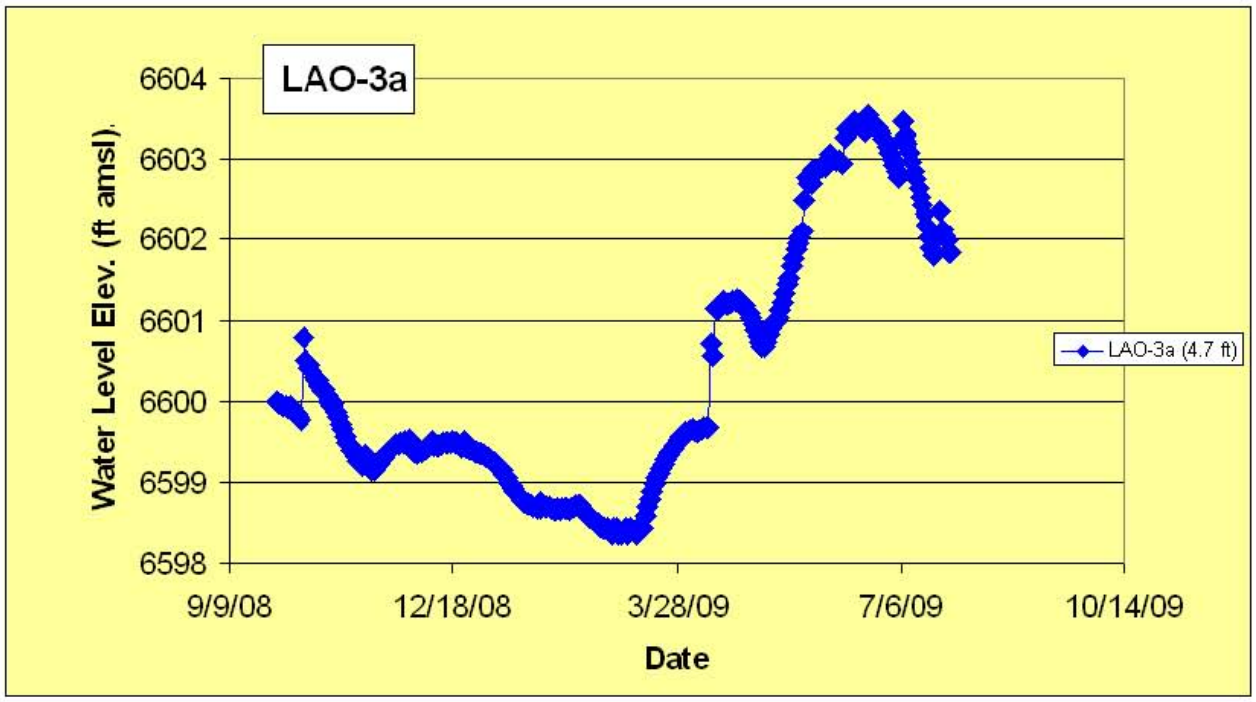

CDV-16-02657
Water Level Elev. (ft amsl)
7430.5
7430
7429.5
7429
7428.5
7428
7427.5
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
1/22/10
Date
CDV-16-02657 (0.4 ft)

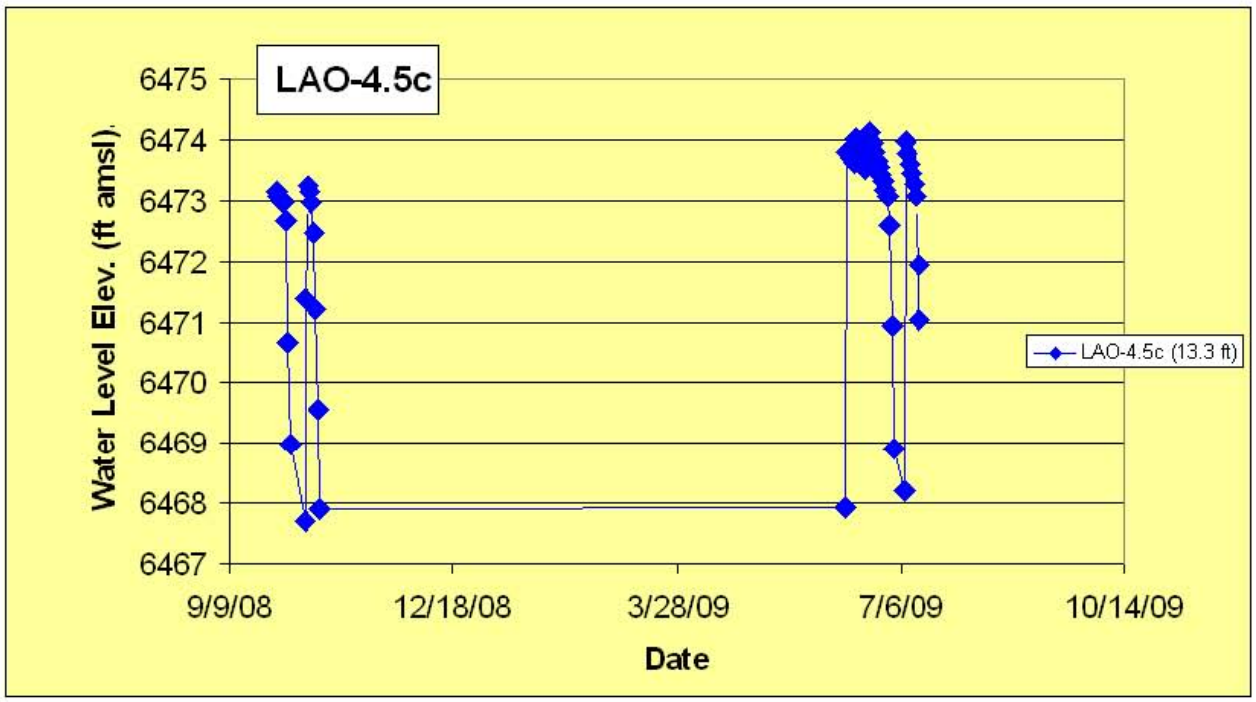

LAO-0.3
Water Level Elev. (ft amsl)
6963.5
6963
6962.5
6962
6961.5
6961
6960.5
6960
6959.5
6959
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-0.3 (5.9 ft)

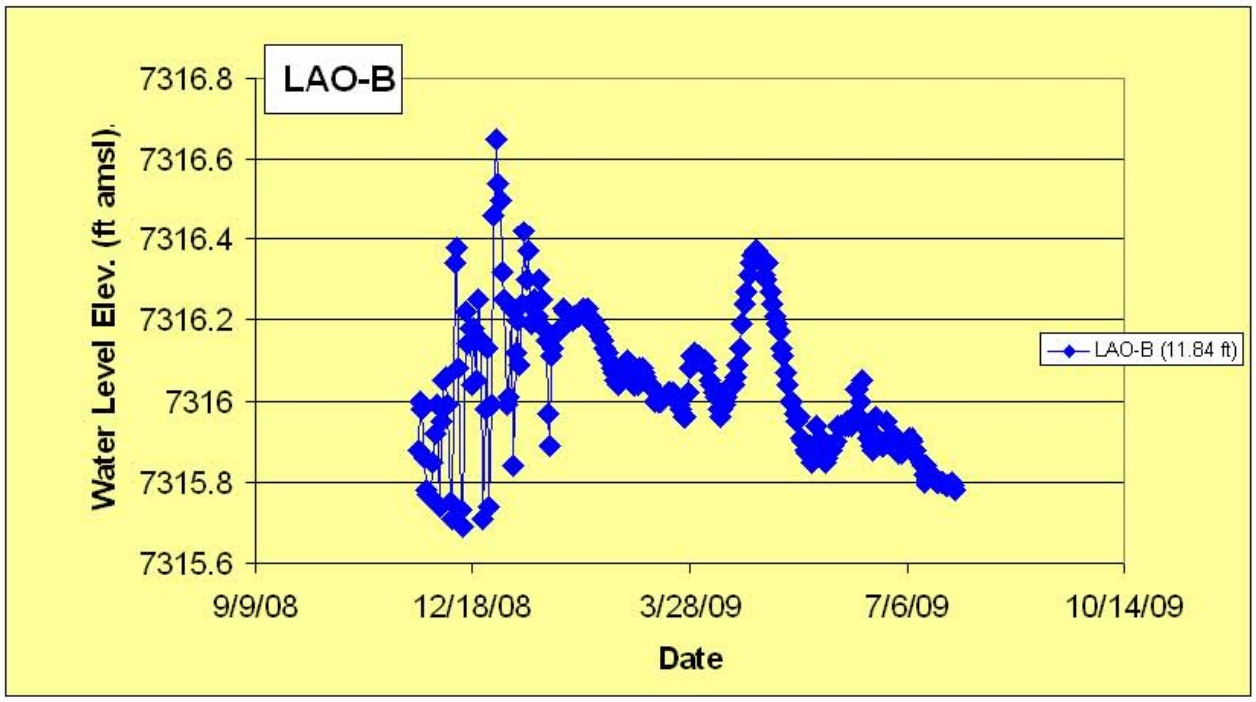

LAO-1.6g
Water Level Elev. (ft amsl)
6655
6650
6645
6640
6635
6630
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-1.6g (10.47 ft)

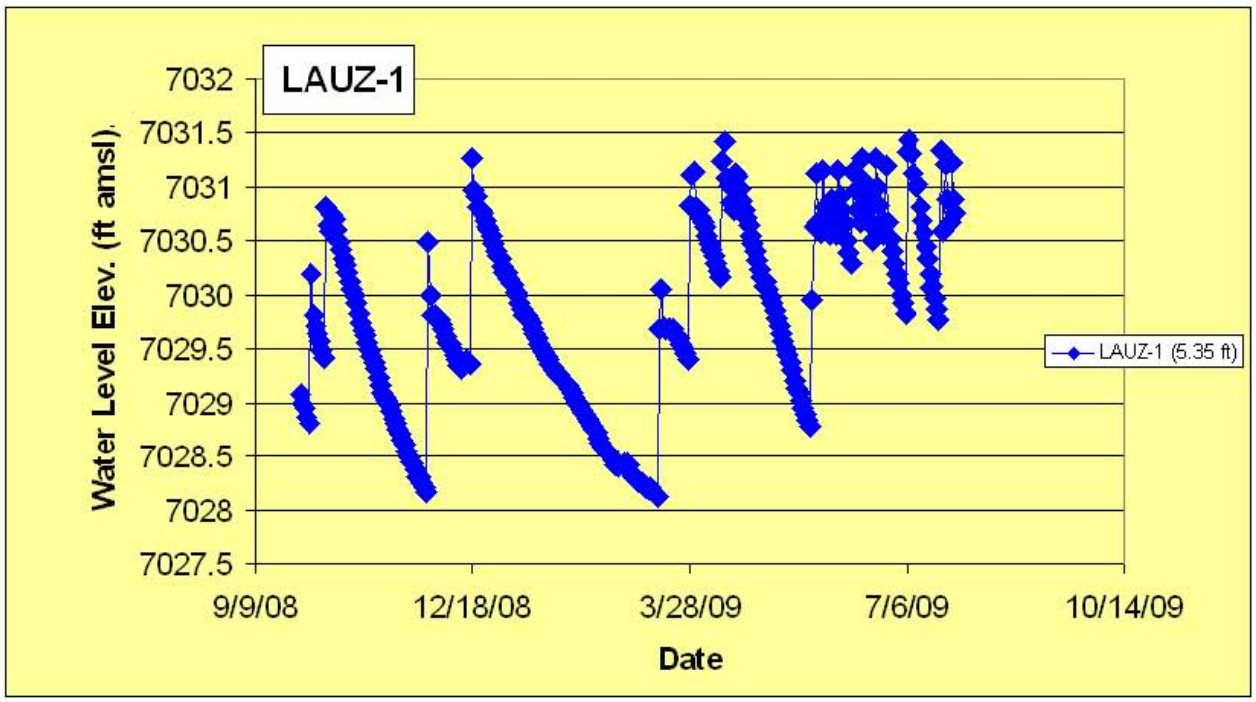

LAO-1
Water Level Elev. (ft amsl)
6835
6830
6825
6820
6815
6810
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-1 (8 ft)


LAO-2
Water Level Elev. (ft amsl)
6615
6610
6605
6600
6595
6590
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-2 (7 ft)

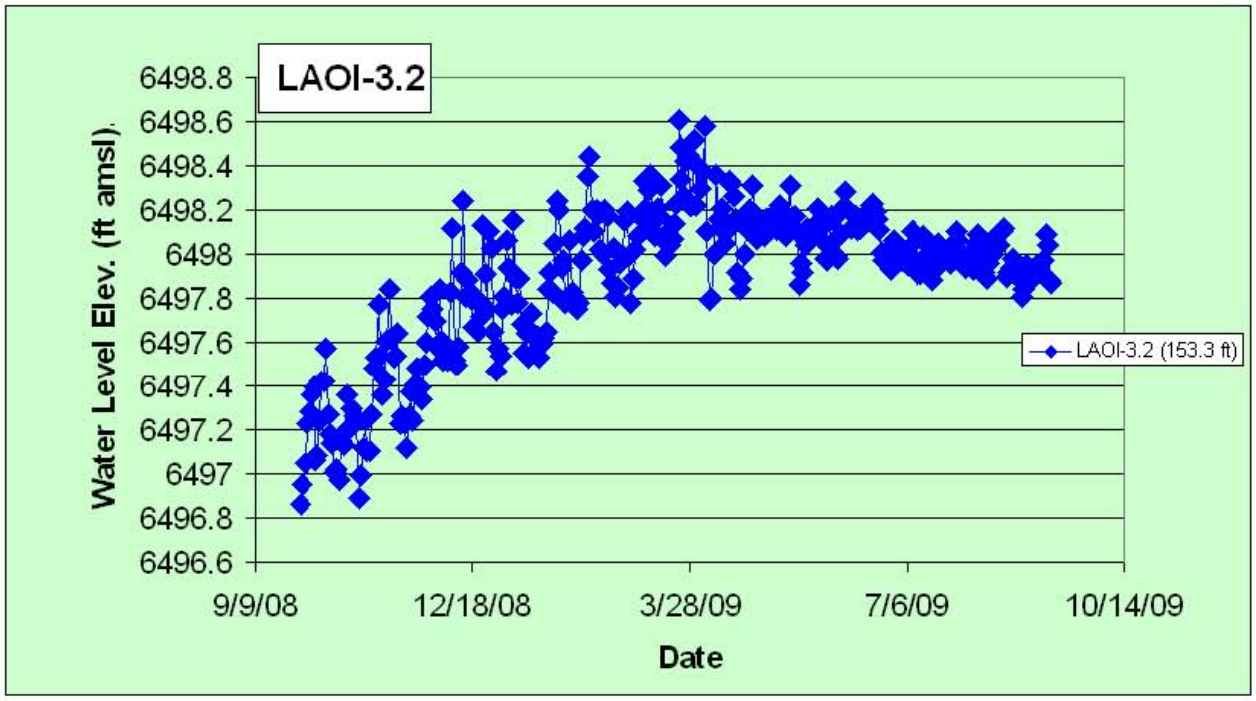

LAO-3a
Water Level Elev. (ft amsl)
6604
6603
6602
6601
6600
6599
6598
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-3a (4.7 ft)

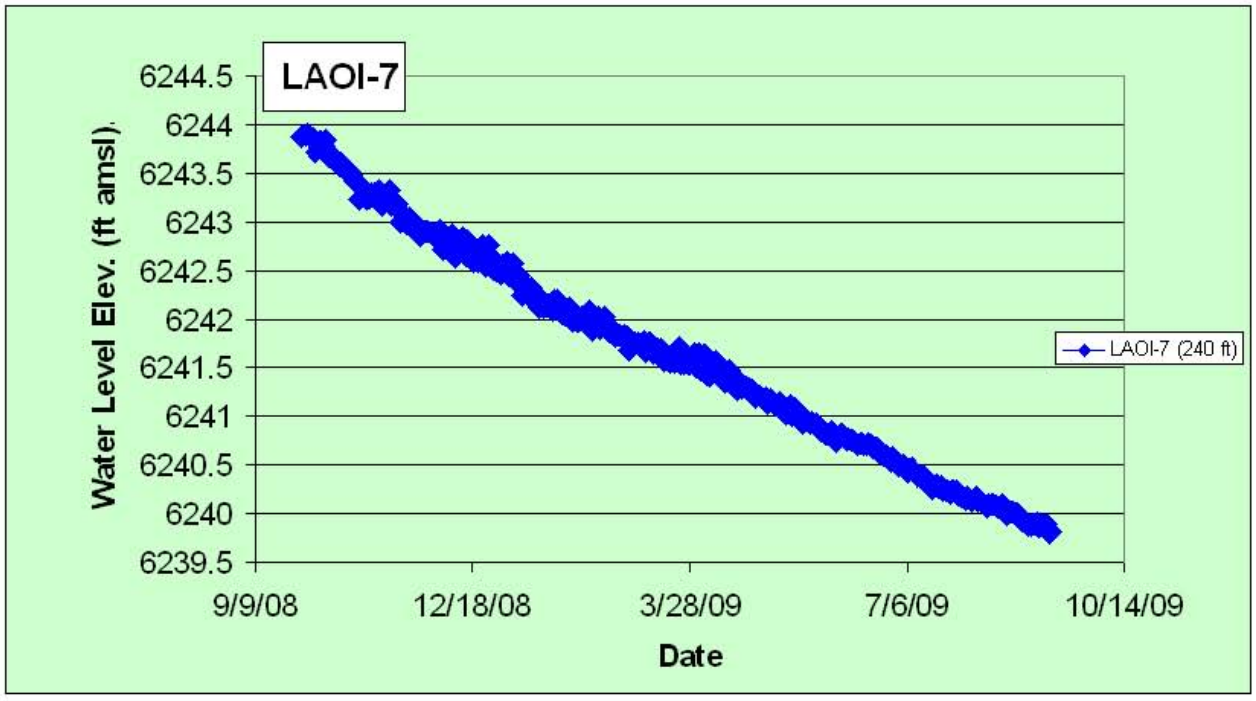

LAO-4.5c
Water Level Elev. (ft amsl)
6475
6474
6473
6472
6471
6470
6469
6468
6467
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-4.5c (13.3 ft)

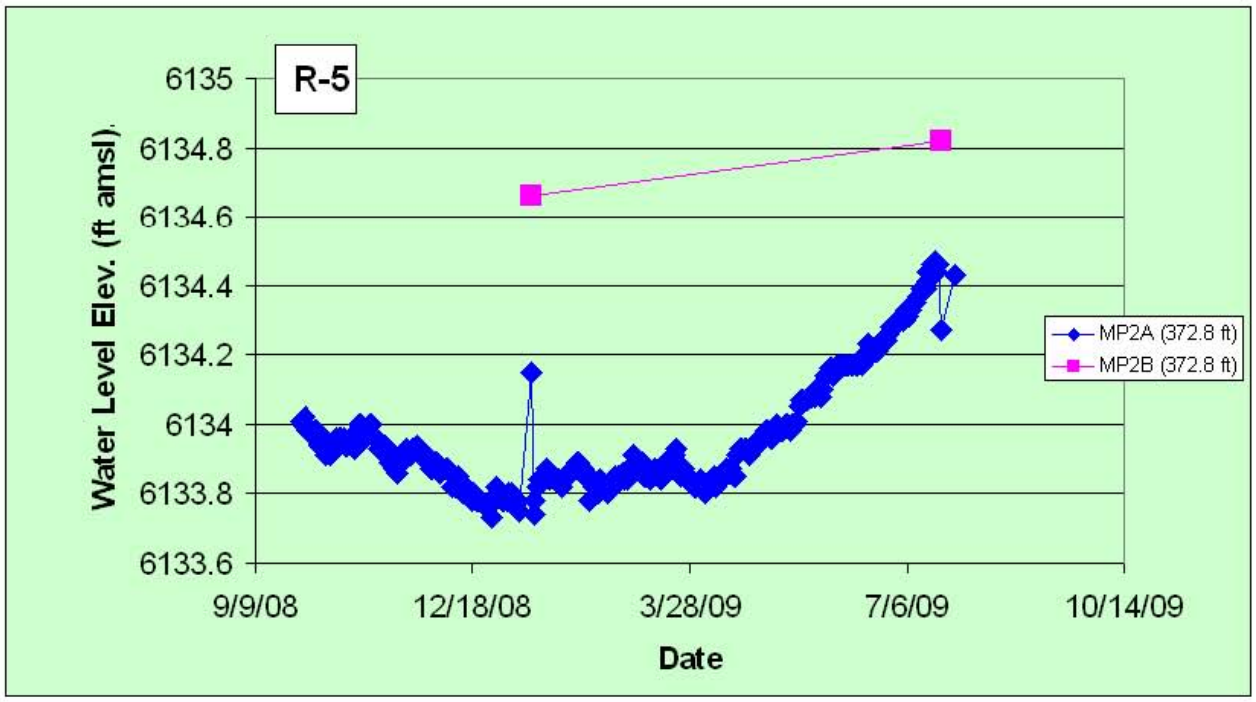

LAO-B
Water Level Elev. (ft amsl)
7316.8
7316.6
7316.4
7316.2
7316
7315.8
7315.6
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAO-B (11.84 ft)

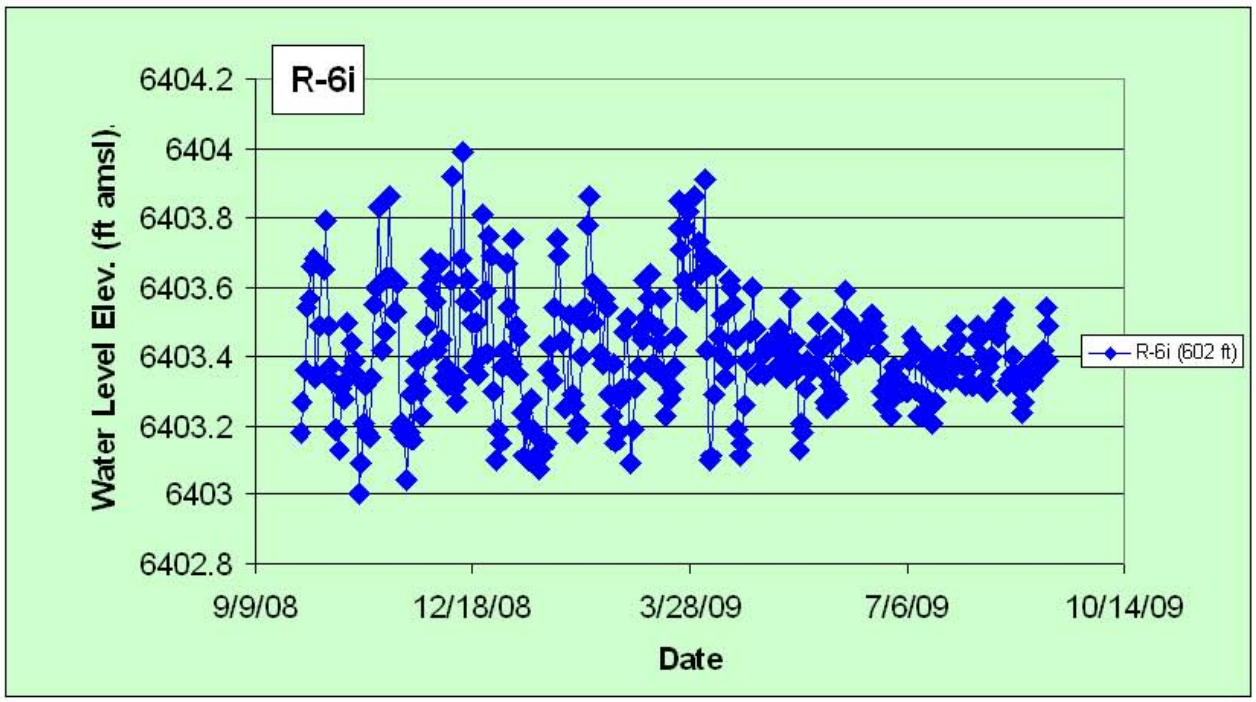

LAUZ-1
Water Level Elev. (ft amsl)
7032
7031.5
7031
7030.5
7030
7029.5
7029
7028.5
7028
7027.5
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
LAUZ-1 (5.35 ft)

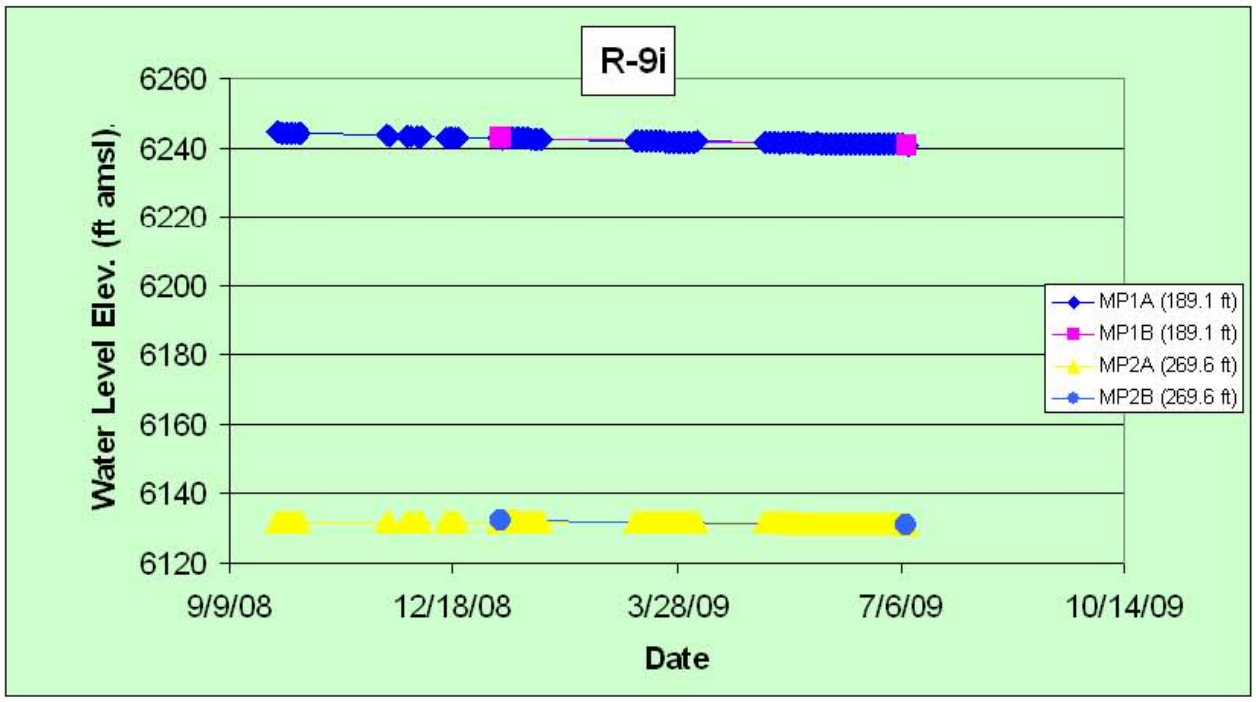
INTERMEDIATE

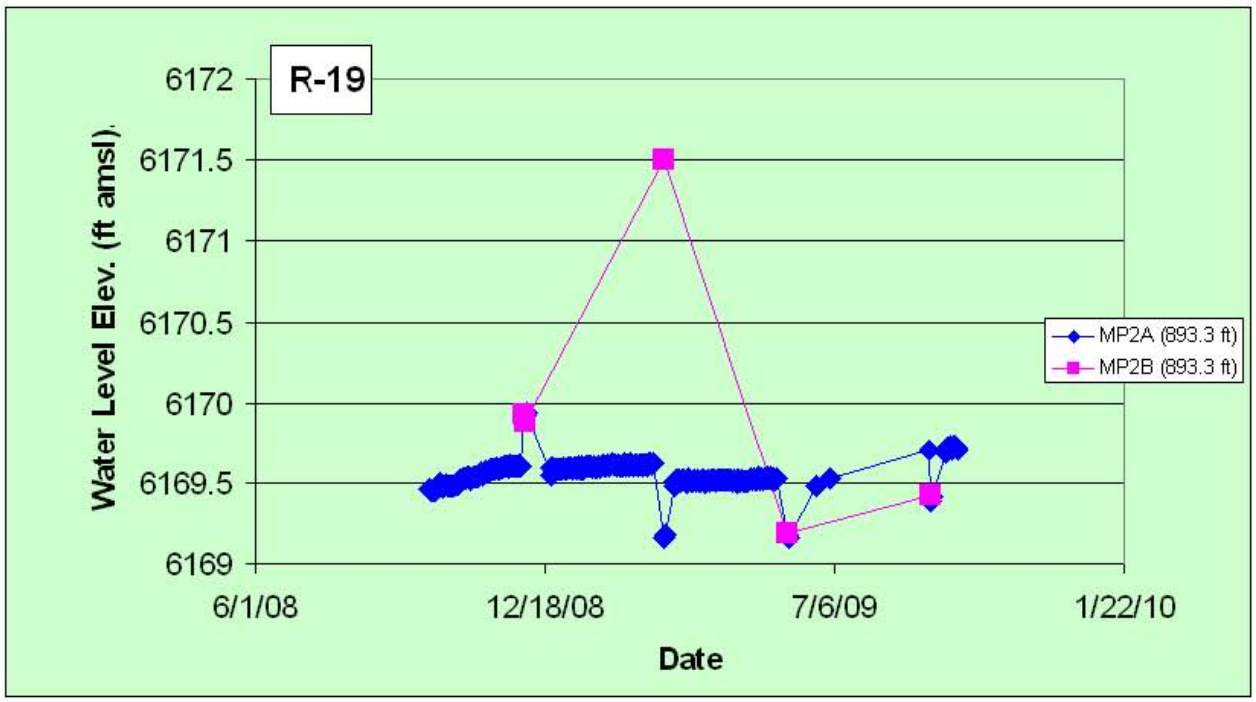


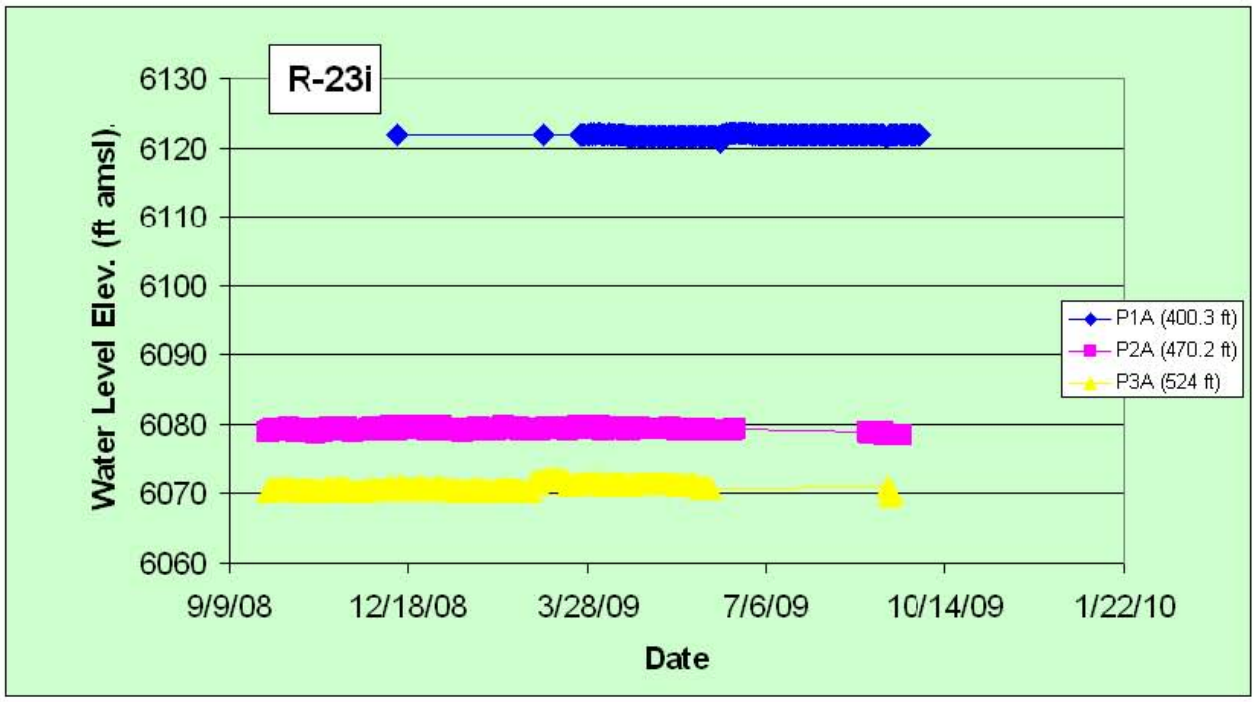


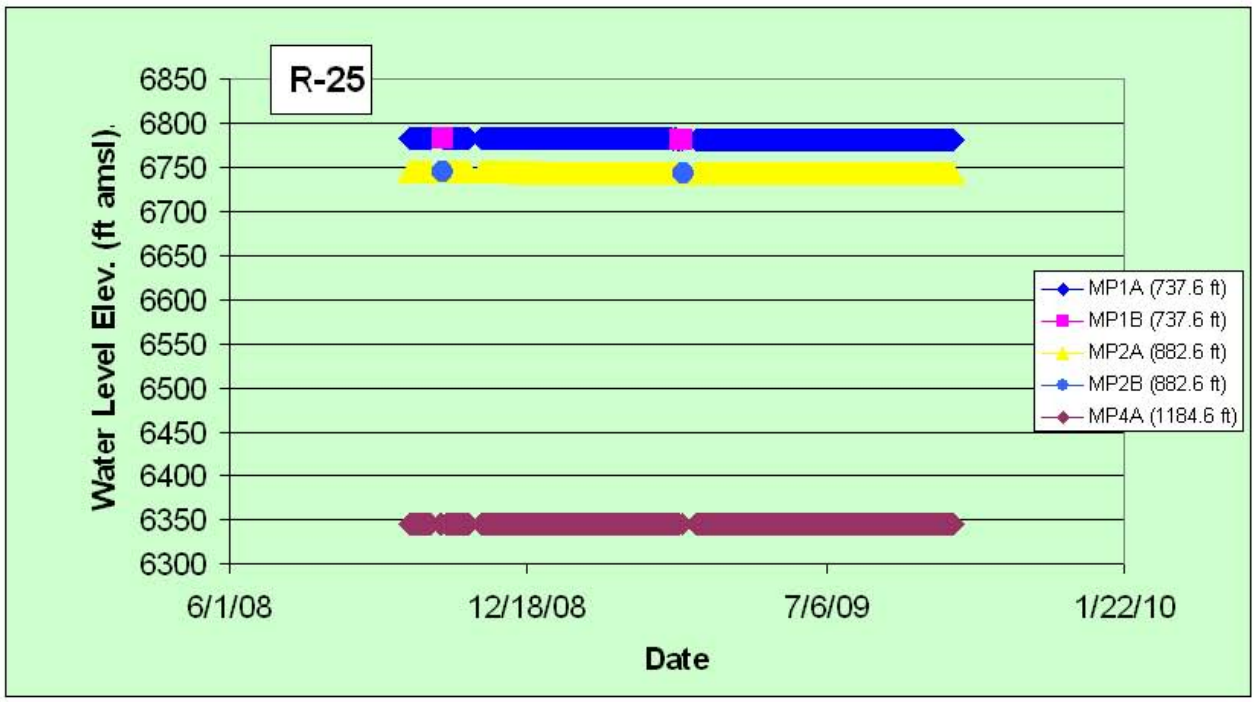

R-5
Water Level Elev. (ft amsl)
6135
6134.8
6134.6
6134.4
6134.2
6134
6133.8
6133.6
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
MP2A (372.8 ft)
MP2B (372.8 ft)


R-6i
Water Level Elev. (ft amsl)
6404.2
6404
6403.8
6403.6
6403.4
6403.2
6403
6402.8
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
R-6i (602 ft)

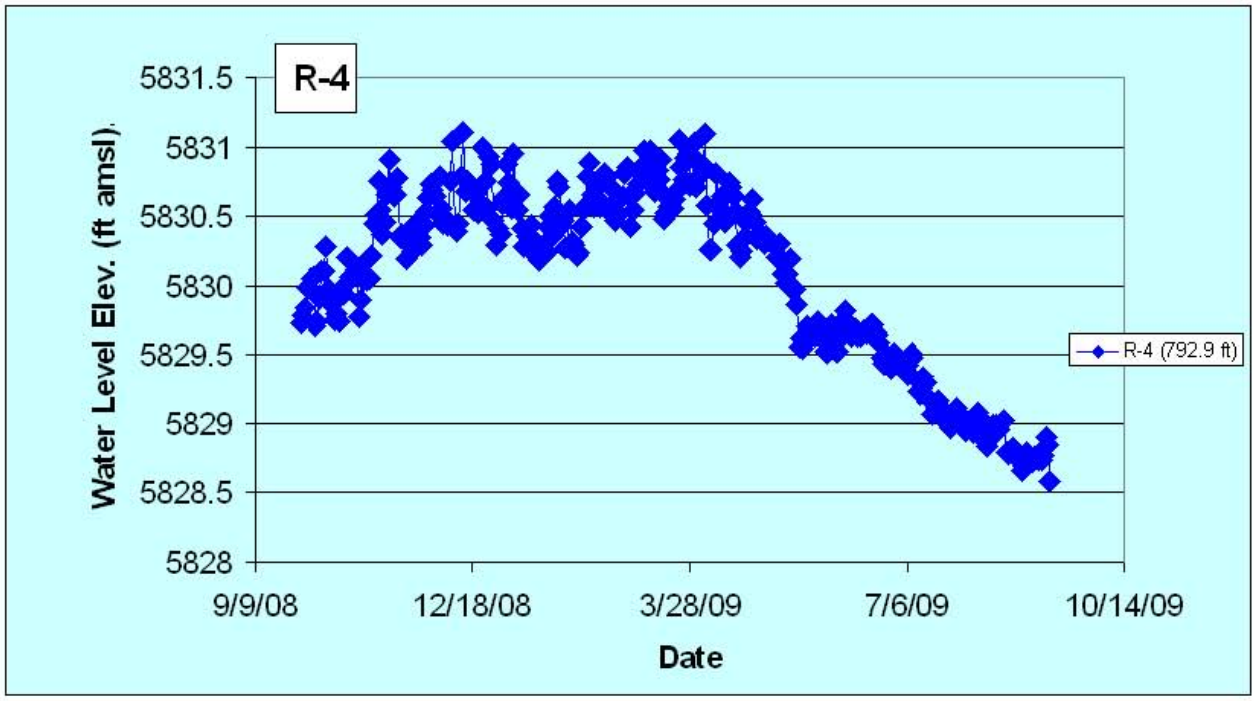

R-9i
Water Level Elev. (ft amsl)
6260
6240
6220
6200
6180
6160
6140
6120
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
MP1A (189.1 ft)
MP1B (189.1 ft)
MP2A (269.6 ft)
MP2B (269.6 ft)

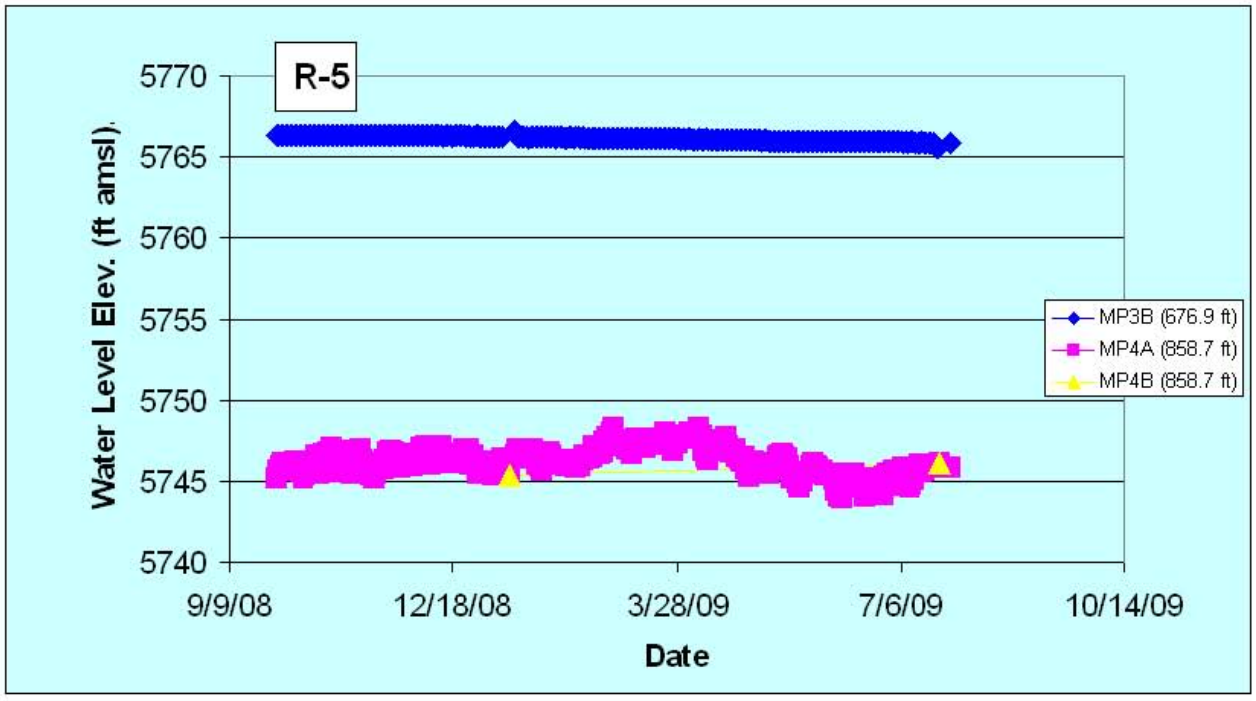

R-19
Water Level Elev. (ft amsl)
6172
6171.5
6171
6170.5
6170
6169.5
6169
6/1/08
12/18/08
7/6/09
1/22/10
Date
MP2A (893.3 ft)
MP2B (893.3 ft)

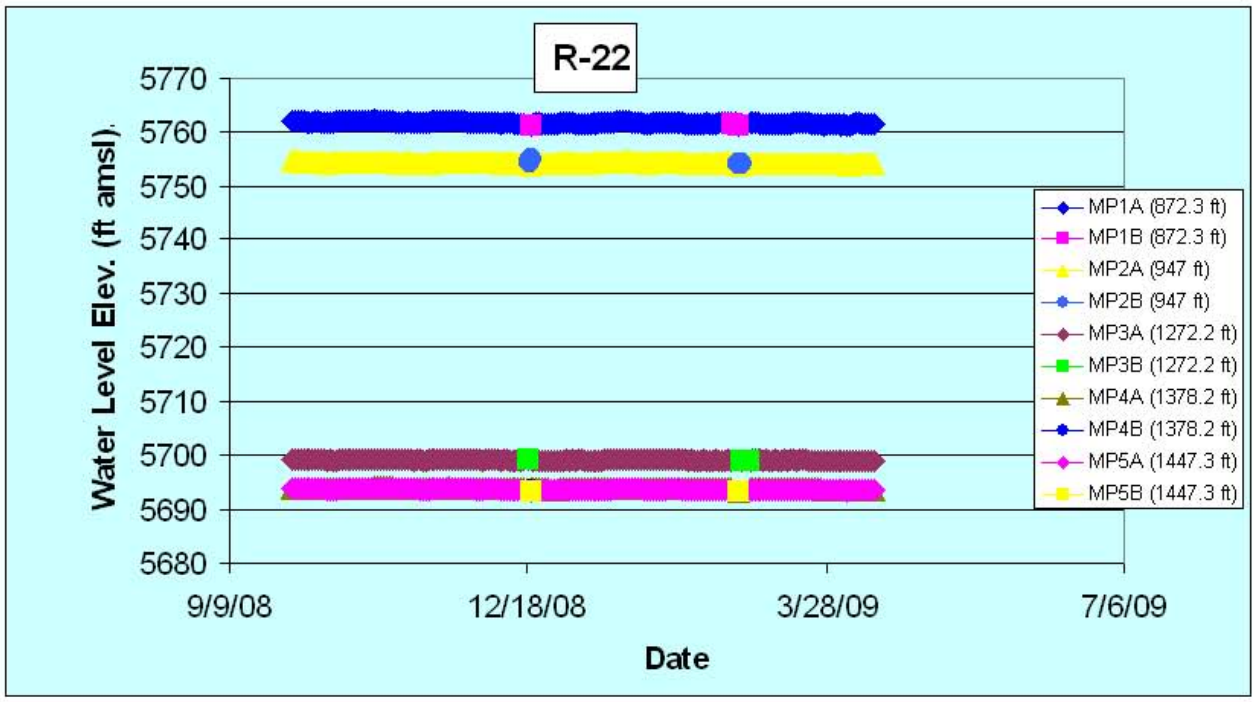

R-23i
Water Level Elev. (ft amsl)
6130
6120
6110
6100
6090
6080
6070
6060
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
1/22/10
Date
P1A (400.3 ft)
P2A (470.2 ft)
P3A (524 ft)

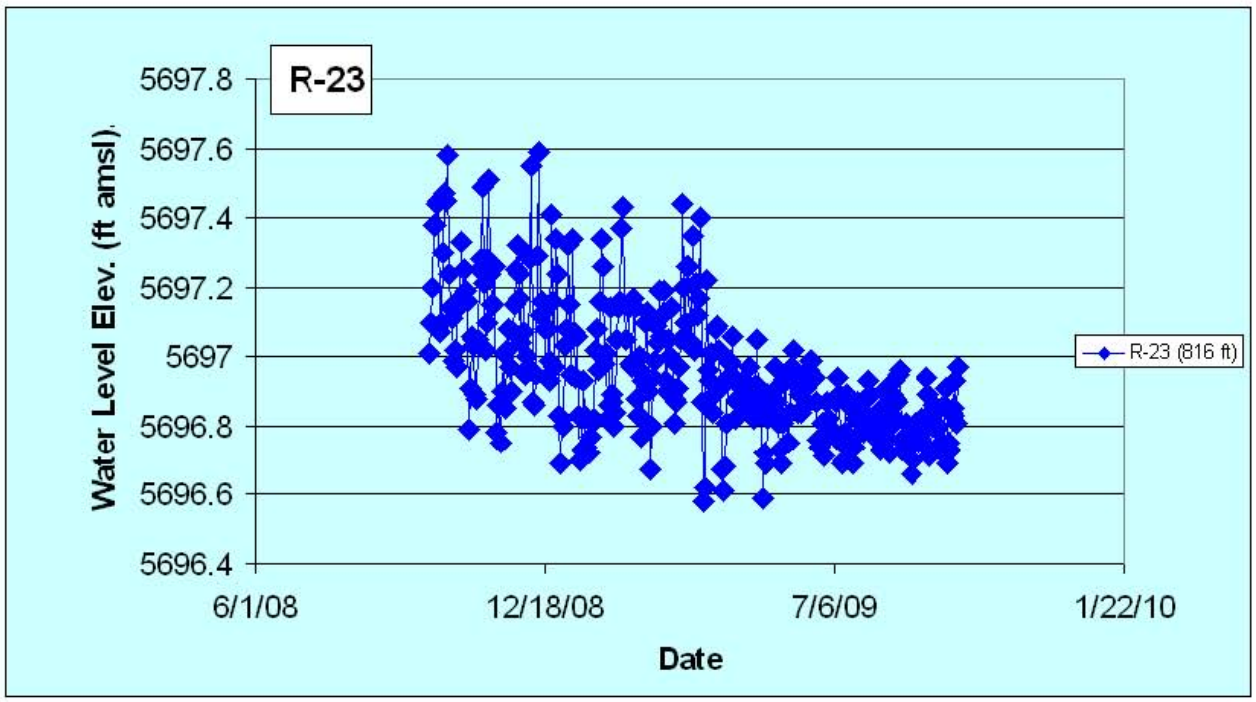

R-25
Water Level Elev. (ft amsl)
6850
6800
6750
6700
6650
6600
6550
6500
6450
6400
6350
6300
6/1/08
12/18/08
7/6/09
1/22/10
Date
MP1A (737.6 ft)
MP1B (737.6 ft)
MP2A (882.6 ft)
MP2B (882.6 ft)
MP4A (1184.6 ft)

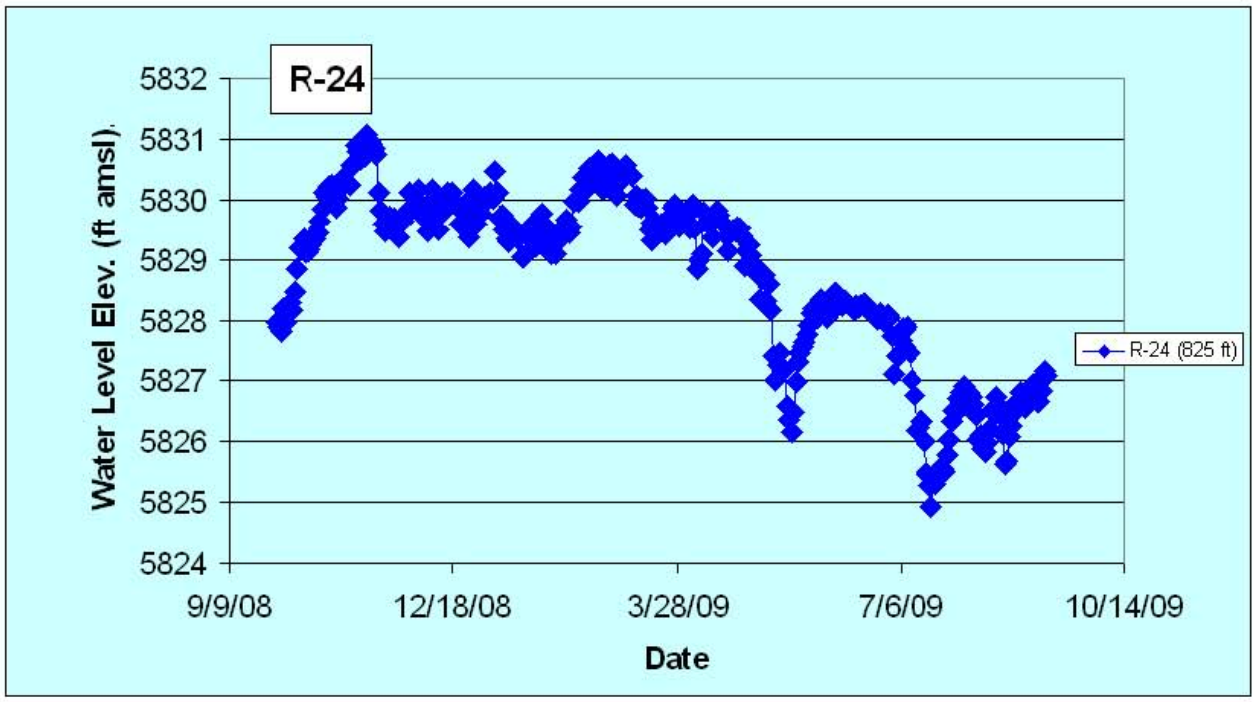
REGIONAL

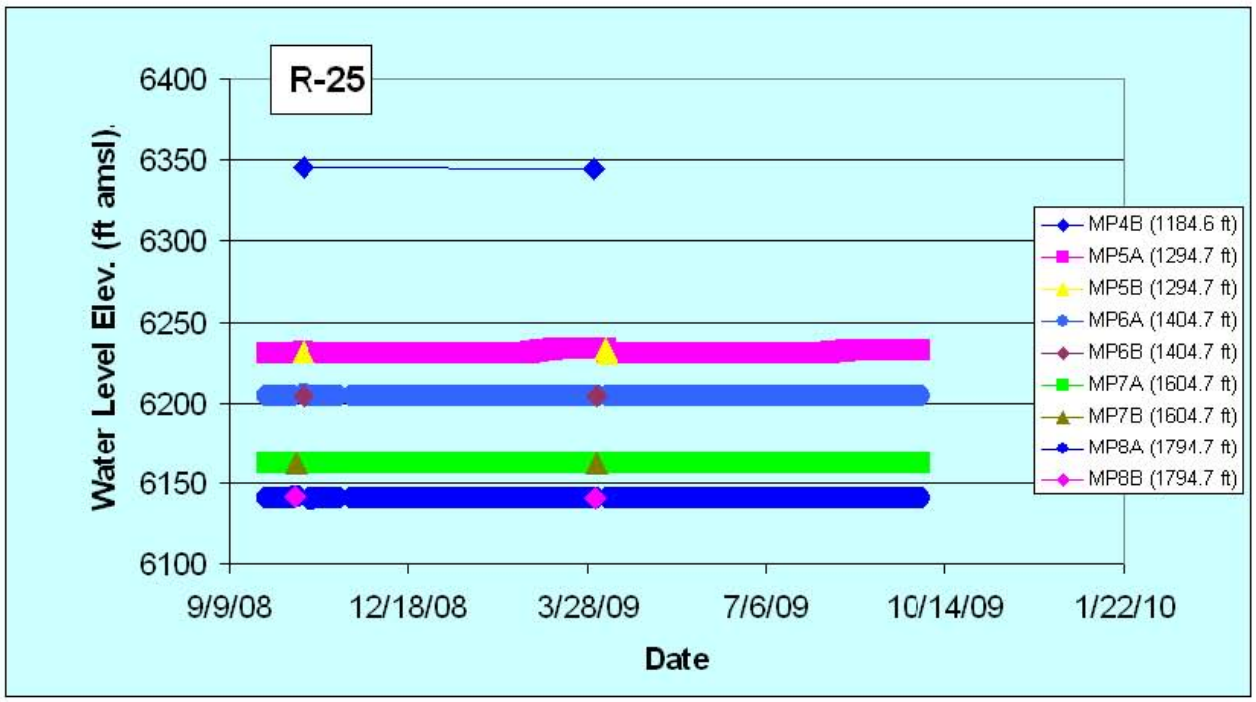

R-4
Water Level Elev. (ft amsl)
5831.5
5831
5830.5
5830
5829.5
5829
5828.5
5828
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
R-4 (792.9 ft)

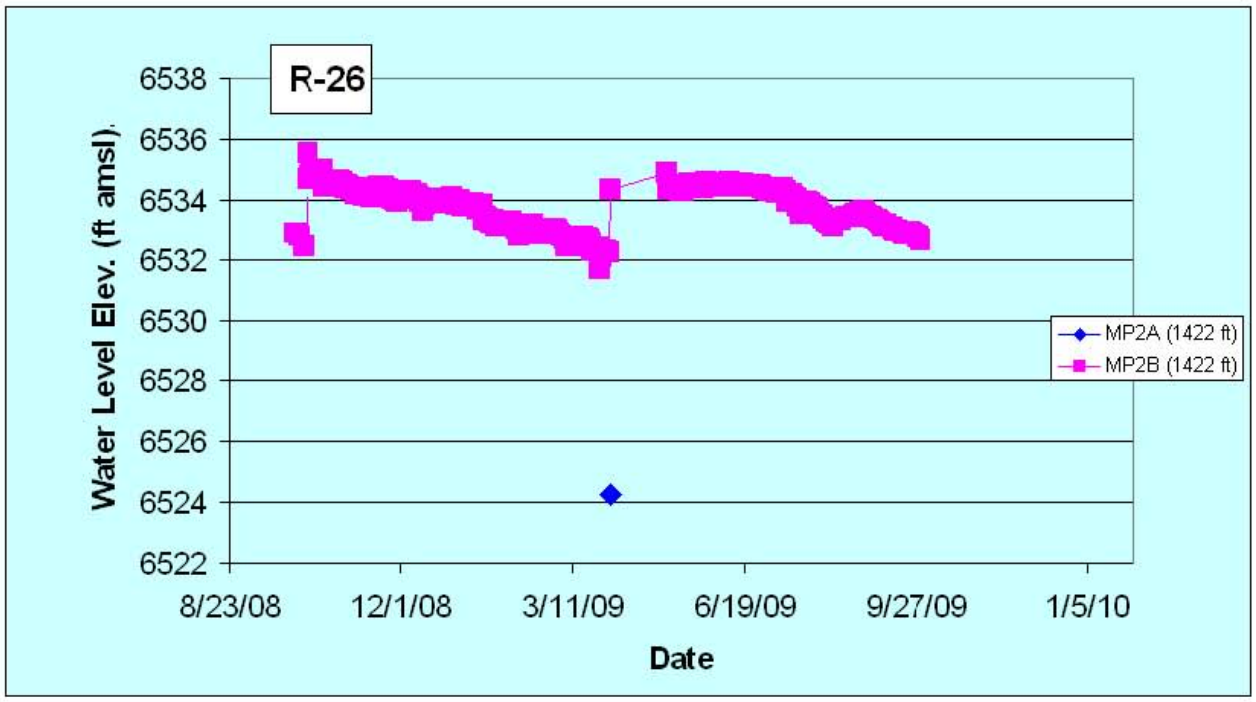

R-5
Water Level Elev. (ft amsl)
5770
5765
5760
5755
5750
5745
5740
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
MP3B (676.9 ft)
MP4A (858.7 ft)
MP4B (858.7 ft)

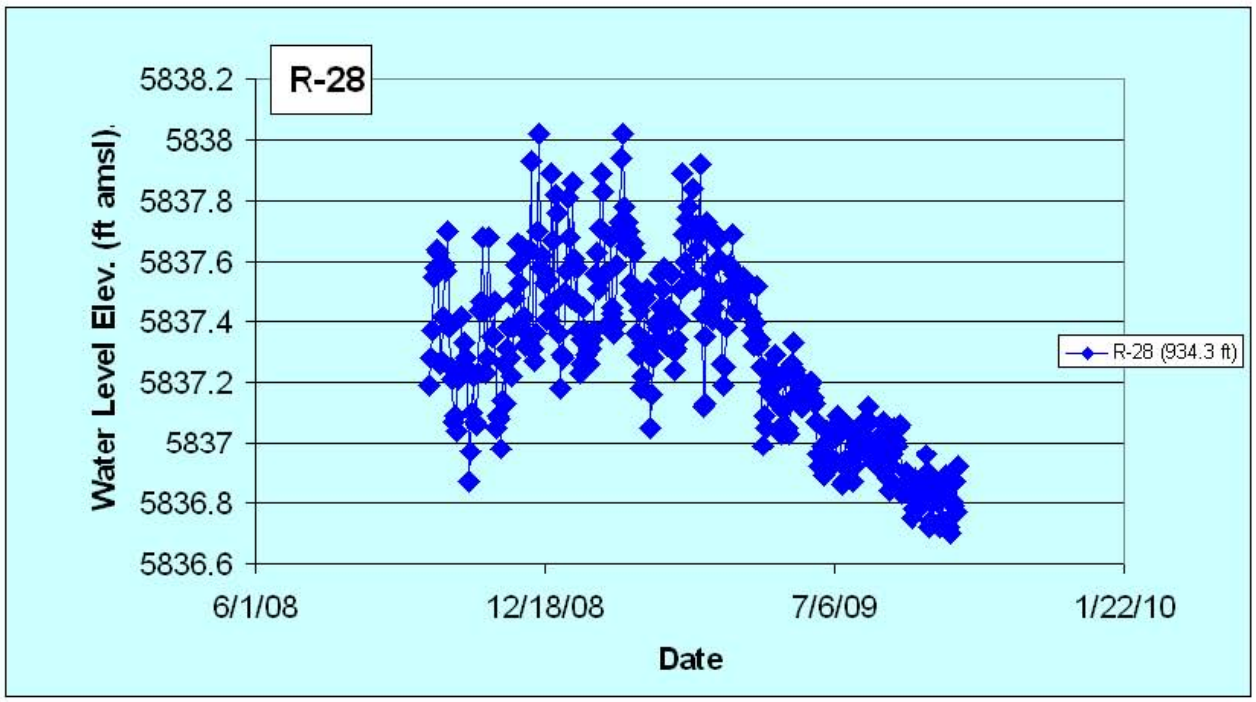

R-22
Water Level Elev. (ft amsl)
5770
5760
5750
5740
5730
5720
5710
5700
5690
5680
9/9/08
12/18/08
3/28/09
7/6/09
Date
MP1A (872.3 ft)
MP1B (872.3 ft)
MP2A (947 ft)
MP2B (947 ft)
MP3A (1272.2 ft)
MP3B (1272.2 ft)
MP4A (1378.2 ft)
MP4B (1378.2 ft)
MP5A (1447.3 ft)
MP5B (1447.3 ft)

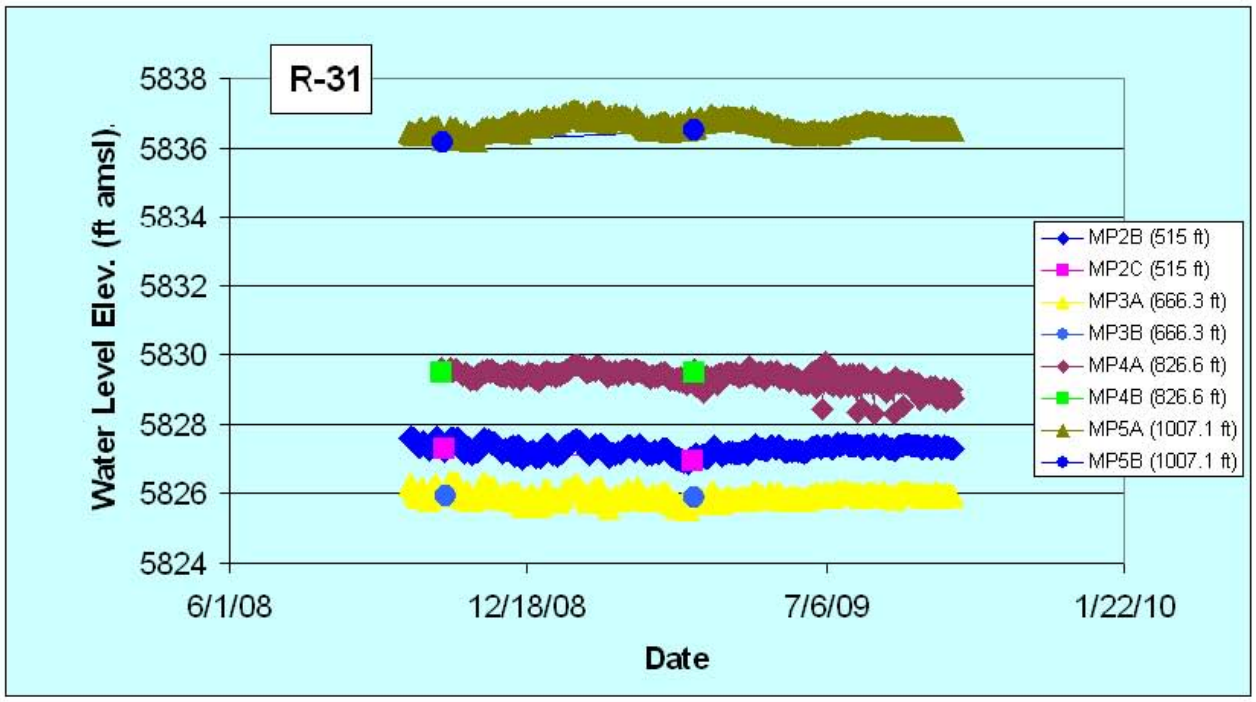

R-23
Water Level Elev. (ft amsl)
5697.8
5697.6
5697.4
5697.2
5697
5696.8
5696.6
5696.4
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-23 (816 ft)

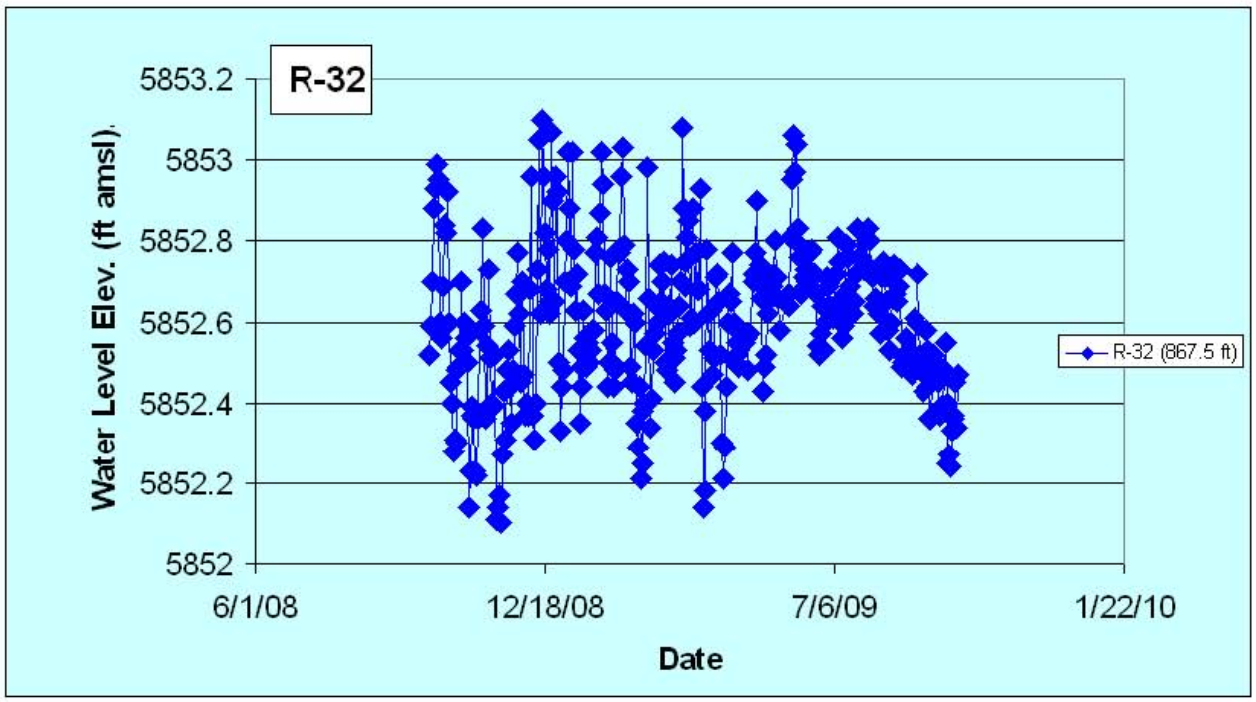

R-24
Water Level Elev. (ft amsl)
5832
5831
5830
5829
5828
5827
5826
5825
5824
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
Date
R-24 (825 ft)

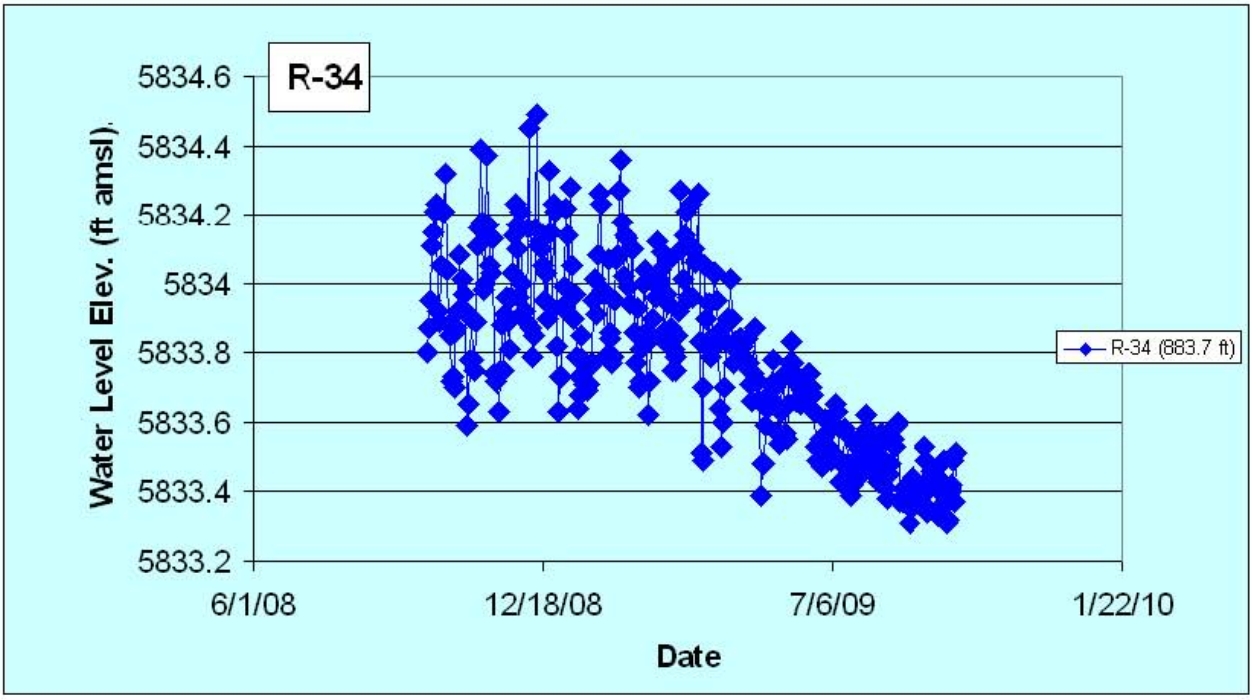

R-25
Water Level Elev. (ft amsl)
6400
6350
6300
6250
6200
6150
6100
9/9/08
12/18/08
3/28/09
7/6/09
10/14/09
1/22/10
Date
MP4B (1184.6 ft)
MP5A (1294.7 ft)
MP5B (1294.7 ft)
MP6A (1404.7 ft)
MP6B (1404.7 ft)
MP7A (1604.7 ft)
MP7B (1604.7 ft)
MP8A (1794.7 ft)
MP8B (1794.7 ft)

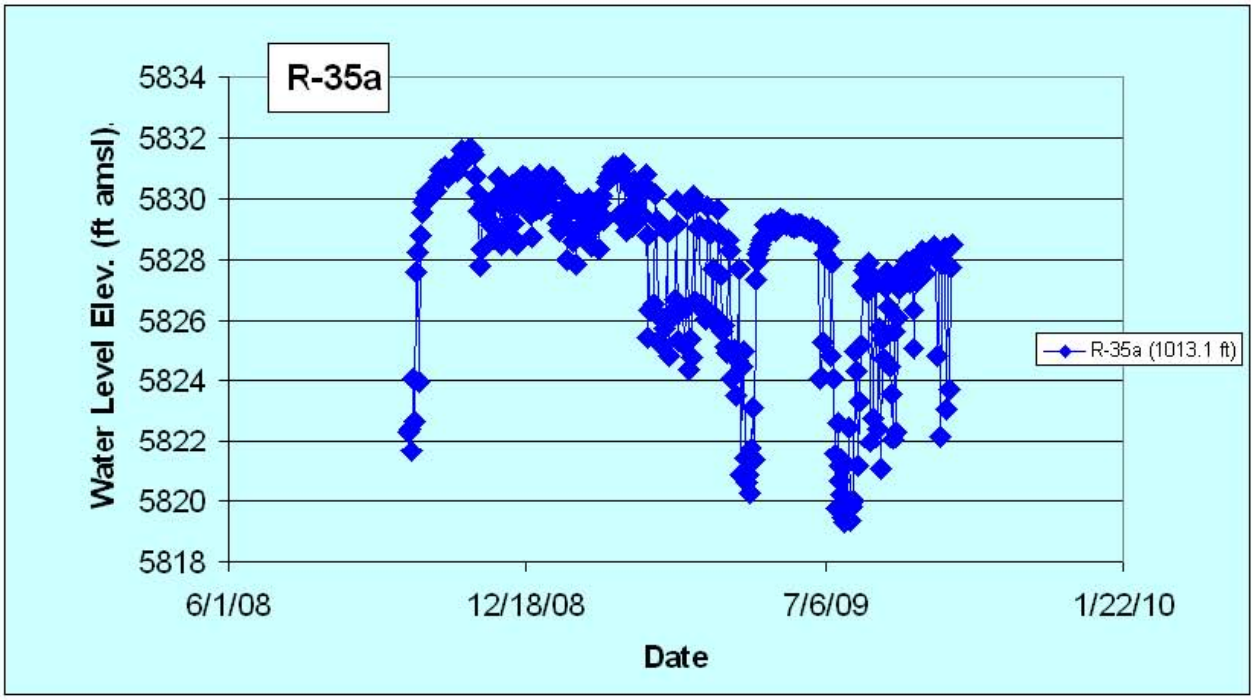

R-26
Water Level Elev. (ft amsl)
6538
6536
6534
6532
6530
6528
6526
6524
6522
8/23/08
12/1/08
3/11/09
6/19/09
9/27/09
1/5/10
Date
MP2A (1422 ft)
MP2B (1422 ft)

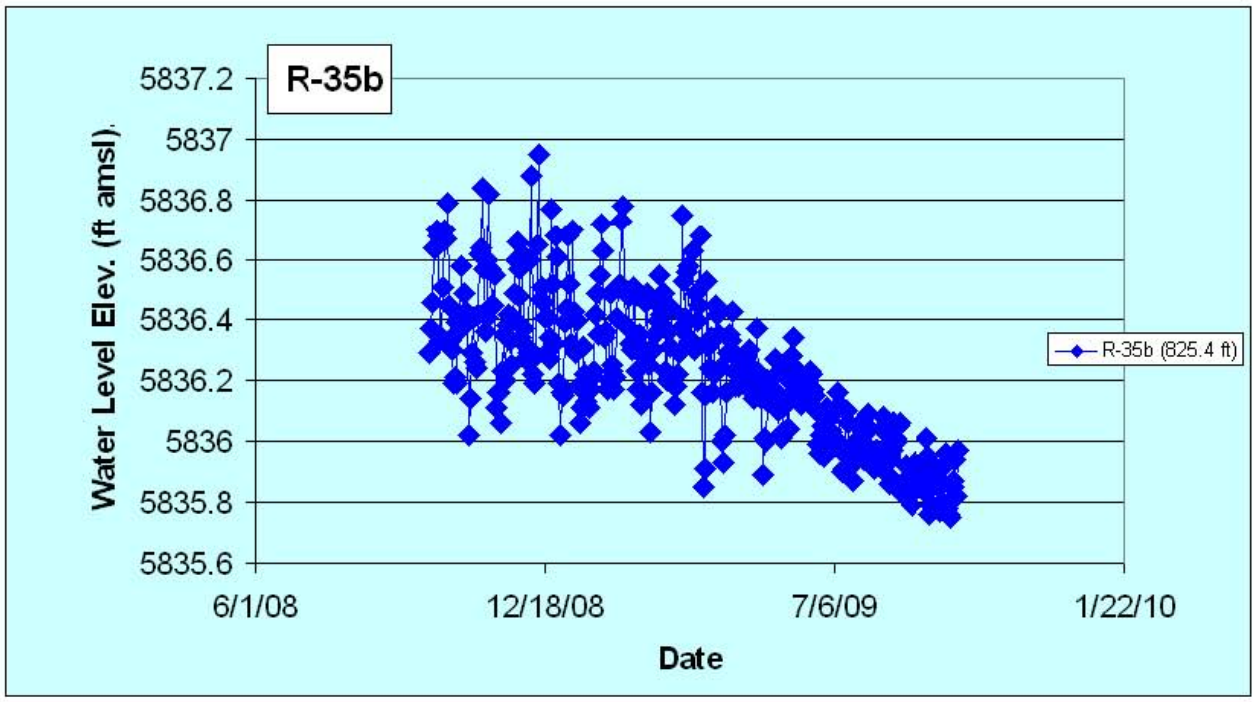

R-28
Water Level Elev. (ft amsl)
5838.2
5838
5837.8
5837.6
5837.4
5837.2
5837
5836.8
5836.6
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-28 (934.3 ft)

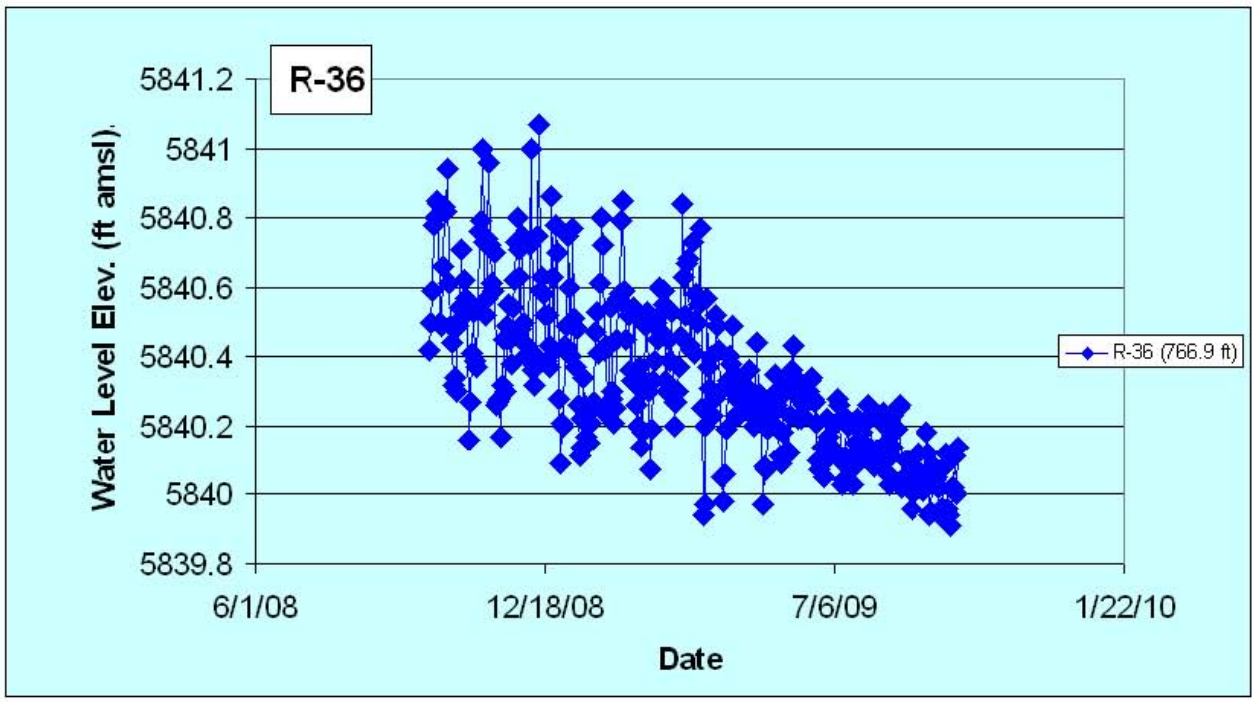

R-31
Water Level Elev. (ft amsl)
5838
5836
5834
5832
5830
5828
5826
5824
6/1/08
12/18/08
7/6/09
1/22/10
Date
MP2B (515 ft)
MP2C (515 ft)
MP3A (666.3 ft)
MP3B (666.3 ft)
MP4A (826.6 ft)
MP4B (826.6 ft)
MP5A (1007.1 ft)
MP5B (1007.1 ft)

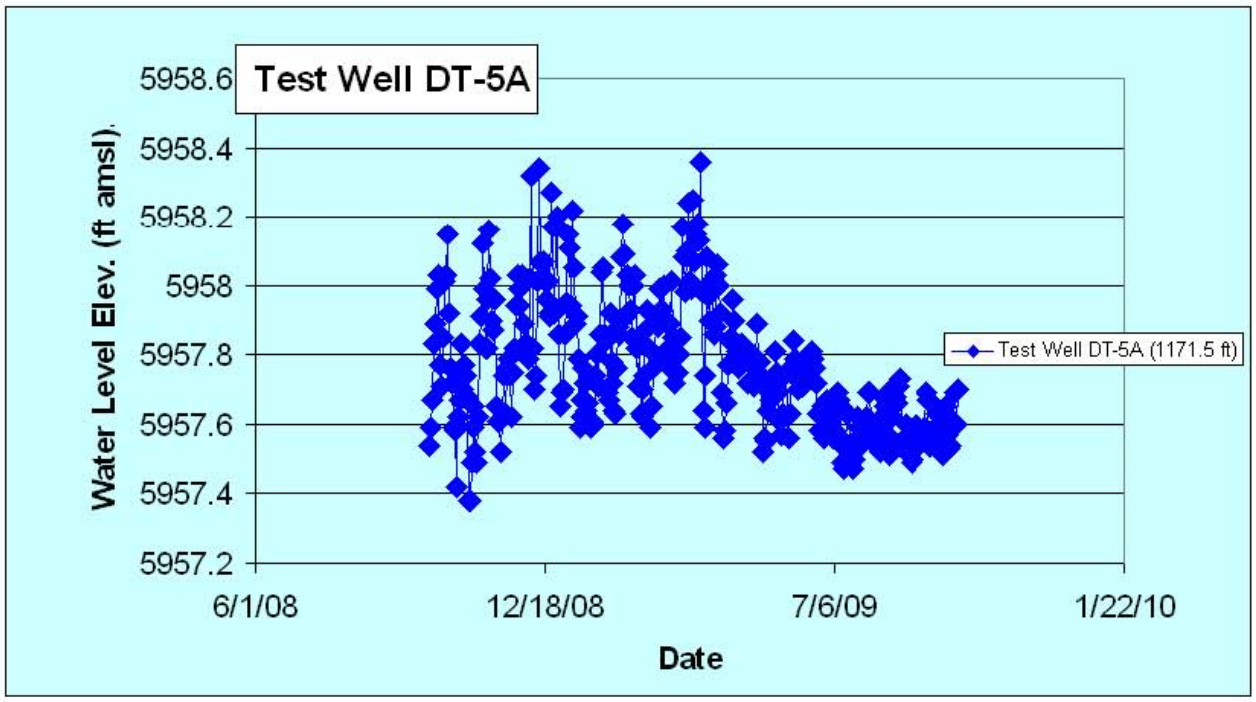

R-32
Water Level Elev. (ft amsl)
5853.2
5853
5852.8
5852.6
5852.4
5852.2
5852
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-32 (867.5 ft)

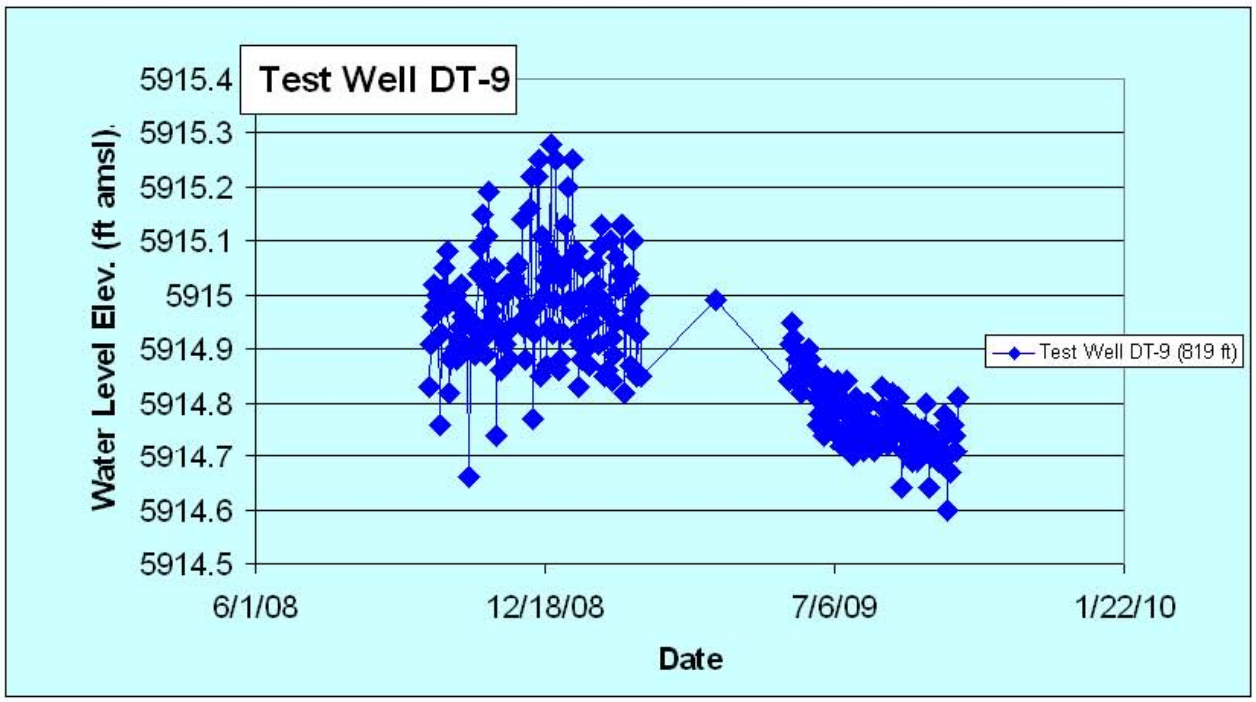

R-34
Water Level Elev. (ft amsl)
5834.6
5834.4
5834.2
5834
5833.8
5833.6
5833.4
5833.2
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-34 (883.7 ft)

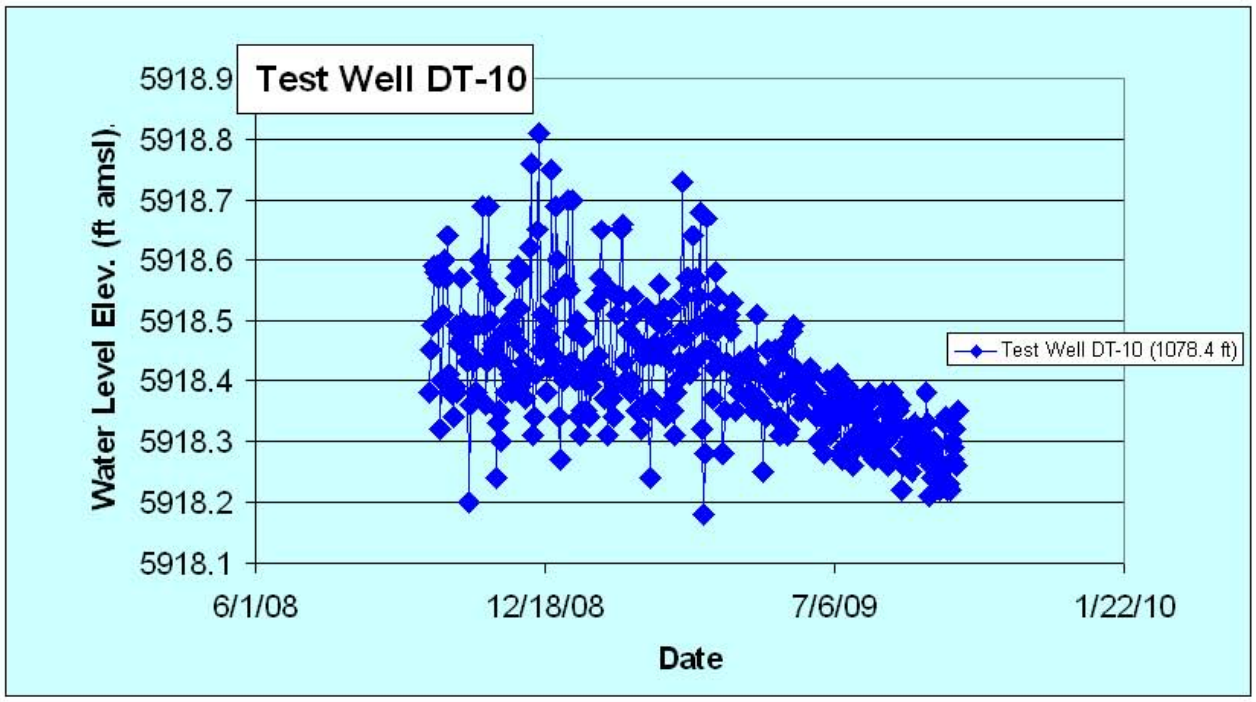

R-35a
Water Level Elev. (ft amsl)
5834
5832
5830
5828
5826
5824
5822
5820
5818
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-35a (1013.1 ft)


R-35b
Water Level Elev. (ft amsl)
5837.2
5837
5836.8
5836.6
5836.4
5836.2
5836
5835.8
5835.6
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-35b (825.4 ft)


R-36
Water Level Elev. (ft amsl)
5841.2
5841
5840.8
5840.6
5840.4
5840.2
5840
5839.8
6/1/08
12/18/08
7/6/09
1/22/10
Date
R-36 (766.9 ft)


Test Well DT-5A
Water Level Elev. (ft amsl)
5958.6
5958.4
5958.2
5958
5957.8
5957.6
5957.4
5957.2
6/1/08
12/18/08
7/6/09
1/22/10
Date
Test Well DT-5A (1171.5 ft)


Test Well DT-9
Water Level Elev. (ft amsl)
5915.4
5915.3
5915.2
5915.1
5915
5914.9
5914.8
5914.7
5914.6
5914.5
6/1/08
12/18/08
7/6/09
1/22/10
Date
Test Well DT-9 (819 ft)


Test Well DT-10
Water Level Elev. (ft amsl)
5918.9
5918.8
5918.7
5918.6
5918.5
5918.4
5918.3
5918.2
5918.1
6/1/08
12/18/08
7/6/09
1/22/10
Date
Test Well DT-10 (1078.4 ft)

Appendix E-2

Periodic Water-Level Data (Fiscal Year 2009)
(on CD included with this document)