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Progress Report
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Groundwater Level Status Report for 2005

Los Alamos National Laboratory



This is the first report in this unclassified series.

Edited by Hector Hinojosa, Group IM-1

Cover illustration: Close-up view of monitoring well R-24 in Bayo Canyon showing the large-diameter outer protective casing and the top of the well with access openings for the electrical cable, discharge tube (capped) from the submersible pump, and the 1-in.-diameter PVC access tube for measuring groundwater level.



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Shannon P. Allen
Richard J. Koch



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**Groundwater Level Status Report for 2005
Los Alamos National Laboratory**

by

Shannon P. Allen and Richard J. Koch

ABSTRACT

The status of groundwater level monitoring at Los Alamos National Laboratory (LANL) in 2005 is provided in this report. The Groundwater Level Monitoring Project was instituted in 2005 to provide a framework for the collection and processing of quality controlled groundwater level data. This report summarizes groundwater level data for 137 monitoring wells, including 41 regional aquifer wells, 22 intermediate wells, and 74 alluvial wells. Pressure transducers were installed in 118 monitoring wells for continuous monitoring of groundwater levels. Time-series hydrographs of groundwater level data are presented along with pertinent construction and location information for each well.

1.0 Introduction

This report presents and describes groundwater level data obtained by Los Alamos National Laboratory (LANL) during 2005. The Groundwater Level Monitoring (GWLM) Project Quality Assurance Program Plan (QAPP) (LANL 2006) and associated standard operation procedures (SOPs) were developed and the quality assured GWLM Project was instituted during 2005.

By the end of 2005, 41 regional aquifer wells, 22 intermediate wells, and 74 alluvial wells at LANL were being monitored for groundwater levels. In addition, nine of the multiple completion regional aquifer wells monitored intermediate zones; however, the intermediate zones were dry in three of these wells, thus six of the multiple completion regional aquifer wells were used to monitor intermediate groundwater levels. In 2005, pressure transducers were installed in 36 regional aquifer wells and 14 intermediate wells; manual measurements were obtained from an additional five regional aquifer wells (pending transducer installation in new wells) and eight intermediate wells (dry, monitored quarterly or annually, or pending transducer installation). Transducers were installed in 68 alluvial wells in 2005.

This report includes groundwater level data obtained in 2005 and, where available, historical data from the wells. The groundwater level data are presented on time series graphs to provide a comprehensive representation of the groundwater level characteristics, to the extent possible with available data.

2.0 Description of Groundwater Level Data

The GWLM Project at LANL is conducted under the QAPP for Groundwater Level Monitoring (LANL 2006) to assure the quality of groundwater level data. The QAPP contains the work processes and the data quality objectives utilized in the GWLM Project.

Groundwater level data were collected during 2005 according to the criteria outlined in the draft GWLM Plan for 2005 (LANL 2005a). Two types of groundwater level data were collected:

- Manual groundwater levels were measured in single completion wells and in boreholes and

- Pressure transducers were used to measure groundwater levels in single completion and multiple completion wells.

Manual groundwater level measurements were obtained according to SOP ENV-SOP-202, *Manual Groundwater Level Measurements*. Transducer measurements were obtained according to procedure ENV-SOP-201, *Pressure Transducer Installation, Removal, and Maintenance*, and ENV-WQH-SOP 064 *Westbay® Pressure Transducer Installation, Removal, and Maintenance*.

Groundwater level data obtained both manually and with transducers were reviewed and validated according to procedure ENV-WQH-SOP-062, *Groundwater Level Data Processing, Review, and Validation*. The groundwater level data are maintained in the LANL Water Quality and Hydrology (WQH) group water quality database (WQDB); the data are accessible to the public on the internet at wqdbworld.lanl.gov.

Transducer measurements for most wells were obtained at least hourly. Where possible, manual groundwater level measurements were obtained from single completion wells at least once every six months to provide quality control for the transducer measurements. In the following sections, both manual measurements and transducer measurements are shown on the time series hydrographs. Because hourly transducer measurements are too voluminous to reproduce for most hydrographs, mean daily groundwater levels are shown on the hydrographs in this report.

Transducers that measure pressure head in wells typically have a measurement precision of $\pm 0.1\%$ of the full-scale measurement capability. Thus, typical measurement accuracy for a 100-psi transducer is 0.23 ft, and for a 1000-psi transducer is 2.31 ft. The higher-pressure-rated transducers are required in the deeper Westbay® installations where higher water pressures are encountered. Manual groundwater level measurements typically have an accuracy of approximately 0.1 ft per 100 ft of measurement (0.1%).

From 2000 through 2004, groundwater level data obtained during groundwater sampling of Westbay® wells was from a 1000-psi-rated transducer that had an accuracy of about ± 2.3 ft. In 2005 a new sampling transducer was obtained with a 500-psi rating, which has an accuracy of about 1.2 ft. This change in transducers is the cause for the apparent water level shift for sampling water levels in mid 2005, as observed on many of the accompanying hydrograph plots for Westbay® wells. Also, the apparent scatter of water level data on the hydrographs from groundwater sampling of Westbay® wells is the result of the less accurate pressure transducers that are used for sampling.

In the following sections, acronyms used to describe groundwater level data include:

GW	data obtained from transducers during groundwater sampling events
Trans	measurements from transducers installed in a well
MP	Measurement Port identification in multiple completion wells.

Previous reports of groundwater level data at LANL were compiled for the regional aquifer test wells (TWs) by Koch et al. (2004) and for all wells in a submittal to the New Mexico Environment Department in January 2005 (LANL 2005b). Groundwater levels in water supply wells at Los Alamos have been summarized in the series of water supply reports for Los Alamos, e.g., Koch and Rogers (2003).

3.0 Groundwater Level Data from Regional Aquifer Wells

Figure 3.1 shows the locations of the regional aquifer monitoring wells and water supply wells in the vicinity of LANL. Table 3.1 lists the regional aquifer monitoring wells that were monitored for groundwater levels in 2005. The location information was obtained from the WQDB at wqdbworld.lanl.gov. Screen intervals and port depths for each well are shown in subsequent sections. The Appendix lists the mean annual water level for each well at the top of the regional aquifer for 2005.

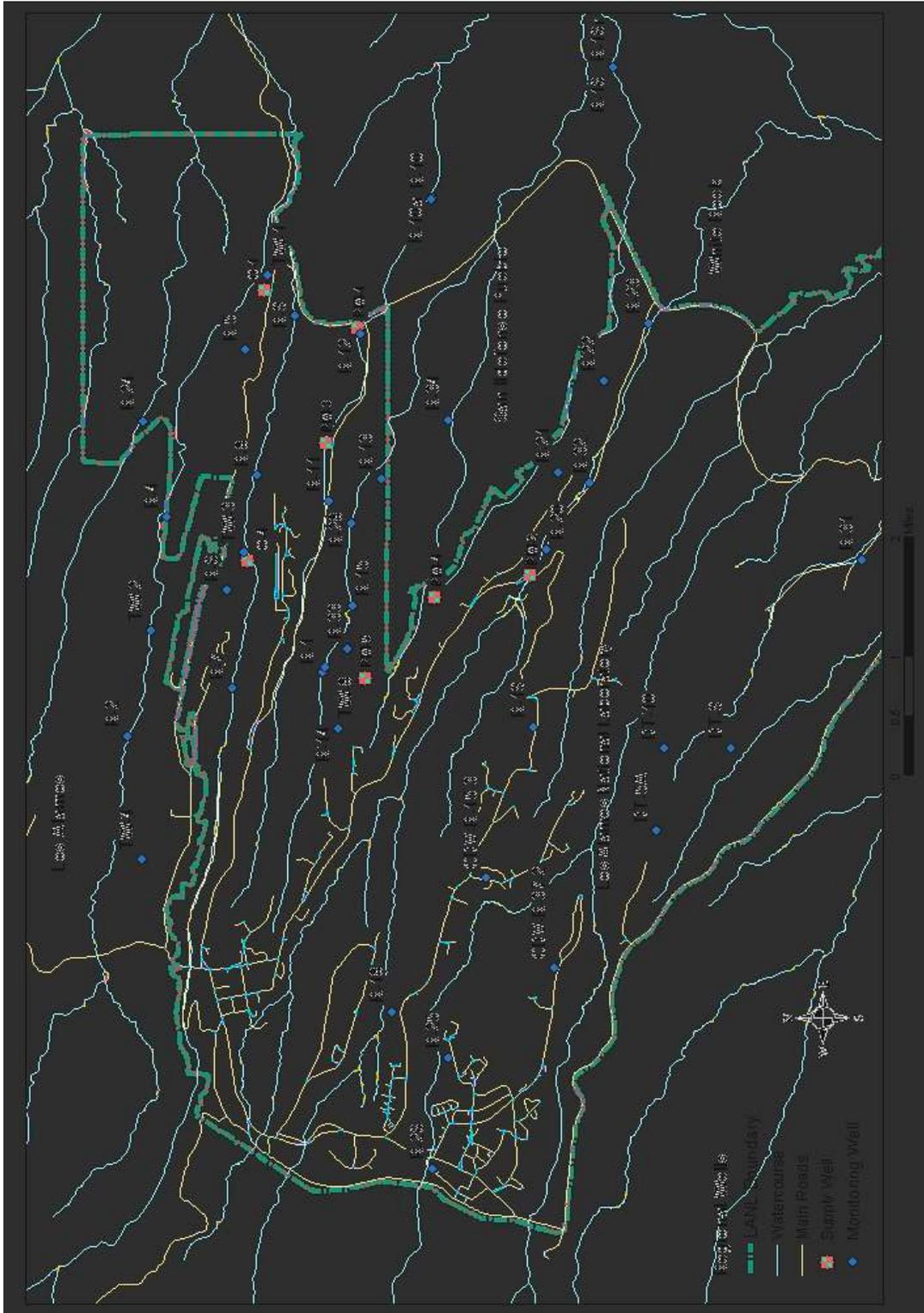


Figure 3.1 Regional aquifer monitoring wells.

Table 3.1. General Information for Regional Aquifer Wells

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)
CdV-R-15-3	5/3/00	1722	1623222.3	1762347.5	7258.9
CdV-R-37-2	8/9/01	1664	1619216.7	1759320.8	7330.6
R-1	11/10/03	1080.1	1632354.13	1769600.84	6881.21
R-10	10/5/05	1079	1653465.92	1764766.46	6362.31
R-10a	8/18/05	706	1653411.63	1764782.29	6363.74
R-11	10/8/04	901.7	1639959.31	1769353.57	6673.72
R-12	1/11/00	886	1647424.2	1767913.4	6499.6
R-13	9/26/01	1029.42	1640991.66	1766994.17	6673.05
R-14	7/4/02	1315.6	1629855.01	1768953.12	7062.08
R-15	9/8/99	1030.6	1635308.6	1768272.5	6820
R-16	8/31/02	1276.7	1659283.61	1756710.97	6256.87
R-16r	10/11/05	631.4	1659289.39	1756730.68	6256.97
R-18	12/14/04	1405	1617254.37	1766545.47	7404.83
R-19	3/30/00	1877.4	1629918.4	1760252.1	7066.3
R-2	10/19/03	943.3	1629519.57	1778281.56	6770.38
R-20	9/8/02	1353.3	1637835.4	1759694.51	6694.35
R-21	11/20/02	941.4	1641284.17	1759143.06	6656.24
R-22	10/19/00	1472.9	1645324.4	1757111.1	6650.5
R-23	9/27/02	886.3	1647913.6	1755165.37	6527.75
R-24	9/2/05	861	1643554.46	1777591.35	6547.4
R-25	9/28/00	1934.7	1615178.42	1764060.5	7516.1
R-26	10/17/03	1479	1610267.23	1764721.12	7641.69
R-28	12/13/03	980.3	1638988.73	1768358.57	6728.61
R-31	12/1/00	1077.7	1637353.8	1745648.4	6362.5
R-32	8/9/02	1002	1640797.67	1757730.25	6637.63
R-33	10/13/04	1126	1633401.71	1768532.65	6853.33
R-34	8/20/04	920.7	1643595.82	1764028.77	6629.99
R-4	9/28/03	840	1639287.98	1776530.28	6577.49
R-5	5/22/01	884	1646707	1773063	6472.6
R-6	11/16/04	1252	1636011.02	1773884.07	6995.8
R-7	1/20/01	977	1631666	1773653	6779.2
R-8	1/28/02	850	1641139.01	1772554.62	6544.74
R-9	10/4/99	758	1648236.5	1770847.1	6382.8
Test Well 1	1/3/50	642	1650041.5	1772076.87	6369.19
Test Well 2	12/1/90	834	1634231.12	1777267.87	6648.06
Test Well 3	11/20/49	818	1637727.5	1773138.12	6626.9
Test Well 4	3/8/50	1205	1624028.12	1777680.12	7244.56
Test Well 8	12/15/60	1065	1632573.87	1769506.62	6873.5
Test Well DT-10	3/13/60	1408	1628988.5	1754448.75	7019.9
Test Well DT-5A	1/25/60	1819.5	1625310	1754789.37	7143.86
Test Well DT-9	2/19/60	1501	1628993.62	1751492.62	6935

3.1 CdV-R-15-3

Location: On a mesa between upper Threemile Canyon and Cañon de Valle within the Cañon de Valle watershed.

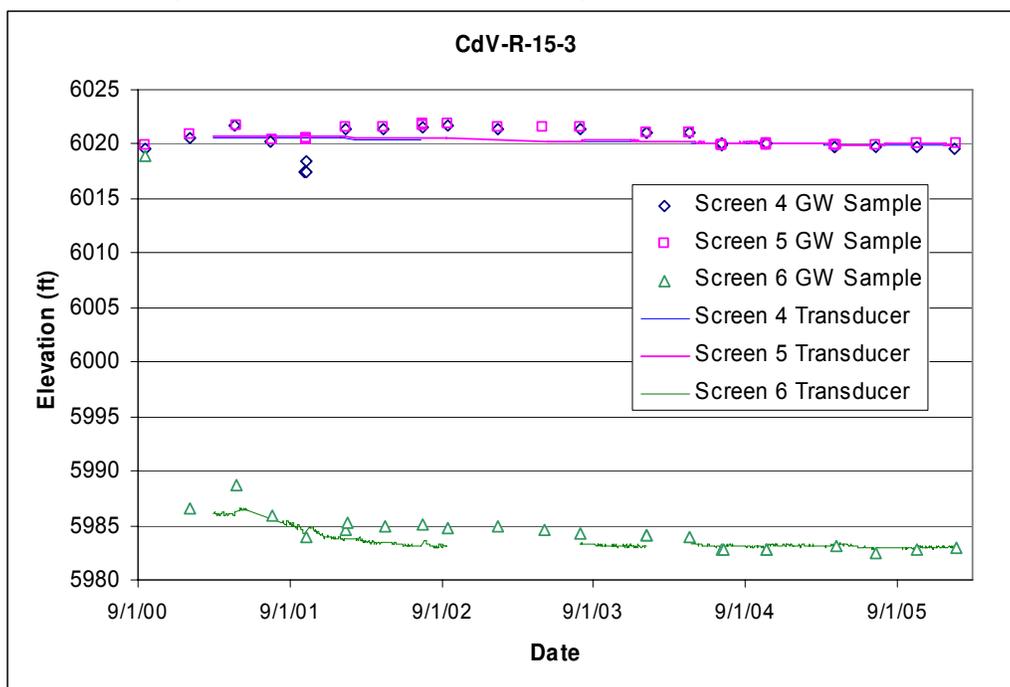
Completion Type: Multiple completion, three screens in intermediate zones, three screens in regional zones.

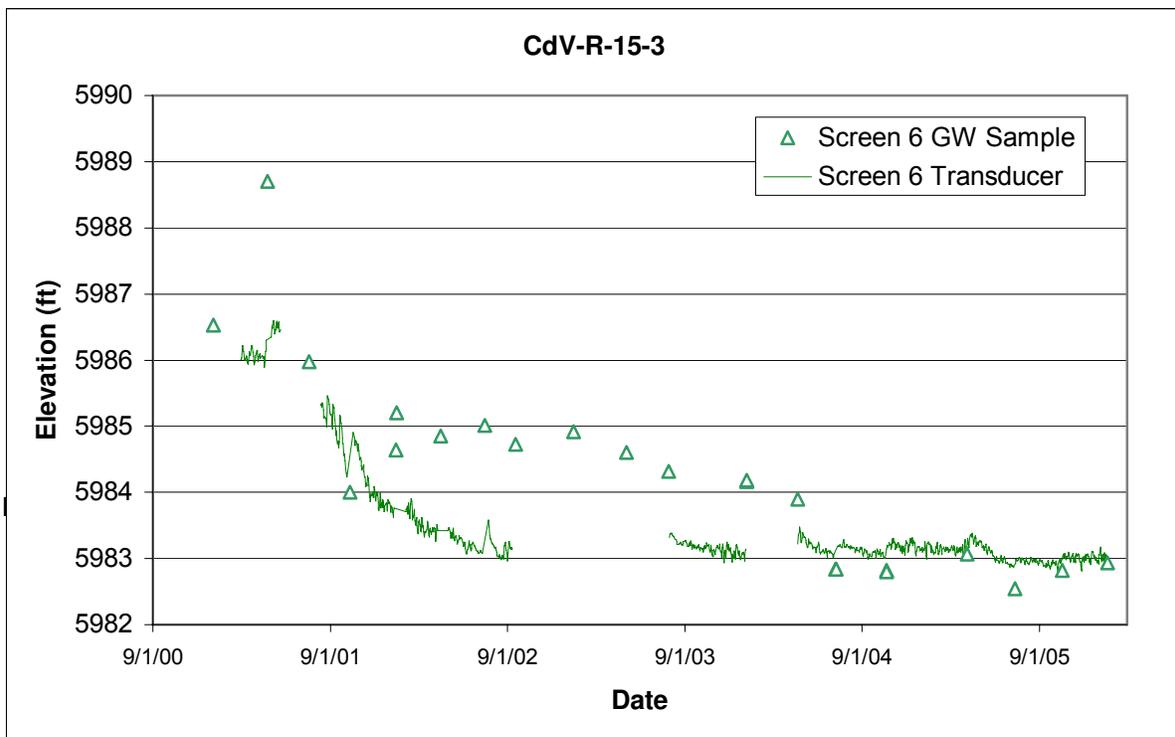
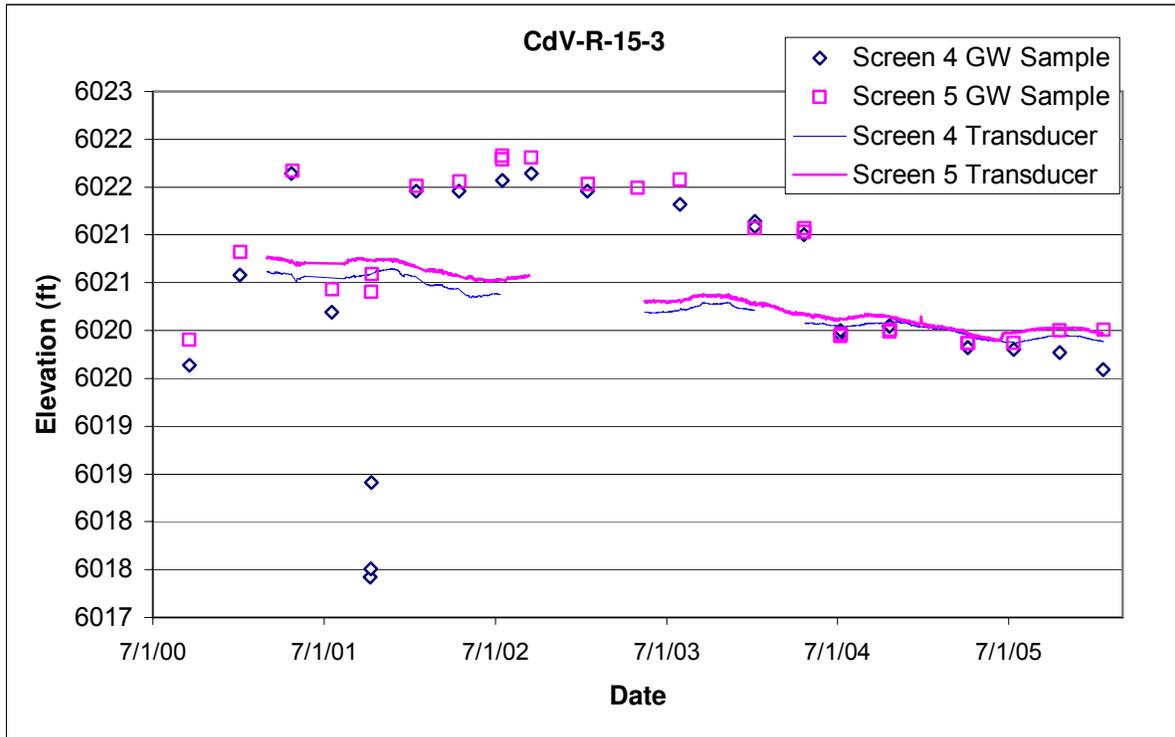
Period of Record: Westbay® installed September 17, 2000; transducers installed March 1, 2001; intermittent data through 2005.

Remarks: The three intermediate screens have been dry since well installation. Screens 4 and 5 have similar heads; screen 6 head is 35 ft lower. Six ft of water appeared in screen 3 sump 10/05.

Measurement and Sampling Ports in CDV-R-15-3											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	617.7	624.5	6641.2	6634.4	6.8	MP1A	624.3	6634.6	0.2		Within Screen, port dry
						PP1	629.7	6629.2	-5.2	11.2	Below Screen
						MP1B	635.3	6623.6	-10.8	23.4	Below Screen, port dry
2	800.8	807.8	6458.1	6451.1	7.0	MP2A	807.3	6451.6	0.5		Within Screen, zone dry, zone not
						PP2	812.6	6446.3	-4.8	10.4	Below Screen, instrumented with
						MP2B	818.3	6440.6	-10.5	22.7	Below Screen, dedicated transducer
3	964.8	980.9	6294.1	6278.0	16.1	MP3A	969.0	6289.9	11.9		Within Screen, port dry
						MP3B	979.3	6279.6	1.6		Within Screen, port dry
						PP3	984.7	6274.2	-3.8	8.2	Below Screen
3	964.8	980.9	6294.1	6278.0	16.1	MP3C	990.3	6268.6	-9.4	20.3	Below Screen, 6 ft water in sump 10/05
						MP4A	1254.4	6004.5	24.5		Within Screen, Regional Aquifer
						PP4A	1259.6	5999.3	19.3		Within Screen
4	1235.1	1278.9	6023.8	5980.0	43.8	MP4B	1275.1	5983.8	3.8		Within Screen
						PP4B	1280.5	5978.4	-1.6	3.5	Below Screen
						MP4C	1286.1	5972.8	-7.2	15.6	Below Screen
5	1348.4	1355.3	5910.5	5903.6	6.9	MP5A	1350.1	5908.8	5.2		Within Screen
						PP5	1355.4	5903.5	-0.1	0.2	Below Screen
						MP5B	1361.1	5897.8	-5.8	12.5	Below Screen
6	1637.9	1644.8	5621.0	5614.1	6.9	MP6A	1640.1	5618.8	4.7		Within Screen
						PP6	1645.5	5613.4	-0.7	1.5	Below Screen
						MP6B	1651.1	5607.8	-6.3	13.6	Below Screen

Note: CDV-R-15-3 Brass Cap Ground Elevation: 7258.9 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





3.2 CdV-R-37-2

Location: On a mesa between Cañon de Valle and Water Canyon at Technical Area (TA) 37 in the Water Canyon watershed.

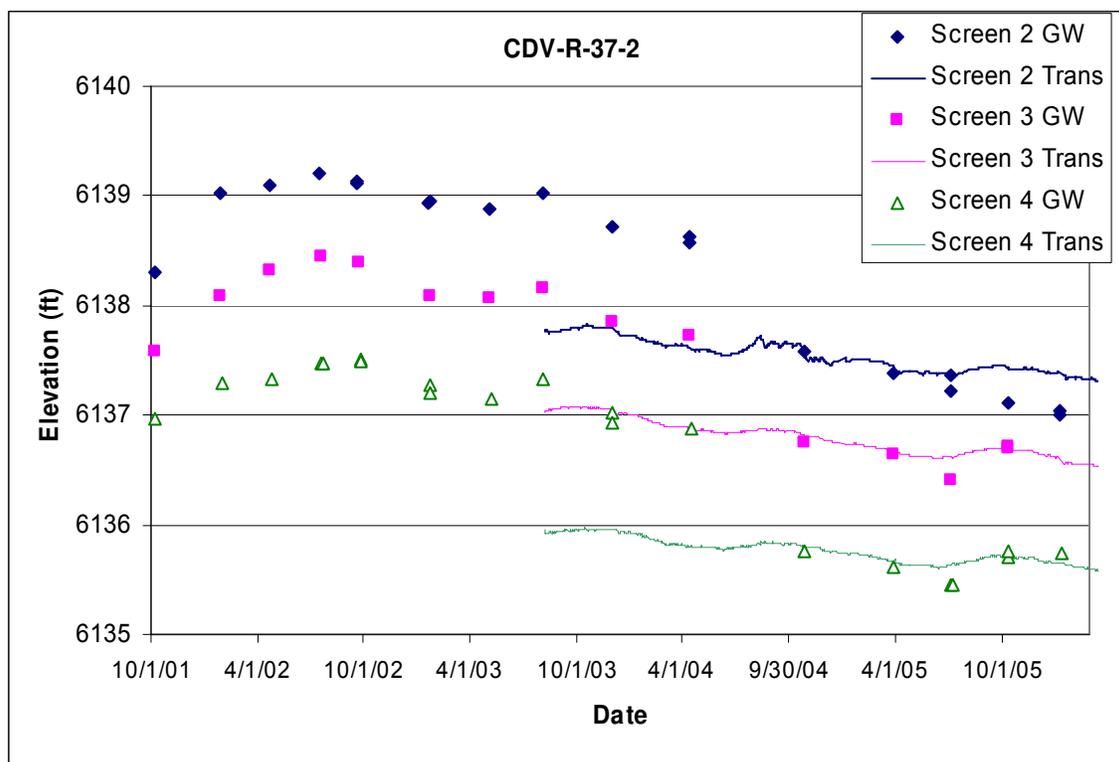
Completion Type: Multiple completion, one screen in an intermediate zone, three screens in regional zones.

Period of Record: Westbay® installed October 8, 2001; transducers installed August 8, 2003; data through 2005.

Remarks: The intermediate screen has been dry since well installation. The three regional screens have similar heads that show downward gradient of about 1 ft between each screen.

Measurement and Sampling Ports in CDV-R-37-2											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	914.4	939.5	6416.2	6391.1	25.1	MP1A	934.9	6395.7	4.6		Within Screen, Intermediate (Dry)
						PP1	940.2	6390.4	-0.7	1.5	Below Screen
						MP1B	945.9	6384.7	-6.4	13.8	Below Screen
2	1188.7	1213.8	6141.9	6116.8	25.1	MP2A	1200.3	6130.3	13.5		Within Screen, Regional Aquifer
						PP2	1205.7	6124.9	8.1		Within Screen
						MP2B	1216.2	6114.4	-2.4	5.2	Below Screen
3	1353.7	1377.1	5976.9	5953.5	23.4	MP3A	1359.3	5971.3	17.8		Within Screen
						PP3	1365.0	5965.6	12.1		Within Screen
						MP3B	1375.2	5955.4	1.9		Within Screen
4	1549.3	1556.0	5781.3	5774.6	6.7	MP4A	1550.6	5780.0	5.4		Within Screen
						PP4	1556.0	5774.6	0		Base of Screen
						MP4B	1561.6	5769.0	-5.6	12.1	Below Screen

Note: CDV-R-37-2 Brass Cap Ground Elevation: 7330.6 ft; all depths are from this elevation; MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.3 R-1

Location: In Mortandad Canyon about 220 ft west of TW-8.

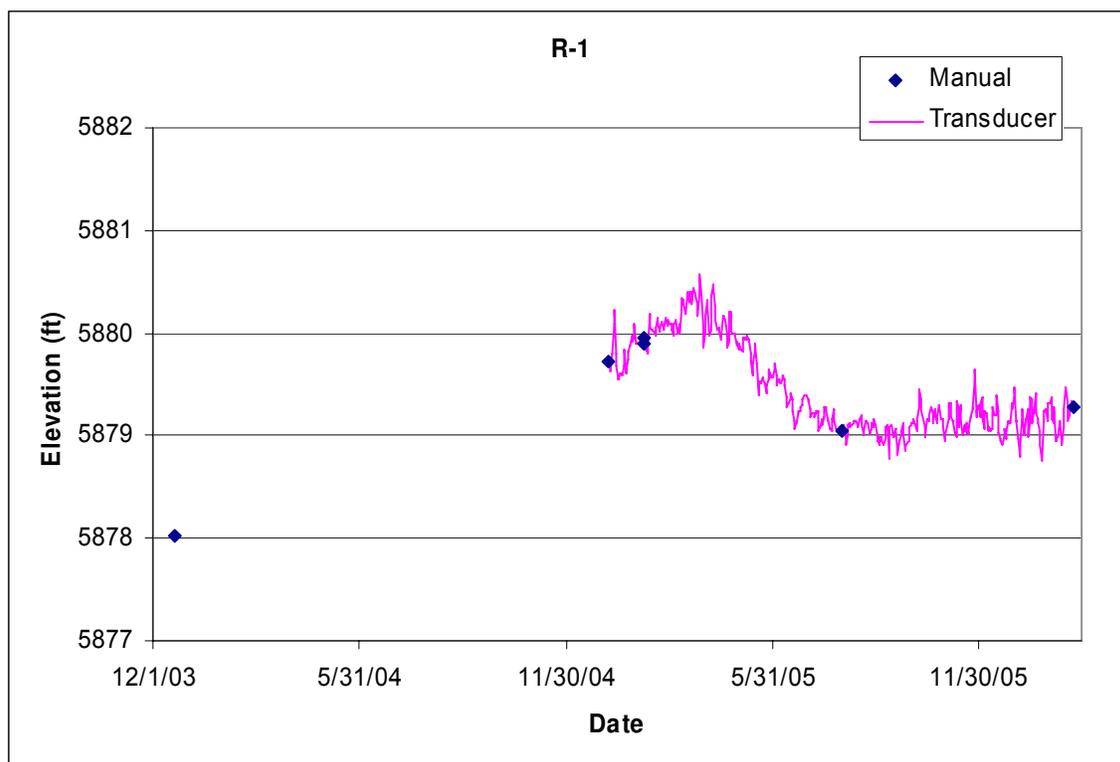
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed November 2003, transducer installed January 2005; transducer data through 2005.

Remarks: R-1 was completed to a depth of 1080.1 ft, about 80 ft into the regional aquifer.

R-1 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1031.1	1057.4	5850.1	5823.8	26.3	1027.7	5853.5	1057.4	5823.8	1080.1	22.7	69.7	Regional Aquifer

Note: R-1 Brass Cap Ground Elevation: 6881.21 ft; all depths are from this elevation



3.4 R-2

Location: Middle Pueblo Canyon between TW-4 and TW-2.

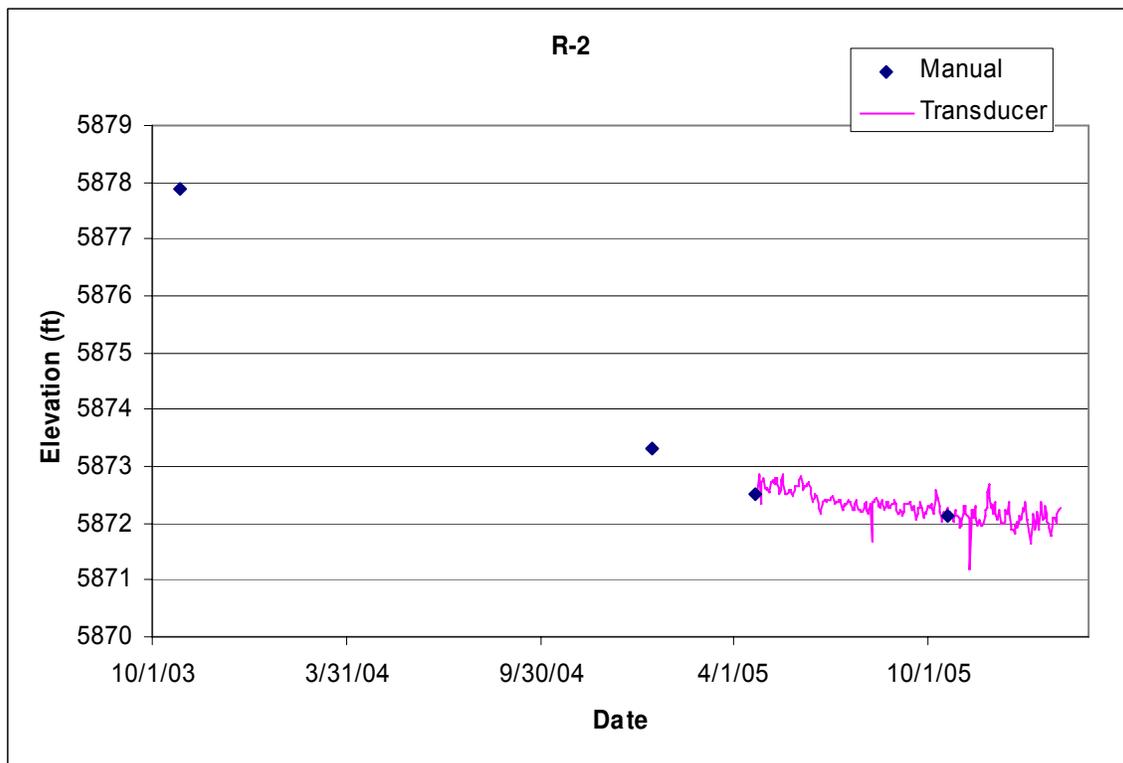
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed October 2003, transducer installed January 2005; transducer data through 2005.

Remarks: R-2 was completed to a depth of 943.3 ft, about 50 ft into the regional aquifer.

R-2 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	906.4	929.6	5864.0	5840.8	23.2	917	5853.4	929.6	5840.8	943.3	13.7	42.1	Regional Aquifer

Note: R-2 Brass Cap Ground Elevation: 6770.38 ft; all depths are from this elevation



3.5 R-4

Location: Pueblo Canyon upstream of the Bayo Canyon Sewage Treatment Plant.

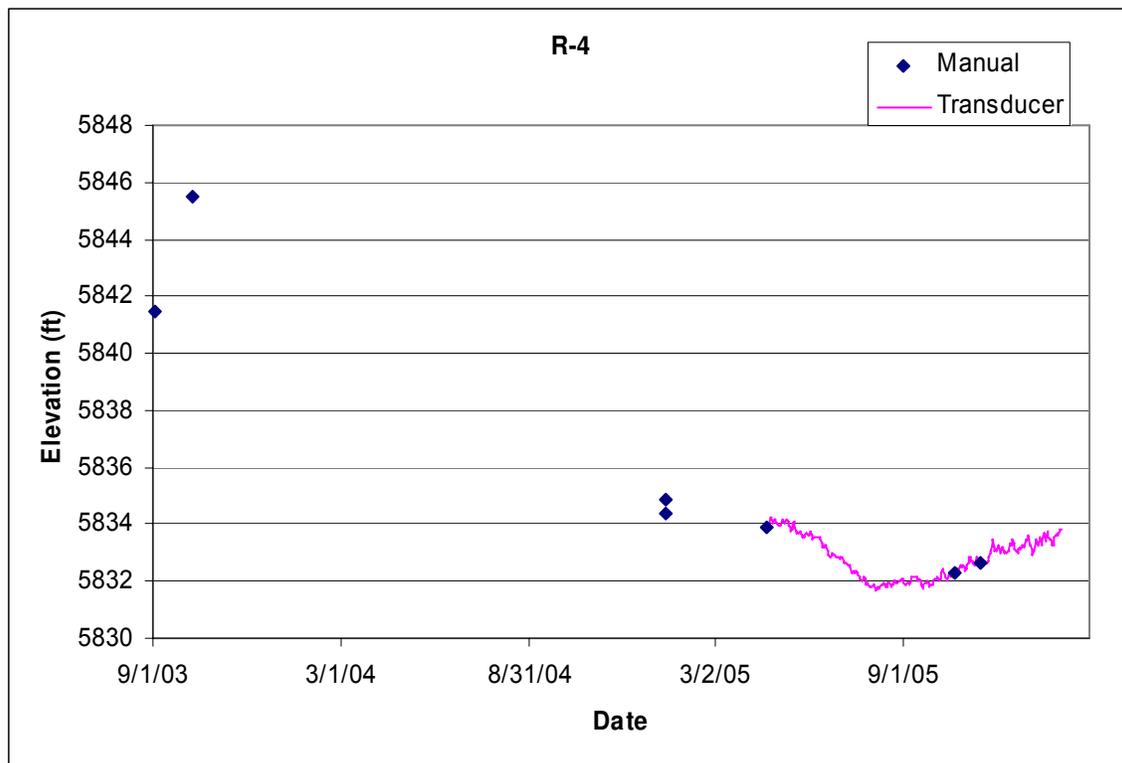
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed September 2003, transducer installed January 2005; data through 2005.

Remarks: R-4 was completed to a depth of 840 ft, about 90 ft into the regional aquifer.

R-4 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	792.9	816	5784.6	5761.5	23.1	787.5	5790.0	816.0	5761.5	840	24.0	73.7	Regional Aquifer

Note: R-4 Brass Cap Ground Elevation: 6577.49 ft; all depths are from this elevation



3.6 R-5

Location: Lower Pueblo Canyon upstream of supply well O-1.

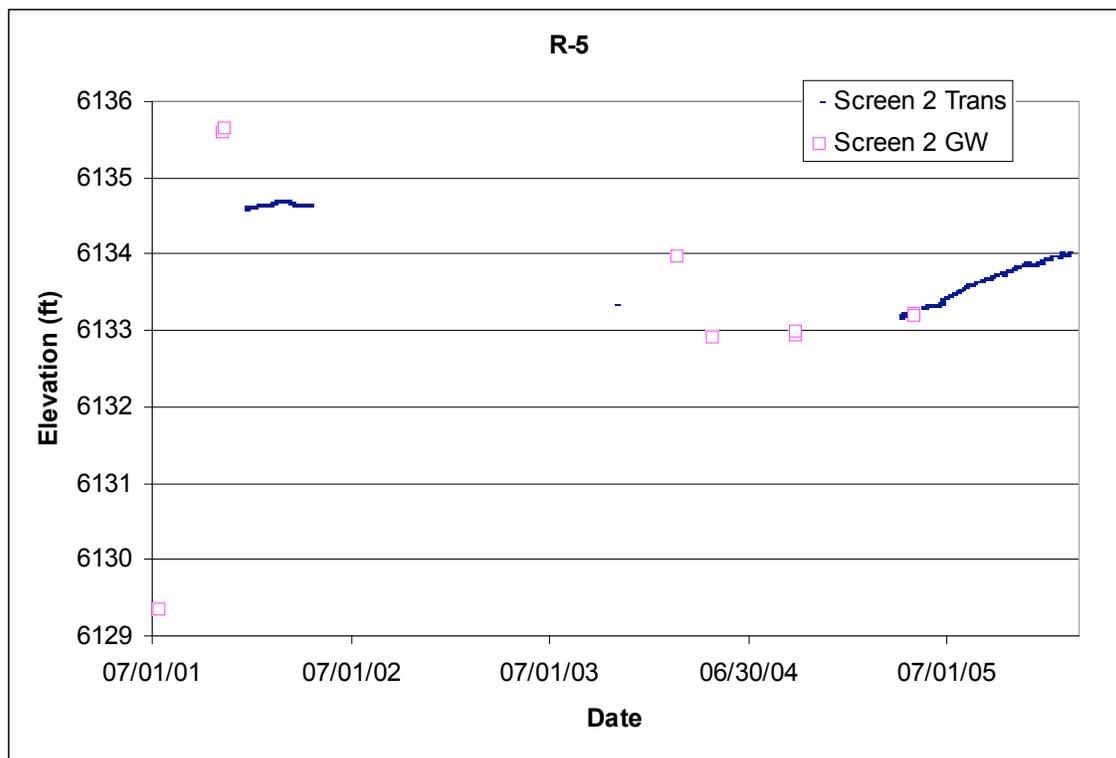
Completion Type: Multiple completion, two screens in intermediate zones, two screens in regional zones.

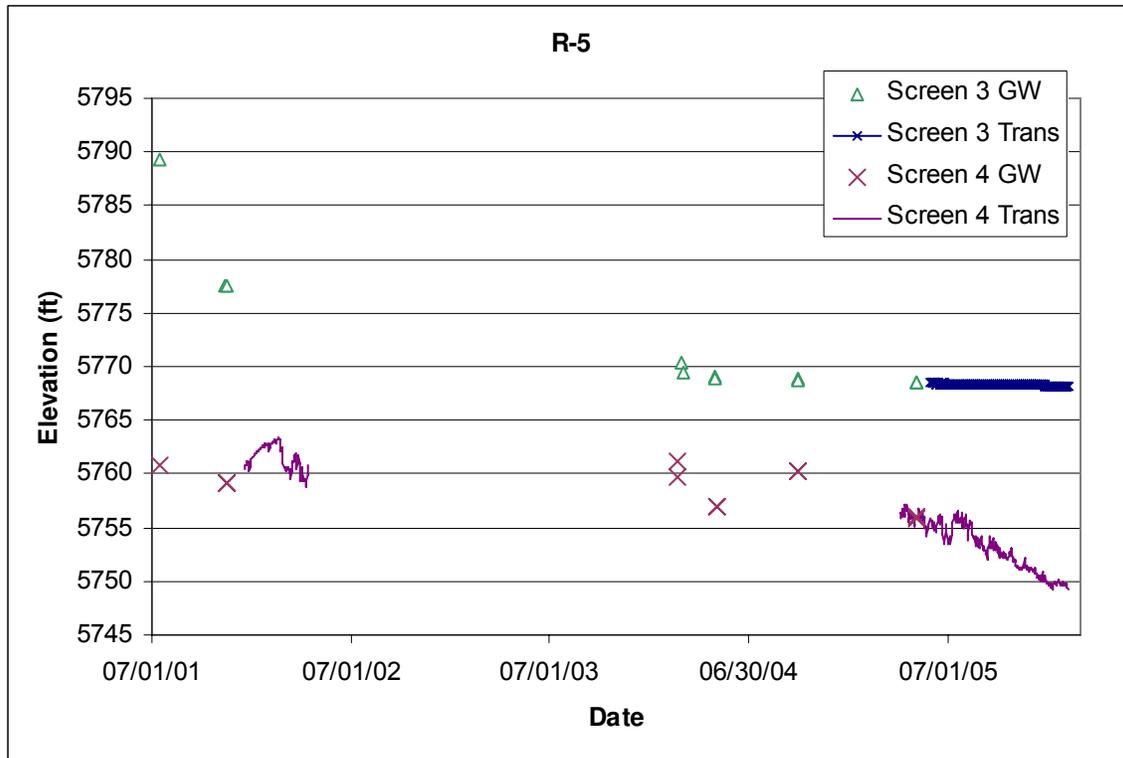
Period of Record: Westbay® installed July 17, 2001, transducers installed 12/17/01 and 4/4/05; intermittent data through 2005.

Remarks: Screen 1 has been dry since well installation, although there is a small amount of water in the sump below screen 1. The two regional screens have heads about 10 ft apart. Port MP3A in screen 3 became dry in 2001, samples are collected and groundwater level is monitored from MP3B. Screen 4 responds to supply well pumping at O-1 and PM-1 but screen 3 apparently shows no response.

R-5 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	326.4	331.5	6146.2	6141.1	5.1	MP1A	329.5	6143.1	2.0		Within Screen, Intermediate Zone - Dry
						PP1	334.9	6137.7	-3.4	9.8	Below Screen
						MP1B	350.4	6122.2	-18.9	54.7	Below Screen
2	372.8	388.8	6099.8	6083.8	16	MP2A	383.9	6088.7	4.9		Within Screen, Intermediate Zone
						PP2	388.8	6083.8	0.0	0.0	At Bottom of Screen
						MP2B	394.4	6078.2	-5.6	16.2	Below Screen
3	676.9	720.3	5795.7	5752.3	43.4	MP3A	695.1	5777.5	25.2		Within Screen, Regional Aquifer, Port Dry
						MP3B	718.6	5754.0	1.7		Within Screen, MP for GW samples
						PP3	724.0	5748.6	-3.7	10.7	Below Screen
4	858.7	863.7	5613.9	5608.9	5	MP4A	860.9	5611.7	2.8		Within Screen
						PP4	866.3	5606.3	-2.6	7.5	Below Screen
						MP4B	871.9	5600.7	-8.2	23.7	Below Screen

Note: R-5 Brass Cap Ground Elevation: 6472.6 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





3.7 R-6

Location: East end of DP Mesa between DP Canyon and Los Alamos Canyon.

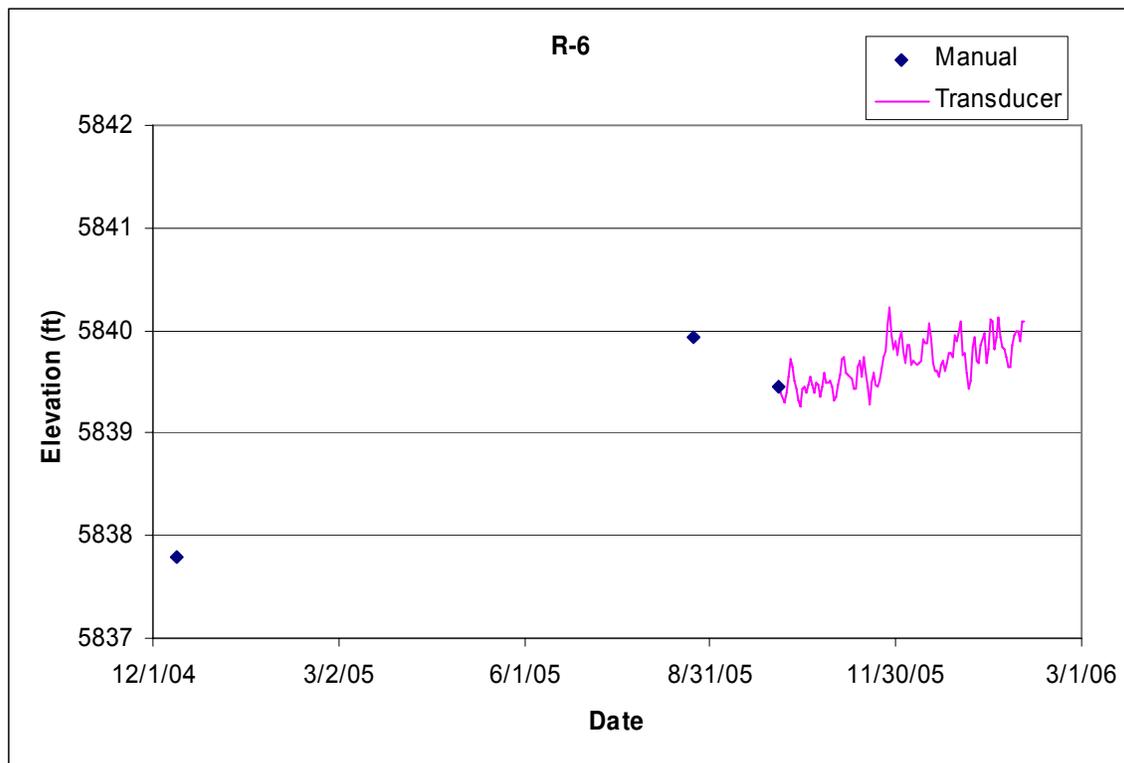
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed November 2004, transducer installed December 2004; data through 2005.

Remarks: R-6 was completed to a depth of 1252 ft, about 100 ft into the regional aquifer.

R-6 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1205.0	1228	5790.8	5767.8	23.0		6995.8	1228.0	5767.8	1252	24.0	73.7	Regional Aquifer

Note: Brass Cap Ground Elevation: 6995.8 ft; all depths are from this elevation



3.8 R-7

Location: Middle Los Alamos Canyon about 1 mile upstream of supply well O-4.

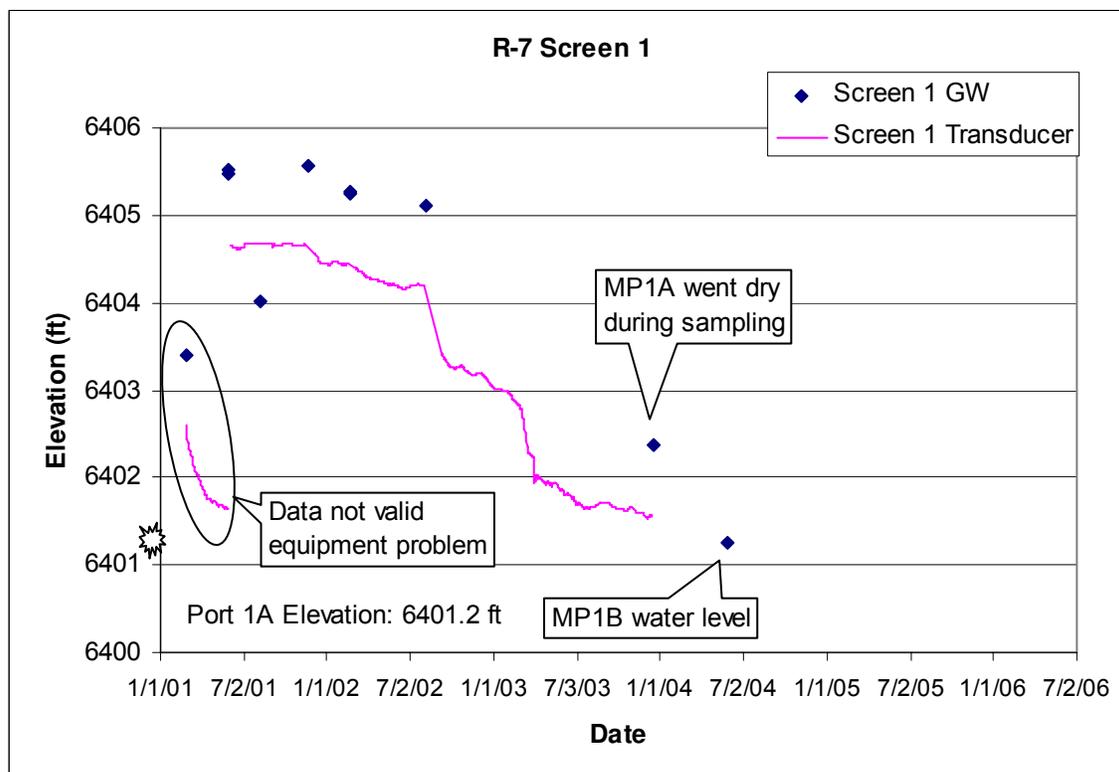
Completion Type: Multiple completion, two screens in intermediate zones, one screen at the top of the regional aquifer.

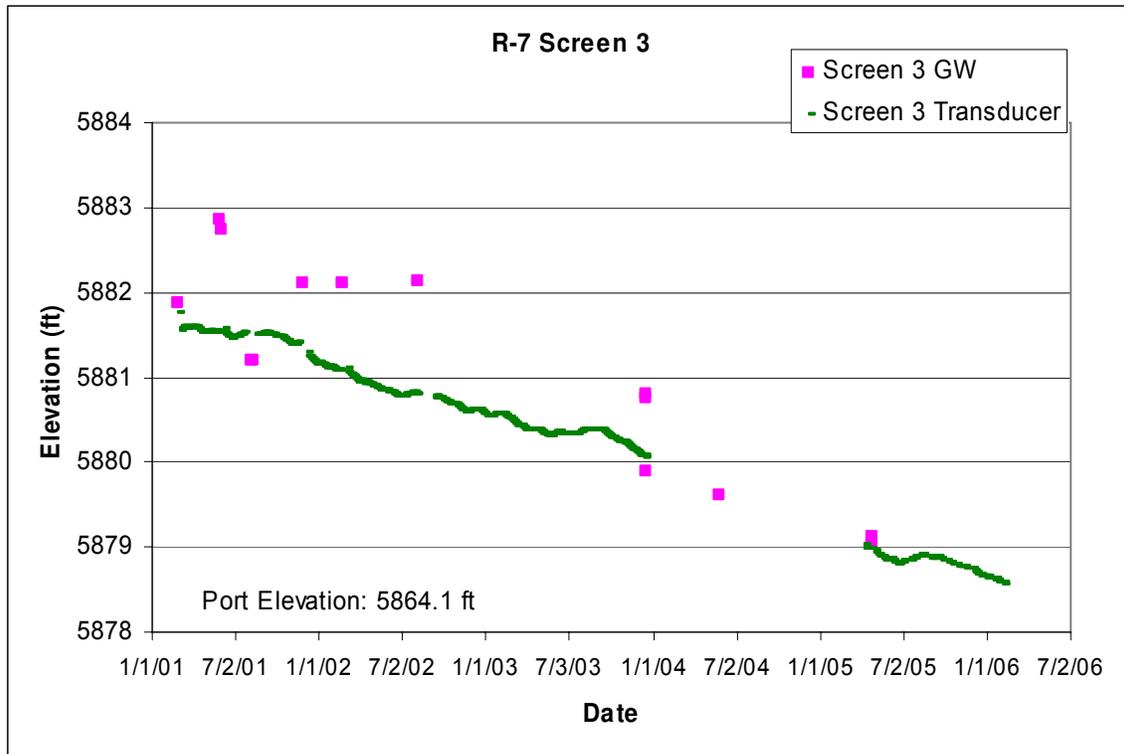
Period of Record: Westbay® installed February 25, 2001, transducers installed February 28, 2001; intermittent data through 2005.

Remarks: Initial transducer data from MP1A is not valid because transducer apparently did not connect properly to port. MP1A in intermediate screen 1 went dry during sampling 12/18/03. In 2004, MP1B showed water at the bottom of screen 1, but in 2005, no water was observed at screen 1. The screen 2 intermediate zone has been dry since well installation.

R-7 Measurement and Sampling Ports											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	363.2	379.2	6416.0	6400.0	16.0	MP1A	378.0	6401.2	1.2		Within screen, Intermediate Zone
						PP1	383.3	6395.9	-4.1	8.9	Below screen
						MP1B	389.0	6390.2	-9.8	21.2	Below screen
2	730.4	746.4	6048.8	6032.8	16.0	MP2A	744.8	6034.4	1.6		Within screen, Intermediate Zone (Dry)
						PP2	750.1	6029.1	-3.7	8.0	Below screen
						MP2B	755.8	6023.4	-9.4	20.3	Below screen
3	895.5	937.4	5883.7	5841.8	41.9	MP3A	915.1	5864.1	22.3		Within screen, Regional Aquifer
						MP3B	935.3	5843.9	2.1		Within screen
						PP3	940.6	5838.6	-3.2	6.9	Below screen
						MP3C	946.3	5832.9	-8.9	19.2	Below screen

Note: R-7 Brass Cap Ground Elevation: 6779.2 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





3.9 R-8

Location: Middle Los Alamos Canyon about 0.75 mile downstream of the confluence with DP Canyon and supply well O-4.

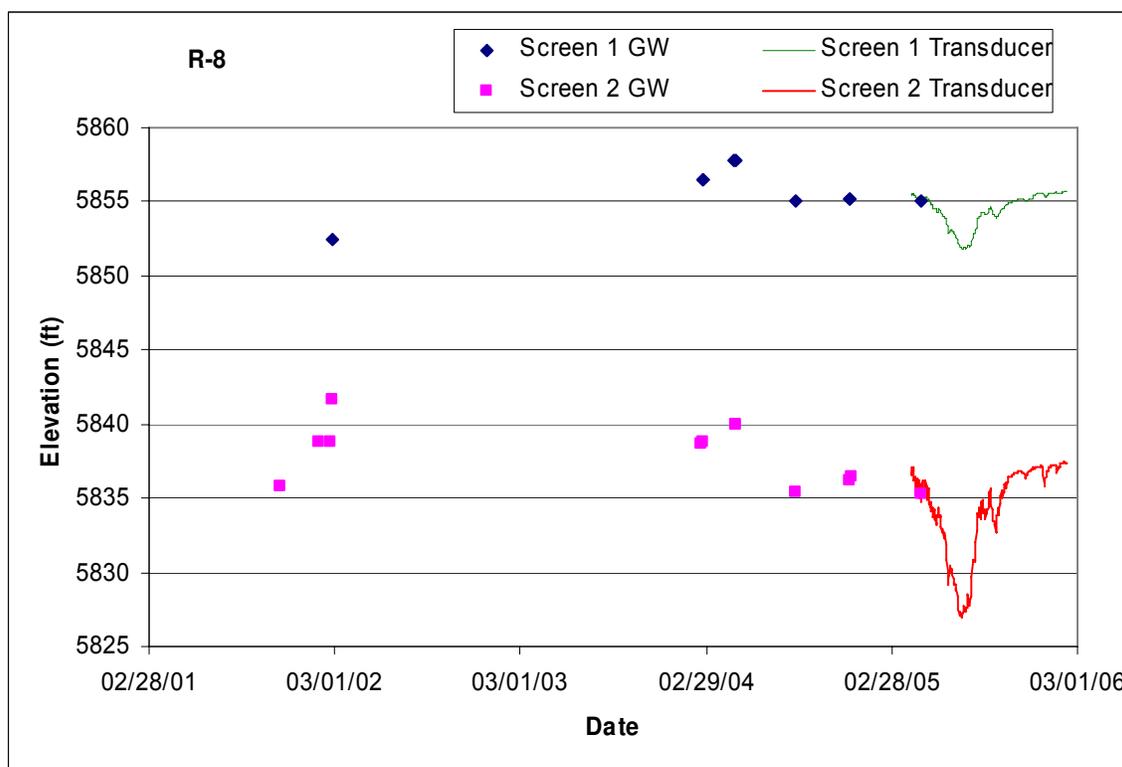
Completion Type: Multiple completion, two screens in regional aquifer.

Period of Record: Westbay® installed February 23, 2002, transducers installed April 7, 2005; data through 2005.

Remarks: Screens are 66 ft apart, head in screen 2 about 20 ft lower than screen 1. Water level apparently responds to pumping supply well PM-3.

R-8 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	705.3	755.7	5839.4	5789.04	50.4	MP1A	711.1	5833.64	44.6		Regional Aquifer
						MP1B	721.4	5823.34	34.3		Within Screen
						MP1C	751.3	5793.44	4.4		Within Screen
						PP1	756.7	5788.04	-1.0	2.2	Below Screen
						MP1D	762.3	5782.44	-6.6	14.3	Below Screen
2	821.3	828.0	5723.4	5716.74	6.7	MP2A	825.0	5719.74	3.0		Within Screen
						PP2	830.4	5714.34	-2.4	5.2	Below Screen
						MP2B	836.0	5708.7	-8.0	17.3	Below Screen

Note: R-8 Brass Cap Ground Elevation: 6544.74 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.10 R-9

Location: Los Alamos Canyon near the eastern LANL boundary.

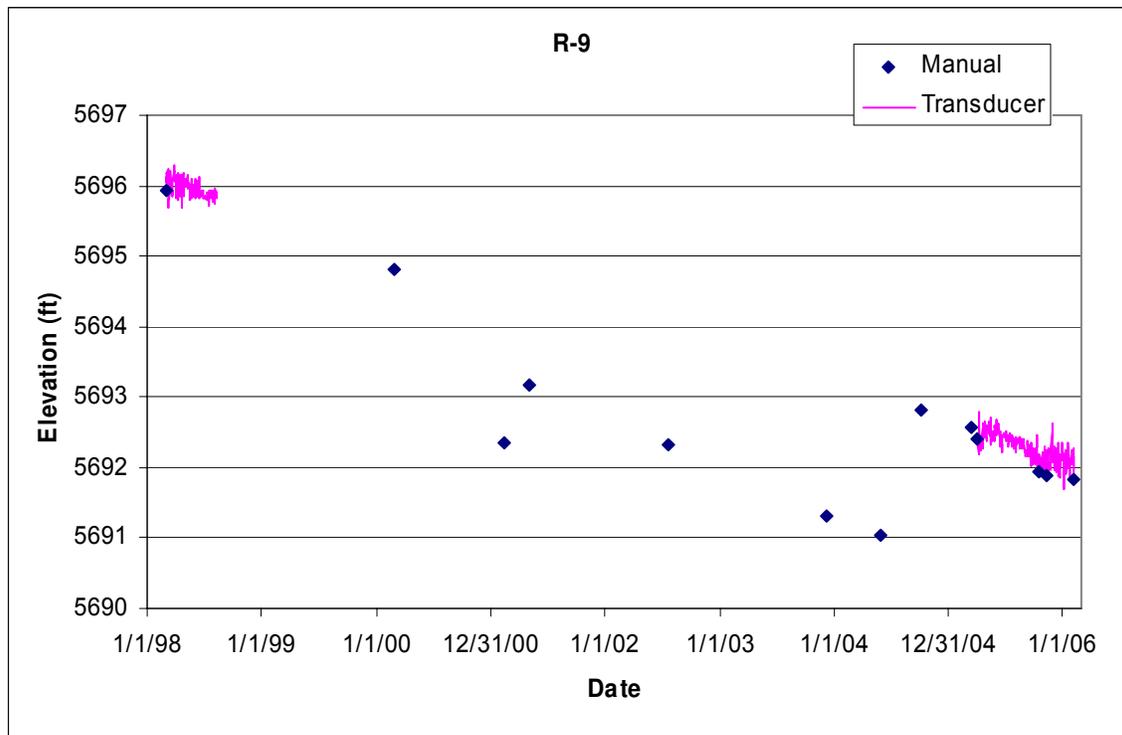
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: March 2, 1998, to August 12, 1998, in temporary well. Final well completed October 1999. Transducer installed April 5, 2005; data through 2005.

Remarks: R-9 was completed to a depth of 758 ft, about 70 ft into the regional aquifer.

R-9 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	683.0	748.5	5699.8	5634.3	65.5	741.4	5641.4	748.5	5634.3	758	9.5	29.7	Regional Aquifer

Note: R-9 Brass Cap Ground Elevation: 6382.8; all depths are from this elevation



3.11 R-10

Location: Lower Sandia Canyon east of the LANL boundary.

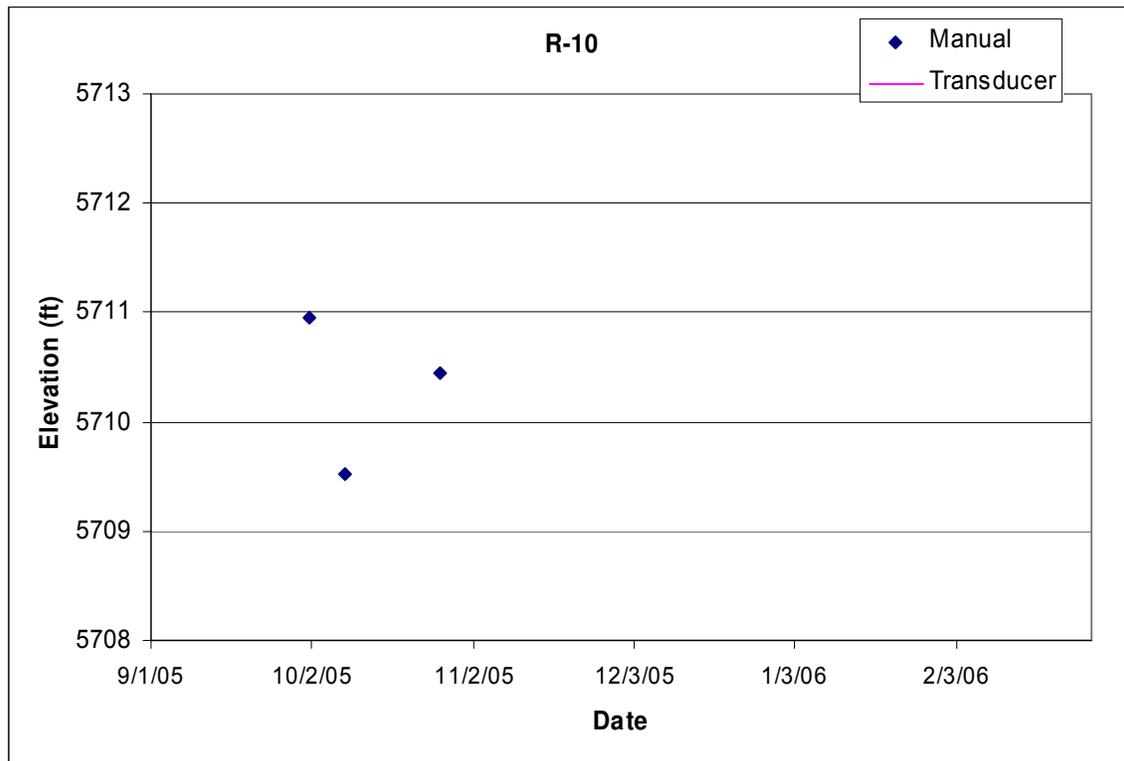
Completion Type: Dual completion in two deeper zones within the regional aquifer. Temporary packer installed between screens.

Period of Record: Well completed October 2005. Transducers not installed as of March 2006.

Remarks: Waiting for final packer and pump system installation as of March 2006.

R-10 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Packer/ Sump (ft)	Top of Packer/ Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	874.0	897	5488.3	5465.3	23.0			924.0	5438.3	924	27.0	84.4	Regional Aquifer
2	1042.0	1065	5320.3	5297.3	23.0			1065.0	5297.3	1079.0	14.0	8.6	Regional Aquifer

Note: R-10 Brass Cap Ground Elevation: 6362.31 ft; all depths are from this elevation



3.12 R-10a

Location: Lower Sandia Canyon east of the LANL boundary and adjacent to R-10.

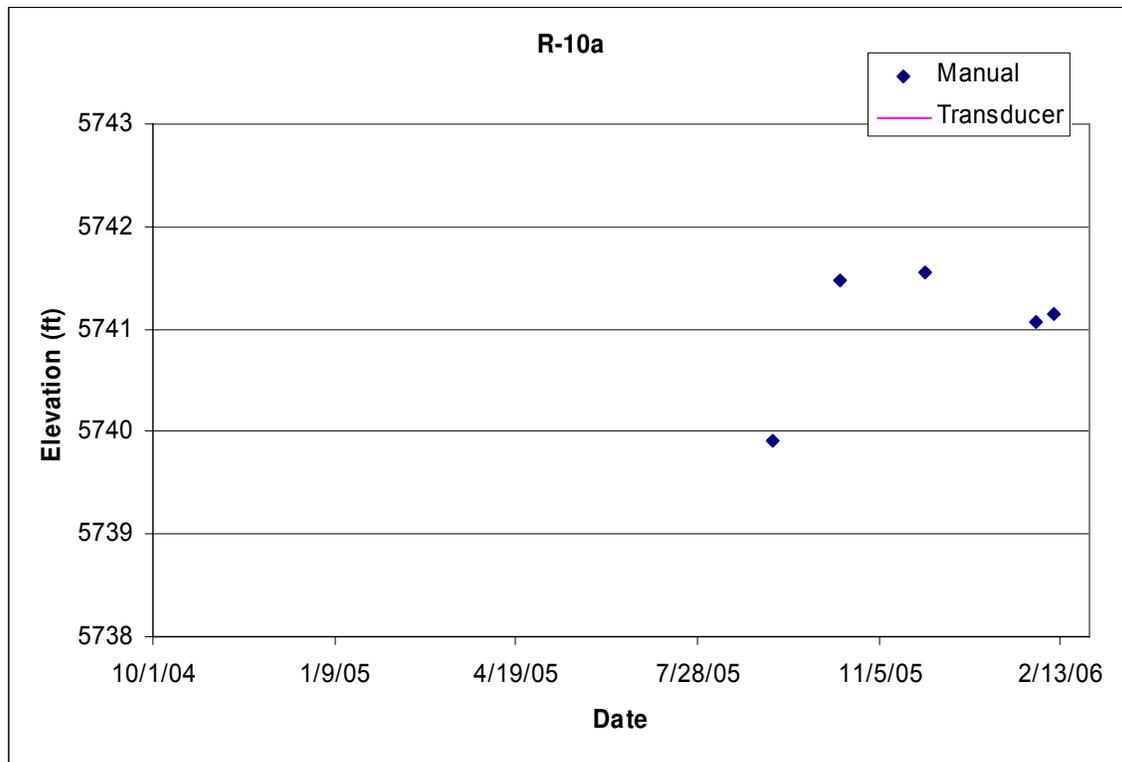
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed August 2005. Transducer not installed as of December 2005.

Remarks: Transducer planned to be installed April 2006.

R-10a Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	690.0	700	5673.7	5663.7	10.0	685.6	5678.1	700.0	5663.7	706	6.0	18.4	Regional Aquifer

Note: Brass Cap Ground Elevation: 6363.74 ft; all depths are from this elevation



3.13 R-11

Location: Middle Sandia Canyon about 0.5 mile upstream of PM-3.

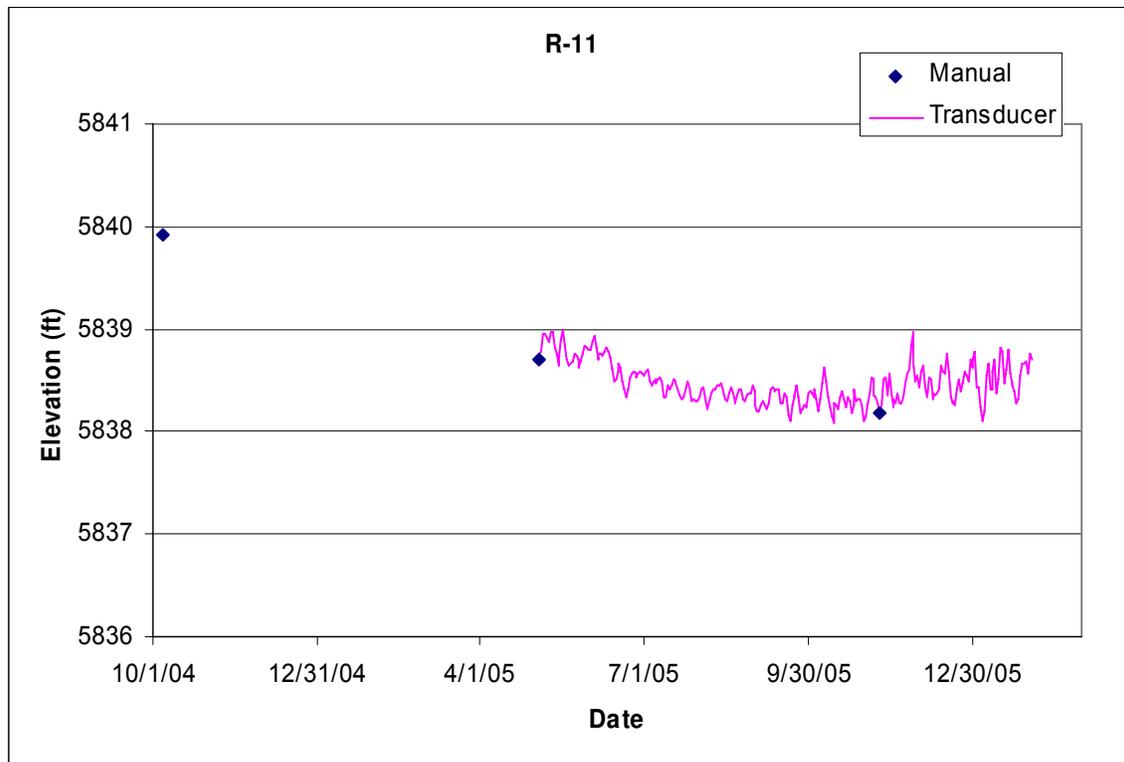
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Transducer installed May 4, 2005; data through 2005.

Remarks: R-11 was completed in 2004 to a depth of 901.7 ft, about 66 ft into the regional aquifer.

R-11 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	855.0	877.9	5818.7	5795.8	22.9	850	5823.7	877.9	5795.8	901.7	23.8	73.1	Regional Aquifer

Note: R-11 Brass Cap Ground Elevation: 6673.72 ft; all depths are from this elevation



3.14 R-12

Location: Lower Sandia Canyon near State Road (SR) 4 and supply well PM-1.

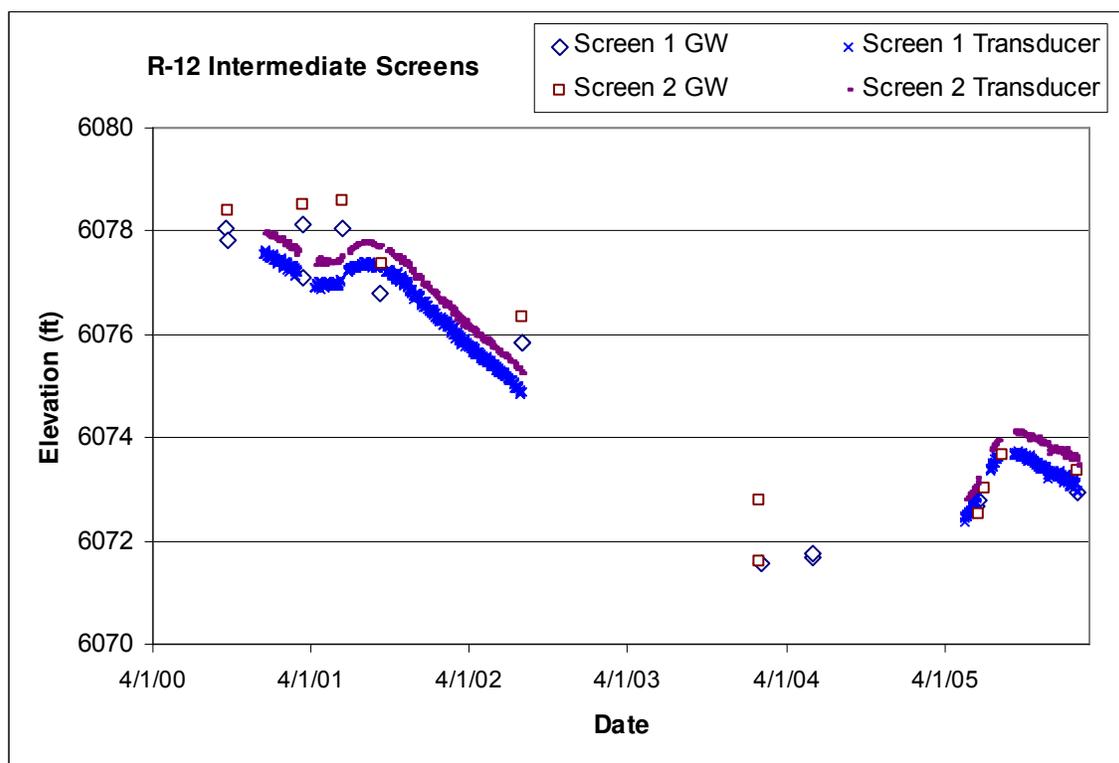
Completion Type: Multiple completion, two screens in intermediate zones, one screen at the top of the regional aquifer.

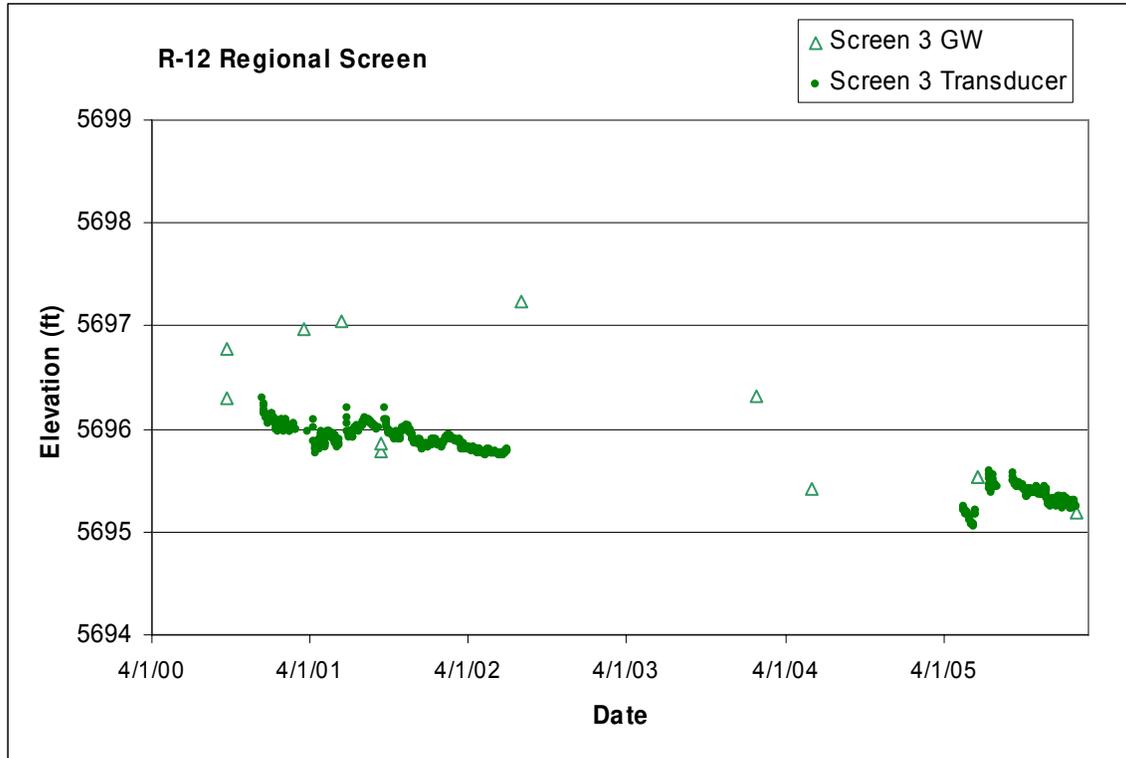
Period of Record: Westbay® installed March 21, 2000. Transducers installed December 14, 2000; intermittent data through 2005.

Remarks: Intermediate screens 1 and 2 have similar head values about 380 ft above the regional aquifer.

R-12 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	459.0	467.5	6040.6	6032.1	8.5	MP1A	468.1	6031.5	-0.6	1.1	Intermediate Zone, below screen
						PP1	473.5	6026.1	-6.0	11.3	Below screen
						MP1B	479.1	6020.5	-11.6	21.9	Below screen
2	504.5	508.0	5995.1	5991.6	3.5	MP2A	507.0	5992.6	1.0		Intermediate Zone
						PP2	512.4	5987.2	-4.4	8.3	Below screen
						MP2B	518.0	5981.6	-10.0	18.9	Below screen
3	801.0	839.0	5698.6	5660.6	38	MP3A	810.8	5688.8	28.2		Regional Aquifer
						PP3A	816.2	5683.4	22.8		
						MP3B	821.8	5677.8	17.2		
						PP3B	827.2	5672.4	11.8		
						MP3C	832.9	5666.7	6.1		

Brass Cap Elevation: 6499.6 ft; all measurements are from this elevation;
MP = measurement port; PP = pumping port





3.15 R-13

Location: Lower Mortandad Canyon at the LANL boundary.

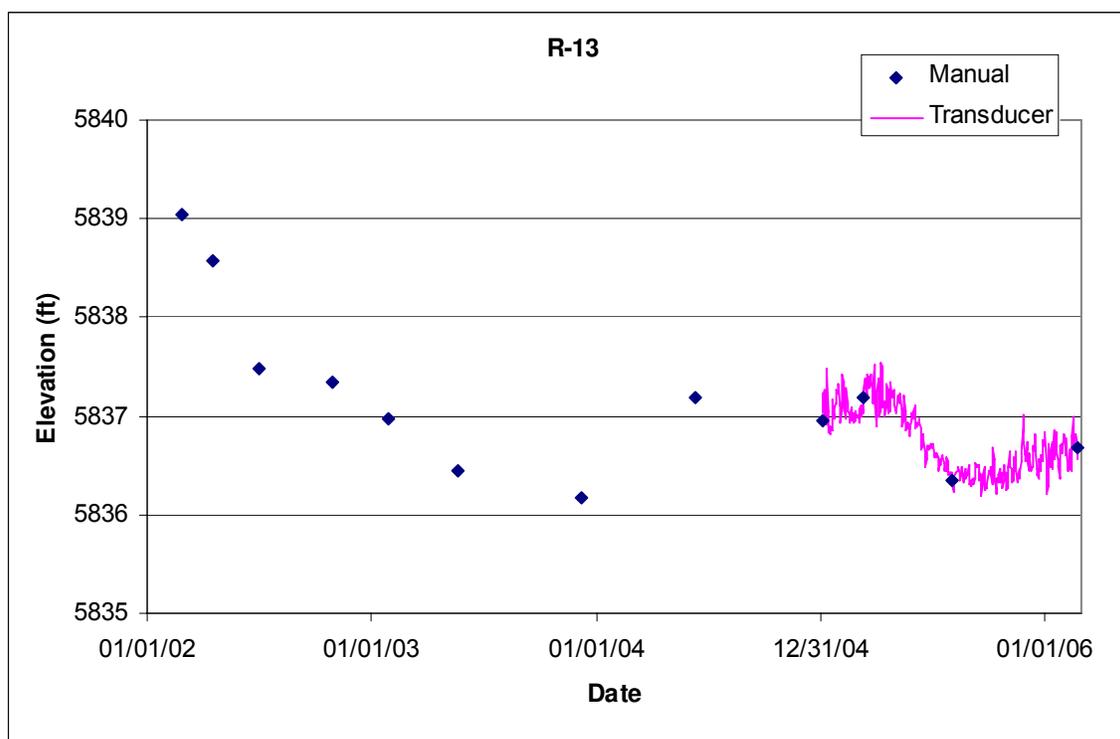
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed February 25, 2002, transducer installed January 3, 2005; data through 2005.

Remarks: R-13 was completed to a depth of 1029.4 ft, about 200 ft into the regional aquifer.

R-13 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	958.3	1018.7	5714.8	5654.4	60.4	933	5740.1	1018.7	5654.4	1029.4	10.7	33.5	Regional Aquifer

Note: R-13 Brass Cap Ground Elevation: 6673.05 ft; all depths are from this elevation



3.16 R-14

Location: Upper Ten Site Canyon about 0.5 mile upgradient of supply well PM-5.

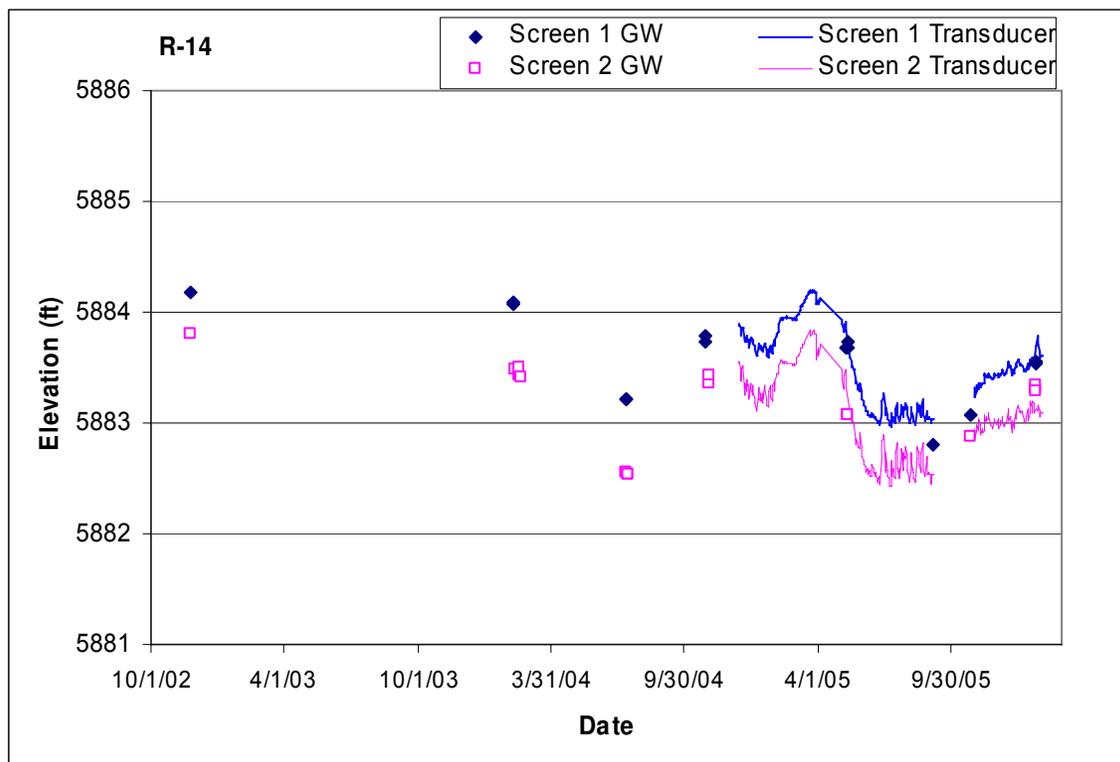
Completion Type: Multiple completion, two screens in regional aquifer.

Period of Record: Westbay® installed November 23, 2002, transducers installed December 14, 2004; intermittent data through 2005.

Remarks: Screens are 53 ft apart; heads in screens are within 0.5 ft of each other. Water level responds to supply well pumping.

R-14 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	1200.6	1233.2	5861.48	5828.88	32.6	MP1A	1204.5	5857.58	28.7		Within Screen, Regional aquifer
						MP1B	1229.6	5832.48	3.6		Within Screen
						PP1	1234.9	5827.18	-1.7	3.7	Below Screen
						MP1C	1240.6	5821.48	-7.4	16.0	Below Screen
2	1286.5	1293.1	5775.58	5768.98	6.6	MP2A	1288.5	5773.58	4.6		Within Screen
						PP2	1293.8	5768.28	-0.7	1.5	Below Screen
						MP2B	1299.5	5762.58	-6.4	13.8	Below Screen

Note: R-14 brass cap elevation 7062.08 ft; all measurements from this elevation; MP = measuring port, PP = pumping port



3.17 R-15

Location: Lower Mortandad Canyon downstream of the sediment traps.

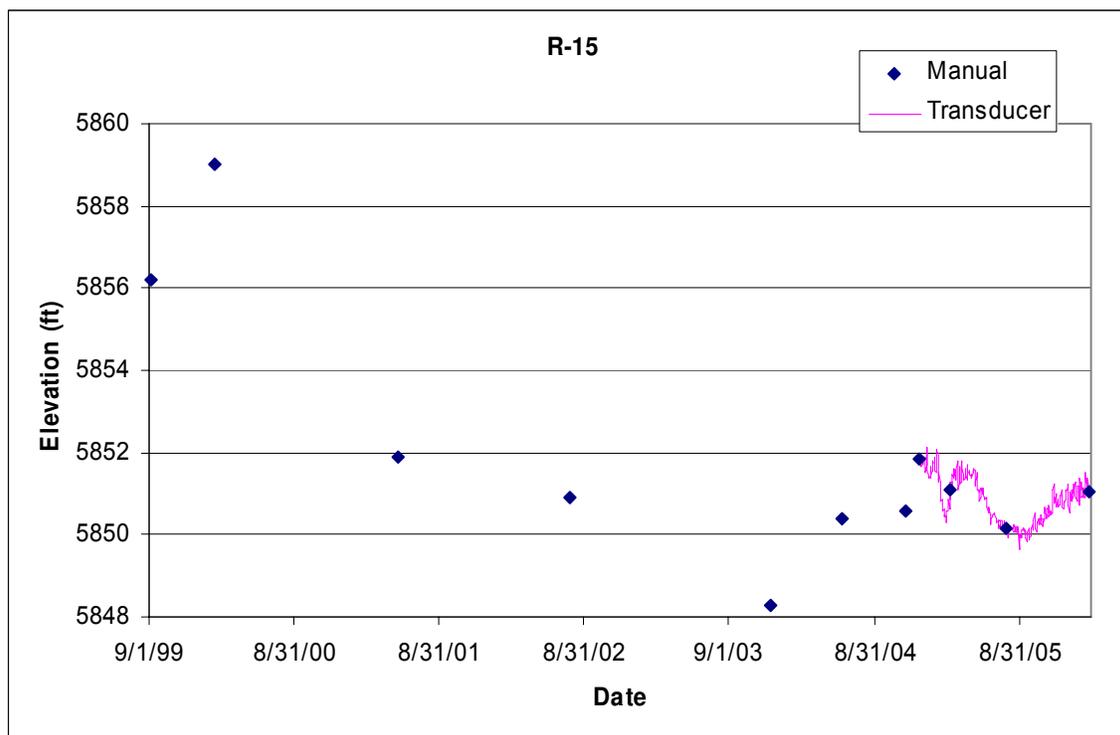
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed September 6, 1999, transducer installed December 23, 2004; transducer data through 2005.

Remarks: R-15 was completed in 1999 to a depth of 1030.6 ft, about 140 ft into the regional aquifer. The water level responded to pumping during the PM-4 aquifer test in January 2005, and may also respond to pumping other supply wells.

R-15 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	958.6	1020.3	5861.4	5799.7	61.7	1015.6	5804.4	1020.3	5799.7	1030.6	10.3	39.8	Regional Aquifer

Note: R-15 Brass Cap Ground Elevation: 6820.0 ft; all depths are from this elevation



3.18 R-16

Location: East of White Rock in lower Cañada del Buey near the confluence with lower Mortandad Canyon.

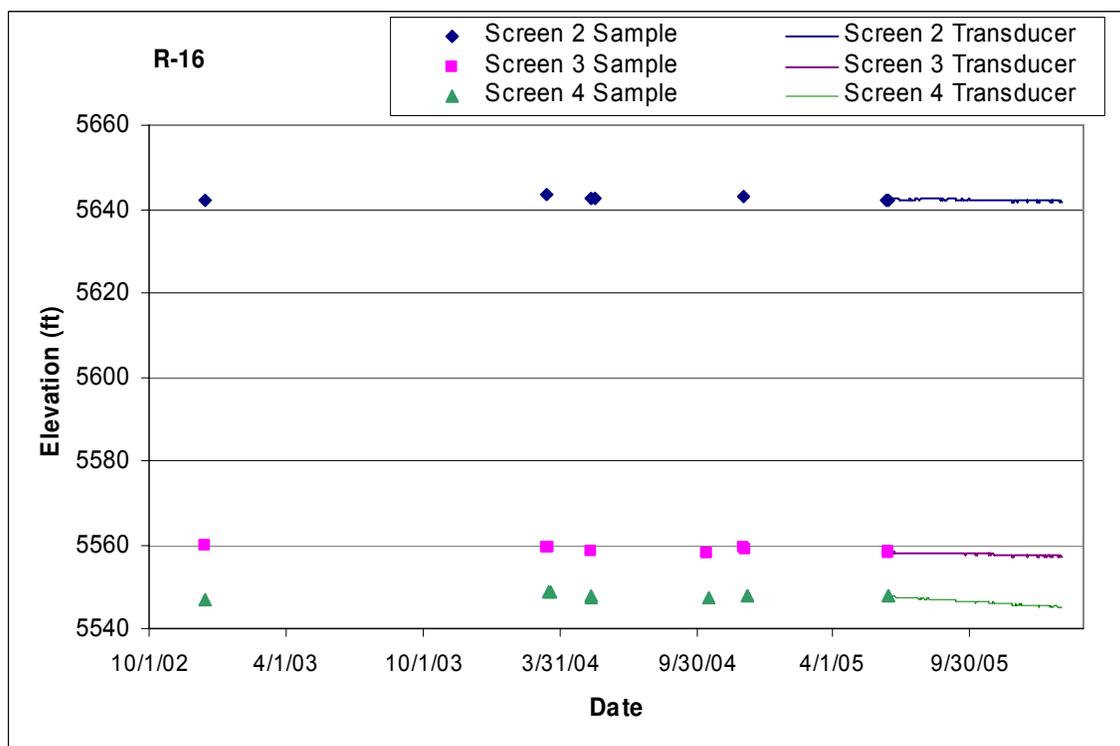
Completion Type: Multiple completion, four screens in regional aquifer, screen 1 is blocked by casing and is not useable.

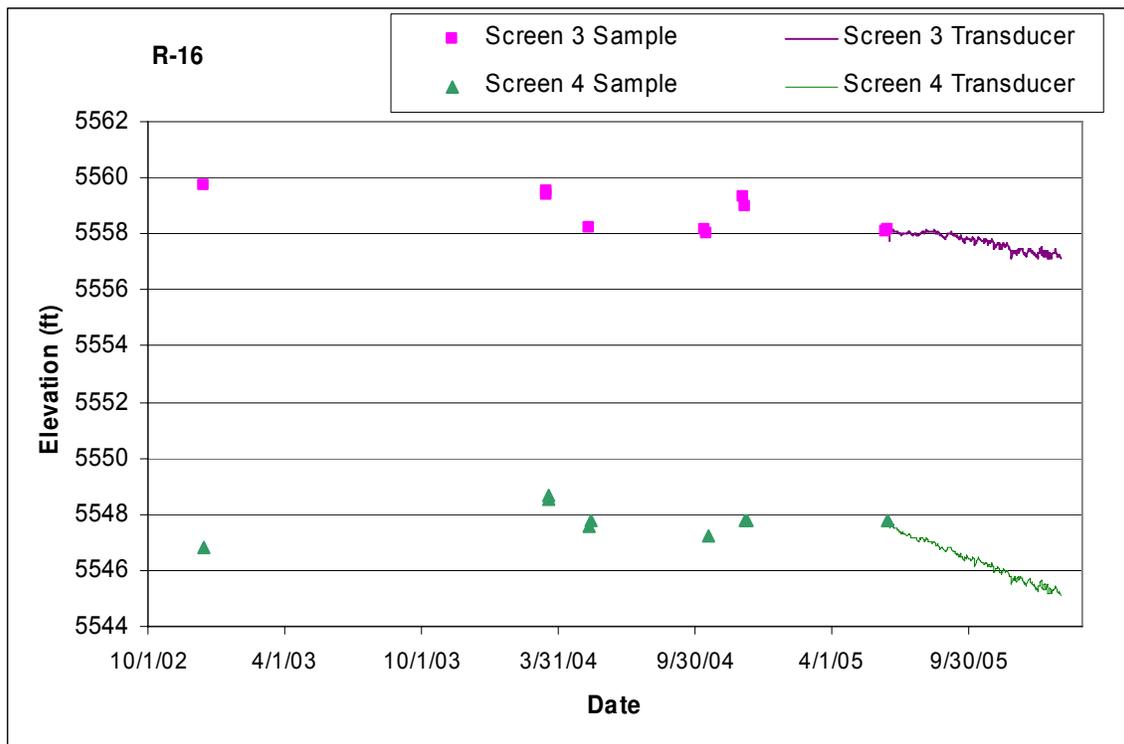
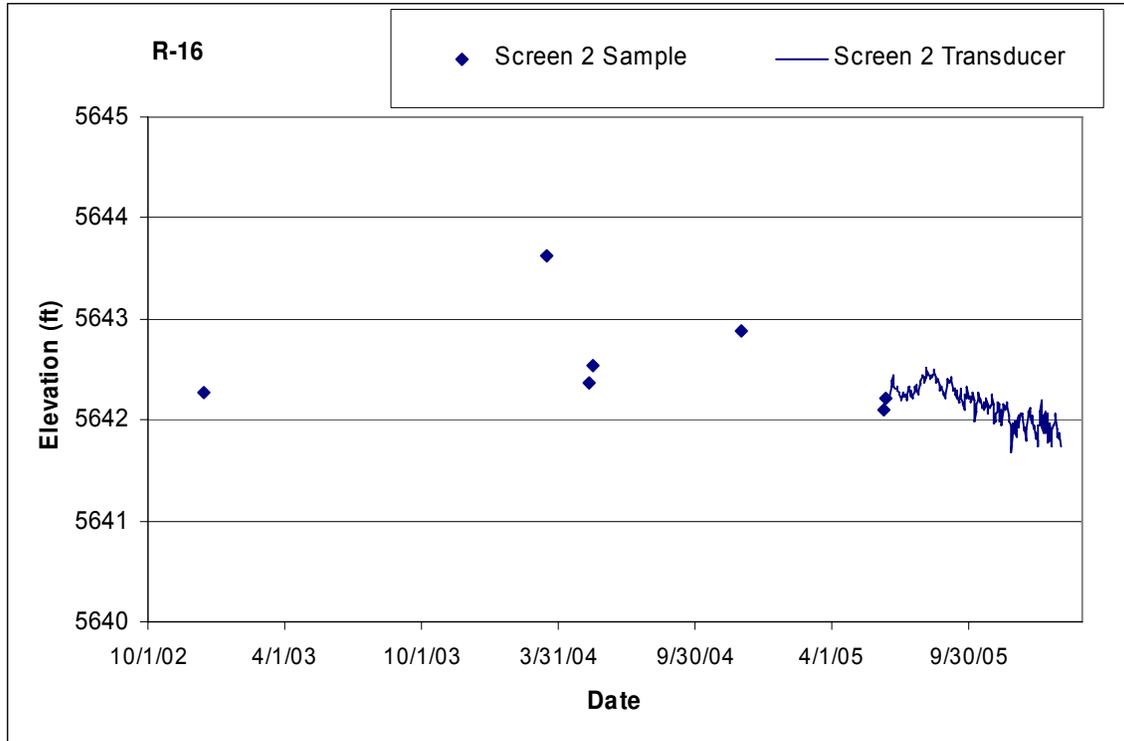
Period of Record: Westbay® installed December 14, 2002, transducers installed June 16, 2005; transducer data through 2005.

Remarks: Screens 2 and 3 are about 144 ft apart with a head difference of over 80 ft. Screen 4 shows a higher rate of decline than screen 3.

R-16 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	641.0	648.6	5615.9	5608.3	7.6	MP1A					Screen #1 is
						PP1				0.0	behind 11-in. dia.
						MP1B				0.0	steel casing, Regional Aquifer
2	863.4	870.9	5393.5	5386.0	7.5	MP2A	866.1	5390.8	4.8		Within Screen
						PP2	871.4	5385.5	-0.5	1.1	Below Screen
						MP2B	877.1	5379.8	-6.2	13.4	Below Screen
3	1014.8	1022.4	5242.1	5234.5	7.6	MP3A	1018.4	5238.5	4.0		Within Screen
						MP3B	1023.8	5233.1	-1.4	3.0	Below Screen
						PP3	1029.4	5227.5	-7.0	15.1	Below Screen
4	1237.0	1244.6	5019.9	5012.3	7.6	MP4A	1238.0	5018.9	6.6		Within Screen
						PP4	1243.4	5013.5	1.2		Within Screen
						MP4B	1249.0	5007.9	-4.4	9.5	Below Screen

Brass Cap Elevation: 6256.85 ft; all measurements are from this elevation;
 MP = measurement port, pp = pumping port





3.19 R-16r

Location: East of White Rock adjacent to R-16 in lower Cañada del Buey near the confluence with lower Mortandad Canyon.

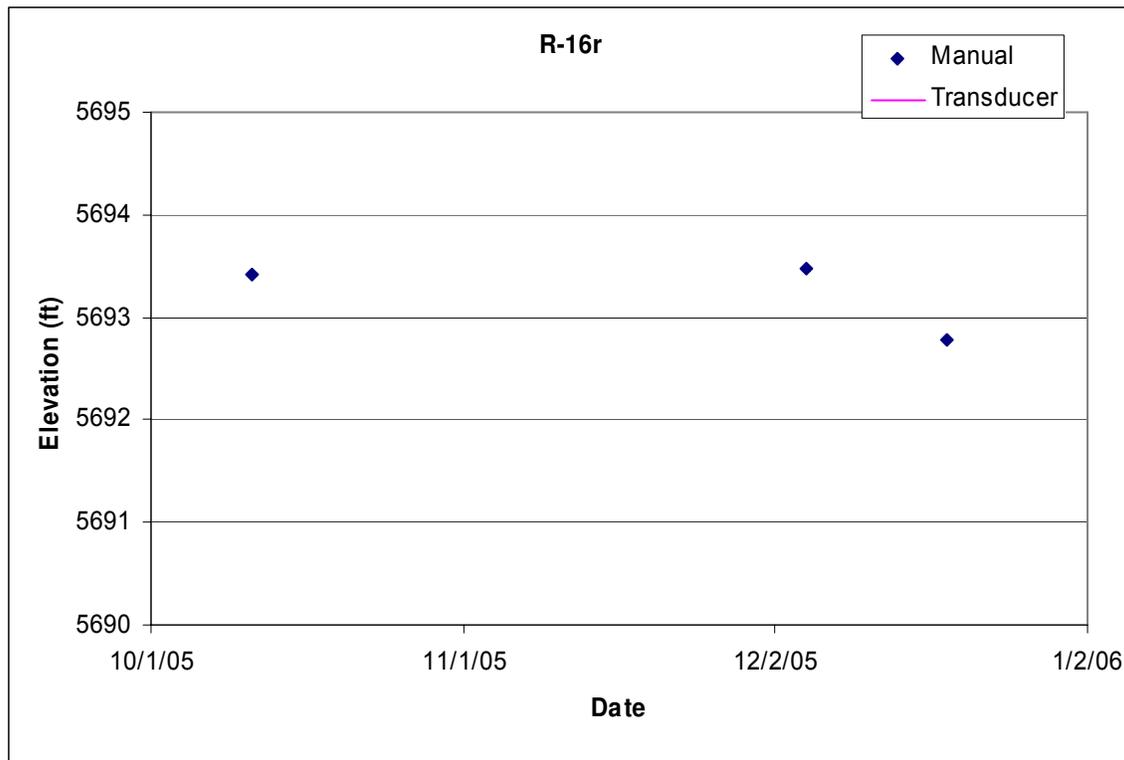
Completion Type: Single completion at the top of the regional aquifer. Provides data for the top of the regional aquifer in place of R-16 screen 1, which is blocked by casing and is not useable.

Period of Record: Well completed October 11, 2005; groundwater sample December 19, 2005; transducer not installed by end of 2005.

Remarks: R-16r water level at the top of the regional aquifer about 50 ft higher than the water level at R-16 screen 2, which is located about 250 ft below the R-16r screen.

R-16r Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	600.0	617.6	5657.0	5639.4	17.6	596.6	5660.4	617.6	5639.4	631.4	13.8	42.4	Regional Aquifer

Note: Brass Cap Ground Elevation: 6256.97 ft; all depths are from this elevation



3.20 R-18

Location: On a mesa at TA-14 between Pajarito Canyon and Cañon de Valle, about 3000 ft northeast of R-25.

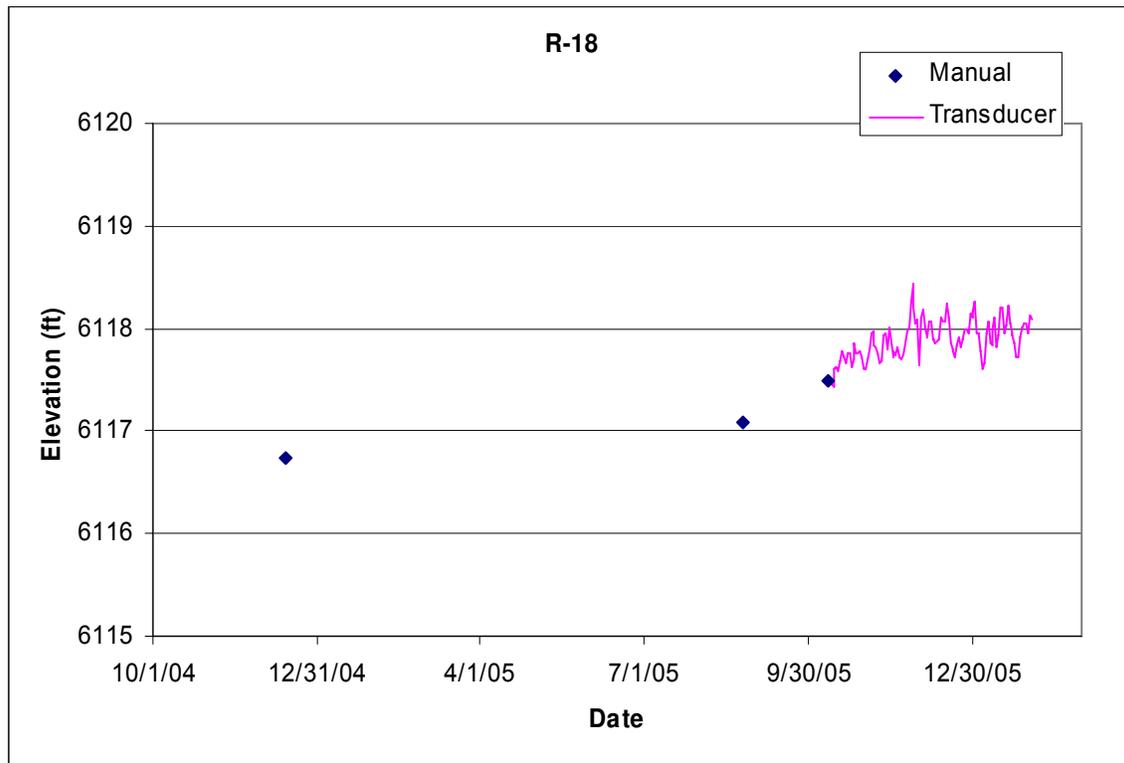
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Completed December 12, 2004, transducer installed October 11, 2005; transducer data through 2005.

Remarks: R-18 was completed to a depth of 1405 ft, about 118 ft into the regional aquifer.

R-18 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1358.0	1381	6046.8	6023.8	23.0	1353	6051.8	1381.0	6023.8	1405	24.0	75.1	Regional Aquifer

Note: Brass Cap Ground Elevation: 7404.83 ft; all depths are from this elevation



3.21 R-19

Location: On a mesa south of Threemile Canyon and about 1.2 miles west of supply well PM-2.

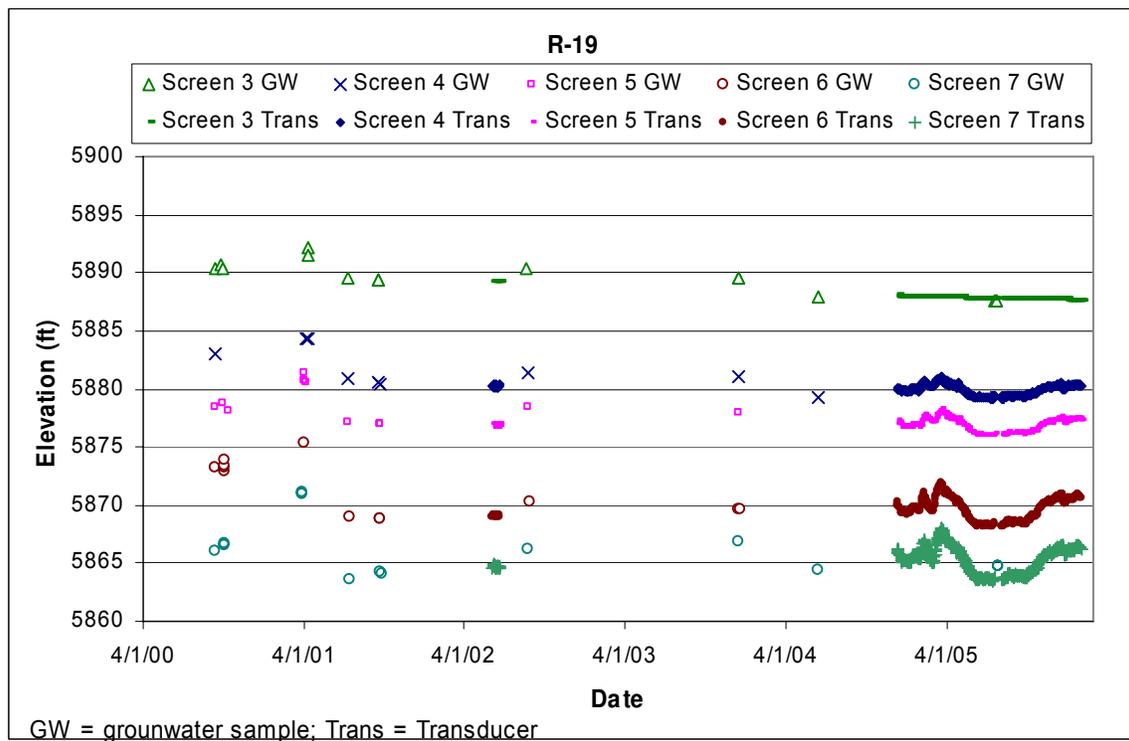
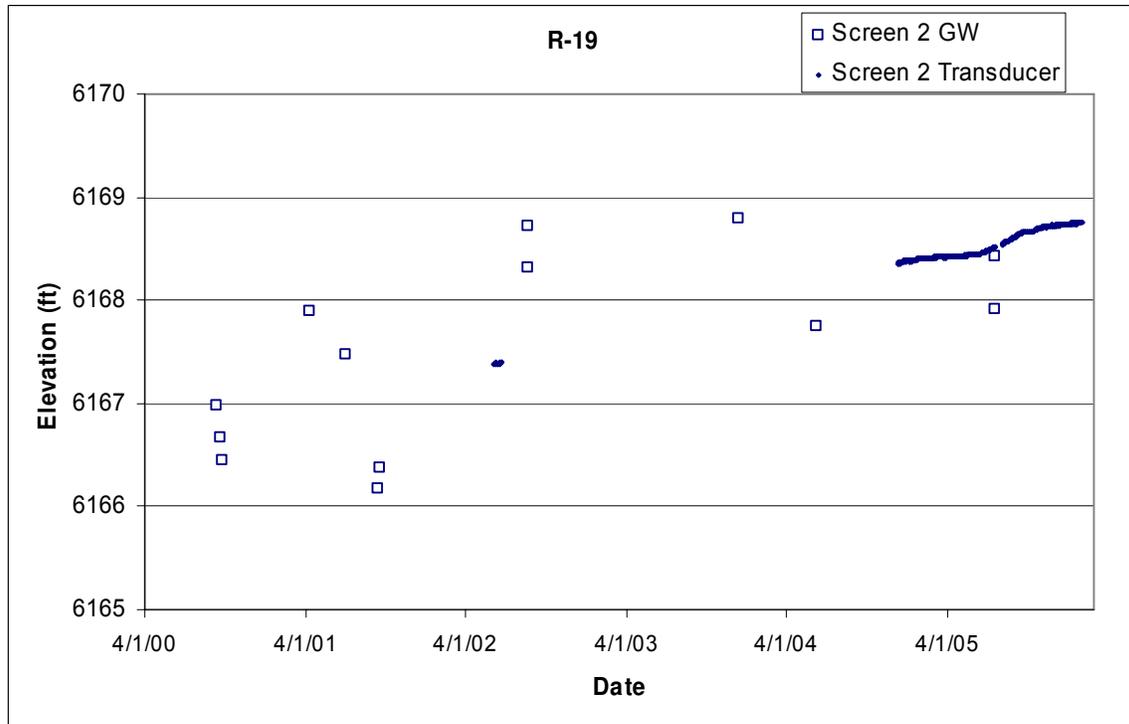
Completion Type: Multiple completion, two screens in intermediate zones, and five screens in the regional aquifer.

Period of Record: Westbay® installed September 11, 2000, transducers installed June 04, 2002; equipment problems occurred within two weeks. Transducers reinstated December 10, 2004; transducer data through 2005.

Remarks: Screen 1 has been dry since Westbay® installation. The deeper screens in the regional aquifer respond to supply well pumping.

R-19 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	827.2	843.6	6239.1	6222.7	16.4	MP1A	844.2	6222.1	-0.6	1.3	Below Screen, Intermediate
						PP1	849.6	6216.7	-6	13.0	Below Screen
						MP1B	855.2	6211.1	-11.6	25.1	Below Screen
2	893.3	909.6	6173.0	6156.7	16.3	MP2A	909.3	6157.0	0.3		Within Screen Intermediate
						PP2	914.7	6151.6	-5.1	11.0	Below Screen
						MP2B	920.3	6146.0	-10.7	23.1	Below Screen
3	1171.4	1215.4	5894.9	5850.9	44.0	MP3A	1190.7	5875.6	24.7		Within Screen, Regional Aquifer
						PP3	1196.1	5870.2	19.3		Within Screen
						MP3B	1201.7	5864.6	13.7		Within Screen
4	1410.2	1417.4	5656.1	5648.9	7.2	MP4A	1412.9	5653.4	4.5		Within Screen
						PP4	1418.3	5648.0	-0.9	1.9	Below Screen
						MP4B	1423.9	5642.4	-6.5	14.1	Below Screen
5	1582.6	1589.8	5483.7	5476.5	7.2	MP5A	1586.1	5480.2	3.7		Within Screen
						PP5	1591.5	5474.8	-1.7	3.7	Below Screen
						MP5B	1597.1	5469.2	-7.3	15.8	Below Screen
6	1726.8	1733.9	5339.5	5332.4	7.1	MP6A	1730.1	5336.2	3.8		Within Screen
						PP6	1735.4	5330.9	-1.5	3.2	Below Screen
						MP6B	1741.1	5325.2	-7.2	15.6	Below Screen
7	1832.4	1839.5	5233.9	5226.8	7.1	MP7A	1834.7	5231.6	4.8		Within Screen
						PP7	1840.0	5226.3	-0.5	1.1	Below Screen
						MP7B	1845.7	5220.6	-6.2	13.4	Below Screen

Note: R-19 Brass Cap Ground Elevation: 7066.3 ft; all depths are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.22 R-20

Location: Lower Pajarito Canyon about 1300 ft east of supply well PM-2.

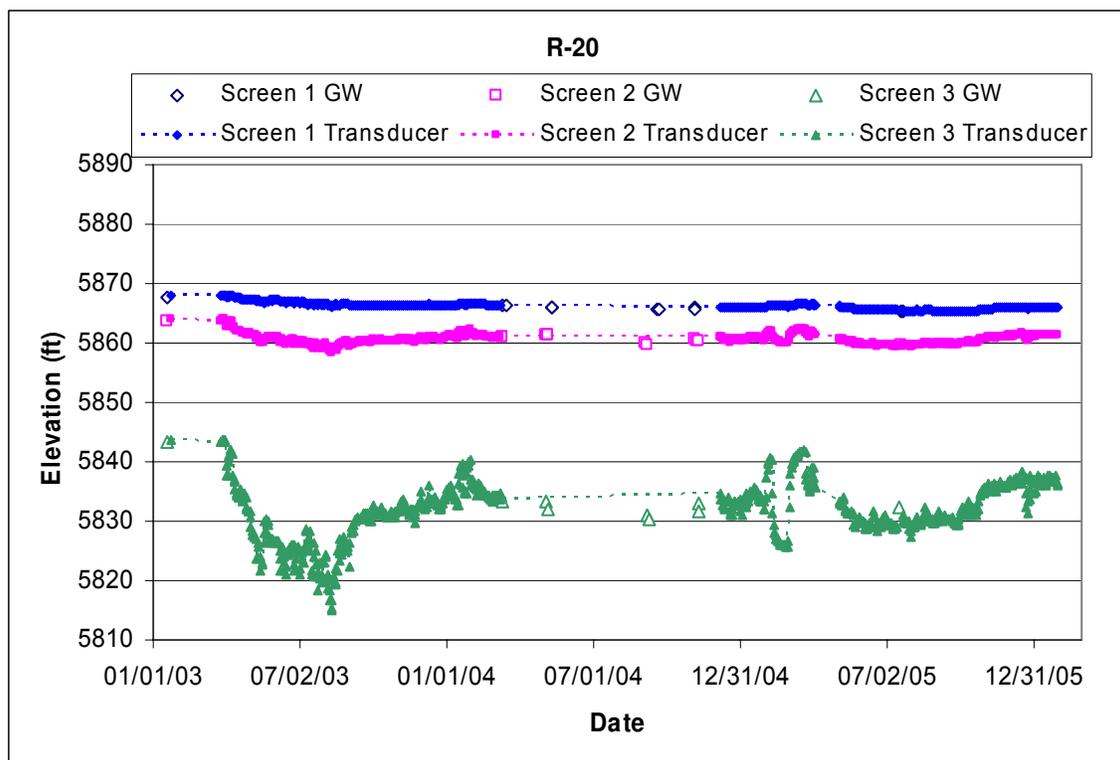
Completion Type: Multiple completion, three screens in the regional aquifer.

Period of Record: Westbay® installed January 18, 2003, transducers installed March 26, 2003; intermittent transducer data through 2005.

Remarks: Screen 3 responds to supply well pumping at PM-2 and PM-4, the shallower screens 1 and 2 show a muted response to pumping.

Measurement and Sampling Ports in R-20											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	904.6	912.2	5789.8	5782.2	7.6	MP1A	907.0	5787.4	5.2		Within Screen, Regional Aquifer
						PP1	912.4	5782.0	-0.2	0.4	Below Screen
						MP1B	918.0	5776.4	-5.8	12.5	Below Screen
2	1147.1	1154.7	5547.3	5539.7	7.6	MP2A	1149.7	5544.7	5		Within Screen
						PP2	1155.0	5539.4	-0.3	0.6	Below Screen
						MP2B	1160.7	5533.7	-6.0	13.0	Below Screen
3	1328.8	1336.5	5365.6	5357.9	7.7	MP3A	1330.0	5364.4	6.5		Within Screen
						PP3	1335.4	5359.0	1.1		Within Screen
						MP3B	1341.0	5353.4	-4.5	9.7	Below Screen

Note: R-20 Brass Cap Ground Elevation: 6694.35 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.23 R-21

Location: Cañada del Buey north of TA-54.

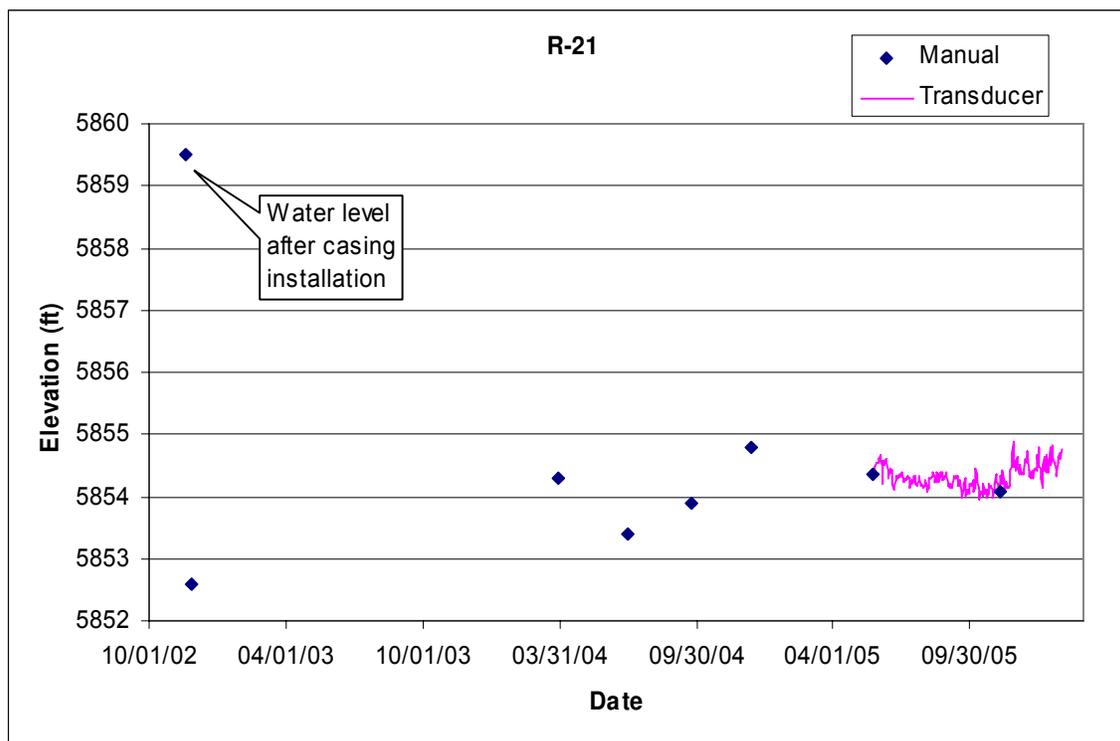
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed November 2002, transducer installed May 23, 2005; transducer data through 2005.

Remarks: R-21 installed to a depth of 941.4 ft, about 140 ft into the regional aquifer.

R-21 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	888.8	906.8	5767.4	5749.4	18.0	861	5795.2	906.8	5749.4	941.4	34.6	192.4	Regional Aquifer

Note: R-21 Brass Cap Ground Elevation: 6656.24 ft; all depths are from this elevation



3.24 R-22

Location: East end of Mesita del Buey, east of TA-54.

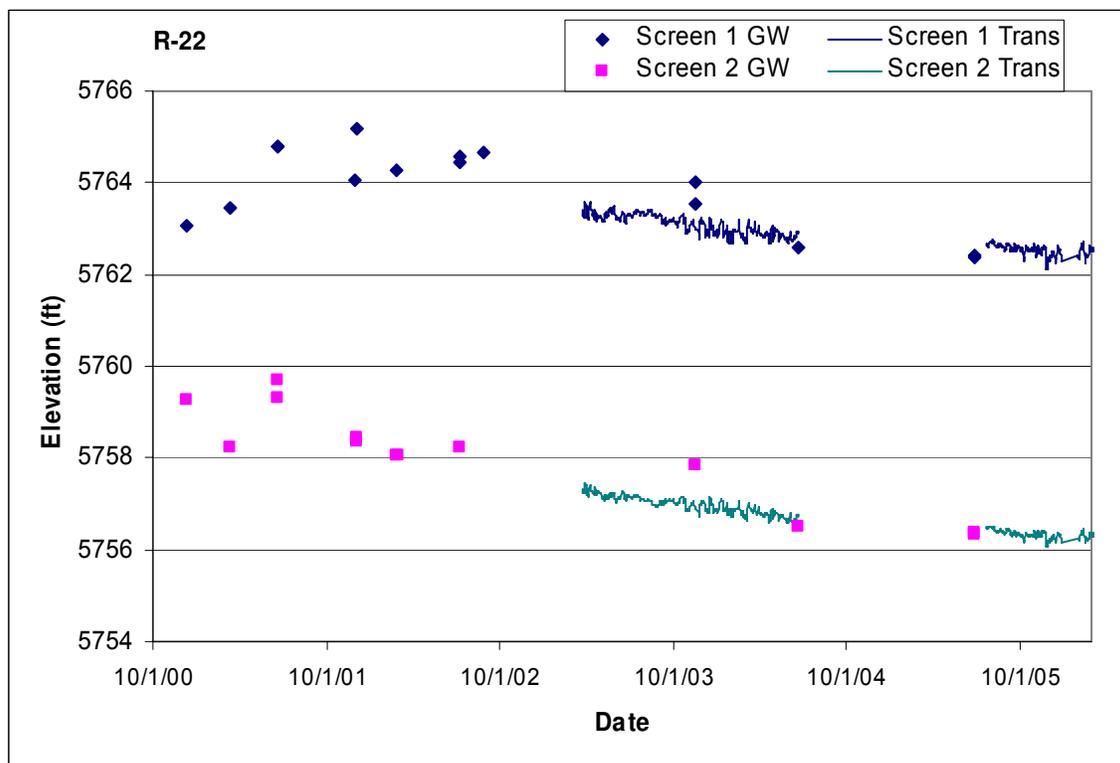
Completion Type: Multiple completion, five screens in the regional aquifer.

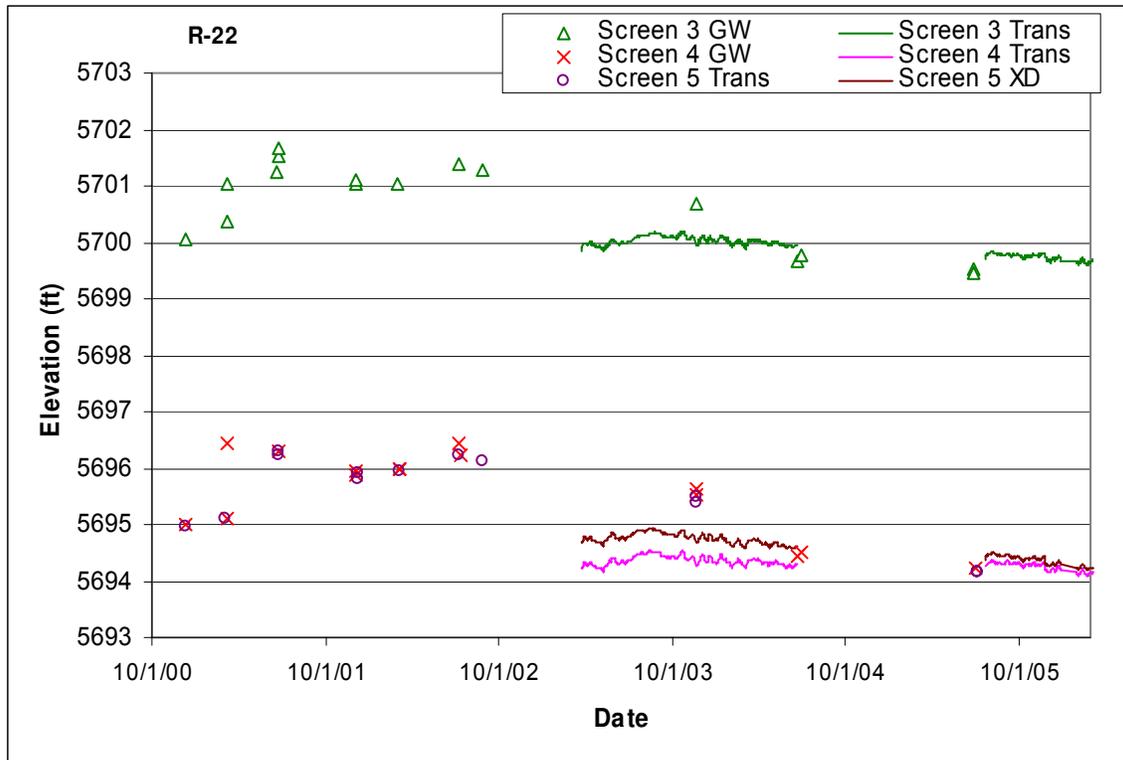
Period of Record: Westbay® installed December 11, 2000, transducers installed March 26, 2003; intermittent transducer data through 2005.

Remarks: Screens 1 and 2 have similar head values about 6 ft apart. Screens 3, 4, and 5 have similar heads within 6 ft of each other, but about 60 ft lower than screens 1 and 2. Screens 4 and 5 have nearly identical head values.

R-22 Measurement and Sampling Ports											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	872.3	914.2	5778.2	5736.3	41.9	MP1A	907.1	5743.4	7.1		Within Screen, Regional Aquifer
						PP1	912.4	5738.1	1.8		Within Screen
						MP1B	918.1	5732.4	-3.9	8.4	Below Screen
2	947.0	988.9	5703.5	5661.6	41.9	MP2A	962.8	5687.7	26.1		Within Screen
						PP2	967.7	5682.8	21.2		Within Screen
						MP2B	973.4	5677.1	15.5		Within Screen
3	1272.2	1278.9	5378.3	5371.6	6.7	MP3A	1273.5	5377.0	5.4		Within Screen
						PP3	1278.9	5371.6	0		Within Screen
						MP3B	1284.5	5366.0	-5.6	12.1	Below Screen
4	1378.2	1384.9	5272.3	5265.6	6.7	MP4A	1378.0	5272.5	6.9		Above Screen
						PP4	1383.4	5267.1	1.5		Within Screen
						MP4B	1389.1	5261.4	-4.2	9.1	Below Screen
5	1447.3	1452.3	5203.2	5198.2	5.0	MP5A	1448.2	5202.3	4.1		Within Screen
						PP5	1453.6	5196.9	-1.3	2.8	Below Screen
						MP5B	1459.2	5191.3	-6.9	14.9	Below Screen

Note: R-22 Brass Cap Ground Elevation: 6650.5 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





3.25 R-23

Location: Lower Pajarito Canyon near SR-4 and the eastern LANL boundary.

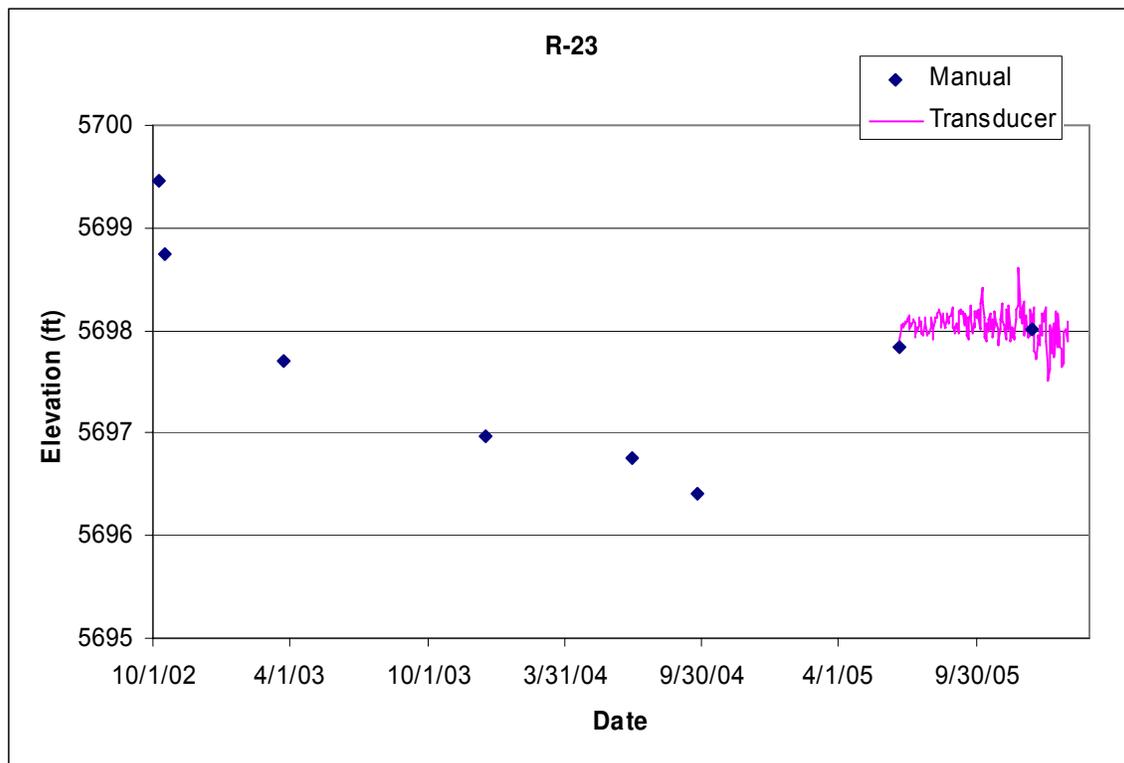
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed October 2002, transducer installed June 20, 2005; transducer data through 2005.

Remarks: R-23 was installed to a depth of 886.3 ft, about 60 ft into the regional aquifer.

R-23 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	816.0	873.2	5711.8	5654.6	57.2	870.7	5657.1	873.2	5654.6	886.3	13.1	41.0	Regional Aquifer

Note: R-23 Brass Cap Ground Elevation: 6527.75 ft; all depths are from this elevation



3.26 R-24

Location: Bayo Canyon north of the Sewage Treatment Plant.

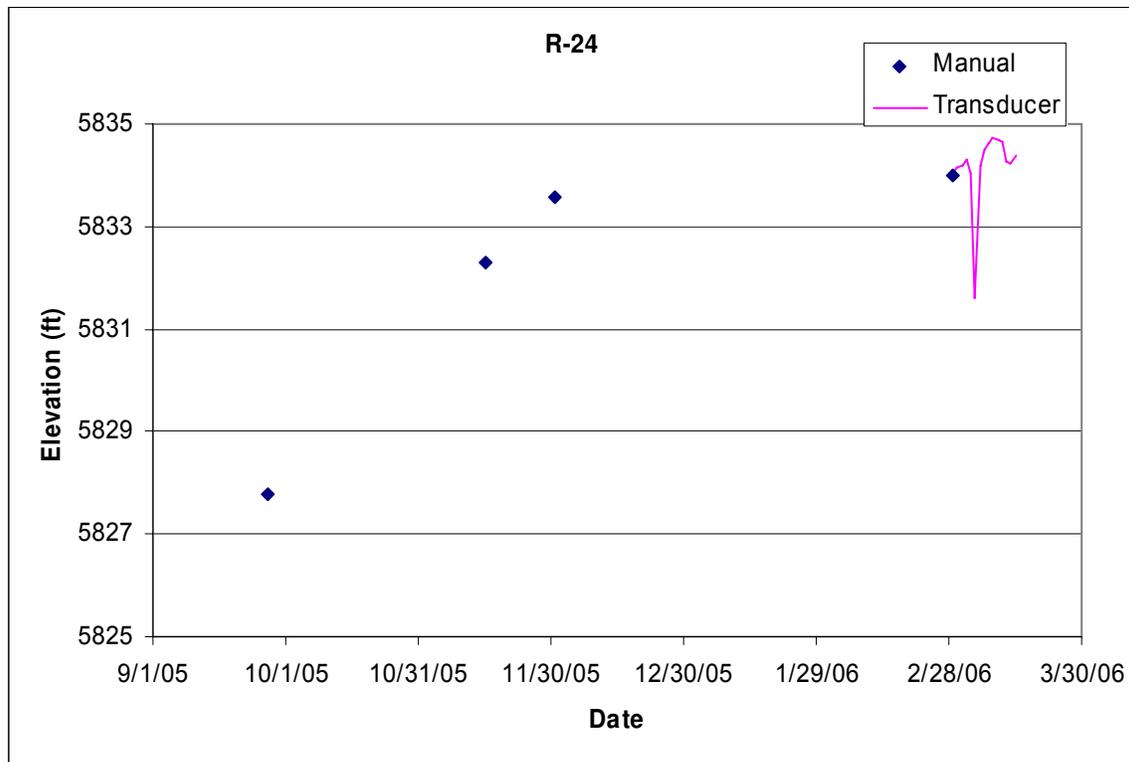
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed September 2005, transducer installed March 1, 2006.

Remarks: R-24 installed to a depth of 861 ft, about 150 ft into the regional aquifer.

R-24 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	825.0	848	5722.4	5699.4	23.0	818.7	5728.7	848.0	5699.4	861	13.0	40.7	Regional Aquifer

Note: R-24 Brass Cap Ground Elevation: 6547.38 ft; all depths are from this elevation



3.27 R-25

Location: TA-16 within the Cañon de Valle watershed.

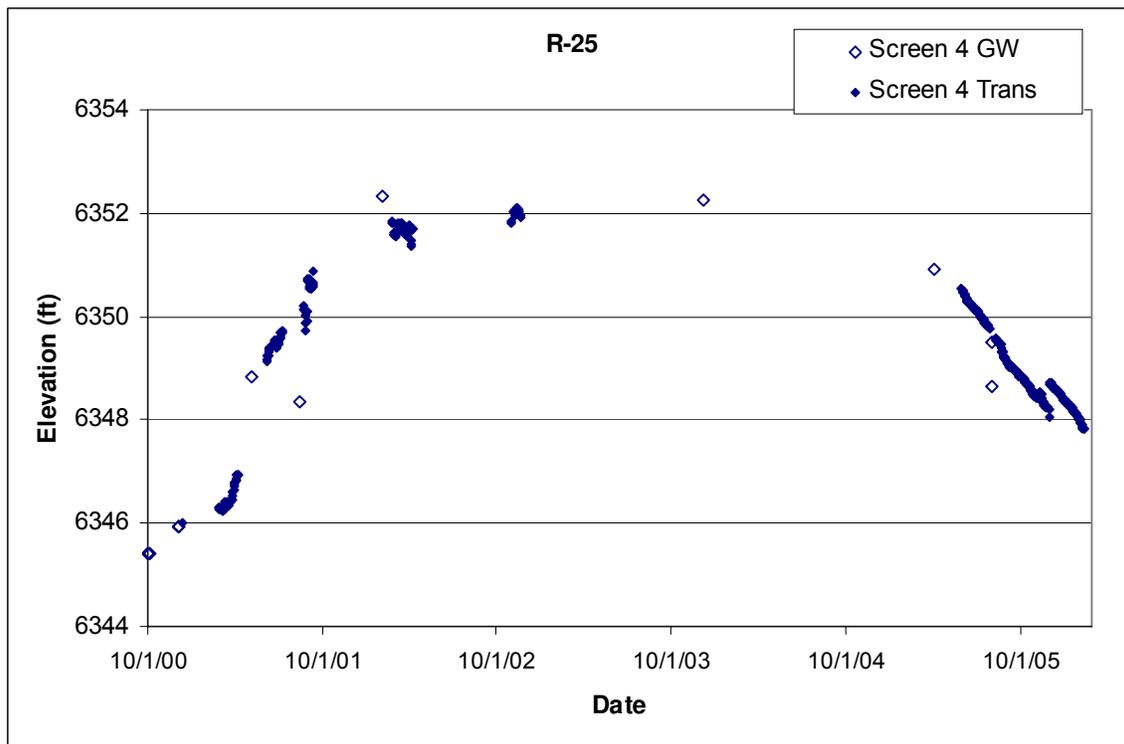
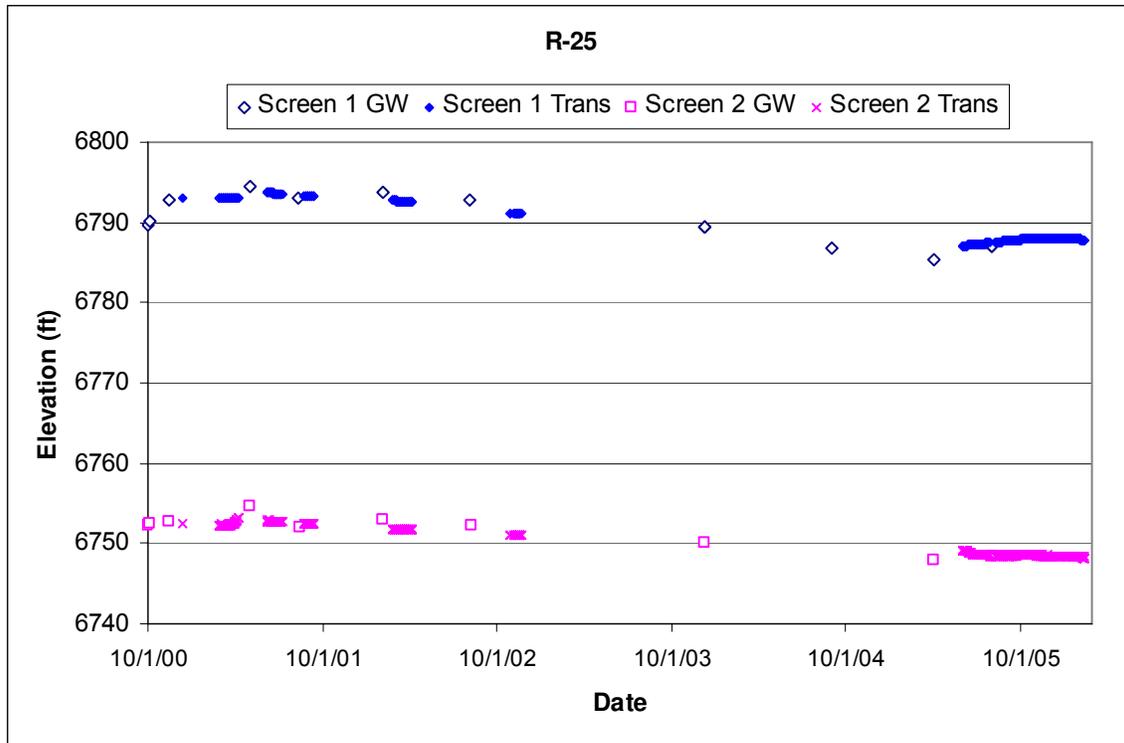
Completion Type: Multiple completion, four screens in intermediate zones, and five screens in the regional aquifer. Screens 3 and 9 damaged during installation and are not reliable for water level monitoring.

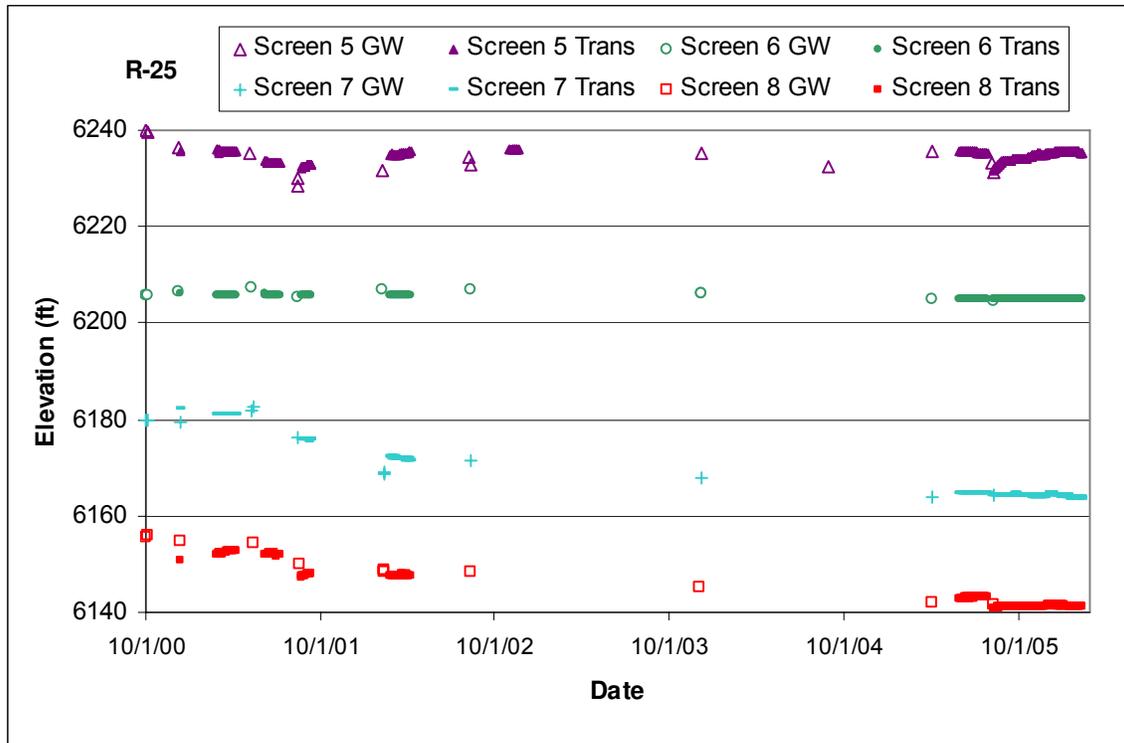
Period of Record: Westbay® installed October 3, 2000, transducers installed February 26, 2001, and between sampling events through 2002. Transducers installed again June 2, 2005; data through 2005.

Remarks: Recurring problems with the transducer cables caused loss of data. The transducer cables were rebuilt in 2005. Screens 1 and 2 appear to be in the same intermediate zone. Screen 4 appears to be in a separate intermediate zone. The water level at screen 5, the top of the regional aquifer declines during sampling and recovers slowly.

Measurement and Sampling Ports in R-25												
Screen Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume above Port (L)	Sump Volume Total (L)	Comment
1	737.6	758.4	6778.5	6757.7	20.8	MP1A	754.8	6761.3	3.6			Within Screen, Intermediate Zone
						PP1	760.1	6756.0	-1.7	4.9		Below Screen
						MP1B	765.8	6750.3	-7.4	21.4	31.9	Below Screen
2	882.6	893.4	6633.5	6622.7	10.8	MP2A	891.8	6624.3	1.6			Within Screen, Intermediate Zone
						PP2	897.2	6618.9	-3.8	11.0		Below Screen
						MP2B	902.8	6613.3	-9.4	27.2	37.9	Below Screen
3	1054.6	1064.6	6461.5	6451.5	10.0	MP3A	1063.4	6452.7	1.2			Within Screen, Intermediate Zone
						PP3	1068.8	6447.3	-4.2	12.2		Below Screen, Screen Damaged
						MP3B	1084.2	6431.9	-19.6	56.8	72.4	Below Screen
4	1184.6	1194.6	6331.5	6321.5	10.0	MP4A	1192.4	6323.7	2.2			Within Screen, Intermediate Zone
						PP4	1197.8	6318.3	-3.2	9.3		Below Screen
						MP4B	1203.4	6312.7	-8.8	25.5	36.5	Below Screen
5	1294.7	1304.7	6221.4	6211.4	10.0	MP5A	1303.4	6212.7	1.3			Within Screen, Regional Aquifer
						PP5	1308.8	6207.3	-4.1	11.9		Below Screen
						MP5B	1314.4	6201.7	-9.7	28.1	39.1	Below Screen
6	1404.7	1414.7	6111.4	6101.4	10.0	MP6A	1406.3	6109.8	8.4			Within Screen
						PP6	1411.7	6104.4	3			Within Screen
						MP6B	1417.3	6098.8	-2.6	7.5	18.5	Below Screen
7	1604.7	1614.7	5911.4	5901.4	10.0	MP7A	1606.0	5910.1	8.7			Within Screen
						PP7	1611.4	5904.7	3.3			Within Screen
						MP7B	1617.1	5899.0	-2.4	7.0	17.7	Below Screen
8	1794.7	1804.7	5721.4	5711.4	10.0	MP8A	1796.0	5720.1	8.7			Within Screen
						PP8	1801.4	5714.7	3.3			Within Screen
						MP8B	1807.0	5709.1	-2.3	6.7	17.4	Below Screen
9	1894.7	1904.7	5621.4	5611.4	10.0	MP9	1825.1	5691.0	79.6			Screen 9 blocked by sediment

Note: R-25 Brass Cap Ground Elevation: 7516.1 ft; all depths are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





3.28 R-26

Location: At the western LANL boundary between Cañon de Valle and Water Canyon.

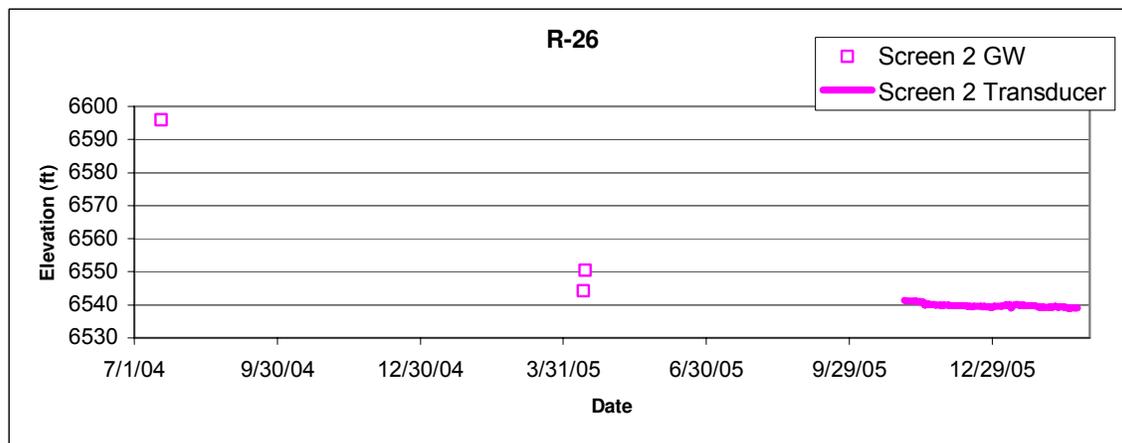
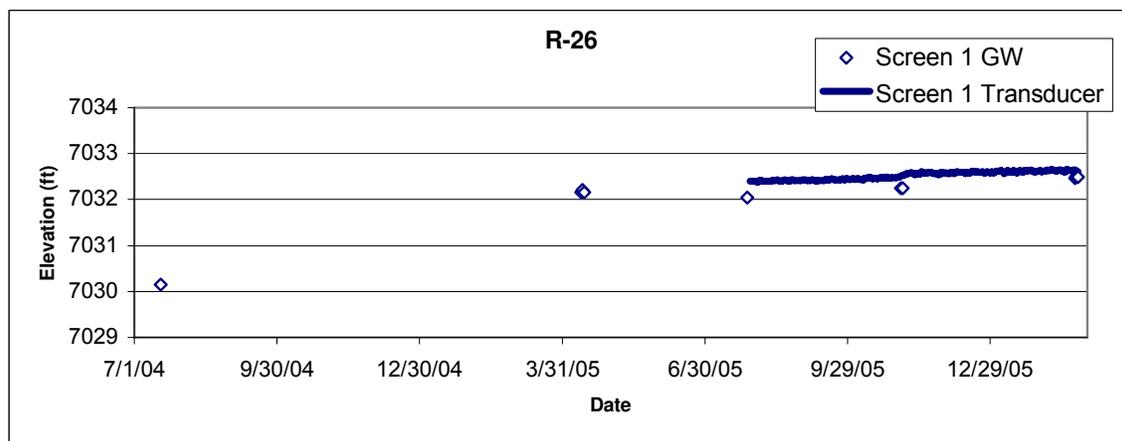
Completion Type: Multiple completion, screen 1 is an intermediate zone, and screen 2 is at the top of the regional aquifer.

Period of Record: Westbay® installed July 18, 2004, transducers installed July 29, 2005; transducer data through 2005.

Remarks: Screen 2 is in a tight zone or improperly completed zone. Sampling attempts at MP2A caused plugging of the port and sampler with bentonite; the transducers were installed in the B ports on November 3, 2005; water level data from screen 2 appear valid with some questions as to validity pending additional data.

R-26 Measurement and Sampling Ports											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	651.8	669.9	6989.9	6971.8	18.1	MP1A	659.3	6982.4	10.6		Within Screen, Intermediate
						PP1	664.7	6977.0	5.2		Within Screen
						MP1B	670.3	6971.4	-0.4	0.8	Below Screen
2	1421.8	1445.0	6219.9	6196.7	23.2	MP2A	1427.0	6214.7	18.0		Within Screen Regional Aquifer
						PP2	1432.4	6209.3	12.6		Within Screen
						MP2B	1438	6203.7	7.0		Within Screen

Note: R-26 Brass Cap Ground Elevation: 7641.69 ft; all depths are from this elevation;
 MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.29 R-28

Location: Lower Mortandad Canyon about 1400 ft southwest of R-11.

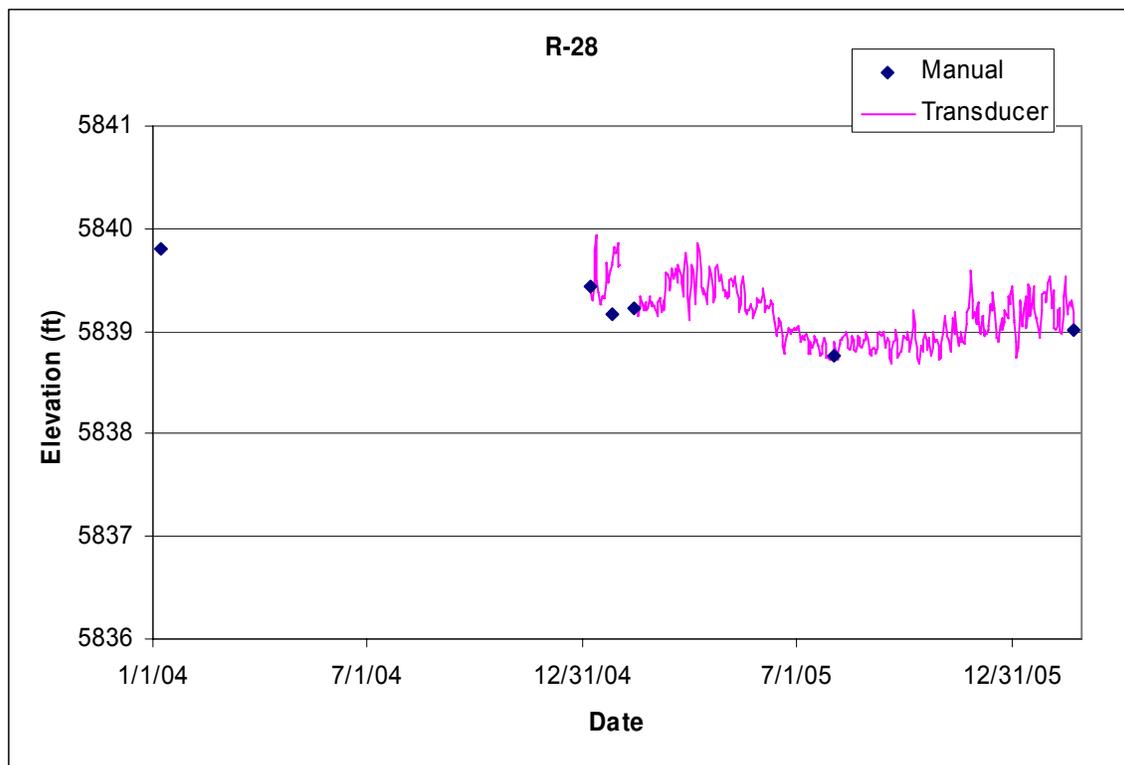
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed January 2004, transducer installed January 7, 2005; data through 2005.

Remarks: R-28 installed to a depth of 980.3 ft, about 100 ft into the regional aquifer.

R-28 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	934.3	958.1	5794.3	5770.5	23.8	929.6	5799.0	958.1	5770.5	980.3	22.2	68.2	Regional Aquifer

Note: R-28 Brass Cap Ground Elevation: 6728.61 ft; all depths are from this elevation



3.30 R-31

Location: In the southern part of LANL in the north Ancho Canyon tributary.

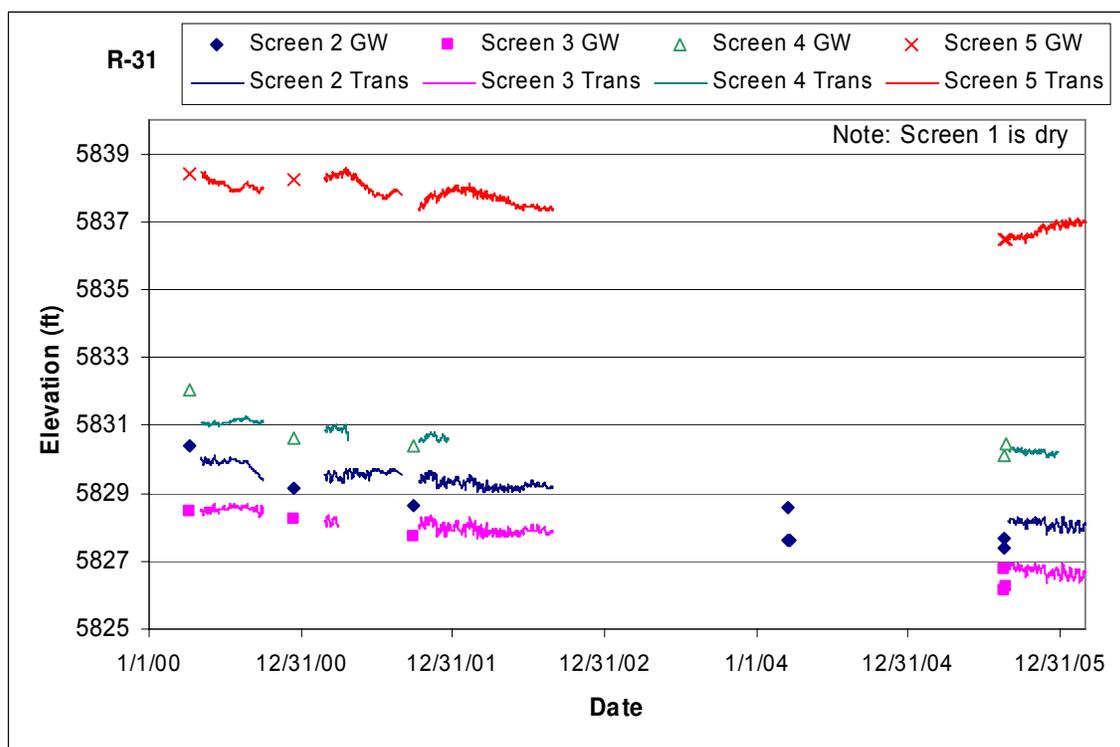
Completion Type: Multiple completion, one screen in an intermediate zone, and four screens in the regional aquifer. Screen 1 has been dry since Westbay® installation.

Period of Record: Westbay® installed April 7, 2000, transducers installed May 4, 2000; intermittent transducer data through 2005.

Remarks: Screen 5 has the highest head values, followed by screen 4 and screen 2; screen 3 has the lowest head values.

R-31 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	439.1	454.4	5923.4	5908.1	15.3	MP1A	453.8	5908.7	0.6		Intermediate Zone (Dry)
						PP1	459.2	5903.3	-4.8	13.9	Below screen
						MP1B	464.8	5897.7	-10.4	30.1	Below screen
2	515.0	545.7	5847.5	5816.8	30.7	MP2A	532.2	5830.3	13.5		Top of Regional Aquifer
						MP2B	542.5	5820.0	3.2		
						PP2	547.9	5814.6	-2.2	6.4	Below screen
						MP2C	553.5	5809.0	-7.8	22.6	Below screen
3	666.3	676.3	5696.2	5686.2	10	MP3A	670.3	5692.2	6.0		
						PP3	675.6	5686.9	0.7		
						MP3B	681.3	5681.2	-5.0	14.5	Below screen
4	826.6	836.6	5535.9	5525.9	10	MP4A	830.9	5531.6	5.7		
						PP4	836.3	5526.2	0.3		
						MP4B	841.9	5520.6	-5.3	15.3	Below screen
5	1007.1	1017.1	5355.4	5345.4	10	MP5A	1011.3	5351.2	5.8		
						PP5	1016.7	5345.8	0.4		
						MP5B	1022.3	5340.2	-5.2	15.1	

Brass Cap Elevation: 6362.5 ft; all measurements are from this elevation;
 MP = measurement port; PP = pumping port



3.31 R-32

Location: Lower Pajarito Canyon about 1 mile east of supply well PM-2.

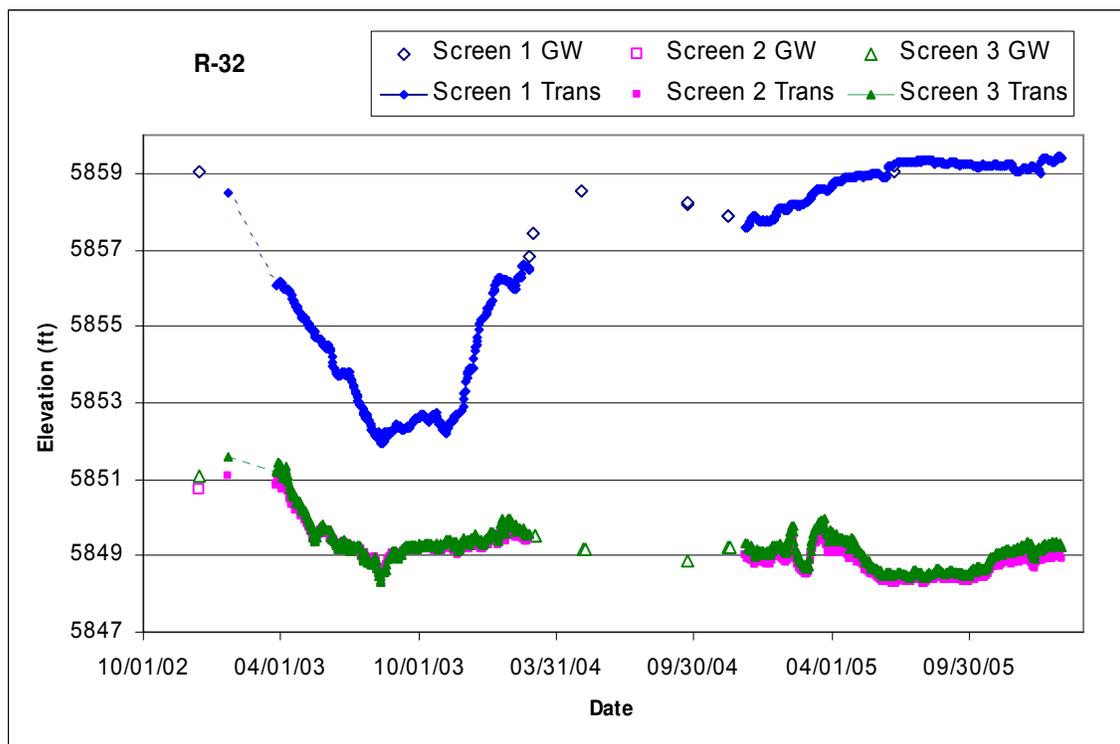
Completion Type: Multiple completion, three screens in the regional aquifer.

Period of Record: Westbay® installed December 14, 2002, transducers installed January 21, 2003; intermittent transducer data through 2005.

Remarks: Screens 2 and 3 have nearly identical head values and respond to pumping supply well PM-4. Screen 1 apparently responded to long-term pumping of PM-4 in 2003, but slightly to aquifer test pumping at PM-2 in 2004 and PM-4 in 2005. Screens 2 and 3 responded to the PM-4 aquifer test in January 2005.

R-32 Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	867.5	875.2	5770.1	5762.4	7.7	MP1A	870.9	5766.7	4.3		Within Screen, Regional Aquifer
						PP1	876.3	5761.3	-1.1	2.4	Below Screen
						MP1B	881.9	5755.7	-6.7	14.5	Below Screen
2	931.8	934.9	5705.8	5702.7	3.1	MP2	933.1	5704.5	1.8		Within Screen
3	972.9	980.6	5657.0	5657.0	7.7	MP3A	976.0	5661.6	4.6		Within Screen
						PP3	981.4	5656.2	-0.8	1.7	Below Screen
						MP3B	987.1	5650.5	-6.5	14.1	Below Screen

Note: R-32 Brass Cap Ground Elevation: 6637.63 ft; all depths are from this elevation; MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.32 R-33

Location: Lower Ten Site Canyon about 1500 ft northeast of supply well PM-5.

Completion Type: Dual completion at the top of the regional aquifer and about 100 ft below the top of the regional aquifer.

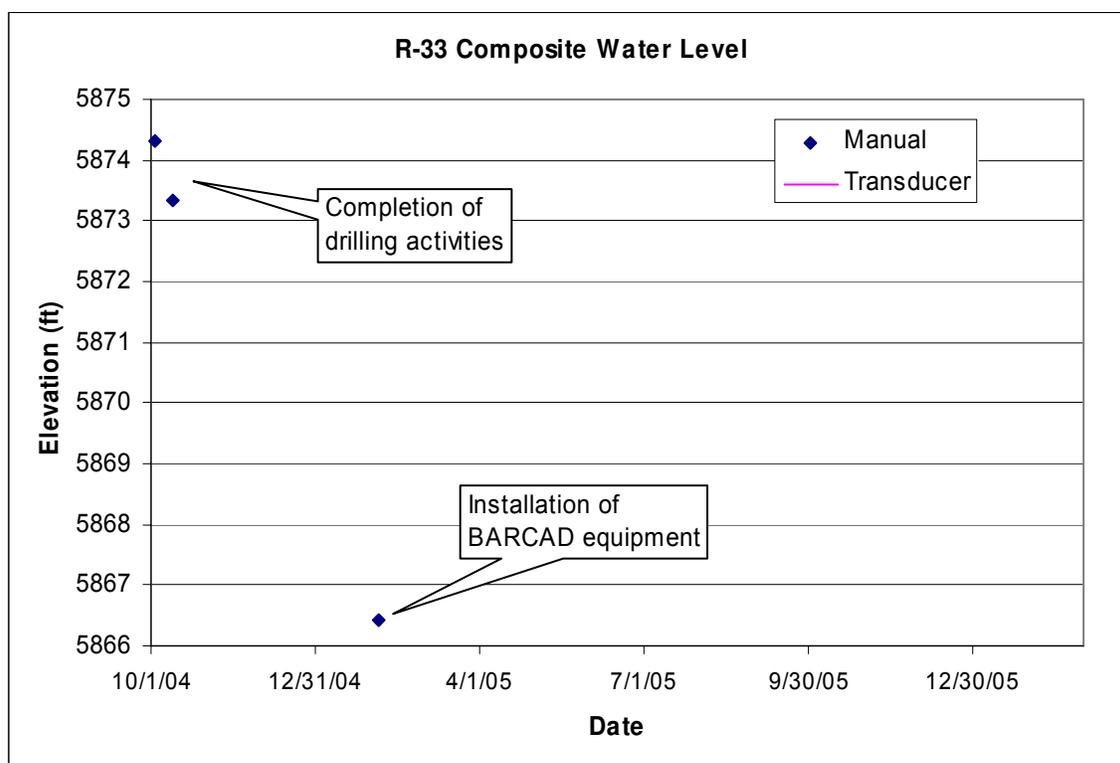
Period of Record: Well completed October 2004, transducers installed February 2005. No discrete zonal water level data available due to equipment problems.

Remarks: R-33 screen 1 installed at the top of the regional aquifer at a depth of about 1020 ft, and screen 2 within the regional aquifer to a depth of 1126 ft, about 140 ft into the regional aquifer.

Transducer equipment installed in February 2005 has not functioned properly.

R-33 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Packer/ Sump (ft)	Top of Packer/ Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	995.5	1018.5	5857.8	5834.8	23.0	1011.9	5841.4	1080.8	5772.5	1080.8	62.3	194.8	Regional Aquifer
2	1112.4	1122.3	5740.9	5731.0	9.9	1114.9	5738.4	1122.3	5731.0	1126.0	3.7	2.3	Regional Aquifer

Note: R-33 Brass Cap Ground Elevation: 6853.33 ft; all depths are from this elevation



3.33 R-34

Location: Cedro Canyon on San Ildefonso land east of LANL.

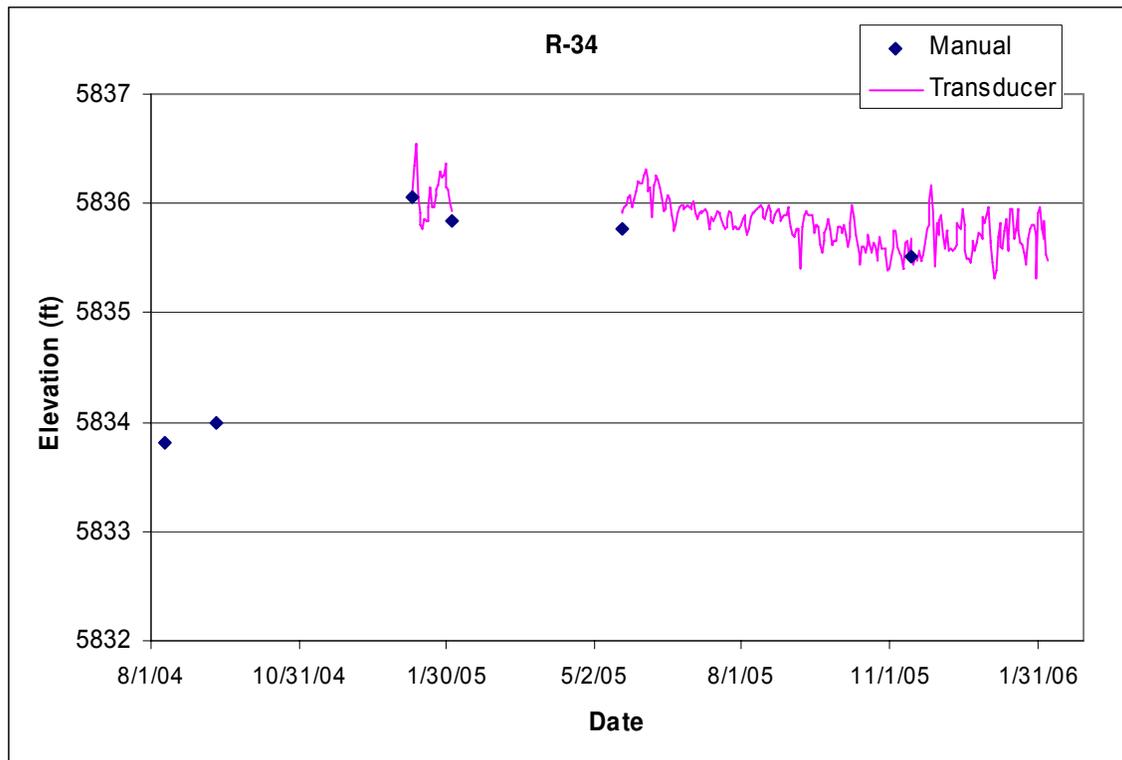
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed August 2004, transducer installed January 2005; water level data through 2005.

Remarks: R-34 installed at the top of the regional aquifer at a depth of 920.7 ft, about 110 ft into the regional aquifer.

R-34 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	883.7	906.6	5746.3	5723.4	22.9	881.6	5748.4	906.6	5723.4	920.7	14.1	44.1	Regional Aquifer

Note: R-34 Brass Cap Ground Elevation: 6629.99 ft; all depths are from this elevation



3.34 Test Well 1

Location: Lower Pueblo Canyon downstream of supply well O-1.

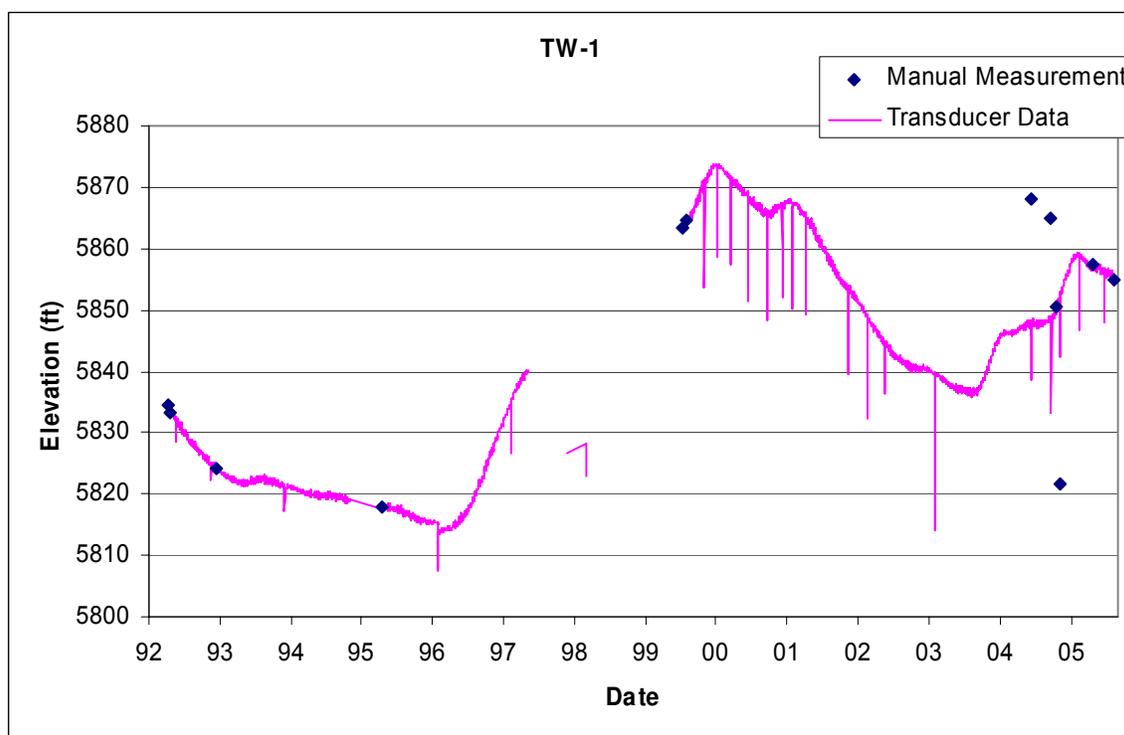
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well completed January 1950, transducer installed January 23, 1992; intermittent water level data to February 6, 2006, when transducer removed for well plugging and abandonment.

Remarks: TW-1 installed at the top of the regional aquifer at a depth of 642 ft, about 100 ft into the regional aquifer. Water level in TW-1 is recharged locally by surface water from Pueblo Canyon (Koch and Rogers 2003) and does not correlate with the water level in surrounding regional aquifer wells.

TW-1 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	632.0	642	5737.2	5727.2	10.0			642.0	5727.2	642	0.0	0.0	Regional Aquifer

Note: TW-1 Ground Elevation: 6369.19 ft; all depths are from this elevation



3.35 Test Well 2

Location: Middle Pueblo Canyon.

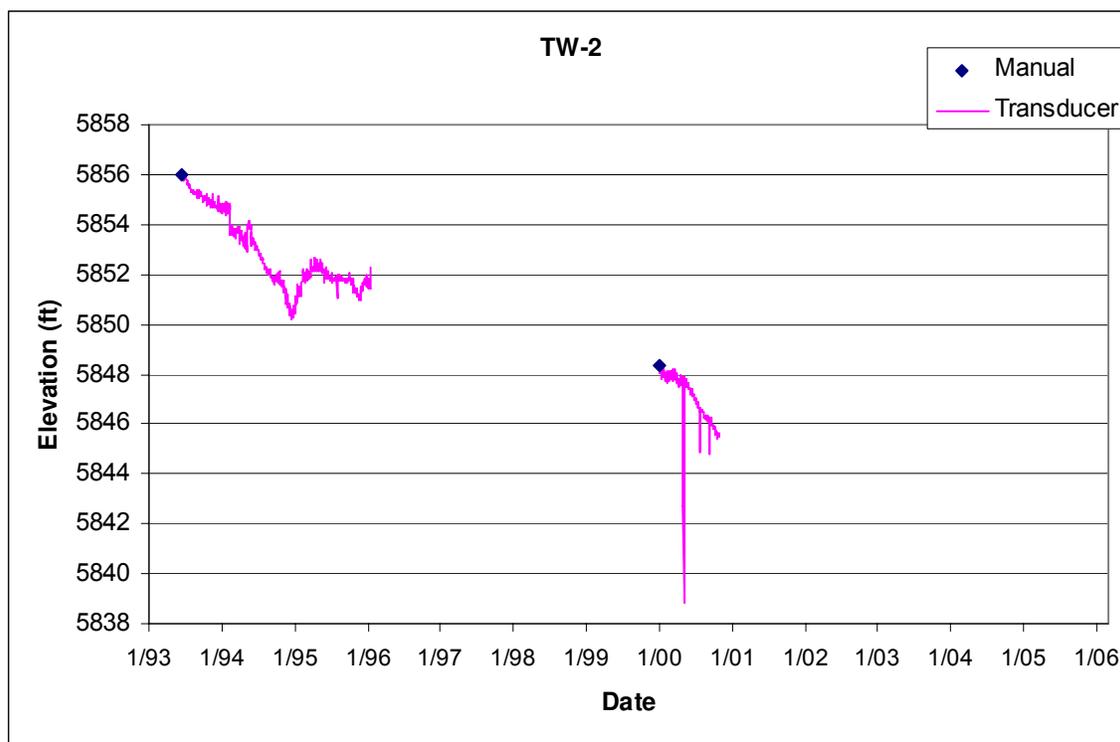
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well originally drilled in 1949, completed in 1990. Transducer installed June 1993; data to January 1996. Transducer reinstated January 2000; transducer data to March 2005.

Remarks: TW-2 completed at the top of the regional aquifer at a depth of 824 ft, about 25 ft into the regional aquifer. The transducer failed in November 2000, transducer data since then are questionable. A manual measurement attempt in March 2005 resulted with the measurement tape stuck in the well. Thus, transducer water level data since November 2000 are not valid.

TW-2 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	768.0	824	5879.6	5823.6	56.0			824.0	5823.6	824	0.0	0.0	Regional Aquifer

Note: TW-2 Ground Elevation: 6647.63 ft; all depths are from this elevation



3.36 Test Well 3

Location: Middle Los Alamos Canyon at confluence with DP Canyon.

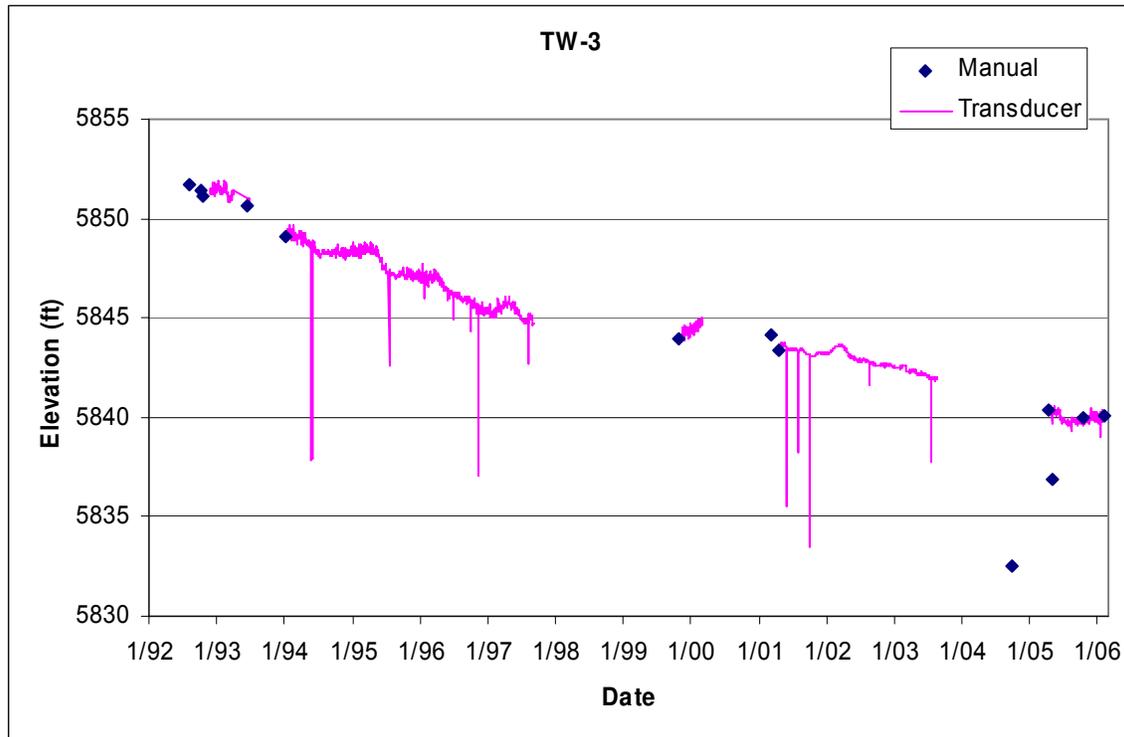
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well drilled in 1949. Transducer installed November 1992; intermittent data to February 2006.

Remarks: TW-3 completed at the top of the regional aquifer at a depth of 815 ft, about 30 ft into the regional aquifer. Transducer removed February 9, 2006, in preparation for well plugging and abandonment.

TW-3 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	805.0	815	5821.9	5811.9	10.0			815.0	5811.9	815	0.0	0.0	Regional Aquifer

Note: Ground Elevation: 6626.9 ft; all depths are from this elevation



3.37 Test Well 4

Location: East of Acid Canyon in upper Pueblo Canyon.

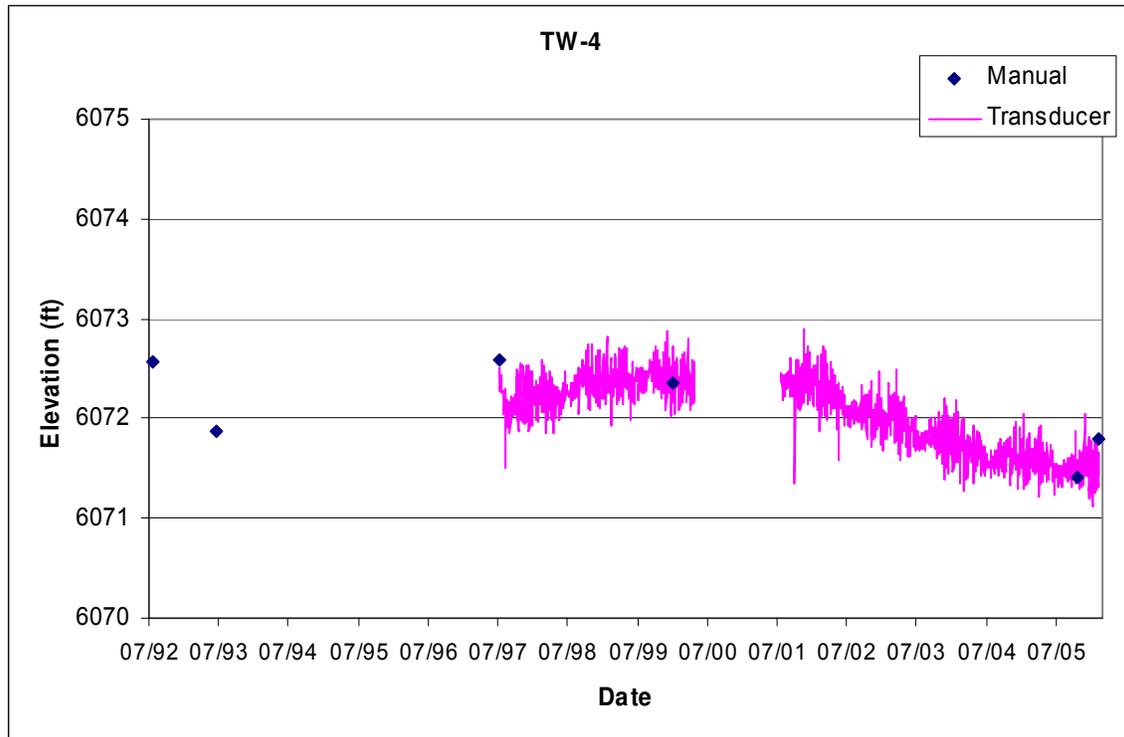
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well drilled in 1950. Transducer installed June 1993 but problems occurred with the transducer; transducer reinstalled July 1997; intermittent data to February 8, 2006.

Remarks: Completed at the top of the regional aquifer at a depth of 1205 ft, about 30 ft into the regional aquifer. Transducer removed February 8, 2006, in preparation for well plugging and abandonment.

TW-4 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1195.0	1205	6049.6	6039.6	10.0			1205.0	6039.6	1205	0.0	0.0	Regional Aquifer

Note: TW-4 Ground Elevation: 7244.56 ft; all depths are from this elevation



3.38 Test Well 8

Location: Middle Mortandad Canyon about 220 ft east of R-1, which was drilled to replace TW-8.

Completion Type: Single completion at the top of the regional aquifer.

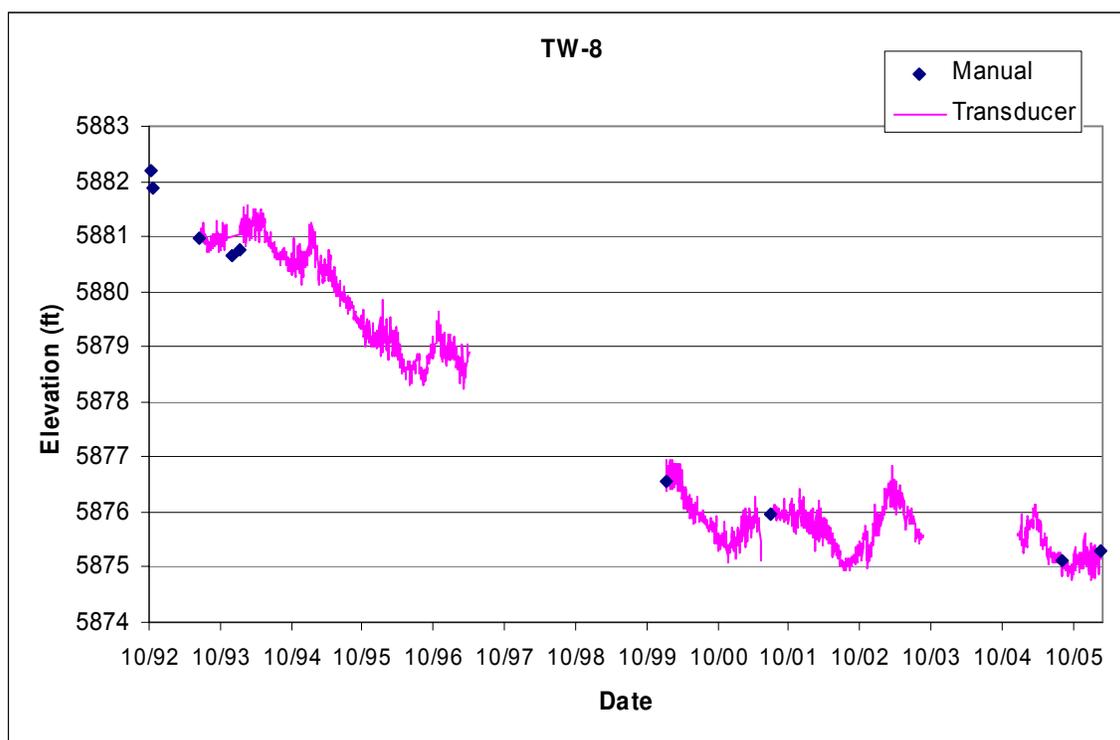
Period of Record: Well drilled in 1960. Transducer installed June 1993; transducer data to March 1997.

Transducer reinstalled January 2000; intermittent data through 2005.

Remarks: TW-3 completed at the top of the regional aquifer at a depth of 1065 ft, about 70 ft into the regional aquifer.

TW-8 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	953.0	1065	5920.5	5808.5	112.0			1065.0	5808.5	1065	0.0	0.0	Regional Aquifer

Note: Ground Elevation: 6873.5 ft; all depths are from this elevation



3.39 Test Well DT-5A

Location: TA-49 near the southern boundary of LANL.

Completion Type: Single completion at the top of the regional aquifer.

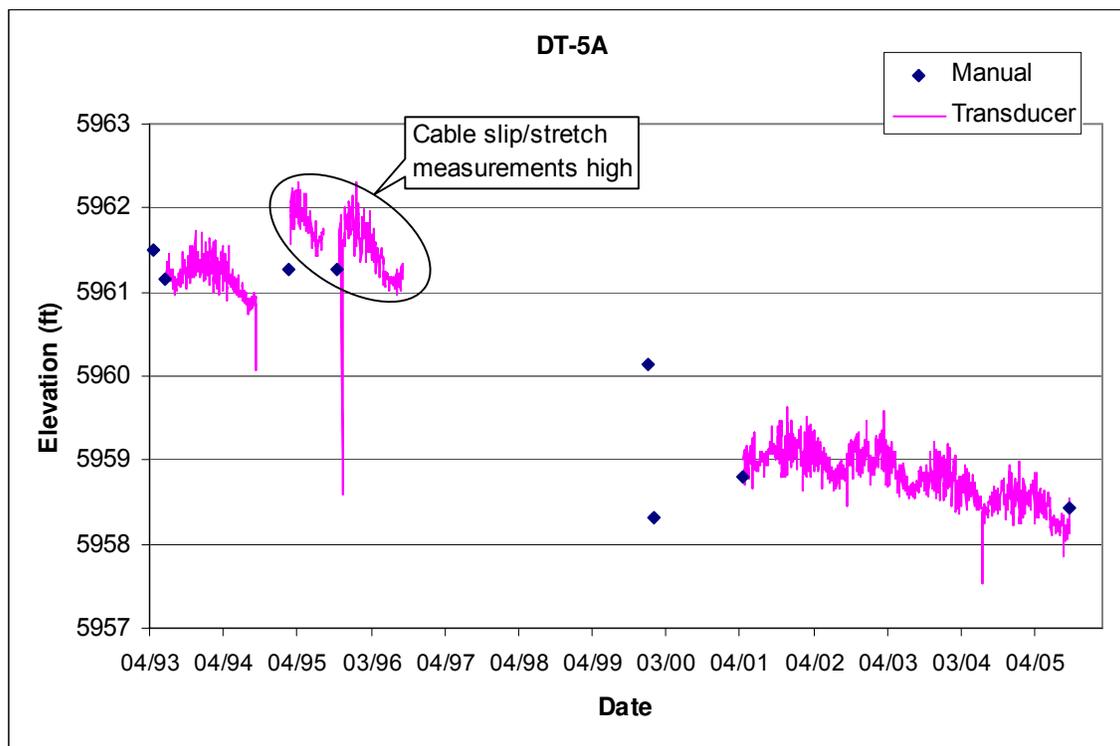
Period of Record: Well drilled in 1960. Transducer installed June 1993; data to September 1996.

Transducer reinstalled January 2000 but equipment problems occurred. Transducer reinstalled April 2001; data to September 20, 2005.

Remarks: DT-5A completed at the top of the regional aquifer at a depth of 1821 ft, about 650 ft into the regional aquifer. The transducer malfunctioned in September 2005, no data until January 2006.

Test Well DT-5A Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1172.0	1821	5971.9	5322.9	649.0		7143.9	1821.0	5322.9	1821	0.0	0.0	Regional Aquifer

Note: Brass Cap Elevation: 7143.86 ft; all depths are from this elevation



3.40 Test Well DT-9

Location: TA-49 near the southern boundary of LANL.

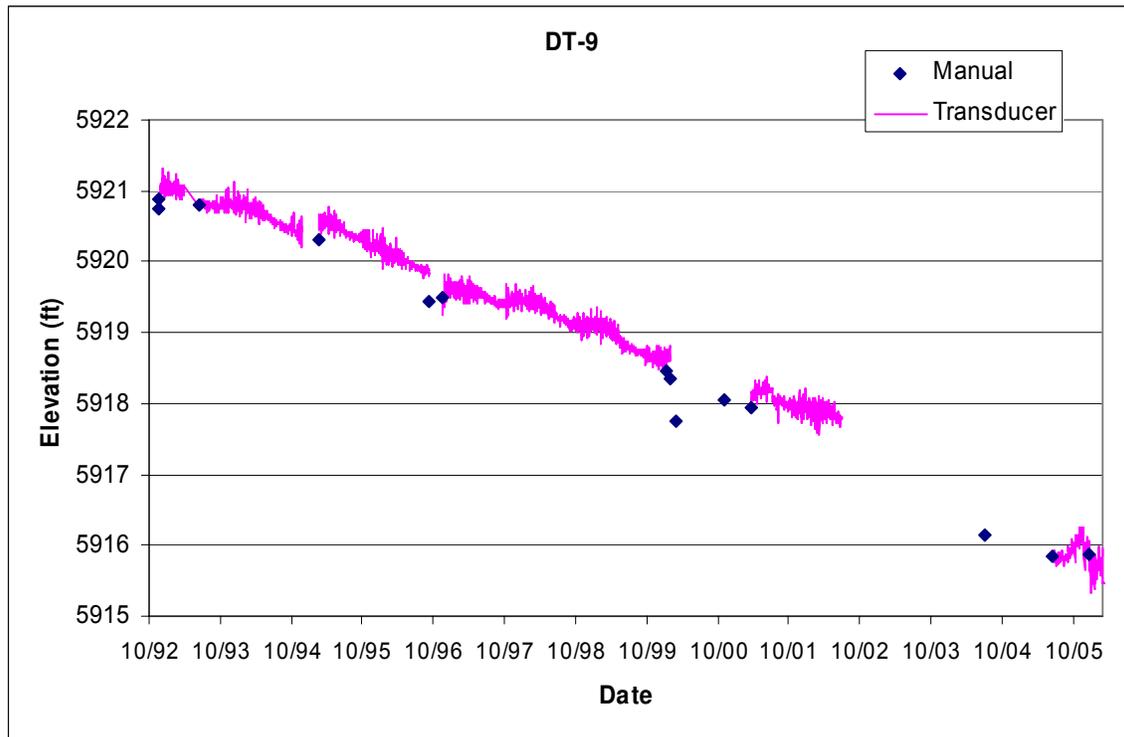
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well drilled in 1960. Transducer installed November 1992; intermittent data to July 2002. Transducer reinstalled June 2005; data through 2005.

Remarks: DT-9 completed at the top of the regional aquifer at a depth of 1501 ft, about 500 ft into the regional aquifer.

Test Well DT-9 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1040.0	1501	5895.0	5434.0	461.0		6935.0	1501.0	5434.0	1501	0.0	0.0	Regional Aquifer

Note: Brass Cap Elevation: 6936 ft; all depths are from this elevation



3.41 Test Well DT-10

Location: TA-49 near the southern boundary of LANL.

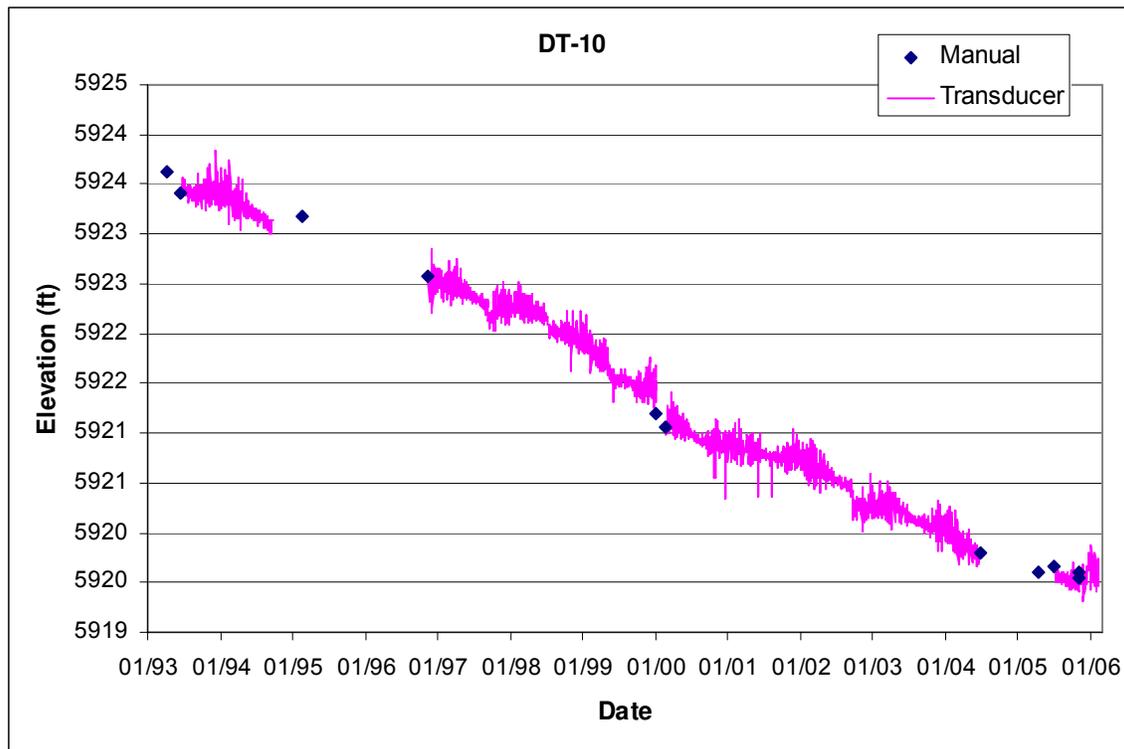
Completion Type: Single completion at the top of the regional aquifer.

Period of Record: Well drilled in 1960. Transducer installed June 1993; intermittent data through 2005.

Remarks: DT-10 completed at the top of the regional aquifer at a depth of 1408 ft, about 300 ft into the regional aquifer.

Test Well DT-10 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	1080.0	1408	5939.9	5611.9	328.0			1408.0	5611.9	1408	0.0	0.0	Regional Aquifer

Note: Ground Elevation: 7019.90 ft; all depths are from this elevation



4.0 Groundwater Level Data from Intermediate Wells

Table 4.1 lists the monitoring wells that specifically monitor intermediate groundwater at LANL, and includes the well name, completed depth, surveyed location coordinates, and the date of completion. Table 4.2 lists the well construction information for the intermediate wells and for regional aquifer wells that have intermediate screens. The table includes information for the depth to the top and bottom of screens, screen casing size, geologic formation where the screen is completed, and whether the well/screen contains intermediate groundwater. The hydrographs for intermediate zones in the multi-completion regional aquifer wells are shown in the previous section.

Figure 4.1 shows the locations of the intermediate wells and regional wells that monitor intermediate groundwater. (Note that multi-completion regional wells that do not contain intermediate groundwater, such as CdV-R-15-3, CdV-R-37-2, and R-31, are not shown in Figure 4.1 because the intermediate screens in these wells are dry.)

Table 4.1. General Information for Intermediate Wells at LANL

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)
90LP-SE-16-02669	3/15/1998	163.4	1612152.57	1763749.00	7583.26
CdV-16-1(i)	11/9/2003	657.8	1615078.20	1764415.20	7382.17
CdV-16-2(i)	12/8/2003	1037.1	1616741.20	1764237.20	7457.11
CdV-16-2(i)r	7/30/2005	863.2	1616673.24	1764219.4	7456.67
CdV-16-3(i)	1/23/2004	Open Hole	1615981.6	1762434.9	7486.8
LADP-3	12/17/1993	326.0	1632989.00	1773469.10	6756.70
LAOI(a)-1.1	10/28/1994	309.8	1629427.38	1773924.51	6835.20
LAOI-3.2	5/1/2005	165.0	1637642.10	1773066.93	6622.60
LAOI-7	9/21/2005	264.9	1644788.53	1771584.11	6458.30
MCOBT-4.4	6/30/2001	545.0	1634196.30	1768513.00	6836.20
MCOI-1	1/9/2005	825.6	1628044.51	1769957.39	7106.20
MCOI-4	11/6/2004	525.7	1634128.53	1768542.01	6837.20
MCOI-5	10/25/2004	699.0	1635247.94	1768300.46	6819.70
MCOI-6	1/13/2005	713.2	1635345.65	1768428.06	6811.10
MCOI-8	1/7/2005	675.0	1633329.74	1769214.40	6859.20
MSC-16-02665	10/23/1997	124.0	1614427.59	1762530.55	7516.92
POI-4	5/1/1996	176.5	1649432.46	1772587.08	6372.29
R-6i	12/20/2004	615.0	1635992.34	1773889.89	6996.90
R-9i	3/10/2000	309.9	1648202.70	1770837.80	6383.20
R-23i	11/10/2005	550.7	1647898.02	1755148.04	6527.88
Test Well 1A	1/11/1950	225.0	1650056.87	1772065.87	6369.28
Test Well 2A	2/7/1950	133.0	1634184.87	1777288.12	6650.40

Table 4.2. Well Completion Information for Intermediate Wells and Screens

Well Name	Screen Common Name	Screen Material	Top of Screen (ft)	Bottom of Screen (ft)	Screen Inside Diameter (in.)	Geologic Unit	Comment
90LP-SE-16-02669	16-02669 Screen #1	PVC	131.5	162.5	2.00	Qbt3	Dry
CdV-16-1(i)	CdV-16-1(i) Screen #1	SS304	624.0	634.0	4.50	Qbo	
CdV-16-2(i)	CdV-16-2(i) Screen #1	SS304	850.2	867.8	4.46	Tp	Dry
CdV-16-2(i)	CdV-16-2(i) Screen #2	SS304	992.0	1015.2	4.46	Tp	Dry
CdV-16-2(i)r	CdV-16-2(i)r Screen #1	SS304	850.0	859.7	4.46	Tpf	
CdV-16-3(i)	Open Borehole	NA	NA	NA	NA	Tt	Regional Aquifer?
CdV-R-15-3	CdV-R-15-3 Screen 1	SS312	617.7	624.5	4.50	Qbo	Dry
CdV-R-15-3	CdV-R-15-3 Screen 2	SS312	800.8	807.8	4.50	Tp	Dry
CdV-R-15-3	CdV-R-15-3 Screen 3	SS312	964.8	980.9	4.50	Tb	Dry
CdV-R-37-2	CdV-R37-2 Screen #1	SS304	914.4	939.5	4.50	Tp	Dry
LADP-3	LADP-3 Screen #1	PVC	316.0	325.0	3.00	Qbog	
LAOI(A)-1.1	LAOI(A)-1.1 Screen #1	PVC	295.2	305.0	3.00	Qbog	
LAOI-3.2	LAOI-3 Screen #1	PVC	153.3	162.8	4.46	Tb	
LAOI-7	LAOI-7 Screen #1	SS304	240.0	259.6	3.00	Tb4	
MCOBT-4.4	MCOBT4.4 Screen #1	SS304	485.4	524.0	4.50	Tpf	
MCOI-1	MCOI-1 Screen #1	SS	815.0	825.5	1.10	Tpf	
MCOI-4	MCOI-4 Screen #1	PVC	498.9	522.0	4.50	Tpf	
MCOI-5	MCOI-5 Screen #1	PVC	689.0	699.0	4.50	Tb	
MCOI-6	MCOI-6 Screen #1	PVC	686.0	708.3	4.50	Tb	
MCOI-8	MCOI-6 Screen #1	PVC	665.0	675.0	4.46	Tb	
MSC-16-02665	16-02665 Screen #1	PVC	93.5	123.5	2.00	Qbt3	Usually dry
POI-4	POI-4 Screen #1	PVC	159.0	174.0	4.00	Tb	
R-12	R-12 Screen #1	SS304	459.0	467.5	4.50	Tb	
R-12	R-12 Screen #2	SS304	504.5	508.0	4.50	Tp	
R-19	R-19 Screen #1	SS304	827.2	843.6	4.50	Qbog	Dry
R-19	R-19 Screen #2	SS304	893.3	909.6	4.50	Tp	
R-23i	R-23i Screen #1	SS304	400.3	420.0	2.10	Tb4	
R-23i	R-23i Screen #2	SS304	470.2	480.1	4.50	Tb4	
R-23i	R-23i Screen #3	SS304	524.0	547.0	4.50	Tb4	
R-25	R-25 Screen #1	SS304	737.6	758.4	5.17	Qbo	
R-25	R-25 Screen #2	SS304	882.6	893.4	5.17	Tp	
R-25	R-25 Screen #3 damaged	SS304	1054.6	1064.6	5.17	Tp	Dry
R-25	R-25 Screen #4	SS304	1184.6	1194.6	5.17	Tp	
R-26	R-26 Screen #1 (Upper)	SS304	643.0	662.0	4.50	Qct	
R-26 PZ-1	R-26 Piezometer Screen #1	PVC	230.0	250.0		Qbt3	Dry
R-26 PZ-2	R-26 Piezometer Screen #2	PVC	150.0	180.0		Qbt3	Dry
R-31	R-31 Screen #1	SS304	439.1	454.4	4.50	Tb	Dry
R-5	R-5 Screen #1	SS304	326.4	331.5	4.50	Tp	Dry
R-5	R-5 Screen #2	SS304	372.8	388.8	4.50	Tp	
R-6i	R-6i Screen #1	SS304	602.0	612.0	4.46	Tpf	
R-7	R-7 Screen #1	SS304	363.2	379.2	4.50	Tp	
R-7	R-7 Screen #2	SS304	730.4	746.4	4.50	Tp	Dry
R-9i	R-9i Screen #1	SS304	189.1	199.5	5.00	Tb	
R-9i	R-9i Screen #2	SS304	269.6	280.3	5.00	Tb	
Test Well 1A	TW-1A Screen #1	CS	215.0	225.0	6.00	Tb	
Test Well 2A	TW-2A Screen #1a	CS	123.0	133.0	6.00	Tp	

Note: SS = stainless steel, PVC = polyvinyl chloride, Qbo = Otowi Member of the Bandelier Tuff, Tp = Puye Formation, Qbo = Otowi Member of the Bandelier Tuff, Qbog = Guaje Pumice member of the Bandelier Tuff, Tpf = fluvial facies of the Puye Formation, Tb = undifferentiated basalt, Tb4 = Cerros del Rio Basaltic Rocks, Qbt3 = Unit 3 of the Tshirege Member of the Bandelier Tuff, Tt = Tschicoma Formation (dacite).

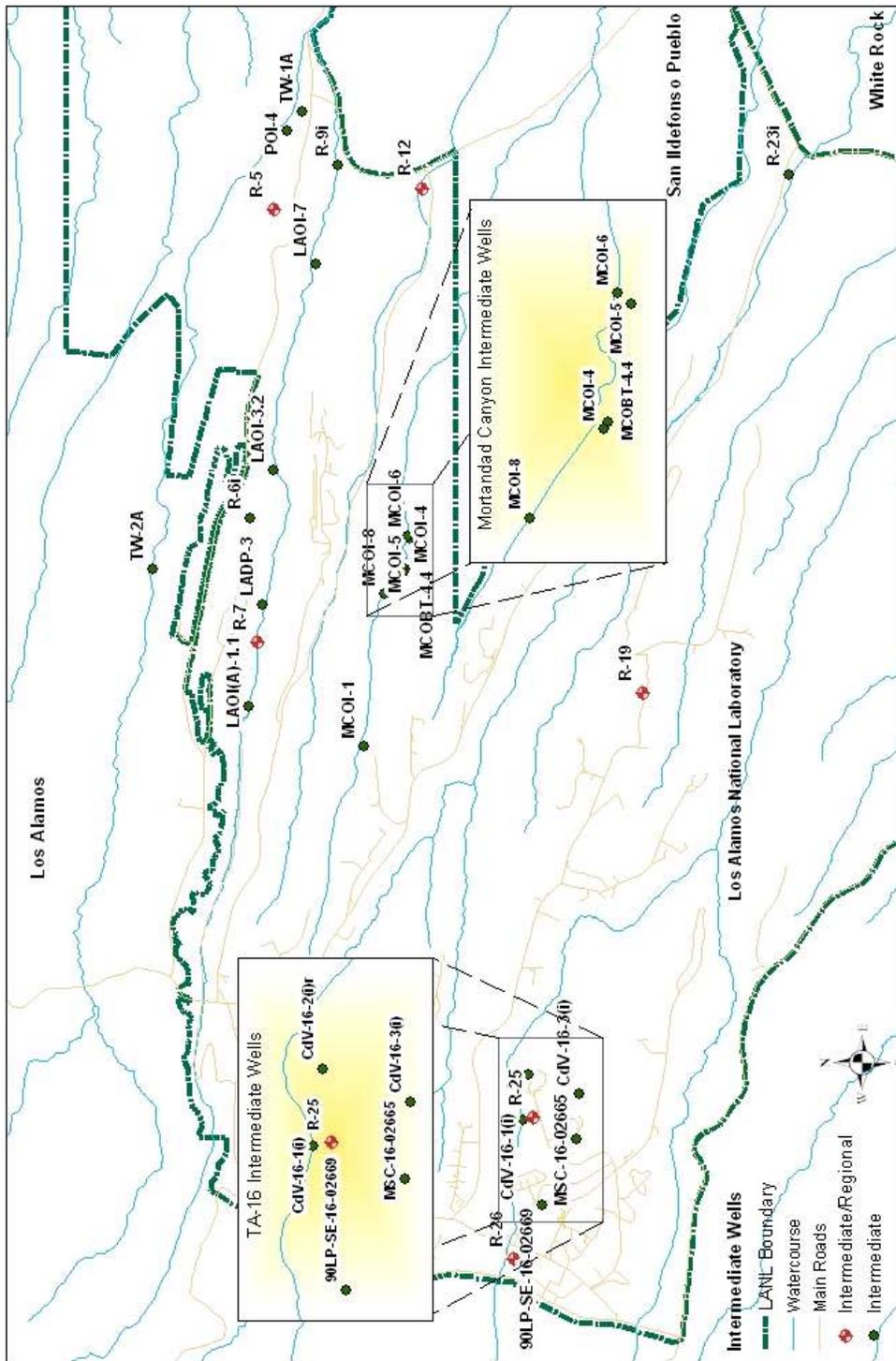


Figure 4.1. Intermediate Monitoring Wells

Following sections include additional port and construction information for single and multiple completion intermediate wells at LANL. Time series water level data for each well are shown.

4.1 90LP-SE-16-0229

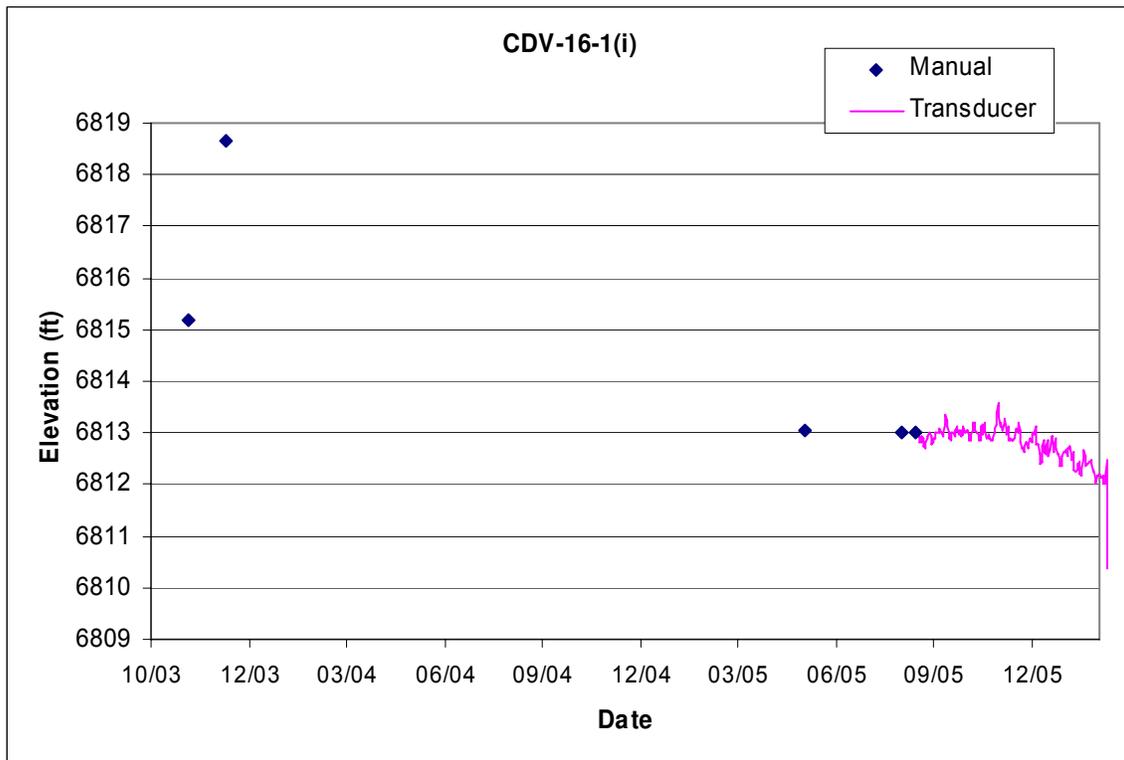
Location: TA-16 downgradient of the 90LP Pond.
 Completion Type: Single completion in an intermediate zone in Unit 3 of the Bandelier Tuff.
 Period of Record: Well drilled in March 1998; periodic measurements through 2005.
 Remarks: The borehole contained water at the completion of drilling, but since completion of the well no water has been observed in the well.

4.2 CdV-16-1(i)

Location: TA-16 downgradient of the TA-6-260 outfall.
 Completion Type: Single completion in an intermediate zone.
 Period of Record: Well drilled in 2003. Transducer installed September 2005; data through 2005.
 Remarks: Well completed in an intermediate zone in the Otowi Member of the Tshirege Formation; well has about 65 ft of water above the bottom of the screen.

CDV-16-1(i) Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	624.0	634	6758.2	6748.2	10.0	618.8	6763.4	634.0	6748.2	657.8	23.8	73.1	Intermediate Zone

Note: CDV-16-1(i) Ground Elevation: 7382.17 ft; all depths are from this elevation



4.3 CdV-16-2(i)

Location: TA-16 downgradient of the TA-6-260 outfall.

Completion Type: Dual screen completion in possible intermediate zones in the Puye Formation.

Screens apparently were not placed at the zones of intermediate saturation or well construction prevents water recharge to the well.

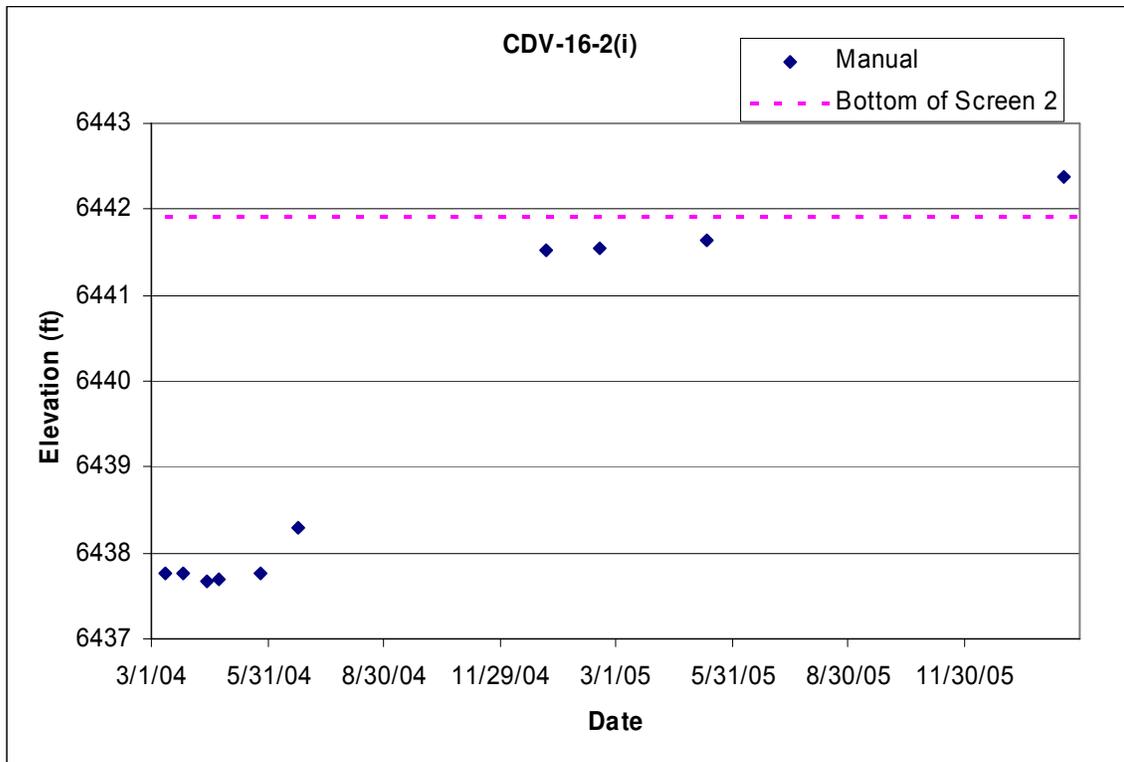
Period of Record: Well drilled in 2003; periodic manual measurements through 2005.

Remarks: Well completed in intermediate zones that have been dry since the well was completed.

Water has usually been measured in the sump below the bottom of the lower screen. Well replaced with CdV-16-2(i)r in 2005.

CDV-16-2(i) Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	850.2	867.8	6606.9	6589.3	17.6			867.8	6589.3	1037.1	169.3	520.1	Intermediate Zone
2	992.0	1015.2	6465.1	6441.9	23.2			1015.2	6441.9	1037.1	21.9	67.3	Regional Aquifer

Note: CDV-16-2(i) Ground Elevation: 7457.11 ft; all depths are from this elevation



4.4 CdV-16-2(i)r

Location: TA-16 downgradient of the TA-6-260 outfall.

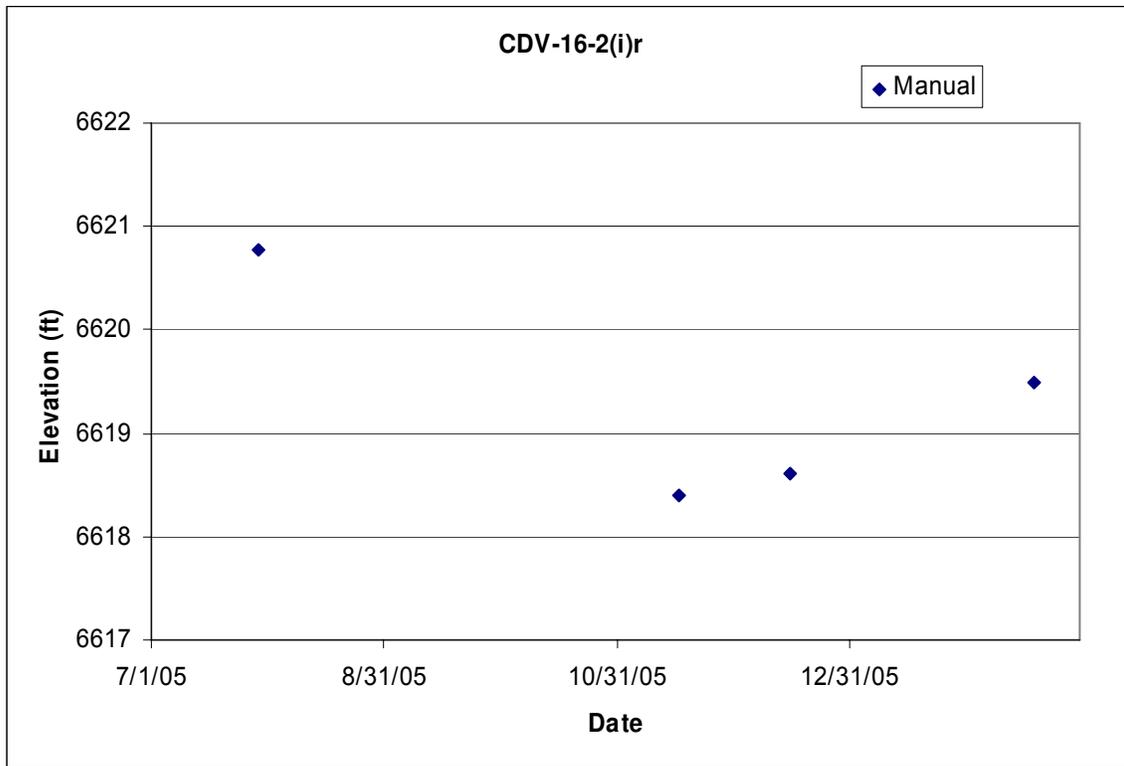
Completion Type: Single completion in intermediate zone in the Puye Formation.

Period of Record: Well completed in July 2005. Periodic manual measurements in 2005; a transducer was installed February 16, 2006.

Remarks: Well replaces CdV-16-2(i). Well has about 20 ft of water above bottom of screen.

CDV-16-2(i)r Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	850.0	859.7	6606.7	6597.0	9.7	855.12	6601.6	859.7	6597.0	863.2	3.5	10.8	Intermediate Zone

Note: Ground Elevation: 7456.67 ft; all depths are from this elevation



4.5 CdV-16-3(i)

Location: TA-16 downgradient of the TA-6-260 outfall.

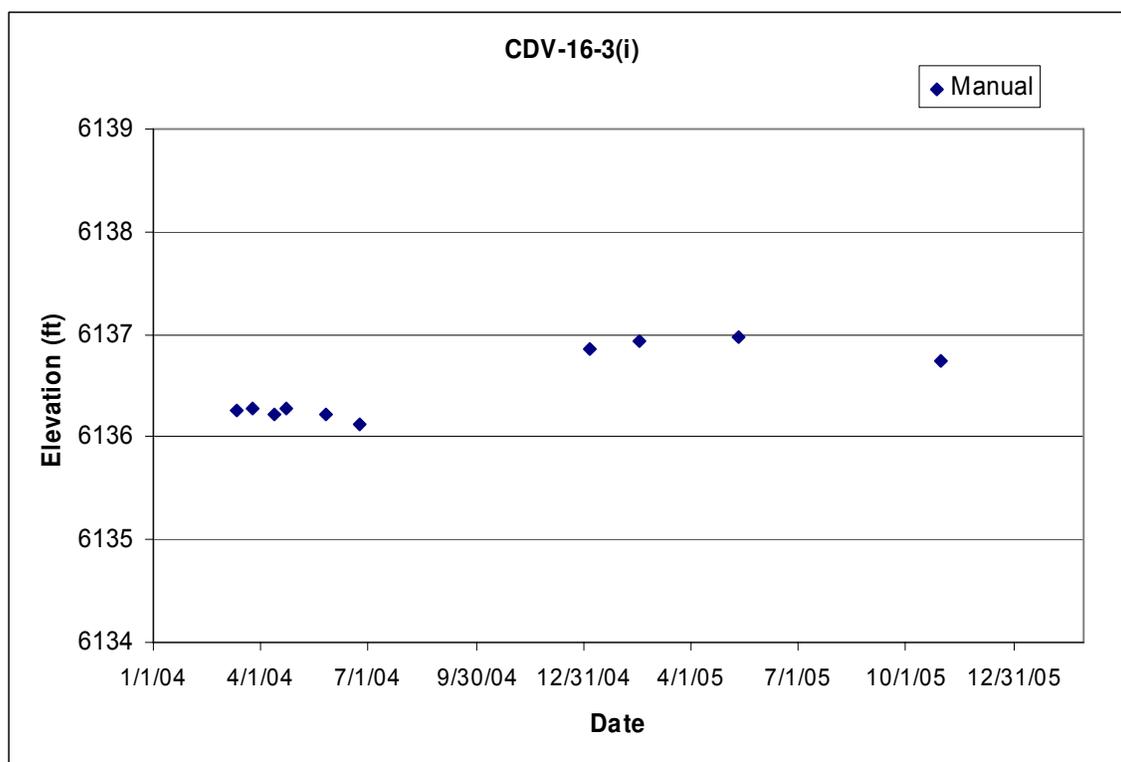
Completion Type: Open borehole, well not installed.

Period of Record: Well drilled in 2004; periodic manual measurements through 2005.

Remarks: Water not present in borehole when drilling was completed, since January 2004, the borehole has contained about 40 ft of water. Note that the water level is similar to the top of the regional aquifer at CdV-R-37-2.

CDV-16-3(i) Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Borehole Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1					0.0					1390		0.0	Regional Aquifer

Note: Mag Nail Ground Elevation: 7486.4 ft; all depths are from this elevation;
Well not completed, open borehole with surface pad and protective casing



4.6 LADP-3

Location: Middle Los Alamos Canyon.

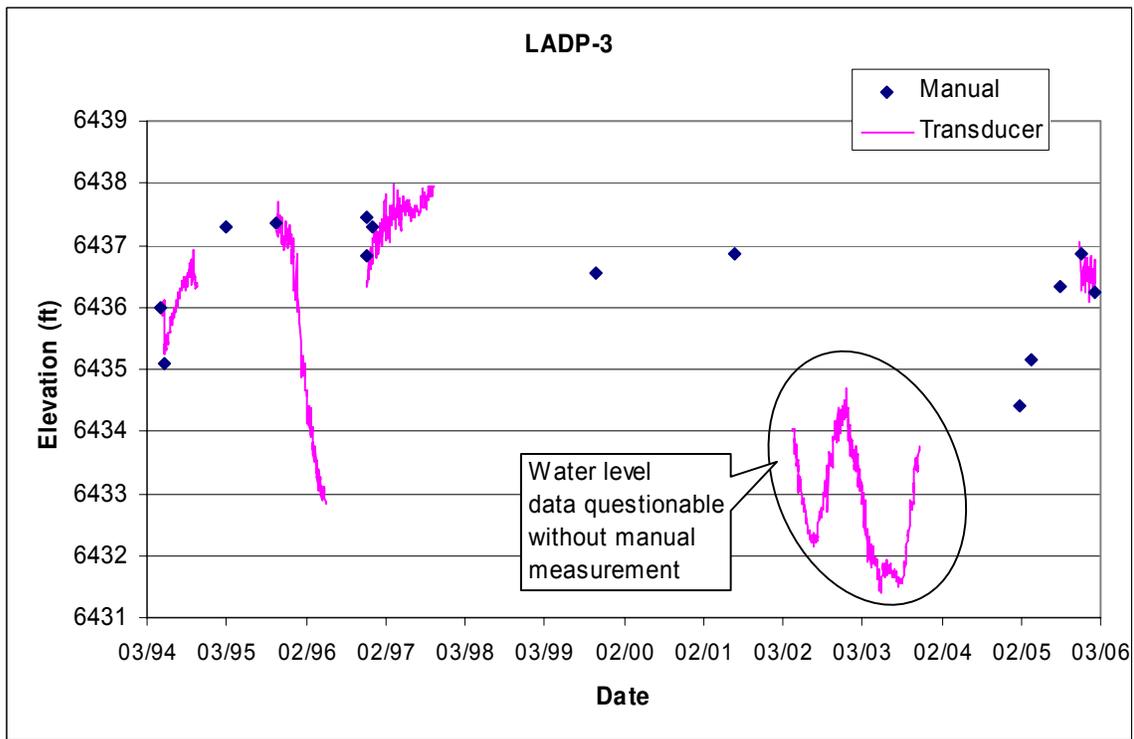
Completion Type: Single completion in an intermediate zone in the Guaje Pumice bed.

Period of Record: Well drilled in 1993. Transducer installed May 1994; intermittent transducer data through 2005.

Remarks: Transducer is installed above the bladder pump. No manual measurement available for April 2002 transducer installation, data from April 2002 to November 2003 questionable.

LADP-3 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	316.0	326	6440.7	6430.7	10.0			326.0	6430.7	326	0.0	0.0	Intermediate Zone

Note: LADP-3 Ground Elevation: 6756.7 ft; all depths are from this elevation



4.7 LAOI(a)-1.1

Location: Middle Los Alamos Canyon downstream of TA-2 and TA-41.

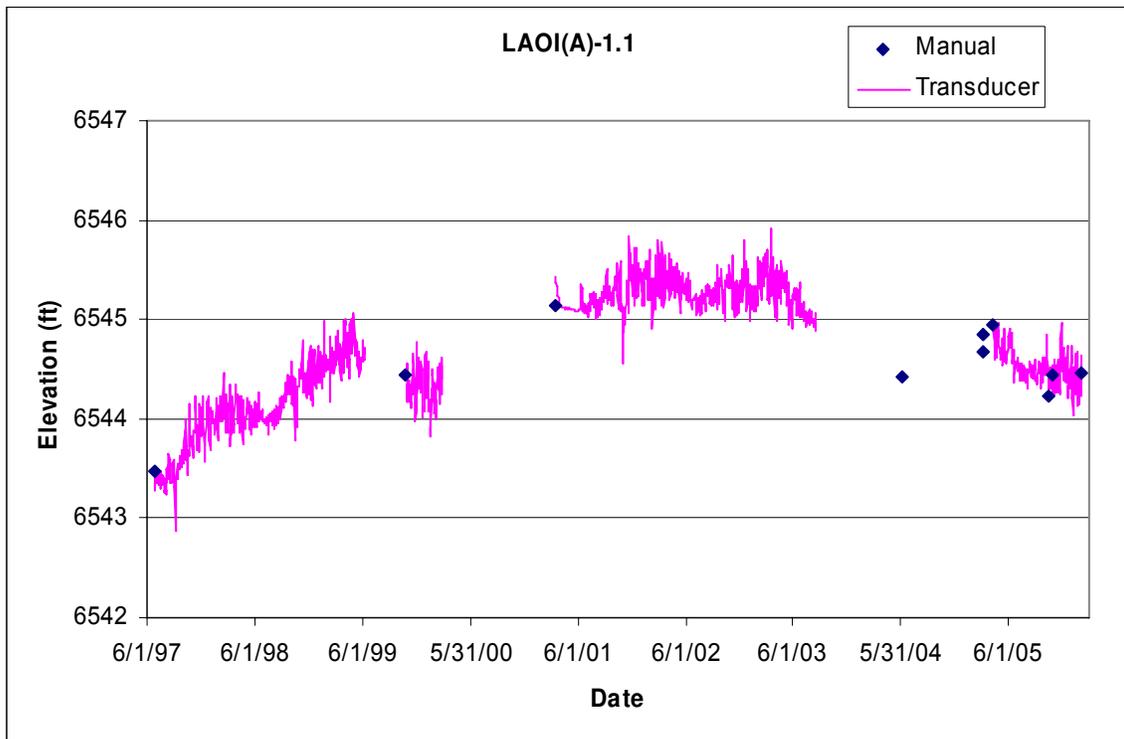
Completion Type: Single completion in an intermediate zone in the Guaje Pumice bed.

Period of Record: Well drilled in 1994. Transducer installed June 1997; intermittent transducer data through 2005.

Remarks: None.

LAOI(A)-1.1 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	295.2	305	6540.0	6530.2	9.8		6835.2	305.0	6530.2	309.8	4.8	6.7	Intermediate Zone

Note: LAOI(A)-1.1 Ground Elevation: 6835.2 ft; all depths are from this elevation



4.8 LAOI-3.2

Location: Middle Los Alamos Canyon at the confluence with DP Canyon.

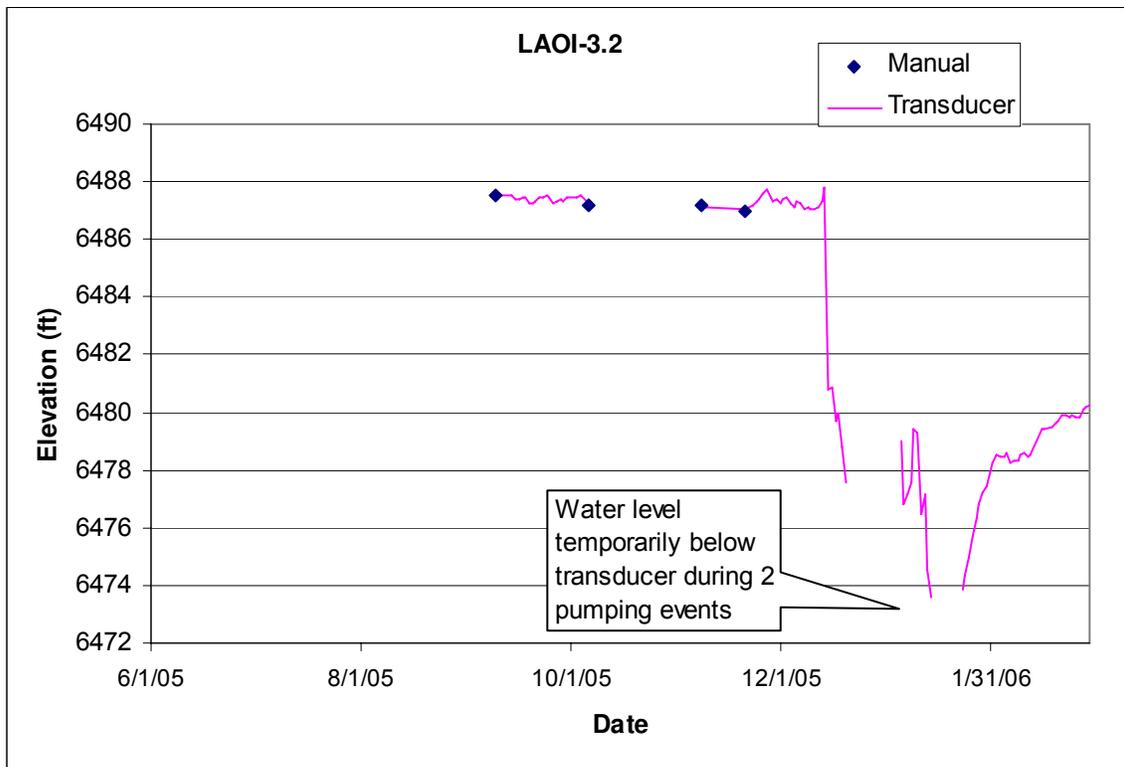
Completion Type: Single completion in an intermediate zone in basalt.

Period of Record: Well completed in May 2005. Transducer installed September 2005; transducer data through 2005.

Remarks: Preliminary water level data are subject to change when the well completion report is finalized. The transducer was removed in October 2005 for pump installation. The transducer was reinstalled in November 2005 above the pump. The water level declined below the level of the transducer for a time during pumping of the well in December 2005.

LAOI-3.2 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	153.3	162.83	6469.3	6459.8	9.5	618.8	6003.8	162.8	6459.8	165.03	2.2	1.4	Intermediate Zone

Note: Ground Elevation: 6622.6 ft; all depths are from this elevation



4.9 LAOI-7

Location: Middle Los Alamos Canyon about 0.75 mile upstream of R-9i.

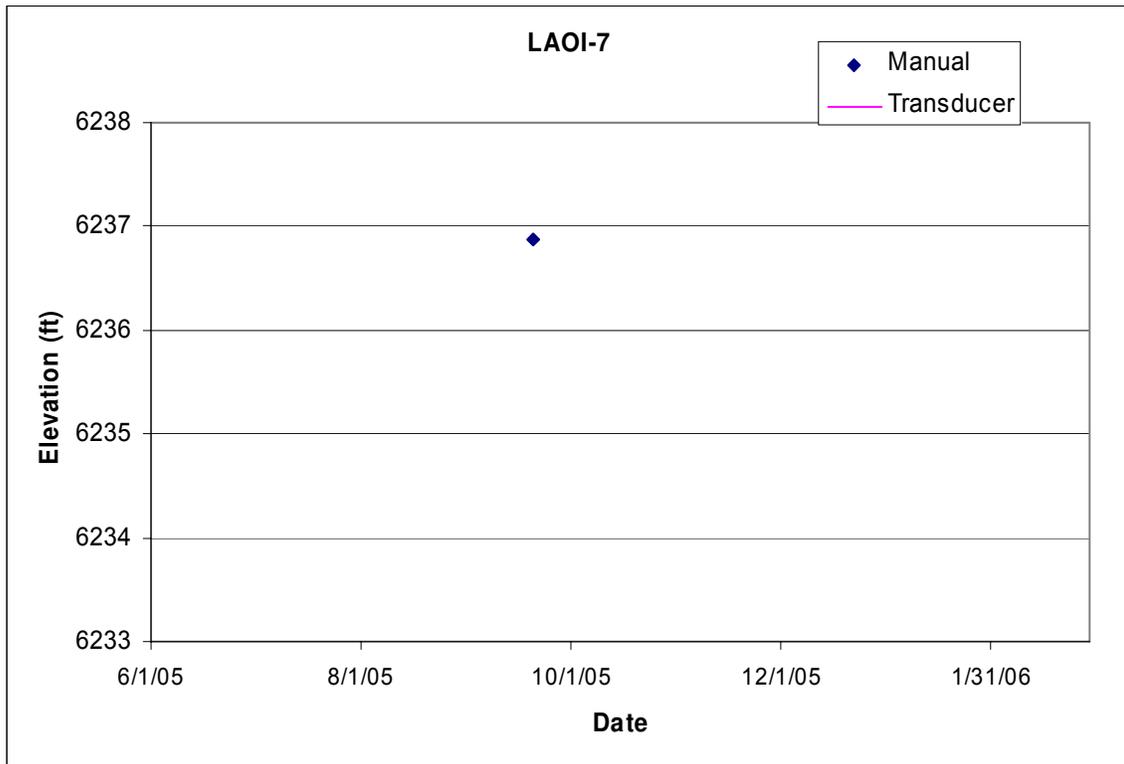
Completion Type: Single completion in an intermediate zone in basalt.

Period of Record: Well completed in September 2005. Transducer not installed as of December 31, 2005.

Remarks: The water level at the completion of well construction was 221.48 ft below ground surface at an elevation of 6236.87 ft, which was about 18.5 ft above the top of the screen.

LAOI-7 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	240.0	259.6	6218.4	6198.8	19.6	240	6218.4	259.6	6198.8	264.9	5.3	7.4	Intermediate Zone

Note: Brass Cap Elevation: 6458.35 ft; all depths are from this elevation



4.10 MCOBT-4.4

Location: Lower Mortandad Canyon near the confluence with Ten Site Canyon.

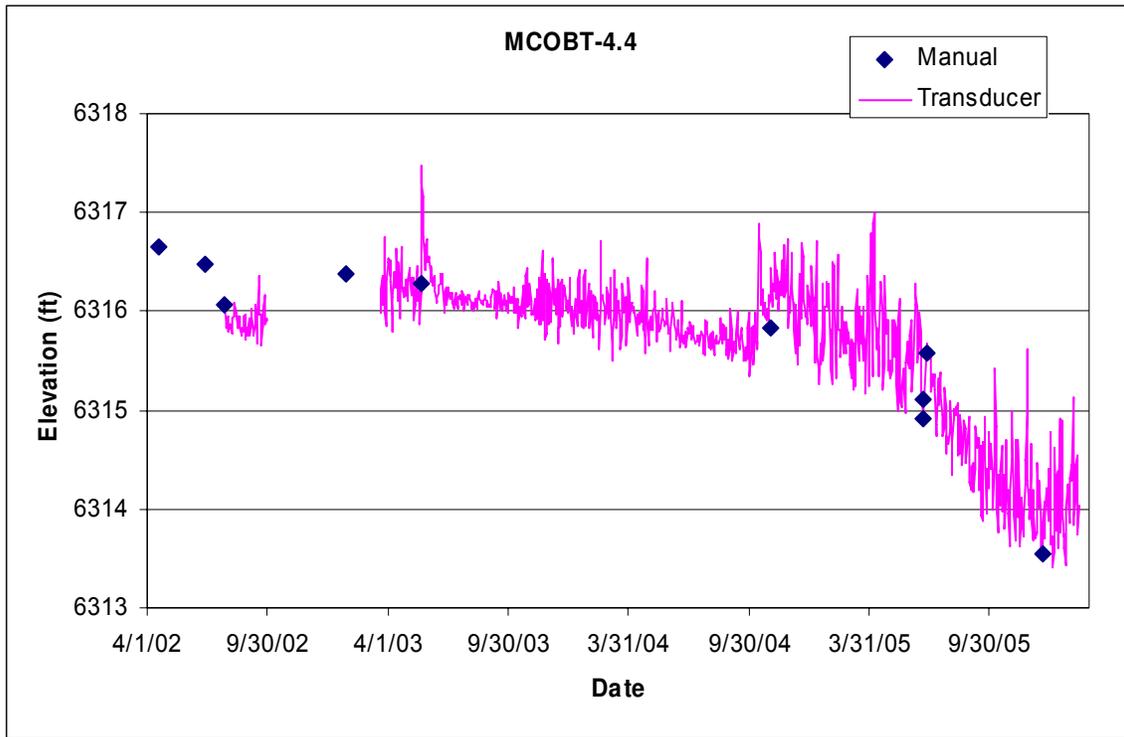
Completion Type: Single completion at the base of the Puye Formation fanglomerate member and the top of basalt.

Period of Record: Well completed in June 2001. Transducer installed July 2002; intermittent data through 2005.

Remarks: MCOI-4 is located about 70 ft west of MCOBT-4.4.

MCOBT-4.4 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	485.4	524	6350.8	6312.2	38.6	524	6312.2	524.0	6312.2	545	21.0	64.5	Intermediate Zone

Note: Brass Cap Elevation: 6836.18 ft; all depths are from this elevation



4.11 MCOI-1

Location: Adjacent to upper Mortandad Canyon below the confluence with Effluent Canyon.

Completion Type: Single completion in the Puye Formation.

Period of Record: Well completed in January 2005; periodic manual checks for water through 2005.

Remarks: MCOI-1 was dry when completed and has not contained water during periodic checks.

MCOI-1 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	815.0	825.5	6291.2	6280.8	10.5		7106.2	825.5	6280.8	825.58	0.1	0.0	Intermediate Zone

Note: Ground Elevation: 7106.20 ft; all depths are from this elevation

4.12 MCOI-4

Location: Lower Mortandad Canyon near the confluence with Ten Site Canyon and about 65 ft upstream of MCOBT-4.4.

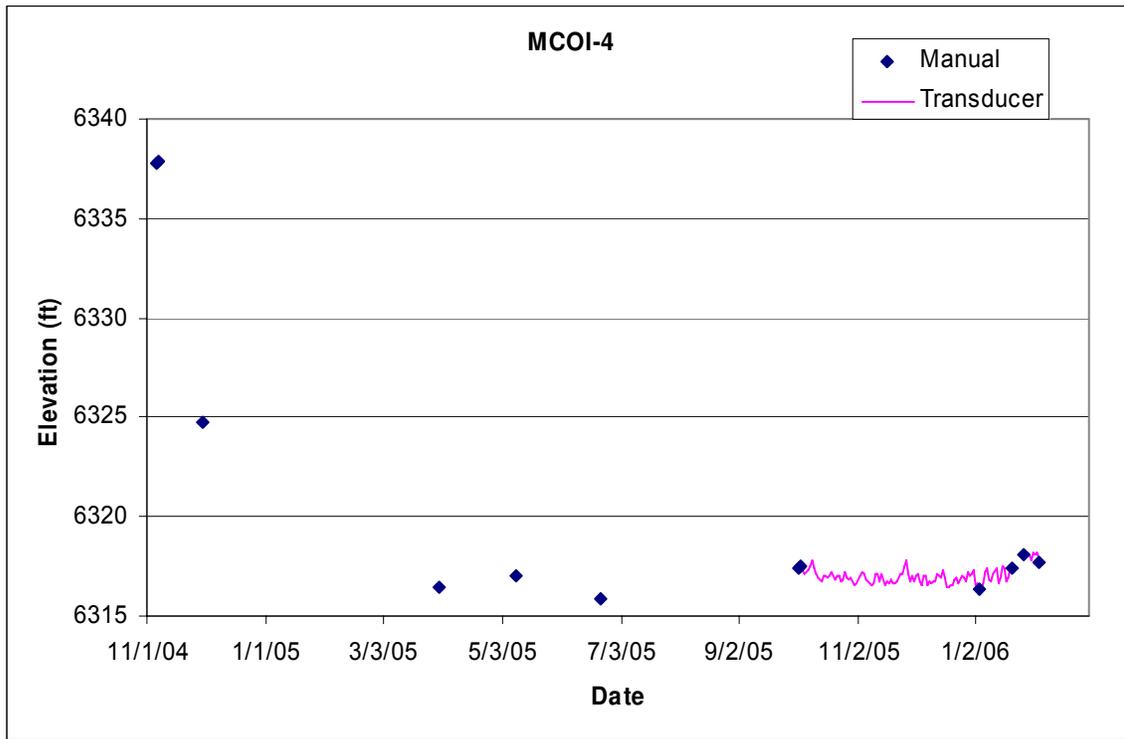
Completion Type: Single completion at the base of the Puye Formation fanglomerate member and the top of basalt.

Period of Record: Well completed in November 2004. Transducer installed October 2005; data through 2005.

Remarks: The water level in MCOI-4 is 2 to 3 ft higher than in adjacent well MCOBT-4.4.

MCOI-4 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	499.0	522.0	6338.2	6315.2	23.0		6837.2	522.0	6315.2	525.7	3.7	11.6	Intermediate Zone

Note: Ground Elevation: 6837.20 ft; all depths are from this elevation



4.13 MCOI-5

Location: Lower Mortandad Canyon near regional aquifer well R-15.

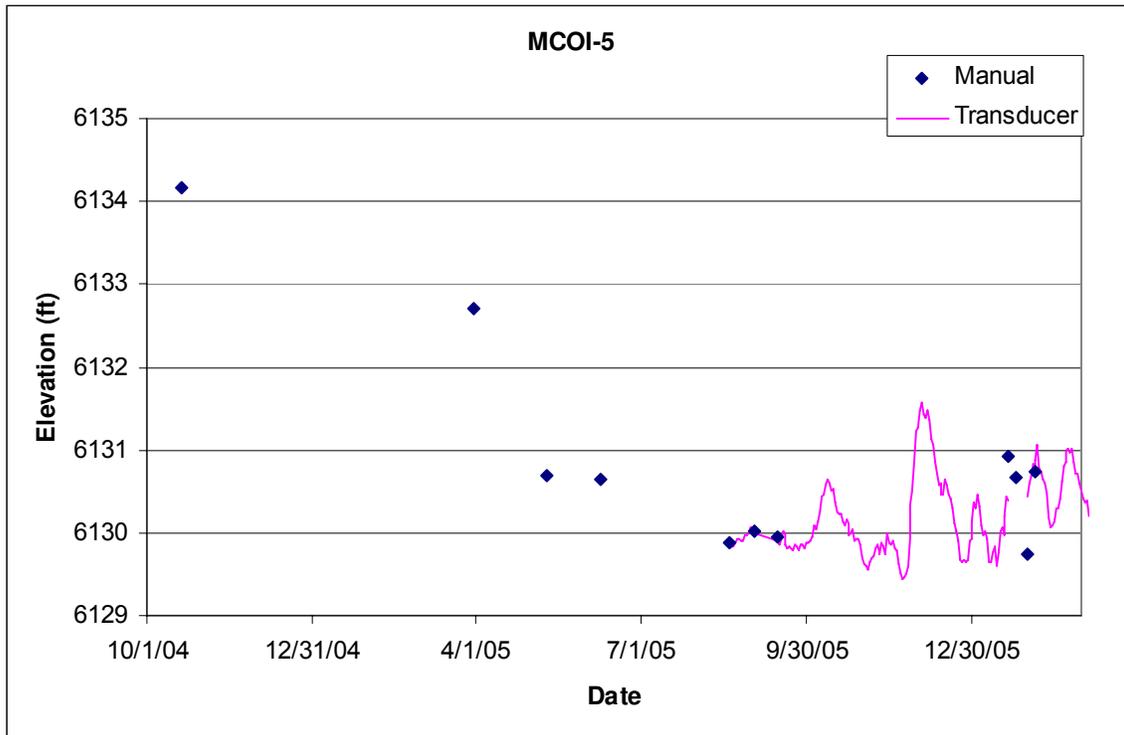
Completion Type: Single completion in basalt.

Period of Record: Well completed in October 2004. Transducer installed August 2005; data through 2005.

Remarks: The transducer removed for sampling by bailing in 2005. Pump installed March 2006.

MCOI-5 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	689.0	699.0	6130.7	6120.7	10.0			699.0	6120.7	702.7	3.7	11.6	Intermediate Zone

Note: Brass cap elevation: 6837.20 ft; all depths are from this elevation



4.14 MCOI-6

Location: Lower Mortandad Canyon about 160 ft northeast of MCOI-5.

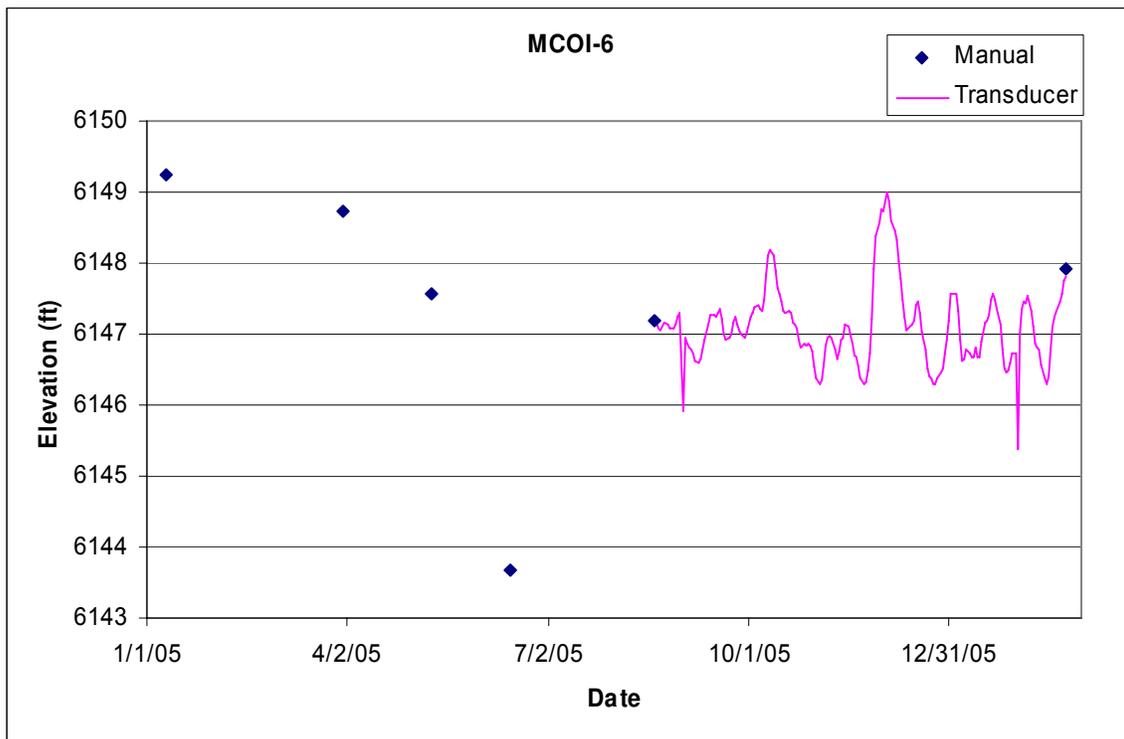
Completion Type: Single completion in basalt.

Period of Record: Well completed in January 2005. Transducer installed August 2005; data through 2005.

Remarks: Water level is about 20 ft above the top of the screen.

MCOI-6 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	686.0	708.3	6125.1	6102.8	22.3			708.3	6102.8	713.2	4.9	15.3	Intermediate Zone

Note: Brass cap elevation: 6811.10 ft; all depths are from this elevation



4.15 MCOI-8

Location: Lower Mortandad Canyon above the confluence with Ten Site Canyon.

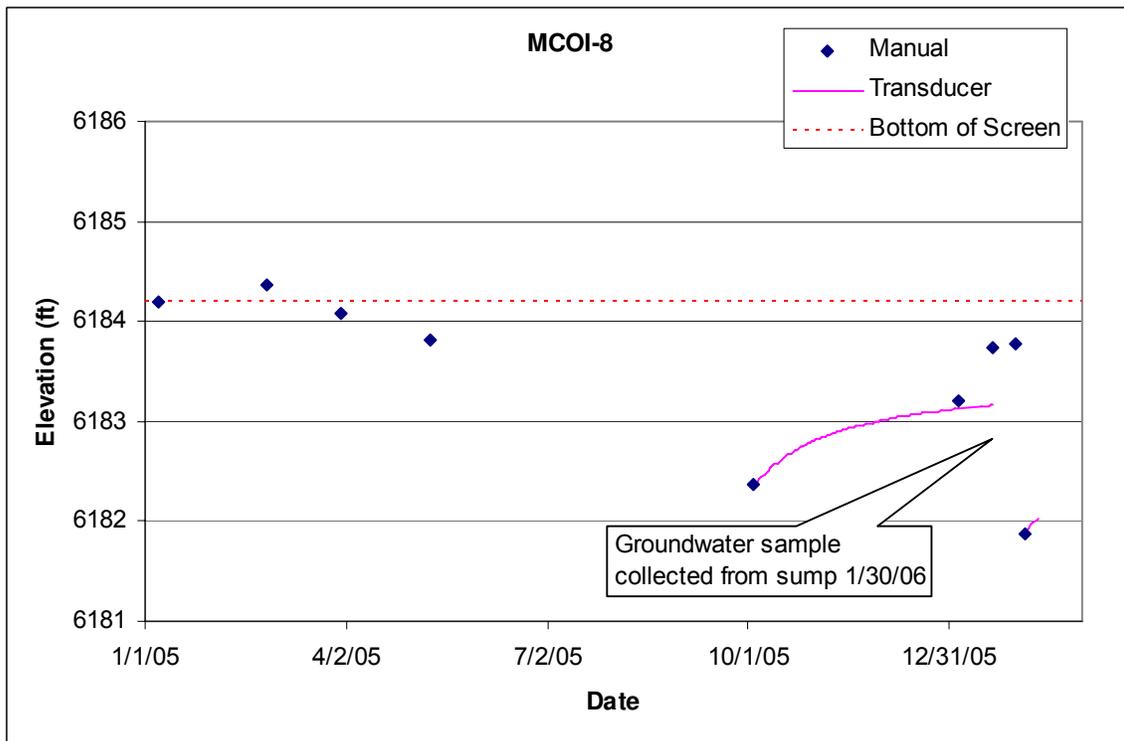
Completion Type: Single completion in basalt.

Period of Record: Well completed in January 2005. Transducer installed August 2005; data through 2005.

Remarks: Since well completion water has been measured in the sump of the well.

MCOI-8 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	665.0	675.0	6194.2	6184.2	10.0			675.0	6184.2	678.6	3.6	11.4	Intermediate Zone

Note: Ground Elevation: 6859.20 ft; all depths are from this elevation



4.16 MSC-16-02665

Location: TA-16 at the head of Martin Spring Canyon (S-Site Canyon) and about 1500 ft west of CdV-16-3(i) and about 700 ft northwest of Martin Spring.

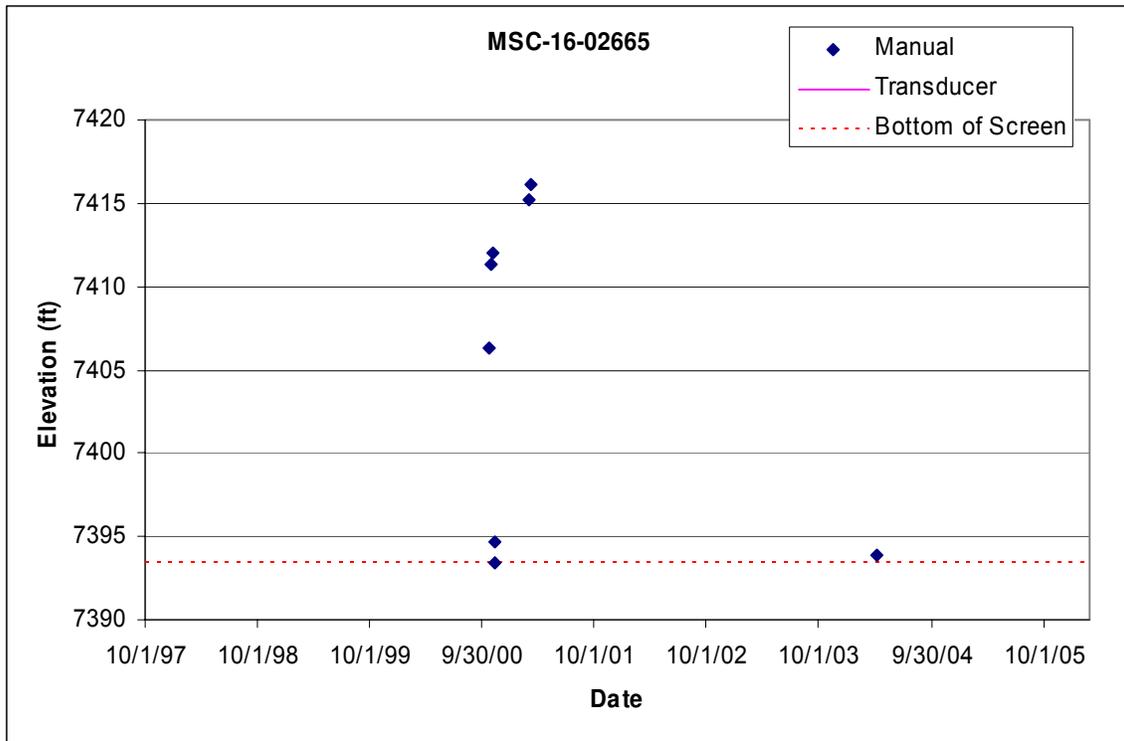
Completion Type: Single completion in Unit 3 of the Bandelier tuff.

Period of Record: Well completed in October 1997. No transducer has been installed; periodic manual measurements through 2005.

Remarks: MSC-16-02665 has usually been dry; water has been observed in the well after heavy precipitation periods and snowmelt runoff (LANL 2003, p. 4-58).

MSC-16-02665 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	93.5	123.5	7423.4	7393.4	30.0			123.5	7393.4	124	0.5	0.3	Intermediate Zone

Note: Ground Elevation: 7516.92 ft; all depths are from this elevation



4.17 POI-4

Location: Lower Pueblo Canyon about 800 ft upstream of TW-1 and about 370 ft north of supply well O-1.

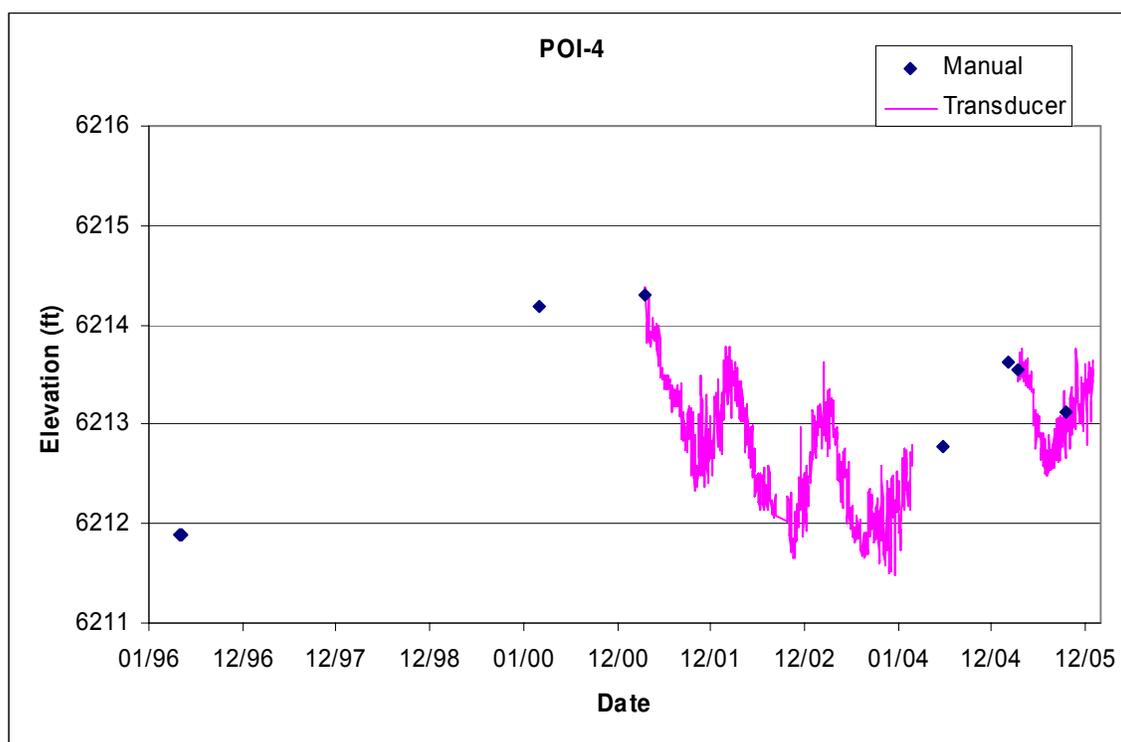
Completion Type: Single completion in basalt.

Period of Record: Well completed in 1996. Transducer installed April 2001; intermittent data through 2005.

Remarks: None.

POI-4 Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	159.0	174	6213.3	6198.3	15.0	173	6199.3	174.0	6198.3	176.5	2.5	6.2	Intermediate Zone

Note: Ground Elevation: 6372.29 ft; all depths are from this elevation



4.18 R-6i

Location: At the eastern extent of DP Mesa near the confluence of DP Canyon and Los Alamos Canyon.

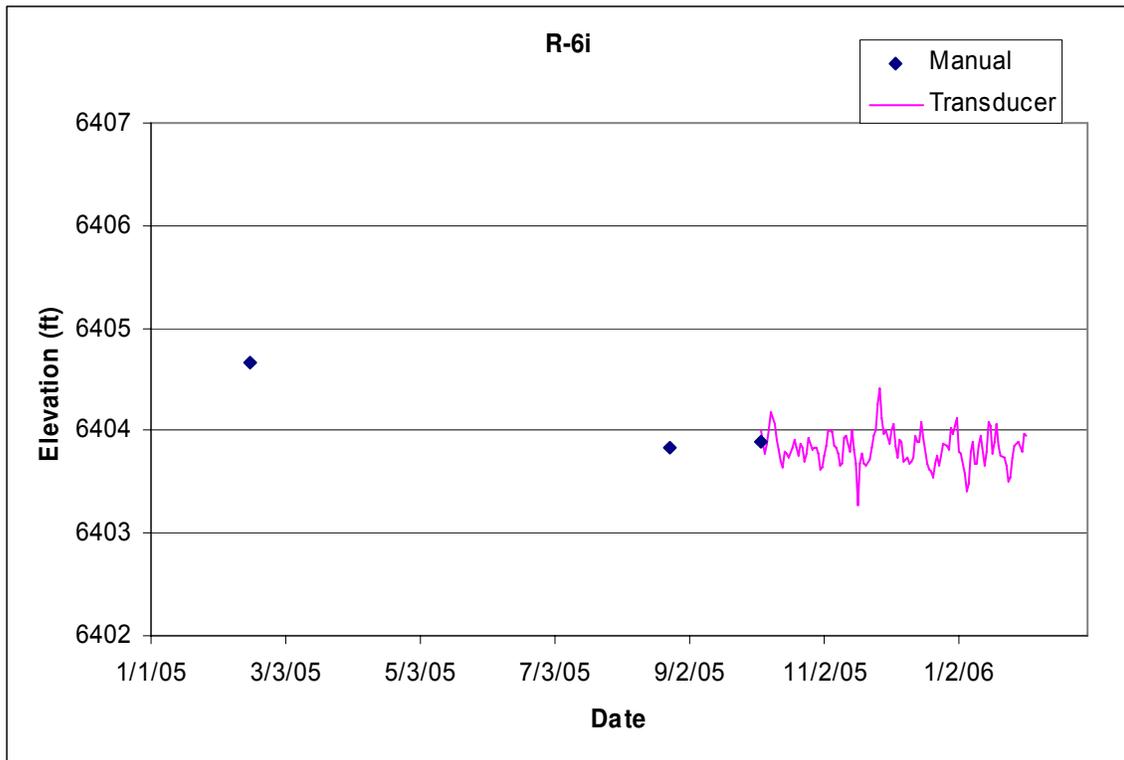
Completion Type: Single completion in the Puye Formation fanglomerate member.

Period of Record: Well completed December 2004. Transducer installed October 2005; data through 2005.

Remarks: None.

R-6i Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	602.0	612	6394.9	6384.9	10.0		6996.9	612.0	6384.9	615	3.0	9.2	Regional Aquifer

Note: Brass Cap Ground Elevation: 6996.9 ft; all depths are from this elevation



4.19 R-9i

Location: At the eastern extent of DP Mesa near the confluence of DP Canyon and Los Alamos Canyon.

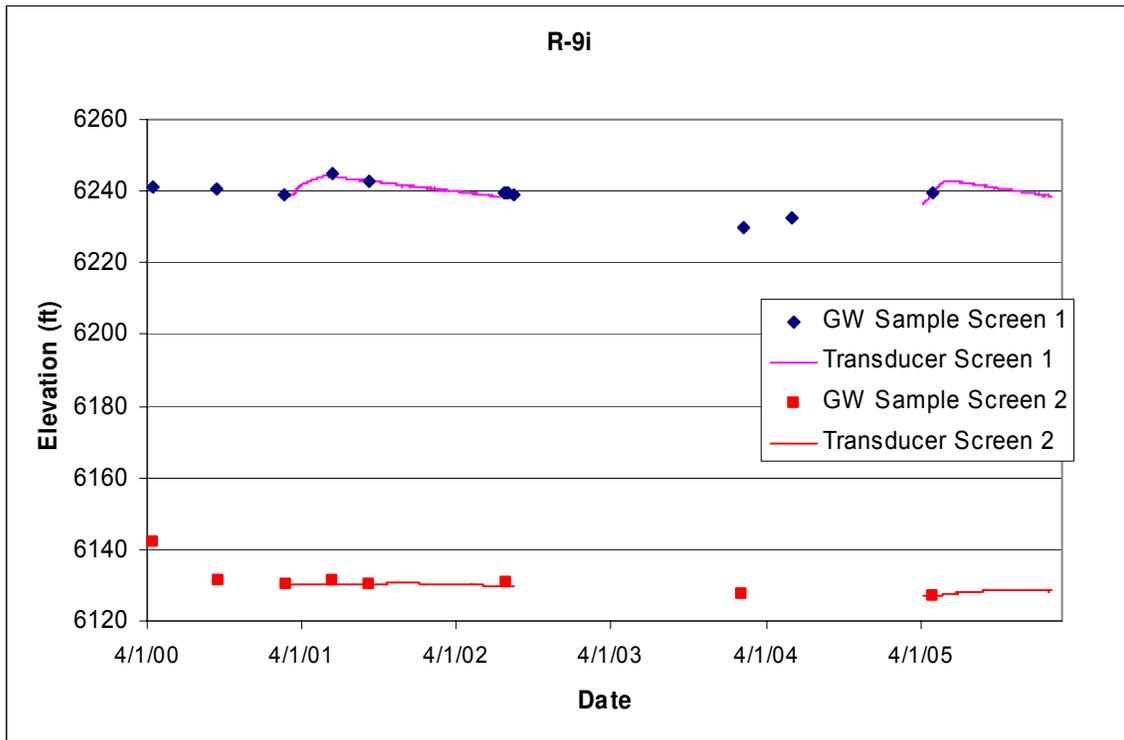
Completion Type: Dual Westbay® completion; both screens in basalt.

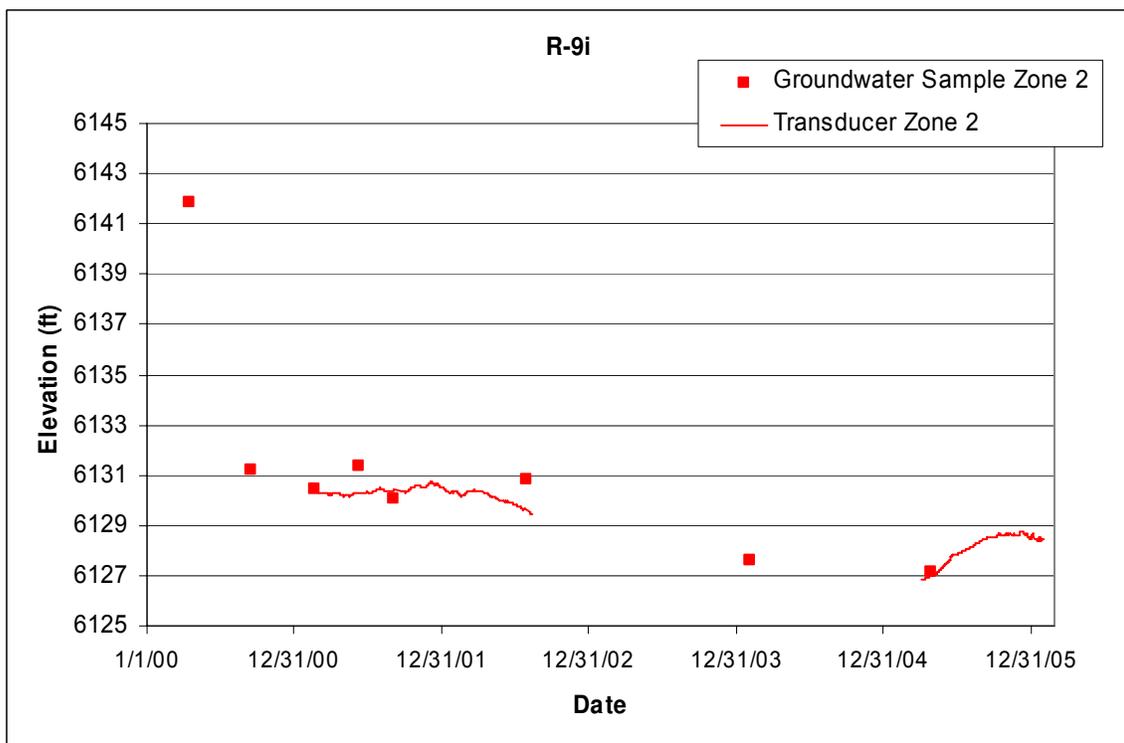
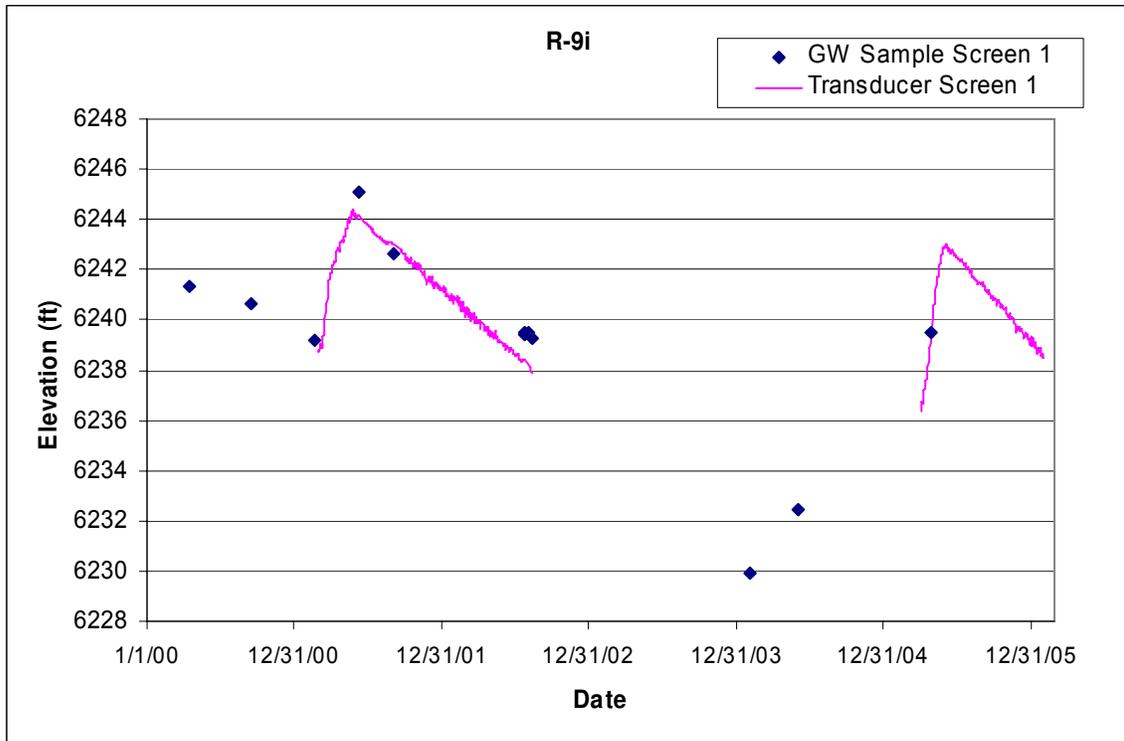
Period of Record: Well completed March 2000. Transducers installed March 2001; intermittent data through 2005.

Remarks: The screens are about 70 ft apart and the heads in the two intermediate zones are about 110 ft apart.

R-9i Port Data											
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	189.1	199.5	6194.1	6183.7	10.4	MP1A	198.8	6184.4	0.7		Intermediate Zone
						PP1	204.1	6179.1	-4.6	13.3	Below screen
						MP1B	209.8	6173.4	-10.3	29.8	Below screen
2	269.6	280.3	6113.6	6102.9	10.7	MP2A	278.8	6104.4	1.5		Intermediate Zone
						PP2	284.1	6099.1	-3.8	11.0	Below screen
						MP2B	289.8	6093.4	-9.5	27.5	Below screen

Note: Brass Cap Elevation is 6383.2 ft; all measurements are from this elevation;
 MP = Monitoring Port, PP = Pumping Port; Ports shown in Bold are instrumented with transducers





4.20 R-23i

Location: Lower Pajarito Canyon near SR-4 and adjacent to regional well R-23.

Completion Type: Multiple completion; three screens, one screen in a 2-in.-diameter well and two screens in a 4-in.-diameter well. All screens are in basalt.

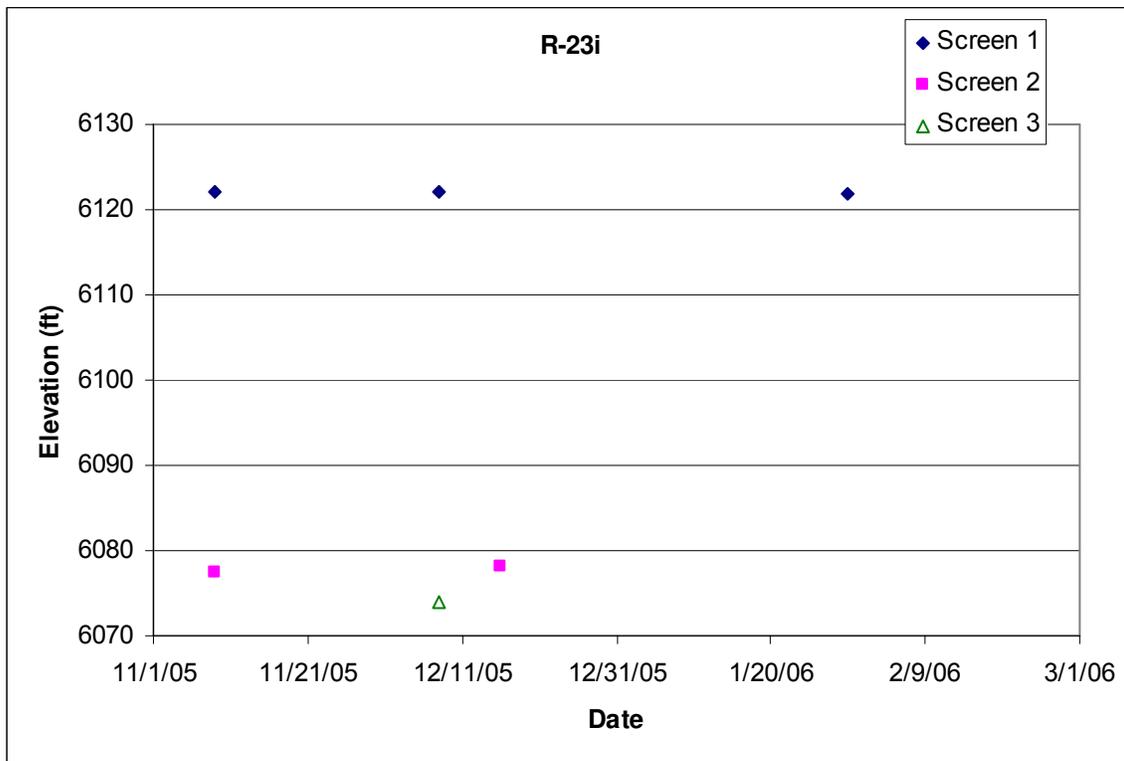
Period of Record: Well completed November 2005. Manual measurements at well completion.

Transducers not installed as of March 2006.

Remarks: Screens 2 and 3 have similar head; head at screen 1 is about 45 ft higher than screen 2.

R-23i Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	400.3	420.0	6127.6	6107.9	19.7			420.0	6107.9	425.3	5.3	16.6	Intermediate
2	470.2	480.1	6057.7	6047.8	9.9			480.1	6047.8	505.7	25.6	80.1	Intermediate
3	524.0	547.0	6003.9	5980.9	23.0			547.0	5980.9	550.7	3.7	11.6	Intermediate

Note: Brass Cap Ground Elevation: 6527.88 ft; all measurements are from this elevation



4.21 Test Well 1A

Location: Lower Pueblo Canyon adjacent to TW-1.

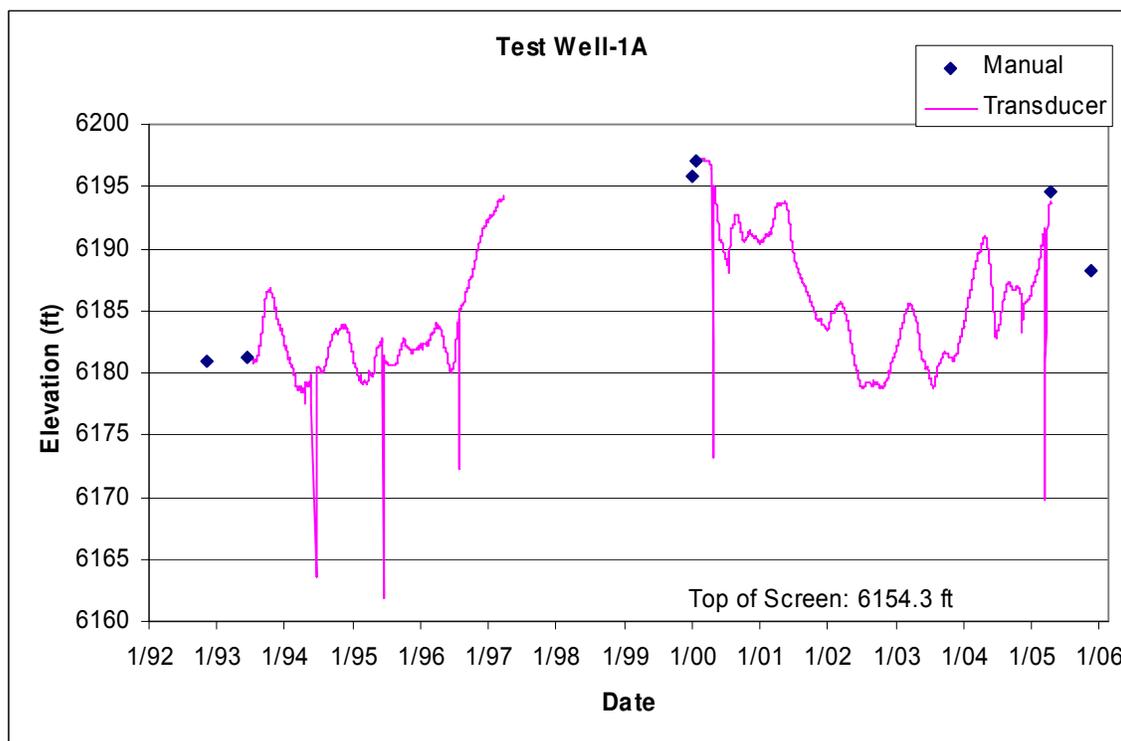
Completion Type: Single completion in basalt.

Period of Record: Well completed in 1950. Transducer installed June 1993; intermittent data to April 2005.

Remarks: A dead rodent was discovered in the well in April 2005; replacement of the transducer was delayed for worker safety reasons.

TW-1A Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	215.0	225	6154.3	6144.3	10.0		6369.3	225.0	6144.3	225	0.0	0.0	Intermediate Zone

Note: TW-1A Ground Elevation: 6369.28 ft; all depths are from this elevation



4.22 Test Well 2A

Location: Middle Pueblo Canyon adjacent to TW-2.

Completion Type: Single completion in the Puye Formation.

Period of Record: Well completed in 1950. Transducer installed January 1994 but equipment problems preclude data until 1995; intermittent data through 2005.

Remarks: Recent pumping of TW-2A has shown slow recovery of the water in the well.

TW-2A Construction Information													
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Pump Intake Depth (ft)	Pump Intake Elevation (ft)	Depth to Top of Sump (ft)	Top of Sump Elevation (ft)	Depth to Sump Bottom (ft)	Sump Length (ft)	Sump Volume (L)	Comment
1	123.0	133.0	6527.4	6517.4	10.0	130	6520.4	133.0	6517.4	133	0.0	0.0	Intermediate Zone

Note: TW-2A Ground Elevation: 6650.4 ft; all depths are from this elevation



5.0 Groundwater Level Data from Alluvial Wells

Table 5.1 lists the alluvial wells that were monitored for groundwater levels in 2005. The table provides the well name, date of completion, well depth, surveyed location coordinates, ground surface elevation, and the screen top and bottom depths for each well. Figure 5.1 shows the locations of the wells.

Table 5.1. Information and Location Data for Alluvial Aquifer Wells at LANL

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)
18-BG-1	8/1/1994	35	1634152.9	1762575.36	6776.45	10	35
18-BG-4	2/18/1998	6.5	1633510	1760760	6768	2.5	6.5
18-MW-17	8/1/1995	22	1637778.2	1759717.1	6695.2	12	22
18-MW-18	7/31/1995	23	1639925	1758247.2	6654.7	12.5	23
18-MW-7	7/6/1994	30	1634846.28	1761791.52	6755.5	10	30
18-MW-8	8/4/1994	37.9	1634714.26	1760658.14	6747.79	8	38
18-MW-9	7/21/1994	21	1635949.81	1760893.56	6732.91	6	31
APCO-1	8/15/1990	19.7	1649209.62	1773020.12	6367.53	4.7	14.7
CDBO-6	6/1/1992	49	1636209.25	1764759.75	6817.2	34	44
CDBO-7	6/1/1992	44	1637400	1763301	6771.81	29	39
CDV-16-02655	9/27/1997	7.6	1611299.09	1764153.134	7583.7	2.3	7.3
CDV-16-02656	11/5/1997	8.2	1613634.46	1764932.79	7443.18	3	8
CDV-16-02657	10/10/1997	5.7	1613813.19	1764850.1	7433.25	0.4	5.4
CDV-16-02658	9/16/1997	7.2	1615071.38	1764469.56	7375.6	1.9	6.9
CDV-16-02659	9/8/1997	7	1616712.08	1765035.06	7300.5	1.7	6.7
FCO-1	8/22/1989	12.4	1642409	1751177	6509.24	2.4	12.4
LAO-0.3	5/17/1994	11.25	1624799	1774511.6	6968.13	5.9	10.9
LAO-1	2/1/1996	28	1629395	1773956.37	6836.24	8	28
LAO-1.6g	3/20/1996	30.82	1636083.42	1772557.63	6658.01	10.47	25.47
LAO-2	2/1/1996	32	1637607.75	1773095.87	6592.97	7	32
LAO-3a	9/14/1989	14.7	1637980.87	1773099.75	6579.4	4.7	14.7
LAO-4.5c	11/1/1989	23.3	1643547.37	1772076.5	6457.63	13.3	23.3
LAO-6a	8/1/1989	14.2	1646221.62	1771344	6395.88	4.2	14.2
LAO-B	4/28/1994	27.2	1615148.8	1775170.4	7323.59	11.84	26.84
LAO-C	8/1/1970	13	1622157.87	1775249.75	7049.98	3	13
LAUZ-1		10.55	1633435.13	1774809.81	7032.42	5.35	10.35
MCA-1	1/24/2005	5.9	1626586.5	1770410.77	7070.6	2.4	5.4
MCA-2	10/24/2004	65	1634097.23	1768585.88	6837.2	45	60
MCA-3a	11/29/2004	43.4	1633586.89	1769068.28	6853	42.9	43.4
MCA-3c	11/30/2004	43.4	1633586.89	1769068.28	6853	38.4	38.9
MCA-3b	11/22/2004	42.1	1633589.4	1769069.84	6852.9	40.9	41.4
MCA-3d	12/2/2004	55.8	1634886.02	1768523.27	6819.8	54.6	55.1
MCA-3e	12/2/2004	55.8	1634886.02	1768523.27	6819.8	51	51.5
MCA-3f	12/2/2004	55.8	1634886.02	1768523.27	6819.8	47.5	48
MCA-4	2/1/2005	6	1625945.5	1770129.55	7135.1	3.3	5.3
MCA-5	2/1/2005	5.4	1627354.17	1770233.59	7053.8	1.75	5.75
MCA-8	9/29/2004	86.3	1641325.48	1767372.92	6668.8	66	81
MCA-9	12/4/2004	113	1641470.29	1767393.22	6671.7	92.8	107.8

Table 5.1. Information and Location Data for Alluvial Aquifer Wells at LANL (Continued)

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)
MCO-0.6	2/25/1999	3.1	1623987.8	1771179.5	7188.28	1.05	3.05
MCO-4B	8/1/1990	33.9	1632036.37	1769697	6886.75	8.9	28.9
MCO-5	10/1/1960	46	1632466.12	1769538	6875.66	21	46
MCO-6	3/1/1974	47	1633635.37	1769012.75	6849.48	27	47
MCO-7	10/1/1960	69	1634517.87	1768509.87	6827.31	39	69
MCO-7.5	4/1/1974	60	1635454.87	1768440.5	6808.88	35	60
MCWB-5	12/6/1994	33	1632578.31	1769484.6	6876.22	17	27
MCWB-5.5A	12/22/1994	37.5	1633455.53	1769176.95	6858.36	22.5	32.5
MCWB-5.5B	12/22/1994	37.5	1633420.54	1769125.78	6856.89	22.5	32.5
MCWB-6.2A	12/7/1994	45.5	1633754.49	1768968.15	6848.29	30.5	40.5
MCWB-6.5C	12/8/1994	47.5	1633993.33	1768759.41	6841.02	32.5	42.5
MCWB-6.5D	12/8/1994	42.5	1633878.05	1768536.19	6843.2	32.5	42.5
MCWB-6.5E	12/21/1994	50	1633833.36	1768583.81	6843.8	35	45
MCWB-7.2	12/12/1994	67.5	1634956.96	1768491.86	6818.86	42.5	62.5
MCWB-7.4A	12/13/1994	70	1635270.33	1768569.46	6812.4	45	65
MCWB-7.4B	12/13/1994	70	1635287.73	1768407.84	6813.07	45	65
MCWB-7.7A	12/19/1994	67.5	1635902.25	1768700.71	6798.31	52.5	62.5
MCWB-7.7B	12/20/1994	70	1635921.84	1768517.26	6798.97	55	65
MCWB-7A	12/9/1994	52	1634356.62	1768551.02	6831.17	37	47
MCWB-7B	12/9/1994	47.5	1634350.16	1768469.73	6832.45	32.5	42.5
MSC-16-06293	1/27/2000	7.3	1615809.67	1761331.78	7370.79	2	7
MSC-16-06294	1/26/2000	7.6	1617848.17	1761298.779	7288.44	2.5	7.3
MSC-16-06295	1/31/2000	6.9	1618630.67	1761004.778	7257.03	1.5	6.5
MT-1	11/1/1988	69	1635262.86	1768493.96	6811.63	39	59
MT-2	11/1/1988	64	1636019.79	1768544.59	6796.2	44	64
MT-3	11/1/1988	74	1635980.95	1768657.83	6796.65	44	64
MT-4	11/1/1988	74	1636558.75	1768634.37	6783.59	54	64
PAO-1	10/30/1998	13.74	1624165.85	1778988.716	6954.97	5.89	10.89
PAO-3	8/27/1998	13.47	1637747.7	1776856.31	6578.58	5.62	10.62
PAO-4	7/24/1997	9.82	1646090.28	1775098.35	6437.37	1.97	6.97
PCO-1	6/30/1985	12	1637919.25	1759990.62	6687	4	12
PCO-2	6/30/1985	9.5	1641700.37	1757442.75	6618.3	1.5	9.5
PCO-3	6/30/1985	17.7	1646088.62	1755489.37	6546.3	5.7	17.7
SCO-1	8/15/1989	19.3	1642297.62	1769502.25	6618.67	9.3	19.3
SCO-2	8/16/1989	19.4	1647259	1767864	6500.67	9.4	19.4
TSCA-6	11/9/2005	21.3	1632954.6	1768471.44	6863.2	16.2	20.9
TSWB-6	12/21/1994	40	1633383.09	1768490.75	6853.21	25	35
WCO-1	10/31/1989	34.4	1632758.75	1755069.12	6616.41	24.4	34.4
WCO-2	10/26/1989	23.5	1636870.37	1753228.37	6524.57	13.5	23.5
WCO-3	10/25/1989	12.4	1640212.5	1750620.25	6436.43	7.4	12.4

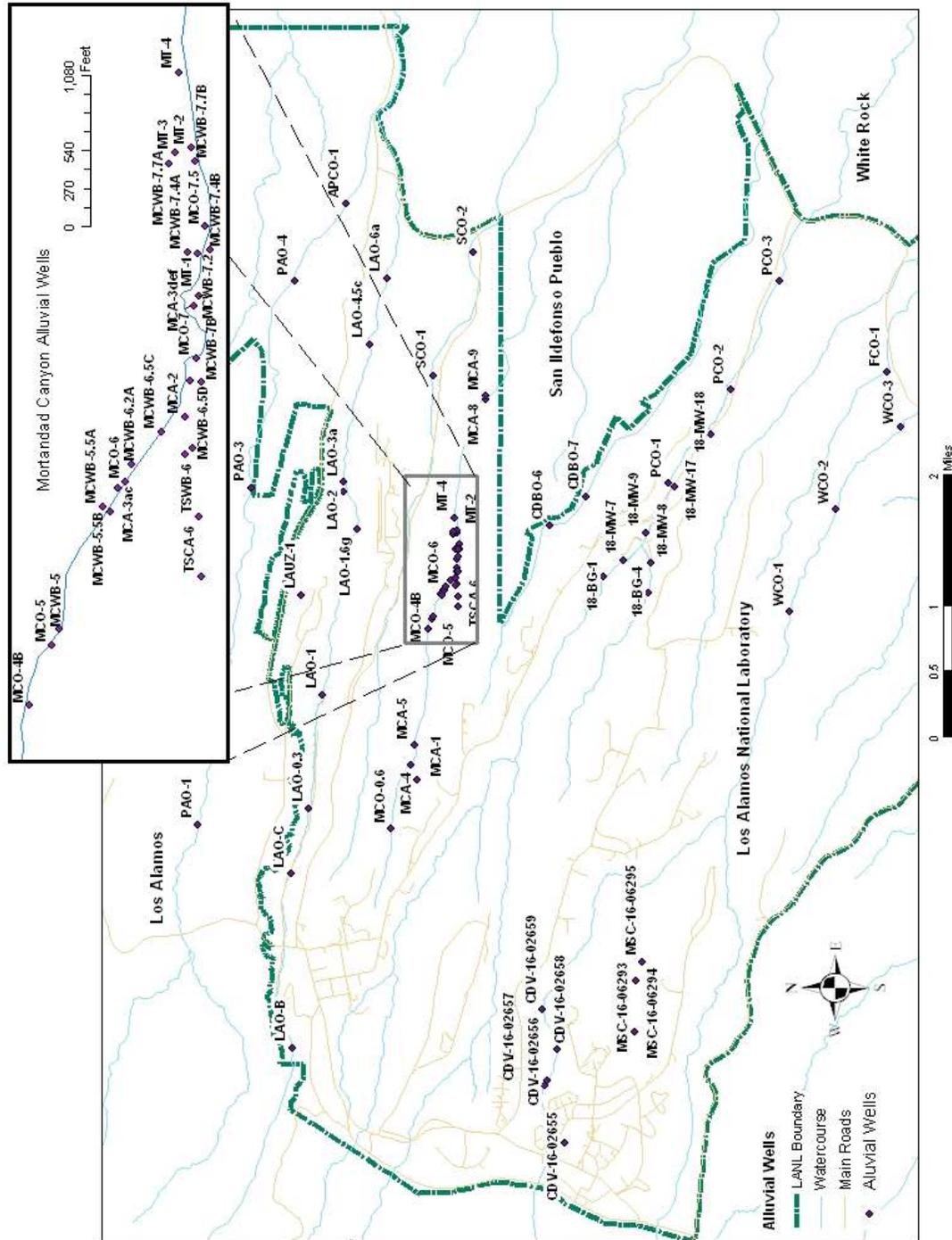


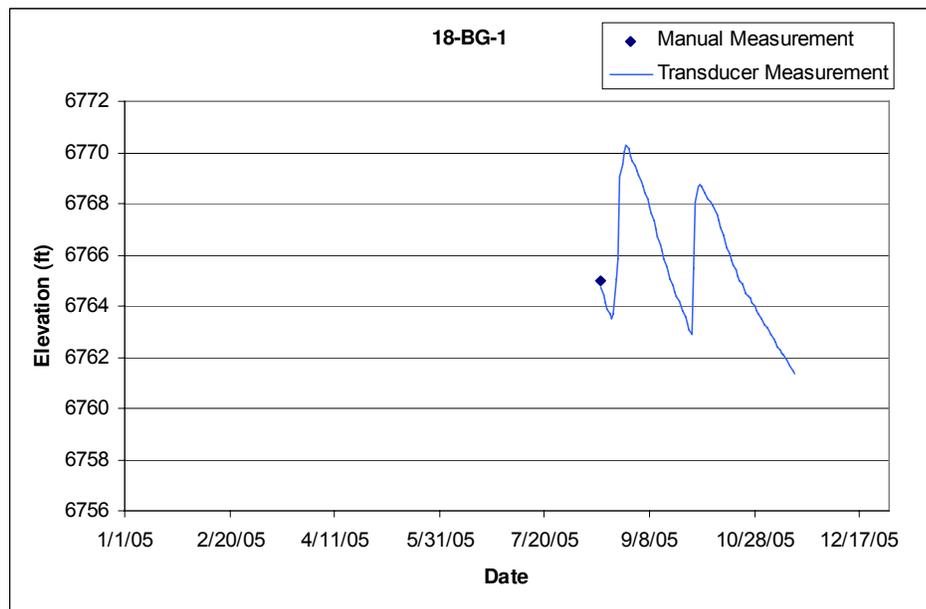
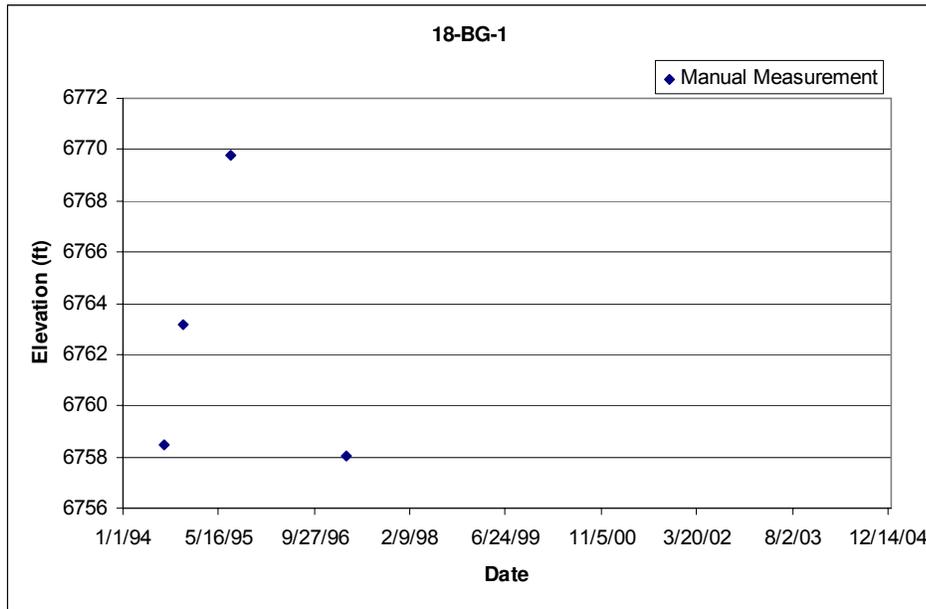
Figure 5.1. Alluvial wells monitored for groundwater levels in 2005.

5.1 18-BG-1

Location: Pajarito Canyon, about 0.4 mile west of the TA-18 facilities.

Period of Record: August 1, 1994–December 31, 2005

Remarks: A pressure transducer was installed in 18-BG-1 on August 16, 2005. The screen bottom elevation is 6741.45 ft. Transducer data after November 16, 2005, could not be validated at time of this report due to waste issues at TA-18. Screen bottom elevation is 6741.5 ft.

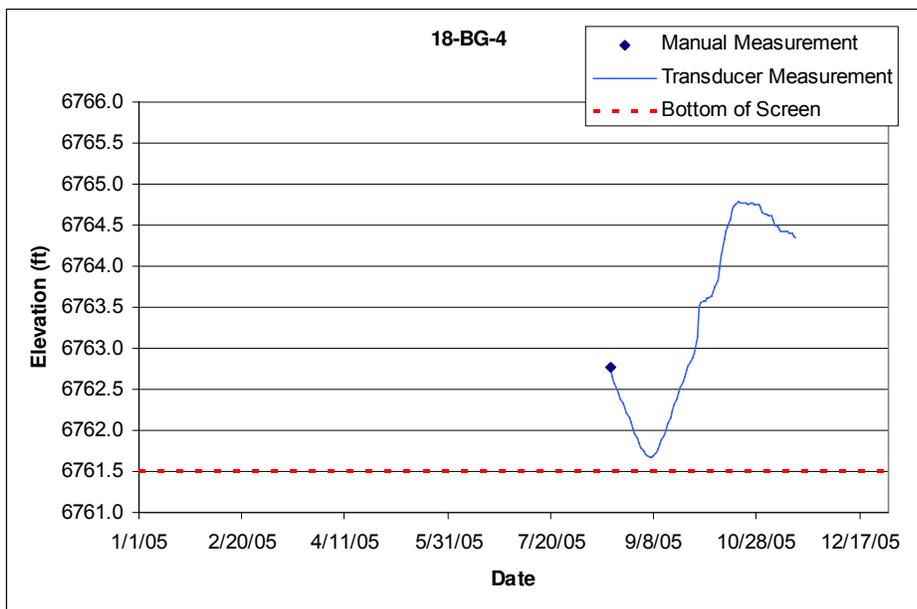
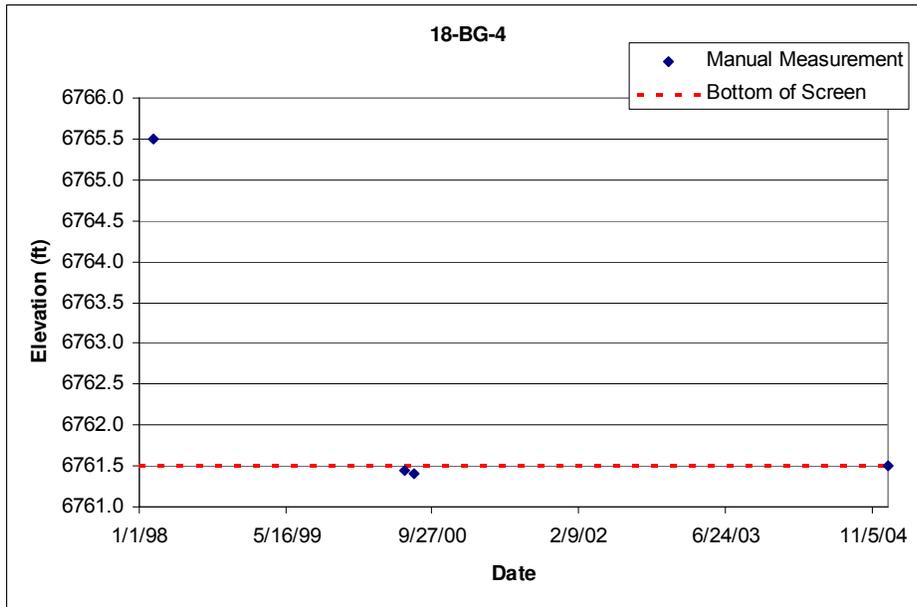


5.2 18-BG-4

Location: Threemile Canyon, about 0.3 mile west of the TA-18 facilities.

Period of Record: February 18, 1998–December 31, 2005

Remarks: A pressure transducer was installed on August 18, 2005. Transducer data after November 16, 2005, could not be validated at the time of this report due to waste issues at TA-18.

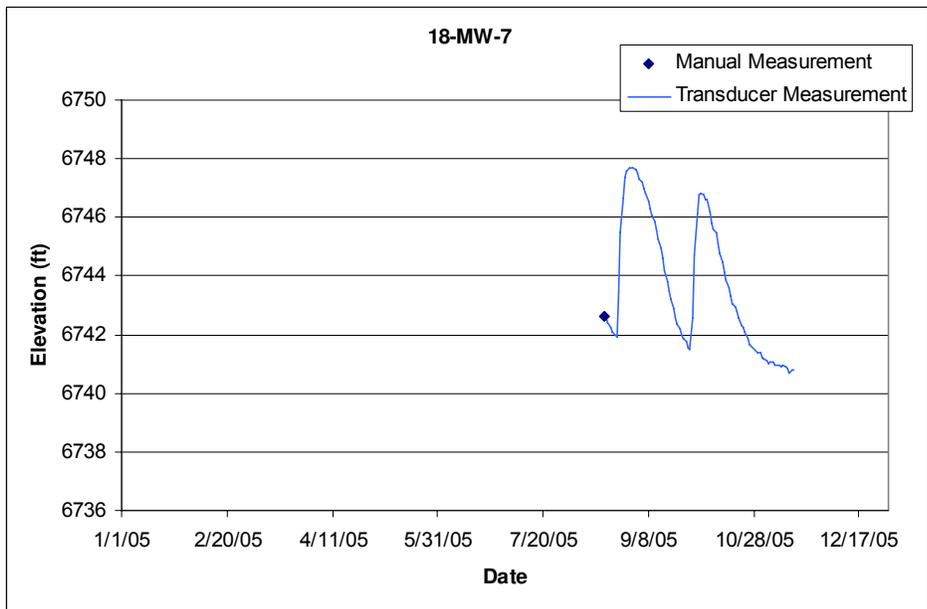
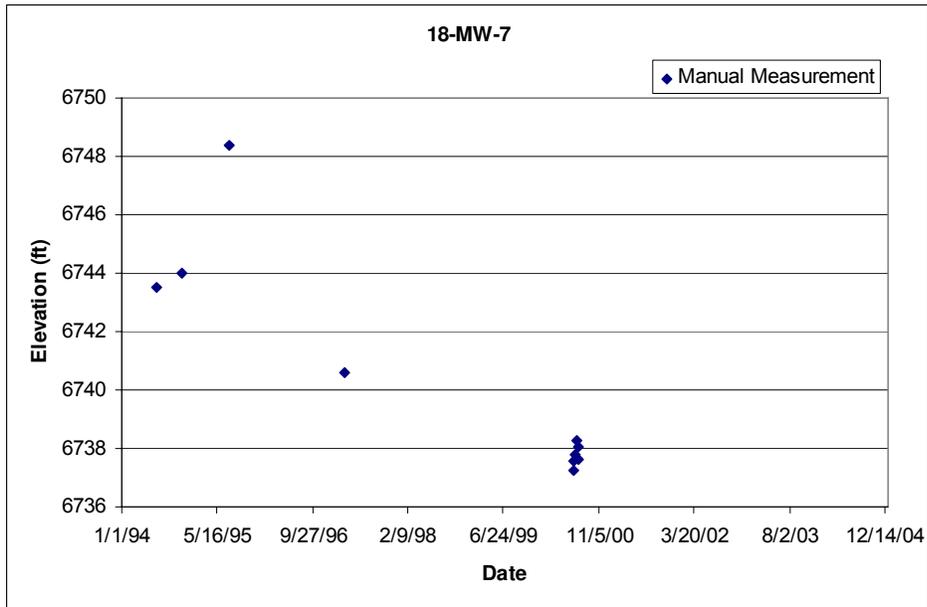


5.3 18-MW-7

Location: Pajarito Canyon, about 0.2 mile west of the TA-18 facilities.

Period of Record: July 6, 1994–December 31, 2005

Remarks: A pressure transducer was installed in 18-MW-7 on August 18, 2005. Transducer data after November 16, 2005, could not be validated at the time of this report due to waste issues at TA-18. Screen bottom elevation is 6725.5 ft.

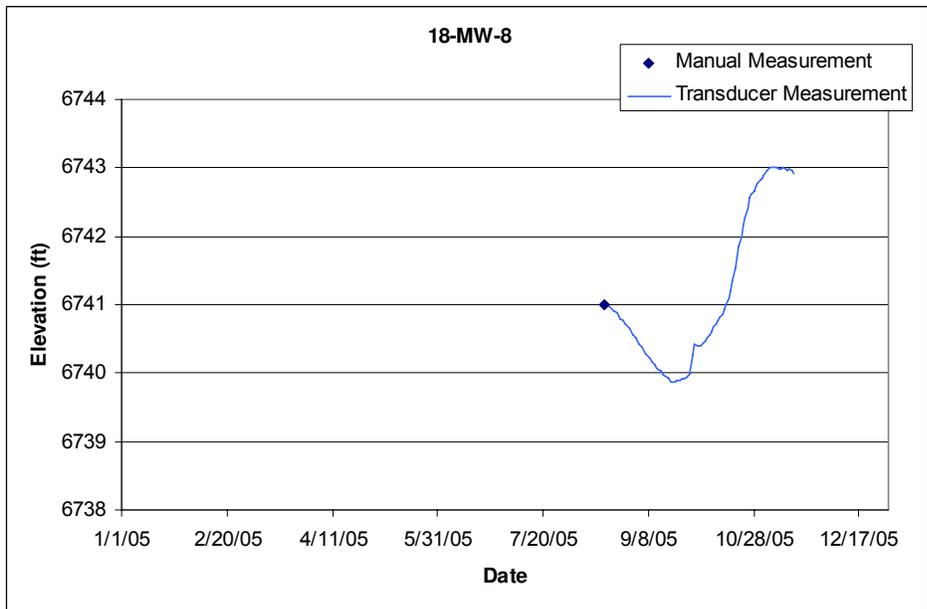
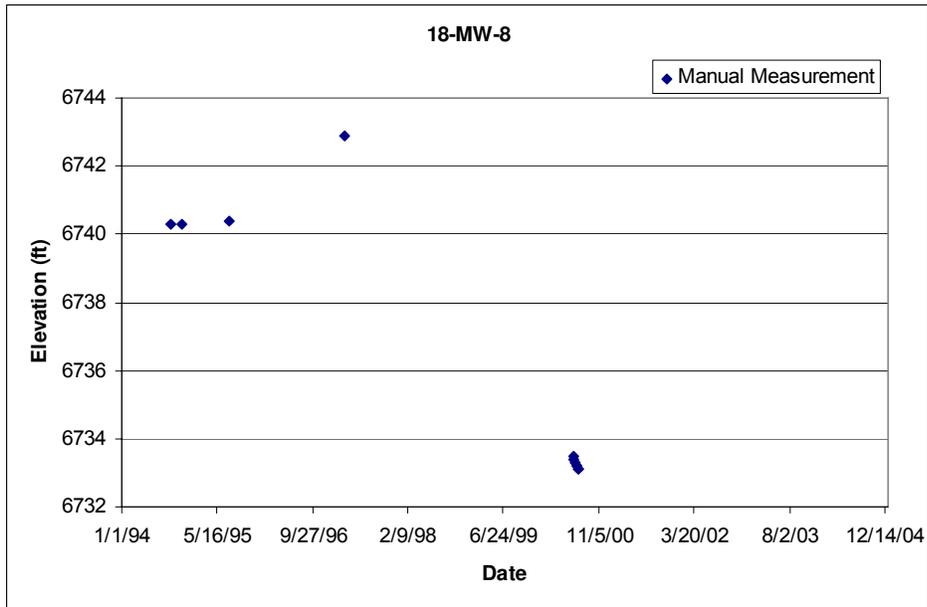


5.4 18-MW-8

Location: Threemile Canyon, about 0.1 mile west of the TA-18 facilities.

Period of Record: September 15, 1994–December 31, 2005

Remarks: A pressure transducer was installed in 18-MW-8 on August 18, 2005. Transducer data after November 16, 2005, could not be validated at the time of this report due to waste issues at TA-18. Screen bottom elevation is 6709.8 ft.

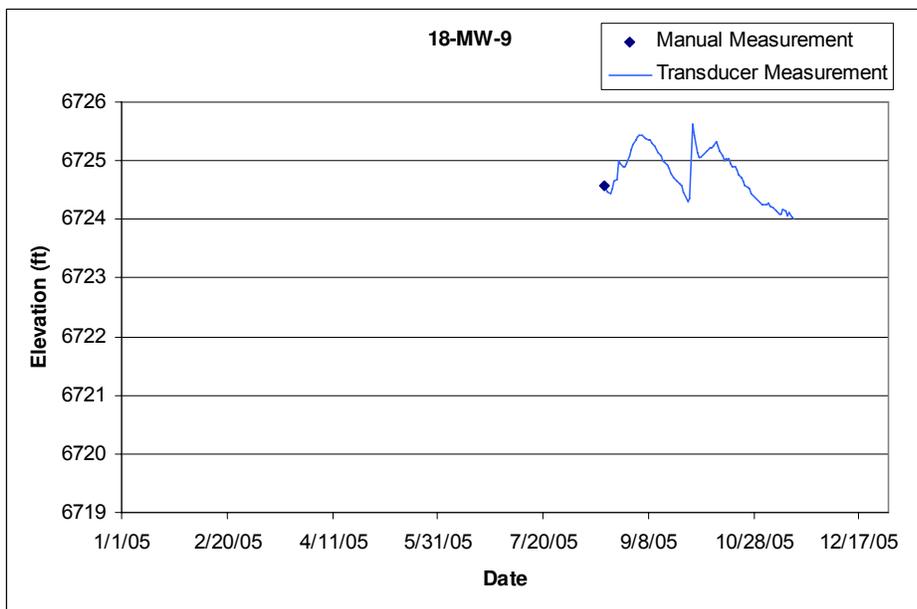
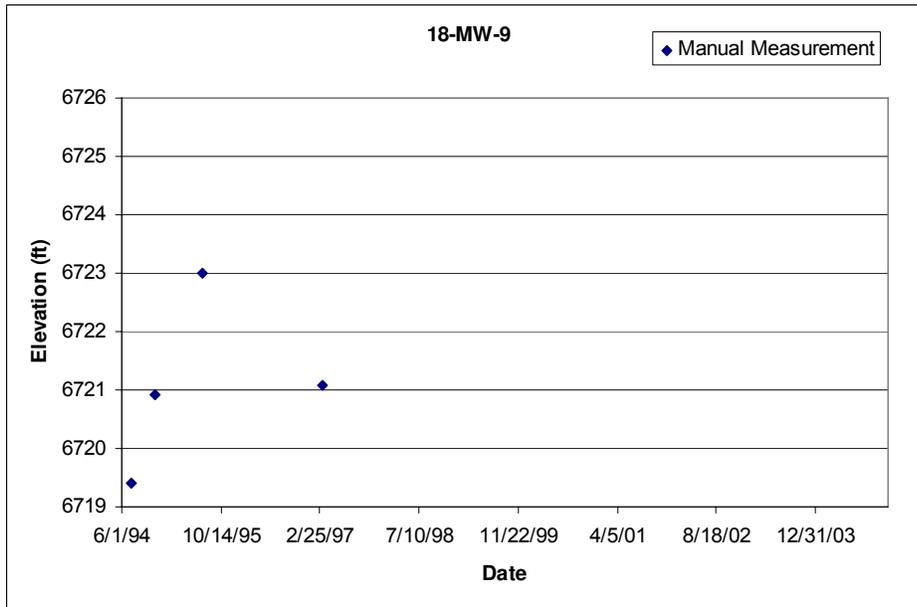


5.5 18-MW-9

Location: Pajarito Canyon, directly south of the main guard gate to TA-18.

Period of Record: July 21, 1994–December 31, 2005

Remarks: A pressure transducer was installed in 18-MW-9 on August 18, 2005. Transducer data after November 16, 2005, could not be validated at the time of this report due to waste issues at TA-18. Screen bottom elevation is 6711.9 ft.

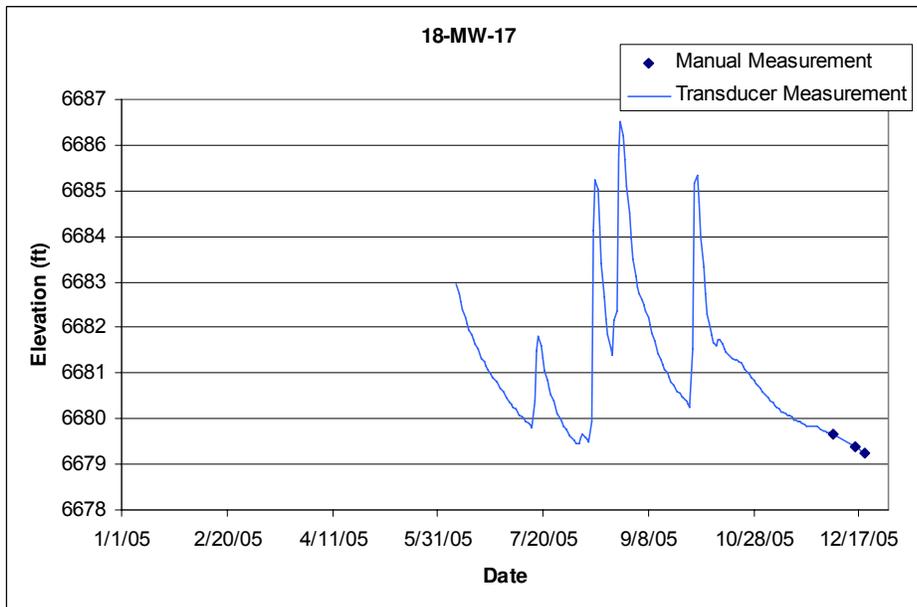
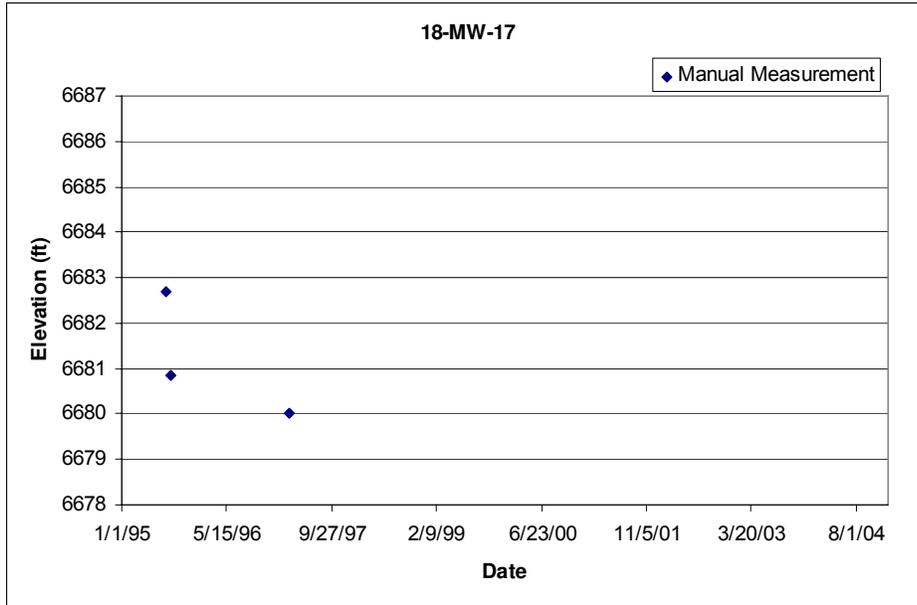


5.6 18-MW-17

Location: Pajarito Canyon, east of TA-18.

Period of Record: August 1, 1995–December 31, 2005

Remarks: A pressure transducer was installed in 18-MW-17 on June 9, 2005. Screen bottom elevation is 6673.2 ft.

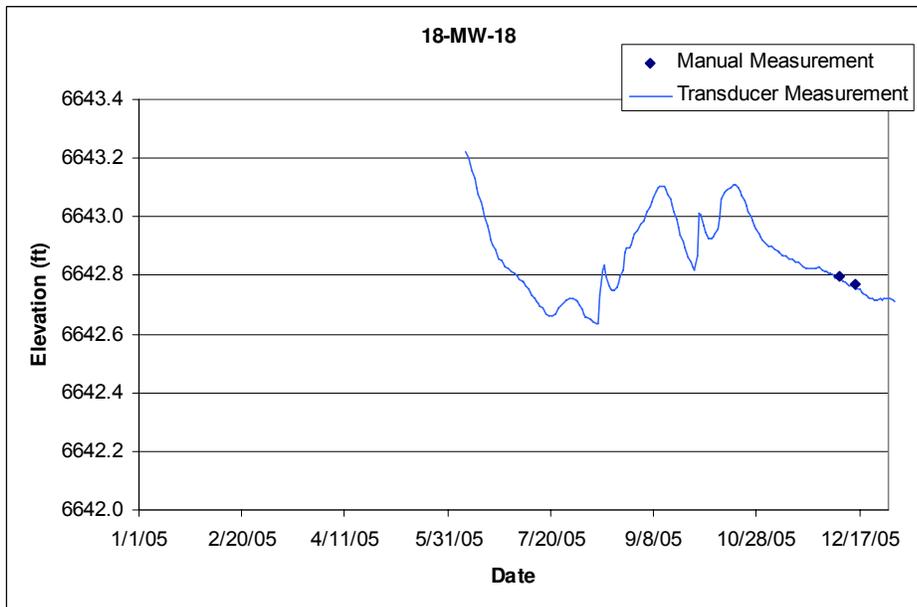
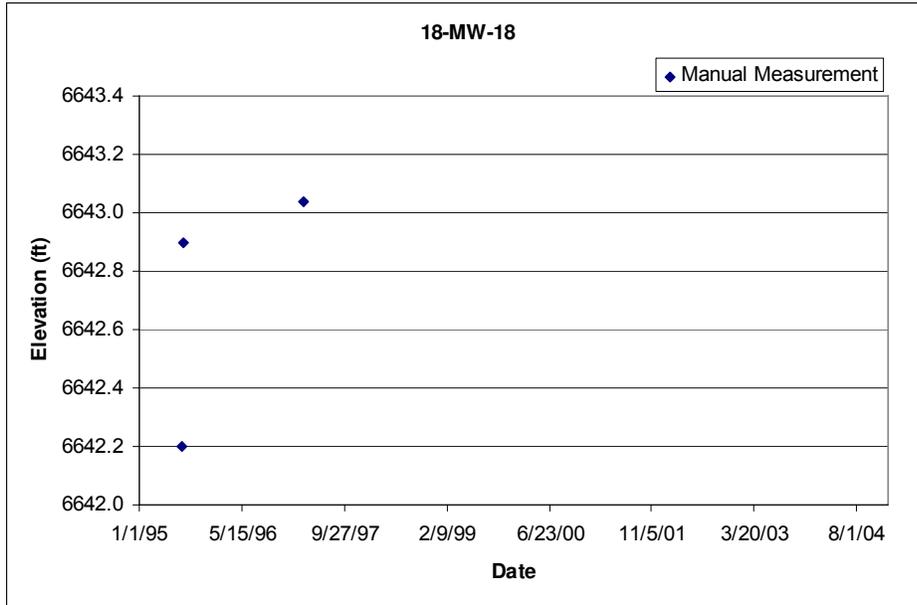


5.7 18-MW-18

Location: Pajarito Canyon, east of TA-18.

Period of Record: July 31, 1995–December 31, 2005

Remarks: A pressure transducer was installed in 18-MW-18 on June 9, 2005. Screen bottom elevation is 6631.7 ft.

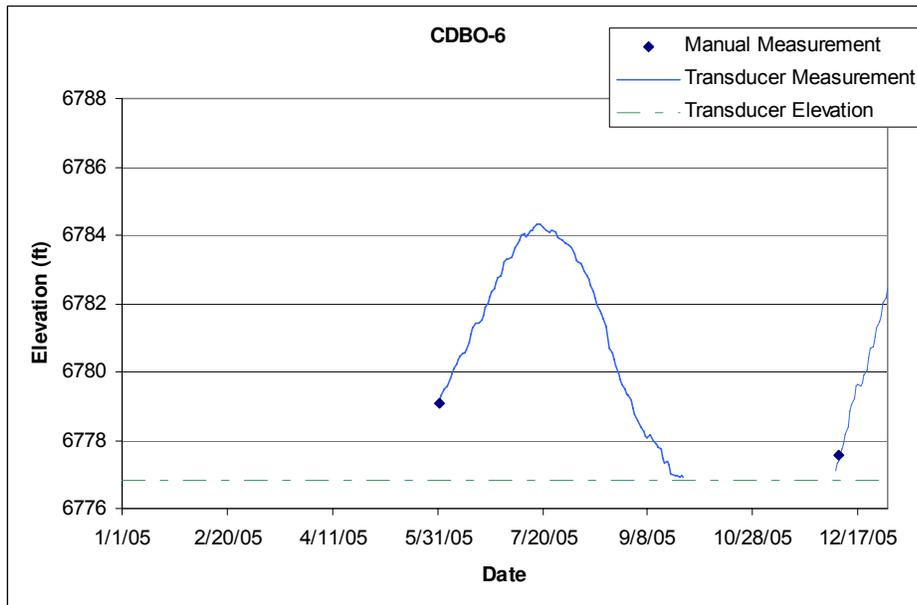
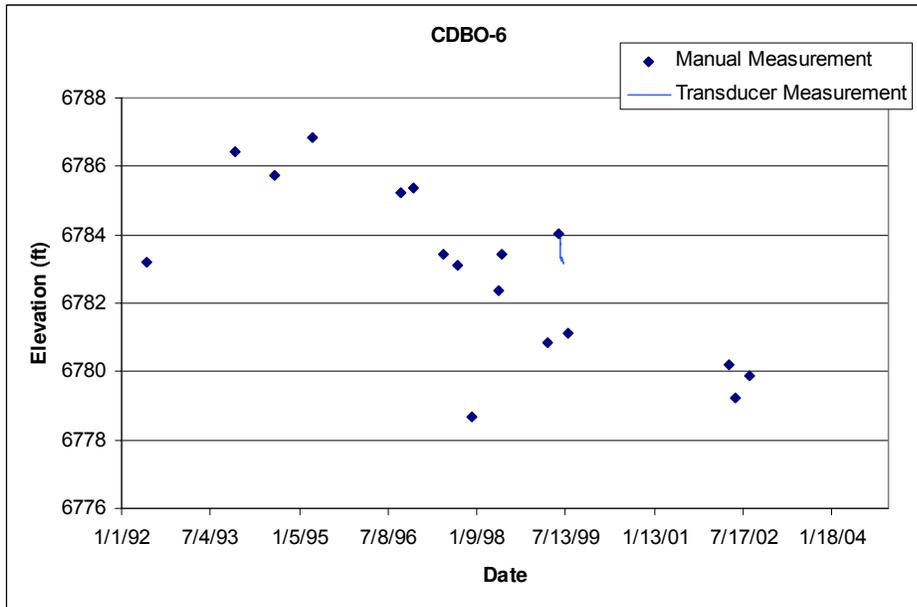


5.9 CDBO-6

Location: Cañada del Buey.

Period of Record: June 1, 1992–December 31, 2005

Remarks: Alluvial well CDBO-6 has a bladder pump installed in a 2-in. casing. The pressure transducer sensor elevation is 6776.83 ft. The transducer may not be installed any lower due to interference with the pump. The screen bottom elevation is 6773.2 ft. The groundwater elevation may at times be above the screen bottom, but below the transducer sensor.

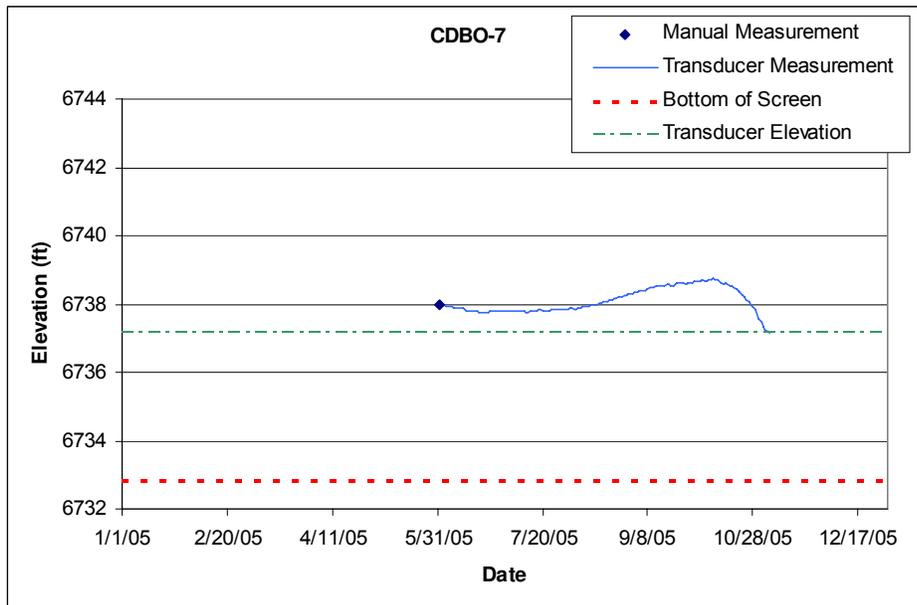
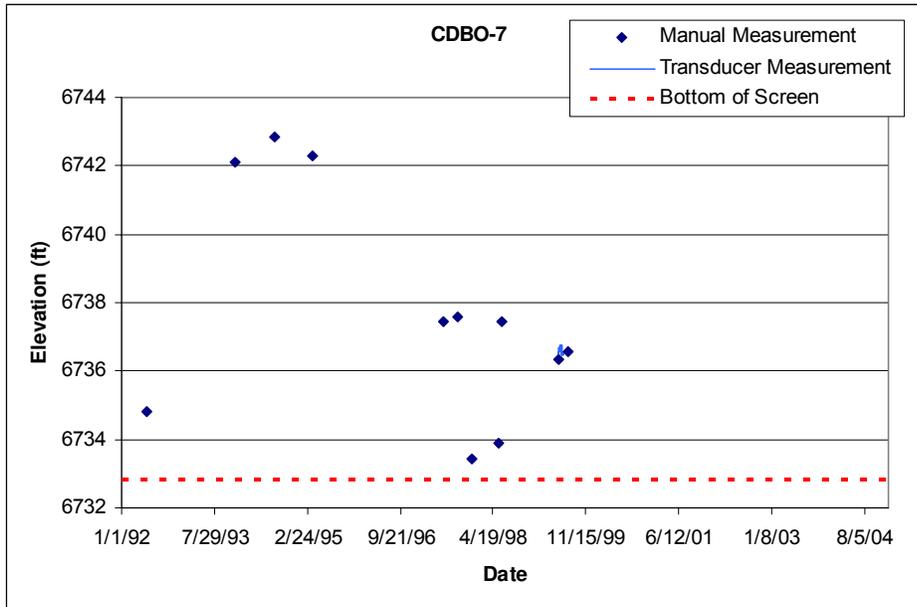


5.10 CDBO-7

Location: Cañada del Buey.

Period of Record: June 1, 1992–December 31, 2005

Remarks: Alluvial well CDBO-7 has a bladder pump installed in a 2-in. casing. The pressure transducer sensor elevation is 6737.14 ft. The transducer may not be installed any lower due to interference with the pump. The screen bottom elevation is 6732.8 ft. The groundwater elevation may at times be above the screen bottom, but below the transducer sensor.

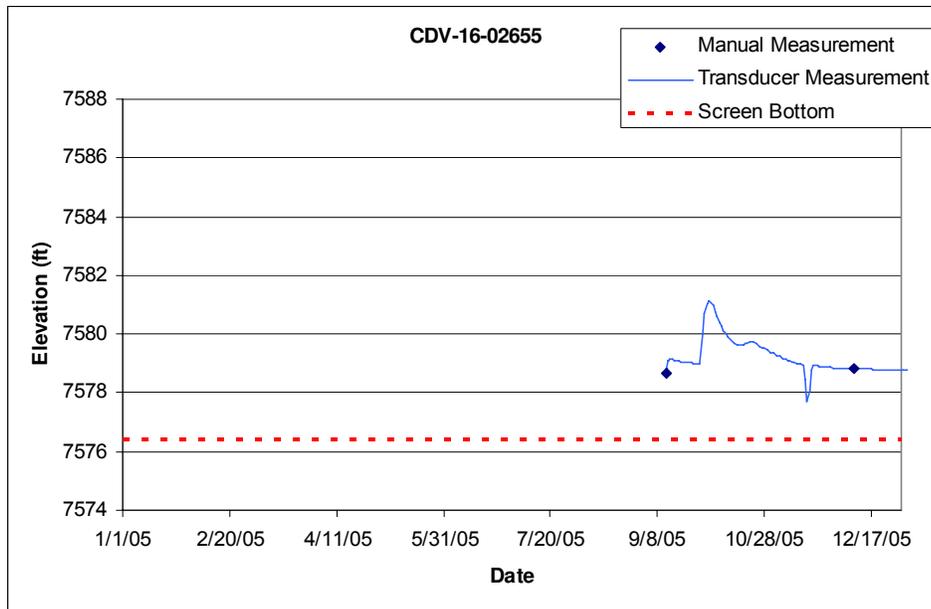
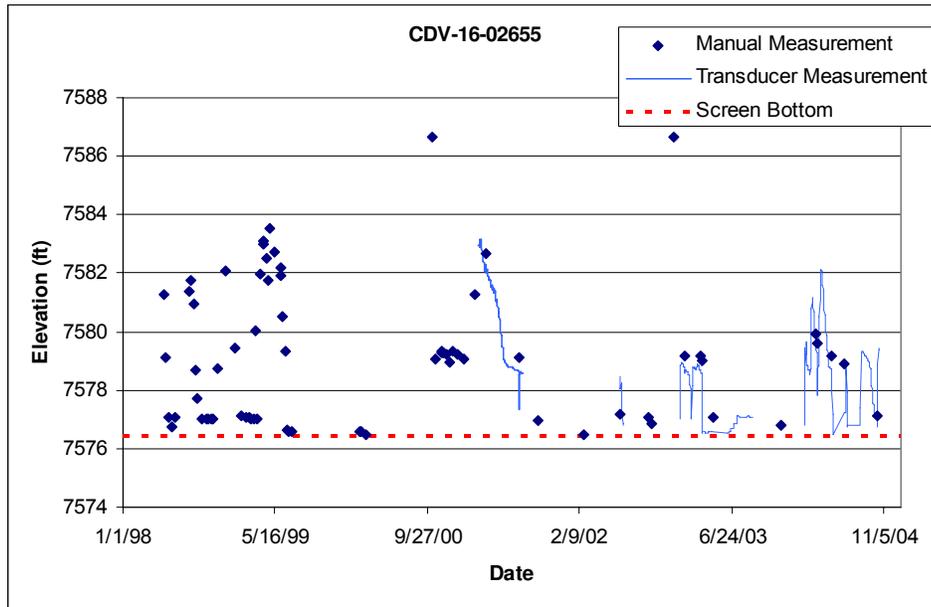


5.11 CDV-16-02655

Location: Westernmost upper Cañon de Valle in TA-16, approximately 800 ft east of Anchor Ranch Road.

Period of Record: May 15, 1998–December 31, 2005

Remarks: None.

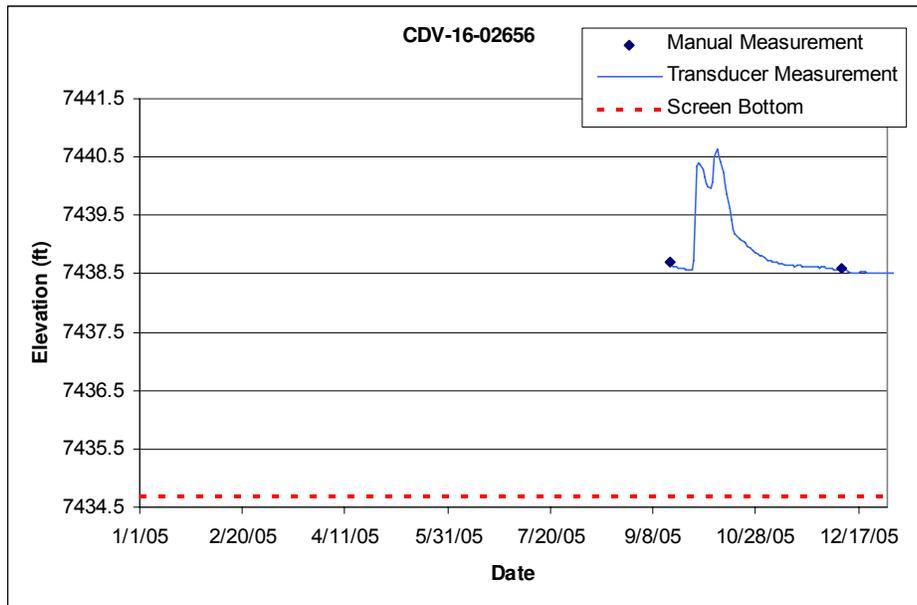
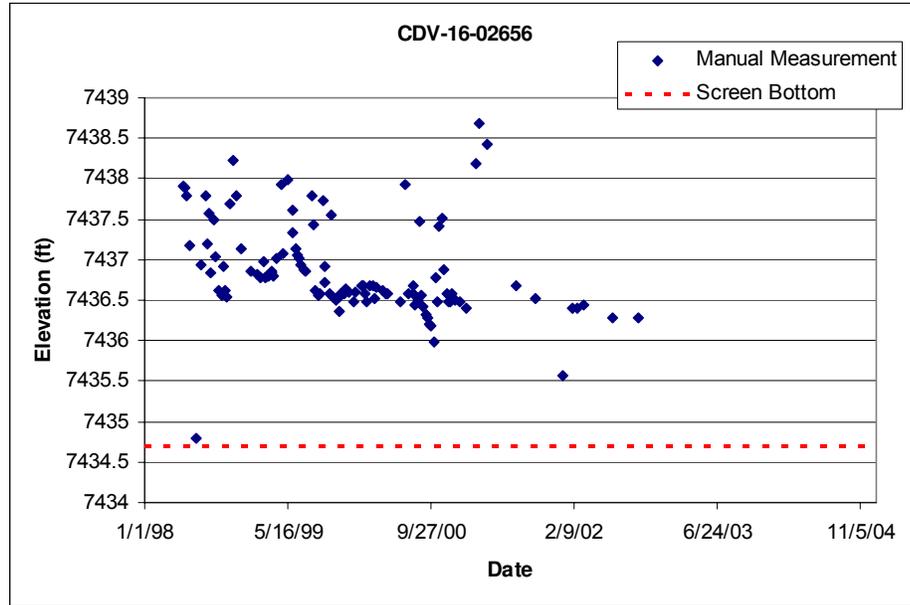


5.12 CDV-16-02656

Location: Upper Cañon de Valle at northern boundary of TA-16.

Period of Record: May 15, 1998–December 31, 2005

Remarks: None.

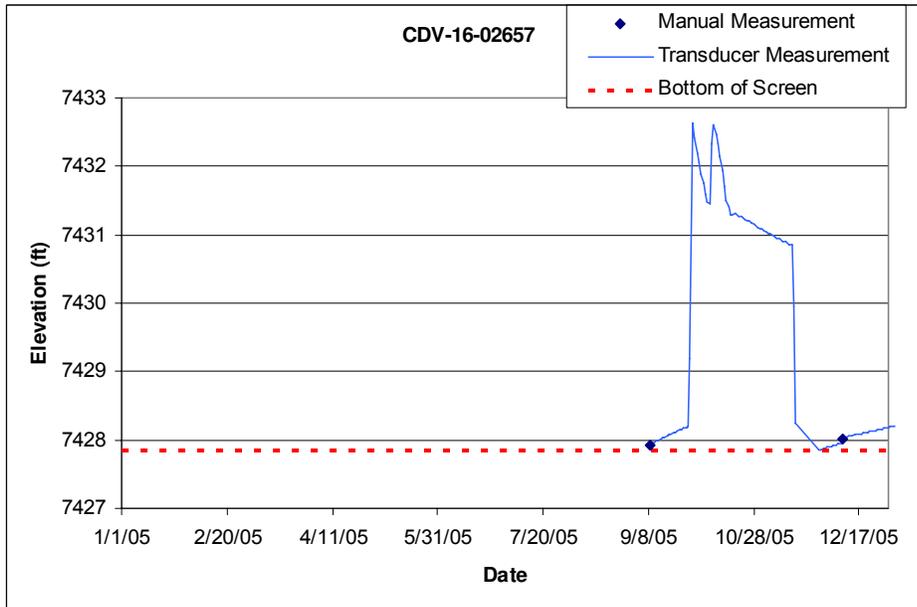
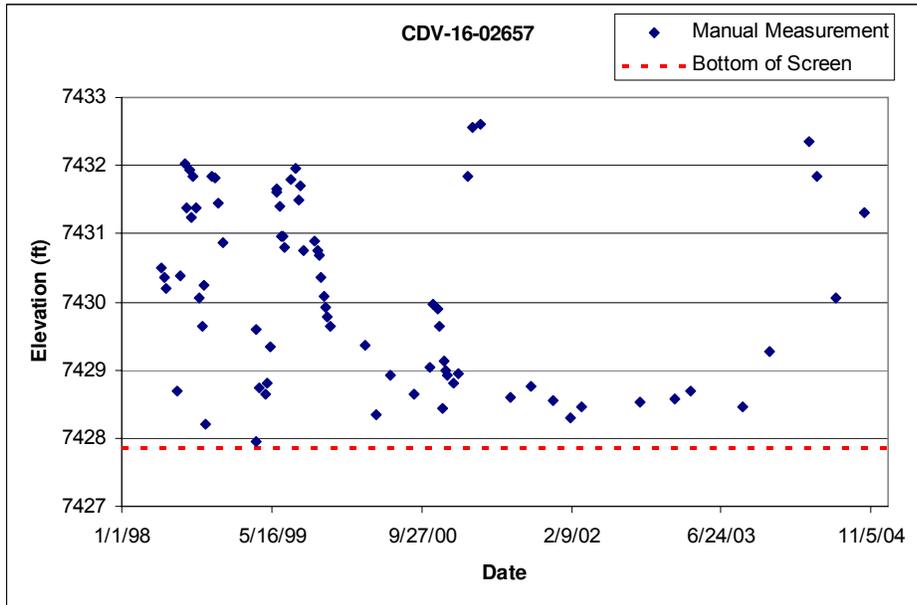


5.13 CDV-16-02657

Location: Upper Cañon de Valle at northern boundary of TA-16, approximately 200 ft east-southeast of well CDV-16-02656.

Period of Record: May 15, 1998–December 31, 2005

Remarks: None.

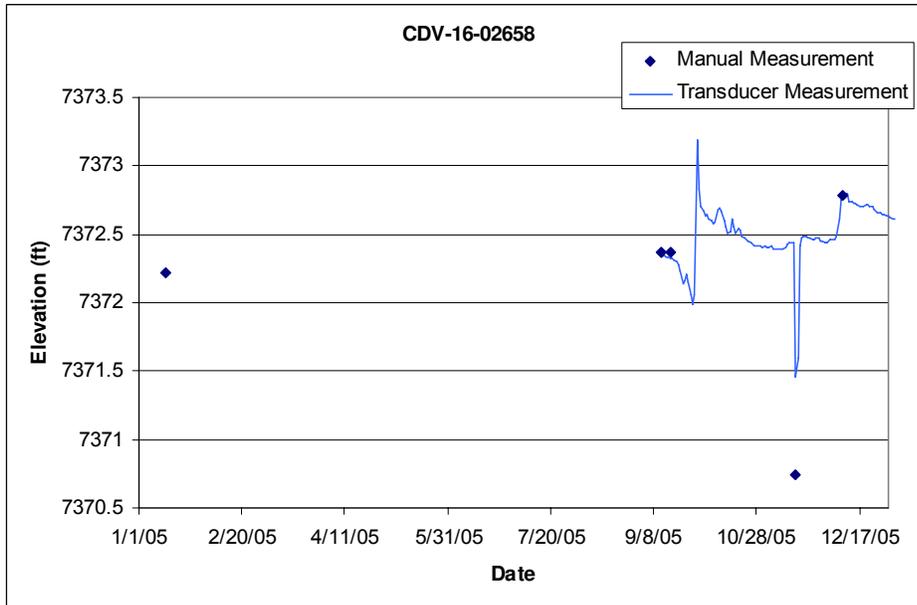
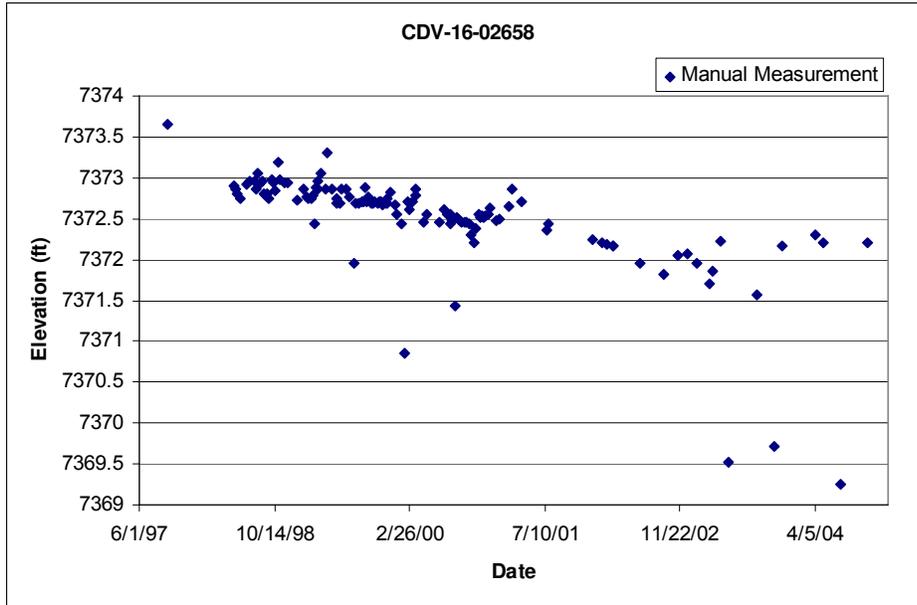


5.14 CDV-16-02658

Location: Upper Cañon de Valle at northern boundary of TA-16, approximately 200 ft east-southeast of well CDV-16-02657 and approximately 800 ft east-southeast of Burning Ground Spring.

Period of Record: September 15, 1997–December 31, 2005

Remarks: Screen bottom elevation is 7368.26 ft.

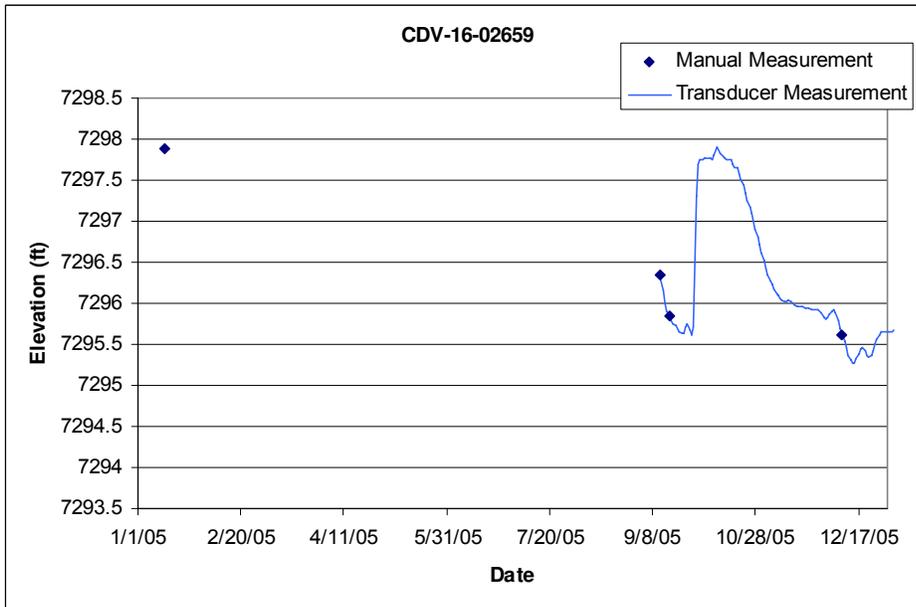
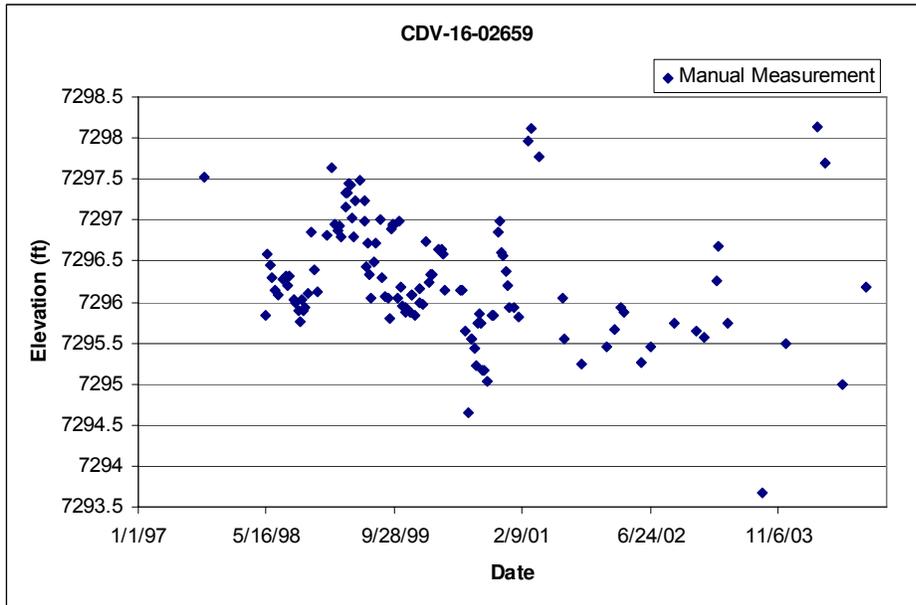


5.15 CDV-16-02659

Location: Upper Cañon de Valle at northern boundary of TA-16, approximately 1800 ft east-northeast of well CDV-16-02657.

Period of Record: September 17, 1997–December 31, 2005

Remarks: Screen bottom elevation is 7293.32 ft.



5.16 FCO-1

Location: Fence Canyon, approximately 0.1 mile northwest of SR-4.

Period of Record: June 9, 1997–September 14, 2005

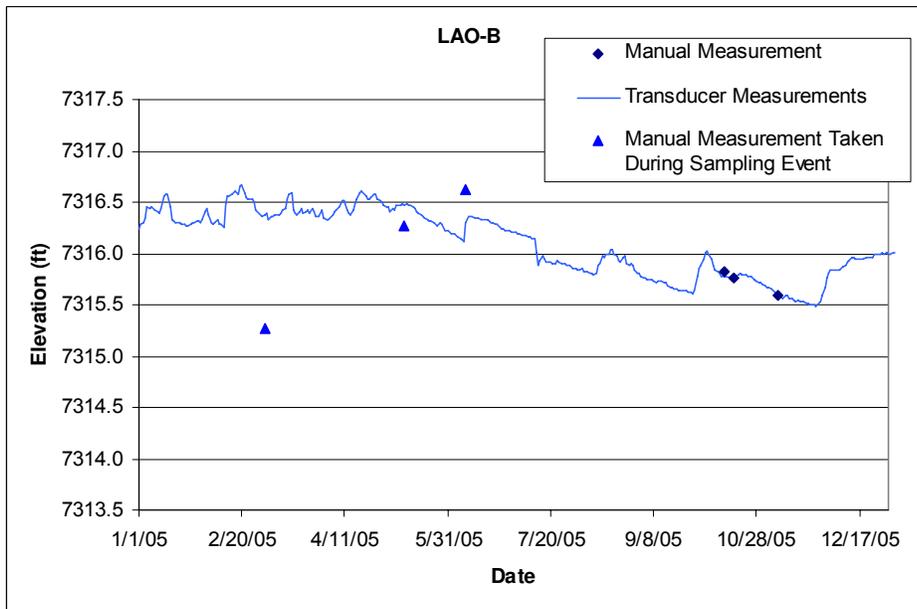
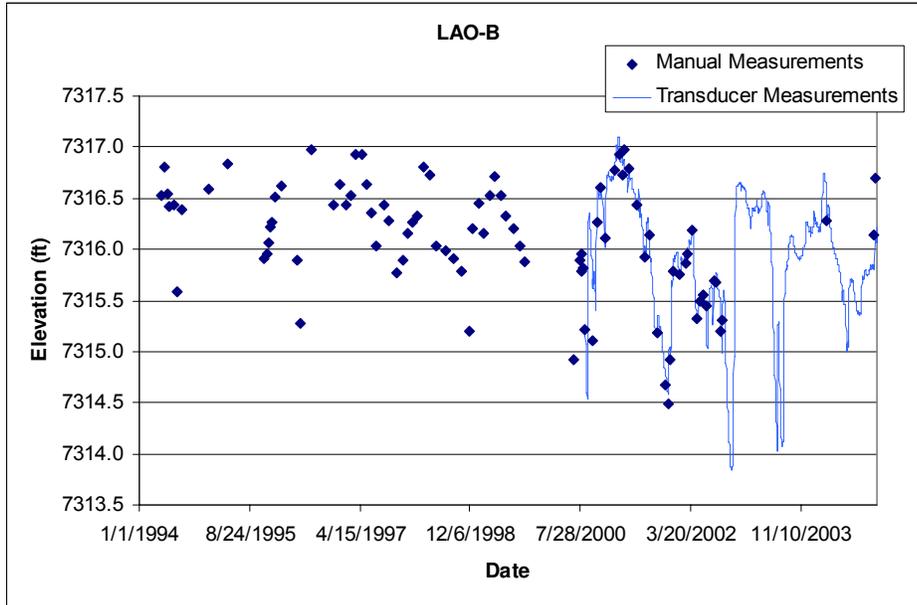
Remarks: No water level data are available, well has been dry during every measurement event.

5.17 LAO-B

Location: Upper Los Alamos Canyon, approximately 3000 ft west of the Diamond Drive bridge.

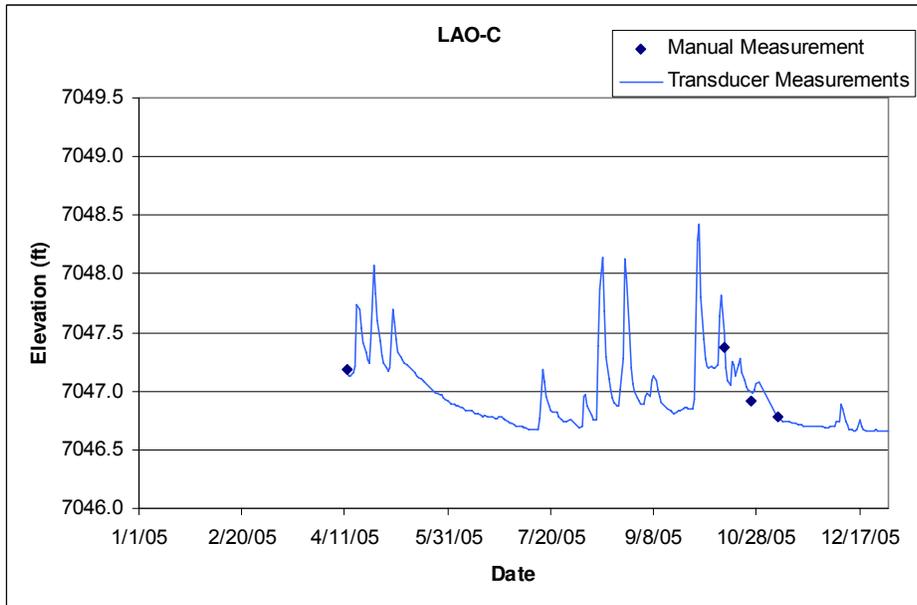
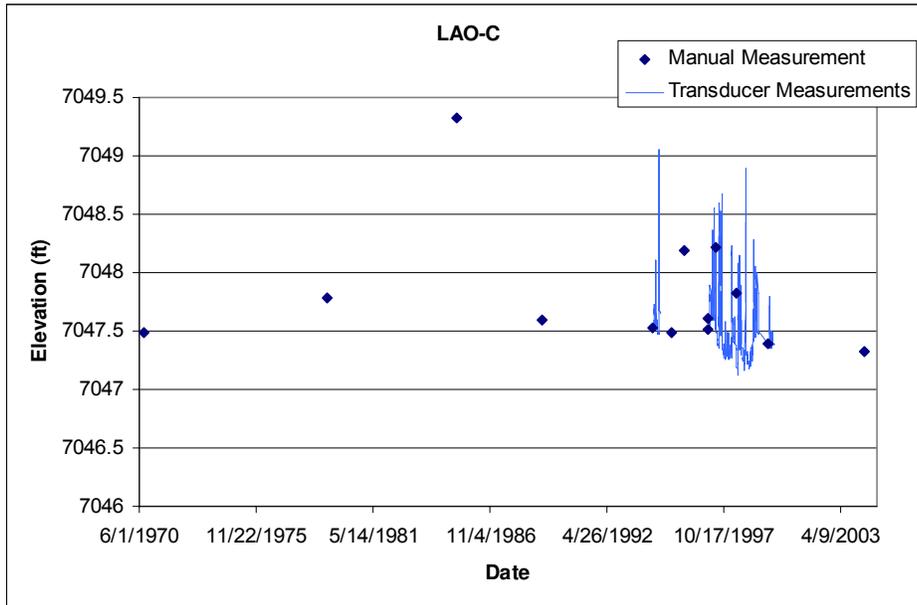
Period of Record: April 28, 1994–December 31, 2005

Remarks: Screen bottom elevation is 7296.8 ft.



5.18 LAO-C

Location: Upper Los Alamos Canyon, about 0.6 mile up canyon of the TA-41 west boundary.
 Period of Record: September 1, 1970–December 31, 2005
 Remarks: Screen bottom elevation is 7037.0 ft.

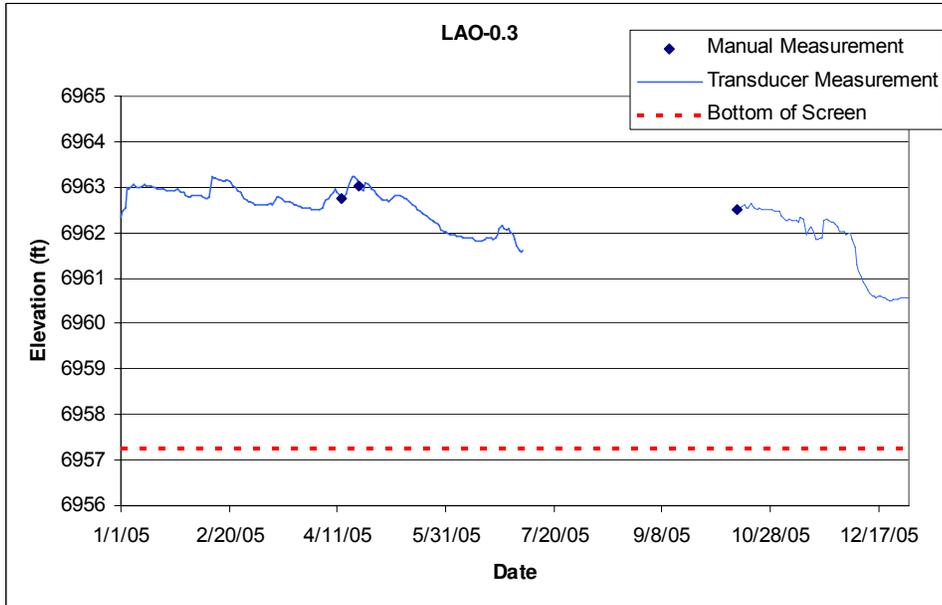
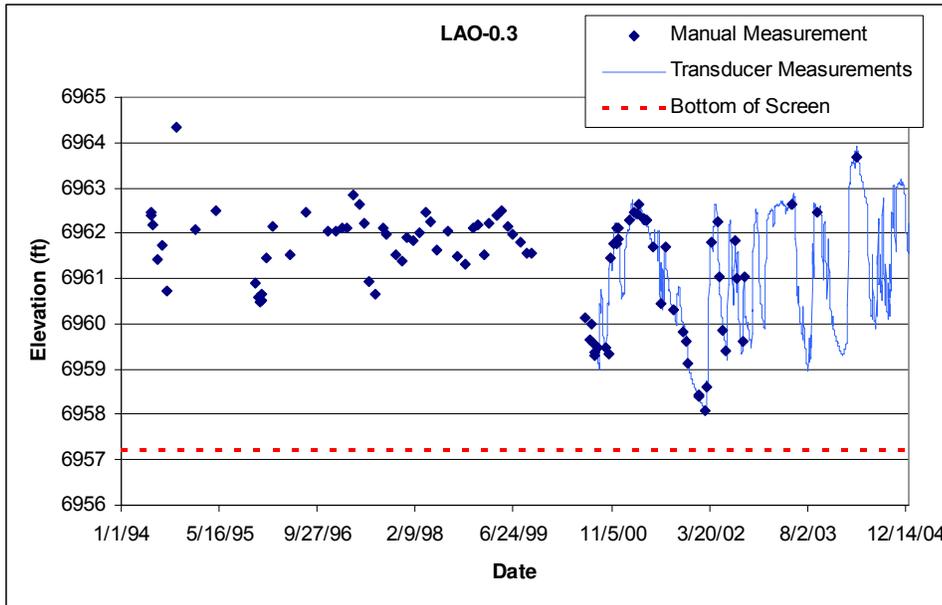


5.19 LAO-0.3

Location: Upper Los Alamos Canyon, approximately 5700 ft east of the Diamond Drive bridge.

Period of Record: June 1, 1994–December 31, 2005

Remarks: Transducer readings were not valid from July 7, 2005–October 12, 2005. The pressure sensor was in the mud at the bottom of the well.

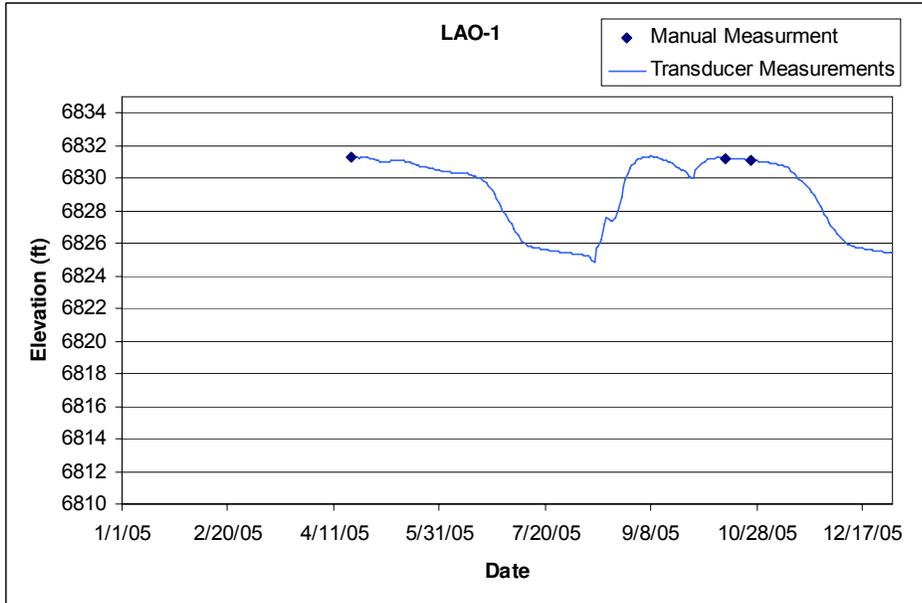
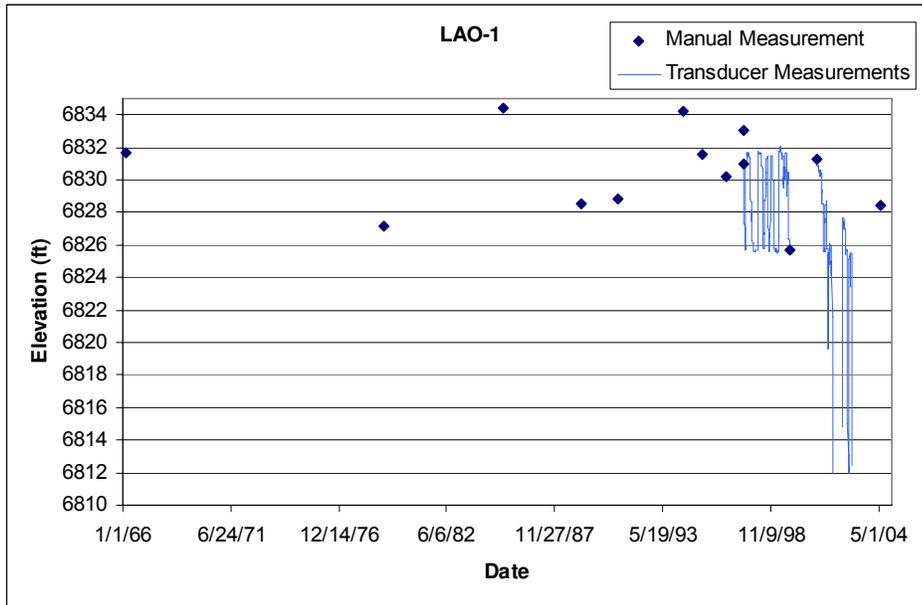


5.20 LAO-1

Location: Los Alamos Canyon, near the eastern border of TA-2.

Period of Record: February 15, 1966–December 31, 2005

Remarks: Screen bottom elevation is 6808.24 ft.

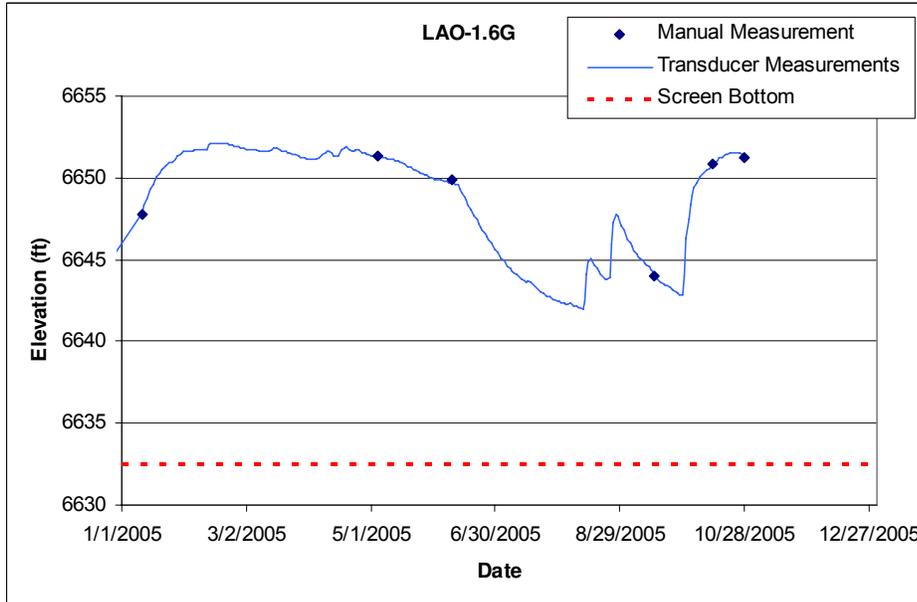
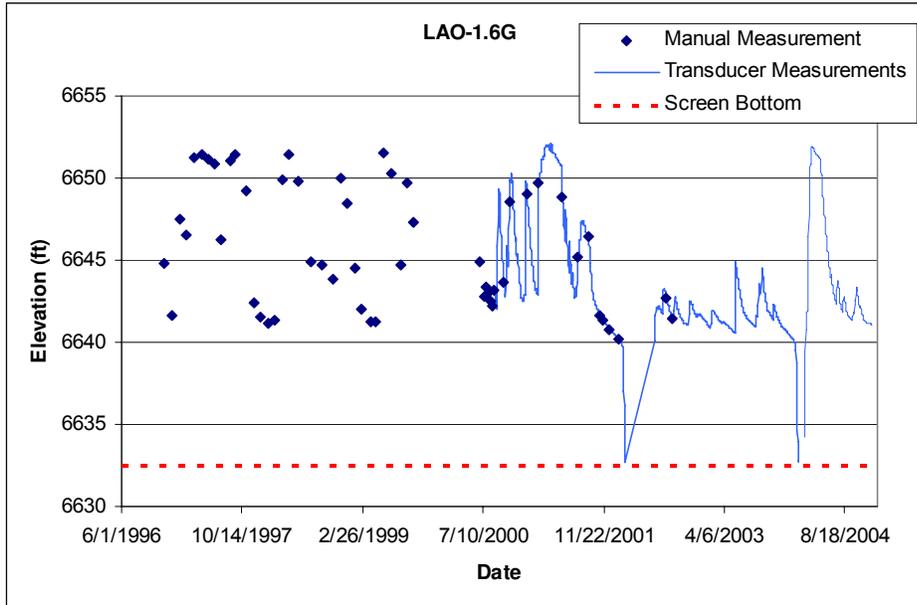


5.21 LAO-1.6g

Location: Los Alamos Canyon, approximately 400 ft west of the confluence with DP Canyon.

Period of Record: November 22, 1996–October 28, 2005

Remarks: A transducer malfunction occurred after the download on October 28, 2005. Transducer data were lost from October 29, 2005–January 17, 2006.

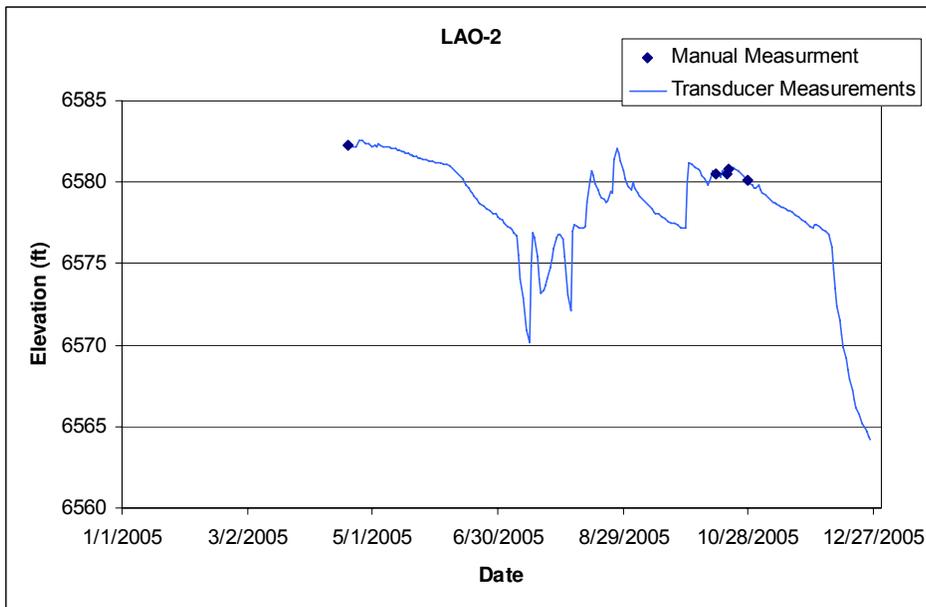
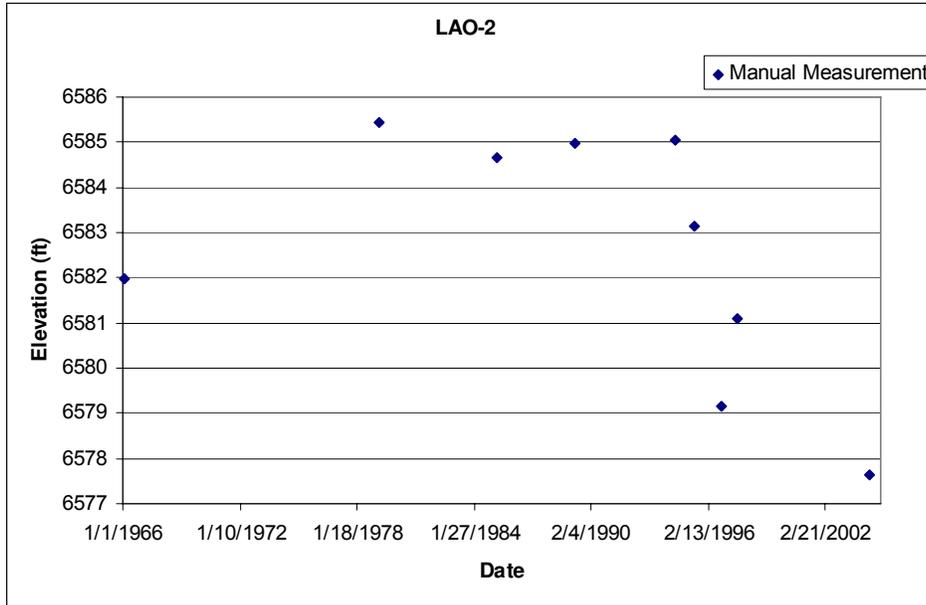


5.22 LAO-2

Location: Los Alamos Canyon, approximately 75 ft north of the confluence with DP Canyon.

Period of Record: February 1, 1966–December 31, 2005

Remarks: Screen bottom elevation 6560.97 ft.

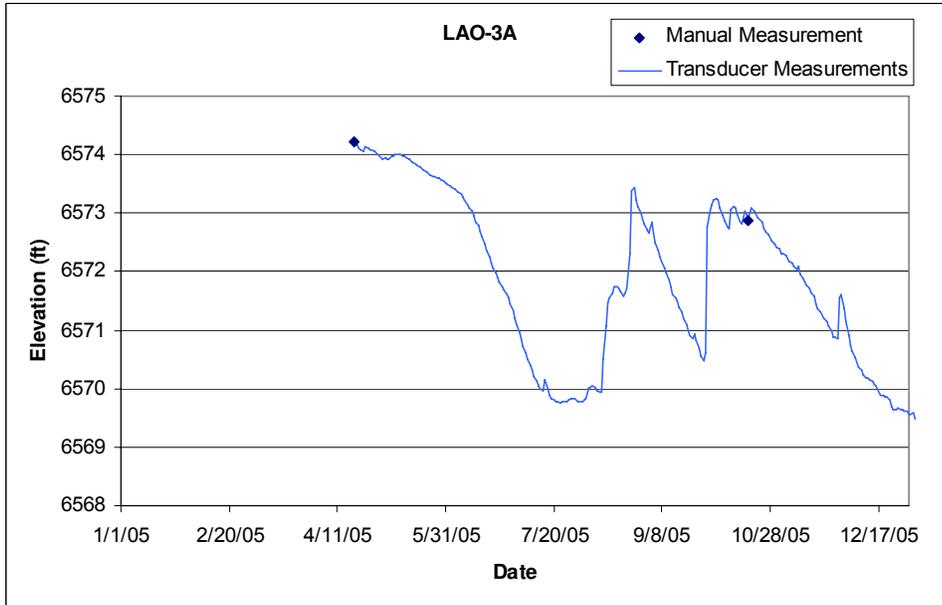
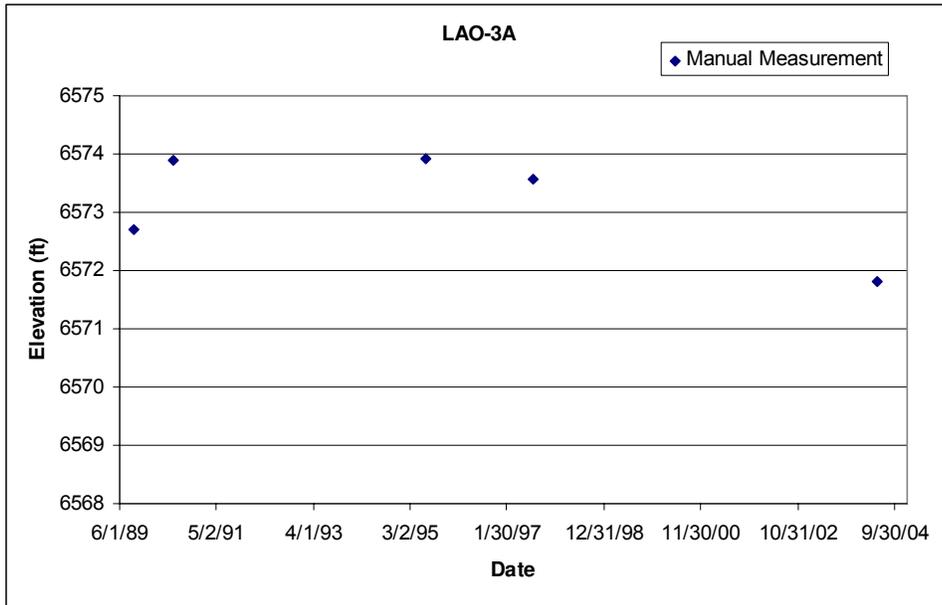


5.23 LAO-3a

Location: Los Alamos Canyon, approximately 1000 ft east of the confluence with DP Canyon.

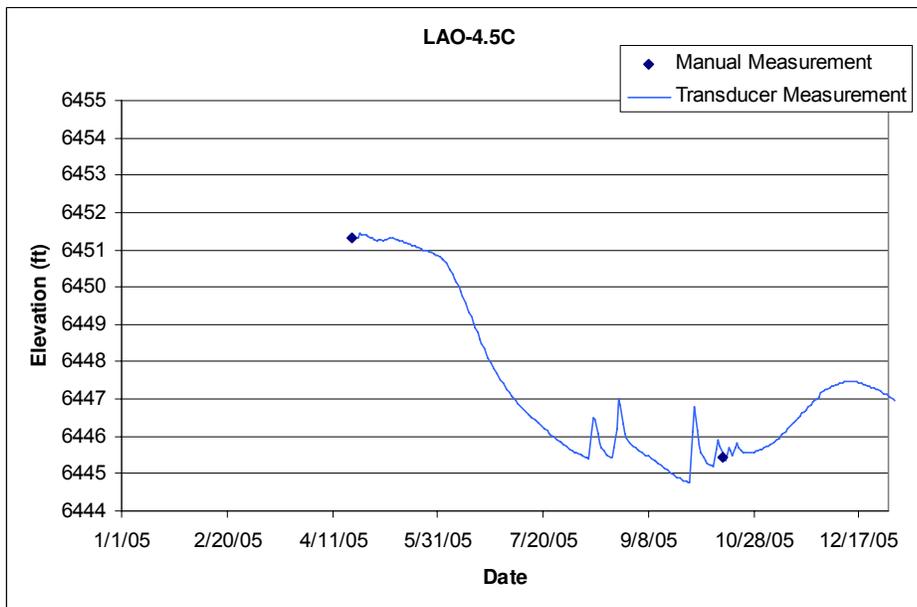
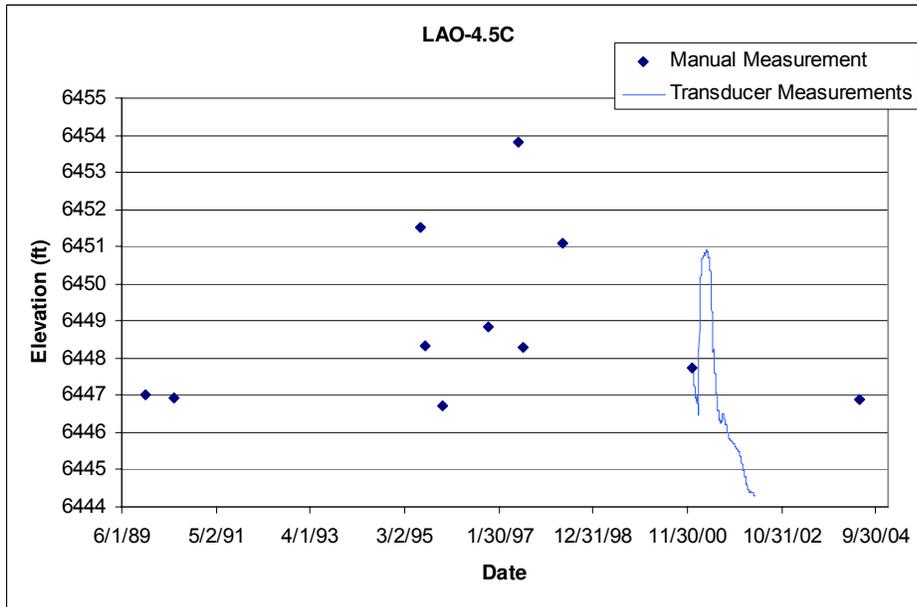
Period of Record: September 15, 1989–December 31, 2005

Remarks: Screen bottom elevation is 6564.7 ft.



5.24 LAO-4.5c

Location: Los Alamos Canyon, approximately 1.25 miles east of the confluence with DP Canyon.
 Period of Record: November 22, 1989–December 31, 2005
 Remarks: Screen bottom elevation is 6434.33 ft.

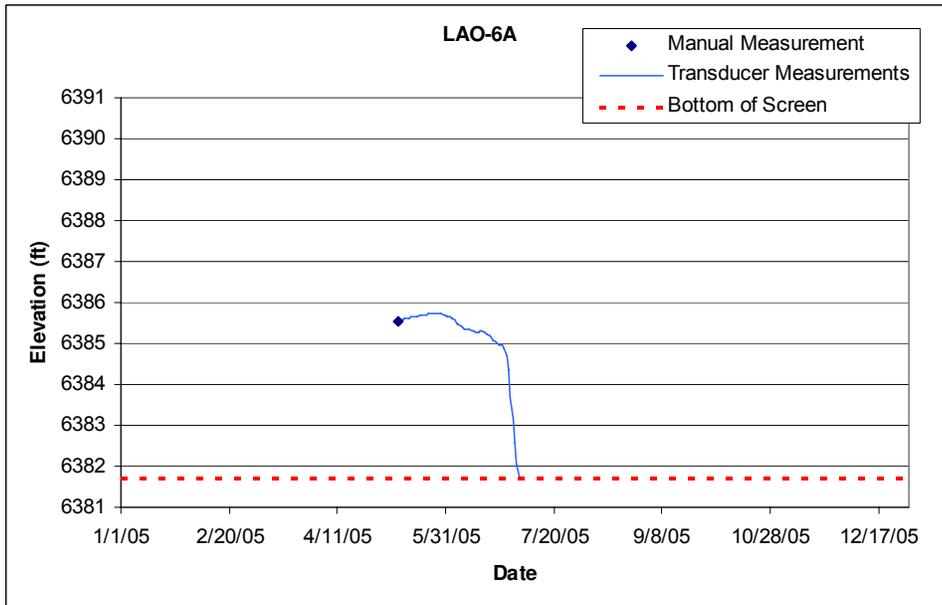
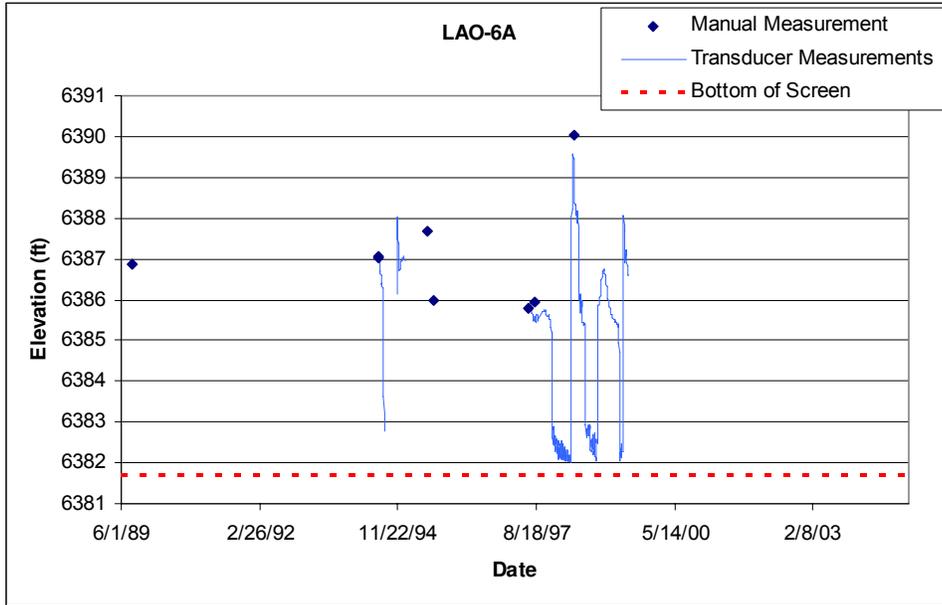


5.25 LAO-6a

Location: Los Alamos Canyon, approximately 1 mile west of SR-4.

Period of Record: August 17, 1989–December 31, 2005

Remarks: Intermittently dry.

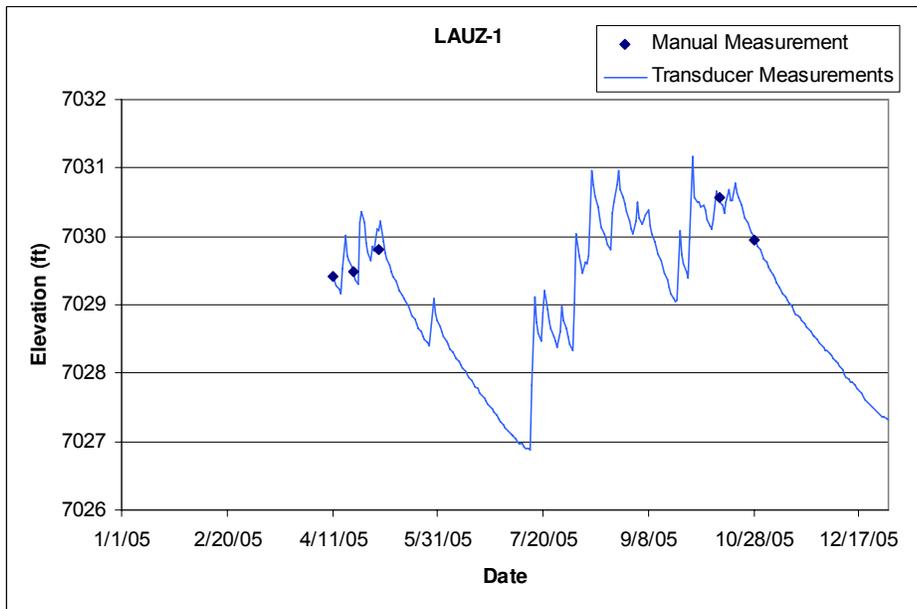
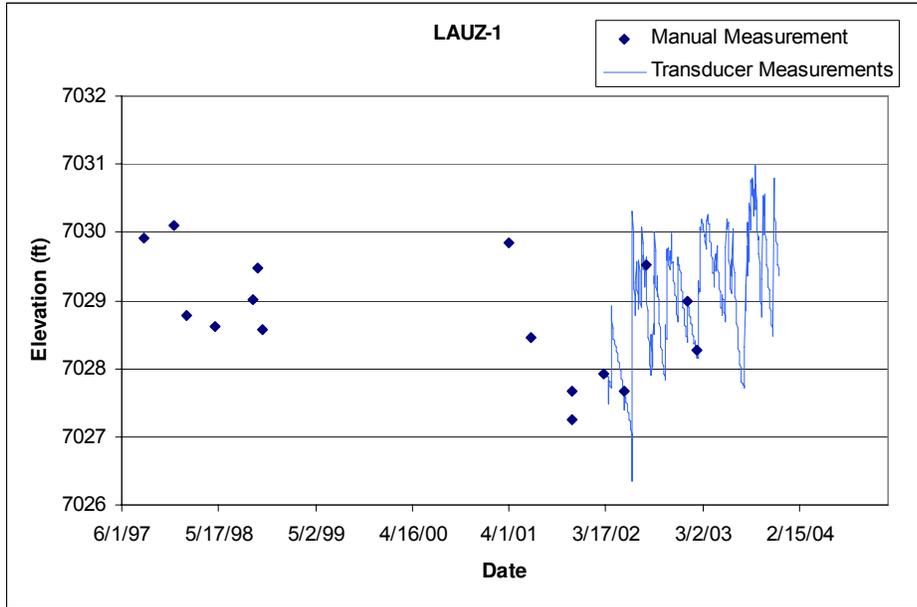


5.26 LAUZ-1

Location: DP Canyon, north of TA-21.

Period of Record: August 20, 1997–December 31, 2005

Remarks: Screen bottom elevation is 7022.1 ft.

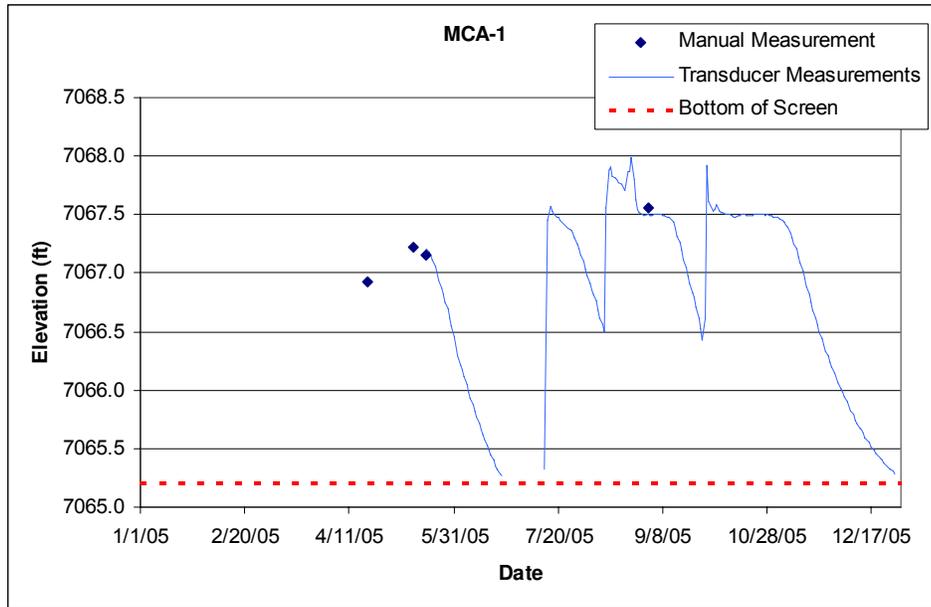


5.27 MCA-1

Location: Upper Mortandad Canyon, approximately 700 ft northeast of the TA-50 outfall.

Period of Record: April 20, 2005–December 31, 2005

Remarks: None.

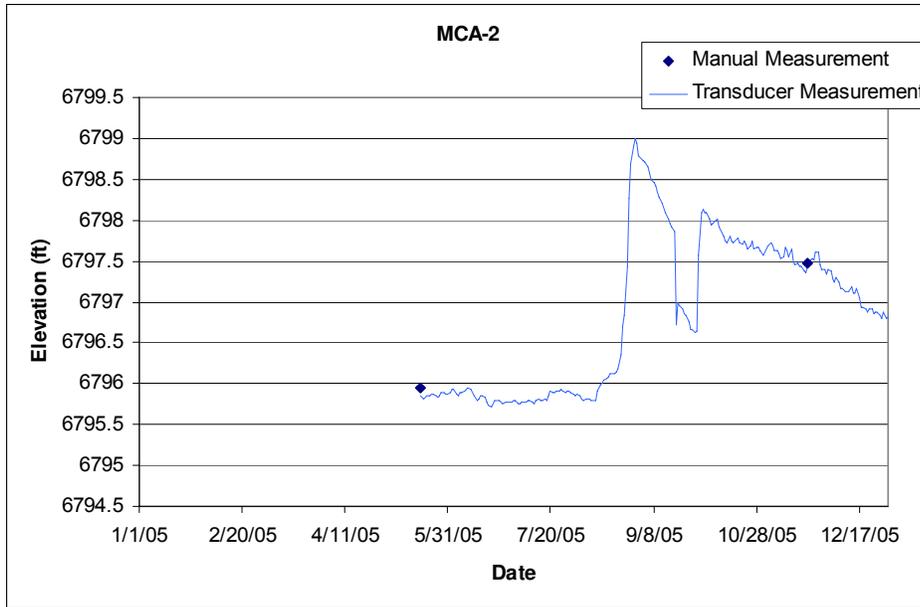


5.28 MCA-2

Location: Mortandad Canyon, approximately 400 ft up canyon of the upper sediment trap.

Period of Record: May 18, 2005–December 31, 2005

Remarks: Screen bottom elevation 6777.2 ft.

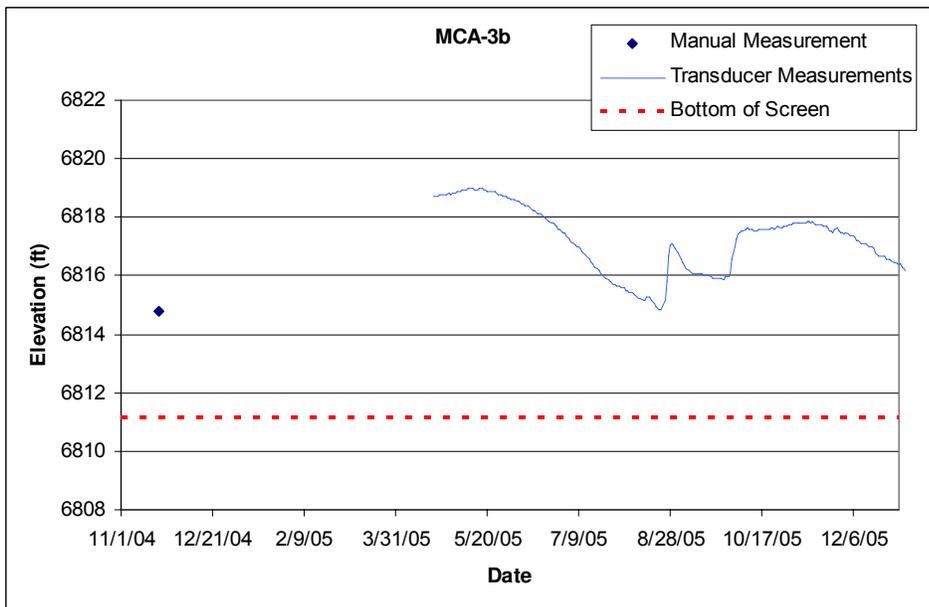
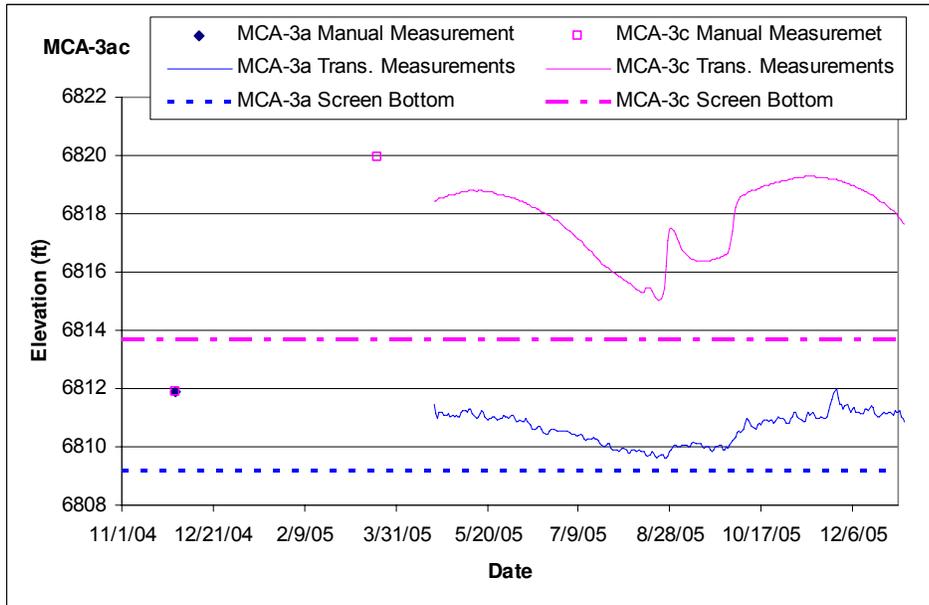


5.29 MCA-3ac & MCA-3b

Location: Middle Mortandad Canyon.

Period of Record: MCA-3ac November 30, 2004–December 31, 2005. MCA-3b November 22, 2004–December 31, 2005.

Remarks: MCA-3ac is a nested piezometer located about 5 ft south of MCA-3b. Valid manual measurements in 1-in. pvc casing were not possible with transducer installed until 2006 when a small-diameter water level tape was purchased.

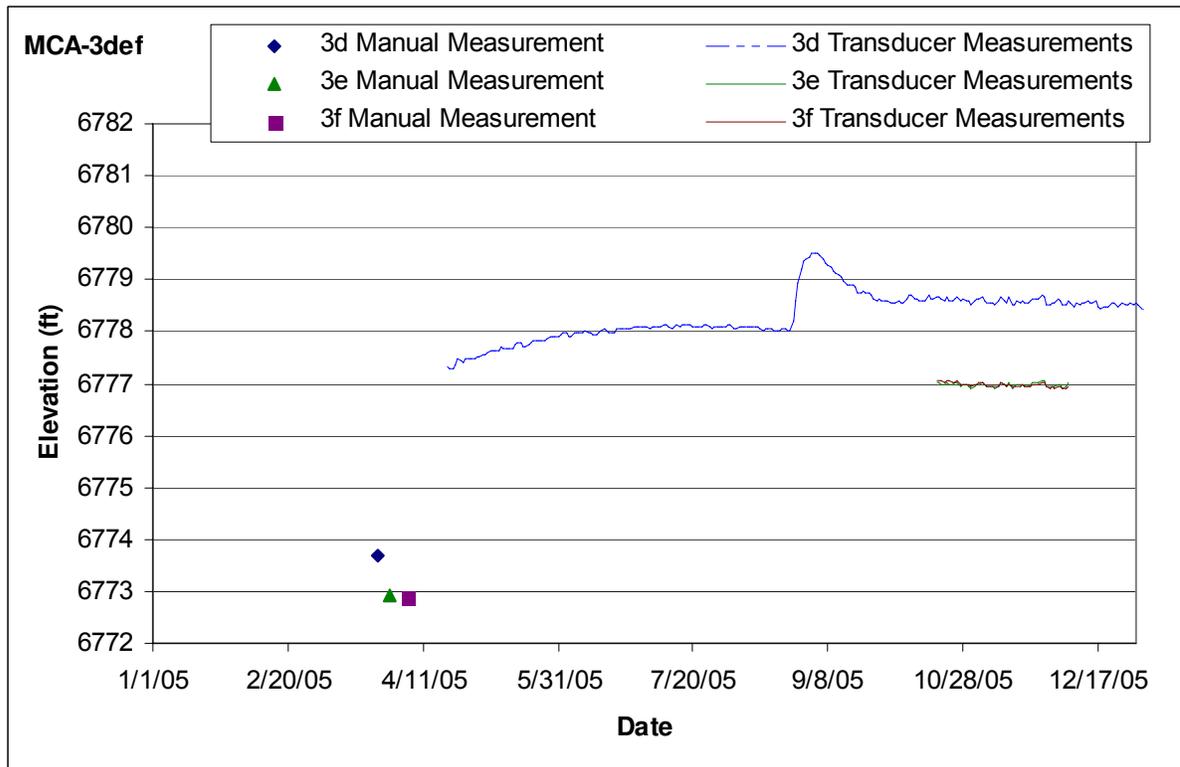


5.30 MCA-3def

Location: Middle Mortandad Canyon, south of sediment traps.

Period of Record: MCA-3d March 25, 2005–December 31, 2005; MCA-3e March 30, 2005–December 6, 2005; MCA-3f April 5, 2005–December 6, 2005.

Remarks: MCA-3def is a nested piezometer. Screen bottom elevations: MCA-3d 6764.4 ft, MCA-3e 6768.0 ft, MCA-3f 6771.5 ft. Pressure transducers in MCA-3e and MCA-3f malfunctioned December 7, 2005–December 31, 2005, no valid data available.

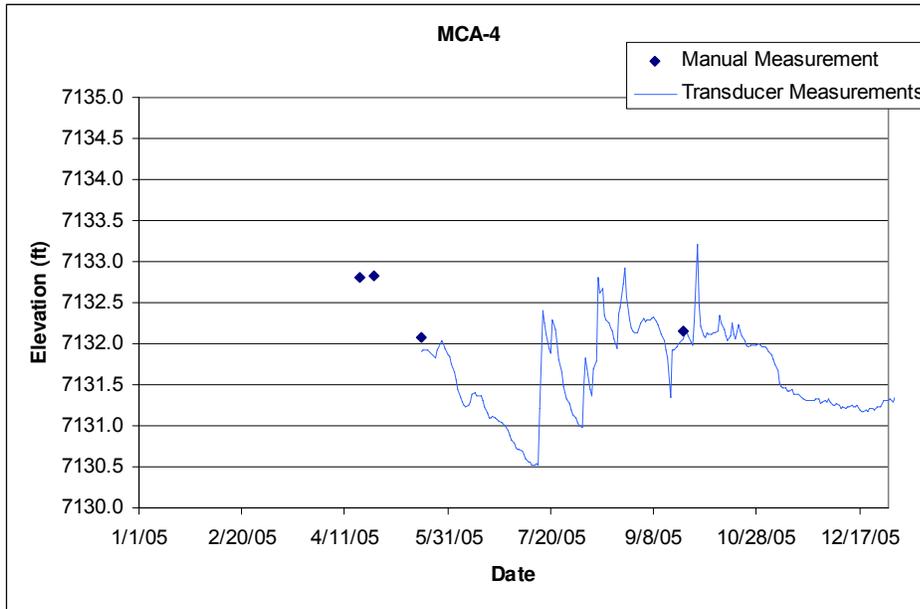


5.31 MCA-4

Location: Upper Effluent Canyon, approximately 200 ft west of TA-50 outfall.

Period of Record: April 18, 2005–December 31, 2005

Remarks: Screen bottom elevation is 7129.8 ft.

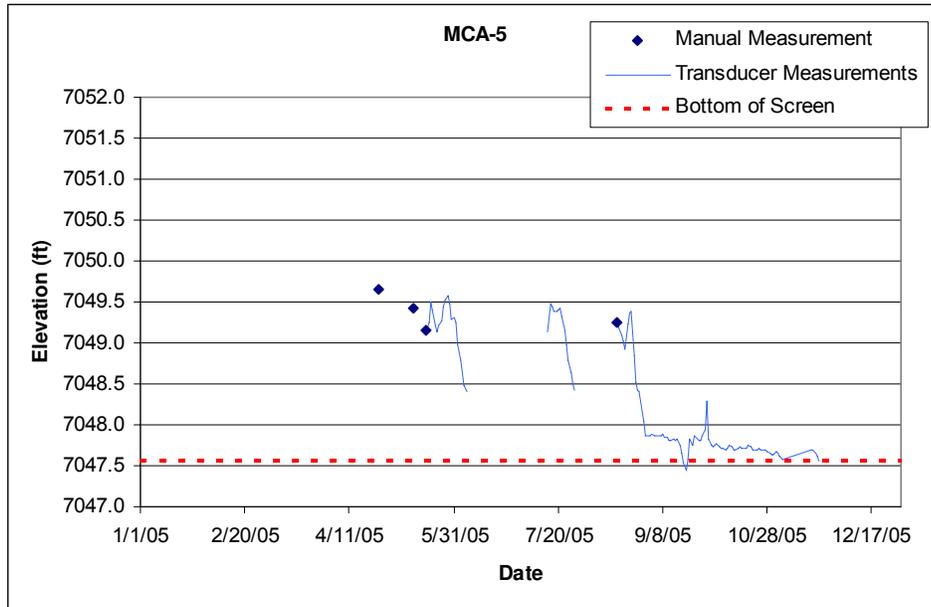


5.32 MCA-5

Location: Upper Mortandad Canyon, approximately 1250 ft downstream of TA-50 outfall.

Period of Record: April 25, 2005–December 31, 2005

Remarks: None.



5.33 MCA-8

Location: Lower Mortandad Canyon.

Period of Record: October 3, 2005–December 31, 2005

Remarks: No valid water level data exist for this well. Water has occurred only in the sump since completion on September 29, 2004.

5.34 MCA-9

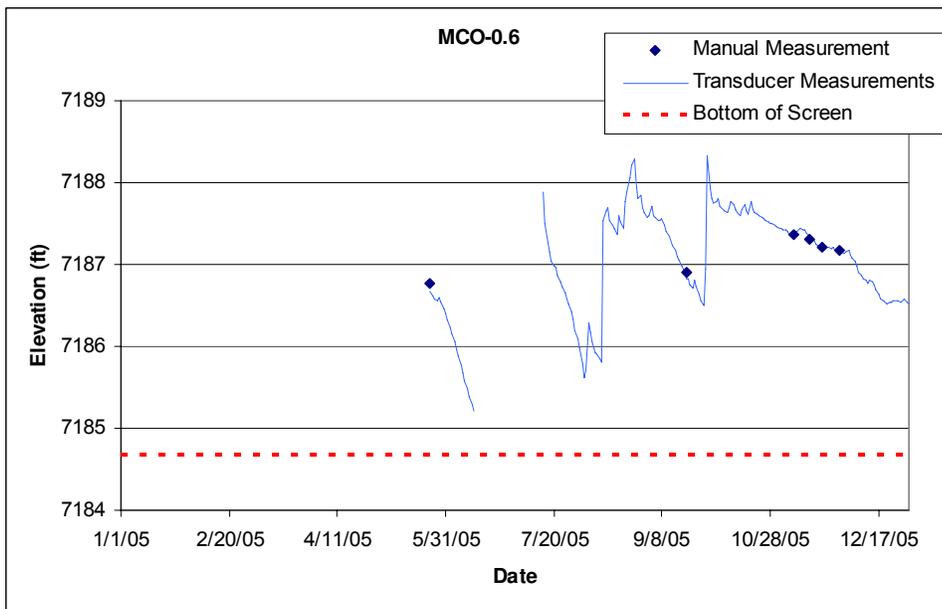
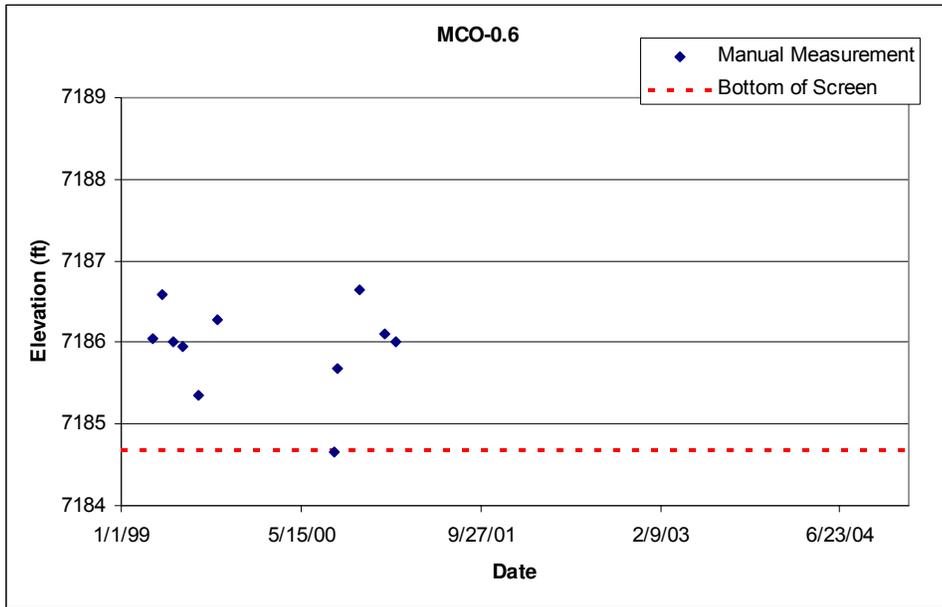
Location: Lower Mortandad Canyon.

Period of Record: August 17, 2005–December 31, 2005

Remarks: No valid water level data exist for this well. Water has occurred only in the sump since completion on December 4, 2004.

5.35 MCO-0.6

Location: Upper Mortandad Canyon, north of TA-48.
 Period of Record: March 31, 1999–December 31, 2005
 Remarks: None.

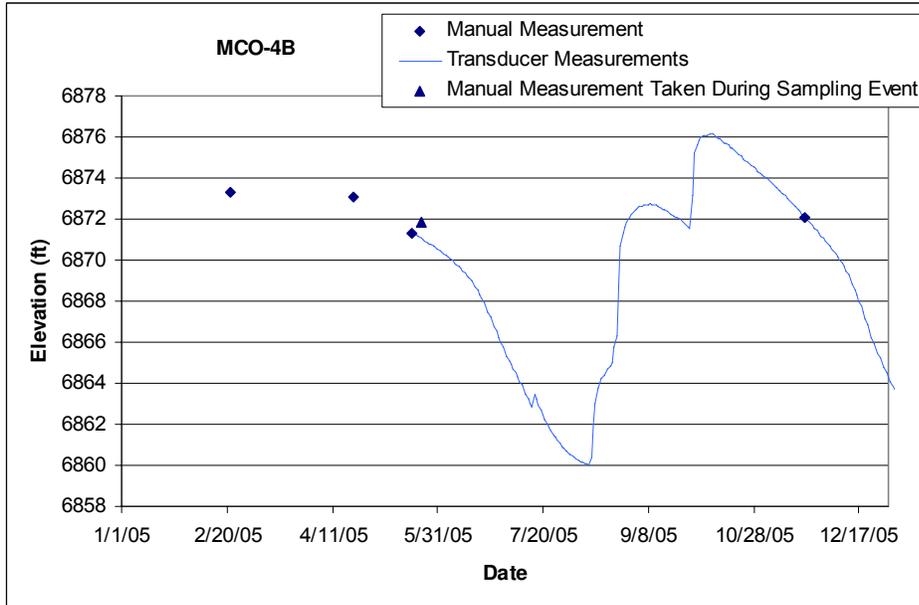
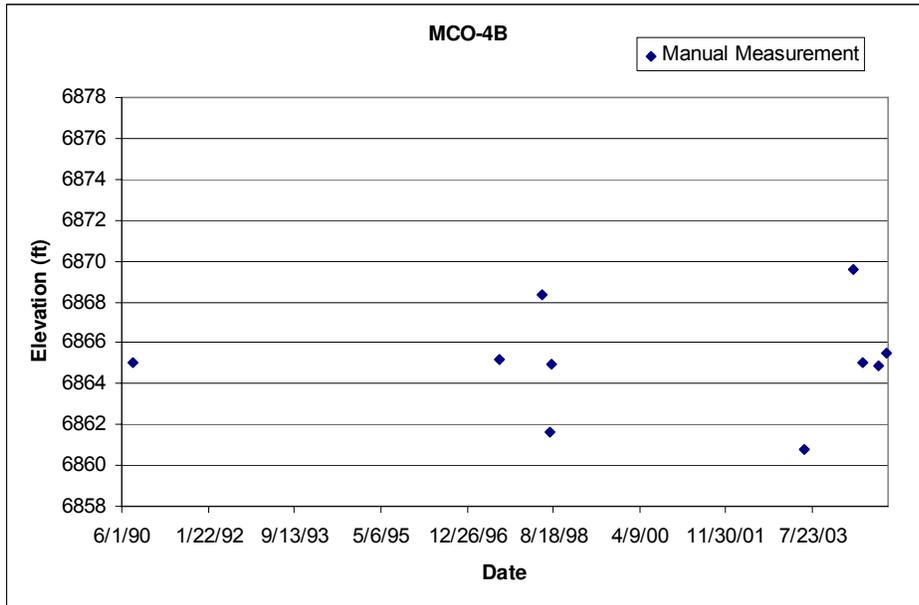


5.36 MCO-4B

Location: Middle Mortandad, approximately 3000 ft up canyon from sediment traps.

Period of Record: August 21, 1990–December 31, 2005

Remarks: Screen bottom elevation is 6857.9 ft.

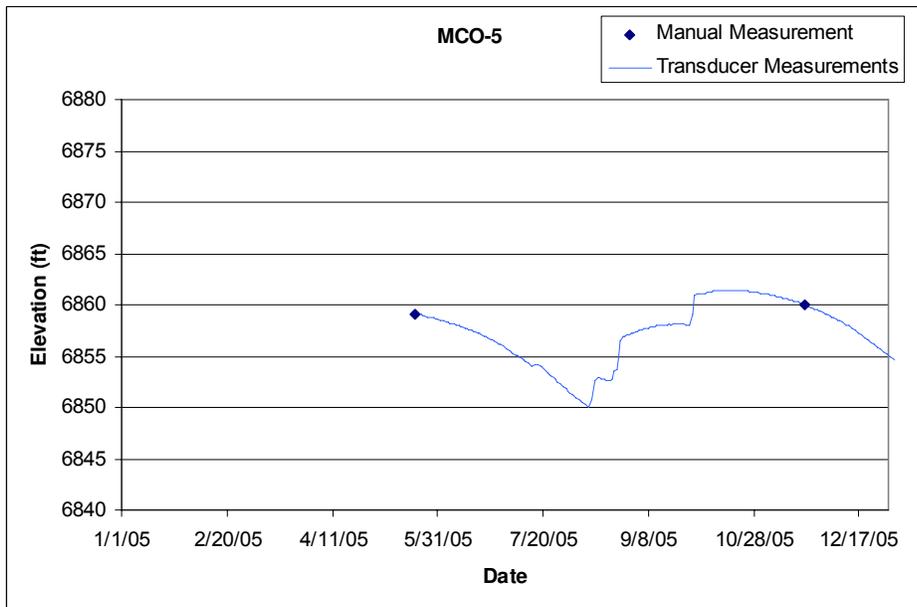
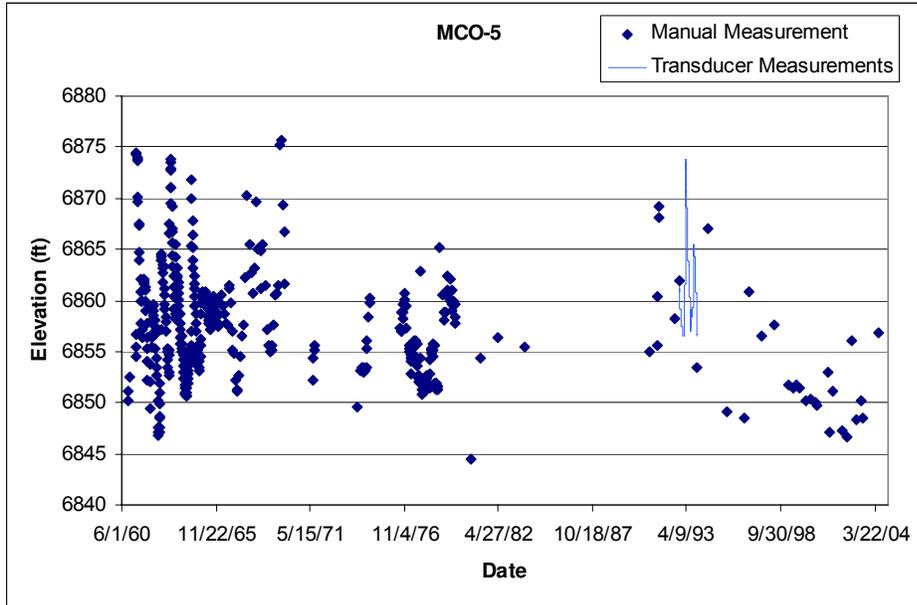


5.37 MCO-5

Location: Middle Mortadad, approximately 2300 ft up canyon from sediment traps.

Period of Record: October 1, 1960–December 31, 2005

Remarks: Bottom of screen elevation is 6829.66 ft.

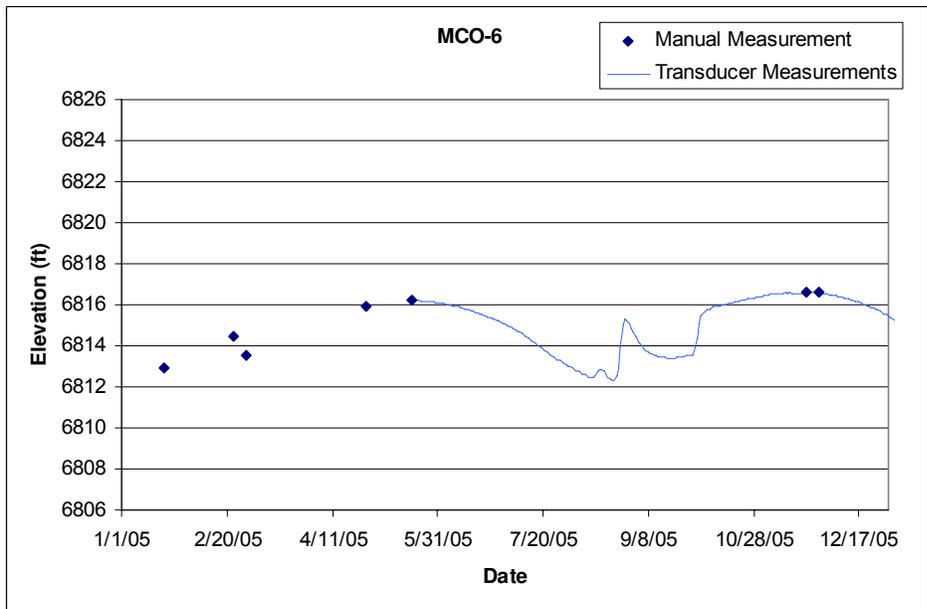
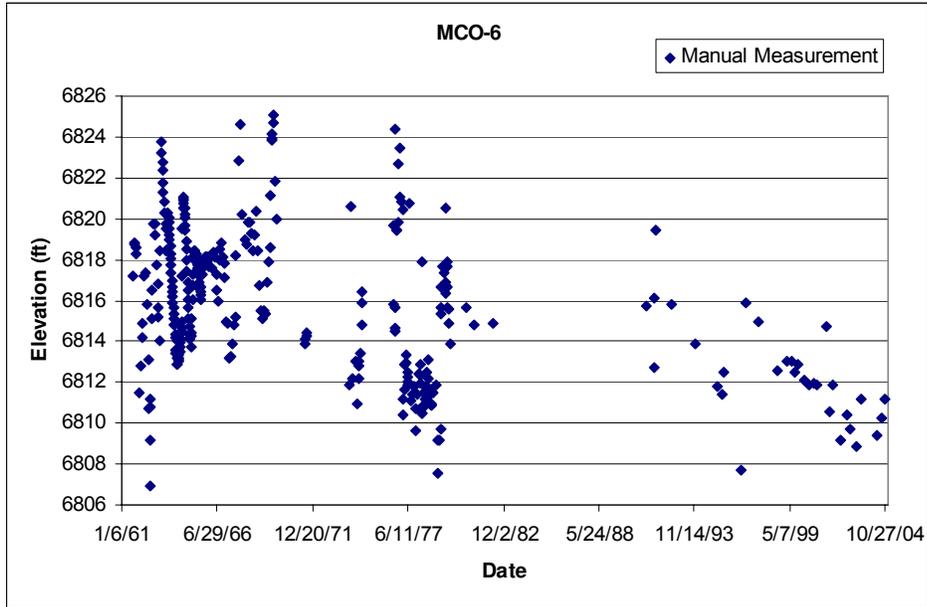


5.38 MCO-6

Location: Middle Mortandad Canyon, approximately 0.25 miles east of MCO-5.

Period of Record: August 25, 1961–December 31, 2005

Remarks: Bottom of screen elevation is 6802.5 ft.

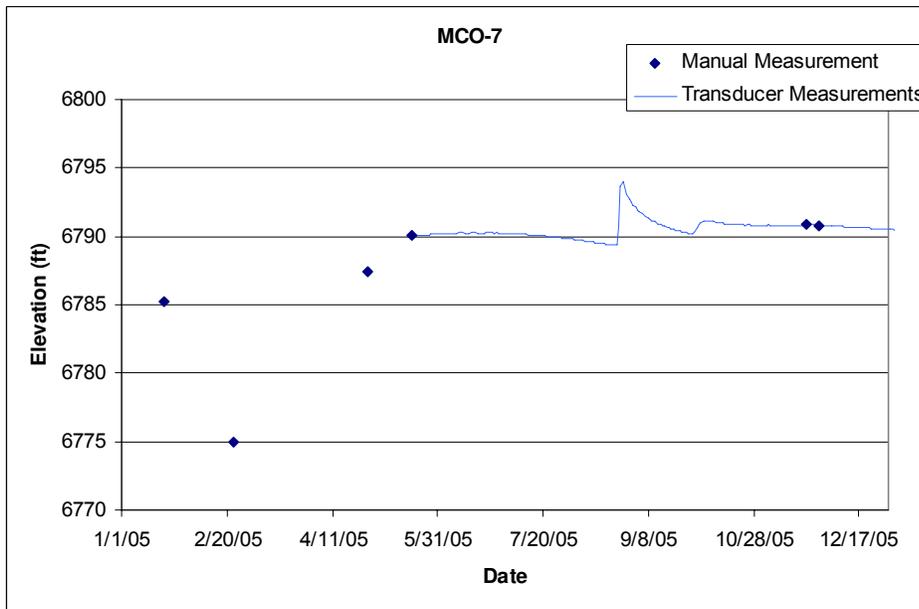
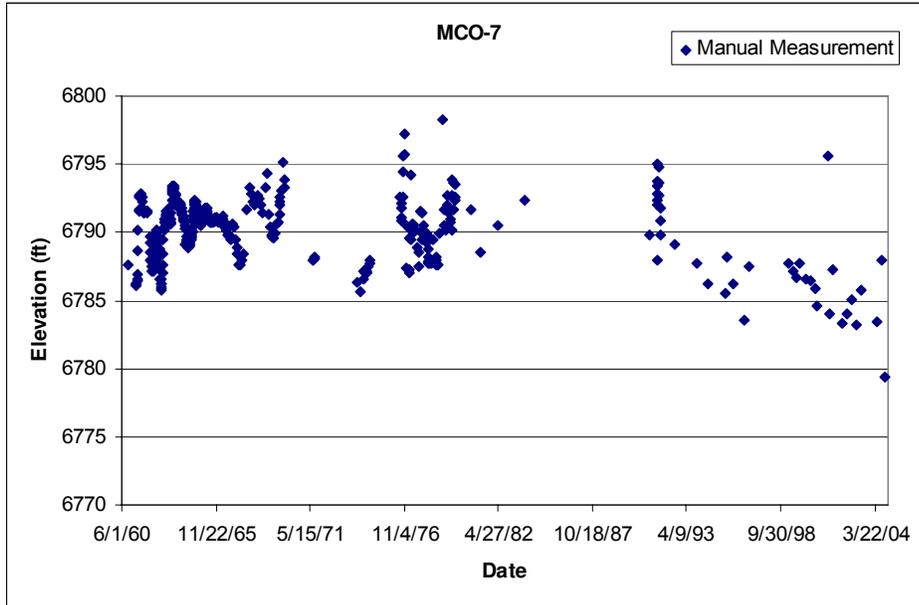


5.39 MCO-7

Location: Middle Mortandad Canyon, approximately 0.2 miles east of MCO-6.

Period of Record: October 1, 1960–December 31, 2005

Remarks: Bottom of screen elevation is 6758.31 ft.

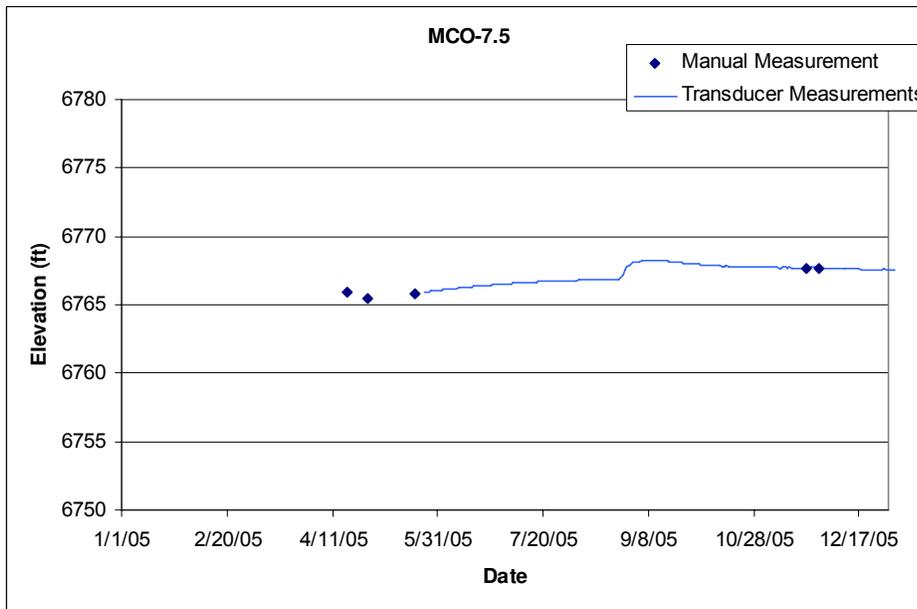
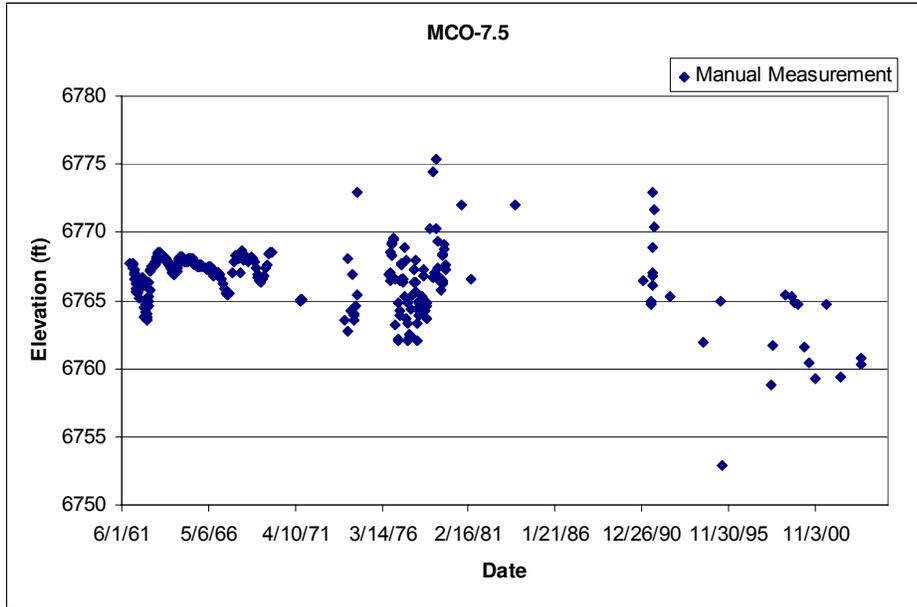


5.40 MCO-7.5

Location: Middle Mortandad Canyon, approximately 0.2 miles east of MCO-7.

Period of Record: November 1, 1961–December 31, 2005

Remarks: Bottom of screen elevation is 6748.88 ft.

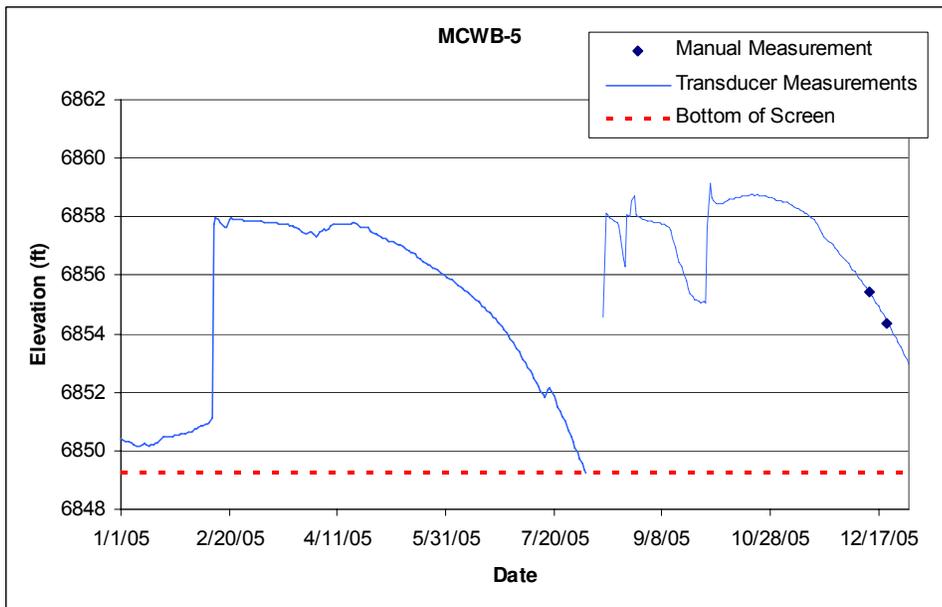
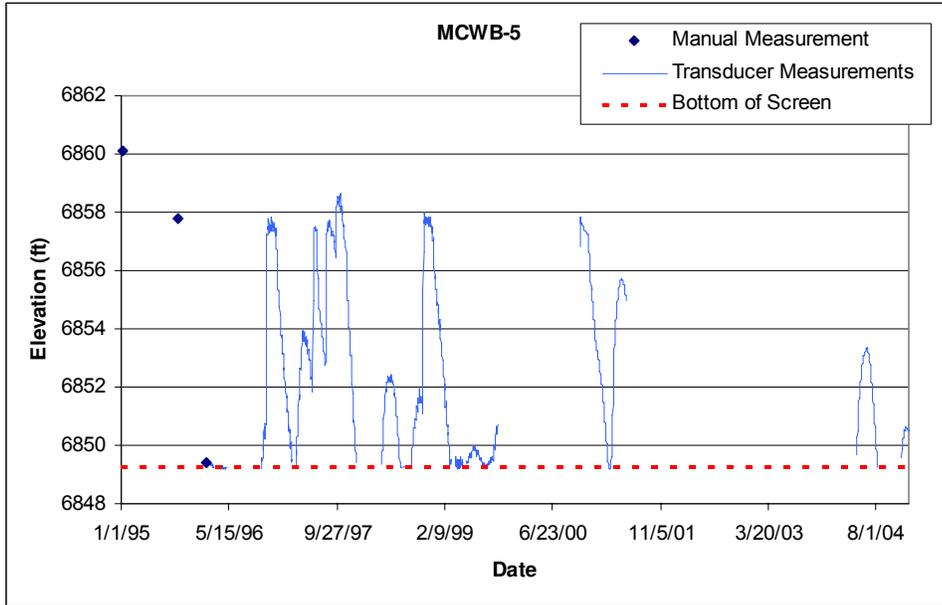


5.41 MCWB-5

Location: Middle Mortandad Canyon, up canyon from the sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: None.

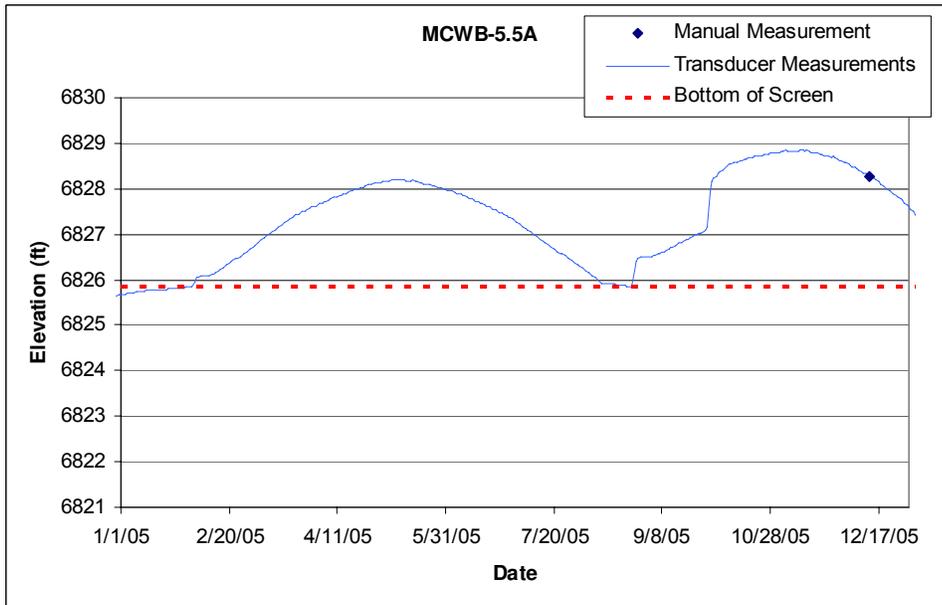
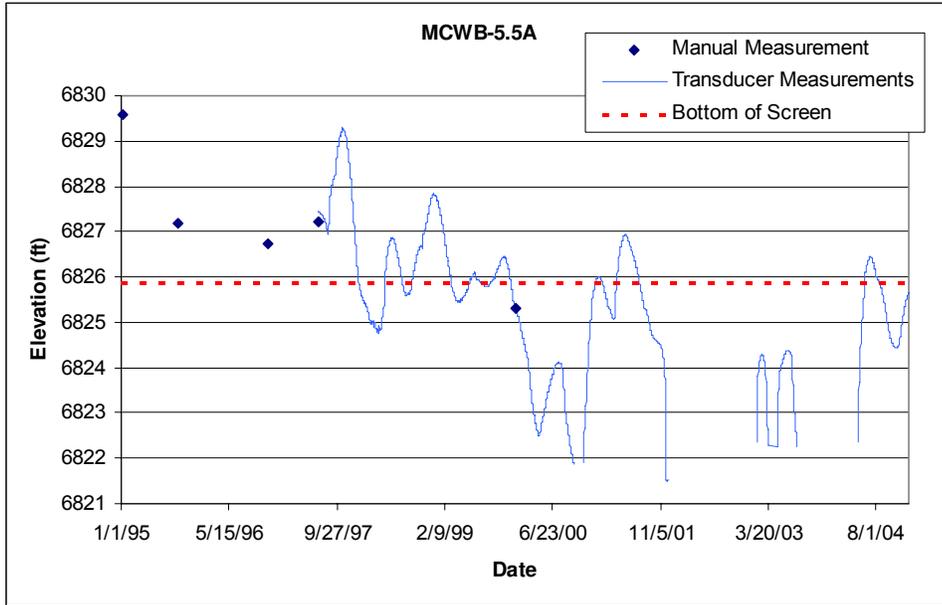


5.42 MCWB-5.5A

Location: Middle Mortandad Canyon, up canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

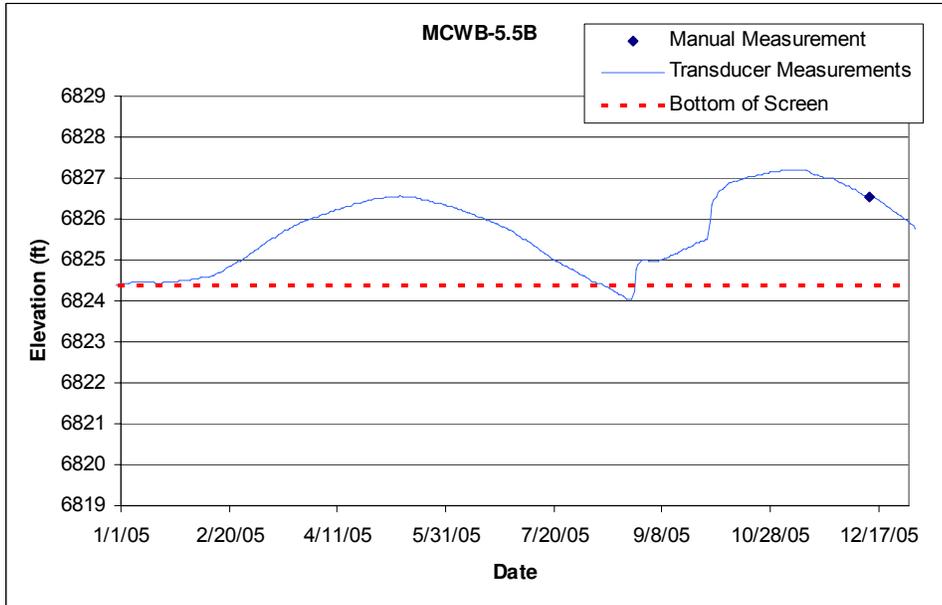
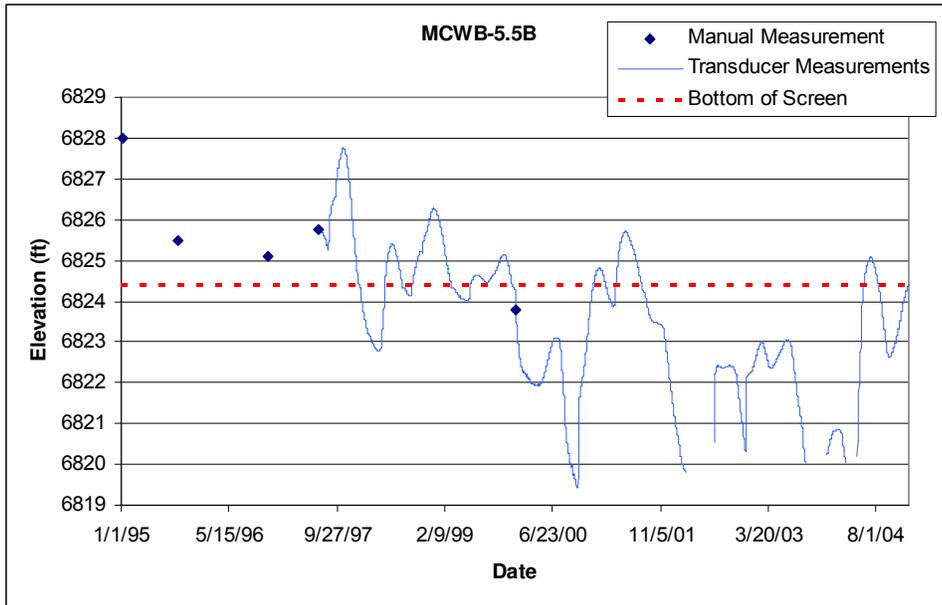


5.43 MCWB-5.5B

Location: Middle Mortandad Canyon, up canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

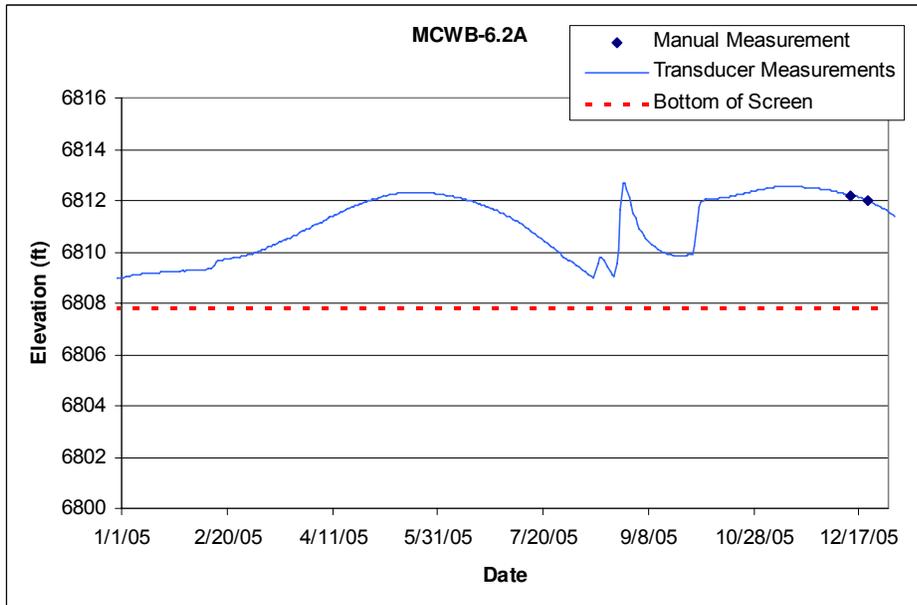
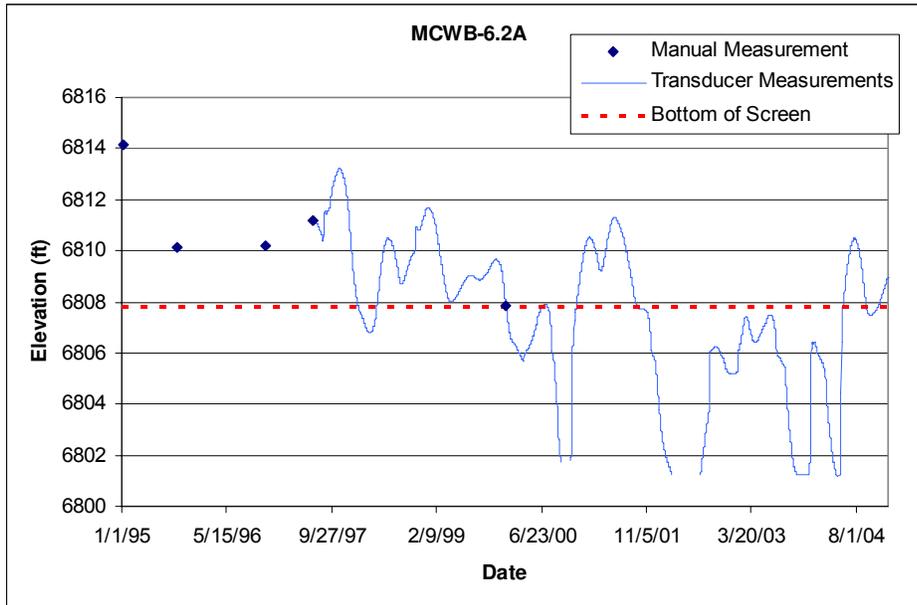


5.44 MCWB-6.2A

Location: Middle Mortandad Canyon, up canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

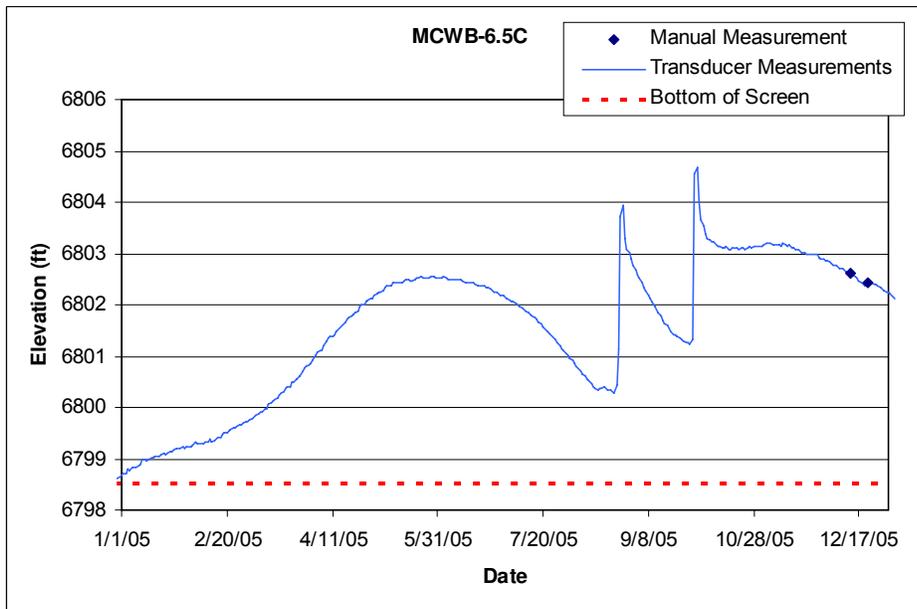
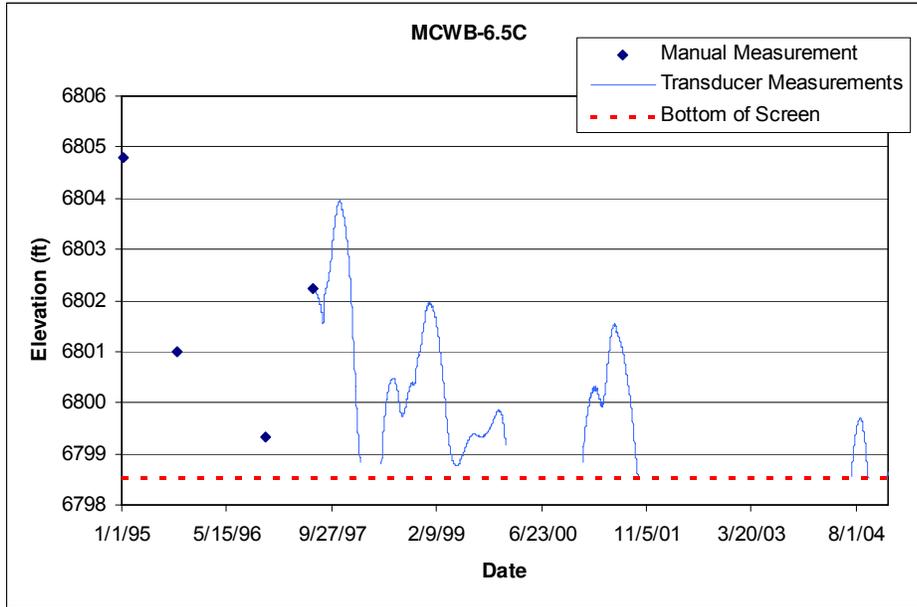


5.45 MCWB-6.5C

Location: Middle Mortandad Canyon, up canyon of the sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: None.

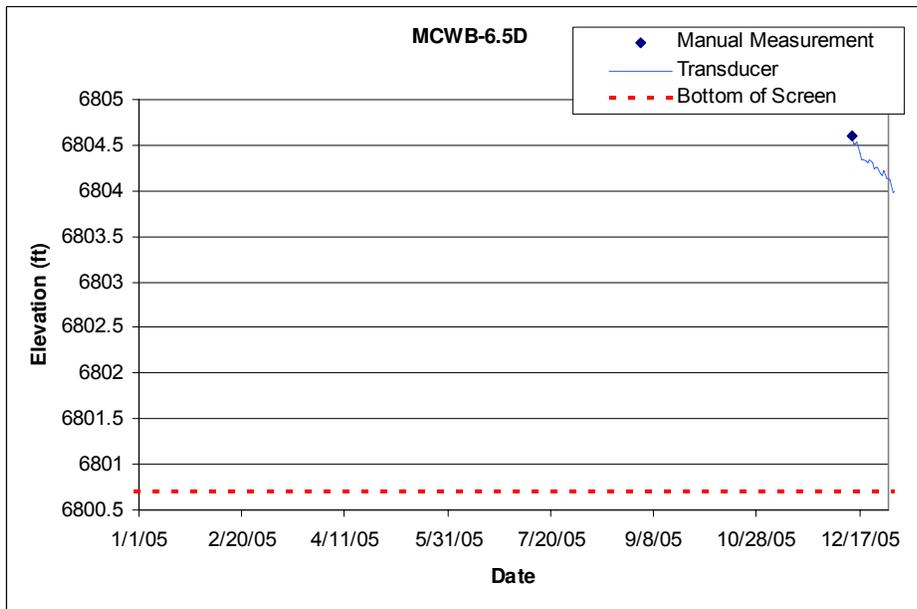
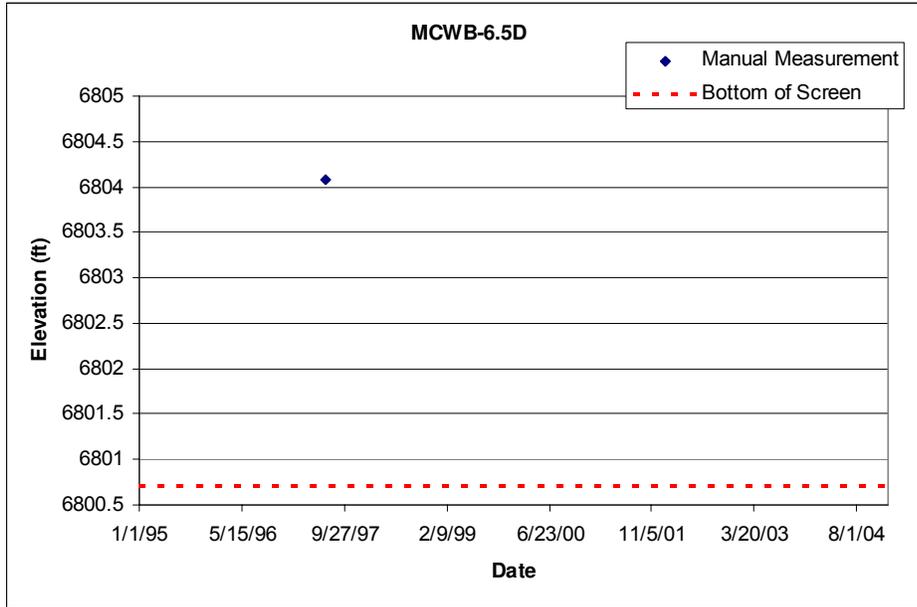


5.46 MCWB-6.5D

Location: Middle Mortandad Canyon, up canyon of the sediment traps.

Period of Record: January 19, 1995–December 31, 2005

Remarks: MCWB-6.5D is intermittently dry.

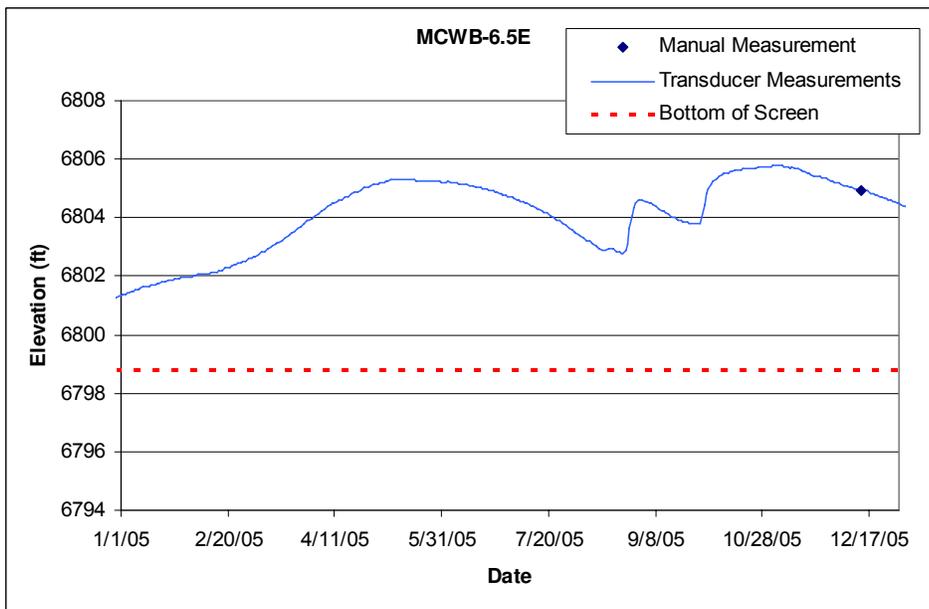
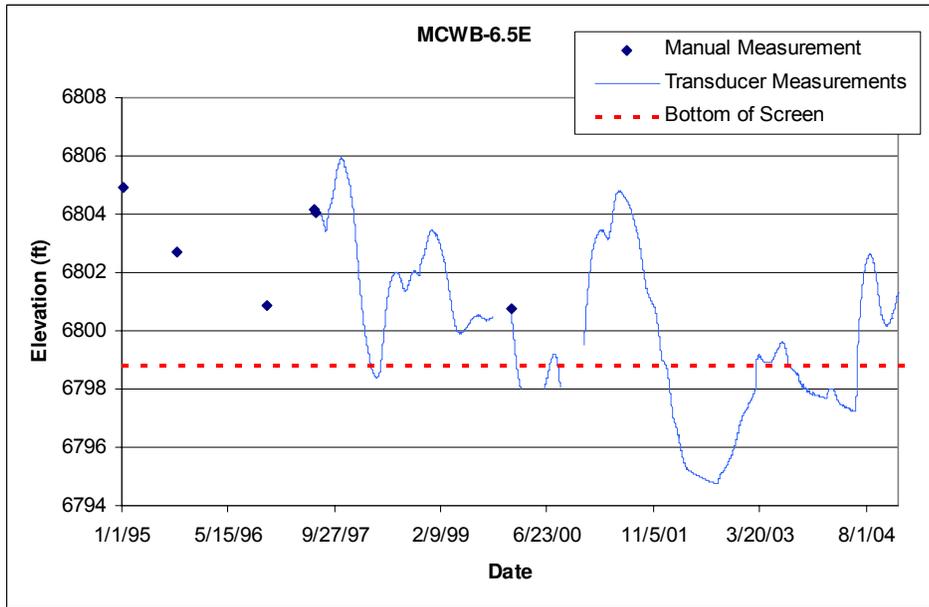


5.47 MCWB-6.5E

Location: Middle Mortandad Canyon, up canyon of the sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

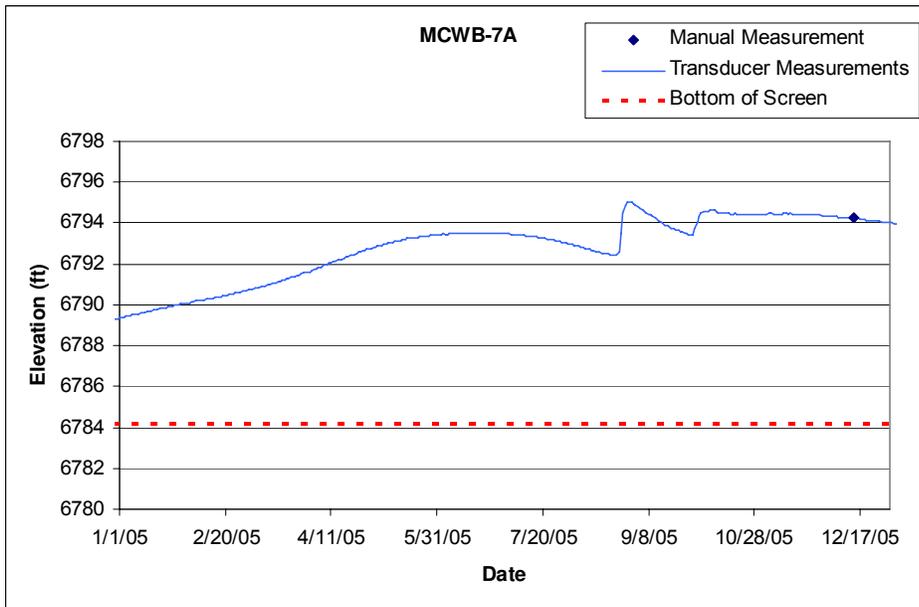
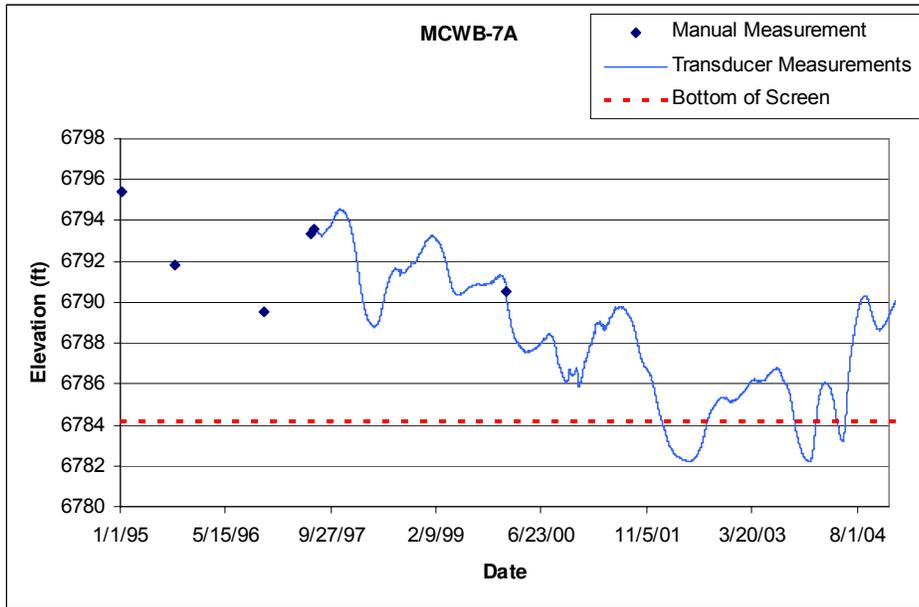


5.48 MCWB-7A

Location: Middle Mortandad Canyon, near sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

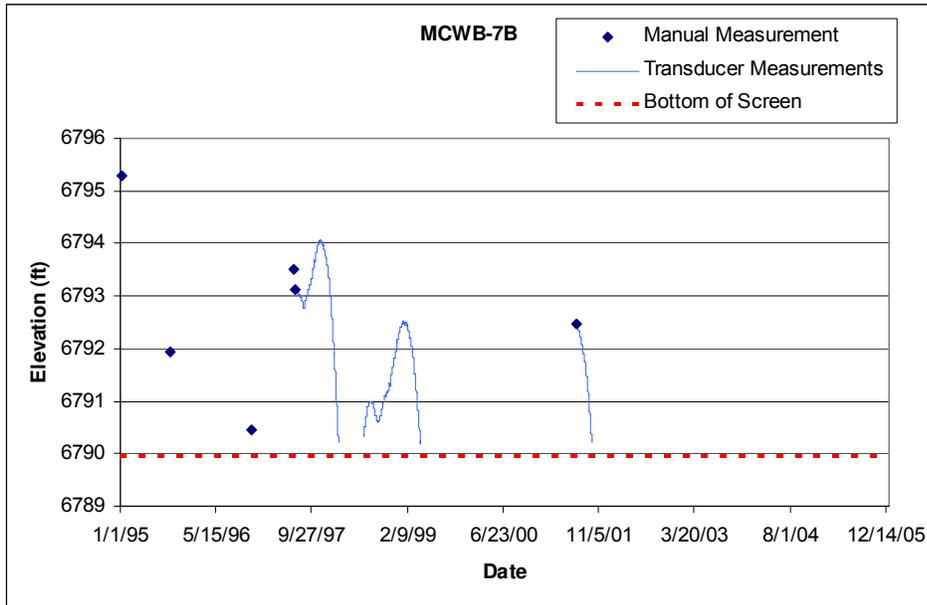


5.49 MCWB-7B

Location: Middle Mortandad Canyon, near sediment traps.

Period of Record: January 9, 1995–December 14, 2005

Remarks: No valid data for 2005. Well was dry when checked on December 14, 2005.



5.50 MCWB-7.2

Location: Middle Mortandad Canyon.

Period of Record: January 9, 1995–October 26, 2005

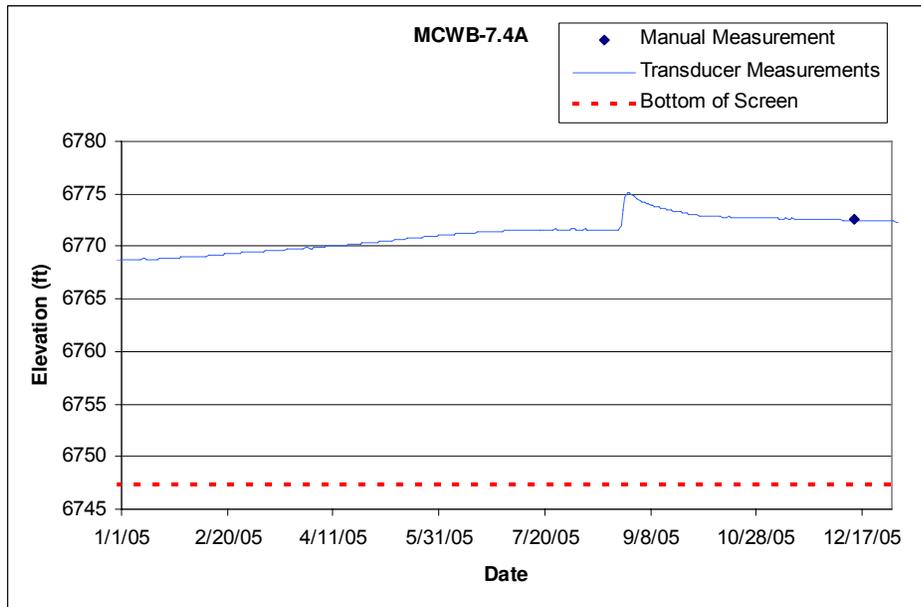
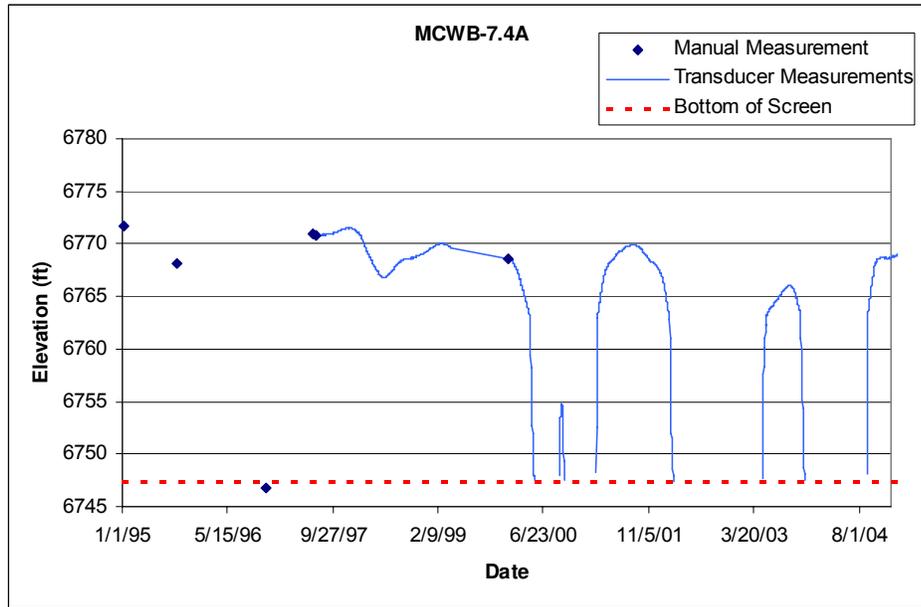
Remarks: All measurements taken show groundwater levels to be below the bottom of the screen, there are no valid data for this well.

5.51 MCWB-7.4A

Location: Middle Mortandad Canyon, down canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: None.

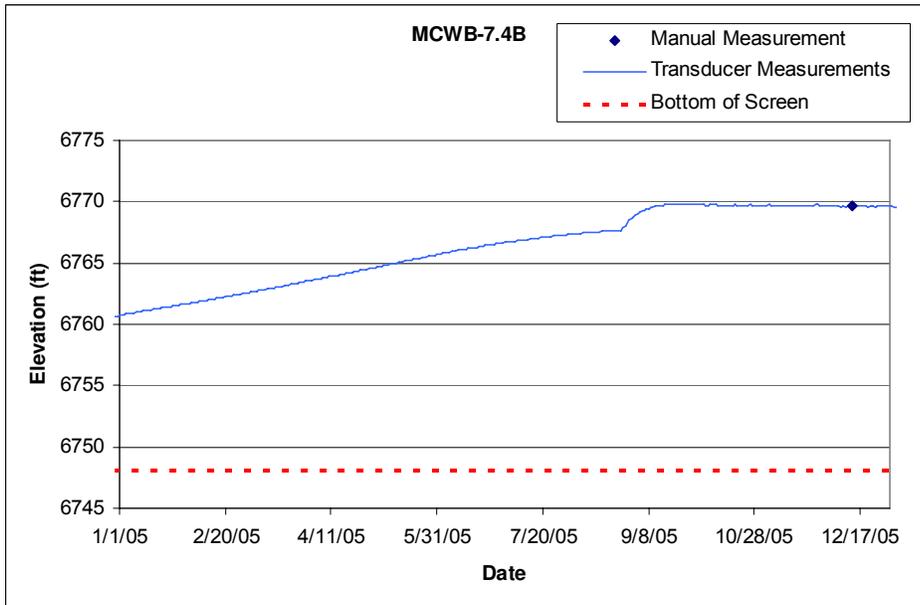
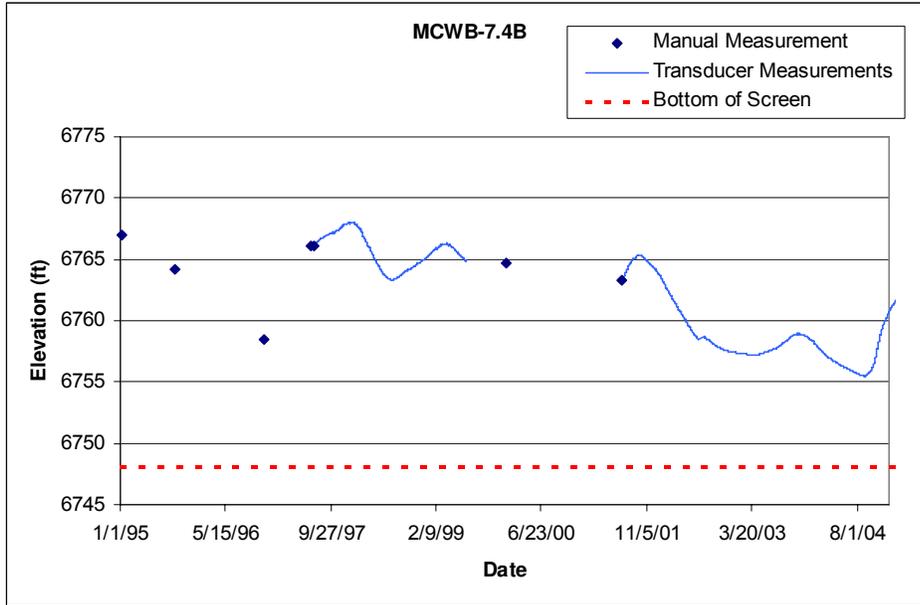


5.52 MCWB-7.4B

Location: Middle Mortandad Canyon, down canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: None.

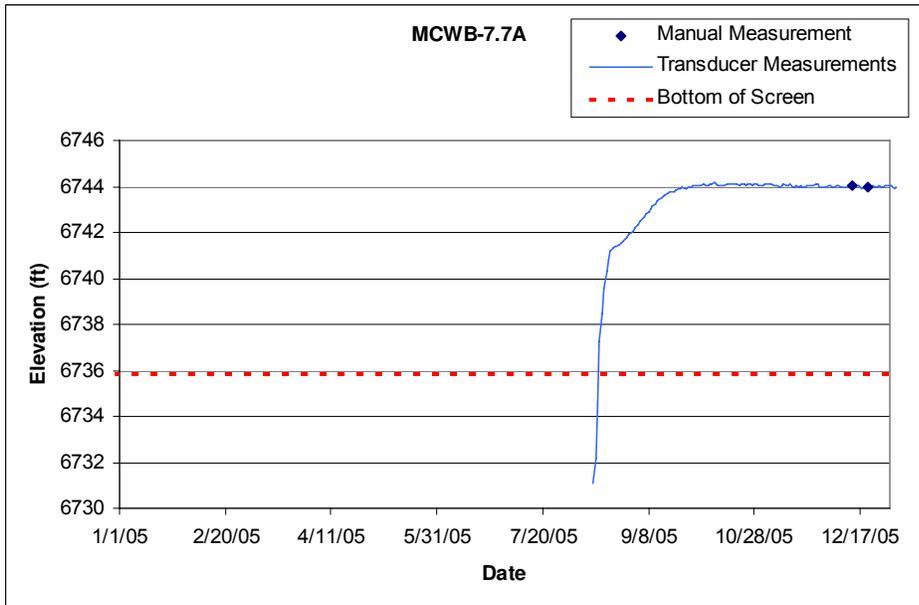
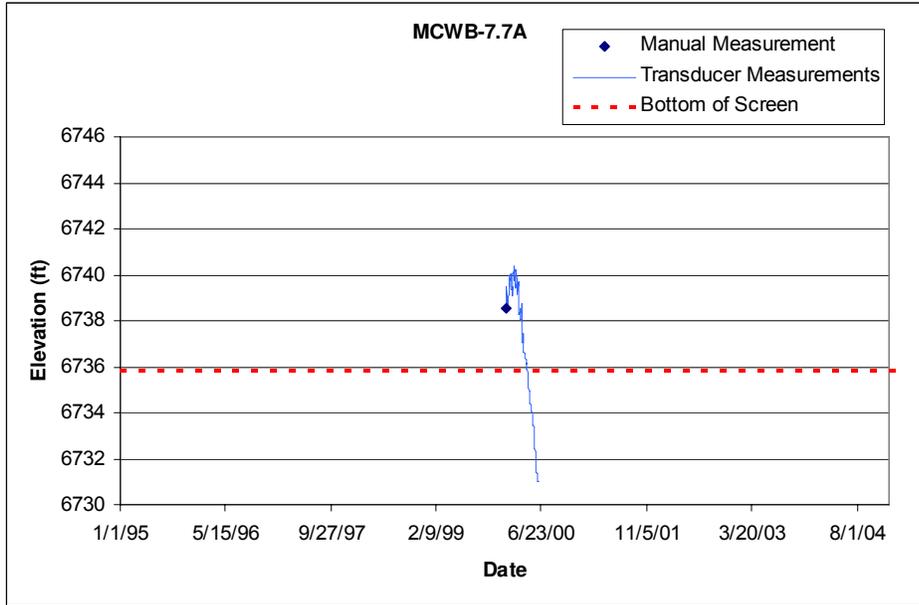


5.53 MCWB-7.7A

Location: Middle Mortandad Canyon, down canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: Water in sump appears to respond to groundwater level fluctuations.

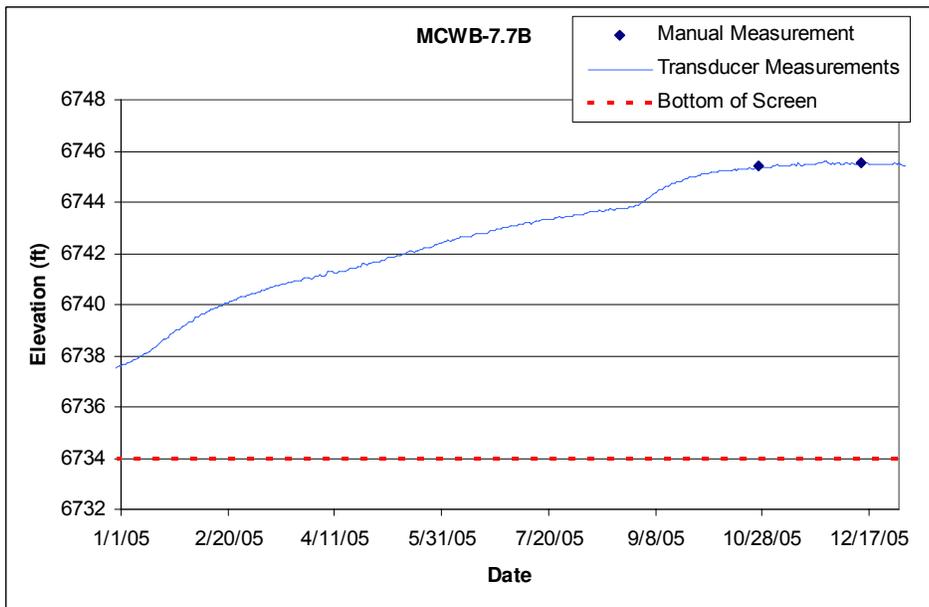
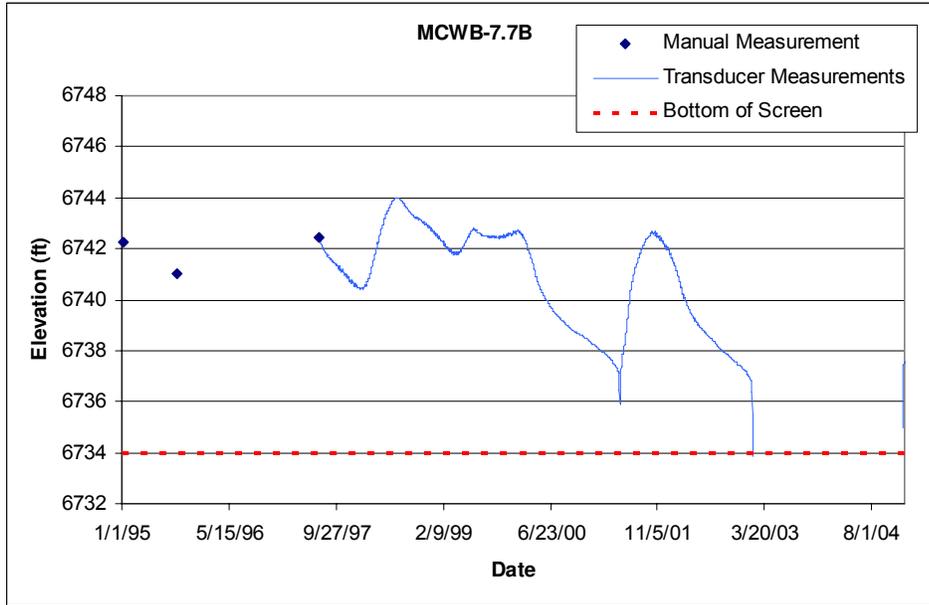


5.54 MCWB-7.7B

Location: Middle Mortandad Canyon, down canyon from sediment traps.

Period of Record: January 9, 1995–December 31, 2005

Remarks: None.

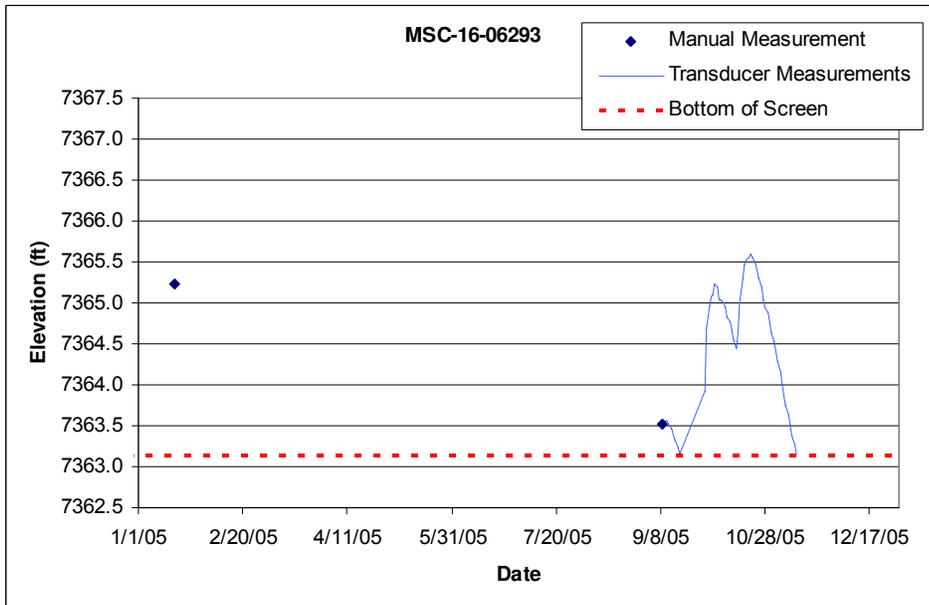
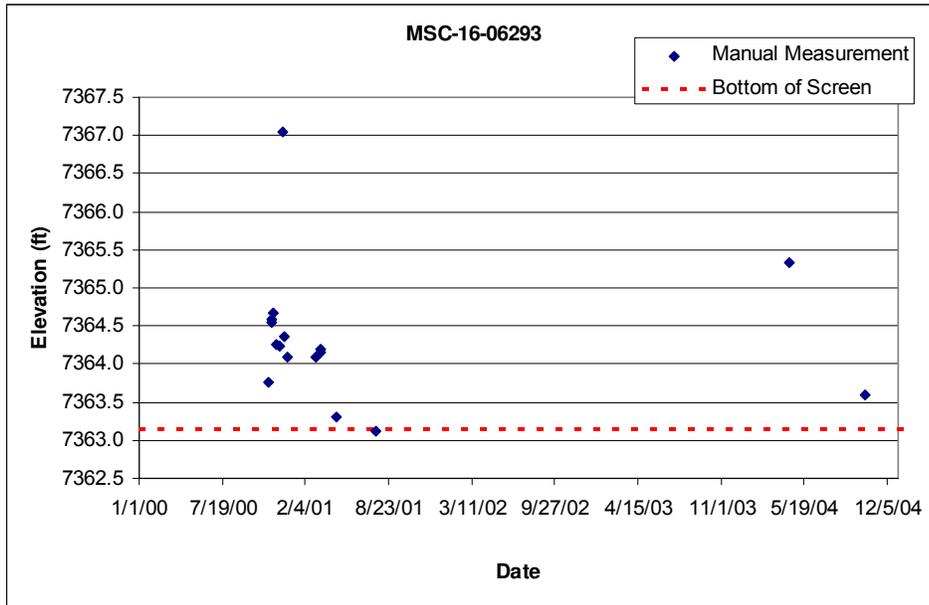


5.55 MSC-16-06293

Location: Martin Spring Canyon, about 1600 ft down drainage from Martin Spring outlet.

Period of Record: November 6, 2000–December 31, 2005

Remarks: Transducer installed on September 9, 2005.

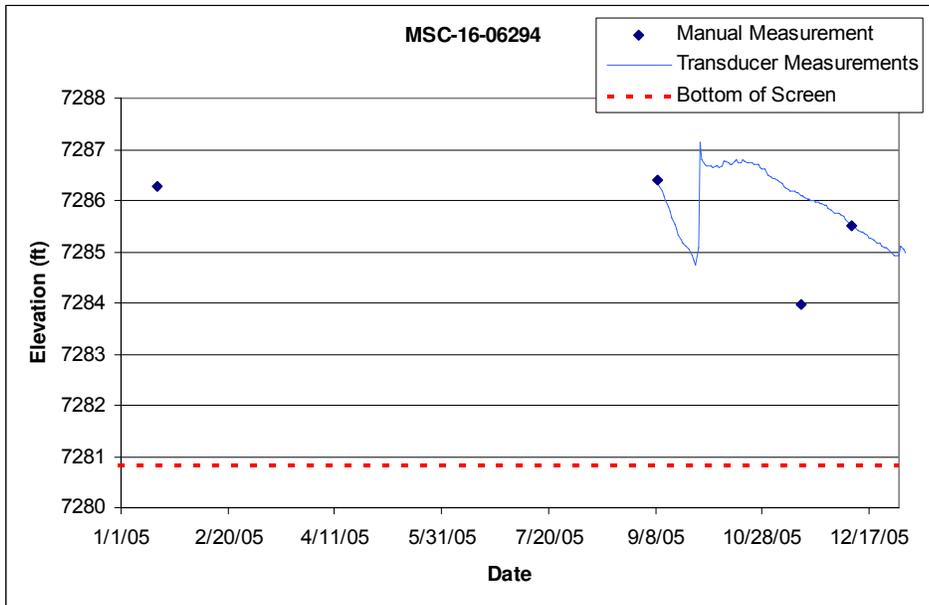
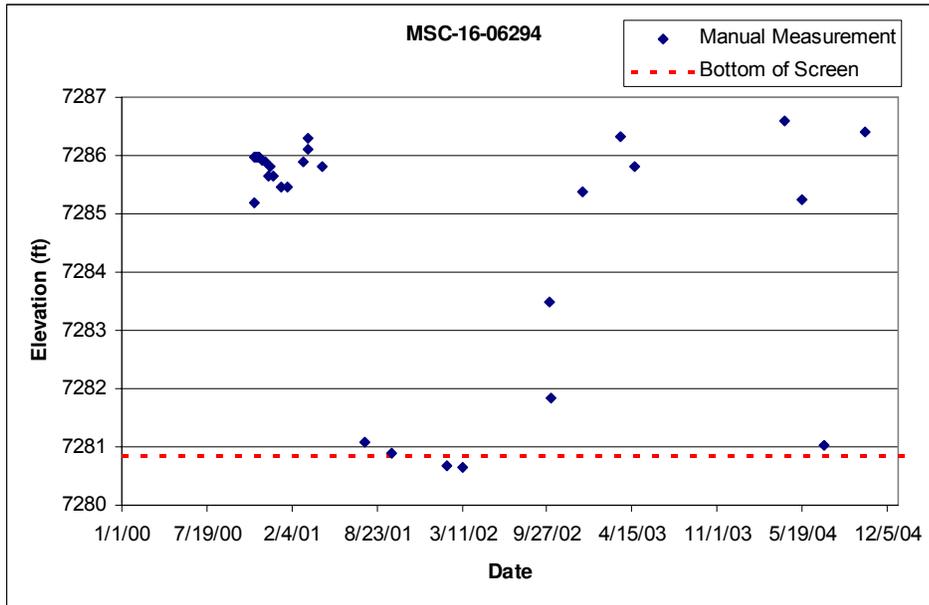


5.56 MSC-16-06294

Location: Martin Spring Canyon, about 1600 ft upstream of the K-site wetlands.

Period of Record: November 6, 2000–December 31, 2005

Remarks: Transducer installed on September 9, 2005.

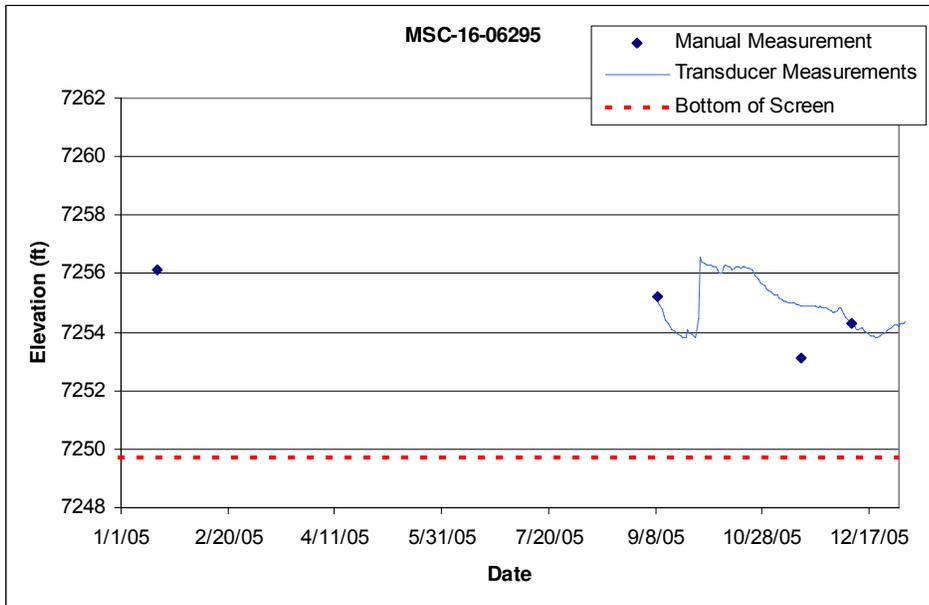
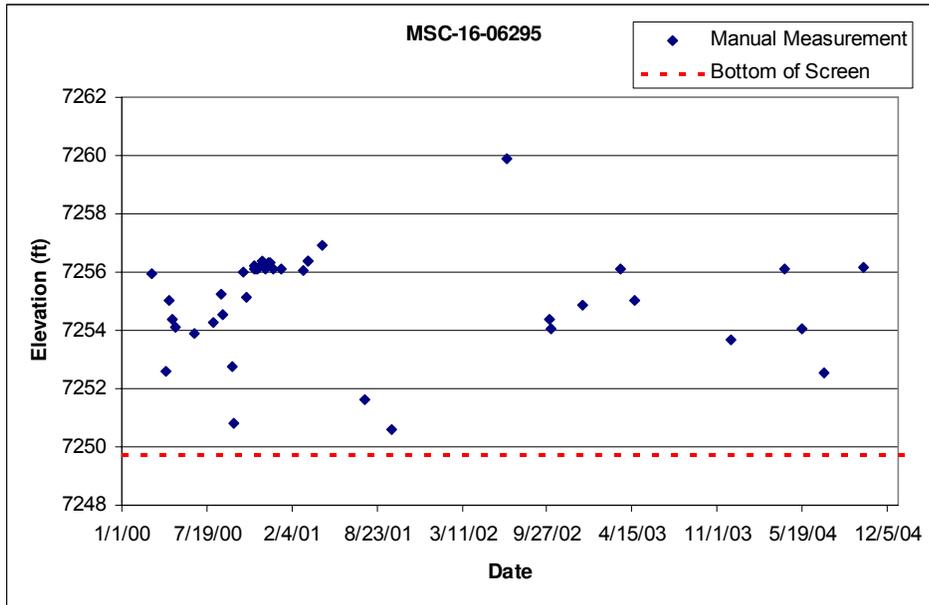


5.57 MSC-16-06295

Location: Martin Spring Canyon, just downstream of the K-site wetlands, and north of the TA-11 drop tower.

Period of Record: March 10, 2000–December 31, 2005

Remarks: Transducer installed on September 9, 2005.

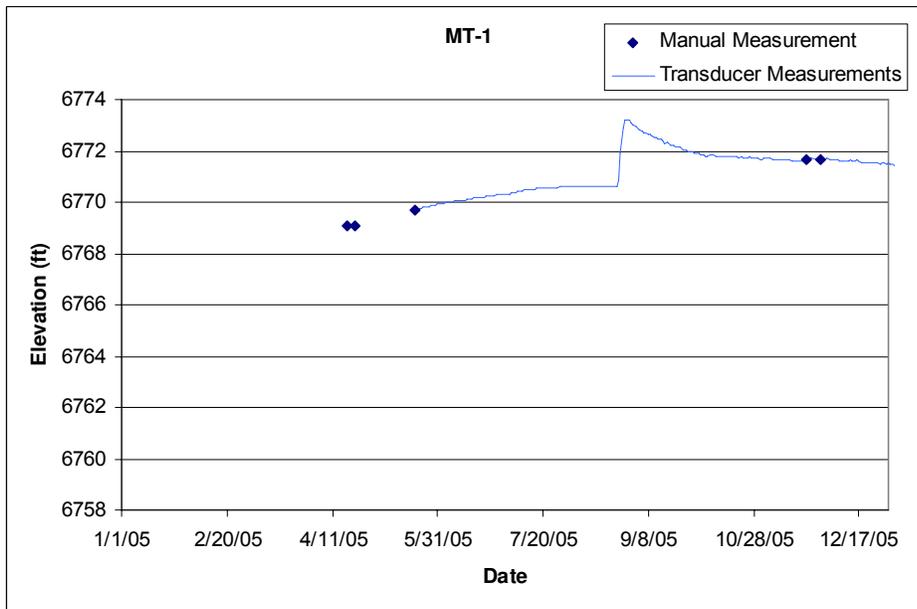
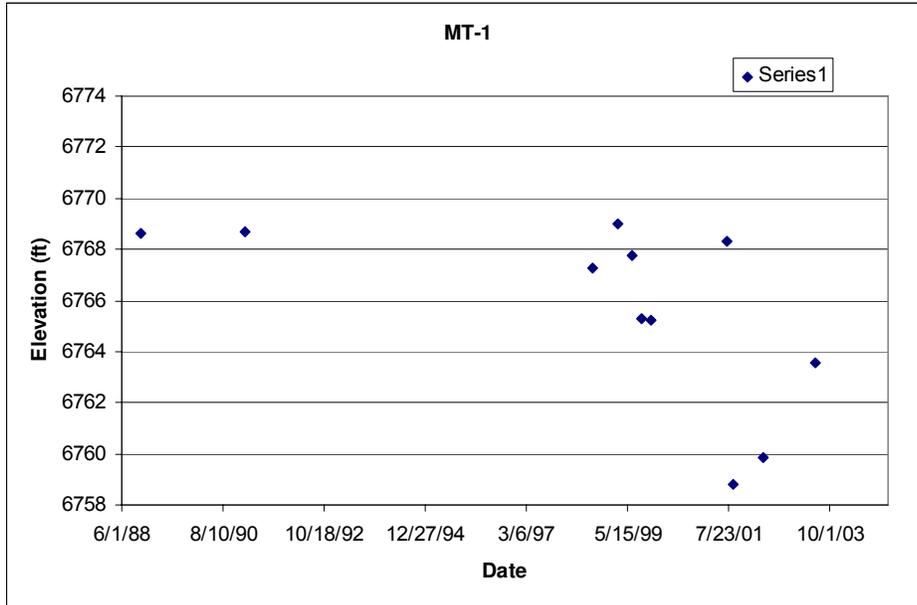


5.58 MT-1

Location: Middle Mortandad Canyon, approximately 0.12 mile east of MCO-7.

Period of Record: November 1, 1988–December 31, 2005

Remarks: Bottom of screen elevation is 6752.6 ft.

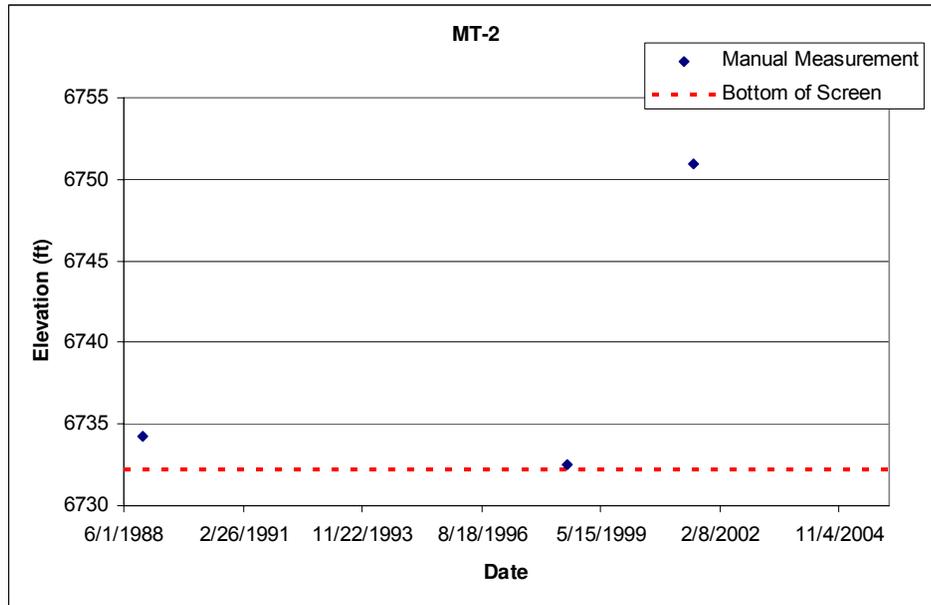


5.59 MT-2

Location: Middle Mortandad Canyon, down canyon of sediment traps, approximately 0.12 mile east of MT-1.

Period of Record: November 1, 1988–December 31, 2005

Remarks: No valid water level data for 2005. A transducer was installed May 20, 2005, but the well was dry during the period of record.

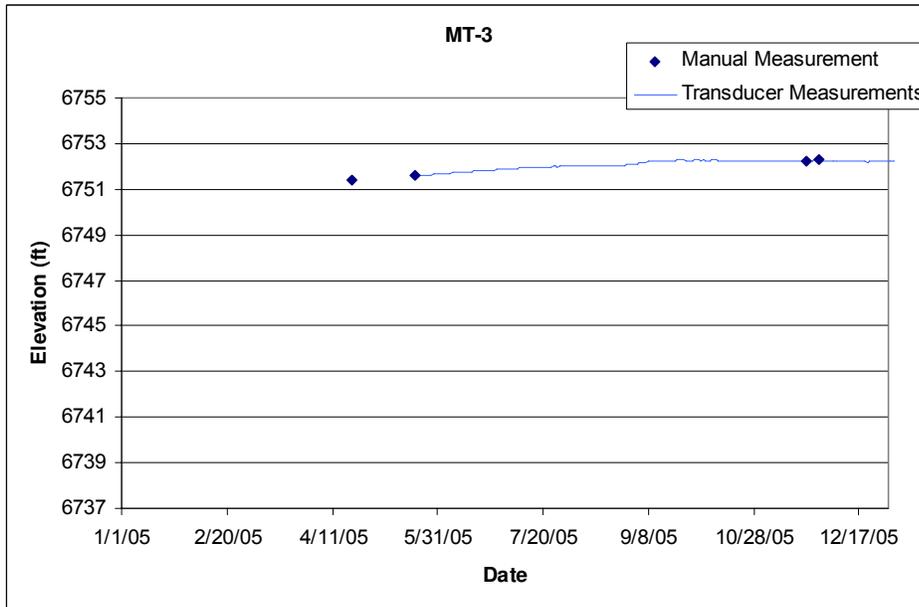
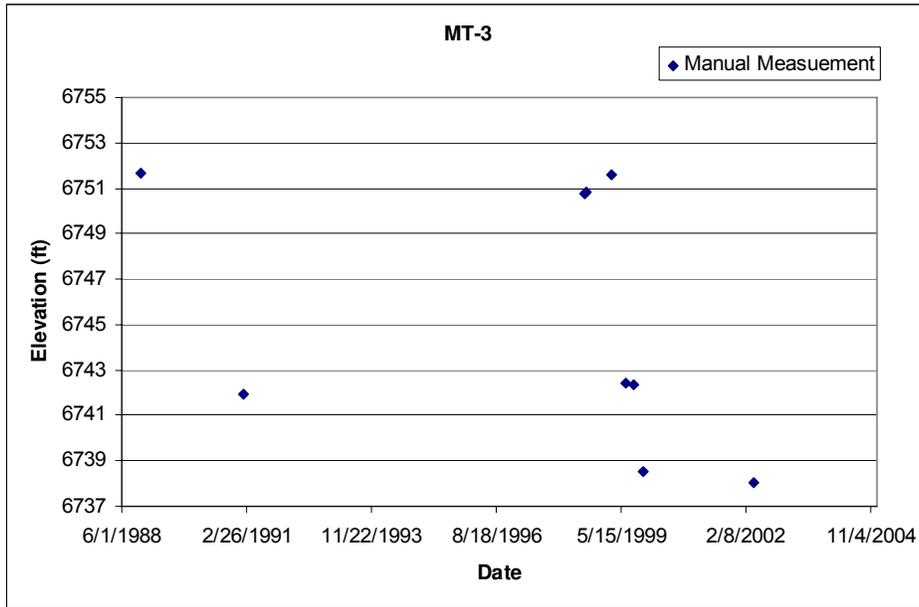


5.60 MT-3

Location: Middle Mortandad Canyon, down canyon of sediment traps, approximately 0.12 mile east of MT-1 and approximately 50 ft north of MT-2.

Period of Record: November 1, 1988–December 31, 2005

Remarks: Bottom of screen elevation is 6732.7 ft.

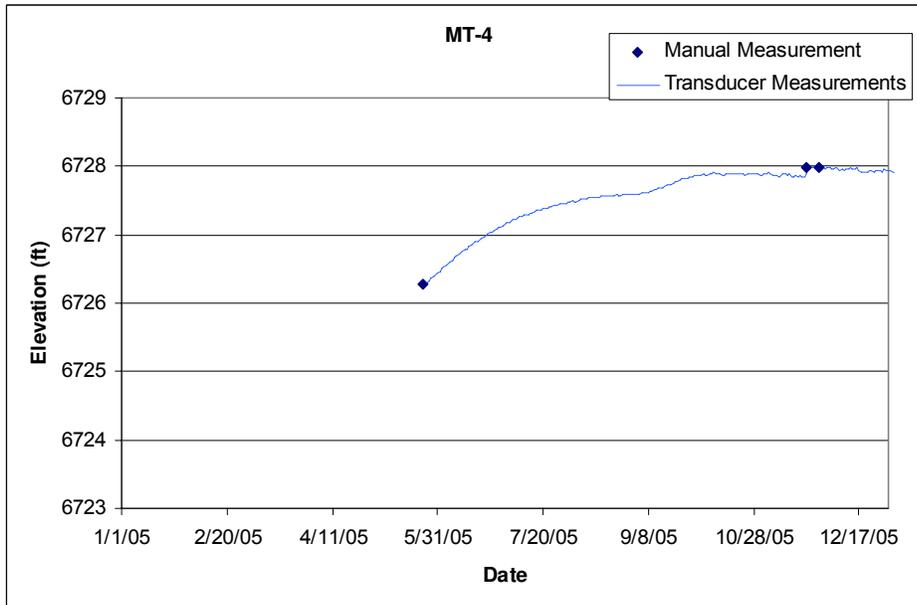
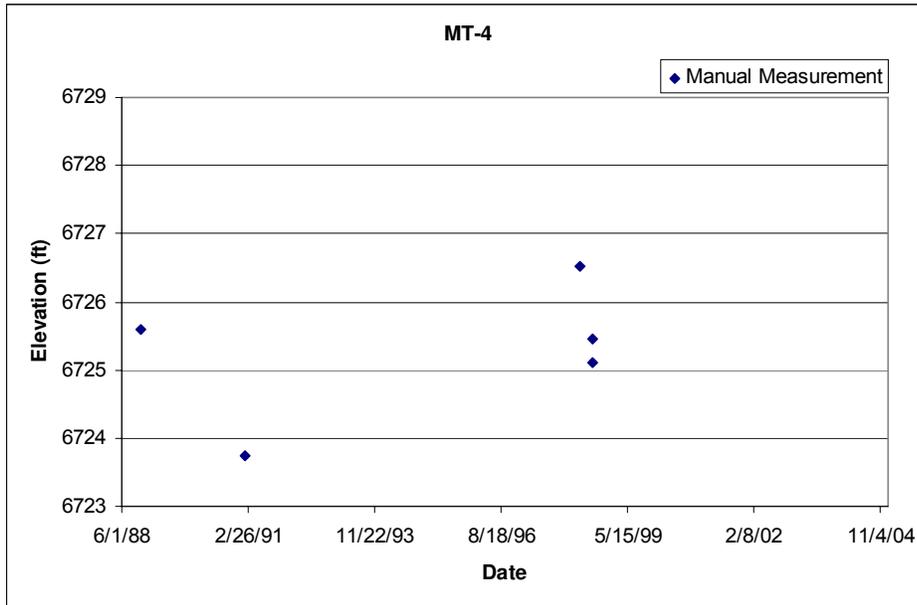


5.61 MT-4

Location: Middle Mortandad Canyon, down canyon of the sediment traps, approximately 525 ft east of MT-3.

Period of Record: November 1, 1988–December 31, 2005

Remarks: Bottom of screen elevation is 6719.59 ft.

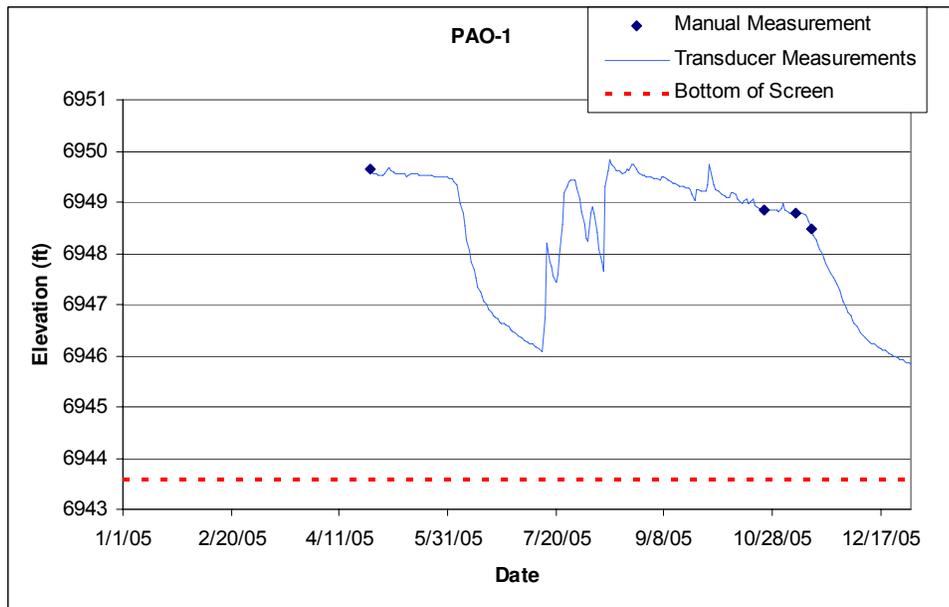
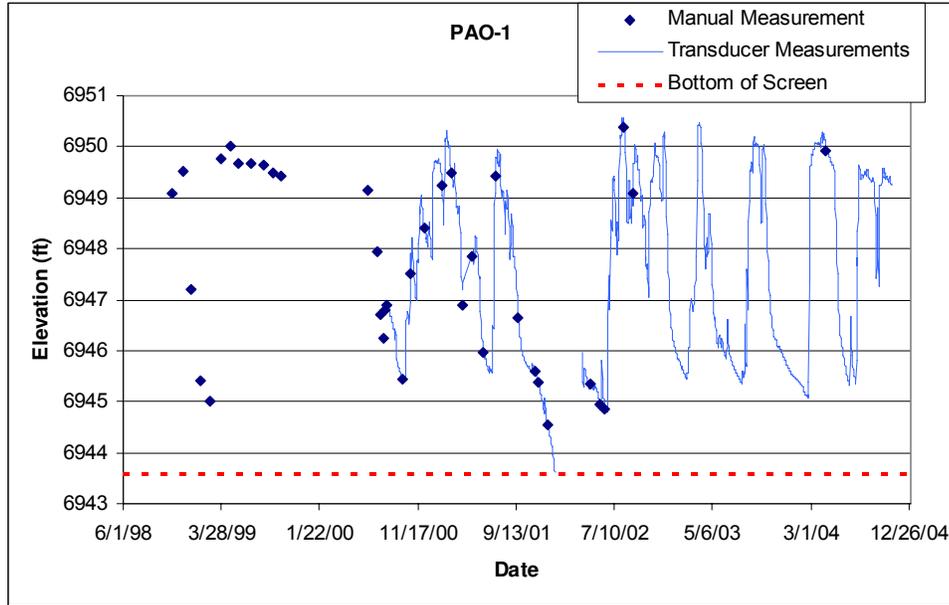


5.62 PAO-1

Location: Upper Pueblo Canyon, approximately 1000 ft west of the confluence with Acid Canyon.

Period of Record: October 29, 1998–December 31, 2005

Remarks: None.

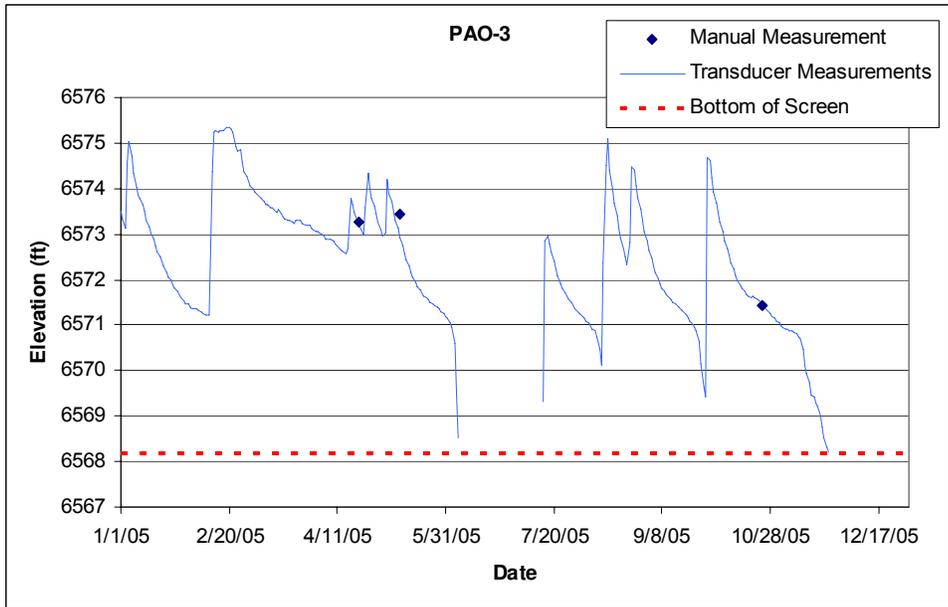
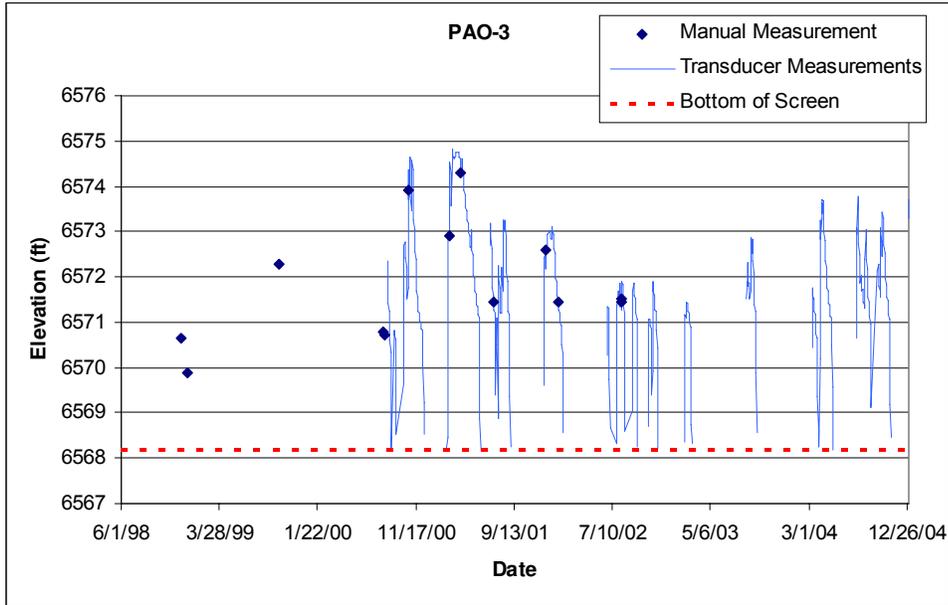


5.63 PAO-3

Location: Middle Pueblo Canyon, approximately 5200 ft west of the Bayo Canyon Sewage Treatment Plant.

Period of Record: November 30, 1998–December 31, 2005

Remarks: None.

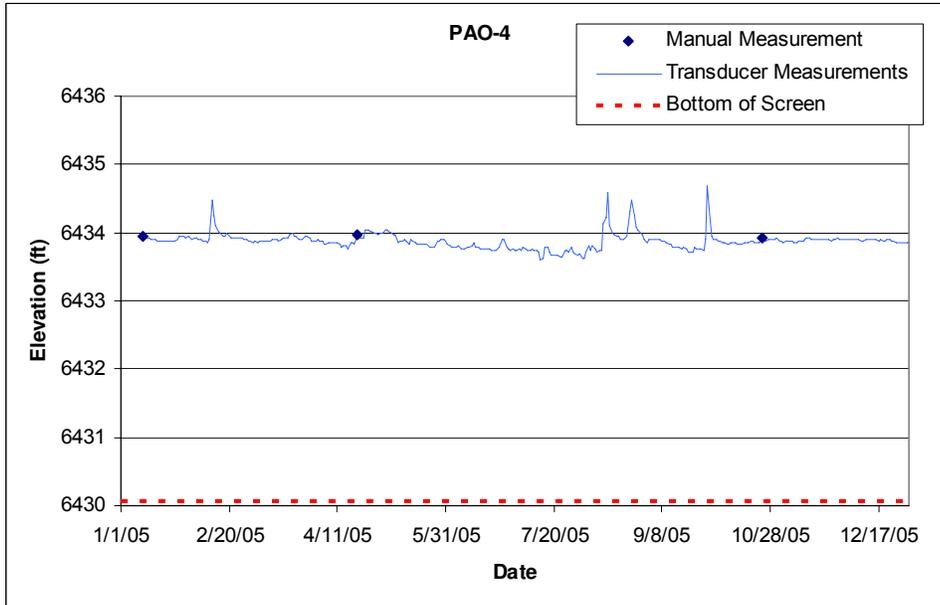
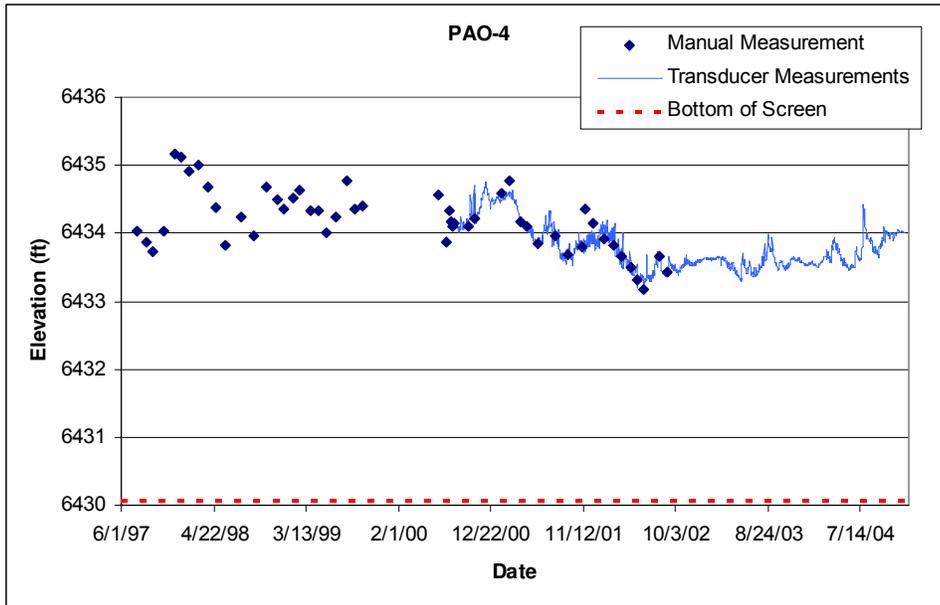


5.64 PAO-4

Location: Lower Pueblo Canyon, approximately 3100 ft southeast of the Bayo Canyon Sewage Treatment Plant.

Period of Record: July 24, 1997–December 31, 2005

Remarks: None.

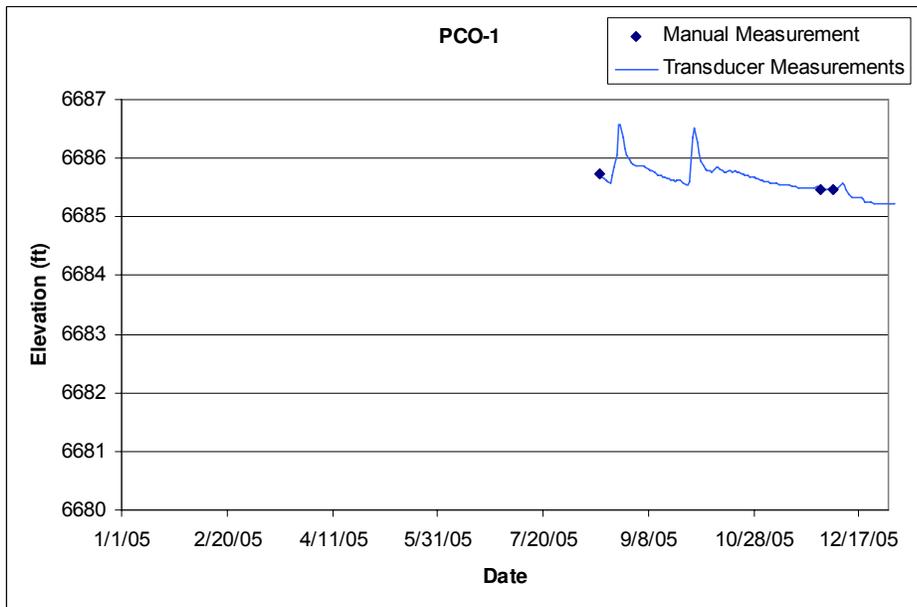
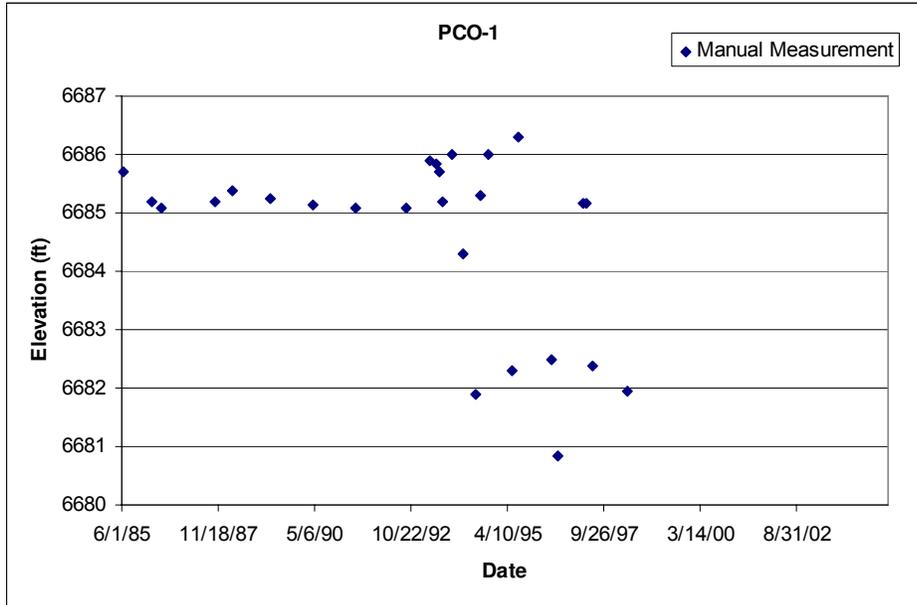


5.65 PCO-1

Location: Pajarito Canyon, approximately 200 ft north of R-20.

Period of Record: June 11, 1985–December 31, 2005

Remarks: Bottom of screen elevation is 6674.7 ft.

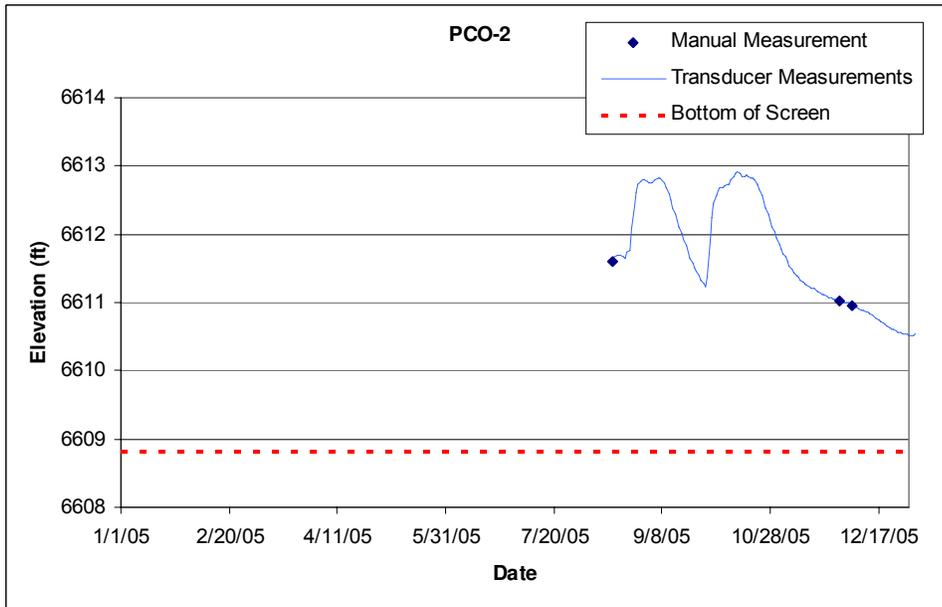
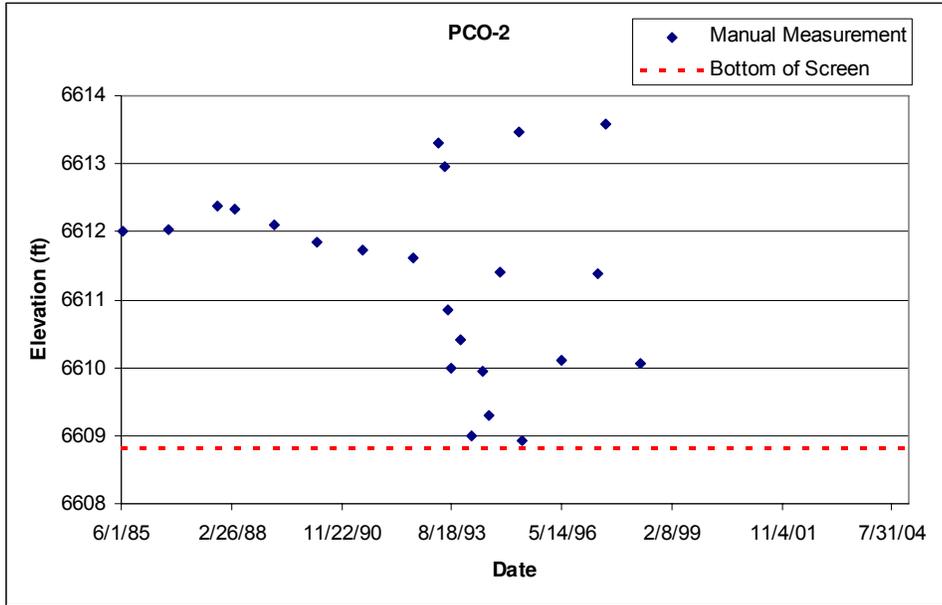


5.66 PCO-2

Location: Pajarito Canyon, approximately 0.1 mile east of R-32.

Period of Record: June 11, 1985–December 31, 2005

Remarks: None.



5.68 SCO-1

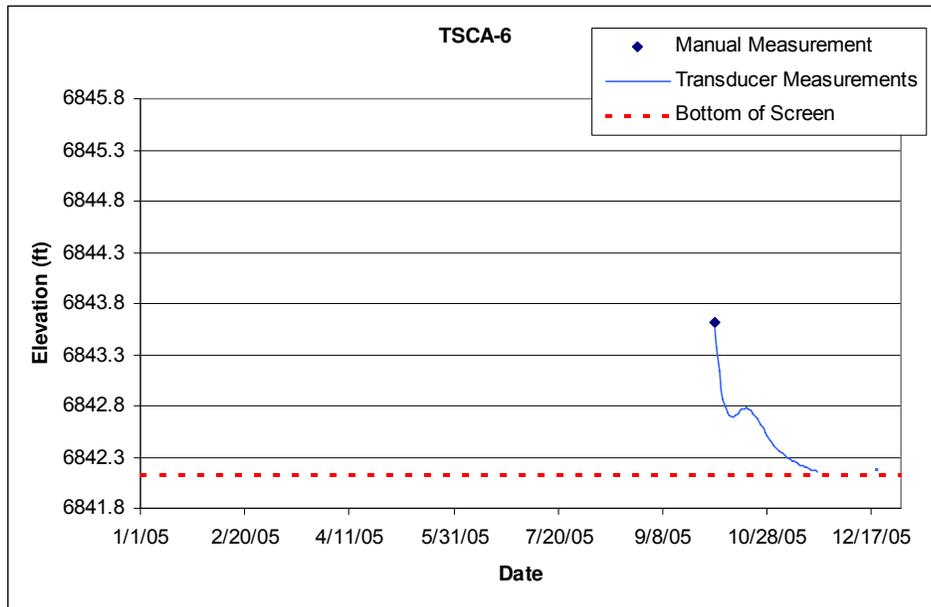
Location: Sandia Canyon, approximately 0.1 mile east of R-11.
 Period of Record: June 7, 1997–October 18, 2005
 Remarks: No valid data, well has been dry during every measurement event.

5.69 SCO-2

Location: Sandia Canyon, approximately 300 ft. west of R-12.
 Period of Record: June 9, 1997–October 18, 2005
 Remarks: No valid data, well has been dry during every measurement event.

5.70 TSCA-6

Location: Ten Site Canyon, approximately 600 ft west of Mortandad Canyon confluence.
 Period of Record: April 18, 2005–December 31, 2005
 Remarks: None.



5.71 TSWB-6

Location: Ten Site Canyon, approximately 300 ft west of Mortandad Canyon confluence.

Period of Record: January 9, 1995–December 14, 2005

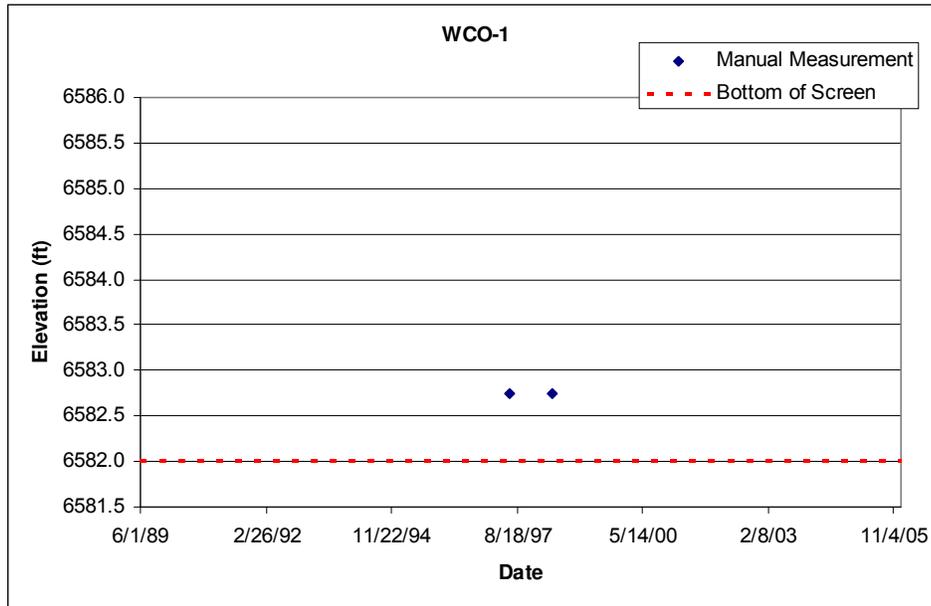
Remarks: No valid data exist for TSWB-6. Well has been dry during every measurement event.

5.72 WCO-1

Location: Water Canyon, near western border of TA-68.

Period of Record: October 31, 1989–December 22, 2005

Remarks: Intermittently dry, there are only two records indicating water in well.

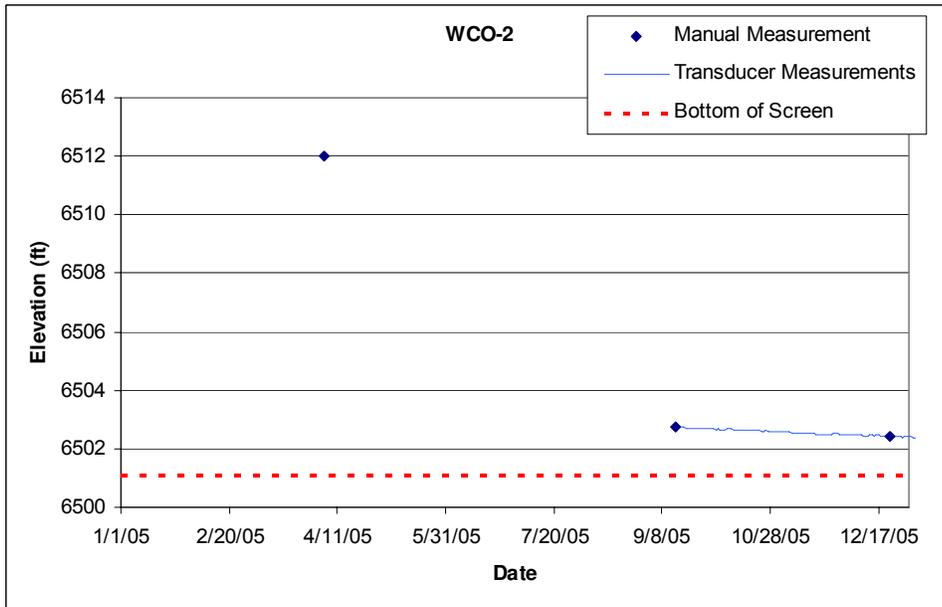
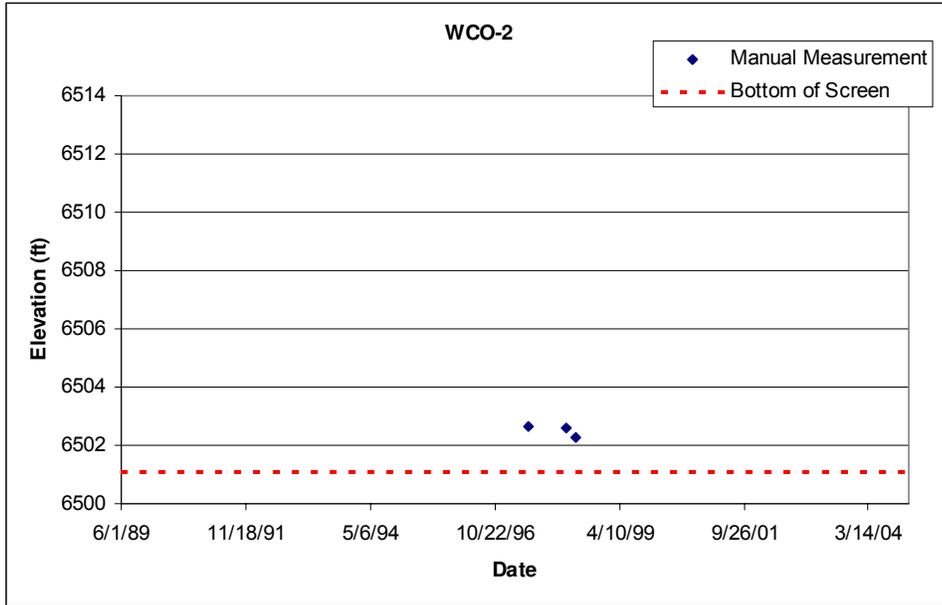


5.73 WCO-2

Location: Water Canyon, about 0.9 mile west of gate 9.

Period of Record: October 26, 1989–December 31, 2005

Remarks: Intermittently dry, a pressure transducer was installed on September 14, 2005.

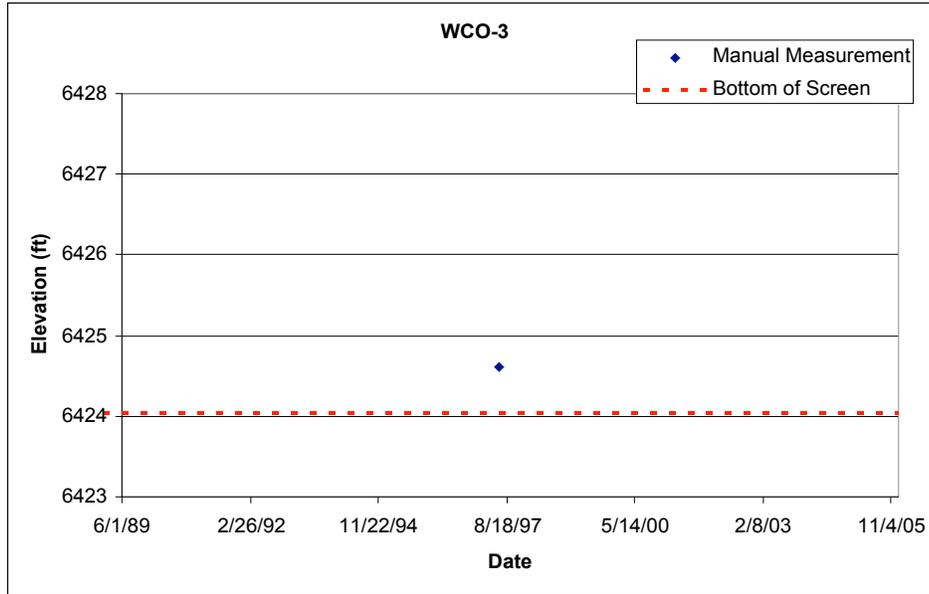


5.74 WCO-3

Location: Water Canyon, approximately 0.1 mile west of gate 9.

Period of Record: October 25, 1989–December 22, 2005

Remarks: Intermittently dry, only one record indicating water in well.



6.0 Acknowledgments

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Appendix: Mean Annual Water Level at the Surface of the Regional Aquifer in LANL Monitoring Wells for 2005

Well Name	Surface of Regional Aquifer (ft amsl)
CDV-R-15-3	6019.9
CDV-R-37-2	6137.4
G-3	5747.3
R-1	5879.6
R-10a	5741.0
R-11	5838.5
R-12	5695.3
R-13	5836.8
R-14	5883.6
R-15	5850.9
R-16r	5693.1
R-18	6117.9
R-19	5887.8
R-2	5872.3
R-20	5854.3
R-21	5854.3
R-22	5762.5
R-23	5698.1
R-24	5830.0
R-25	6234.6
R-26	6540.0
R-28	5839.2
R-31	5828.1
R-32	5858.8
R-34	5835.8
R-4	5832.7
R-5	5768.4
R-6	5839.6
R-7	5878.8
R-8	5854.3
R-9	5692.3
Test Well 1	5855.5
Test Well 2	5821.7
Test Well 3	5840.0
Test Well 4	6071.5
Test Well 8	5875.4
Test Well DT-10	5919.6
Test Well DT-5A	5958.4
Test Well DT-9	5915.9

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