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Groundwater Level Status Report for Fiscal Year 2007
Los Alamos National Laboratory

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Shannon P. Allen
Richard J. Koch

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Groundwater Level Status Report for Fiscal Year 2007
Los Alamos National Laboratory

by

Shannon P. Allen and Richard J. Koch

Abstract

The status of groundwater level monitoring at Los Alamos National Laboratory in Fiscal Year 2007 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 166 monitoring wells, including 45 regional aquifer wells, 25 intermediate wells, and 96 alluvial wells, and 11 water supply wells. Pressure transducers were installed in 133 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 Fiscal Year (FY) 2007 to provide regulatory compliance and to provide other programs at LANL with groundwater level data for modeling and data assessment.

By the end of September 2007, 45 regional aquifer monitoring wells, 25 intermediate wells, 92 alluvial wells at LANL, and 11 water supply wells were being monitored for groundwater levels. In addition, eight of the multiple completion regional aquifer wells monitored intermediate zones; however, the intermediate zones were dry in three of these wells, thus five of the multiple completion regional aquifer wells were used to monitor intermediate groundwater levels. In FY 2007, pressure transducers were installed in 39 regional aquifer wells and 19 intermediate wells; manual measurements were obtained from four intermediate wells (dry, monitored quarterly or annually). Transducers were installed in 75 alluvial wells during FY 2007 and 18 alluvial wells were monitored with quarterly manual measurements.

This report includes groundwater level data obtained during FY 2007 (October 1, 2006, through September 30, 2007) and, where available, historical data. 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. For the alluvial wells, the first graph for each well represents the entire period of record, while the second graph represents FY 2007 to provide better representation of recent and seasonal changes.

2.0 Description of Groundwater Level Data

The Groundwater Level Monitoring (GWLM) Project at LANL is conducted under the Quality Assurance Project Plan (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 FY 2007 according to the criteria outlined in the Groundwater Level Monitoring Plan for 2007 (LANL 2007). Two types of groundwater level data were collected:

- Manual groundwater level measurements were taken in wells and in boreholes and
- Pressure transducers were used to measure groundwater levels in completed monitoring wells.

Manual groundwater level measurements were obtained according to standard operating procedure 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 pressure 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 database (WQDB); the data are accessible to the public on the internet at http://wqdbworld.lanl.gov.

Wells installed with pressure transducers had measurements collected at least hourly. Where possible, manual groundwater level measurements were obtained at least semi-annually 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. Some monitoring wells have significant drawdown of the water level in the well when pumped during sampling events. Because pumping of the monitoring wells for sampling usually occurs over several hours, the mean daily water level value will not usually portray the full amount of drawdown experienced during pumping of a well. For this reason, mean daily water level data are not usually appropriate for determining monitoring well characteristics such as specific capacity.

Transducers that measure pressure head in wells typically have a measurement precision of ±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. Most shallow wells and deep wells not installed with the Westbay® or Barcad system are equipped with 30-psi transducers, with a measurement accuracy of 0.07 ft. A few of the shallow alluvial wells are equipped with 15-psi transducers. 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 2005). 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). The previous reports in this series, *Groundwater Level Status Report for 2005,* was issued in May 2006 (Allen and Koch 2006), and *Groundwater Level Status Report for Fiscal Year 2006* (Allen and Koch 2007), was issued in March 2007.

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 2007. The location information was obtained from the WQDB at http://wqdbworld.lanl.gov. Screen intervals and port depths for each well are shown in subsequent sections.

The Appendix A table lists the mean annual water level for 2007 for each well screen located at the top of the regional aquifer. The Appendix B table summarizes the transient responses observed in monitoring wells that result from supply well pumping at Los Alamos.

In the following sections reference is made to the barometric efficiency of some monitoring wells. Barometric efficiency is defined as the ratio of the water level change observed in a well divided by the concurrent atmospheric pressure change, expressed as a percentage. For a given change in atmospheric pressure, if the water in a well responds by an equal amount, the well is said to have 100% barometric efficiency; however, this type of response by the water in the well can occur only when the aquifer adjacent to the well does not experience the atmospheric pressure change. Thus, a well with a 100% barometric efficiency is installed into an aquifer that does not experience the atmospheric pressure fluctuations.

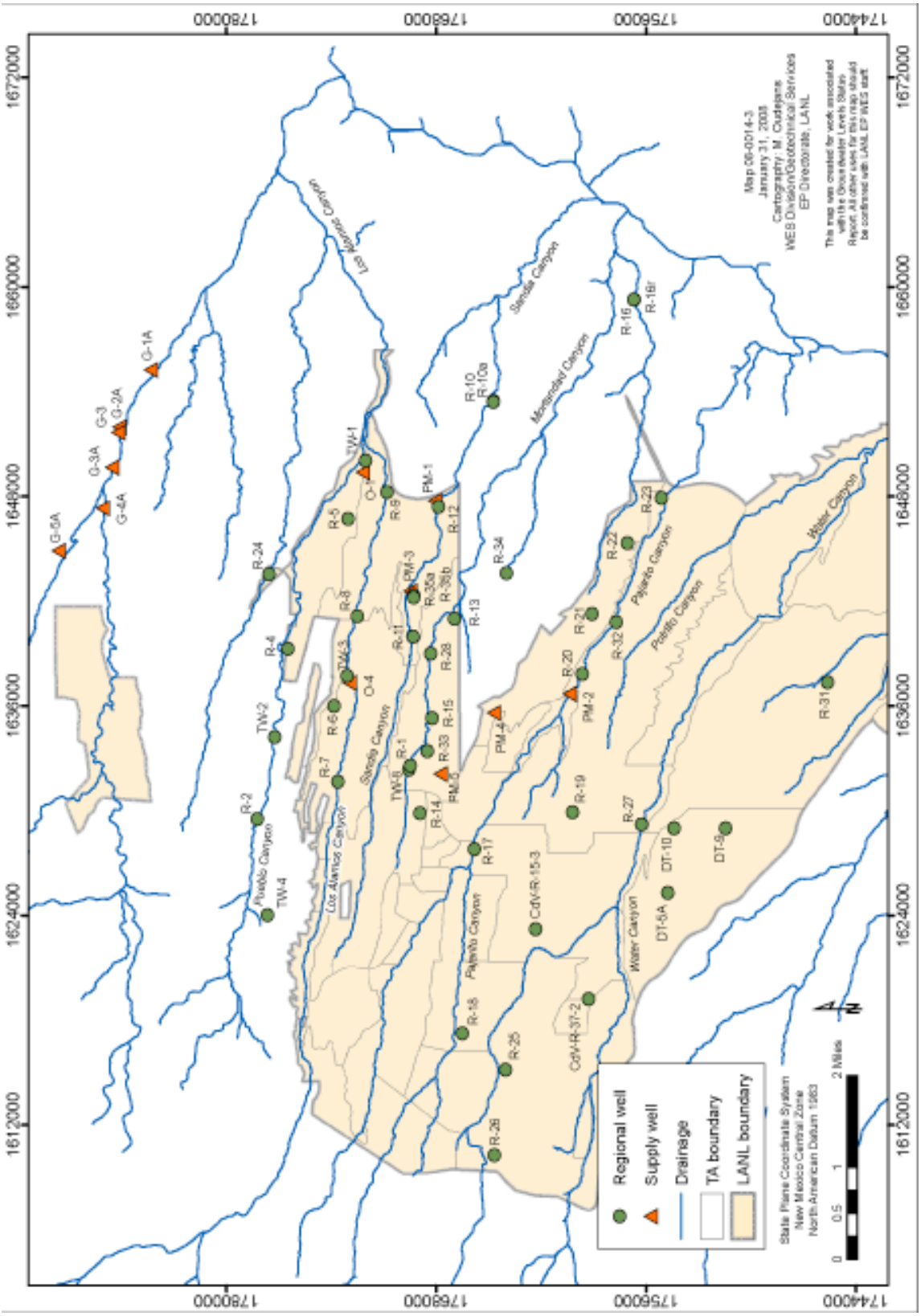


Figure 3-1. Regional Aquifer Monitoring Wells.

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	05/03/00	1722.0	1623222.30	1762347.50	7258.90
CdV-R-37-2	08/09/01	1664.0	1619216.70	1759320.80	7330.60
R-1	11/10/03	1080.1	1632354.13	1769600.84	6881.21
R-2	10/19/03	943.3	1629519.57	1778281.56	6770.38
R-4	09/28/03	840.0	1639287.98	1776530.28	6577.49
R-5	05/22/01	884.0	1646707.00	1773063.00	6472.60
R-6	11/16/04	1252.0	1636011.02	1773884.07	6995.80
R-7	01/20/01	977.0	1631666.00	1773653.00	6779.20
R-8	01/28/02	850.0	1641139.01	1772554.62	6544.74
R-9	10/04/99	758.0	1648236.50	1770847.10	6382.80
R-10	10/05/05	1079.0	1653465.92	1764766.46	6362.31
R-10a	08/18/05	706.0	1653411.63	1764782.29	6363.74
R-11	10/08/04	901.7	1639959.31	1769353.57	6673.72
R-12	01/11/00	886.0	1647424.20	1767913.40	6499.60
R-13	10/06/01	1029.4	1640991.66	1766994.17	6673.05
R-14	07/04/02	1315.6	1629855.01	1768953.12	7062.08
R-15	09/21/99	1030.6	1635308.60	1768272.50	6820.00
R-16	08/31/02	1276.7	1659283.61	1756710.97	6256.87
R-16r	10/11/05	631.4	1659289.39	1756730.68	6256.97
R-17	01/04/06	1140.9	1627795.96	1765861.23	6921.51
R-18	12/14/04	1405.0	1617254.37	1766545.47	7404.83
R-19	03/30/00	1877.4	1629918.40	1760252.10	7066.30
R-20	09/08/02	1353.3	1637835.40	1759694.51	6694.35
R-21	11/20/02	941.4	1641284.17	1759143.06	6656.24
R-22	10/19/00	1472.9	1645324.40	1757111.10	6650.50
R-23	10/02/02	886.3	1647913.60	1755165.37	6527.75
R-24	09/02/05	861.0	1643554.46	1777591.35	6547.38
R-25	09/28/00	1934.7	1615178.42	1764060.50	7516.10
R-26	10/17/03	1479.0	1610267.23	1764721.12	7641.69
R-27	11/07/05	878.7	1629230.52	1756296.28	6713.72
R-28	12/17/03	980.3	1638988.73	1768358.57	6728.61
R-31	12/01/00	1077.7	1637353.80	1745648.40	6362.50
R-32	08/09/02	1002.0	1640797.67	1757730.25	6637.63
R-33	10/13/04	1126.0	1633401.71	1768532.65	6853.33
R-34	08/20/04	920.7	1643595.82	1764028.77	6629.99
R-35a	06/21/07	1086.2	1642321.701	1769316.232	6623.06
R-35b	07/11/07	872.2	1642229.877	1769328.368	6625.21
TW-1	01/03/50	642.0	1650041.50	1772076.87	6369.19
TW-2	12/15/90	834.0	1634231.12	1777267.87	6648.06
TW-3	11/20/49	815.0	1637727.50	1773138.12	6626.90
TW-4	03/08/50	1205.0	1624028.12	1777680.12	7244.56
TW-8	12/15/60	1065.0	1632573.87	1769506.62	6873.50
DT-10	03/13/60	1408.0	1628988.50	1754448.75	7019.90
DT-5A	01/25/60	1819.5	1625310.00	1754789.37	7143.86
DT-9	02/19/60	1501.0	1628993.62	1751492.62	6935.00

3.1 CdV-R-15-3

Location: CdV-R-15-3 is located on a mesa between upper Three-Mile 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.

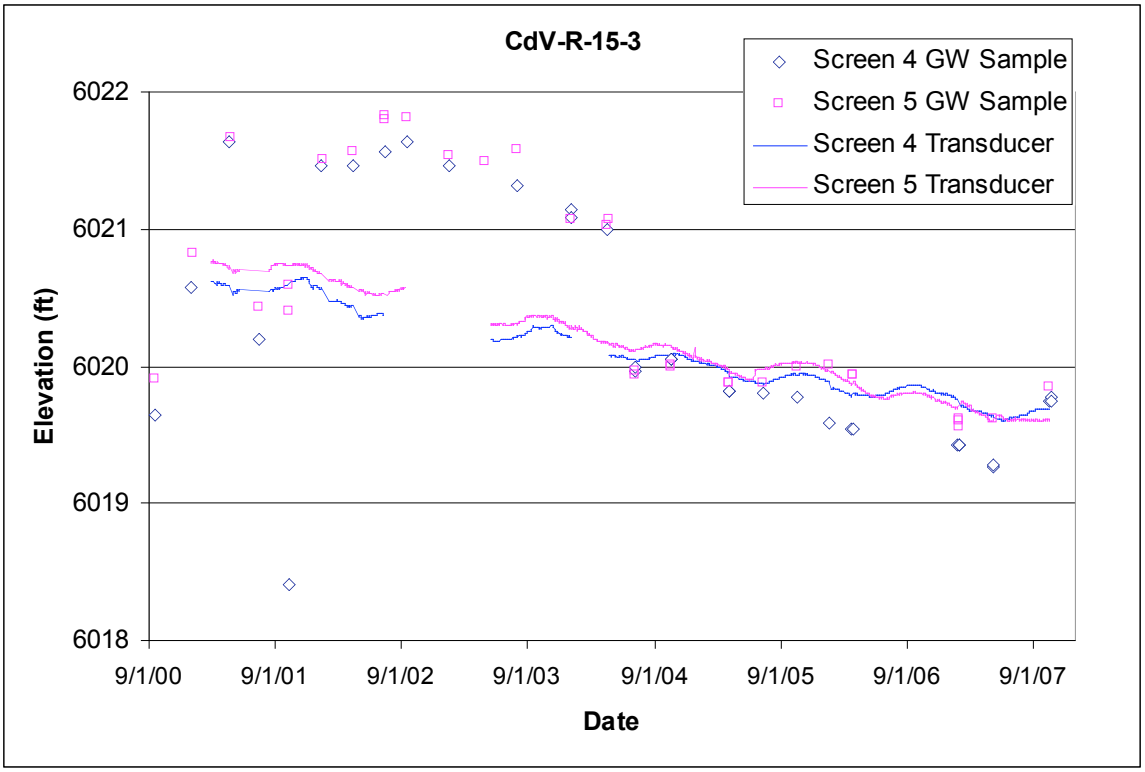
Period of Record: Westbay® installed September 17, 2000; transducers installed March 1, 2001; intermittent data through 2007.

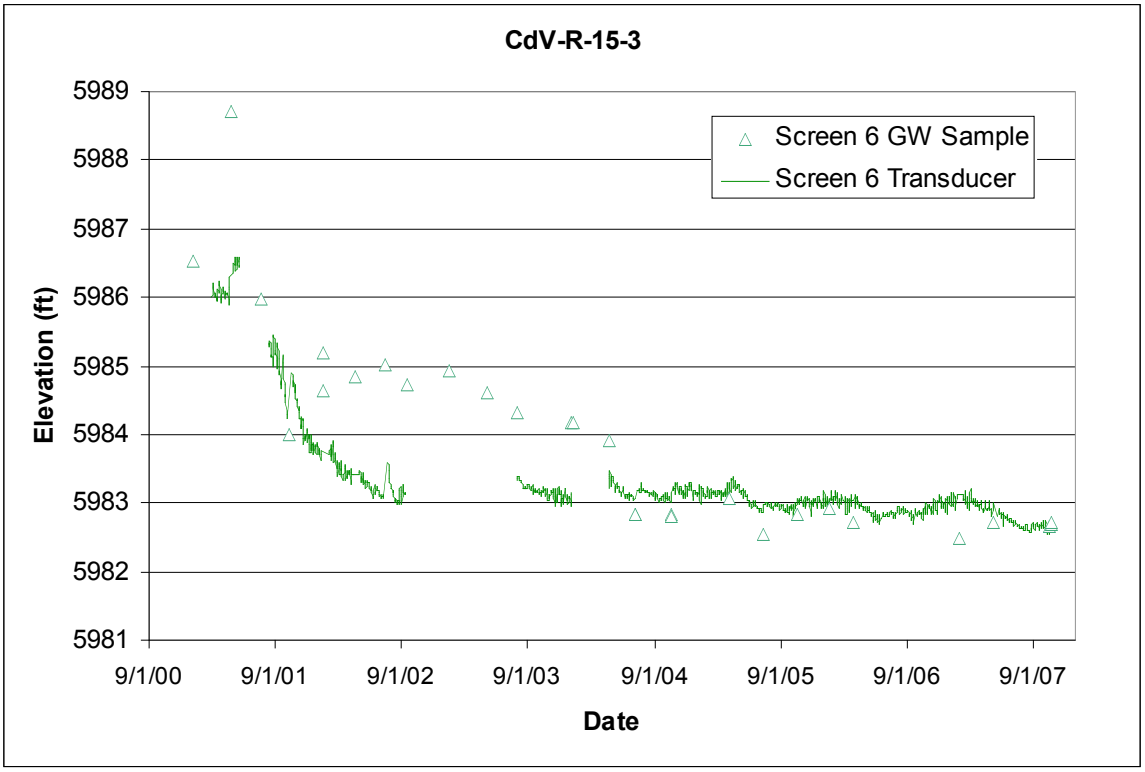
Remarks: The three intermediate screens have been dry since well installation. A transducer was never installed at screen 2. Transducers monitoring dry screens 1 and 3 were removed in January 2006. Regional screens 4 and 5 have similar heads; screen 6 head is 35 ft lower. Six ft of water appeared in screen 3 sump at MP3C October 2006; still present in October 2007. Screens 4 and 5 do not indicate a water level response to atmospheric pressure fluctuations; screen 6 indicates a 30% response to atmospheric pressure.

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, port dry
						PP2	812.6	6446.3	-4.8	10.4	Below Screen
						MP2B	818.3	6440.6	-10.5	22.7	Below Screen
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
						MP3C	990.3	6268.6	-9.4	20.3	Below Screen, 6' water in sump
4	1235.1	1278.9	6023.8	5980.0	43.8	**MP4A**	1254.4	6004.5	24.5		Within Screen, Regional Aquifer
						PP4A	1259.6	5999.3	19.3		Within Screen
						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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports


CdV-R-15-3
Screen 4 GW Sample
Screen 5 GW Sample
Screen 4 Transducer
Screen 5 Transducer
Elevation (ft)
6022
6021
6020
6019
6018
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
Date


CdV-R-15-3
Screen 6 GW Sample
Screen 6 Transducer
Elevation (ft)
5989
5988
5987
5986
5985
5984
5983
5982
5981
9/1/00
9/1/01
9/1/02
9/1/03
9/1/04
9/1/05
9/1/06
9/1/07
Date

3.2 CdV-R-37-2

Location: CdV-R-37-2 is located 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.

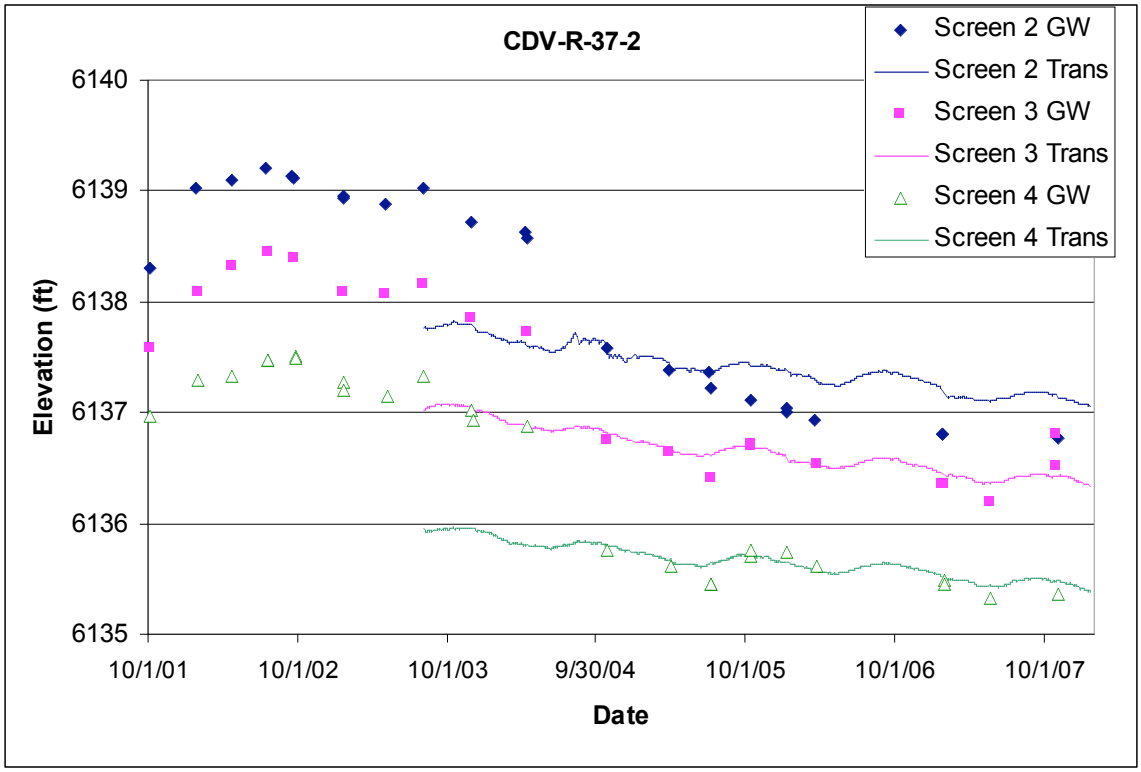
Period of Record: Westbay® installed October 8, 2001; transducers installed August 8, 2003; data through 2007.

Remarks: The intermediate screen has been dry since well installation; the transducer at this screen was removed in January 2006. The three regional screens have similar heads that show downward gradient of about 1 ft between each screen. The screens do not indicate a water level response to atmospheric pressure fluctuations.

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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports


CDV-R-37-2
Screen 2 GW
Screen 2 Trans
Screen 3 GW
Screen 3 Trans
Screen 4 GW
Screen 4 Trans
Elevation (ft)
6140
6139
6138
6137
6136
6135
10/1/01
10/1/02
10/1/03
9/30/04
10/1/05
10/1/06
10/1/07
Date

3.3 R-1

Location: R-1 is located in Mortandad Canyon about 220 ft west of TW-8.

Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 29 ft below the water table.

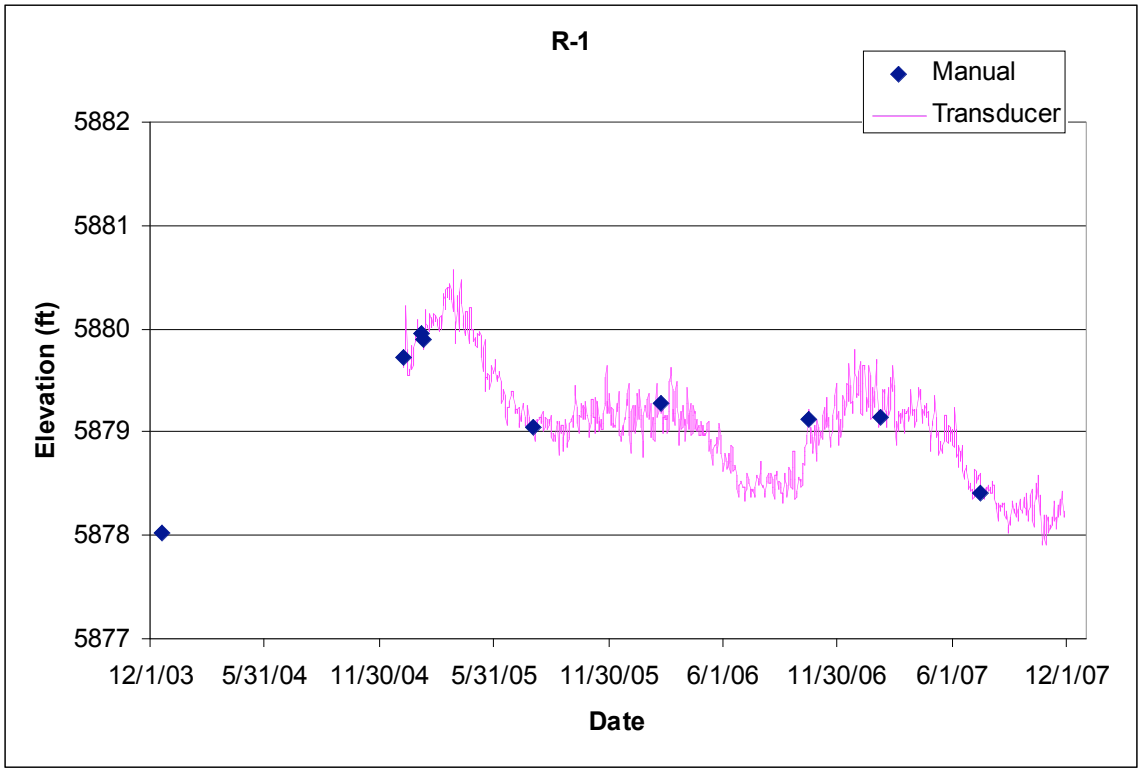
Period of Record: Well completed November 2003, transducer installed January 2005, transducer data through 2007.

Remarks: R-1 was completed to a depth of 1080.1 ft, about 80 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer has no immediate response to atmospheric pressure fluctuations. The aquifer indicates a seasonal response to supply well pumping and primarily responds to pumping PM-5, and possibly to pumping PM-4.

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 measurements are from this elevation



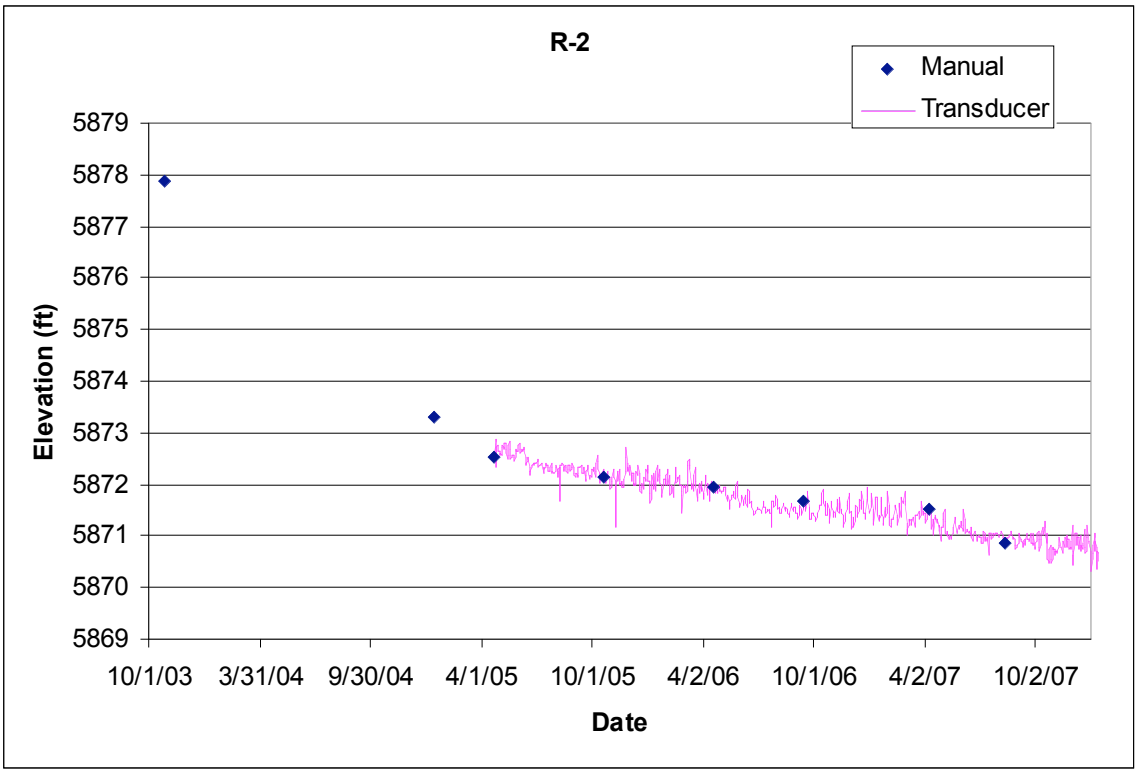
3.4 R-2

Location: R-2 is located in middle Pueblo Canyon between TW-4 and TW-2.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 8 ft below the water table.
Period of Record: Well completed October 2003, transducer installed January 2005, transducer data through 2007.
Remarks: R-2 was completed to a depth of 943.3 ft, about 50 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer has no immediate response to atmospheric pressure fluctuations. The well does not indicate a seasonal response to supply well pumping or an apparent response to pumping of any specific supply well.

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 measurements are from this elevation



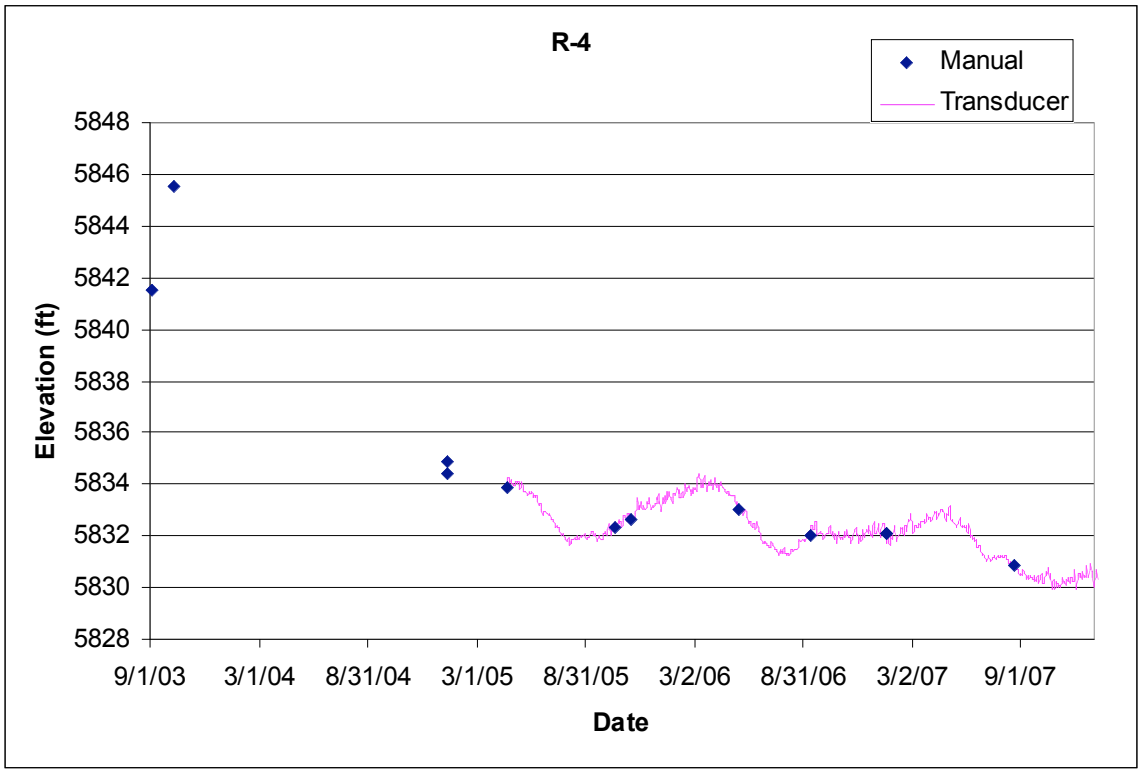
3.5 R-4

Location: R-4 is located in Pueblo Canyon upstream of the Bayo Sewage Treatment Plant.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 49 ft below the piezometric water table in a confined zone.
Period of Record: Well completed September 2003, transducer installed January 2005, data through December 2007.
Remarks: R-4 was completed to a depth of 840 ft, about 90 ft into the regional aquifer. The water level appears to respond in part to pumping of supply well PM-3. The well is 100% barometrically efficient; the aquifer has no immediate response to atmospheric pressure fluctuations. The aquifer indicates a seasonal response to supply well pumping and appears to respond primarily to pumping PM-3, and possibly to pumping at O-4 and the Guaje well field.

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 measurements are from this elevation



3.6 R-5

Location: R-5 is located in lower Pueblo Canyon upstream of supply well O-1.

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

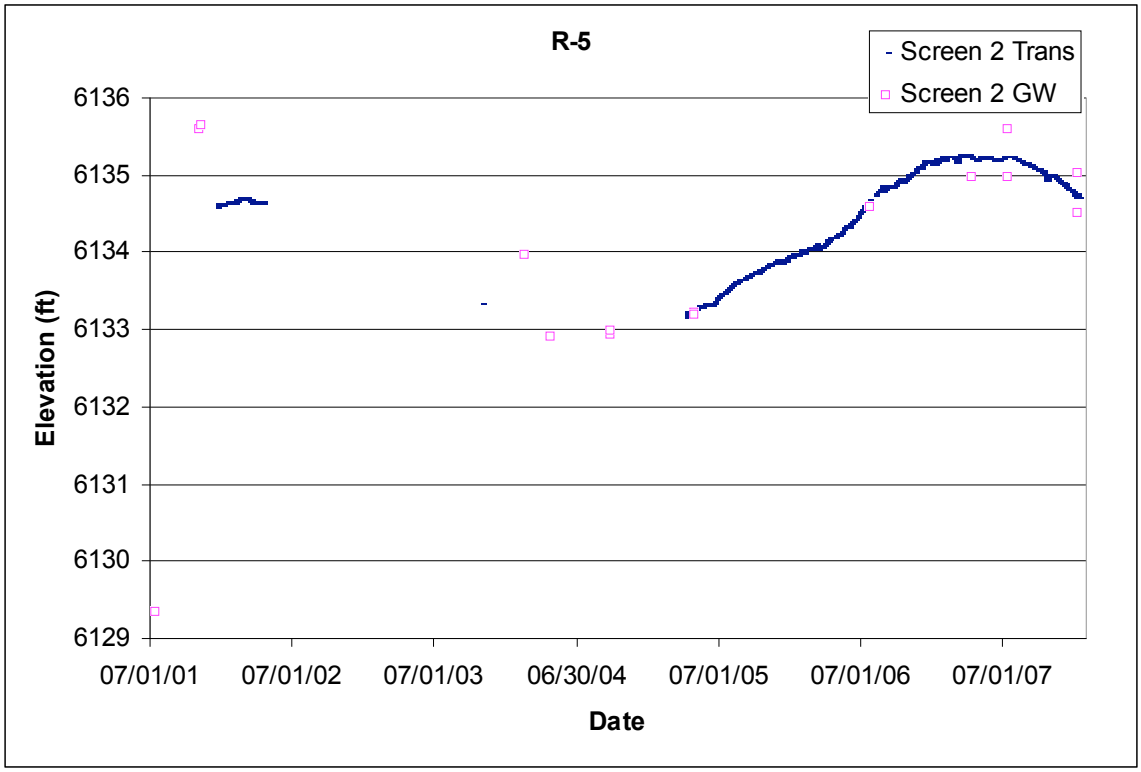
Period of Record: Westbay® installed July 17, 2001, transducers installed December 17, 2001, and April 4, 2005, intermittent data through 2007.

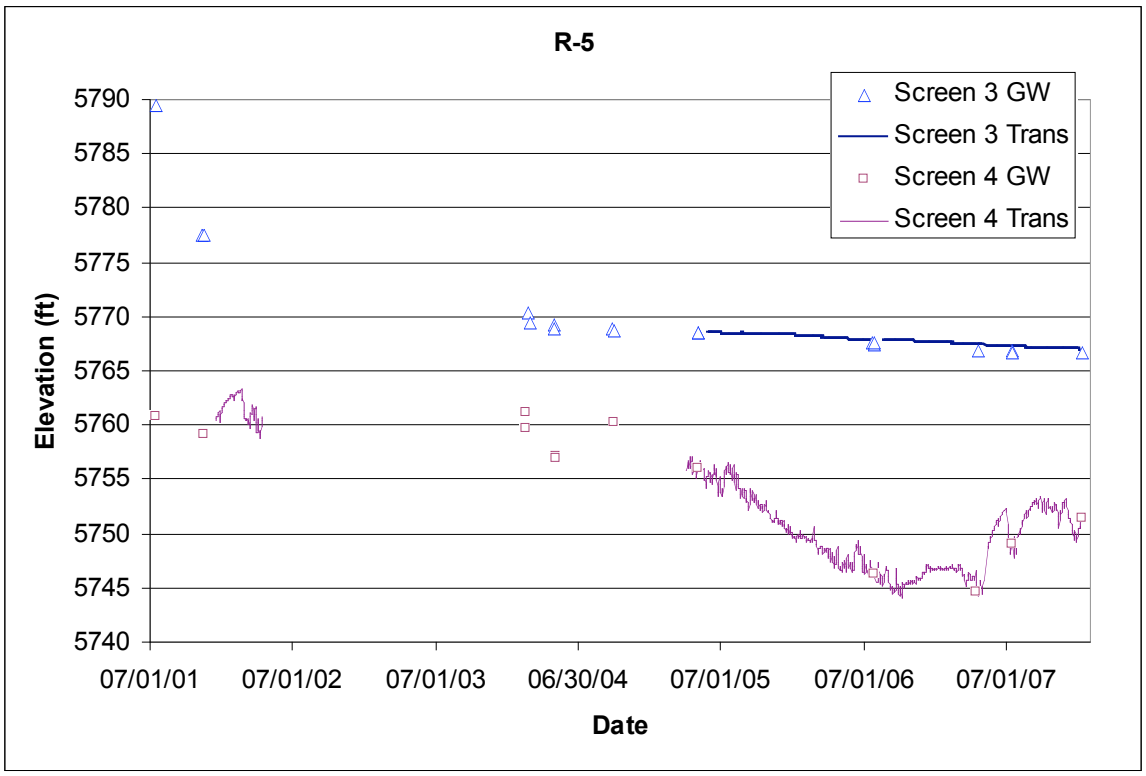
Remarks: Screen 1 has been dry since well installation, although there is a small amount of water in the sump below screen 1. The two regional screens have heads about 10 to 15 ft apart. The water level at the top of the regional aquifer at screen 3 declined below port MP3A in 2001; samples are collected and groundwater level is monitored from port MP3B. The water level at screen 4 responds primarily to supply well pumping at PM-1, but screen 3 apparently shows little or no response. The R-5 screens do not indicate a response to atmospheric pressure fluctuations.

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	16.0	**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	5.0	**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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports


R-5
Screen 2 Trans
Screen 2 GW
Elevation (ft)
6136
6135
6134
6133
6132
6131
6130
6129
07/01/01
07/01/02
07/01/03
06/30/04
07/01/05
07/01/06
07/01/07
Date


R-5
Screen 3 GW
Screen 3 Trans
Screen 4 GW
Screen 4 Trans
Elevation (ft)
5790
5785
5780
5775
5770
5765
5760
5755
5750
5745
5740
07/01/01
07/01/02
07/01/03
06/30/04
07/01/05
07/01/06
07/01/07
Date

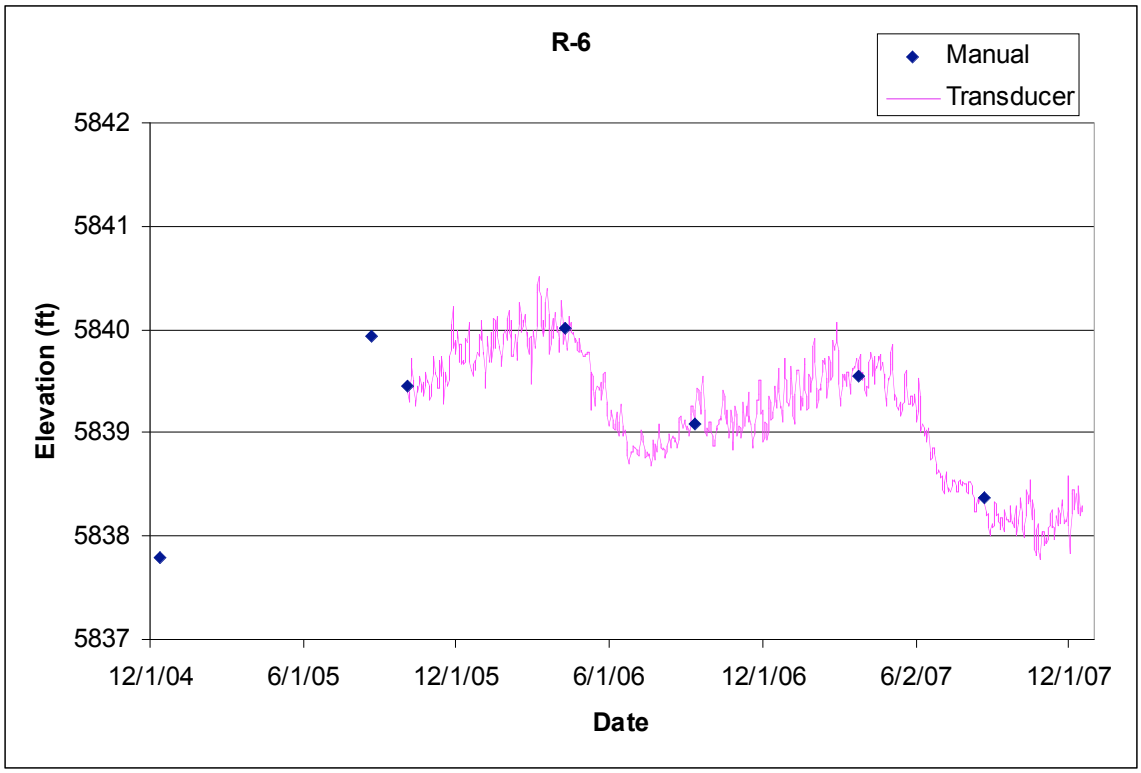
3.7 R-6

Location: R-6 is located at the east end of DP Mesa between DP Canyon and Los Alamos Canyon.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 49 ft below the water table.
Period of Record: Well completed November 2004, transducer installed December 2004, data through 2007.
Remarks: R-6 was completed to a depth of 1252 ft, about 100 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer has no immediate response to atmospheric pressure fluctuations.

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 measurements are from this elevation



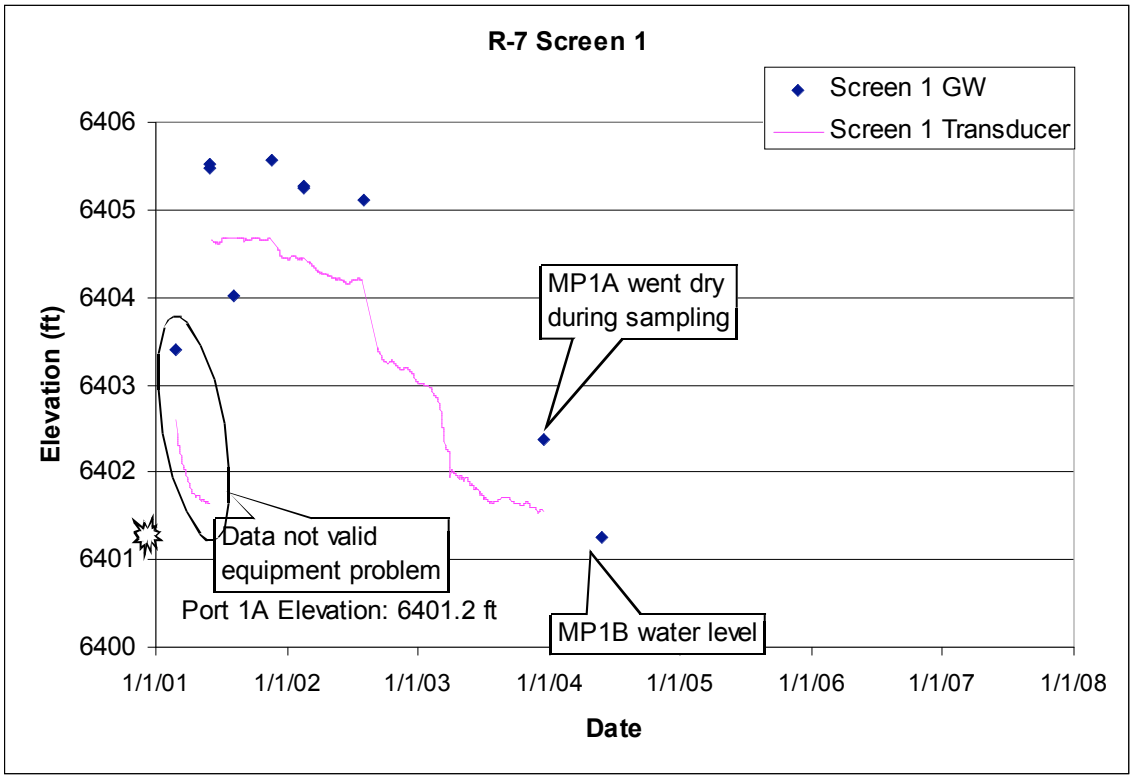
3.8 R-7

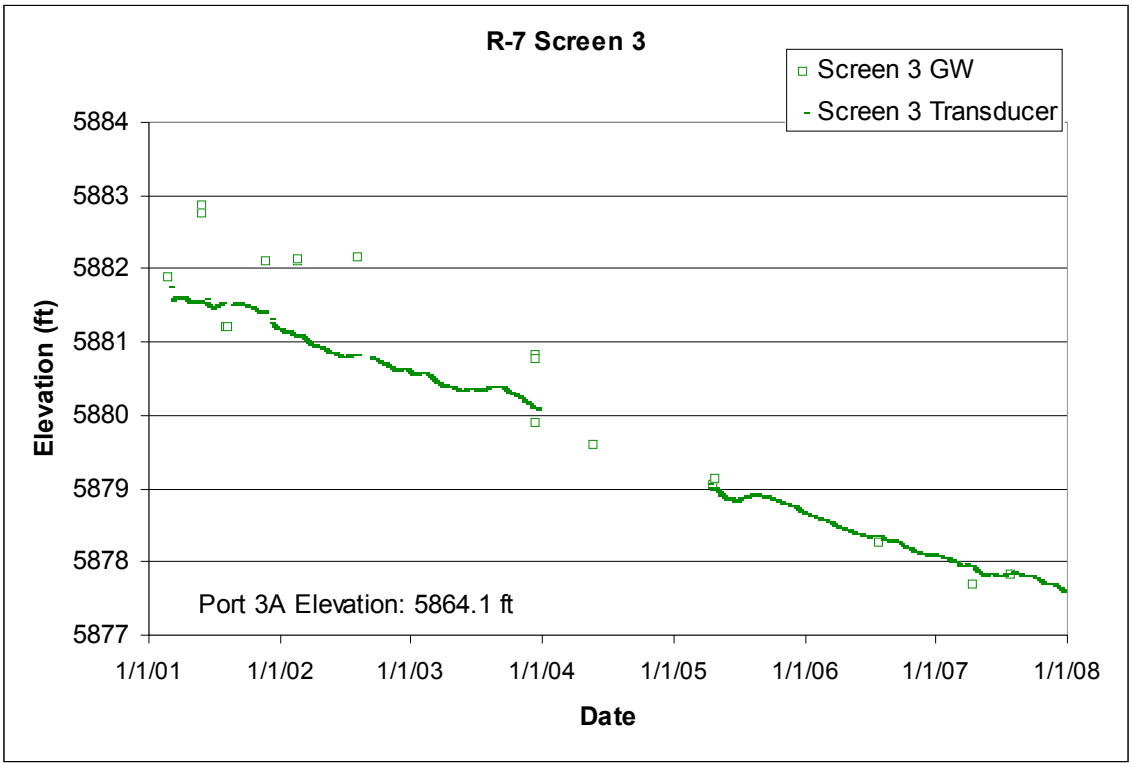
Location: R-7 is located in middle Los Alamos Canyon about 1 mile upstream of supply well O-4.
Completion Type: Multiple completion, two screens in intermediate zones, one screen at the top of the regional aquifer.
Period of Record: Westbay® installed February 25, 2001, transducers installed February 28, 2001, intermittent data through 2007.
Remarks: Initial transducer data from MP1A are not valid because transducer apparently did not connect properly to port. Port MP1A at intermediate screen 1 went dry during sampling December 18, 2003. In 2004, MP1B showed water at the bottom of screen 1, but since 2005 no water has been observed at screen 1. The screen 2 intermediate zone has been dry since well installation. The groundwater at R-7 screens 1 and 3 does not indicate a response to atmospheric pressure fluctuations. The regional aquifer at screen 3 does not show a seasonal water level response and does not show a response to any pumping at any individual water supply well.

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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports




R-7 Screen 3
Screen 3 GW
Screen 3 Transducer
5884
5883
5882
5881
5880
5879
5878
5877
Elevation (ft)
Port 3A Elevation: 5864.1 ft
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
Date

3.9 R-8

Location: R-8 is located in middle Los Alamos Canyon about 0.75 miles downstream of the confluence with DP Canyon and supply well O-4.

Completion Type: Multiple completion, two screens in the regional aquifer. The top of screen 1 is about 16 ft below the water table.

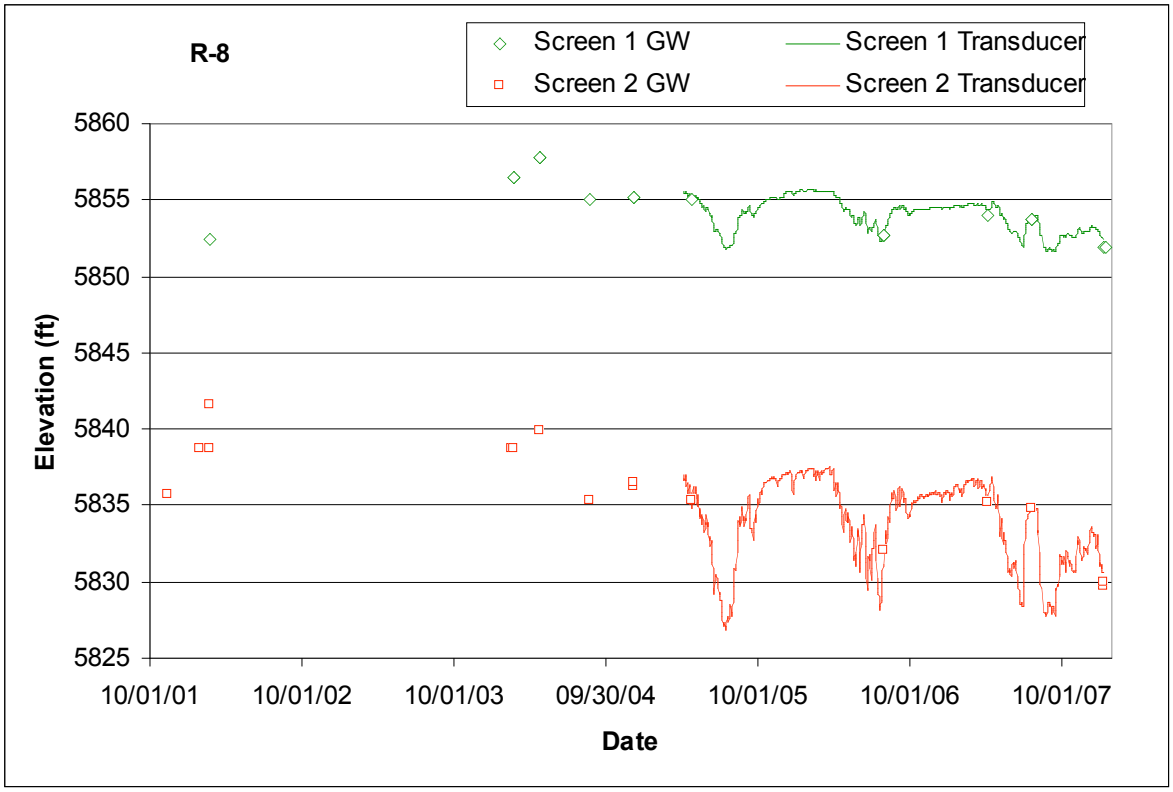
Period of Record: Westbay® installed February 23, 2002, transducers installed April 7, 2005, data through 2007.

Remarks: Screens are 66 ft apart, head in screen 2 about 20 ft lower than screen 1. The groundwater at both screens does not indicate a response to atmospheric pressure fluctuations, but the groundwater at both screens 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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



3.10 R-9

Location: R-9 is located in Los Alamos Canyon near the eastern LANL boundary.

Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.

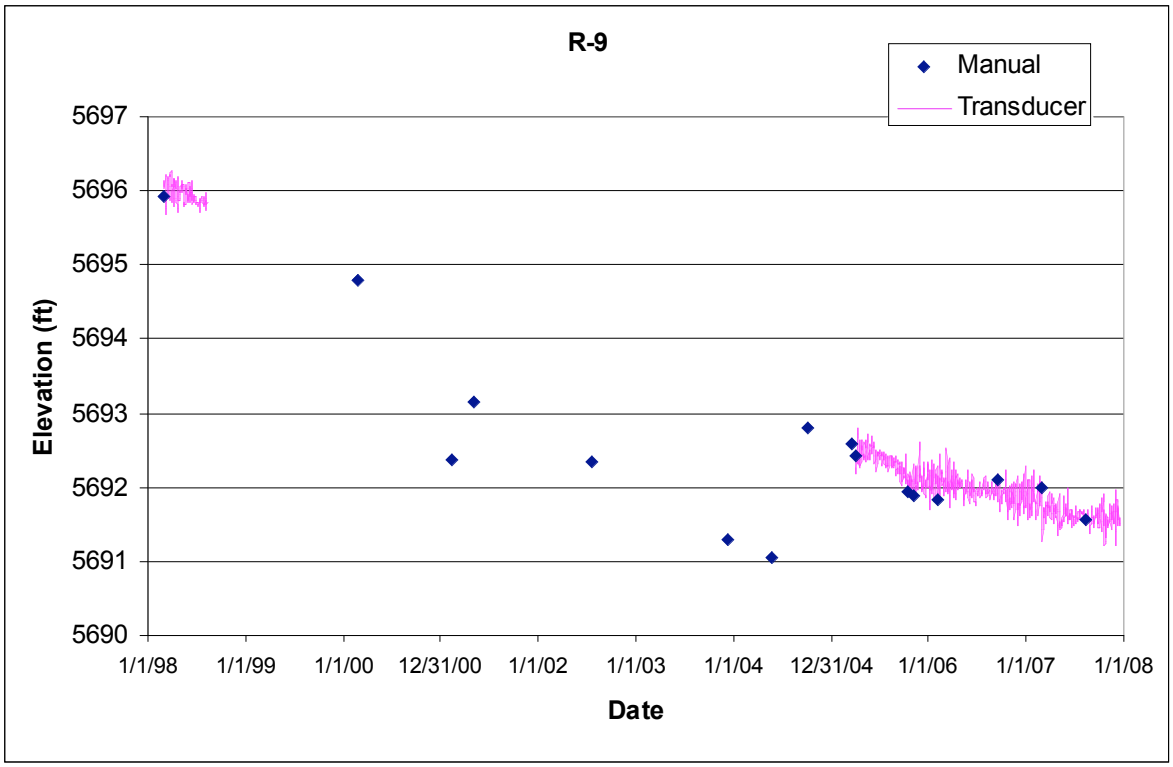
Period of Record: March 2, 1998, to August 12, 1998, in temporary well. Final well completed October 1999. Transducer installed April 5, 2005, data through 2007.

Remarks: R-9 was completed to a depth of 758 ft, about 70 ft into the regional aquifer. The well is 100% barometrically efficient; the groundwater has no immediate response to atmospheric pressure fluctuations. However, the aquifer indicates a delayed 65% response to atmospheric pressure.

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: Brass Cap Ground Elevation: 6382.80; all measurements are from this elevation



3.11 R-10

Location: R-10 is located in lower Sandia Canyon east of the LANL boundary.

Completion Type: Dual completion in two deeper zones within the regional aquifer. Baski packer and dual valve assembly with single submersible pump installed in May 2006.

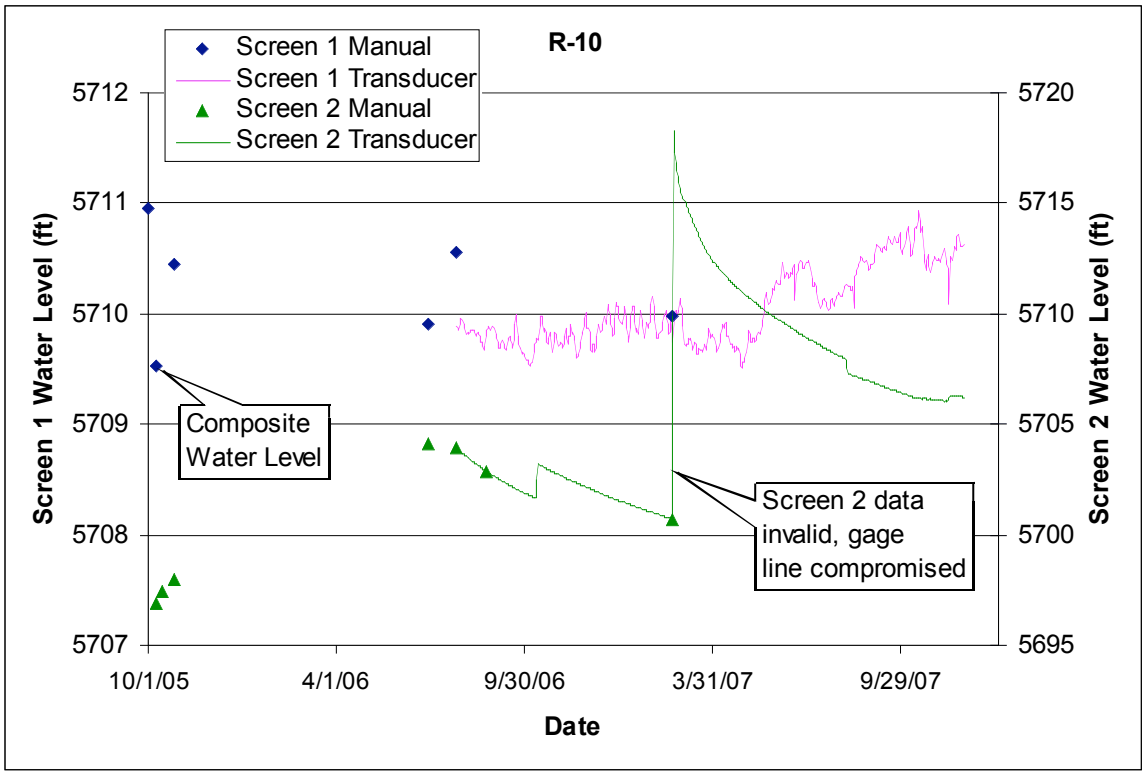
Period of Record: Well completed October 2005, transducers installed July 26, 2006, data through 2007.

Remarks: R-10 screen 1 is 174 ft deeper than the screen at R-10a; due to relatively low hydraulic conductivity of the formation between these screens, the head at R-10 screen 1 is 30 ft lower than at R-10a. The screen 2 gage tube is plugged or constricted; water level data for 2006 and 2007 are not valid. In February 2007 several attempts to unplug the gage line were made without success. The screen 2 gage line is scheduled for repair in 2008. The groundwater at R-10 screen 1 exhibits an immediate 55% response to atmospheric pressure fluctuations for a barometric efficiency of the well at screen 1 of 45%. The groundwater at screen 1 responds to pumping at supply well PM-1.

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	897.0	5488.3	5465.3	23.0	884.3	5478.0	905.2	5457.2	905.2	8.2	25.5	Regional Aquifer
2	1042.0	1065.0	5320.3	5297.3	23.0	1053.1	5309.2	1065.0	5297.3	1081.6	16.6	10.2	Regional Aquifer

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



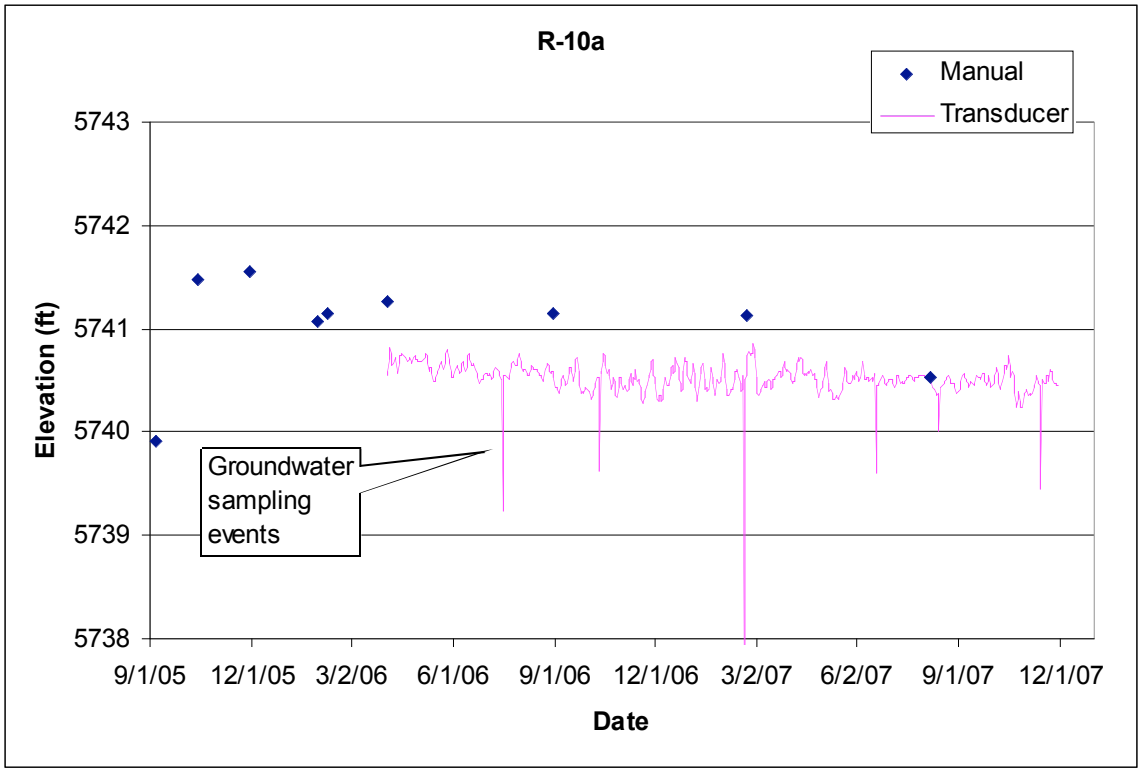
3.12 R-10a

Location: R-10a is located in lower Sandia Canyon east of the LANL boundary and adjacent to R-10.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 67 ft below the water table.
Period of Record: Well completed August 2005, transducer installed April 3, 2006, data through 2007.
Remarks: The R-10a water level is about 30 ft higher than at R-10 screen 1. The groundwater at R-10a shows an immediate 58% response to atmospheric pressure fluctuations for a well barometric efficiency of 42%. There is no apparent response to supply well pumping at R-10a.

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 measurements are from this elevation



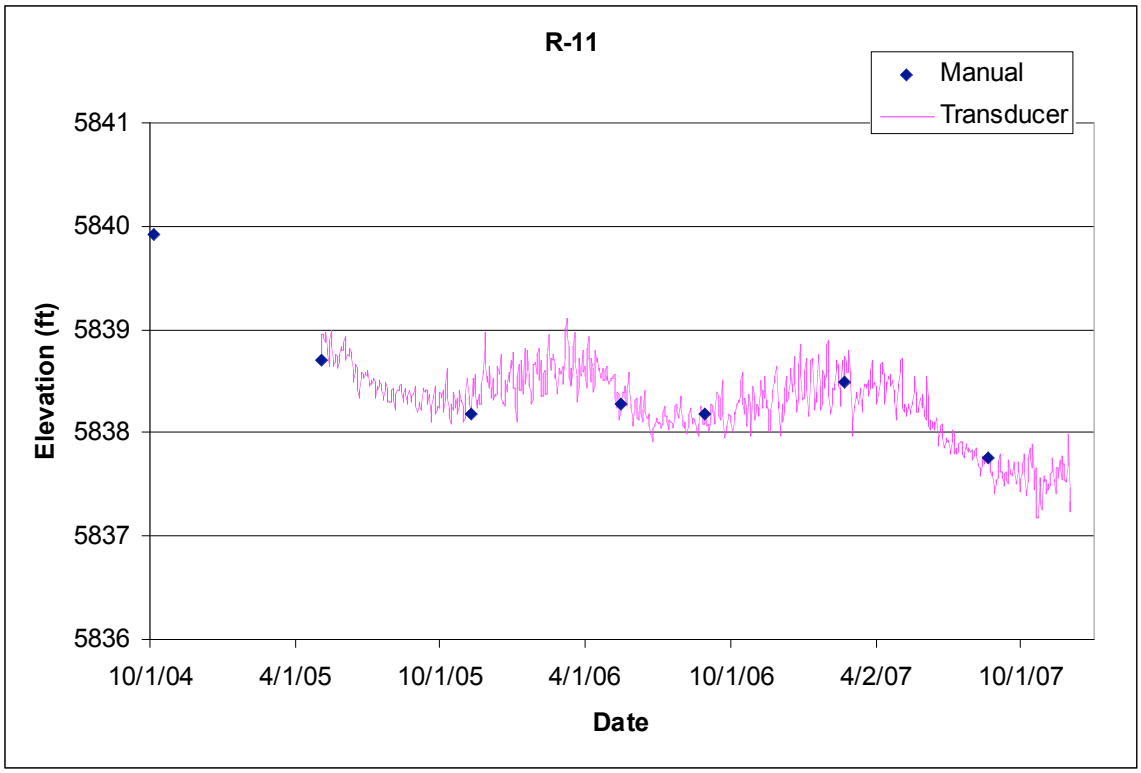
3.13 R-11

Location: R-11 is located in middle Sandia Canyon about 0.5 miles upstream of PM-3.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 20 ft below the water table.
Period of Record: Transducer installed May 4, 2005; data through 2007.
Remarks: R-11 was completed in 2004 to a depth of 901.7 ft, about 66 ft into the regional aquifer. The well is 100% barometrically efficient; the groundwater has no immediate response to atmospheric pressure fluctuations. However, the aquifer indicates a delayed response to atmospheric pressure. R-11 exhibits a seasonal response to supply well pumping but does not indicate a direct response to any specific supply well.

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 measurements are from this elevation



3.14 R-12

Location: R-12 is located in lower Sandia Canyon near State Route (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 until September 2006. Well recompleted as two intermediate screens on December 13, 2007.

Period of Record: Westbay® installed March 21, 2000, transducers installed December 14, 2000, intermittent data to September 21, 2006, when transducers were removed for removal of the Westbay® system for well rehabilitation. No water level data for FY 2007. Transducers were reinstalled at screens 1 and 2 on December 13, 2007.

Remarks: In December 2007, screen 3 was abandoned and a Baski packer and sampling system was installed at the two intermediate screens. Monitoring well R-36 is planned to replace R-12 screen 3.

Intermediate screens 1 and 2 have similar head values about 380 ft above the regional aquifer; intermediate screen 2 has a slightly higher head than screen 1. Intermediate screens 1 and 2 apparently responded to snowmelt runoff events in Los Alamos Canyon in 2001 and 2005; no data available during 2007.

The regional aquifer at screen 3 did not exhibit a seasonal response to supply well pumping, or a response to pumping of any specific supply well, including nearby supply well PM-1. There is no immediate response to atmospheric pressure fluctuations at any screen; however, screens 1, 2, and 3 exhibit a delayed response to atmospheric pressure fluctuations.

R-12 Former Westbay Port Data

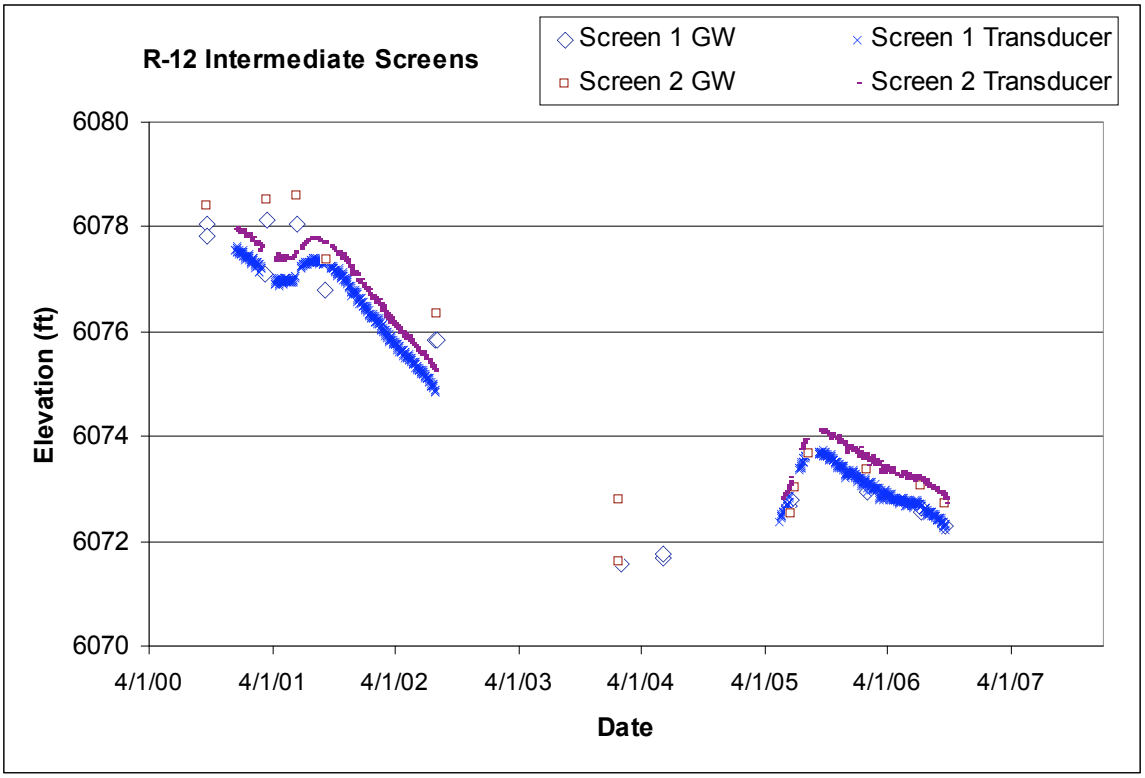
Zone	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Screen Top Elev (ft)	Screen Bottom Elev (ft)	Screen Length (ft)	Port	Port Depth (ft)	Port Elevation (ft)	Distance from Bottom of Screen (ft)	Sump Volume (L)	Comment
1	459.0	467.5	6040.6	6032.1	8.5	MP1A	468.1	6031.5	-0.6	1.1	Intermediate Zone, below 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		

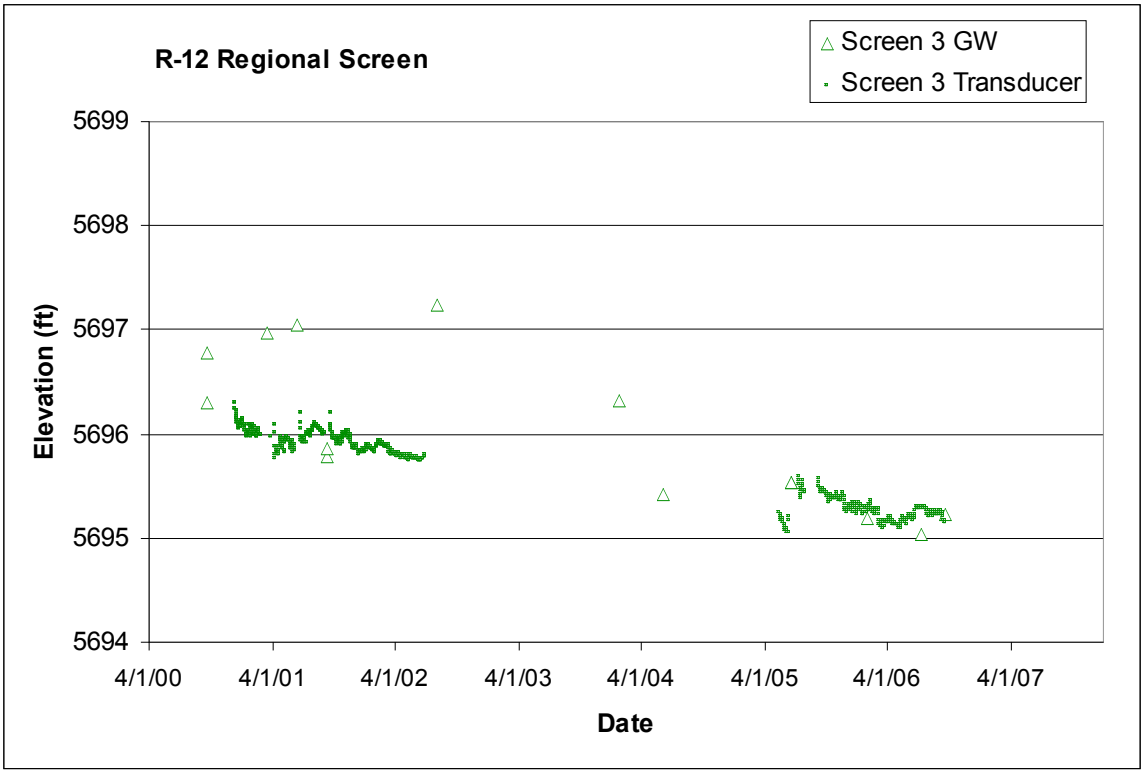
Brass Cap Elevation: 6499.6 ft; all measurements are from this elevation;
MP = measurement port; PP = pumping port

R-12 Screen Data

Screen	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	459.0	467.5	6040.6	6032.1	8.5	465.0	6034.6	470.7	6028.9	470.7	3.2	9.1	Intermediate Zone
2	504.5	508.0	5995.1	5991.6	3.5	501.1	5998.5	508.0	5991.6	540.8	32.8	93.7	Intermediate Zone
3	801.0	839.0	5698.6	5660.6	38								Plugged and abandoned

Brass Cap Elevation: 6499.6 ft; all measurements are from this elevation


R-12 Intermediate Screens
Screen 1 GW
Screen 1 Transducer
Screen 2 GW
Screen 2 Transducer
6080
6078
6076
6074
6072
6070
Elevation (ft)
4/1/00
4/1/01
4/1/02
4/1/03
4/1/04
4/1/05
4/1/06
4/1/07
Date


R-12 Regional Screen
Screen 3 GW
Screen 3 Transducer
5699
5698
5697
5696
5695
5694
Elevation (ft)
4/1/00
4/1/01
4/1/02
4/1/03
4/1/04
4/1/05
4/1/06
4/1/07
Date

3.15 R-13

Location: R-13 is located in lower Mortandad Canyon at the LANL boundary.

Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 122 ft below the water table.

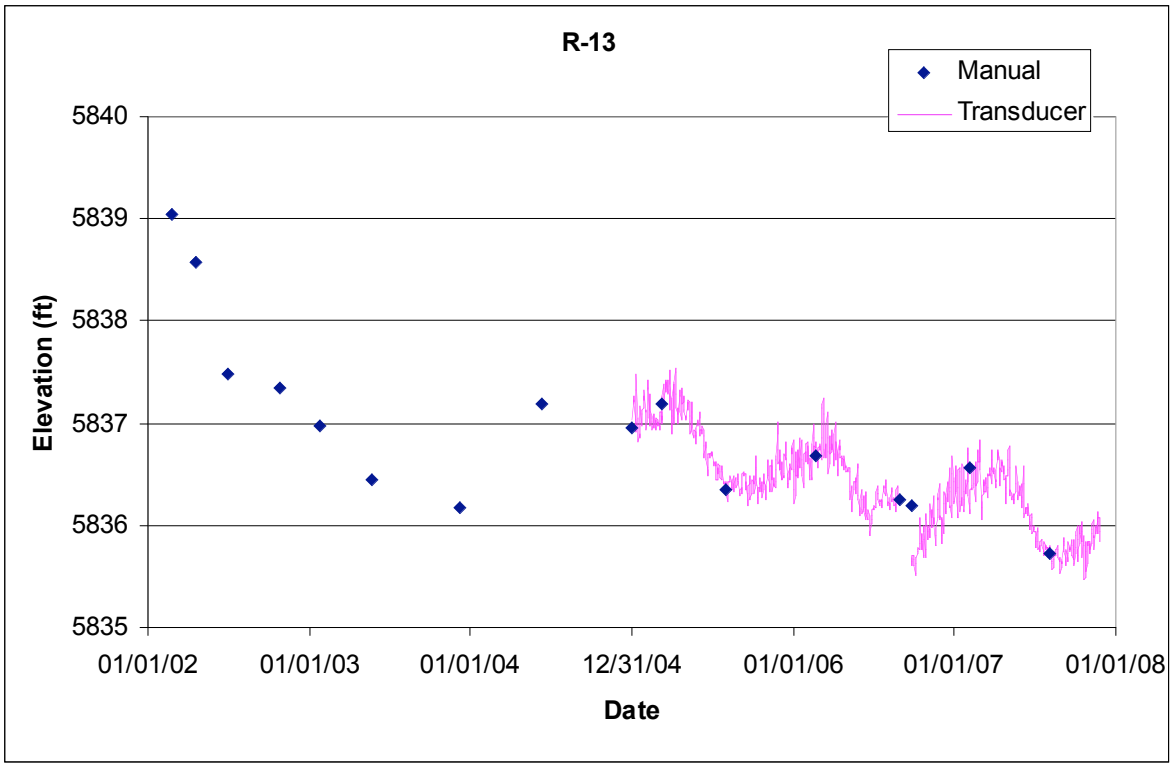
Period of Record: Well completed October 2001, transducer installed January 3, 2005, data through 2007.

Remarks: R-13 was completed to a depth of 1029.4 ft, about 200 ft into the regional aquifer. The well is 100% barometrically efficient; the groundwater has no immediate response to atmospheric pressure fluctuations. However, the aquifer indicates a delayed 30% response to atmospheric pressure. R-13 exhibits a seasonal response to supply well pumping and responds primarily to pumping at PM-4 (McLin 2006) and possibly to PM-2 and PM-5, but apparently does not respond significantly to pumping at nearby supply well PM-3.

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	933.0	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 measurements are from this elevation



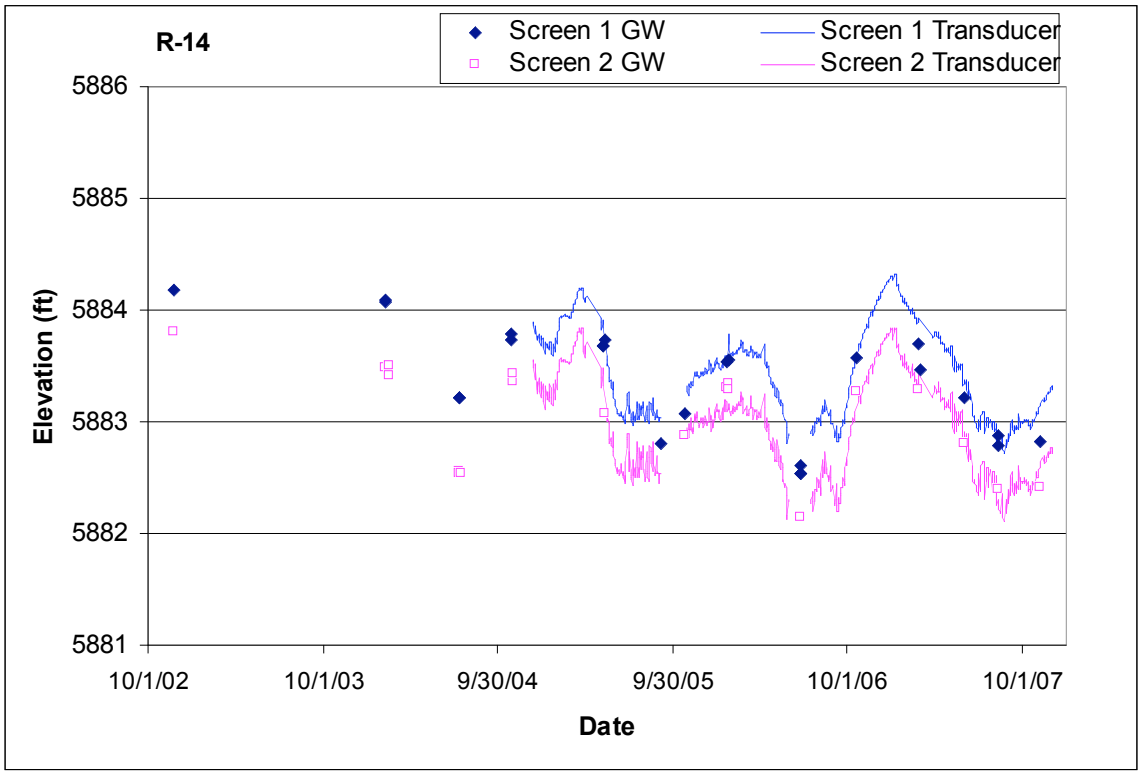
3.16 R-14

Location: R-14 is located in upper Ten Site Canyon about 0.5 miles upgradient of supply well PM-5.
Completion Type: Multiple completion, two screens in the regional aquifer. The top of screen 1 is about 22 ft below the water table.
Period of Record: Westbay® installed November 23, 2002, transducers installed December 14, 2004, intermittent data through 2007.
Remarks: Screens are 53 ft apart; heads in screens are within 0.5 ft of each other. The aquifer shows no response to atmospheric pressure fluctuations. The water level responds primarily to pumping supply well PM-5.

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



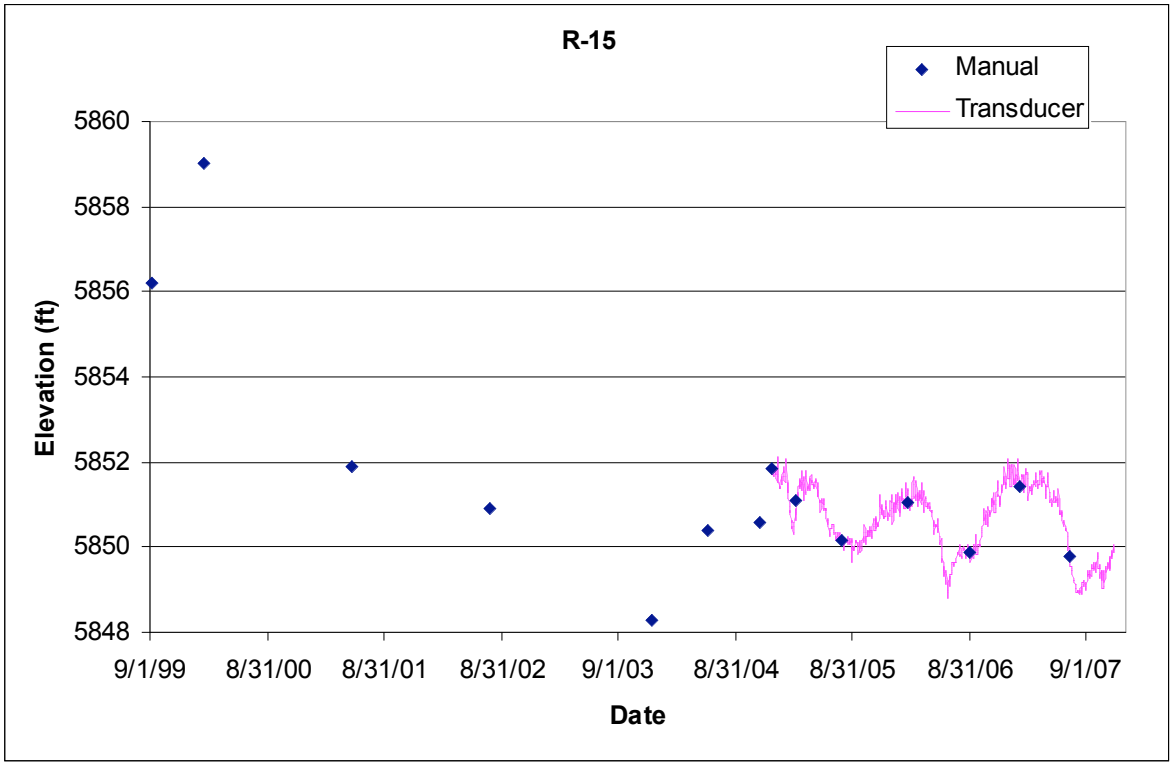
3.17 R-15

Location: R-15 is located in lower Mortandad Canyon downstream of the sediment traps.
Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.
Period of Record: Well completed September 1999, transducer installed December 23, 2004, transducer data through 2007.
Remarks: R-15 was completed in 1999 to a depth of 1030.6 ft, about 140 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. The water level responds to pumping supply wells PM-4 and PM-5.

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 measurements are from this elevation



3.18 R-16

Location: R-16 is located northeast of White Rock in lower Cañada del Buey near the confluence with lower Mortandad Canyon.

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

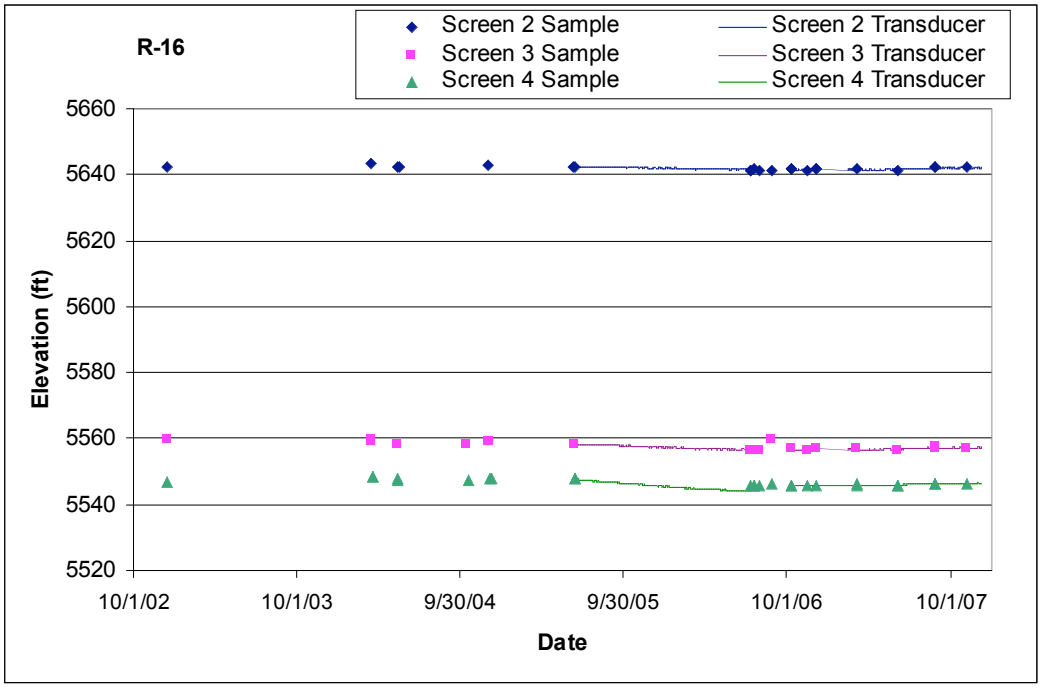
Period of Record: Westbay® installed December 14, 2002, transducers installed June 16, 2005, transducer data to July 12, 2006, when the Westbay® system was removed for additional screen development. The Westbay® system was reinstalled and transducers were reinstalled October 18, 2006. Transducer data extends through 2007.

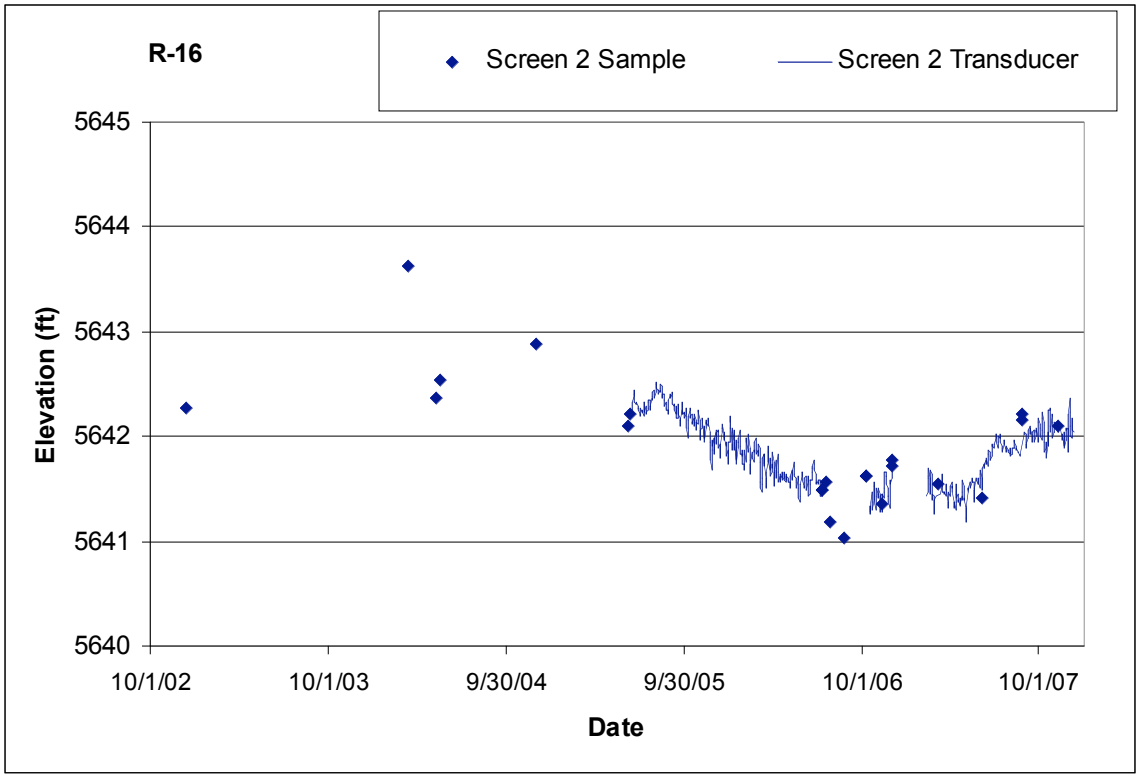
Remarks: Screens 2 and 3 are about 144 ft apart with a head difference of over 80 ft. Screens 3 and 4 show similar water level trends. The aquifer response to atmospheric pressure declines downward from screen 2 to screen 4, from 68% at screen 2 to 57% at screen 4.

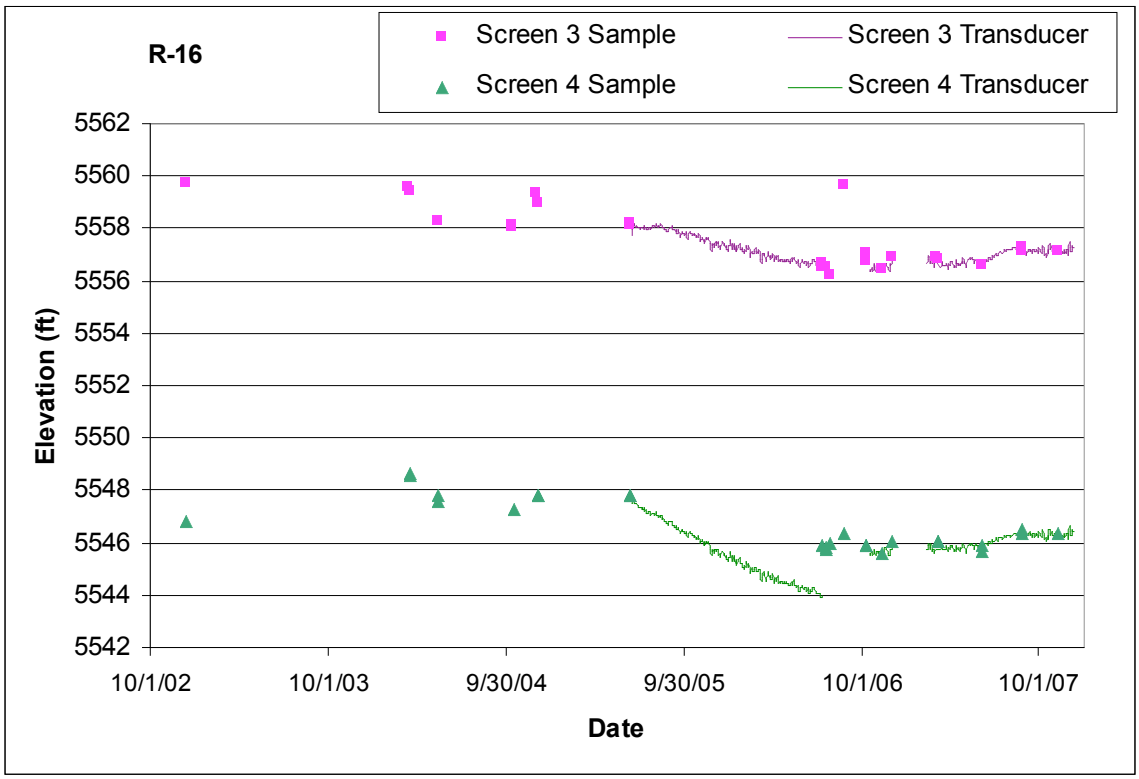
R-16 Port Data

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: 6256.87 ft; all measurements are from this elevation;
MP = measurement port, PP = pumping port




R-16
Screen 2 Sample
Screen 2 Transducer
Elevation (ft)
5645
5644
5643
5642
5641
5640
10/1/02
10/1/03
9/30/04
9/30/05
10/1/06
10/1/07
Date


R-16
Screen 3 Sample
Screen 3 Transducer
Screen 4 Sample
Screen 4 Transducer
Elevation (ft)
5562
5560
5558
5556
5554
5552
5550
5548
5546
5544
5542
10/1/02
10/1/03
9/30/04
9/30/05
10/1/06
10/1/07
Date

3.19 R-16r

Location: R-16r is located northeast 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. The top of the screen is about 36 ft below the water table.

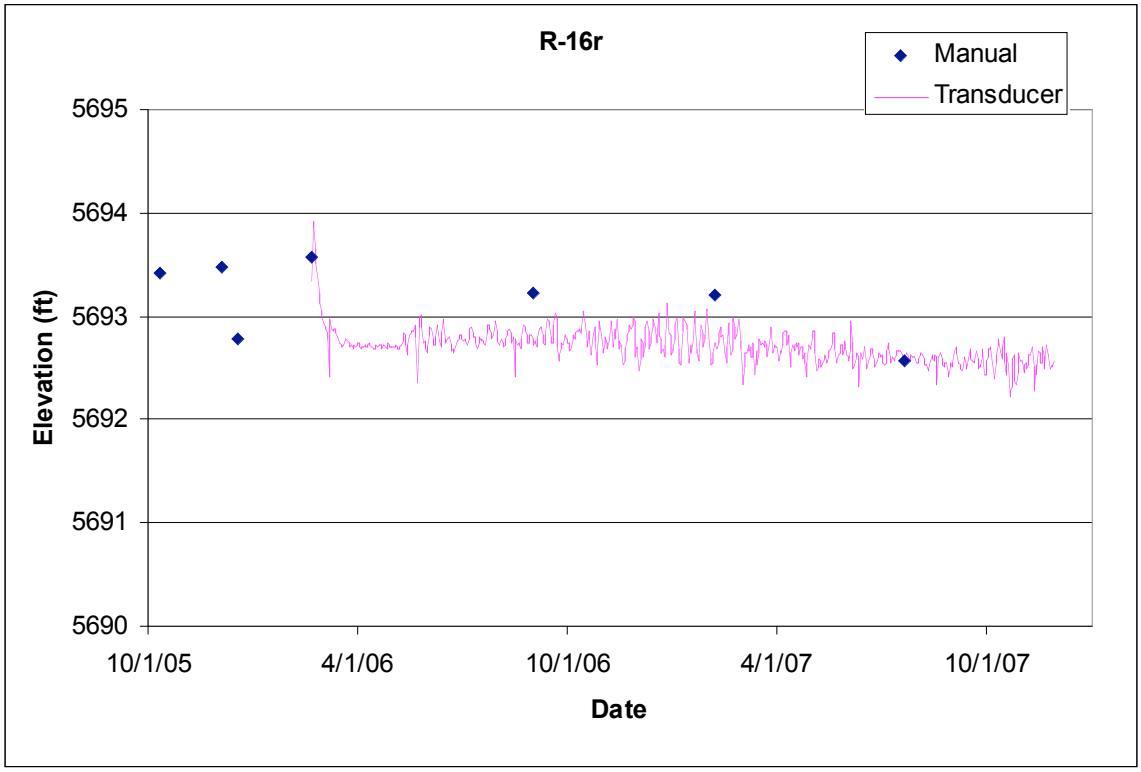
Period of Record: Well completed October 11, 2005, transducers installed February 21, 2006, data through 2007.

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 lower than R-16r screen. The well is 90% barometrically efficient; the aquifer indicates a 10% response to atmospheric pressure. Additionally, the aquifer shows a delayed response to atmospheric pressure fluctuations.

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 measurements are from this elevation



3.20 R-17

Location: R-17 is located in middle Pajarito Canyon below the confluence with Two-Mile Canyon and about 1 mile southwest of supply well PM-5.

Completion Type: Dual completion within the regional aquifer with a Baski packer and valve system and single submersible pump. The top of screen 1 is located about 20 ft below the water table.

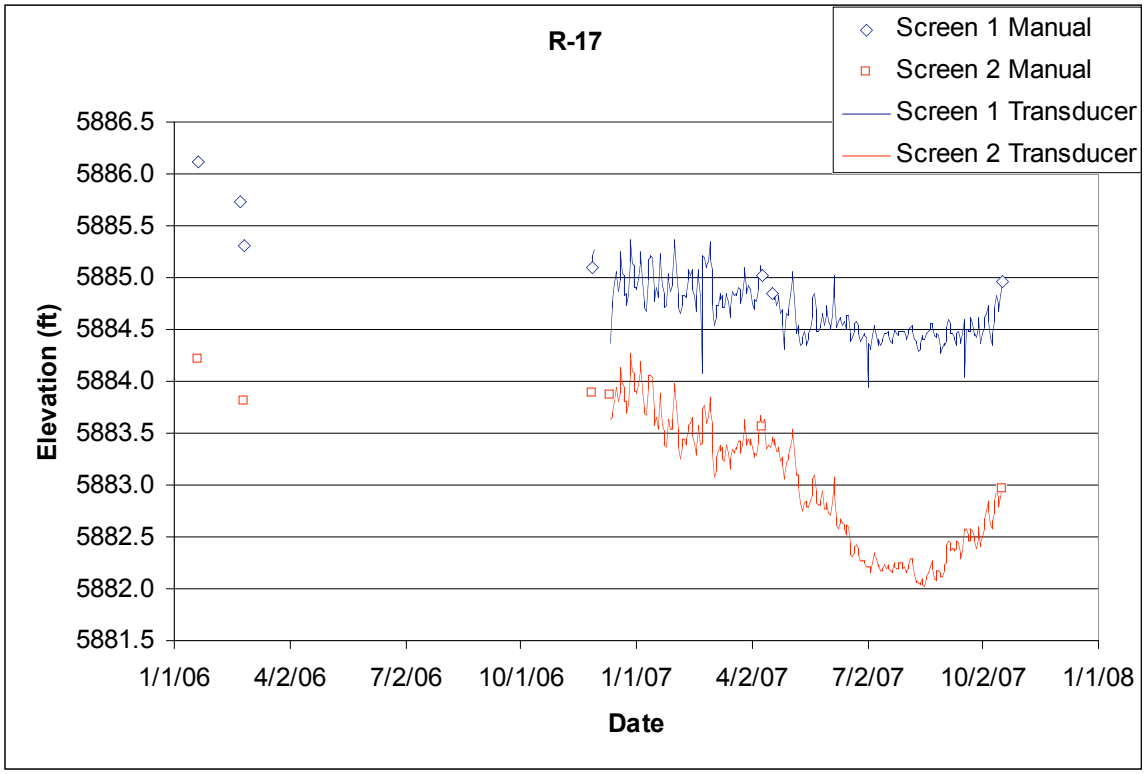
Period of Record: Completed January 4, 2006, transducers installed December 12, 2006, transducer data through 2007.

Remarks: R-17 was completed to a depth of 1140.9 ft, about 100 ft into the regional aquifer. Screen 1 is 100% barometrically efficient; the aquifer does not show a response to atmospheric pressure fluctuations. Screen 2 is 90% barometrically efficient. Both screens show a seasonal response to supply well pumping; screen 2 shows a small response to pumping nearby supply well PM-5.

R-17 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	1057.0	1080.0	5864.5	5841.5	23.0	1089.6	5831.9	1101.2	5820.4	1101.2	21.1	66.1	Regional Aquifer
2	1124.0	1134.0	5797.5	5787.5	10.0	1128.6	5792.9	1134.0	5787.5	1140.9	6.9	21.6	Regional Aquifer

Note: Brass Cap Ground Elevation: 6921.51 ft; all measurements are from this elevation



3.21 R-18

Location: R-18 is located on a mesa at TA-14 between Pajarito Canyon and Cañon de Valle, about 3000 ft northeast of R-25.

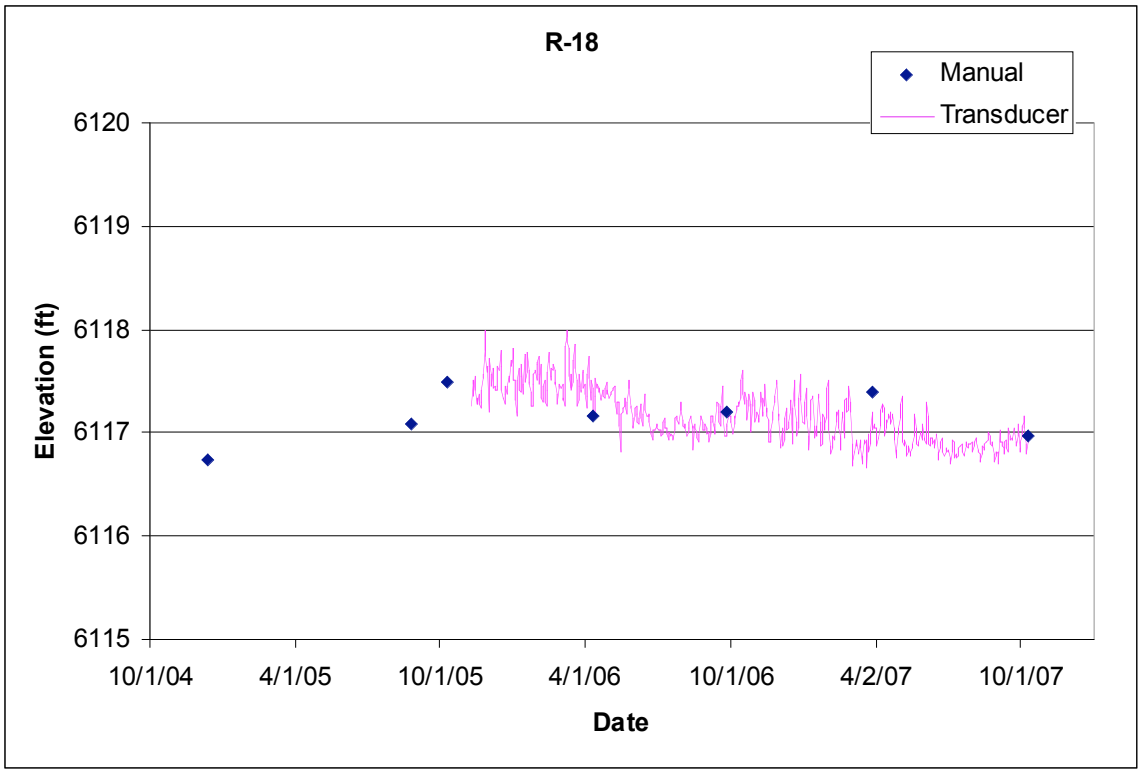
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 70 ft bellow the water table.

Period of Record: Completed December 12, 2004, transducer installed October 11, 2005, transducer data through 2007.

Remarks: R-18 was completed to a depth of 1405 ft, about 118 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not indicate a response to atmospheric pressure fluctuations. There is no apparent response to supply well pumping.

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 measurements are from this elevation



3.22 R-19

Location: R-19 is located on a mesa south of Three-Mile Canyon 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. Screen 3 straddles the regional water table.

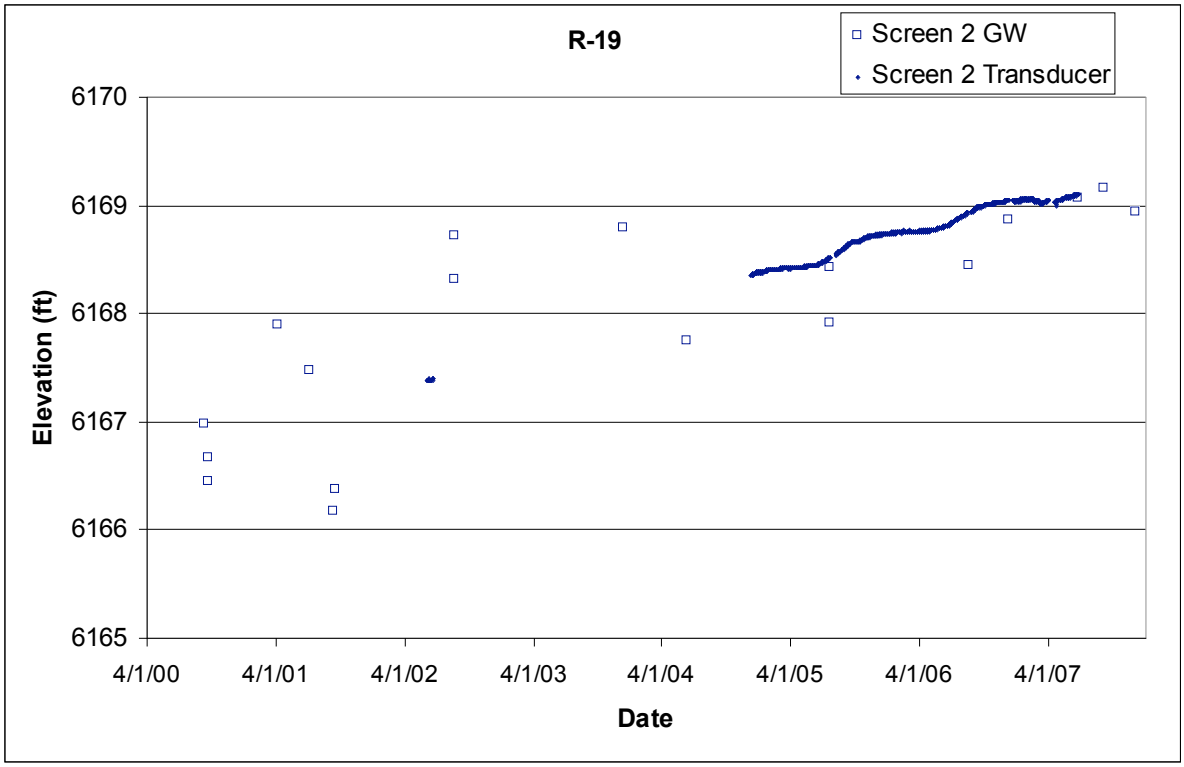
Period of Record: Westbay® installed September 11, 2000, transducers installed June 04, 2002, equipment problems occurred within two weeks. Transducers reinstalled December 10, 2004; transducer data to June 25, 2007, when the transducer string cable failed. Quarterly sampling data are available through 2007.

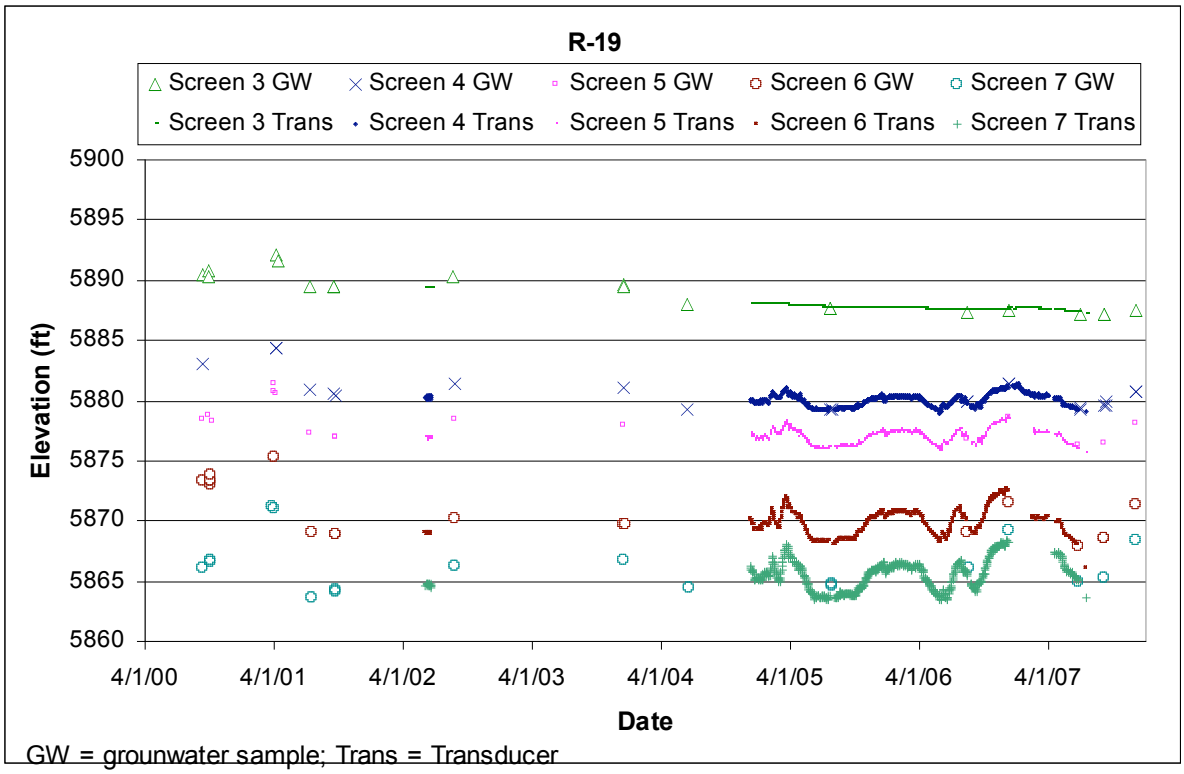
Remarks: Screen 1 has been dry since Westbay® installation. Screen 3 at the top of the regional aquifer does not show a response to atmospheric pressure fluctuations, but the deeper screens 4 through 7 indicate 40% to 50% response. The deeper screens (4 through 7) in the regional aquifer respond to supply well pumping at PM-2 and PM-4 and possibly to PM-5.

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
						MP3C	1212.8	5853.5	2.6		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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports





GW = grounwater sample; Trans = Transducer

3.23 R-20

Location: R-20 is located in lower Pajarito Canyon about 1300 ft east of supply well PM-2.

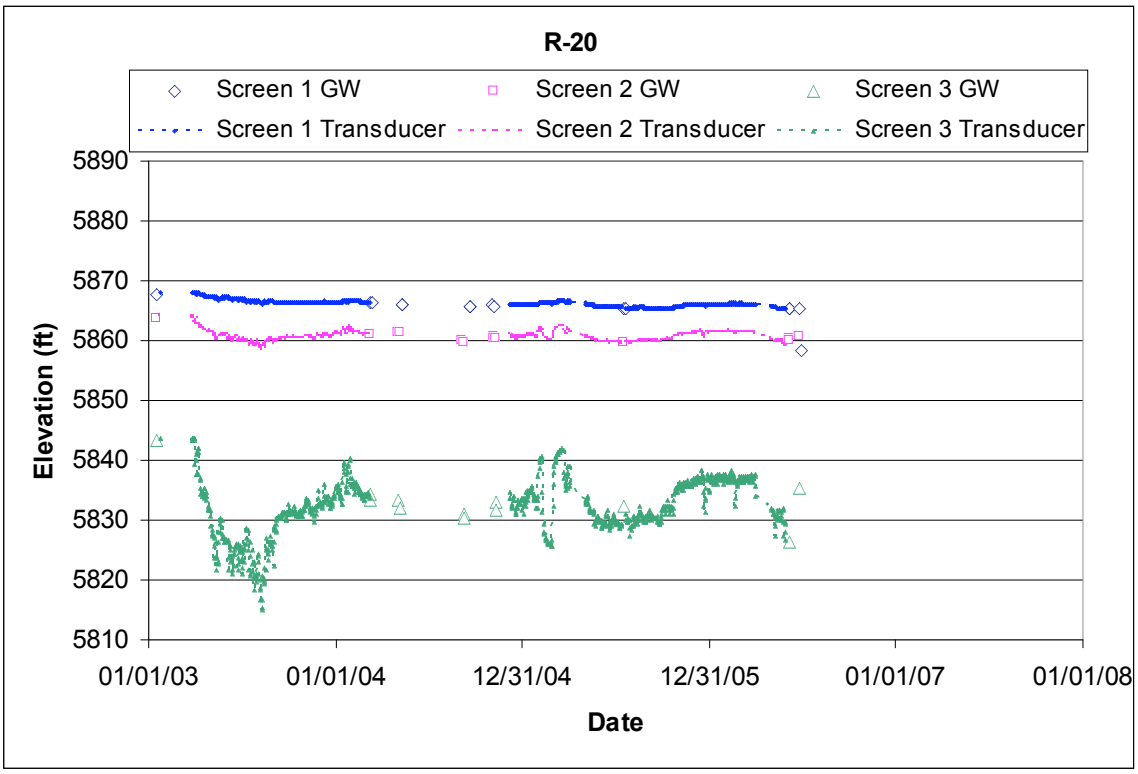
Completion Type: Multiple completion, originally three screens in the regional aquifer. Screen 3 was abandoned in 2007, leaving 2 screens in the regional aquifer. The top of screen 1 is about 76 ft below the regional water table.

Period of Record: Westbay® installed January 18, 2003, transducers installed March 26, 2003, intermittent transducer data to June 1, 2006, when the Westbay® system was removed. No water level data in the last half of 2006 and in 2007 during well rehabilitation.

Remarks: Screen 1 shows no response to atmospheric pressure fluctuations. 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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



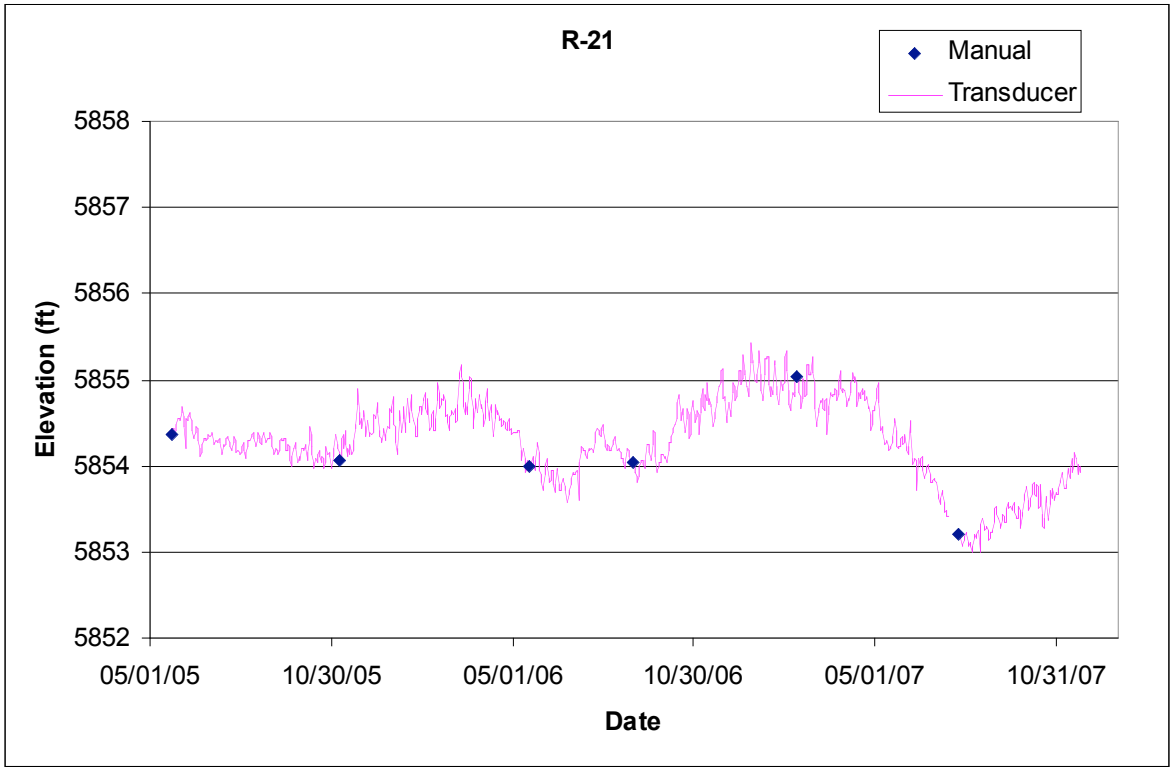
3.24 R-21

Location: R-21 is located in Cañada del Buey north of TA-54.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 87 ft below the water table.
Period of Record: Well completed November 2002, transducer installed May 23, 2005, transducer data through 2007.
Remarks: R-21 installed to a depth of 941.4 ft, about 140 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. The well responds to pumping of PM-2 and to another well or combination of wells.

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 measurements are from this elevation



3.25 R-22

Location: R-22 is located at the east end of Mesita del Buey, east of TA-54.

Completion Type: Multiple completion, five screens in the regional aquifer. Screen 1 straddles the water table.

Period of Record: Westbay® installed December 11, 2000, transducers installed March 26, 2003, intermittent transducer data through 2007.

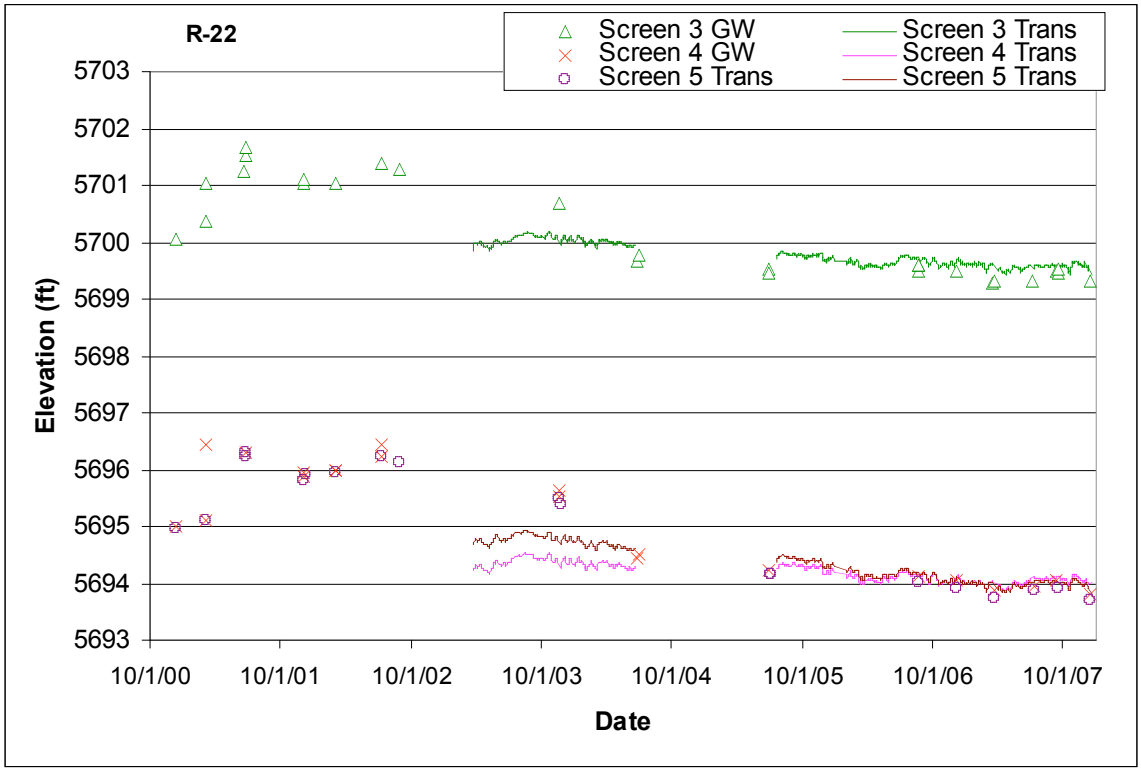
Remarks: Screens 1 and 2 have similar head values about 6 ft apart. Screens 3, 4, and 5 have similar heads within 6 ft of each other, but about 60 ft lower than screens 1 and 2. Screens 4 and 5 have nearly identical head values. The R-22 screens do not show an immediate response to atmospheric pressure fluctuations, but show a delayed response ranging from 20% to 100%. The deeper screens 2 through 5 appear to have a small response to supply well pumping, primarily at PM-2, but may also respond to other wells.

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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports

R-22
Screen 1 GW
Screen 2 GW
Screen 1 Trans
Screen 2 Trans
5766
5764
5762
5760
5758
5756
5754
Elevation (ft)
10/1/00
10/1/01
10/1/02
10/1/03
10/1/04
10/1/05
10/1/06
10/1/07
Date


R-22
Screen 3 GW
Screen 4 GW
Screen 5 Trans
Screen 3 Trans
Screen 4 Trans
Screen 5 Trans
5703
5702
5701
5700
5699
5698
5697
5696
5695
5694
5693
Elevation (ft)
10/1/00
10/1/01
10/1/02
10/1/03
10/1/04
10/1/05
10/1/06
10/1/07
Date

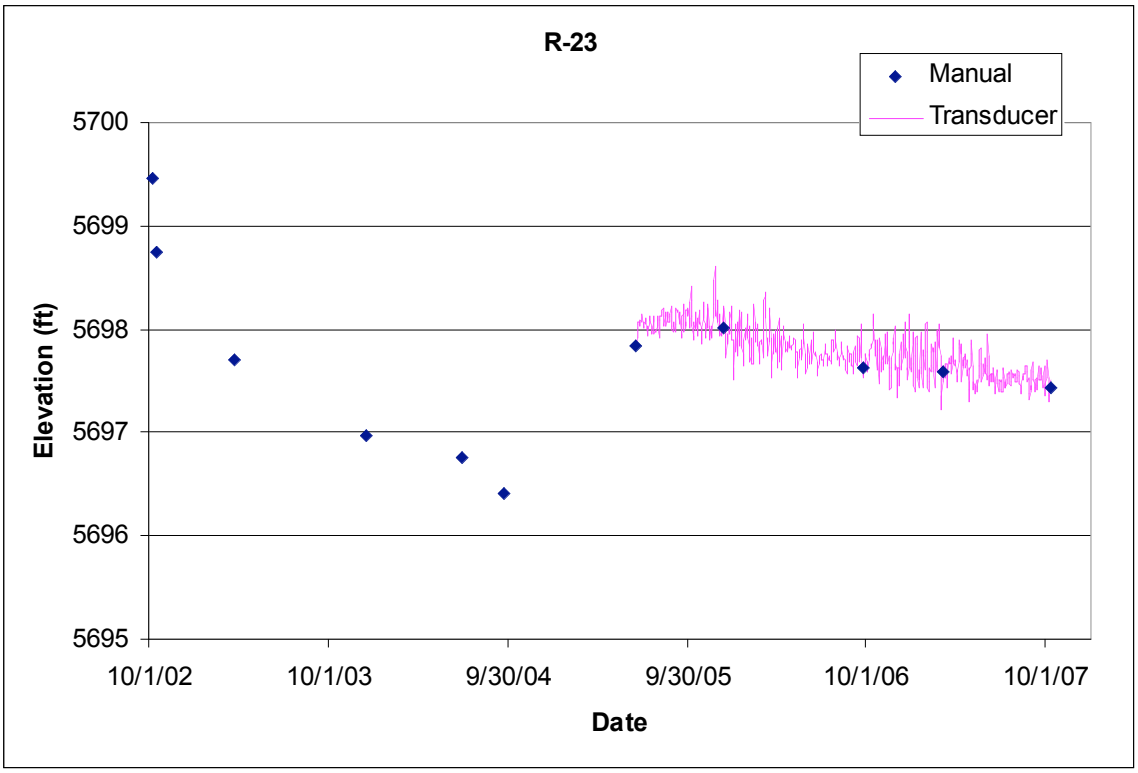
3.26 R-23

Location: R-23 is located in lower Pajarito Canyon near SR-4 and the eastern LANL boundary.
Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.
Period of Record: Well completed October 2002, transducer installed June 20, 2005, transducer data through 2007.
Remarks: R-23 was installed to a depth of 886.3 ft, about 60 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer has no immediate response to atmospheric pressure fluctuations, however, the aquifer has a delayed response to atmospheric pressure. There is no apparent response to pumping the PM well field or the Buckman well field at R-23.

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 measurements are from this elevation



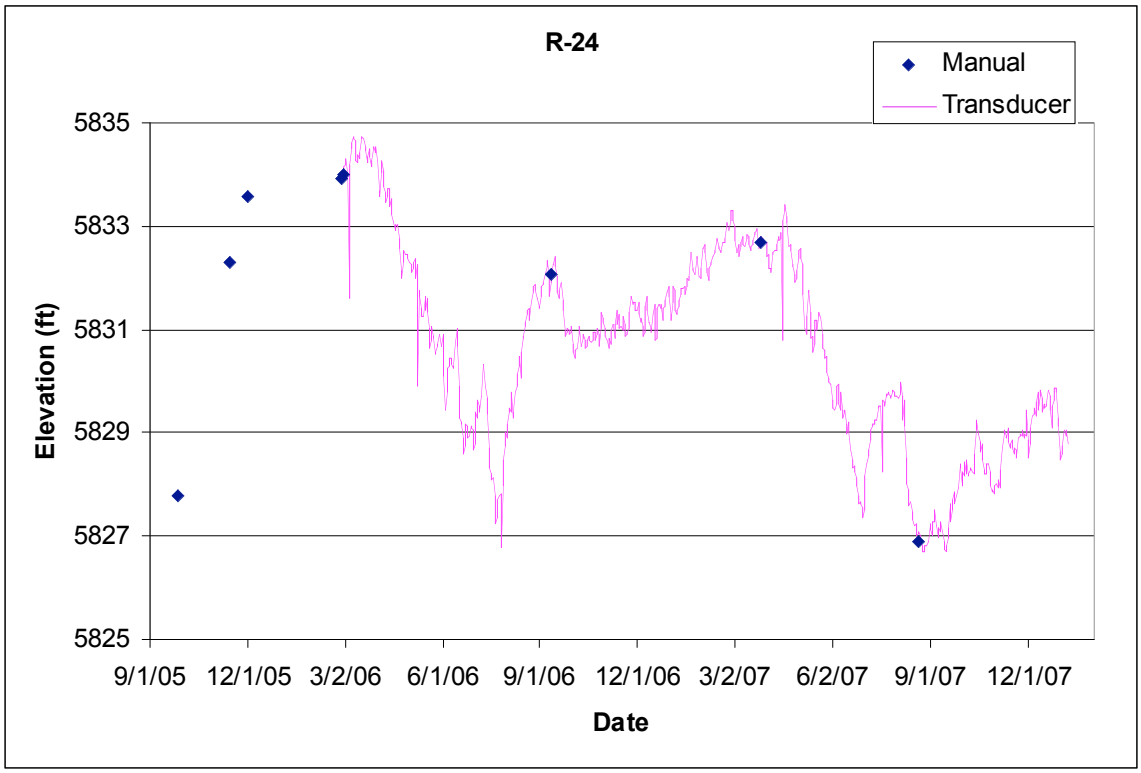
3.27 R-24

Location: R-24 is located in Bayo Canyon north of the Bayo Sewage Treatment Plant.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen is in a confined zone about 110 ft below the water table.
Period of Record: Well completed September 2005, transducer installed March 1, 2006, data through 2007.
Remarks: R-24 installed to a depth of 861 ft, about 150 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. The water level responds primarily to pumping at supply well PM-3 but may also respond to pumping the Guaje well field and supply well O-4.

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 measurements are from this elevation



3.28 R-25

Location: R-25 is located at TA-16 within the Cañon de Valle watershed.

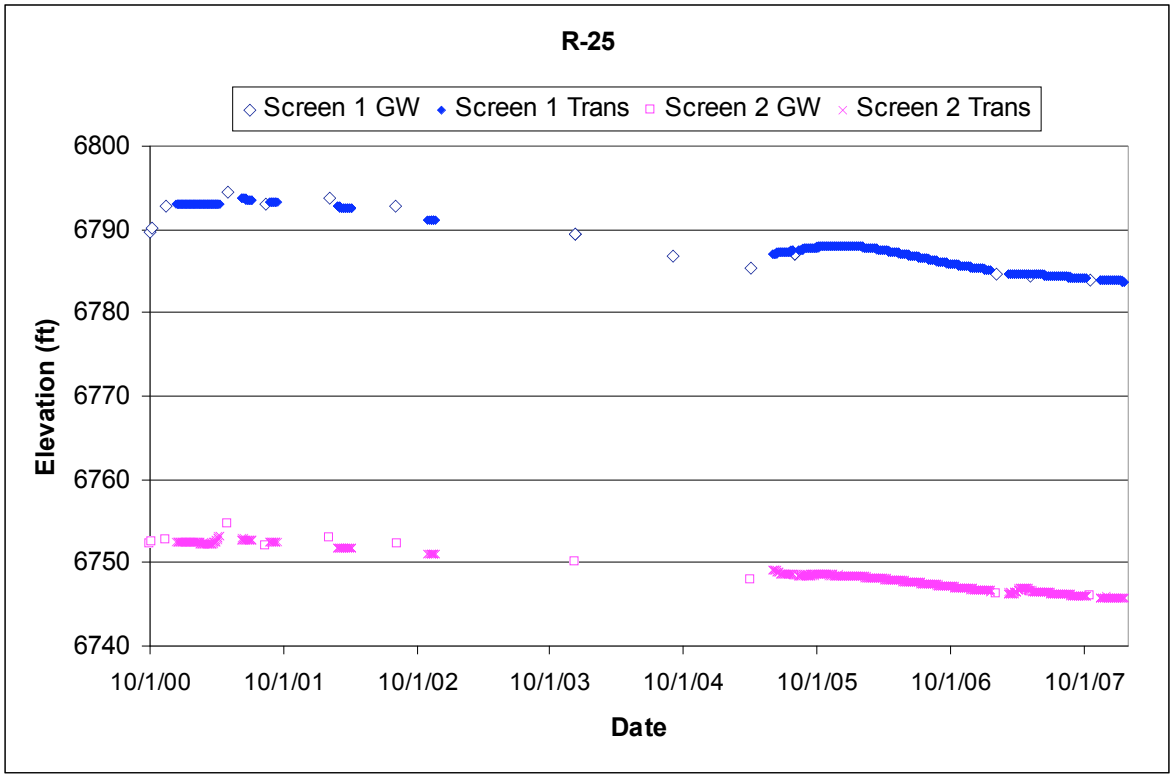
Completion Type: Multiple completion, four screens in intermediate zones, and five screens in the regional aquifer. Screens 3 and 9 were damaged during installation and are not reliable for water level monitoring. Screen 5 straddles the regional water table.

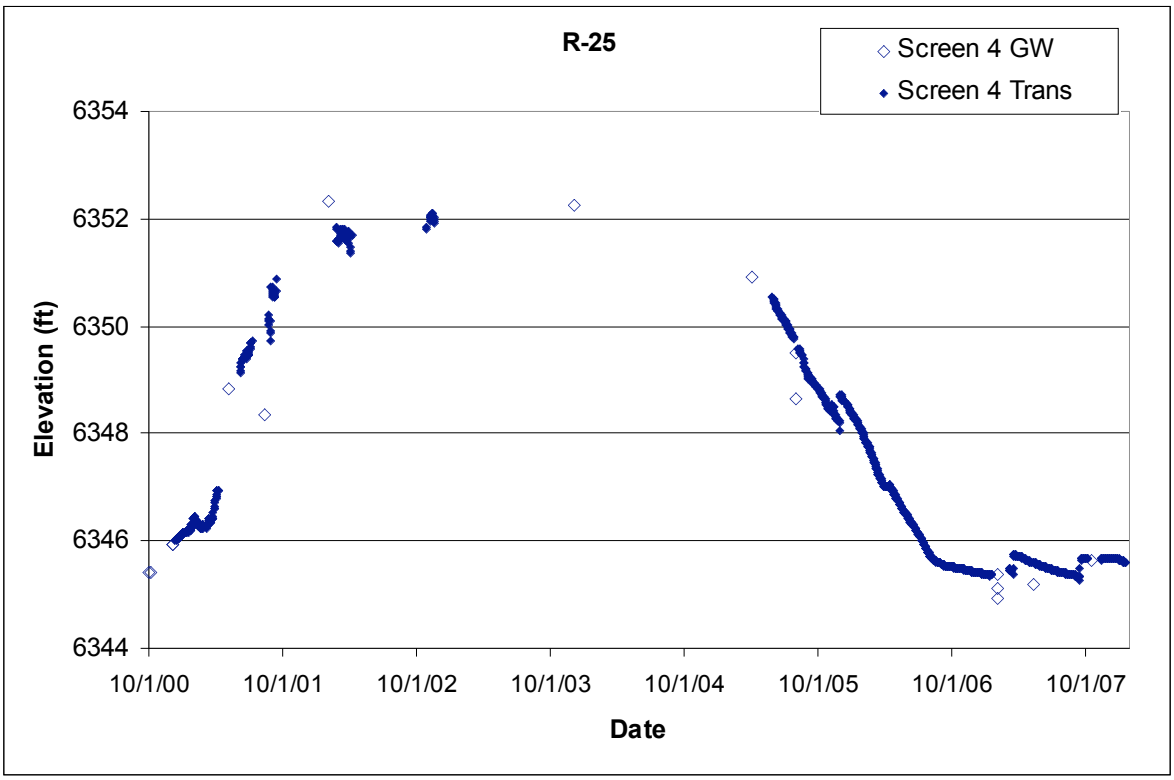
Period of Record: Westbay® installed October 3, 2000, transducers installed February 26, 2001, and between sampling events through 2002. Transducers installed again June 2, 2005; data through 2007.

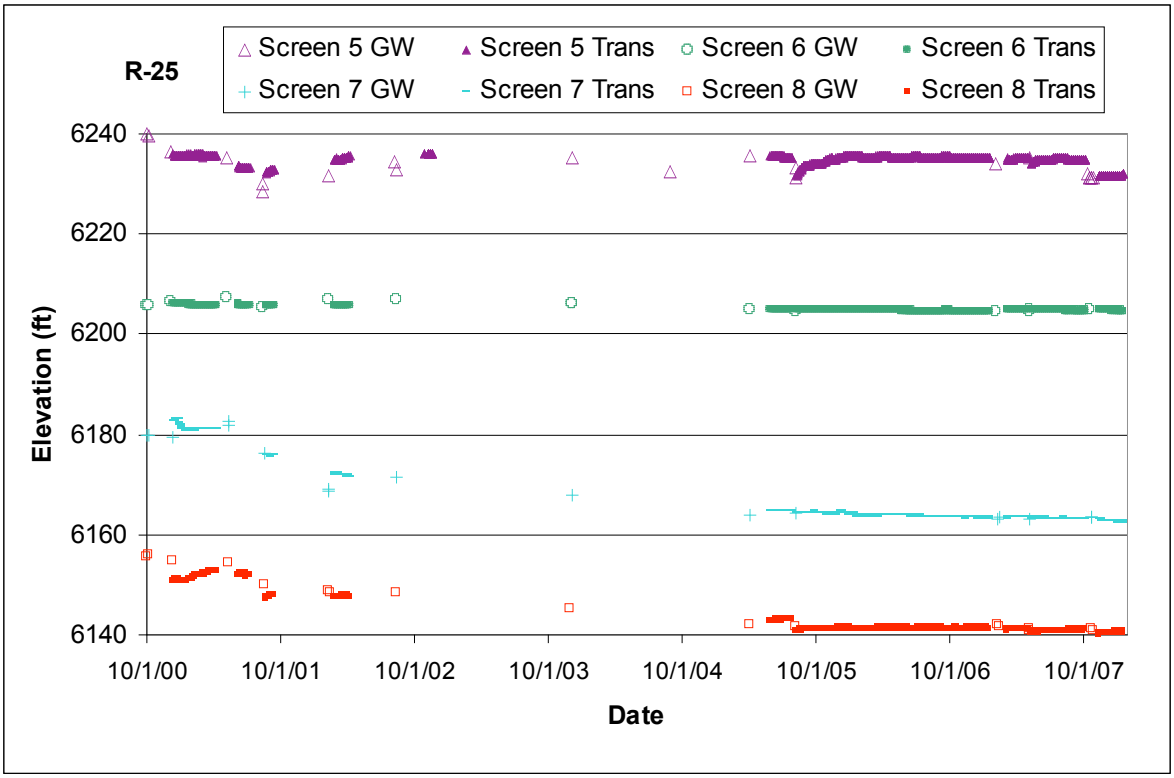
Remarks: Recurring problems with the transducer cables from 2001 to 2005 caused loss of data. The transducer cables were rebuilt in 2005. Screens 1 and 2 appear to be in the same intermediate zone. Screen 4 appears to be in a separate intermediate zone. The water level at screen 5, the top of the regional aquifer, declines during low flow sampling and recovers slowly. There is no significant response to atmospheric pressure at any of the screens. Intermediate screens 1, 2, and 4 responded to snowmelt runoff in 2005 and 2007. The regional aquifer screens do not indicate an apparent response to supply well pumping.

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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports


R-25
Screen 1 GW
Screen 1 Trans
Screen 2 GW
Screen 2 Trans
6800
6790
6780
6770
6760
6750
6740
Elevation (ft)
10/1/00
10/1/01
10/1/02
10/1/03
10/1/04
10/1/05
10/1/06
10/1/07
Date


R-25
Screen 4 GW
Screen 4 Trans
6354
6352
6350
6348
6346
6344
Elevation (ft)
10/1/00
10/1/01
10/1/02
10/1/03
10/1/04
10/1/05
10/1/06
10/1/07
Date


R-25
Screen 5 GW
Screen 5 Trans
Screen 6 GW
Screen 6 Trans
Screen 7 GW
Screen 7 Trans
Screen 8 GW
Screen 8 Trans
Elevation (ft)
6240
6220
6200
6180
6160
6140
10/1/00
10/1/01
10/1/02
10/1/03
10/1/04
10/1/05
10/1/06
10/1/07
Date

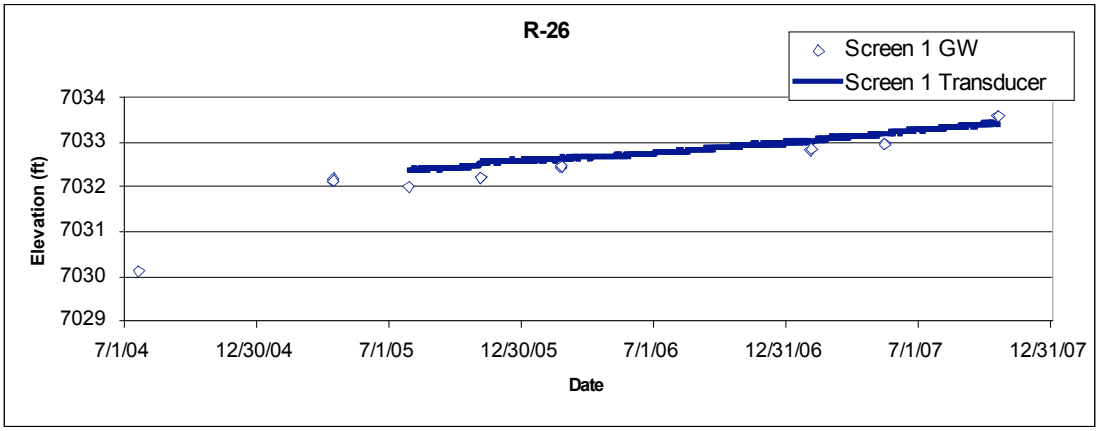
3.29 R-26

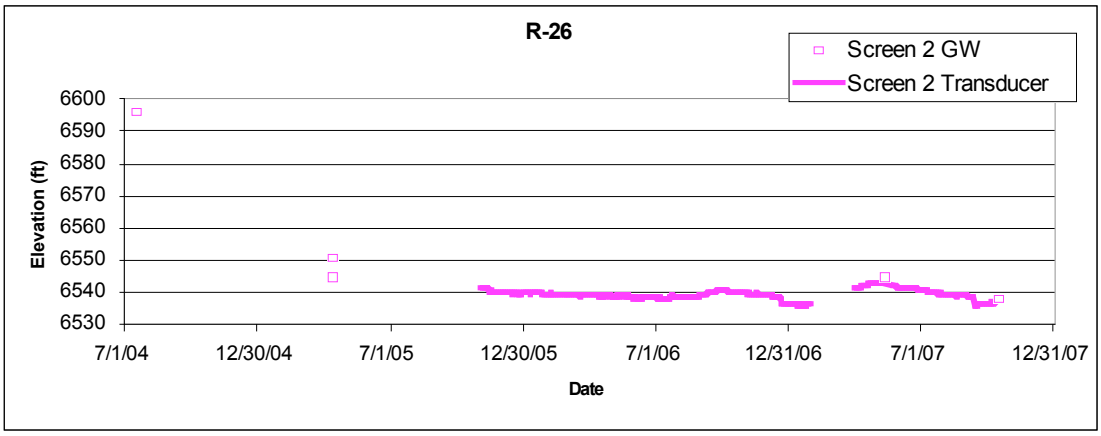
Location: R-26 is located at the western LANL boundary between Cañon de Valle and Water Canyon.
Completion Type: Multiple completion, screen 1 is in an intermediate zone, and screen 2 is within the regional aquifer. The top of screen 2 is about 319 ft below the regional water table.
Period of Record: Westbay® installed July 18, 2004, transducers installed July 29, 2005, transducer data through 2007.
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 at port MP2B appear valid with some questions as to validity pending additional data and review. There is no apparent response to supply well pumping at R-26.

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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



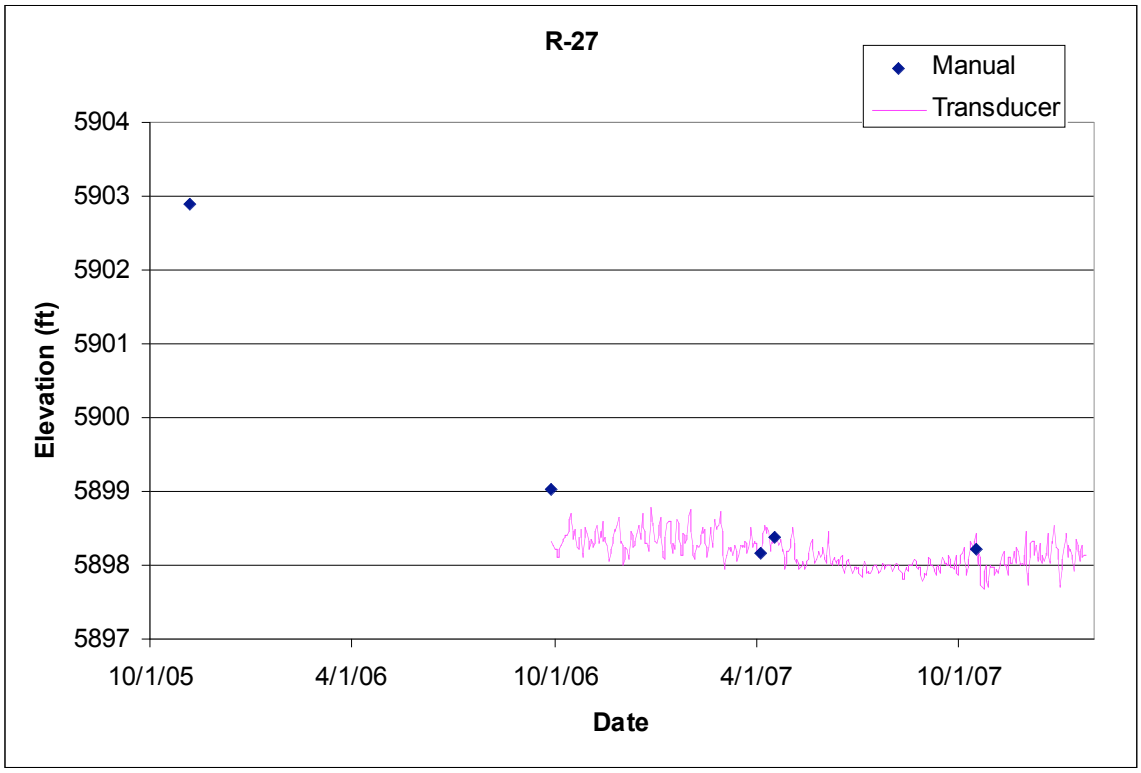


3.30 R-27

Location: R-27 is located in middle Water Canyon about 0.35 miles north of DT-10.
Completion Type: Single completion at the top of the regional aquifer in Puye fanglomerates. The top of the screen is about 38 ft below the water table.
Period of Record: Well completed November 2005, transducer installed September 29, 2006, transducer data through 2007.
Remarks: R-27 is installed to a depth of 878.7 ft, about 60 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not show a response to atmospheric pressure fluctuations. Although there is about a 0.3-ft seasonal response, there is no apparent response to a specific supply well.

R-27 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	852.0	875.0	5861.7	5838.7	23.0	847	5866.7	875.0	5838.7	878.7	3.7	11.6	Regional Aquifer

Note: Brass Cap Ground Elevation: 6713.72 ft; all measurements are from this elevation



3.31 R-28

Location: R-28 is located in lower Mortandad Canyon about 1400 ft southwest of R-11 in Sandia Canyon.

Completion Type: Single completion at the top of the regional aquifer. The top of the screen is about 45 ft below the water table.

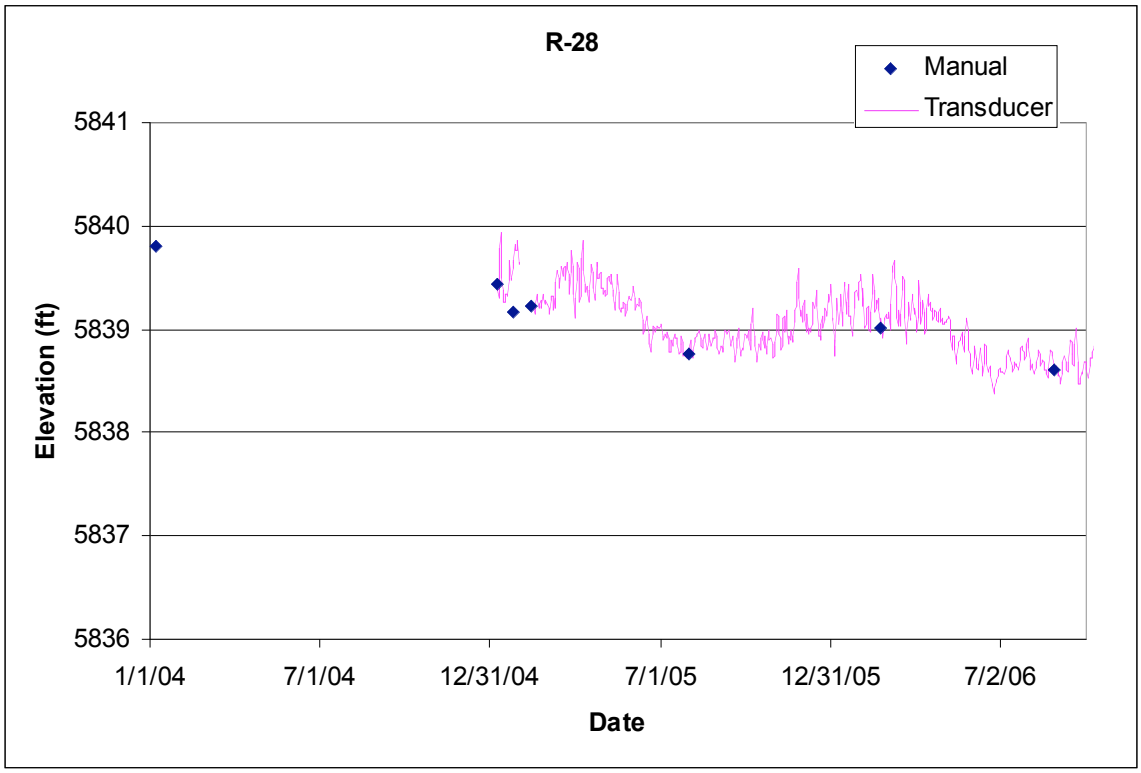
Period of Record: Well completed December 2003, transducer installed January 7, 2005, data through 2007.

Remarks: R-28 installed to a depth of 980.3 ft, about 100 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. R-28 exhibits a seasonal response to supply well pumping and responds primarily to pumping at PM-4 and PM-2 and possibly to PM-5, but apparently does not respond significantly to pumping at nearby supply well PM-3.

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 measurements are from this elevation



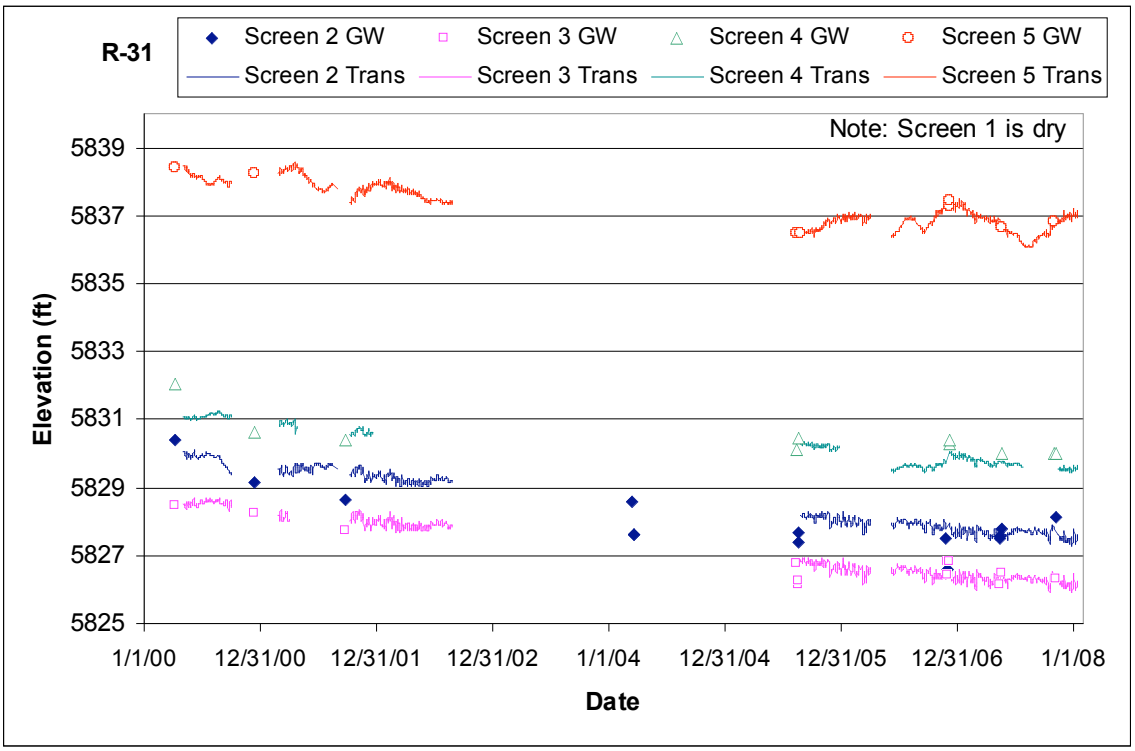
3.32 R-31

Location: R-31 is located 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. The intermediate screen has been dry since Westbay® installation.
Period of Record: Westbay® installed April 7, 2000, transducers installed May 4, 2000, transducer data through 2007.
Remarks: Screen 5 has the highest head values, followed by screen 4 and screen 2; screen 3 has the lowest head values. Screens 2 and 3 have 80% and 100% response to atmospheric pressure fluctuations, respectively, while screens 3 and 4 have about 45% response. Screens 4 and 5 show seasonal responses to supply well pumping that coincide with the non-pumping water levels at PM-2.

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	Below screen

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



3.33 R-32

Location: R-32 is located in lower Pajarito Canyon about 1 mile east of supply well PM-2.

Completion Type: Multiple completion, three screens in the regional aquifer. The top of screen 1 is about 90 ft below the water table.

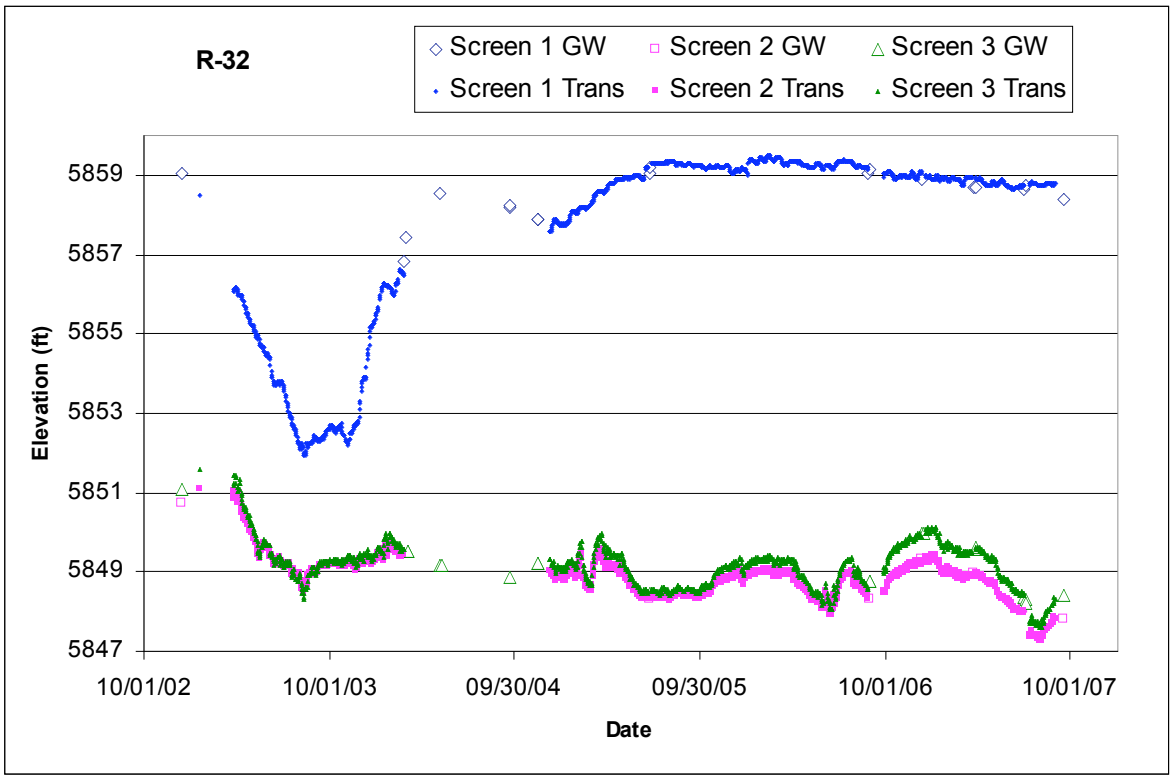
Period of Record: Westbay® installed December 14, 2002, transducers installed January 21, 2003, transducer data through August 2007. The Westbay system was removed on September 18, 2007, and the well was rehabilitated to a single completion well at screen 1 in September 2007. A submersible pump was installed in December 2007 and a new transducer was installed at screen 1 in February 2008.

Remarks: Screens 2 and 3 have nearly identical head values and respond to pumping supply wells PM-2 and PM-4. Screen 1 apparently responded to long-term pumping of PM-4 in 2003, but vaguely to aquifer test pumping at PM-2 in 2004 and PM-4 in 2005. Screens 2 and 3 responded to the PM-2 aquifer test in January 2003 (McLin 2005), to the PM-4 aquifer test in January 2005 (McLin 2006), and to PM-4 pumping in June 2006 and July 2007.

R-32 Port Data

Screen	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		Screen abandoned 9/07
3	972.9	980.6	5657.0	5657.0	7.7	**MP3A**	976.0	5661.6	4.6		Screen abandoned 9/07
						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 measurements are from this elevation;
MP = Monitor Port; PP = Pump Port; Monitor Ports shown in bold are instrumented ports



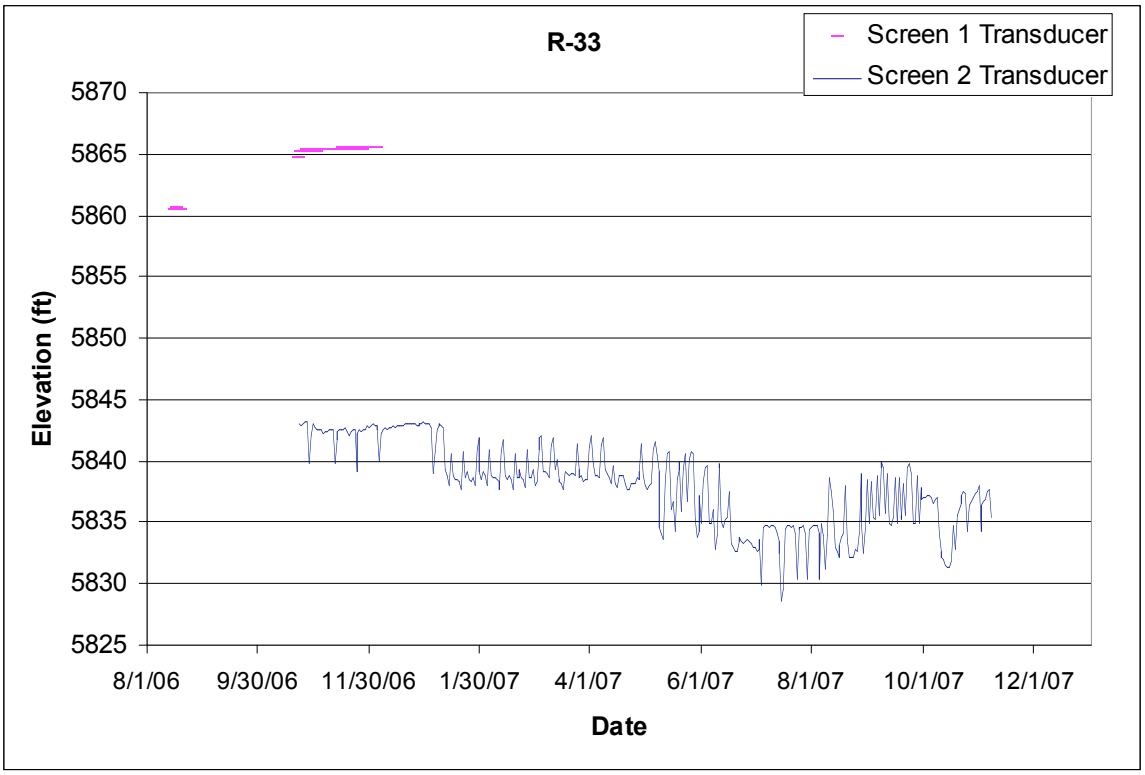
3.34 R-33

Location: R-33 is located in lower Ten Site Canyon about 1500 ft northeast of supply well PM-5.
Completion Type: Dual completion in the regional aquifer. Screen 1 is at the water table.
Period of Record: Well completed October 2004, transducers installed February 2005 but equipment problems hindered data collection. Transducers calibrated and the packer inflated in August 2006 and again in October 2006 with nitrogen bottle to maintain packer pressure. Water level data for screen 2 from October 24, 2006, to November 8, 2007; data for screen 1 end December 5, 2006.
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. Equipment problems occurred until October 2006 when transducers and packer equipment became fully operational. The screen 1 transducer equipment failed December 5, 2006, no data for screen 1 after that time. The transducer equipment was removed from the well on November 8, 2007, in preparation for removing the Barcad sampling system from the well. The water level at screen 2 responds primarily to pumping of supply well PM-5 and also to pumping of PM-4.

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	2.0	Regional Aquifer

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

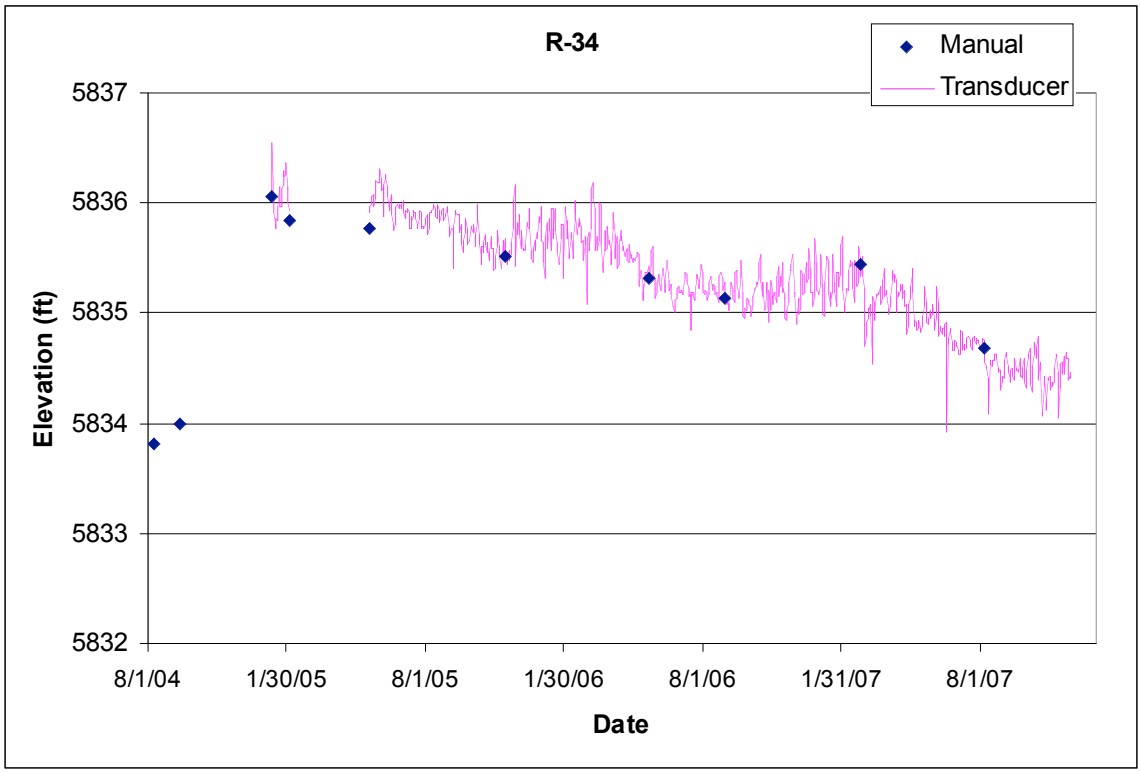


3.35 R-34

Location: R-34 is located in Cedro Canyon on San Ildefonso land east of LANL.
Completion Type: Single completion in the regional aquifer. The top of the screen is about 90 ft below the water table.
Period of Record: Well completed August 2004, transducer installed January 2005, water level data through 2007.
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. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. R-34 exhibits a seasonal response to supply well pumping but does not indicate a response to any specific supply well.

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 measurements are from this elevation



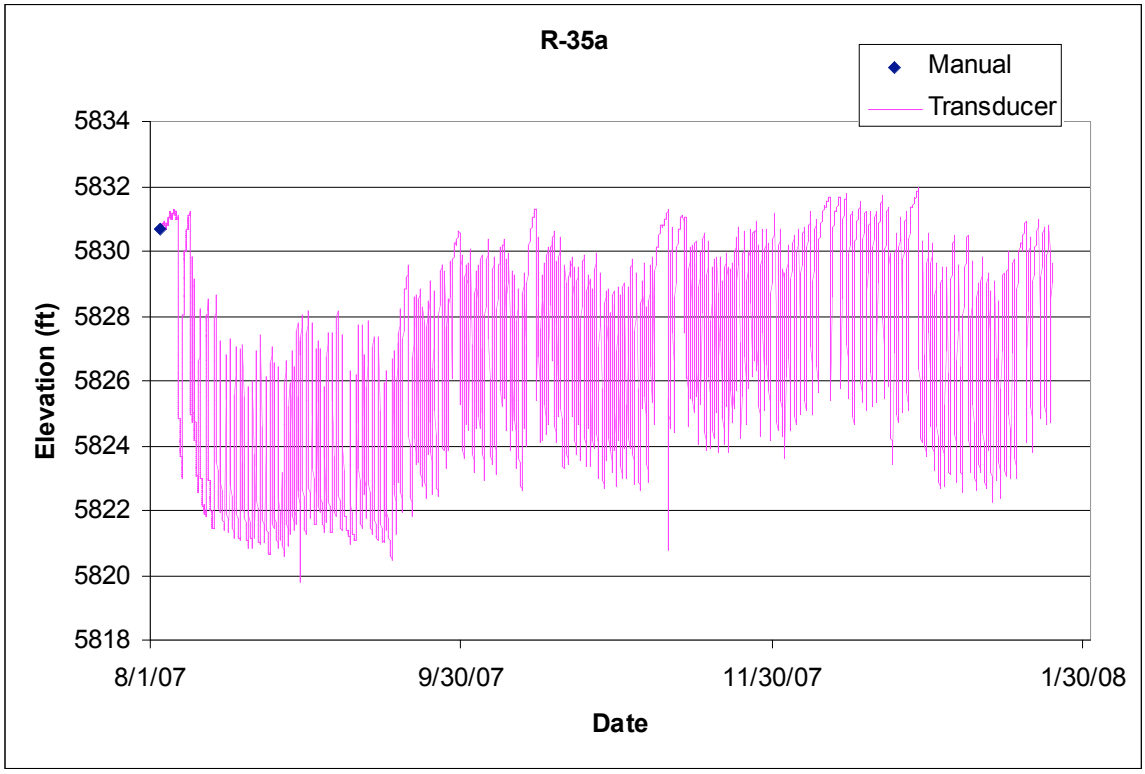
3.36 R-35a

Location: R-35a is located in Sandia Canyon about 340 ft southwest of supply well PM-3.
Completion Type: Single completion in the regional aquifer. The top of the screen is about 220 ft below the water table at the same elevation as the top of the PM-3 screen.
Period of Record: Well completed June 2007, transducer installed August 3, 2007; water level data through 2007.
Remarks: R-35a installed at a depth of 1082.2 ft, about 290 ft into the regional aquifer. R-35a responds primarily to pumping supply well PM-3, about 3 ft daily, but also shows a response to pumping supply well O-4. When the well was completed, the static water level at R-35a was about 7 ft lower than at nearby monitoring well R-35b.

R-35a 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	1013.1	1062.2	5610.0	5560.9	49.1	998.3	5624.8	1062.2	5560.9	1086.2	24.0	75.1	Regional Aquifer

Note: Brass Cap Ground Elevation: 6623.06 ft; all measurements are from this elevation



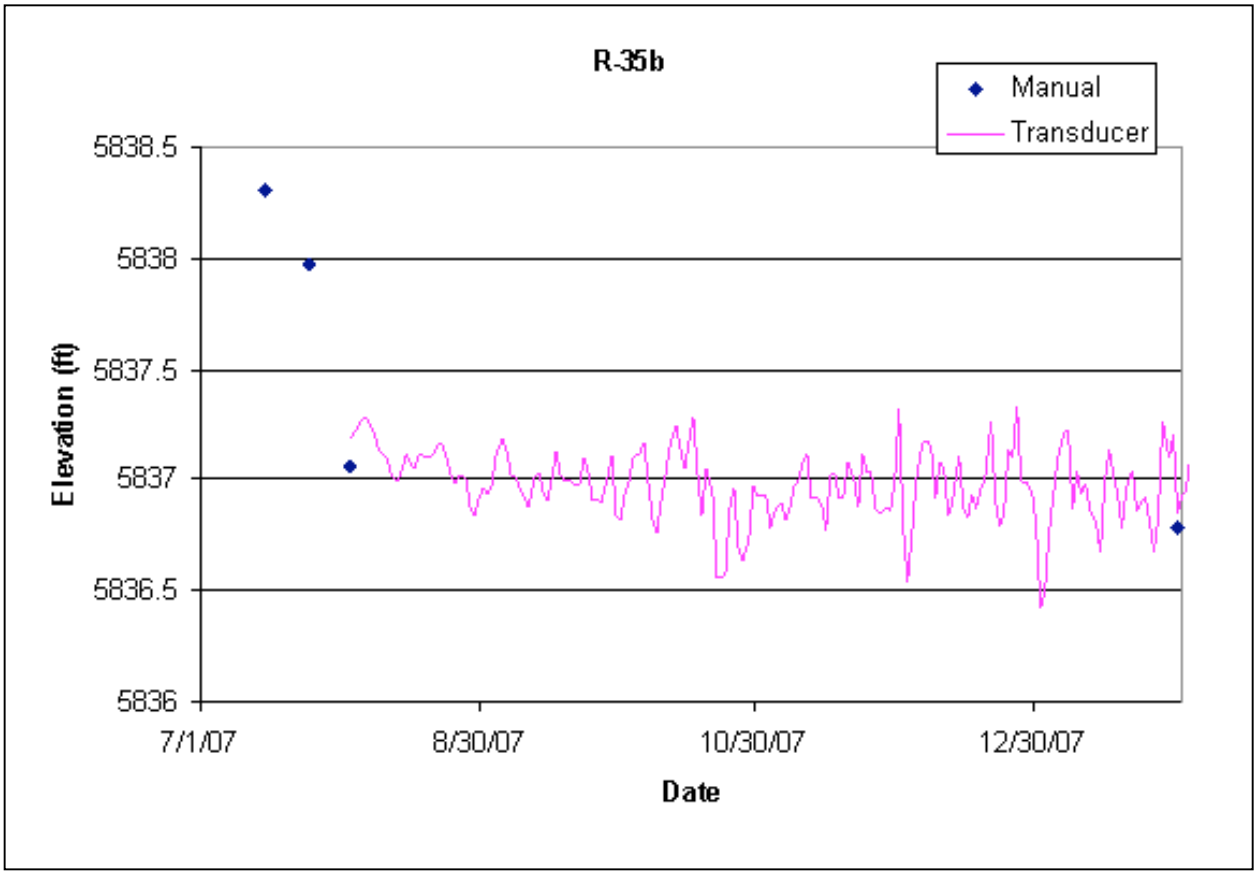
Note: Time series graph shows hourly data

3.37 R-35b

Location: R-35b is located in Sandia Canyon about 90 ft west of R-35a.
Completion Type: Single completion at the top of the regional aquifer. The top of the screen was about 37 ft below the water table when the well was installed.
Period of Record: Well completed July 2007, transducer installed August 3, 2007; water level data through 2007.
Remarks: R-35b installed near the top of the regional aquifer at a depth of 872.2 ft, about 80 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond to atmospheric pressure fluctuations. R-35b does not indicate a response to pumping of nearby well PM-3.

R-35b 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	825.4	848.5	5799.8	5776.7	23.1	832.7	5792.5	848.5	5776.7	872.2	23.7	74.1	Regional Aquifer

Note: Brass Cap Ground Elevation: 6625.21 ft; all measurements are from this elevation



3.38 Test Well 1

Location: TW-1 is located in lower Pueblo Canyon downstream of supply well O-1.

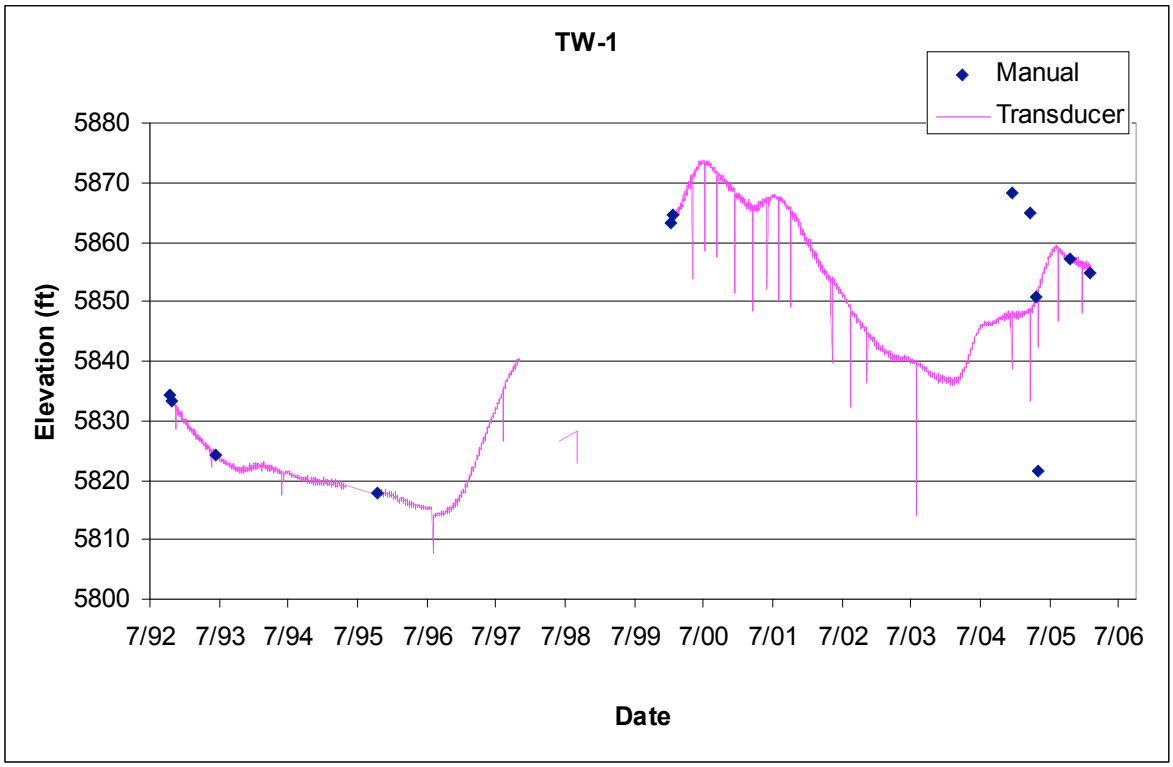
Completion Type: Single completion within the regional aquifer. The top of the screen was about 120 ft below the water level in 2006.

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

Remarks: TW-1 installed in 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 of 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 measurements are from this elevation

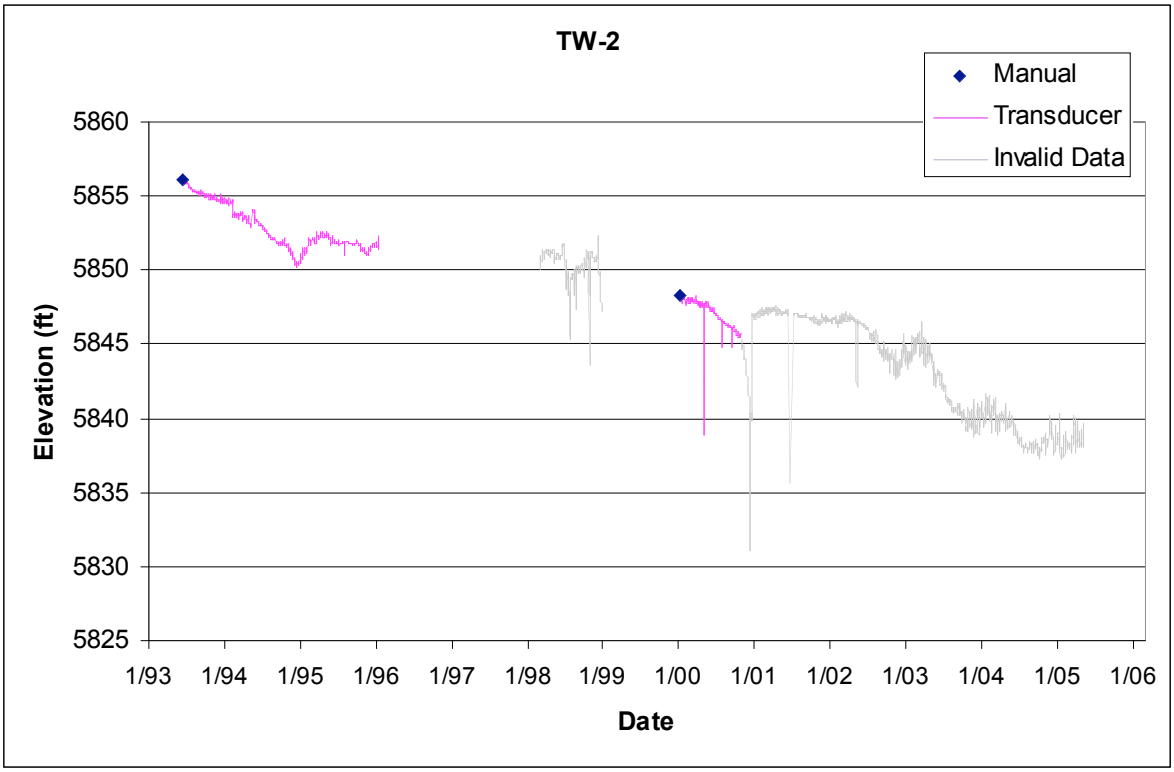


3.39 Test Well 2

Location: TW-2 is located in middle Pueblo Canyon.
Completion Type: Single completion at the top of the regional aquifer.
Period of Record: Well originally drilled in 1949, recompleted in 1990. Transducer installed June 1993; data to January 1996. Transducer reinstalled January 2000; transducer data to March 2005.
Remarks: TW-2 completed at the top of the regional aquifer at a depth of 834 ft, about 35 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 in the measurement tape stuck in the well. Thus, transducer water level data since November 2000 are not valid with respect to elevation, but are shown for reference and character information only.

Test Well 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	5880.1	5824.1	56.0			824.0	5824.1	834	10.0	55.6	Regional Aquifer

Note: Test Well 2 Ground Elevation: 6648.06 ft; all measurements are from this elevation



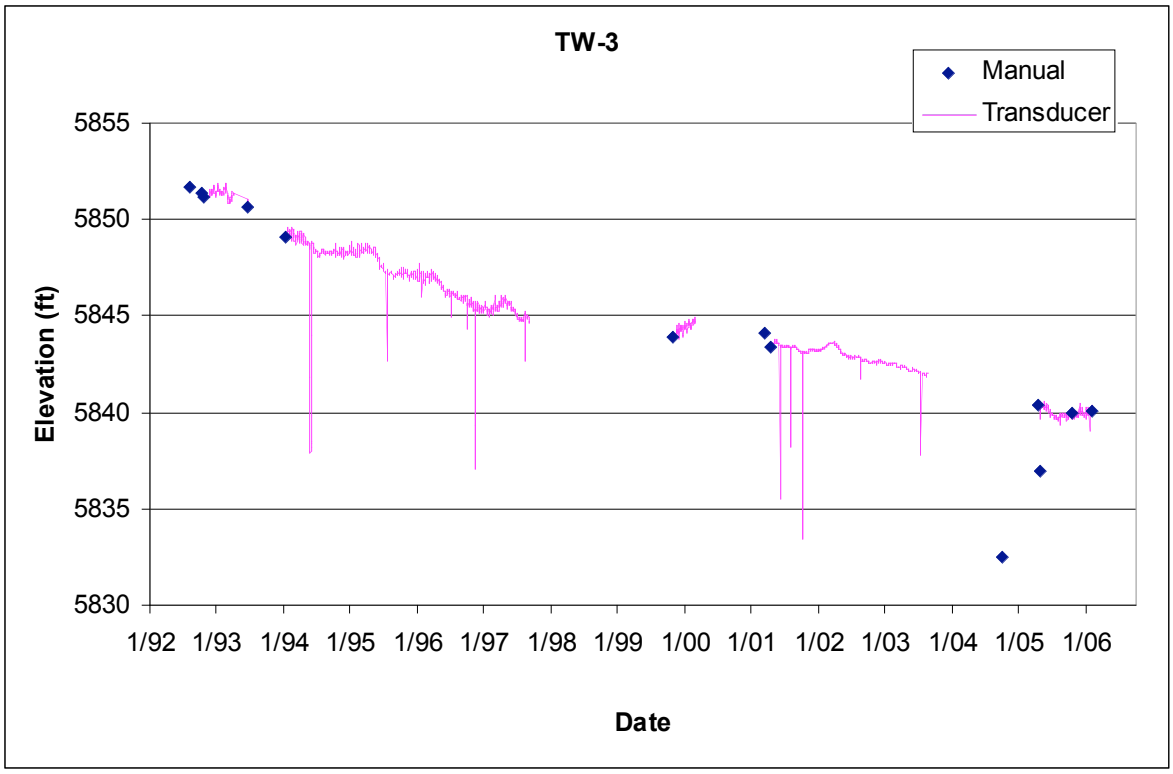
3.40 Test Well 3

Location: TW-3 is located in 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 measurements are from this elevation



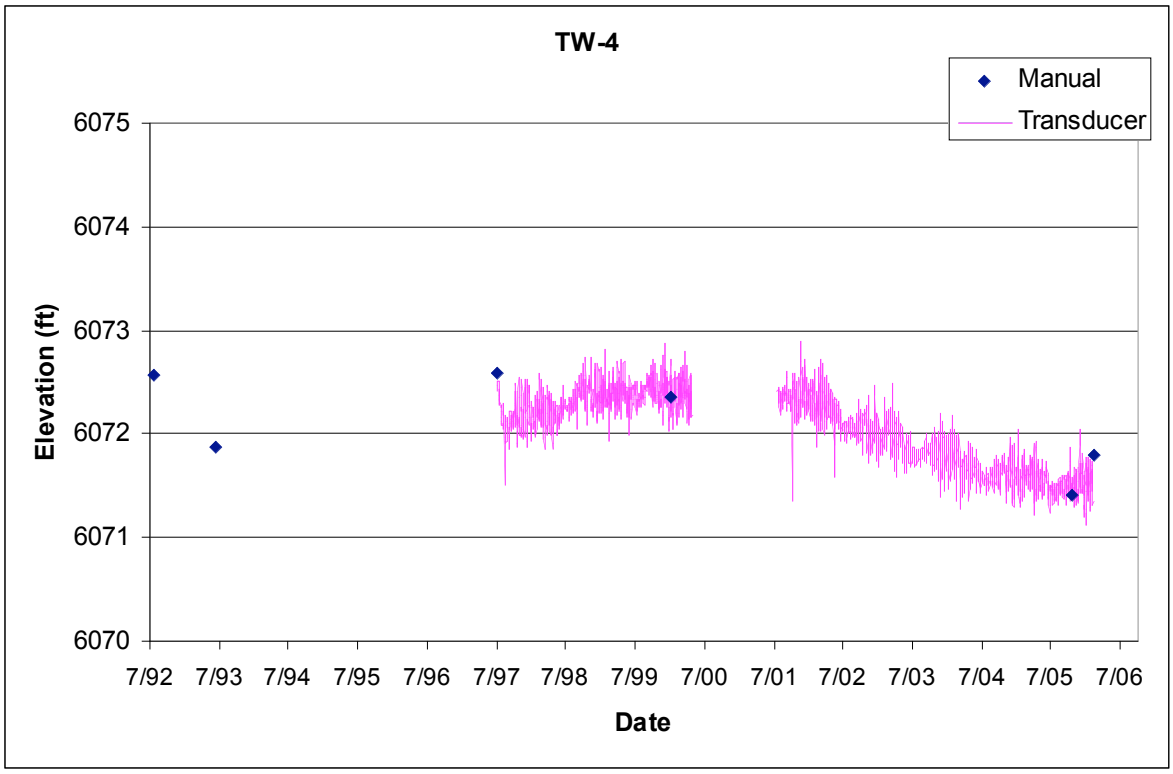
3.41 Test Well 4

Location: TW-4 is located 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 measurements are from this elevation



3.42 Test Well 8

Location: TW-8 is located in 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. The screen straddles the water table.

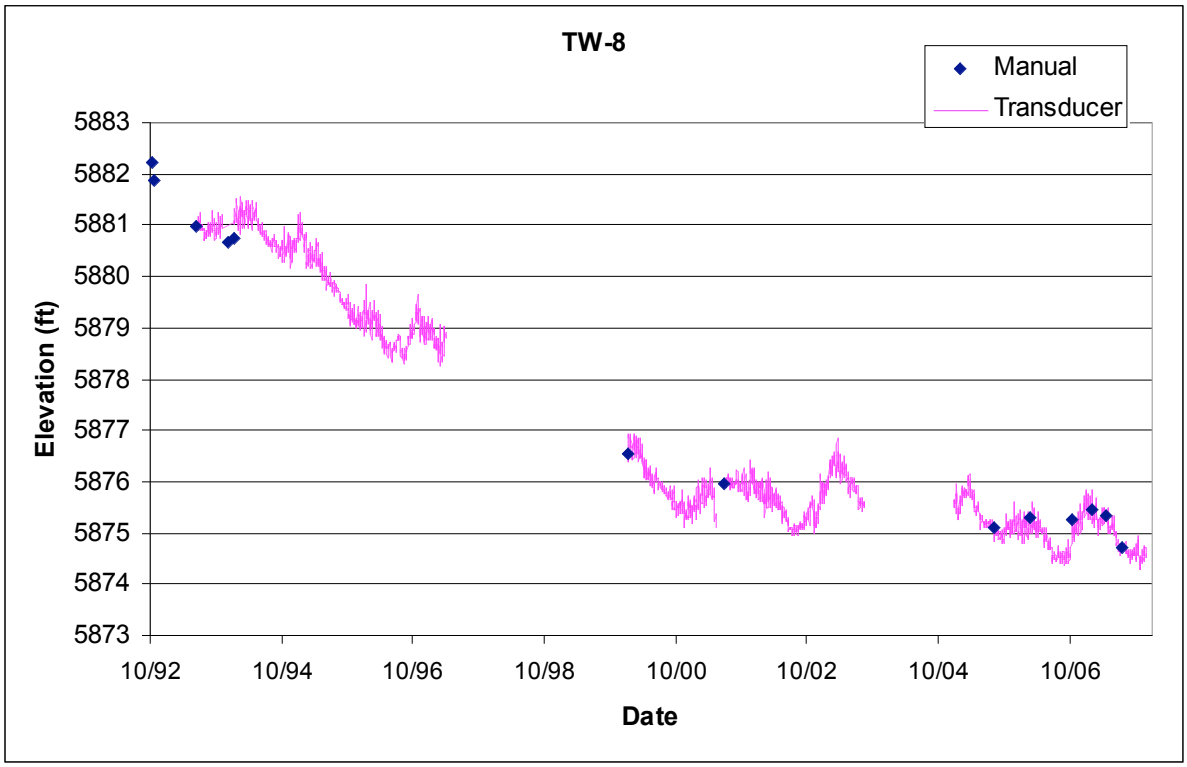
Period of Record: Well drilled in 1960, transducer installed June 1993, transducer data to March 1997. Transducer reinstalled January 2000; intermittent data through 2007.

Remarks: TW-8 completed at the top of the regional aquifer at a depth of 1065 ft, about 70 ft into the regional aquifer. The well is nearly 100% barometrically efficient; the aquifer has no response to atmospheric pressure fluctuations. The aquifer indicates a seasonal response to supply well pumping and primarily responds to pumping PM-5 and possibly to pumping PM-4.

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 measurements are from this elevation



3.43 Test Well DT-5A

Location: DT-5A is located at TA-49 near the southern boundary of LANL.

Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.

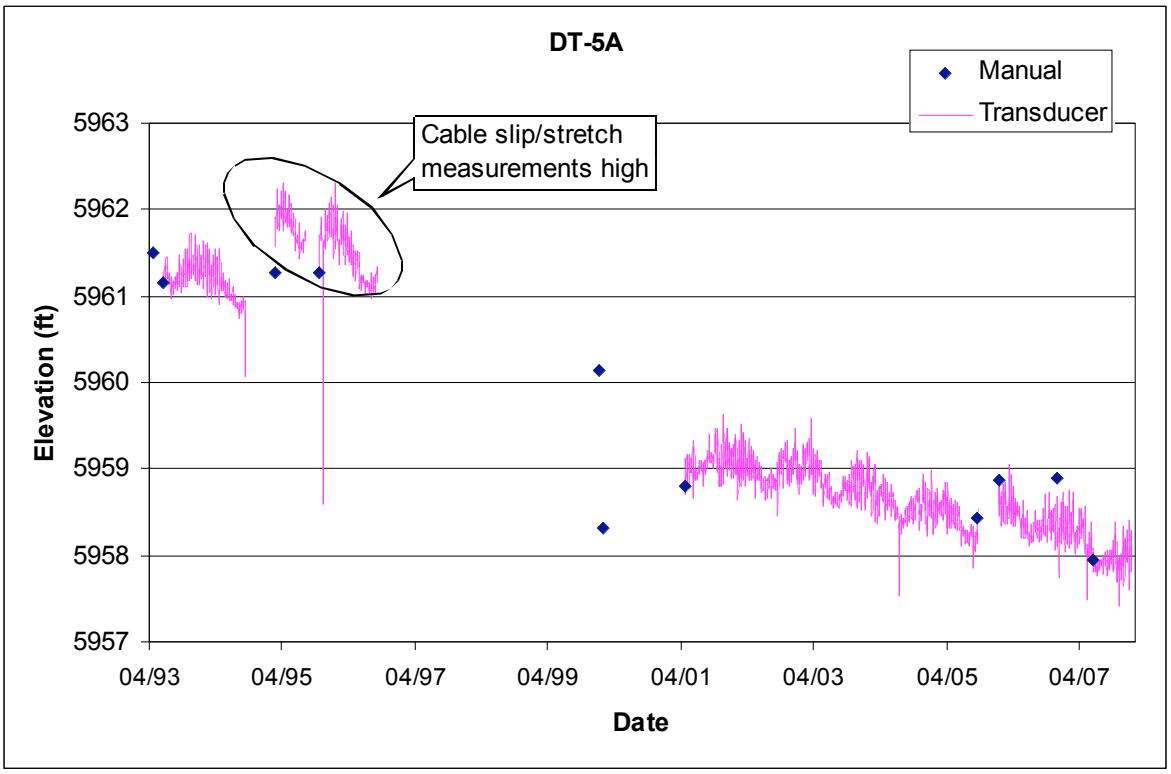
Period of Record: Well drilled in 1960, transducer installed June 1993, data to September 1996. Transducer reinstalled January 2000 but equipment problems occurred. Transducer reinstalled April 2001; data through 2007.

Remarks: DT-5A completed at the top of the regional aquifer at a depth of 1819.5 ft, about 650 ft into the regional aquifer. The transducer malfunctioned in September 2005, reinstalled January 2006. The well is 100% barometrically efficient; the aquifer does not respond immediately to atmospheric pressure fluctuations but shows a delayed response. The long-term water level shows a decline of about 0.2 ft/yr, likely in response to supply well pumping.

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	1171.5	1788.5	5972.4	5355.4	617.0			1788.5	5355.4	1819.5	31.0	306.4	Regional Aquifer

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



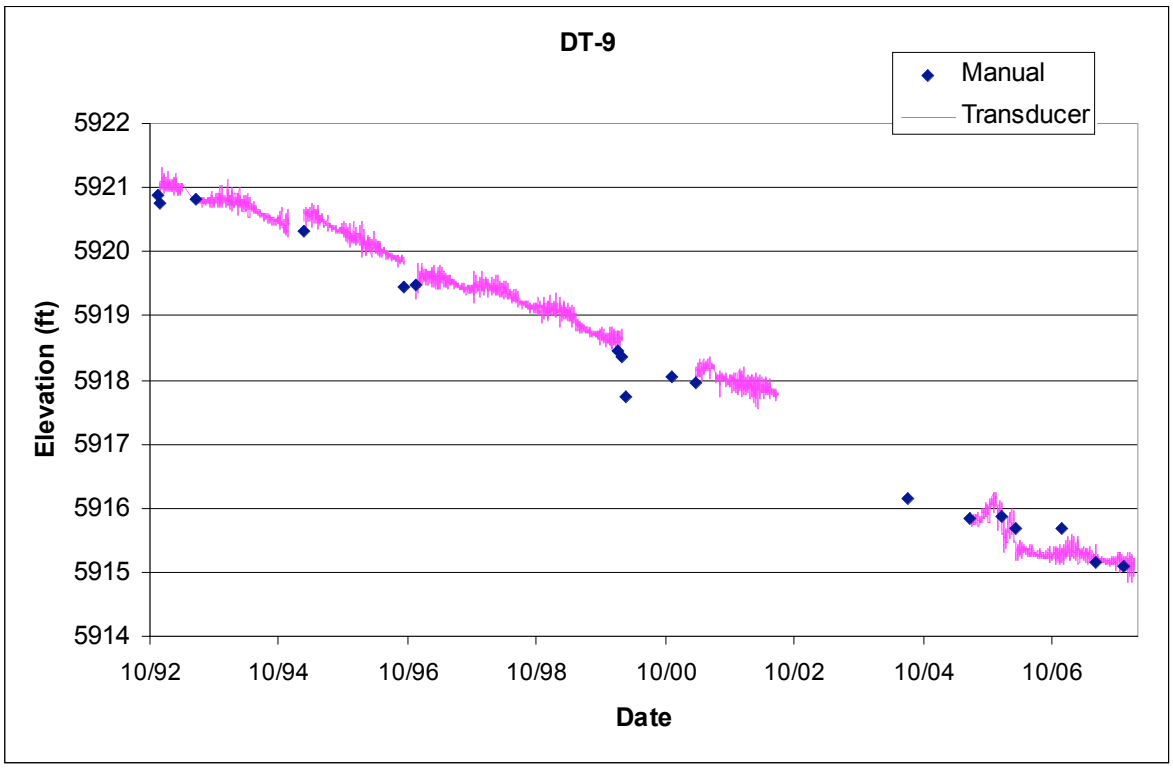
3.44 Test Well DT-9

Location: DT-9 is located at TA-49 near the southern LANL boundary.
Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.
Period of Record: Well drilled in 1960, transducer installed November 1992, intermittent data to July 2002. Transducer reinstalled June 2005, data through 2007.
Remarks: DT-9 completed at the top of the regional aquifer at a depth of 1501 ft, about 500 ft into the regional aquifer. The well is 100% barometrically efficient; the aquifer does not respond immediately to atmospheric pressure fluctuations but shows a delayed response. The aquifer shows a long-term decline of about 0.35 ft/yr, likely associated with supply well pumping.

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 6935.0 ft; all measurements are from this elevation



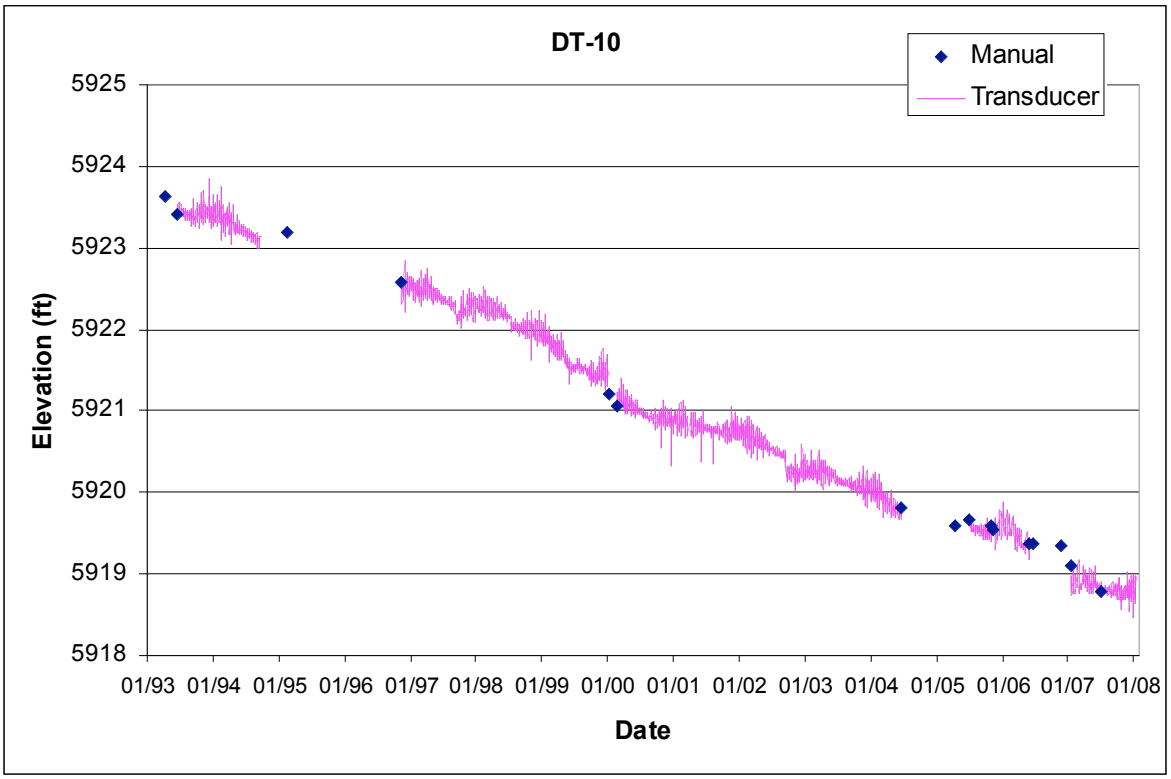
3.45 Test Well DT-10

Location: DT-10 is located at TA-49 near the southern LANL boundary.
Completion Type: Single completion at the top of the regional aquifer. The screen straddles the water table.
Period of Record: Well drilled in 1960, transducer installed June 1993 and again in November 1996 and June 2005. Transducer equipment failed June 2006, new transducer installed January 2007; data through 2007.
Remarks: DT-10 completed at the top of the regional aquifer at a depth of 1408 ft, about 300 ft into the regional aquifer. The well is about 70% barometrically efficient; the aquifer shows a 30% response to atmospheric pressure fluctuations. The aquifer exhibits a long-term water level decline of about 0.32 ft/yr, likely associated with supply well pumping.

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	1408.0	5939.9	5611.9	328.0			1408.0	5611.9	1408.0	0.0	0.0	Regional Aquifer

Note: Ground Elevation 7019.90 ft; all measurements 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 multiple 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 multiple 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	1764219.40	7456.67
CdV-16-3(i)	1/23/2004	Open Hole	1615981.60	1762434.90	7486.4
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-3.2a	1/20/2006	194.1	1637619.97	1773100.91	6624.43
LAOI-7	9/21/2005	264.9	1644788.53	1771584.11	6458.35
MCOBT-4.4	6/30/2001	545.0	1634196.30	1768513.00	6836.18
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-3i	8/16/2005	220.3	1649196.5	1772599.2	6390.15
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
SCI-1	10/7/2006	377.9	1636822.9	1770298.2	6738.27
TW-1A	1/11/1950	225.0	1650056.87	1772065.87	6369.28
TW-2A	2/7/1950	133.0	1634184.87	1777288.12	6650.40

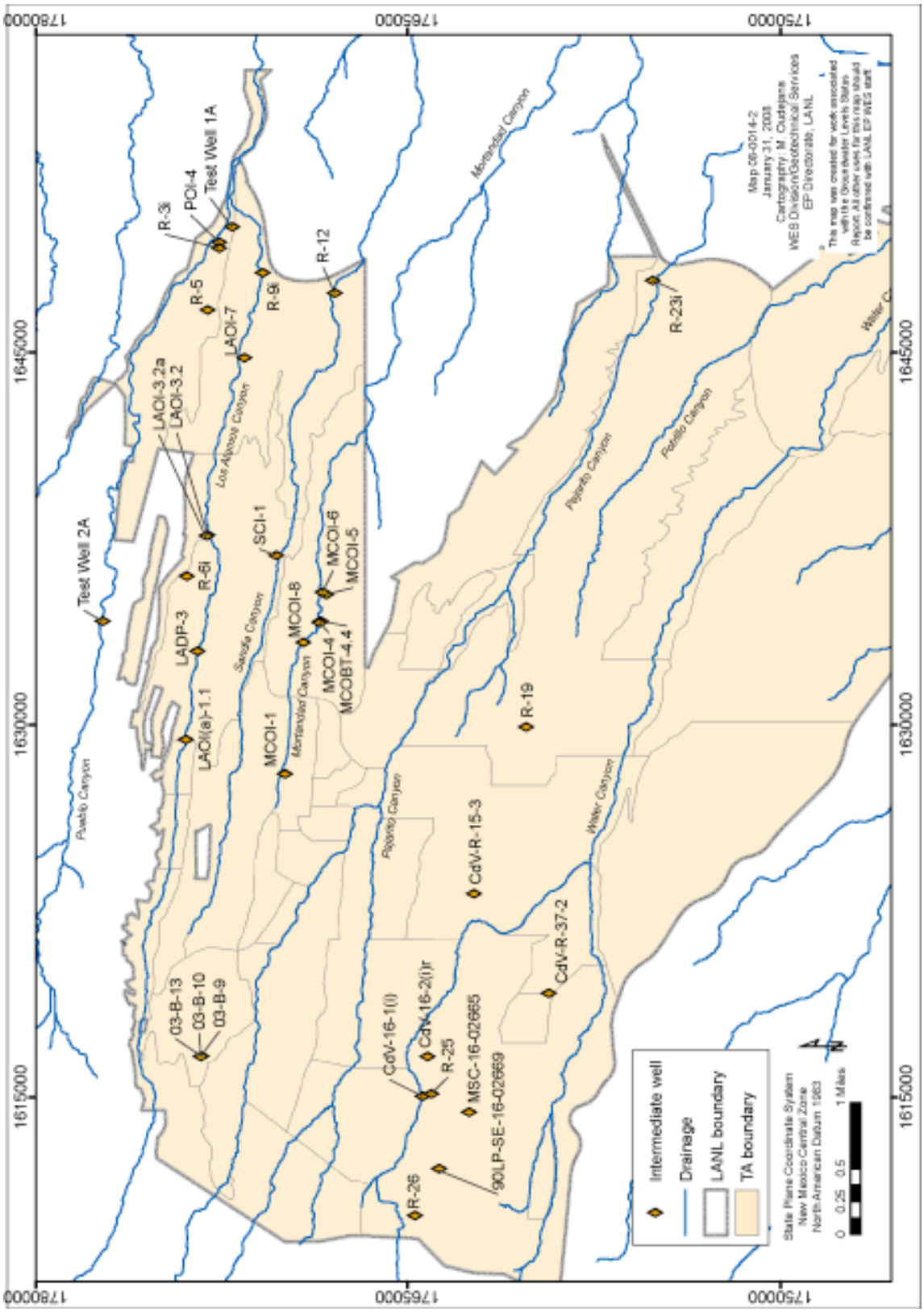


Figure 4-1. Intermediate Monitoring Wells.

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-3.2a	LAOI-3a Screen #1	SS304	181.4	191.0	3.10	Tpf	
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	Tb4	
R-3i	R-3i Screen #1	PVC	215.2	220.0	2.00	Tb4	
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	Dry since 2005
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	
SCI-1	SCI-1 Screen #1	PVC	358.4	377.9	3.80	Tpf	
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, 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).

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

4.1 90LP-SE-16-02669

Location: 90LP-SE-16-02669 is located at 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 2007.
Remarks: The borehole contained water at the completion of drilling, but since completion of the well no water has been observed in the well; the well was last checked March 16, 2007.

90LP-SE-16-02669 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	131.5	163.0	7451.8	7420.3	31.5			163.0	7420.3	163.4	0.4	0.2	Intermediate Zone

Note: Ground Elevation: 7583.26 ft; all measurements are from this elevation

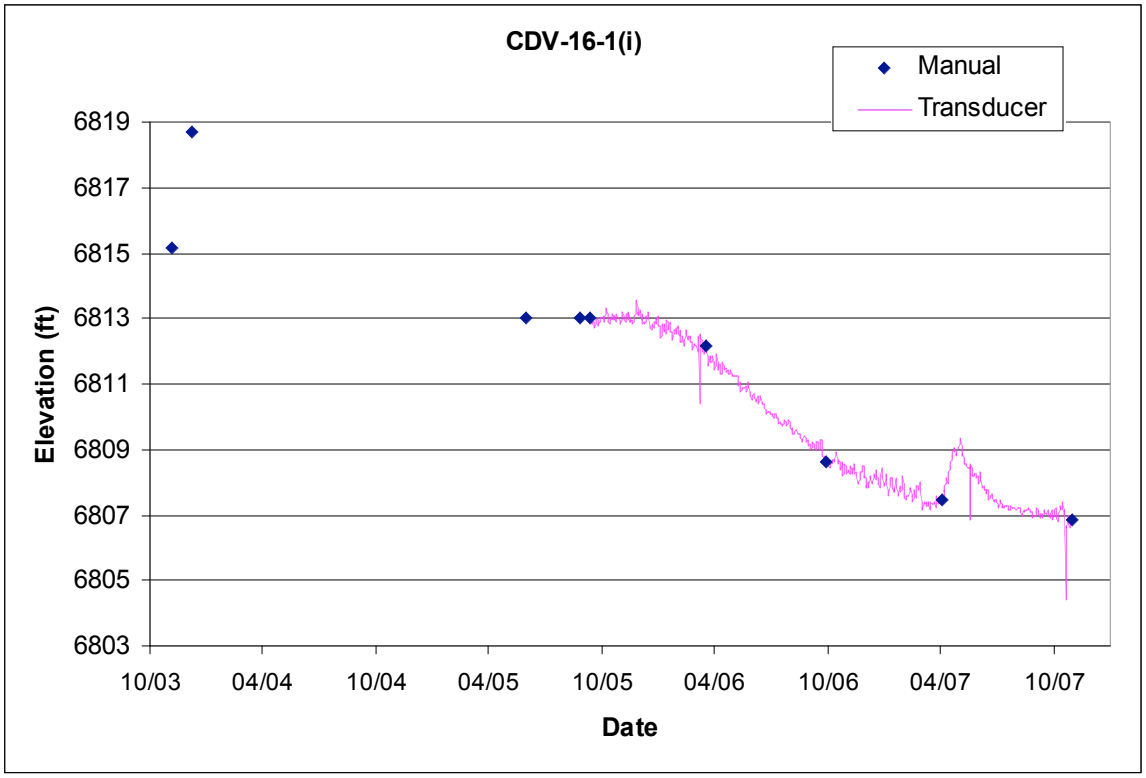
4.2 CdV-16-1(i)

Location: CdV-16-1(i) is located at 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 2007.
Remarks: Well completed in an intermediate zone in the Otowi Member of the Tshirege Formation; the water level is about 50 ft above the top of the screen. The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The intermediate groundwater rose about 1 ft in response to snowmelt runoff in the spring of 2007.

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: Ground Elevation: 7382.17 ft; all measurements are from this elevation

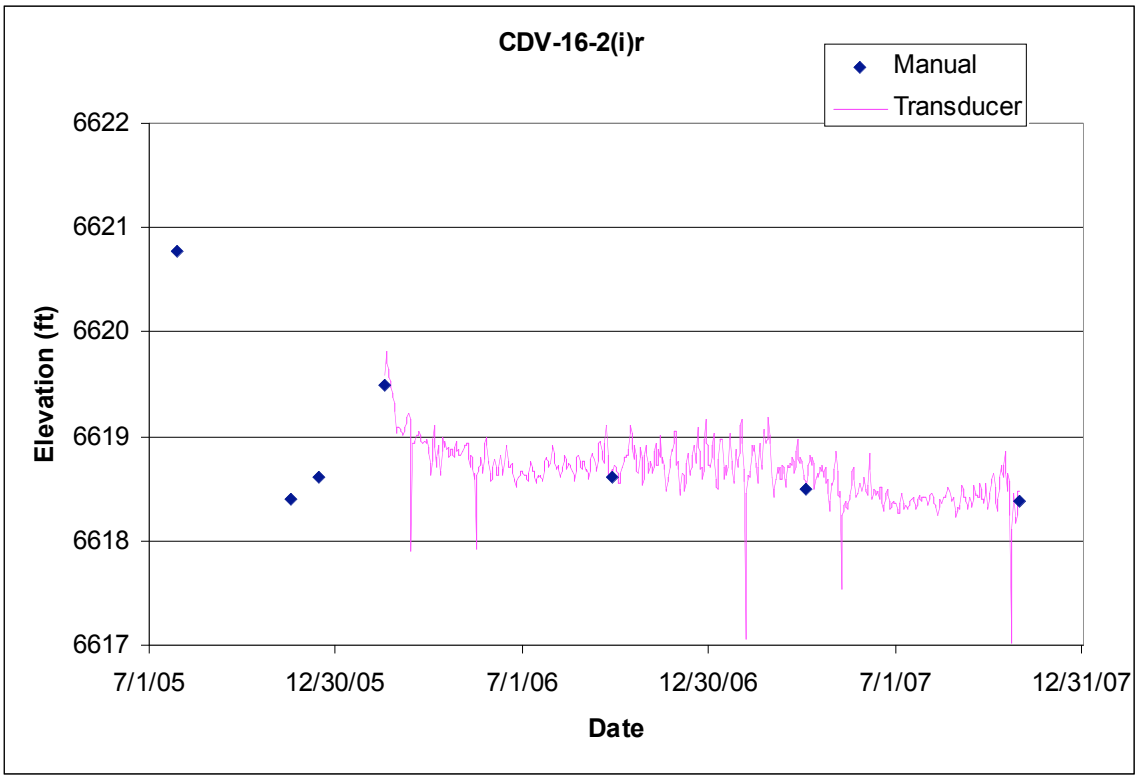


4.3 CdV-16-2(i)r

Location: CdV-16-2(i)r is located at 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; data through 2007.
Remarks: Well replaces CdV-16-2(i). The water level is about 20 ft above bottom of screen. The well is about 90% barometrically efficient. The groundwater did not indicate a response to snowmelt runoff in 2007.

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 measurements are from this elevation

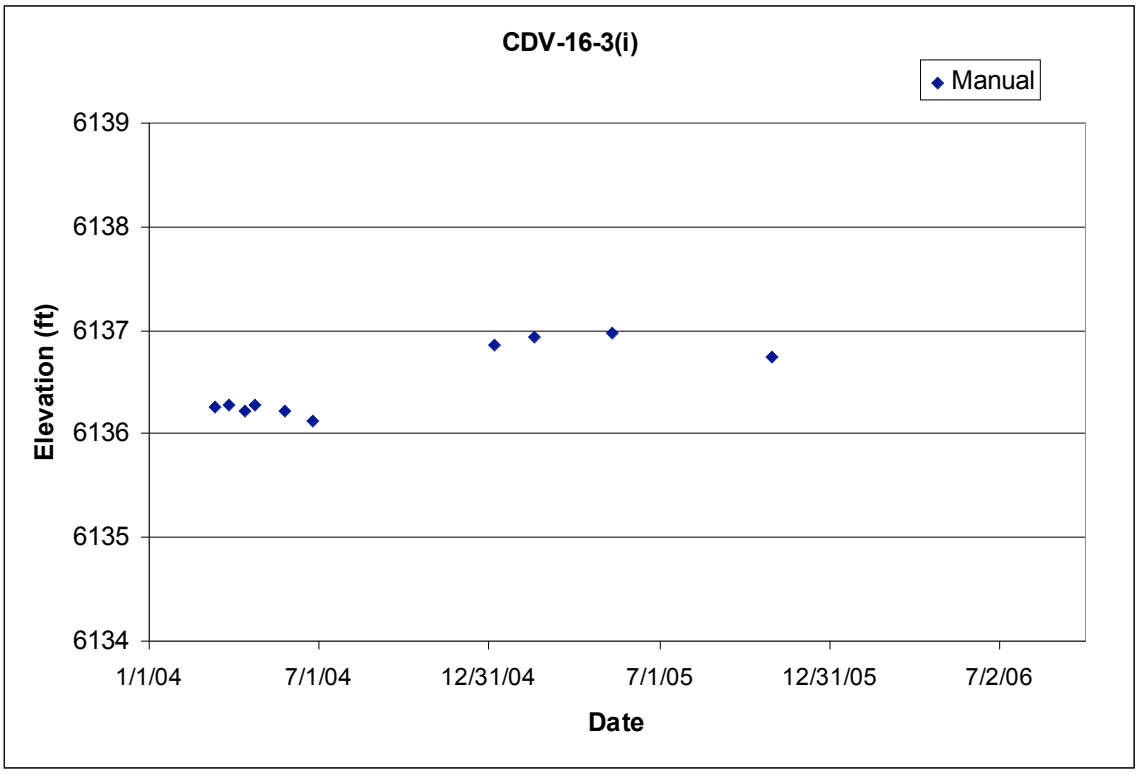


4.4 CdV-16-3(i)

Location: CdV-16-3(i) is located at 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. Well monitoring ceased in 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 NailGround Elevation: 7486.4 ft; all measurements are from this elevation;
Well not completed, open borehole with surface pad and protective casing



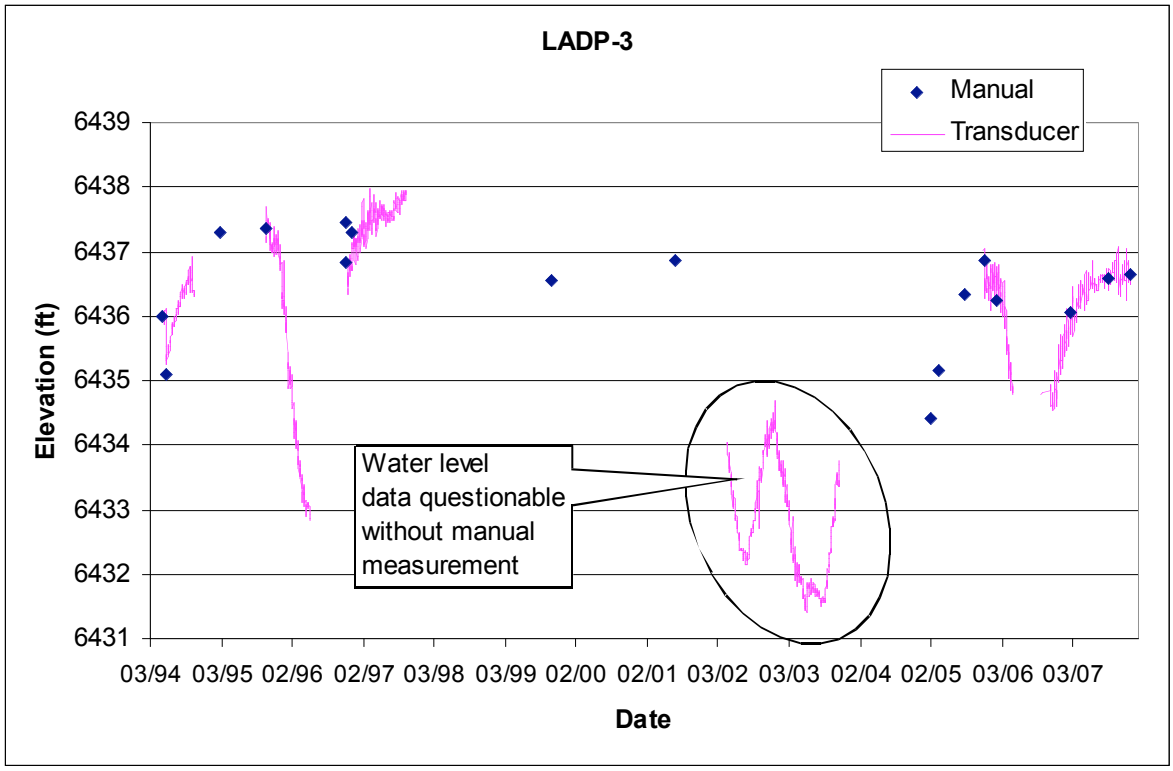
4.5 LADP-3

Location: LADP-3 is located in middle Los Alamos Canyon upstream of DP Canyon.
Completion Type: Single completion in an intermediate zone in the Guaje Pumice bed.
Period of Record: Well drilled in 1993. Transducer first installed May 1994, reinstalled in May 2005, intermittent transducer data through 2007.
Remarks: No manual measurement available for April 2002 transducer installation, data from April 2002 to November 2003 questionable. The water level declined below the transducer in April 2006 and recovered in November 2006. The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The groundwater did not indicate a response to snowmelt runoff in 2007.

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 measurements are from this elevation



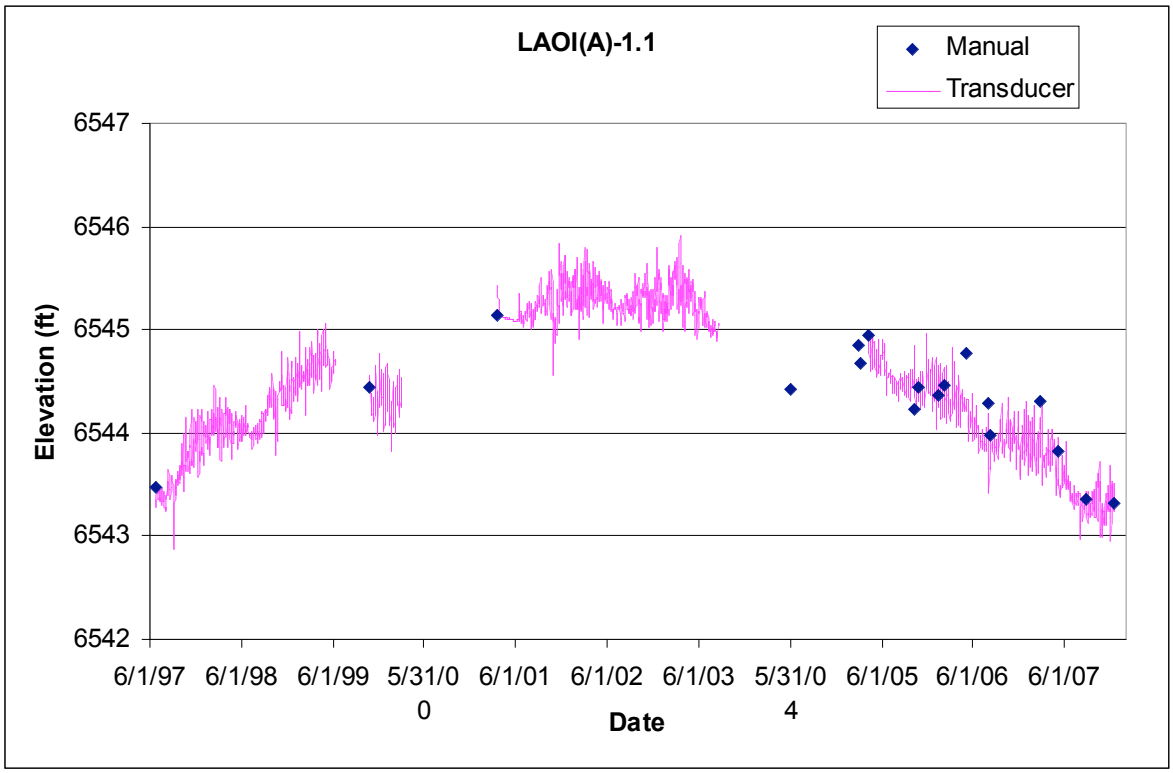
4.6 LAOI(a)-1.1

Location: LAOI(a)-1.1 is located in 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 initially installed June 1997, reinstalled in April 2005; transducer data through 2007.
Remarks: The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The groundwater did not indicate a response to snowmelt runoff in 2007.

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 measurements are from this elevation

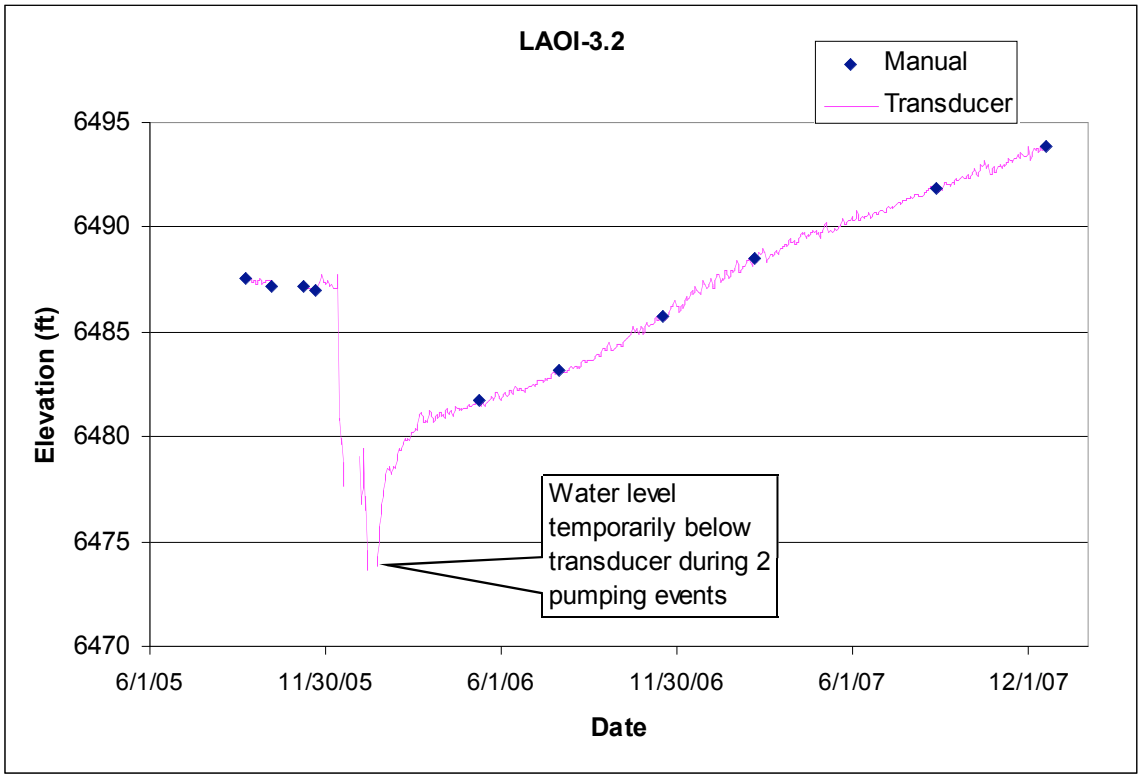


4.7 LAOI-3.2

Location: LAOI-3.2 is located in 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 2007.
Remarks: The transducer was removed in October 2005 for pump installation. The transducer was reinstalled in November 2005 after the pump was installed. The water level declined below the level of the transducer for a time during pumping of the well in December 2005. The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The groundwater did not indicate a response to snowmelt runoff in 2007.

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	162.8	6469.3	6459.8	9.5	159.3	6463.3	162.8	6459.8	165	2.2	1.5	Intermediate Zone

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



4.8 LAOI-3.2a

Location: LAOI-3.2a is located in middle Los Alamos Canyon near the confluence with DP Canyon and about 50 ft northwest of LAOI-3.2.

Completion Type: Single completion in an intermediate zone in Puye fanglomerate.

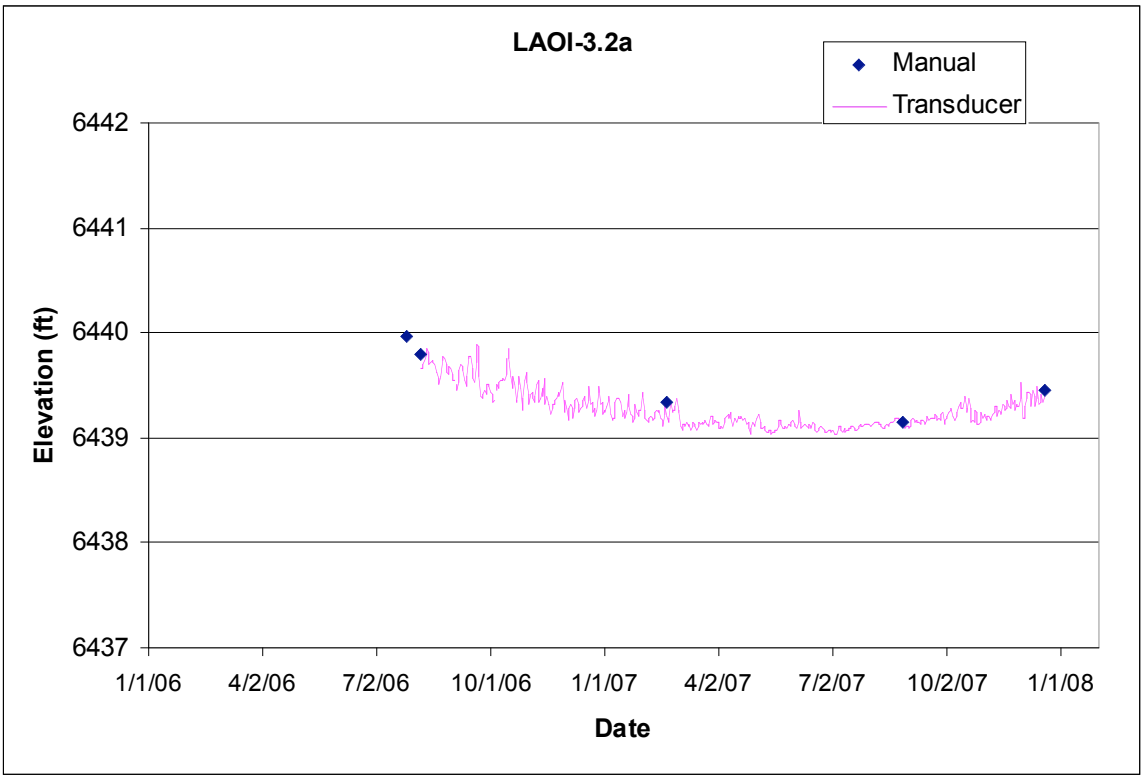
Period of Record: Well completed in January 2006. Transducer installed August 2006; transducer data through 2007.

Remarks: The water level is about 6 ft above the bottom of the screen. The well is about 50% barometrically efficient. The groundwater did not indicate a response to snowmelt runoff in 2007.

LAOI-3.2a 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	181.4	191	6443.0	6433.4	9.6	189	6435.4	191.0	6433.4	191.4	0.4	0.6	Intermediate Zone

Note: Ground Elevation: 6624.43 ft; all measurements are from this elevation



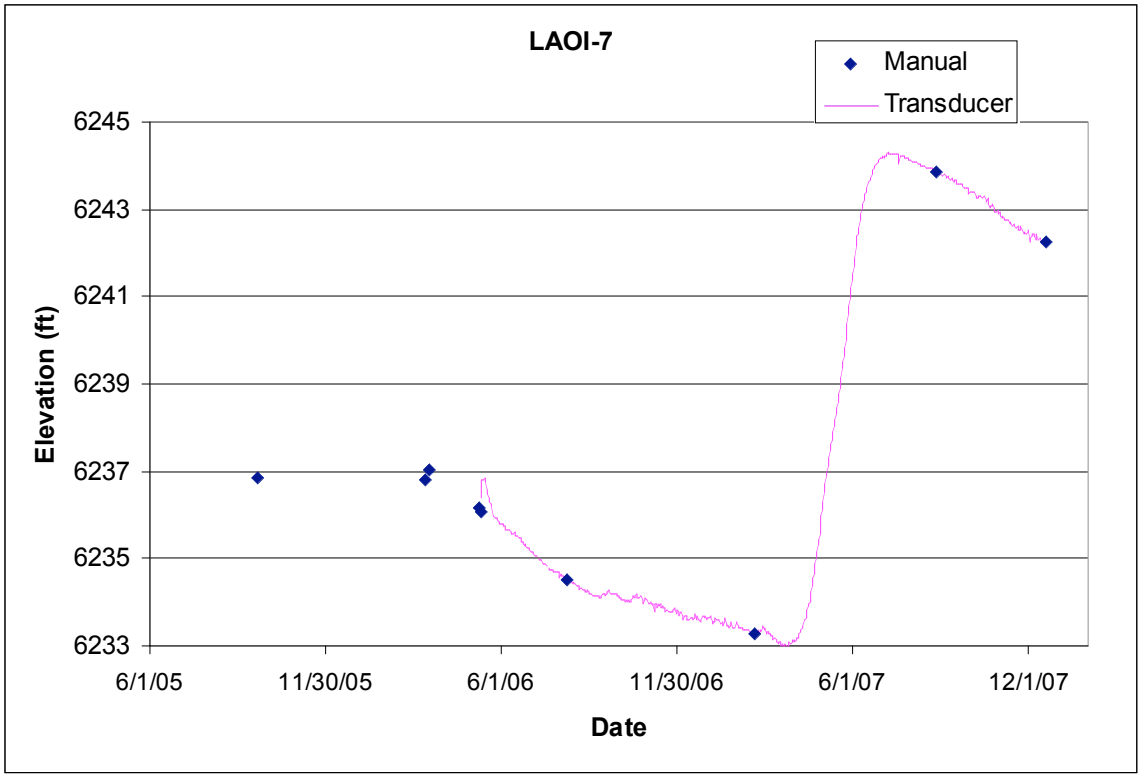
4.9 LAOI-7

Location: LAOI-7 is located in middle Los Alamos Canyon about 0.75 miles upstream of R-9i.
Completion Type: Single completion in an intermediate zone in basalt.
Period of Record: Well completed in September 2005, transducer installed May 2006, data through 2007.
Remarks: The well has an estimated 18% barometric efficiency (Kleinfelder 2006a); the groundwater shows a delayed, partial response to atmospheric pressure fluctuations. The groundwater rose about 11 ft in response to snowmelt runoff in 2007.

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 measurements are from this elevation



4.10 MCOBT-4.4

Location: MCOBT-4.4 is located in 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.

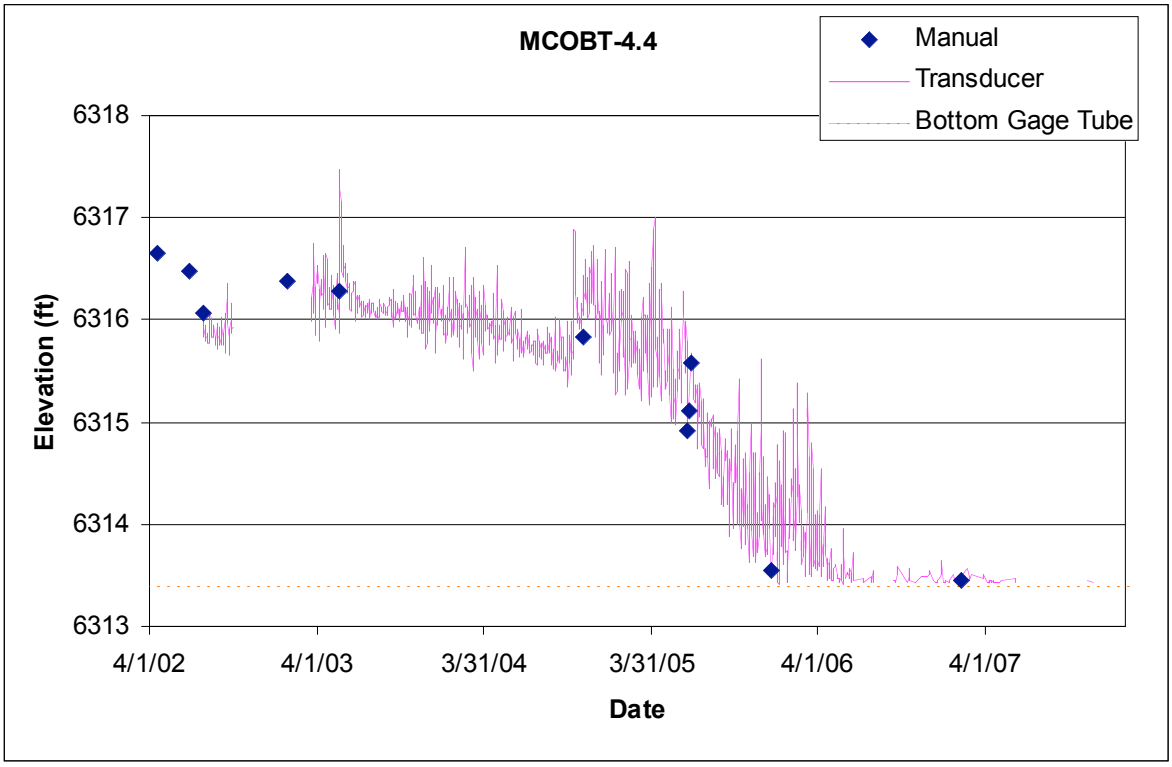
Period of Record: Well completed in June 2001, transducer installed July 2002, data through 2007.

Remarks: MCOI-4 is located about 70 ft west of MCOBT-4.4. The bottom of the transducer gage tube is located above the pump and about 1.2 ft above the bottom of the screen. The water level declined below the gage tube for portions of 2006 and most of 2007. The water level appeared to remain about 1 ft above the bottom of the screen.

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 measurements are from this elevation



4.11 MCOI-1

Location: MCOI-1 is located 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 2006.
Remarks: MCOI-1 was dry when completed and has not contained water during periodic checks. Soundings for water throughout 2006 and 2007 have been dry with a total depth of about 814 ft below ground surface, encountering sand at total depth. This total depth is above the screen; thus it appears that the well screen in the 1-in.-diameter PVC may have parted from the tubing or has been somehow damaged, potentially rendering the well inoperative.

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 measurements are from this elevation

4.12 MCOI-4

Location: MCOI-4 is located in 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.

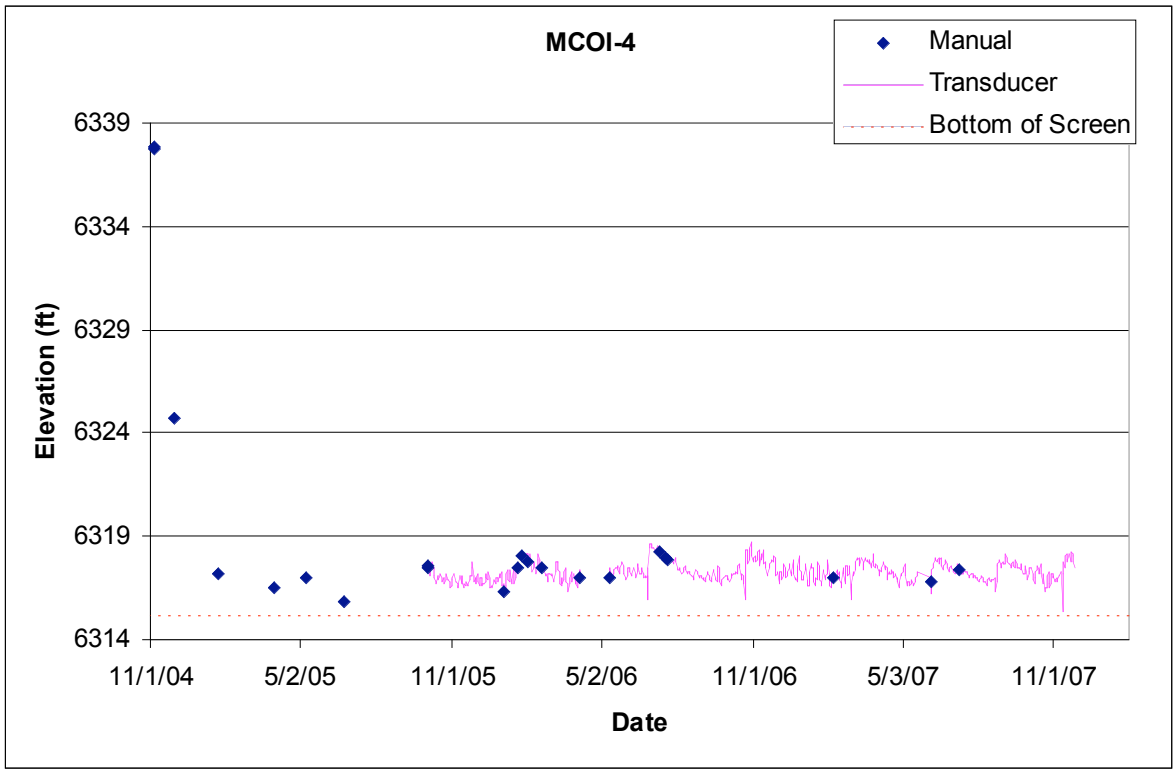
Period of Record: Well completed in November 2004, transducer installed October 2005, data through 2007.

Remarks: Since 2006, 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 measurements are from this elevation



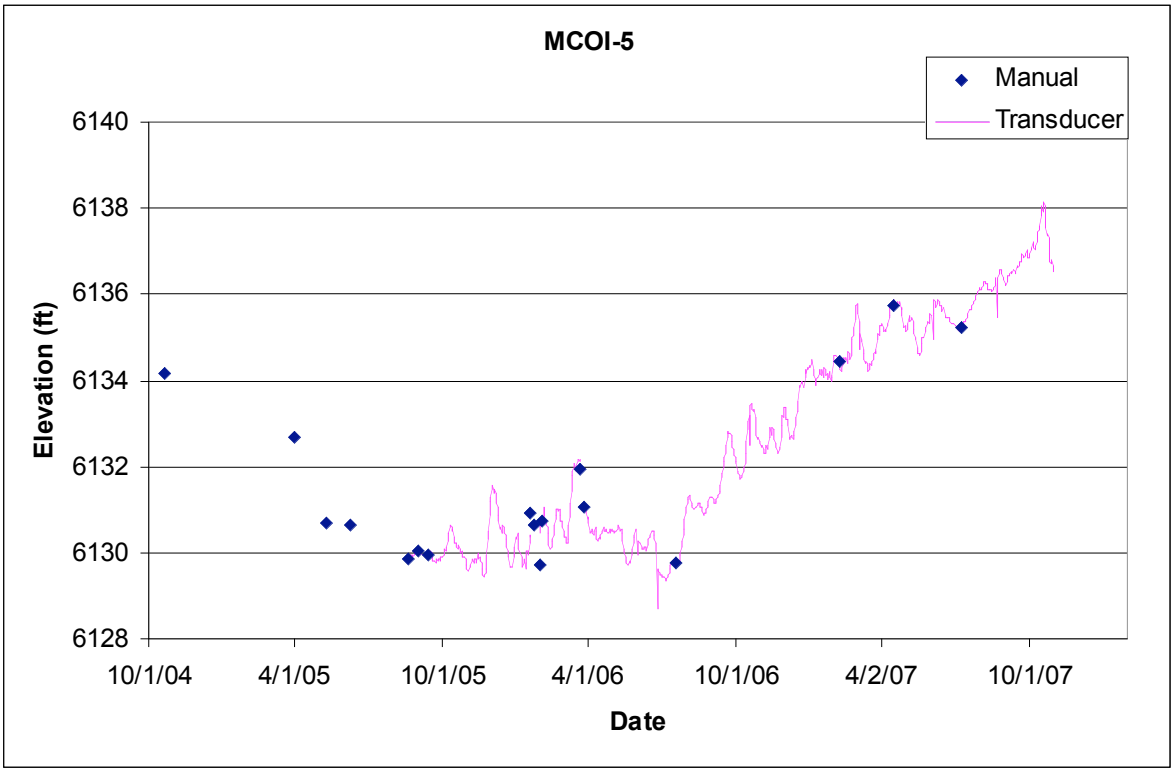
4.13 MCOI-5

Location: MCOI-5 is located in lower Mortandad Canyon near regional aquifer well R-15.
Completion Type: Single completion in Cerros del Rio basalt.
Period of Record: Well completed in October 2004, transducer installed August 2005, data through 2007.
Remarks: The transducer was removed for bailing sampling in 2005. A dedicated submersible pump was installed March 2006. The intermediate groundwater has a delayed response to atmospheric pressure fluctuations.

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: 6819.70 ft; all measurements are from this elevation



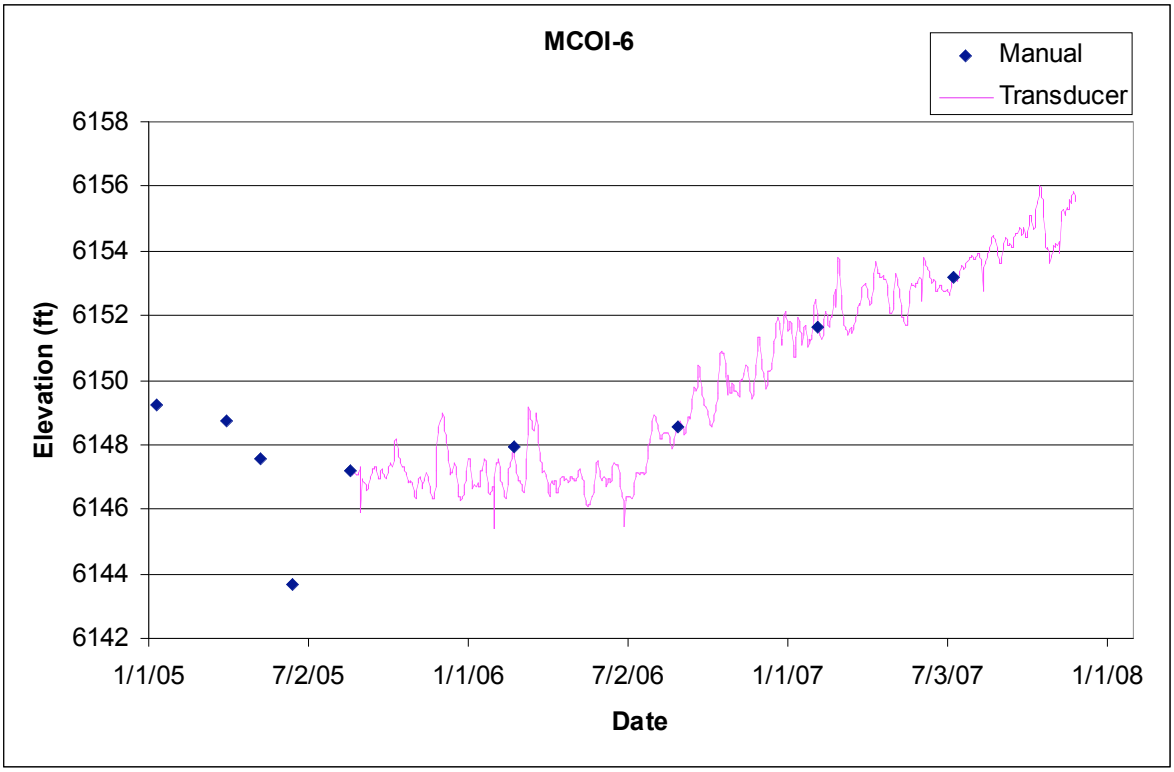
4.14 MCOI-6

Location: MCOI-6 is located in lower Mortandad Canyon about 160 ft northeast of MCOI-5.
Completion Type: Single completion in Cerros del Rio basalt.
Period of Record: Well completed in January 2005, transducer installed August 2005, data through 2007.
Remarks: The groundwater level is about 20 ft above the top of the screen and 17 to 18 ft higher than at MCOI-5. The intermediate groundwater has a delayed response to atmospheric pressure fluctuations.

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 measurements are from this elevation



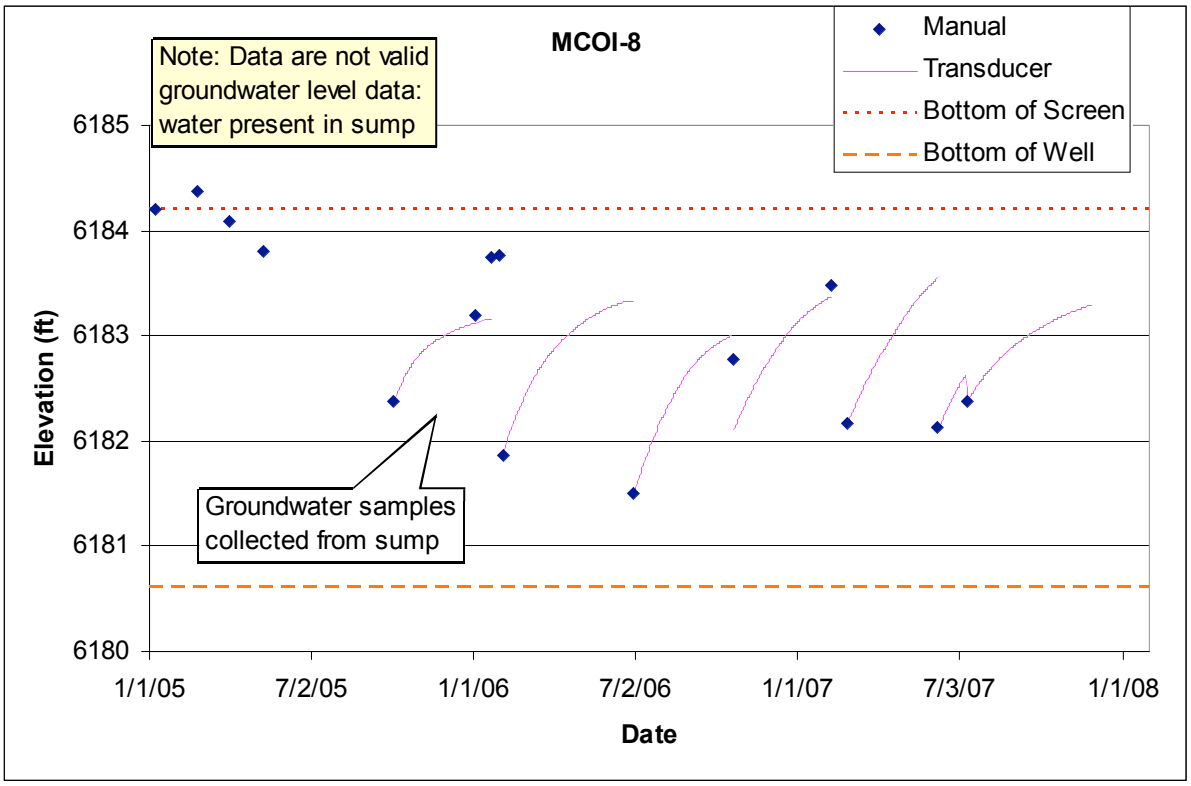
4.15 MCOI-8

Location: MCOI-8 is located in lower Mortandad Canyon above the confluence with Ten Site Canyon.
Completion Type: Single completion in Cerros del Rio basalt.
Period of Record: Well completed in January 2005, transducer installed August 2005, data through 2007.
Remarks: Since well completion, water has been measured in the sump of the well; thus data are not valid groundwater level data.

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 measurements are from this elevation



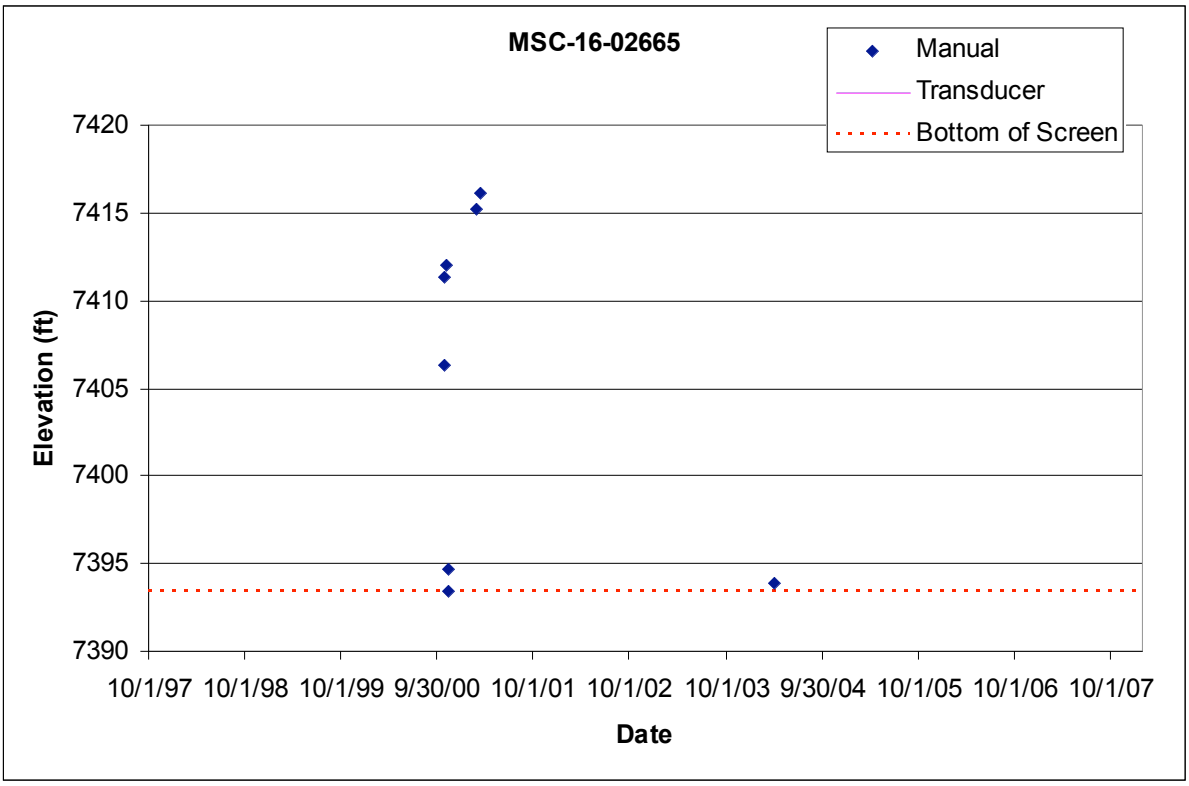
4.16 MSC-16-02665

Location: MSC-16-02665 is located at TA-16 at the head of Martin Spring Canyon (S-Site Canyon) 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 March 2007.
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). The well was dry when checked in 2005, 2006, and 2007.

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 measurements are from this elevation



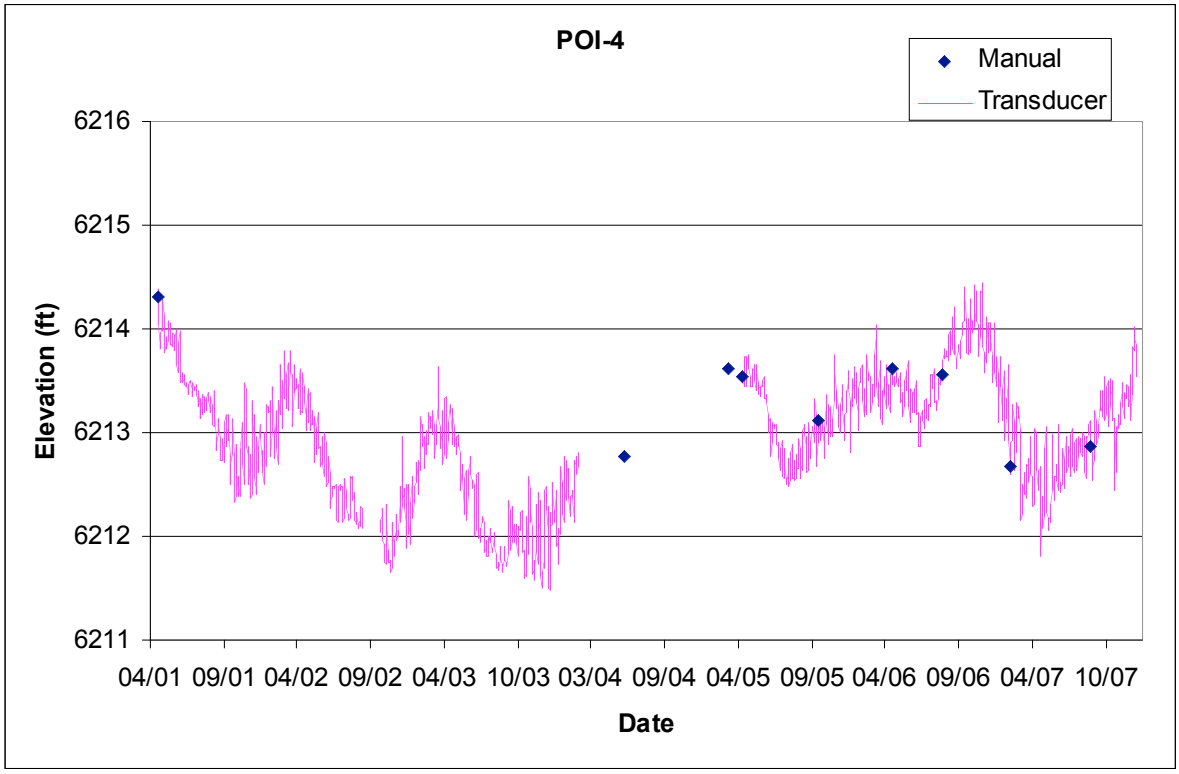
4.17 POI-4

Location: POI-4 is located in 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 Cerros del Rio basalt.
Period of Record: Well completed in 1996, transducer installed April 2001 and again in April 2005, intermittent data through 2007.
Remarks: The well is 100% barometrically efficient; the intermediate groundwater displays a delayed response to atmospheric pressure fluctuations. The intermediate groundwater shows a seasonal water level fluctuation, generally lower in the summer and higher in the winter.

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 measurements are from this elevation



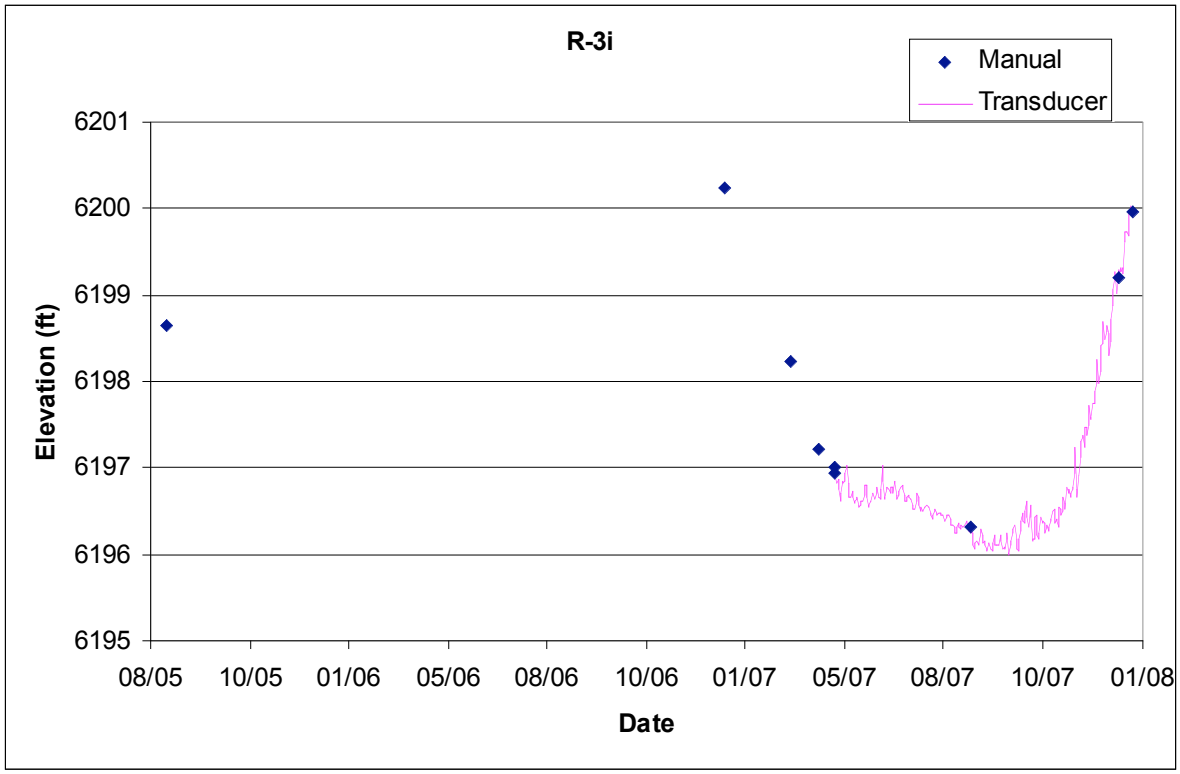
4.18 R-3i

Location: R-3i is located in lower Pueblo Canyon about 240 ft west of intermediate well POI-4 and about 425 ft northwest of supply well O-1.
Completion Type: Single completion in the Cerros del Rio basalt.
Period of Record: Well completed August 2005, transducer installed April 2007, data through 2007.
Remarks: The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The groundwater level rose about 4 ft in the fall of 2007, but did not show a significant response to snowmelt runoff in 2007. The intermediate groundwater appears to show a seasonal water level fluctuation similar to POI-4, but is about 15 ft lower than the water level at POI-4.

R-3i 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	215.2	220	6175.0	6170.2	4.8			220.0	6170.2	220.34	0.3	0.2	Intermediate Zone

Note: Ground Elevation: 6390.15 ft; all measurements are from this elevation



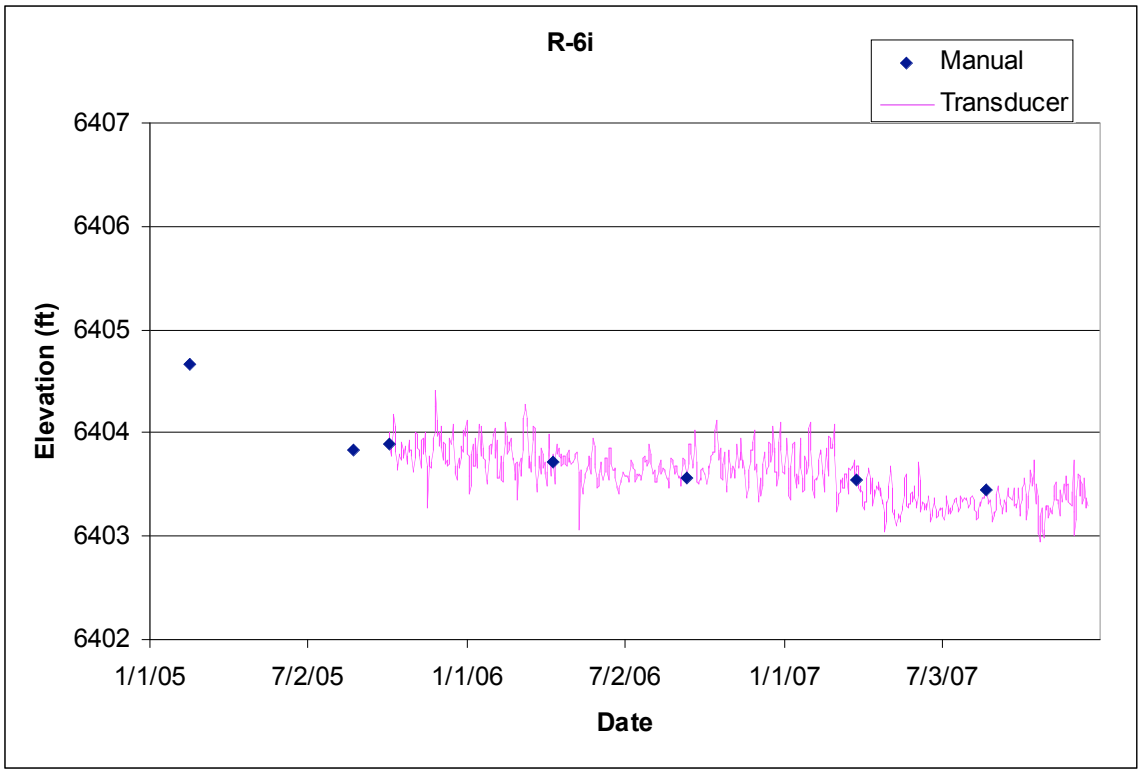
4.19 R-6i

Location: R-6i is located at the eastern extent of DP Mesa near the confluence of DP Canyon and Los Alamos Canyon and adjacent to regional aquifer monitoring well R-6.
Completion Type: Single completion in the Puye Formation fanglomerate member.
Period of Record: Well completed December 2004, transducer installed October 2005, data through 2007.
Remarks: The well is 100% barometrically efficient; the groundwater does not respond to atmospheric pressure fluctuations. The groundwater did not respond to snowmelt runoff in 2007.

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	609.0	6387.9	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



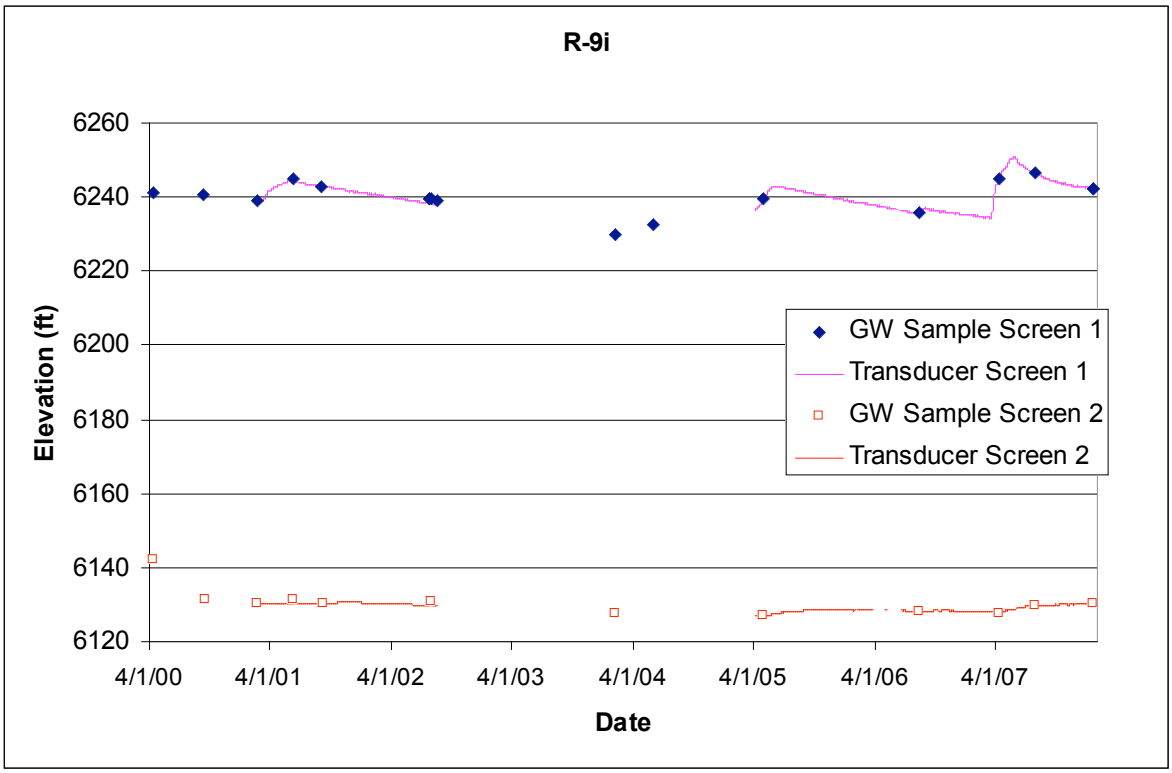
4.20 R-9i

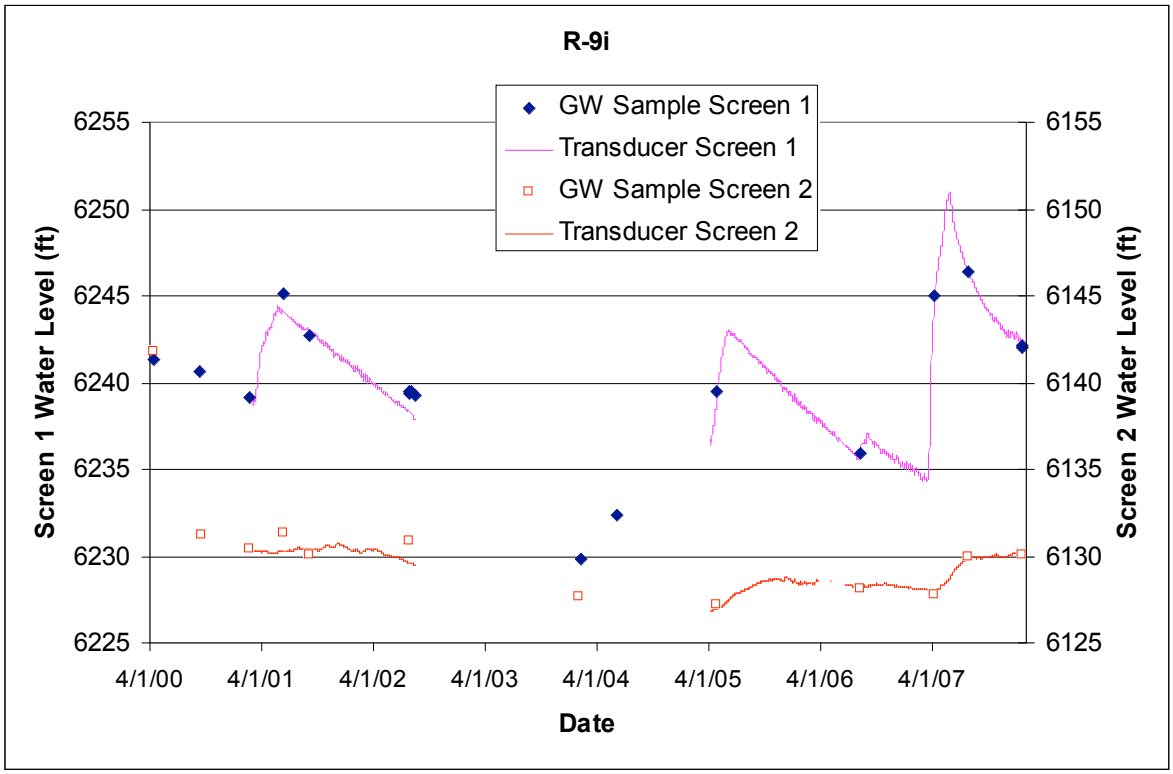
Location: R-9i is located in Los Alamos Canyon near the eastern LANL boundary and adjacent to R-9.
Completion Type: Dual Westbay® completion; both screens in Cerros del Rio basalt.
Period of Record: Well completed March 2000, transducers installed March 2001, intermittent data through 2007.
Remarks: The screens are about 70 ft apart and the heads in the two intermediate zones are about 110 ft apart. The water level at screen 1 is about 40 ft above the top of the screen; the water level at screen 2 is about 15 ft above the top of the screen. Groundwater at screen 1 appears to be recharged from large runoff events in lower Los Alamos Canyon; the water level responded to snowmelt runoff in 2001, 2005, and 2007, and to large storm runoff events in the summer of 2006. In the spring of 2007 the water level at screen 1 rose about 16 ft in response to snowmelt runoff, while the water level at screen 2 rose about 2 ft.

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




R-9i
GW Sample Screen 1
Transducer Screen 1
GW Sample Screen 2
Transducer Screen 2
Screen 1 Water Level (ft)
Screen 2 Water Level (ft)
6255
6250
6245
6240
6235
6230
6225
6155
6150
6145
6140
6135
6130
6125
4/1/00
4/1/01
4/1/02
4/1/03
4/1/04
4/1/05
4/1/06
4/1/07
Date

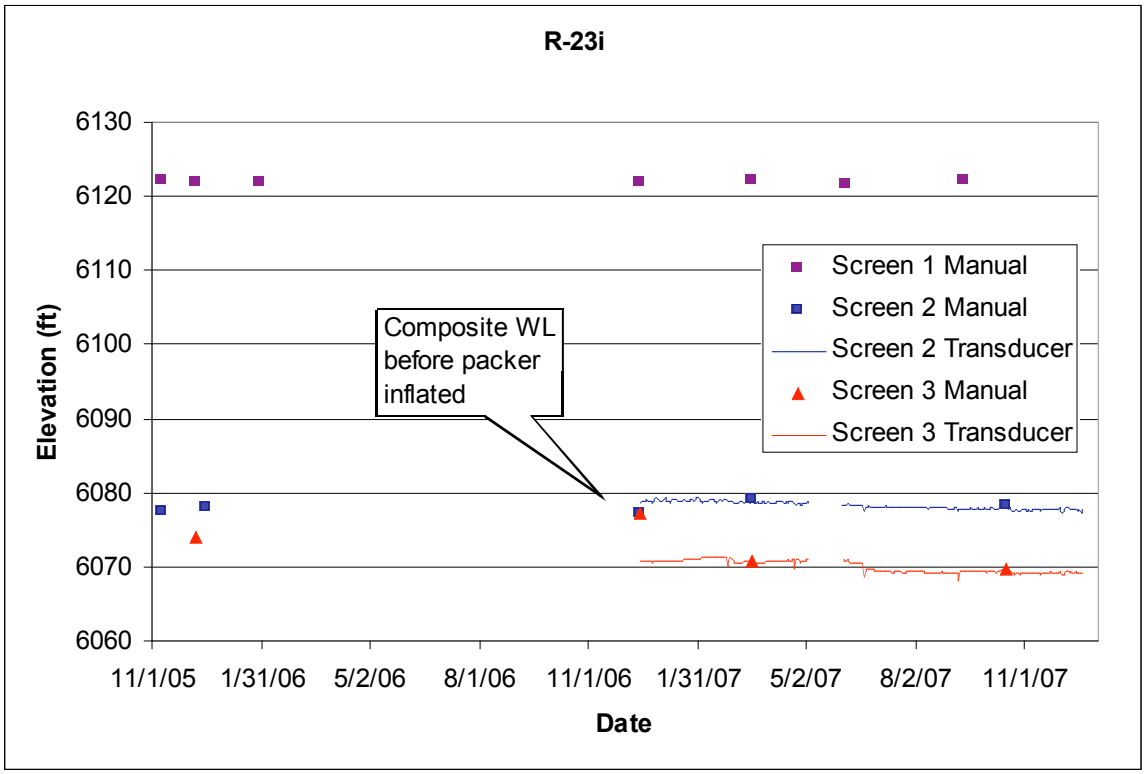
4.21 R-23i

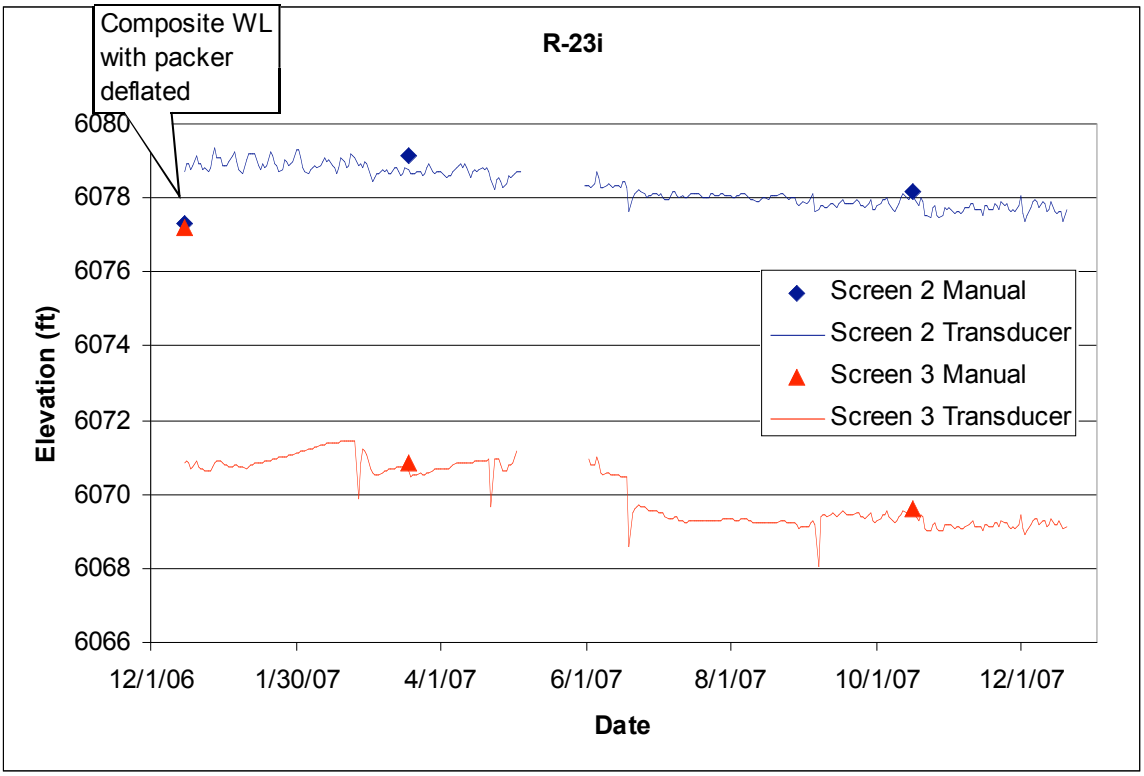
Location: R-23i is located in lower Pajarito Canyon near SR-4 and adjacent to regional well R-23.
Completion Type: Multiple completion, three screens, screen 1 is in a 2.1-in.-diameter piezometer and screens 2 and 3 are in a 4-in.-diameter well. A Baski packer and dual pump sampling system was installed at screens 2 and 3 in December 2006. All screens are in Cerros del Rio basalt.
Period of Record: Well completed November 2005, periodic manual measurements at screen 1. Transducers installed at screens 2 and 3 in December 2006, data through 2007.
Remarks: The water levels at screens 2 and 3 are about 9 ft apart; the water level at screen 1 is about 44 ft higher than screen 2. The screen 3 gage tubing through the packer has shown occasional partial plugging, but water levels in the tubing appear to be representative of 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 Packer/ 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	477.1	6050.8	495.3	6032.5	495.3	0.0	0.0	Intermediate
3	524.0	547.0	6003.9	5980.9	23.0	516.7	6011.2	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




Composite WL with packer deflated
R-23i
6080
6078
6076
6074
6072
6070
6068
6066
Elevation (ft)
12/1/06
1/30/07
4/1/07
6/1/07
8/1/07
10/1/07
12/1/07
Date
Screen 2 Manual
Screen 2 Transducer
Screen 3 Manual
Screen 3 Transducer

4.22 SCI-1

Location: SCI-1 is located in Sandia Canyon between intermediate wells LAOI-3.2 in Los Alamos Canyon to the north and MCOI-6 in Mortandad Canyon to the southwest.

Completion Type: Single completion in the Puye Formation fanglomerate member; the screen is located above the Cerros del Rio basalt.

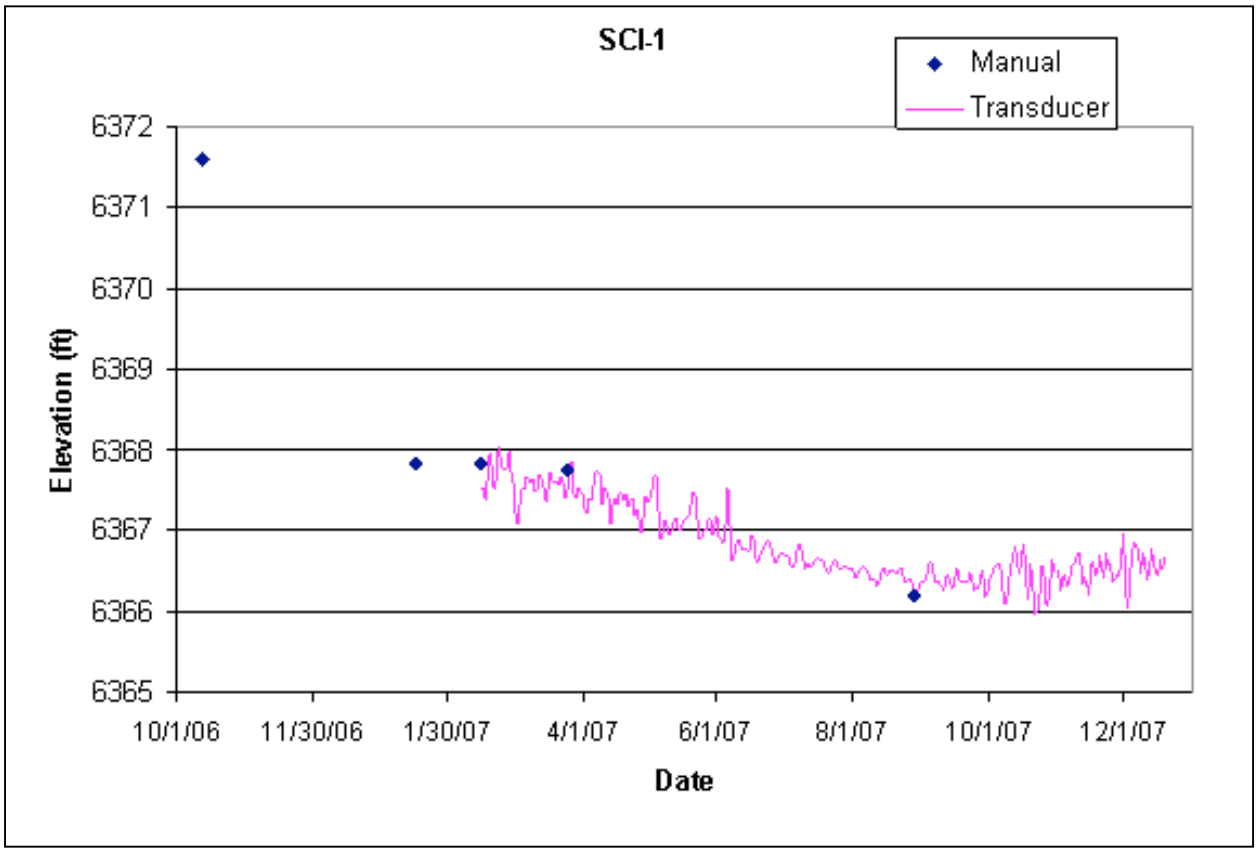
Period of Record: Well completed October 2006, transducer installed in February 2007, data through 2007.

Remarks: Originally drilled as core hole SCC-1, completed as intermediate well and named SCI-1. The well is immediately 100% barometrically efficient; additionally, the groundwater shows a delayed response to atmospheric pressure fluctuations.

SCI-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	358.4	377.9	6379.9	6360.4	19.5			377.9	6360.4	377.9	0.0	0.0	Intermediate Zone

Note: Brass Cap Elevation: 6738.27 ft; all measurements are from this elevation



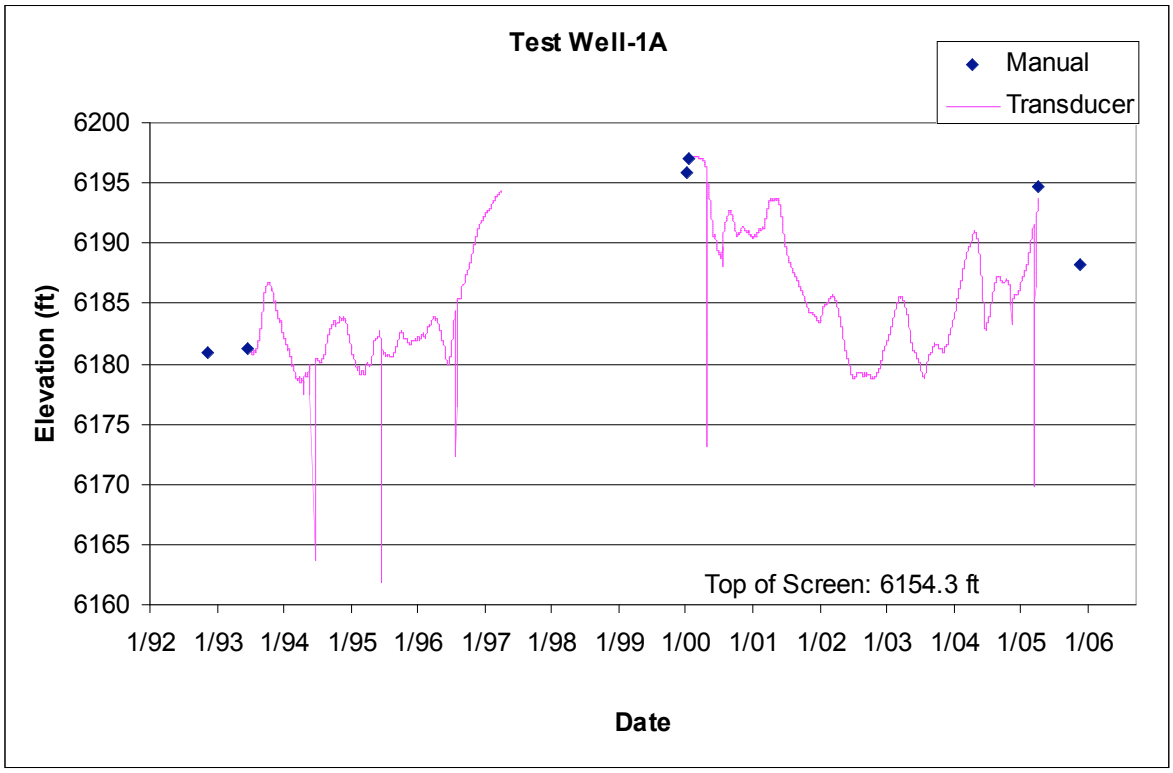
4.23 Test Well 1A

Location: TW-1A is located in lower Pueblo Canyon adjacent to TW-1.
Completion Type: Single completion in Cerros del Rio basalt.
Period of Record: Well completed in 1950, transducer installed June 1993, intermittent data to April 2005 when problems were encountered with equipment and the transducer was removed from the well.
Remarks: The wellhead equipment was removed from the well in February 2006 in preparation for plugging and abandonment of the well. The well is not planned for further monitoring.

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

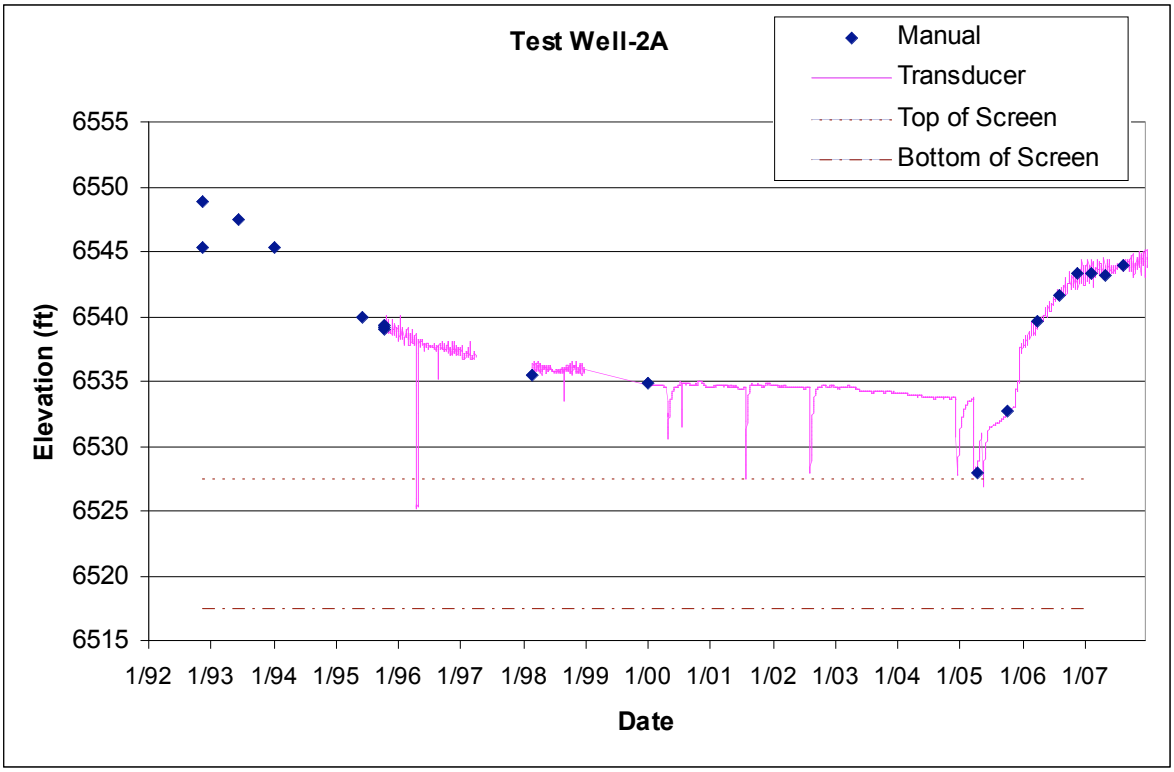


4.24 Test Well 2A

Location: TW-2A is located in 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 2007.
Remarks: Recent pumping of TW-2A when the water level is below 6535 ft has shown slow recovery of the intermediate groundwater.

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 measurements 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 FY 2007. 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. In the following alluvial groundwater sections, the first graph for each well represents the entire period of record, while the second graph represents groundwater level data from FY 2007. Alluvial groundwater levels respond to snowmelt runoff, storm runoff, and, in some canyons, effluent discharges. Some alluvial wells have been historically dry and do not show a seasonal response to precipitation and runoff.

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	1634152.90	1762575.36	6776.45	10	35
18-BG-4	2/18/1998	6.5	1633510.00	1760760.00	6768	2.5	6.5
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
18-MW-11	8/11/1994	47	1636001.69	1761139.83	6740.13	27	47
18-MW-17	8/1/1995	22	1637778.20	1759717.10	6695.2	12	22
18-MW-18	7/31/1995	23	1639925.00	1758247.20	6654.7	12.5	23
39-UM-3	8/15/1994	54	1637032.00	1747663.00	6394.2	44	54
39-DM-6	8/15/1994	60	1637094.00	1747228.00	6384.57	50	60
APCO-1	8/15/1990	19.7	1649209.62	1773020.12	6367.53	4.7	14.7
CDBO-1	4/17/1985	13	1637968.59	1760943.96	6757.6	5.1	13.1
CDBO-2	4/18/1985	18	1638119.02	1761103.11	6758.2	5.9	17.9
CDBO-3	4/18/1985	12	1640677.11	1759611.02	6670.2	4.4	12.4
CDBO-4	4/18/1985	12	1645474.90	1758546.90	6564.5	4.1	12.1
CDBO-5	6/1/1992	17	1633583.37	1765818.37	6879.01	7	17
CDBO-6	6/1/1992	49	1636209.25	1764759.75	6817.2	34	44
CDBO-7	6/1/1992	44	1637400.00	1763301.00	6771.81	29	39
CDBO-8	6/1/1992	23	1639294.00	1762366.00	6722.47	3	13
CDBO-9	6/1/1992	34	1642119.12	1759702.87	6633	19	29
CDV-16-02655	9/27/1997	7.6	1611299.09	1764153.13	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	1764850.10	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	1642409.00	1751177.00	6509.24	2.4	12.4
LAO-B	4/28/1994	27.2	1615148.80	1775170.40	7323.59	11.84	26.84
LAO-0.3	5/17/1994	11.25	1624799.00	1774511.60	6968.13	5.9	10.9
LAO-0.6	5/6/1994	13.35	1626748.10	1774332.90	6910.74	8	13
LAO-0.91	5/12/1994	14.85	1628654.30	1774207.00	6861.74	9.5	14.5

Table 5-1. Information and Location Data for Alluvial Aquifer Wells at LANL (cont.)

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)
LAO-1	2/1/1996	28	1629395.00	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-1.8	4/15/1969	18	1635446.25	1772661.37	6680	8	18
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	1772076.50	6457.63	13.3	23.3
LAO-5	2/15/1966	25	1646202.25	1771424.12	6398.3	5	25
LAO-6	2/1/1966	16	1646222.12	1771329.50	6395.3	6	16
LAO-6a	8/1/1989	14.2	1646221.62	1771344.00	6395.88	4.2	14.2
LAUZ-1		10.55	1633435.13	1774809.81	7032.42	5.35	10.35
LLAO-1b	7/16/1997	24.17	1659738.70	1772381.65	5850.34	11.32	21.32
LLAO-4	9/30/1996	18.1	1671820.23	1774468.01	5515.46	5.24	15.24
MCA-1	1/24/2005	5.9	1626586.50	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	1633589.40	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	1625945.50	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
MCO-0.6	2/25/1999	3.1	1623987.80	1771179.50	7188.28	1.05	3.05
MCO-2	11/1/1960	9	1625919.25	1770135.12	7136.6	2	9
MCO-3	3/1/1967	12	1627362.50	1770236.75	7052.6	2	12
MCO-4B	8/1/1990	33.9	1632036.37	1769697.00	6886.75	8.9	28.9
MCO-5	10/1/1960	46	1632466.12	1769538.00	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	1768440.50	6808.88	35	60
MCWB-5	12/6/1994	33	1632578.31	1769484.60	6876.22	17	27
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-6.5E	12/21/1994	50	1633833.36	1768583.81	6843.8	35	45
MCWB-7A	12/9/1994	52	1634356.62	1768551.02	6831.17	37	47
MCWB-7.4B	12/13/1994	70	1635287.73	1768407.84	6813.07	45	65
MCWB-7.7B	12/20/1994	70	1635921.84	1768517.26	6798.97	55	65
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	1761298.78	7288.44	2.5	7.3
MSC-16-06295	1/31/2000	6.9	1618630.67	1761004.78	7257.03	1.5	6.5

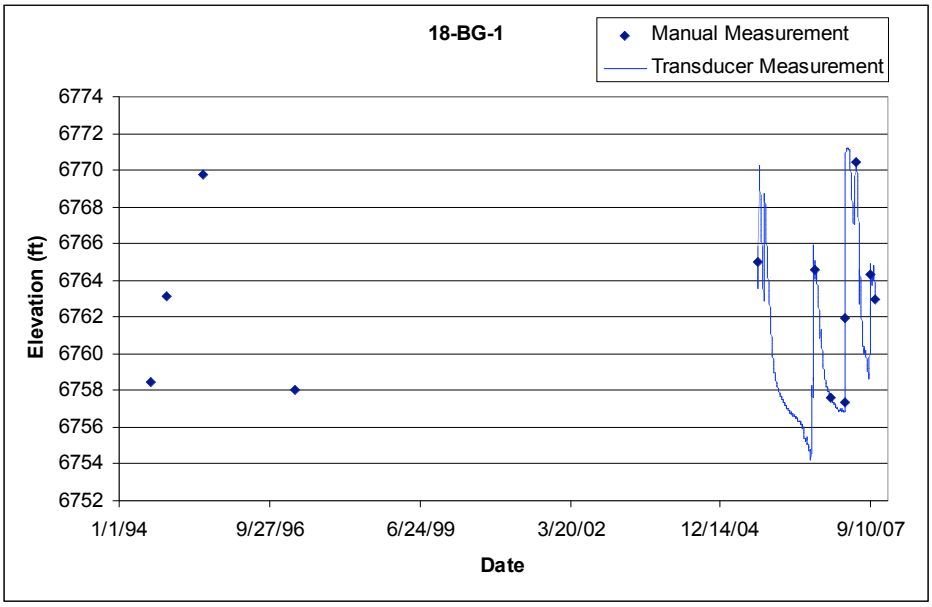
Table 5-1. Information and Location Data for Alluvial Aquifer Wells at LANL (cont.)

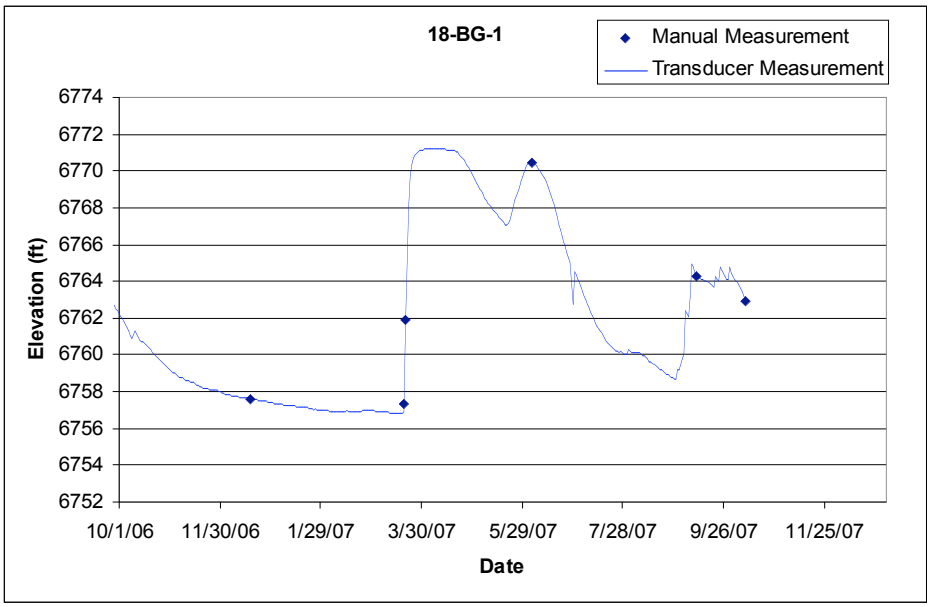
Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)
MT-1	11/1/1988	69	1635262.86	1768493.96	6811.63	39	59
MT-2	11/1/1988	64	1636019.79	1768544.59	6796.2	44	64
MT-3	11/1/1988	74	1635980.95	1768657.83	6796.65	44	64
MT-4	11/1/1988	74	1636558.75	1768634.37	6783.59	54	64
PAO-1	10/30/1998	13.74	1624165.85	1778988.72	6954.97	5.89	10.89
PAO-2	11/2/1998	13.91	1625040.90	1778710.00	6930.98	6.06	11.06
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
SCA-1	8/25/2006	2.1	1622482.45	1773264.59	7211.22	1.3	1.9
SCA-2	8/24/2006	15.6	1636115.02	1770282.78	6749.08	10.3	15
SCA-3	9/9/2006	32.6	1637200.75	1769917.84	6723.22	27.6	32
SCA-4	9/10/2006	42	1638261.23	1769566.62	6703.58	37	41.5
SCA-5	9/11/2006	64.9	1639878.28	1769725.47	6669.02	55	64.4
SCO-1	8/15/1989	19.3	1642297.62	1769502.25	6618.67	9.3	19.3
SCO-2	8/16/1989	19.4	1647259.00	1767864.00	6500.67	9.4	19.4
SCP-1a	9/12/2006	41.8	1638254.68	1769567.80	6703.65	41.2	41.7
SCP-1b	9/12/2006	41.8	1638254.68	1769567.80	6703.65	39.4	39.9
SCP-1c	9/12/2006	41.8	1638254.68	1769567.80	6703.65	37.8	38.3
SCP-2a	9/13/2006	45.1	1637209.65	1769911.26	6722.95	44.5	45
SCP-2b	9/12/2006	50.1	1637205.05	1769914.53	6723.11	49.5	50
TSCA-6	11/9/2004	21.3	1632954.60	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	1640212.50	1750620.25	6436.43	7.4	12.4

Figure 5-1. Alluvial Wells Monitored for Groundwater Levels in FY 2007.

5.1 18-BG-1

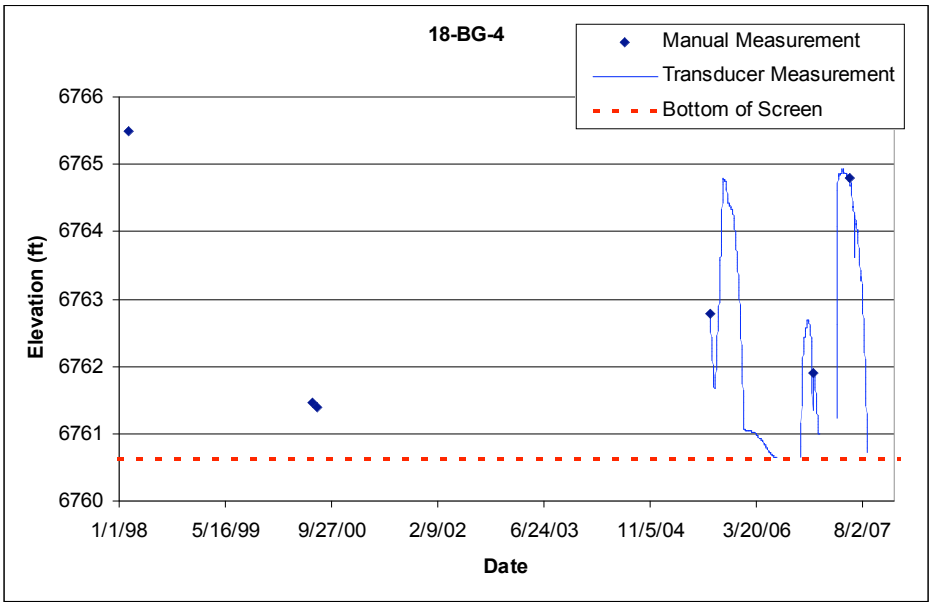
Location: Pajarito Canyon, about 0.4 miles west of the TA-18 facilities.
Period of Record: August 1, 1994, through September 30, 2007
Remarks: A pressure transducer was installed in 18-BG-1 on August 16, 2005. The screen bottom elevation is 6741.45 ft.

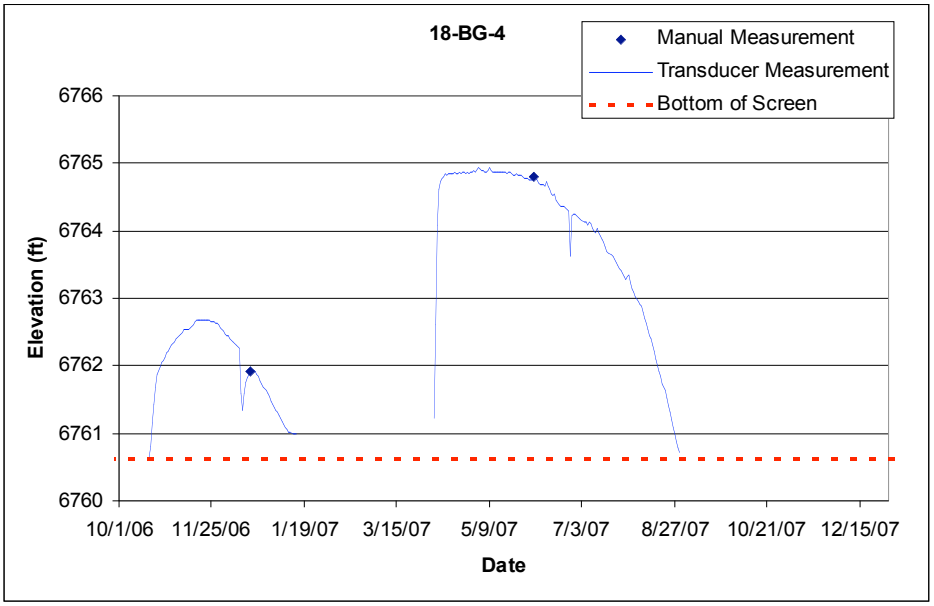




5.2 18-BG-4

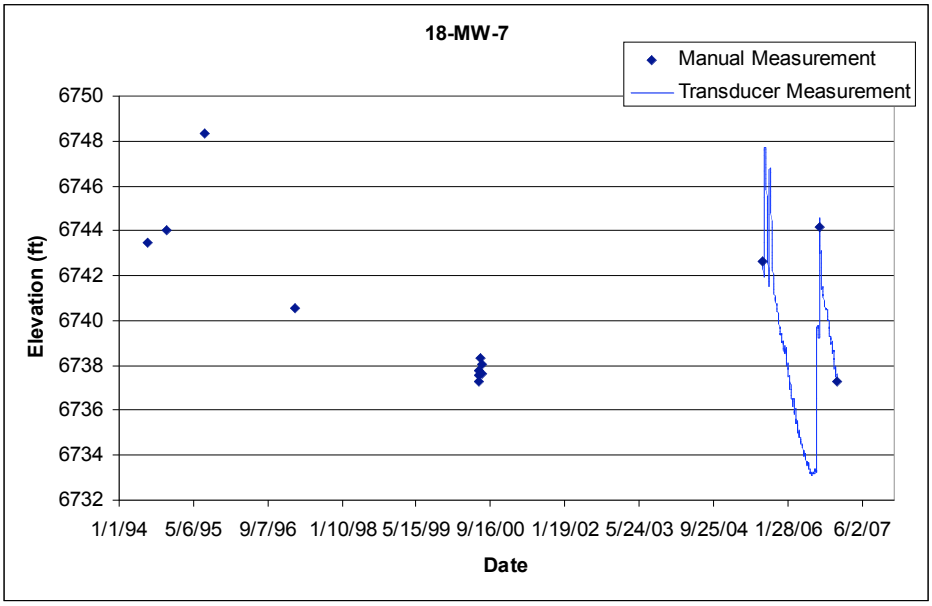
Location: Three-Mile Canyon, about 0.3 miles west of the TA-18 facilities.
Period of Record: February 18, 1998, through September 30, 2007
Remarks: A pressure transducer was installed on August 18, 2005.

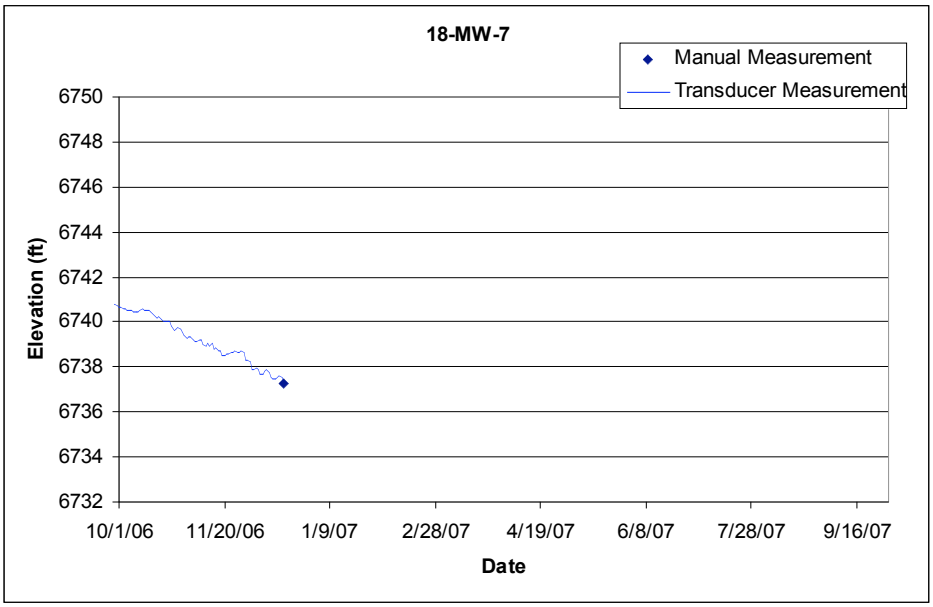




5.3 18-MW-7

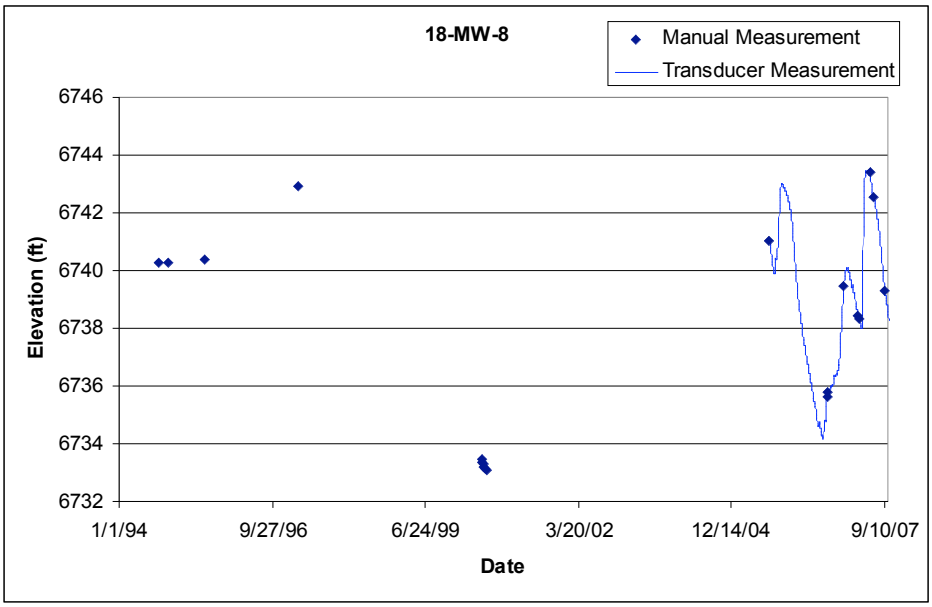
Location: Pajarito Canyon, about 0.2 miles west of the TA-18 facilities.
Period of Record: July 6, 1994, through September 30, 2007
Remarks: A pressure transducer was installed in 18-MW-7 on August 18, 2005. Screen bottom elevation is 6725.5 ft. The transducer was removed on December 18, 2006, monitoring of this location was transferred to 18-MW-11.

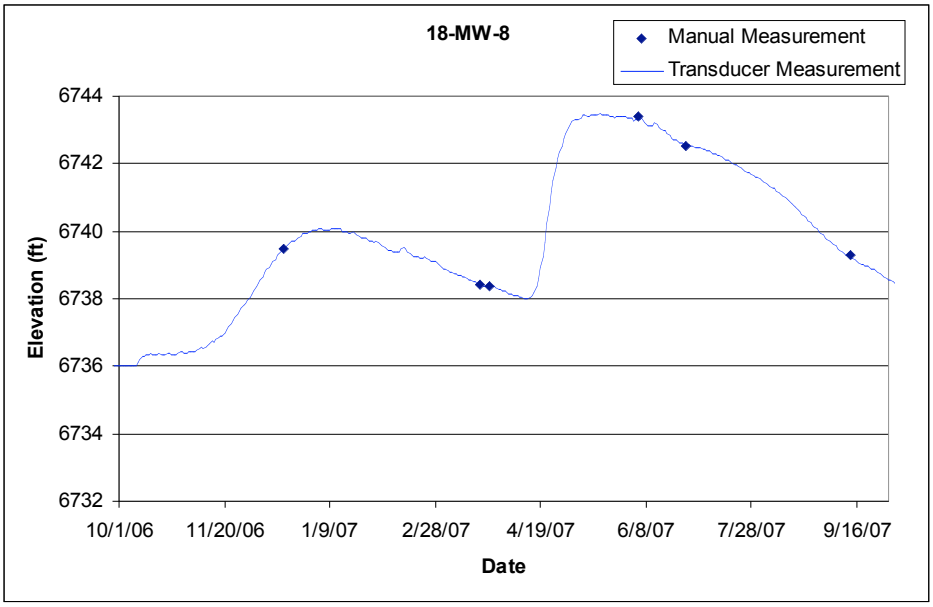




5.4 18-MW-8

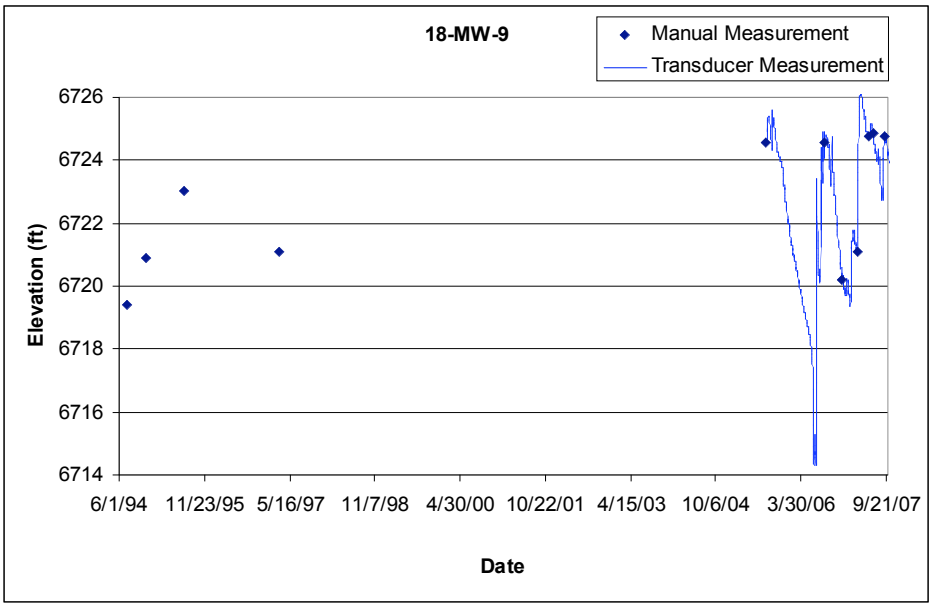
Location: Three-Mile Canyon, about 0.1 miles west of the TA-18 facilities.
Period of Record: September 15, 1994, through September 30, 2007
Remarks: A pressure transducer was installed in 18-MW-8 on August 18, 2005. Screen bottom elevation is 6709.8 ft.

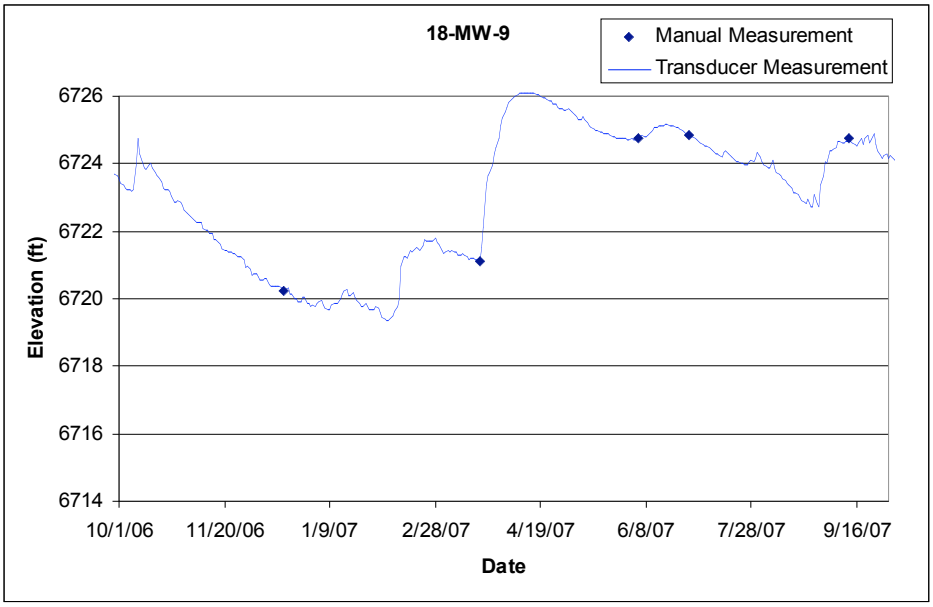




5.5 18-MW-9

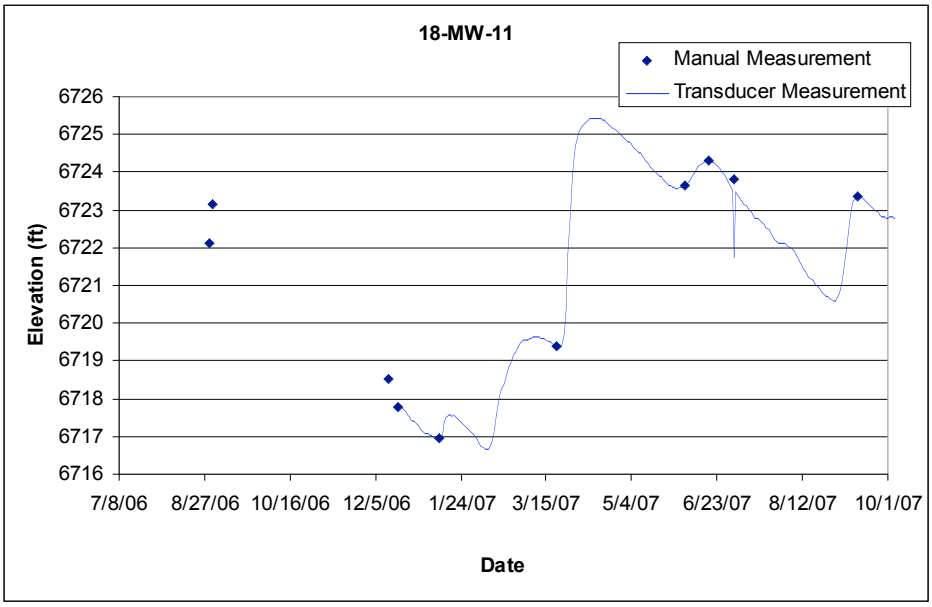
Location: Pajarito Canyon, directly south of the main guard gate to TA-18.
Period of Record: July 21, 1994, through September 30, 2007
Remarks: A pressure transducer was installed in 18-MW-9 on August 18, 2005. Screen bottom elevation is 6711.9 ft.

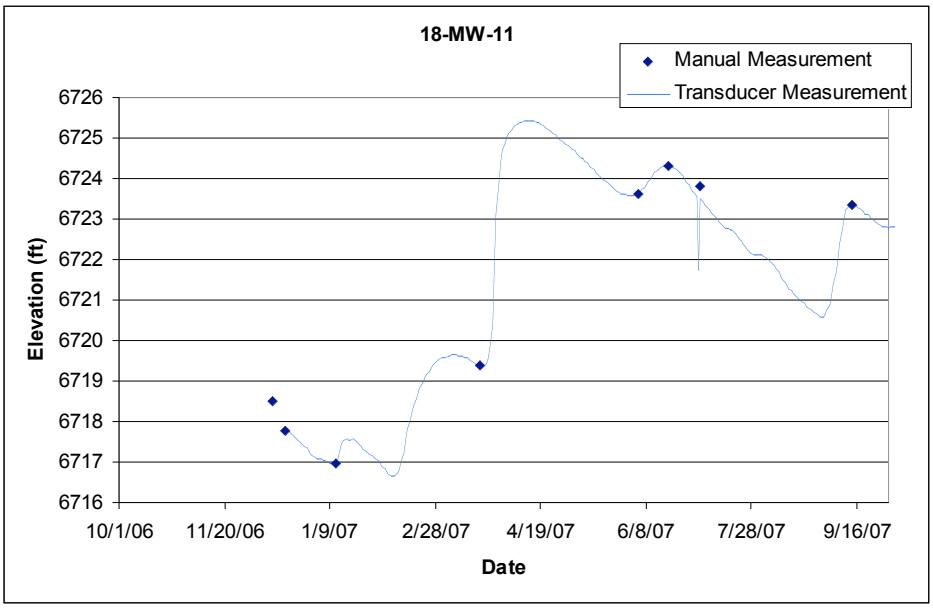




5.6 18-MW-11

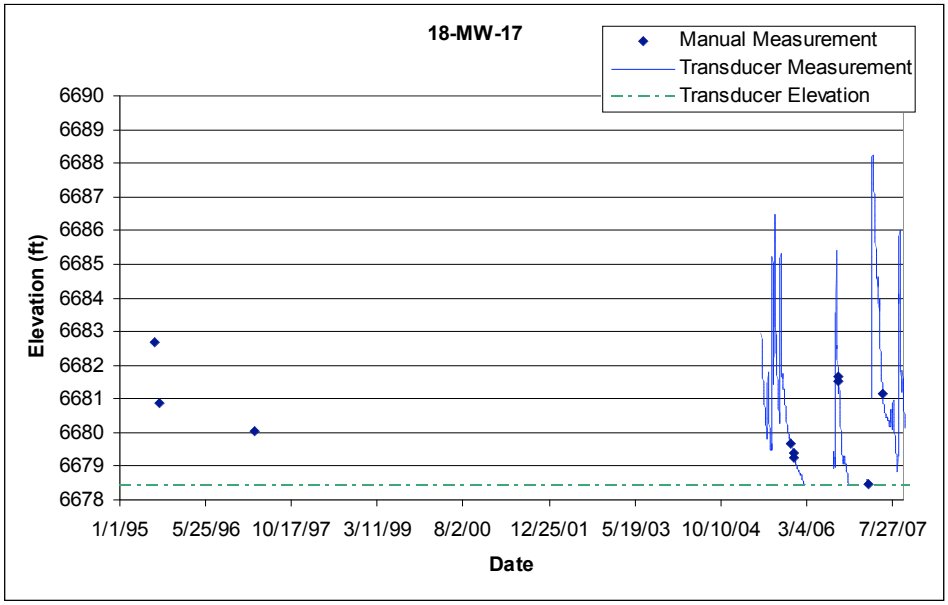
Location: Pajarito Canyon, approximately 200 ft north of 18-MW-9 in the TA-18 parking lot.
Period of Record: August 29, 2006, through September 30, 2007
Remarks: None.

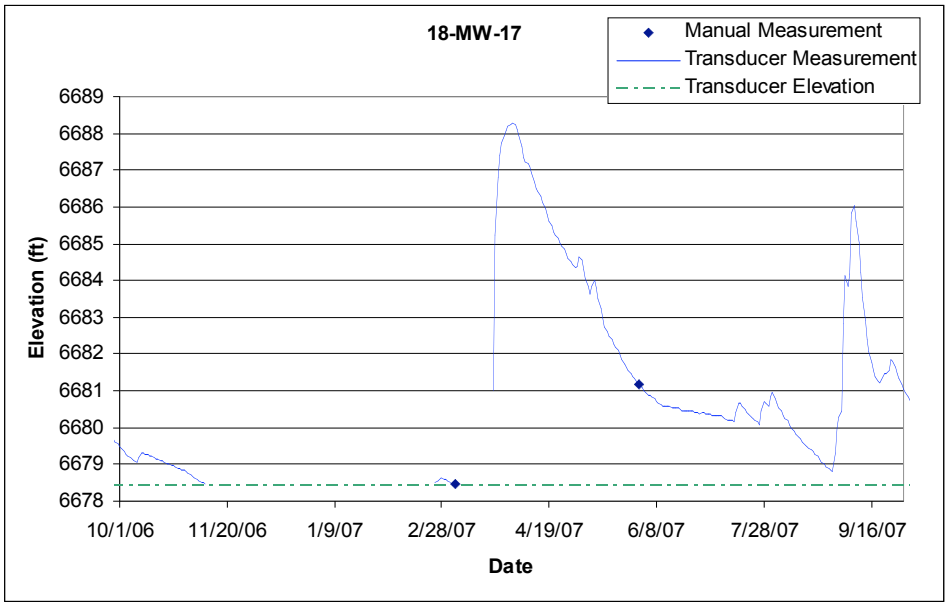




5.7 18-MW-17

Location: Pajarito Canyon, east of TA-18, approximately 50 ft west of R-20.
Period of Record: August 1, 1995, through September 30, 2007
Remarks: A pressure transducer was installed in 18-MW-17 on June 9, 2005. Screen bottom elevation is 6673.2 ft. The pressure transducer is installed above the top of the bladder pump. Due to the 2-in. well construction, the transducer does not fit below the pump. The water drops below the transducer sensor when the water level declines below 6678.4 ft.



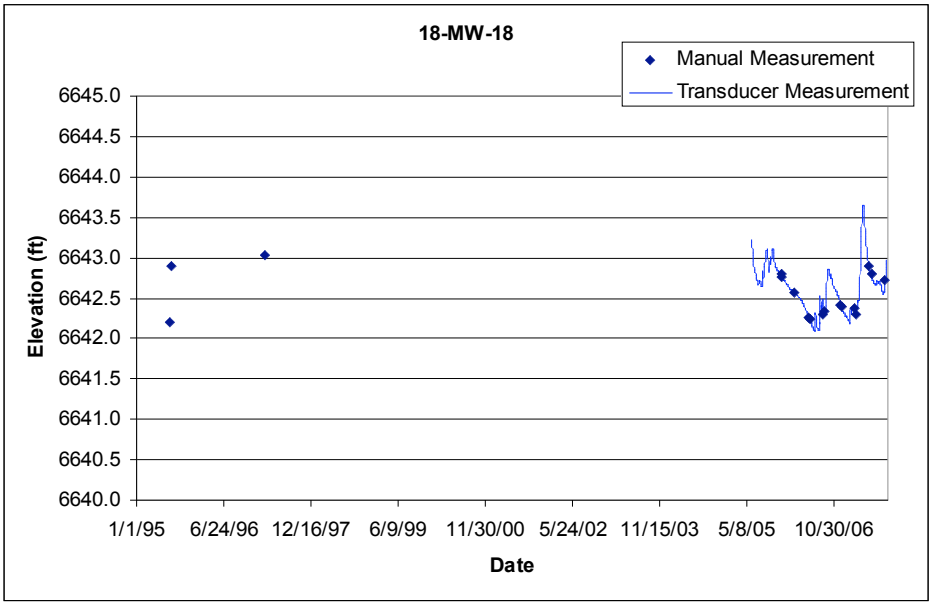


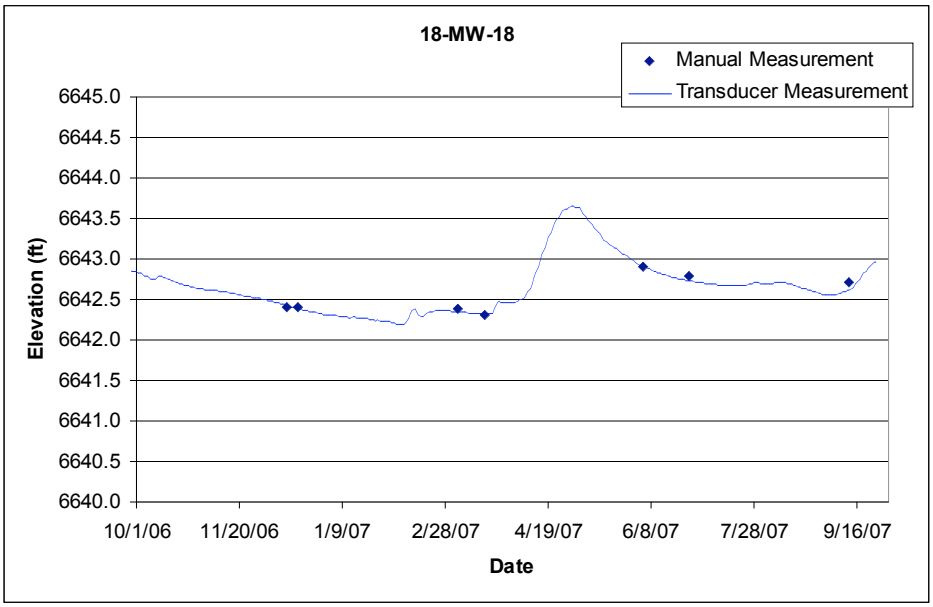
5.8 18-MW-18

Location: Alluvial well 18-MW-18 is located in Pajarito Canyon, approximately 1000 ft east of 18-MW-17.

Period of Record: July 31, 1995, through September 25, 2007

Remarks: A pressure transducer was installed in 18-MW-18 on June 9, 2005. Screen bottom elevation is 6631.7 ft. The transducer battery died on September 25, 2007, and was replaced on October 10, 2007.





5.9 39-UM-3

Location: Ancho Canyon, TA-39, approximately 2100 ft north of regional well R-31.
Period of Record: March 9, 2006, through September 5, 2007
Remarks: Well was dry during quarterly manual measurements.

Well Name	Date Time	Water Level (ft)	Comments
39-UM-3	3/9/2006 10:00:00 AM		Dry
39-UM-3	6/13/2006 7:07:00 AM		Dry, TD = 57.81 ft
39-UM-3	9/7/2006 1:06:00 PM		Dry
39-UM-3	11/30/2006 2:10:00 PM		Dry
39-UM-3	12/12/2006 12:44:00 PM		Dry
39-UM-3	3/15/2007 12:34:00 PM		Dry
39-UM-3	5/10/2007 2:30:00 PM		Dry
39-UM-3	6/6/2007 9:01:00 AM		Dry
39-UM-3	9/5/2007 11:42:00 AM		Dry

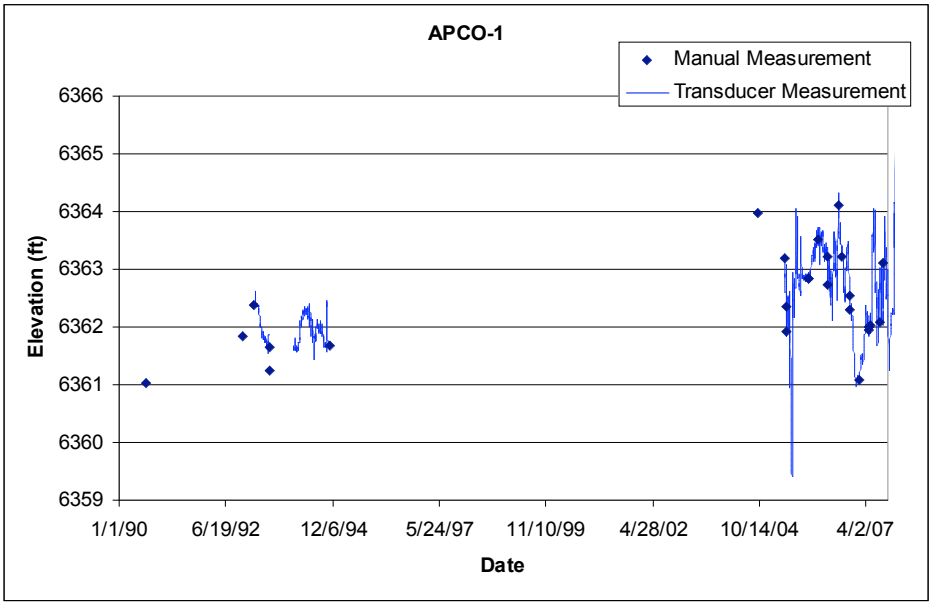
5.10 39-DM-6

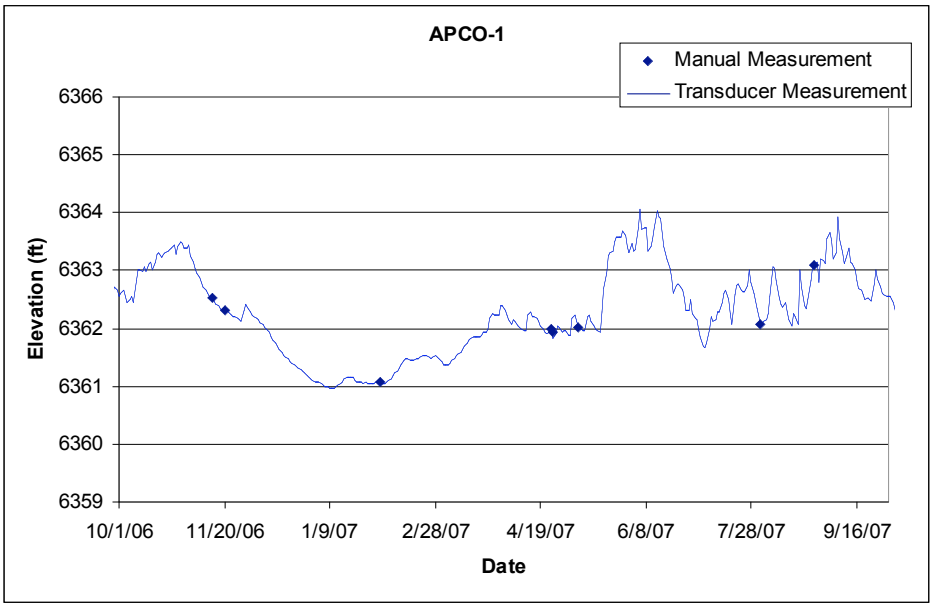
Location: Ancho Canyon, TA-39, approximately 1600 ft north of regional well R-31.
Period of Record: March 9, 2006, through September 5, 2007
Remarks: Well was dry during quarterly manual measurements.

Well Name	Date Time	Water Level (ft)	Comments
39-DM-6	3/9/2006 10:28:00 AM		Dry
39-DM-6	6/13/2006 7:25:00 AM		Dry, TD = 60.19 ft
39-DM-6	9/7/2006 1:03:00 PM		Dry
39-DM-6	11/30/2006 2:16:00 PM		Dry
39-DM-6	12/12/2006 12:37:00 PM		Dry
39-DM-6	3/15/2007 12:28:00 PM		Dry
39-DM-6	5/10/2007 2:50:00 PM		Dry
39-DM-6	6/6/2007 8:55:00 AM		Dry
39-DM-6	9/5/2007 11:46:00 AM		Dry

5.11 APCO-1

Location: Alluvial well APCO-1 is located in lower Pueblo Canyon.
Period of Record: August 17, 1990, through September 30, 2007
Remarks: A pressure transducer was installed in APCO-1 February 17, 1993, through June 17, 1993, January 11, 1994, through November 9, 1994, and May 9, 2005. Screen bottom elevation is 6352.83 ft.





5.12 CDBO-1

Location: Alluvial well CDBO-1 is located in Cañada del Buey, approximately 1320 ft north of regional well R-20.
Period of Record: March 8, 2006, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-1	3/8/2006 2:53:00 PM		Dry
CDBO-1	6/26/2006 9:58:00 AM		Dry, TD = 14.41 ft
CDBO-1	9/6/2006 9:44:00 AM		Dry
CDBO-1	9/27/2006 11:15:00 AM		Dry
CDBO-1	12/8/2006 10:03:00 AM		Dry
CDBO-1	2/22/2007 7:37:00 AM		Dry
CDBO-1	3/19/2007 10:40:00 AM		Dry
CDBO-1	6/5/2007 8:33:00 AM		Dry
CDBO-1	6/11/2007 12:10:00 PM		Dry
CDBO-1	6/11/2007 12:20:00 PM		Dry
CDBO-1	9/10/2007 12:42:00 PM		Dry

5.13 CDBO-2

Location: Alluvial well CDBO-2 is located in Cañada del Buey, approximately 260 ft northeast of CDBO-1.
Period of Record: March 8, 2006, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-2	3/8/2006 11:08:00 AM		Dry
CDBO-2	6/26/2006 10:05:00 AM		Dry, TD = 19.24 ft
CDBO-2	9/6/2006 9:52:00 AM		Dry
CDBO-2	9/27/2006 11:25:00 AM		Dry
CDBO-2	12/8/2006 9:53:00 AM		Dry
CDBO-2	2/22/2007 7:45:00 AM		Dry
CDBO-2	3/19/2007 10:36:00 AM		Dry
CDBO-2	6/5/2007 8:39:00 AM		Dry
CDBO-2	6/11/2007 12:14:00 PM		Dry
CDBO-2	6/11/2007 12:35:00 PM		Dry
CDBO-2	9/10/2007 12:51:00 PM		Dry

5.14 CDBO-3

Location: Alluvial well CDBO-3 is located in Cañada del Buey, approximately 630 ft northwest of regional well R-21.
Period of Record: December 6, 2005, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-3	12/6/2005 1:00:00 PM		Dry
CDBO-3	3/8/2006 10:06:00 AM		Dry
CDBO-3	6/26/2006 9:27:00 AM		Dry, TD = 13.53 ft
CDBO-3	9/6/2006 9:19:00 AM		Dry
CDBO-3	9/27/2006 11:00:00 AM		Dry
CDBO-3	12/8/2006 10:23:00 AM		Dry
CDBO-3	2/22/2007 8:03:00 AM		Dry
CDBO-3	3/19/2007 10:59:00 AM		Dry
CDBO-3	6/5/2007 10:29:00 AM		Dry
CDBO-3	6/11/2007 12:00:00 PM		Dry
CDBO-3	6/11/2007 12:55:00 PM		Dry
CDBO-3	9/10/2007 1:16:00 PM		Dry

5.15 CDBO-4

Location: Alluvial well CDBO-4 is located in Cañada del Buey, approximately 1600 ft north of regional well R-22.
Period of Record: December 7, 2005, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-4	12/7/2005 1:50:00 PM		Dry
CDBO-4	3/8/2006 9:24:00 AM		Dry
CDBO-4	6/26/2006 9:12:00 AM		Dry, TD = 13.42 ft
CDBO-4	9/6/2006 8:58:00 AM		Dry
CDBO-4	10/2/2006 2:43:00 PM		Dry
CDBO-4	12/8/2006 12:41:00 PM		Dry
CDBO-4	2/22/2007 9:33:00 AM		Dry
CDBO-4	3/19/2007 12:20:00 PM		Dry
CDBO-4	6/5/2007 10:48:00 AM		Dry
CDBO-4	6/11/2007 12:35:00 PM		Dry
CDBO-4	6/11/2007 1:15:00 PM		Dry
CDBO-4	9/10/2007 1:46:00 PM		Dry

5.16 CDBO-5

Location: Alluvial well CDBO-5 is located in Cañada del Buey, approximately 0.5 miles west-northwest of CDBO-6.
Period of Record: December 7, 2005, through September 11, 2007
Remarks: Well was dry during quarterly measurements in FY 2007.

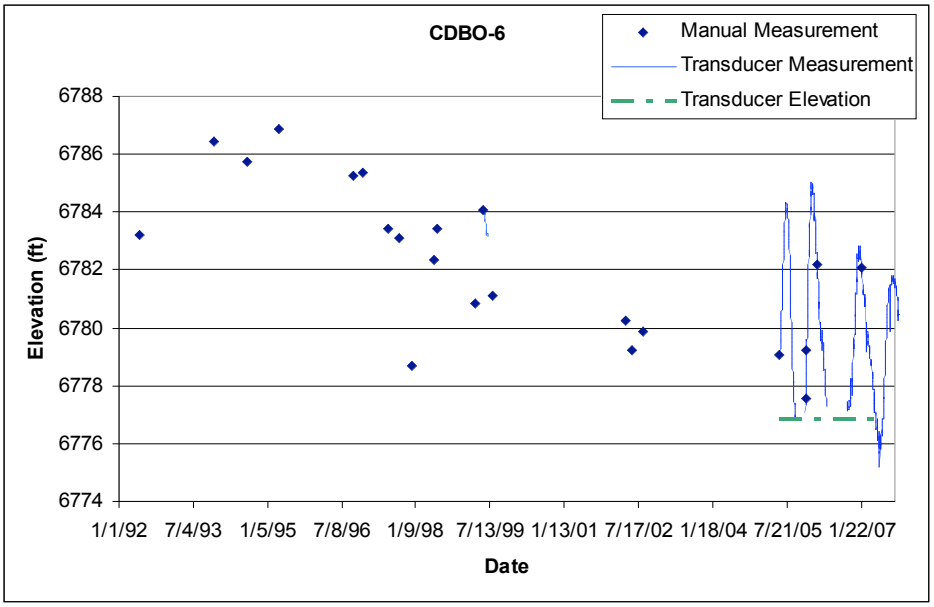
Well Name	Date Time	Water Level (ft)	Comments
CDBO-5	12/7/2005 10:20:00 AM		Dry
CDBO-5	3/8/2006 12:23:00 PM	6861.24	Water is in sump
CDBO-5	6/26/2006 12:24:00 PM	6861.23	Water is in sump
CDBO-5	9/6/2006 11:34:00 AM	6861.33	Water is in sump
CDBO-5	10/2/2006 11:15:00 AM		Dry
CDBO-5	12/8/2006 11:01:00 AM		Dry
CDBO-5	2/22/2007 8:35:00 AM		Dry
CDBO-5	3/19/2007 11:30:00 AM		Dry
CDBO-5	6/5/2007 9:50:00 AM		Dry
CDBO-5	9/11/2007 9:23:00 AM		Dry

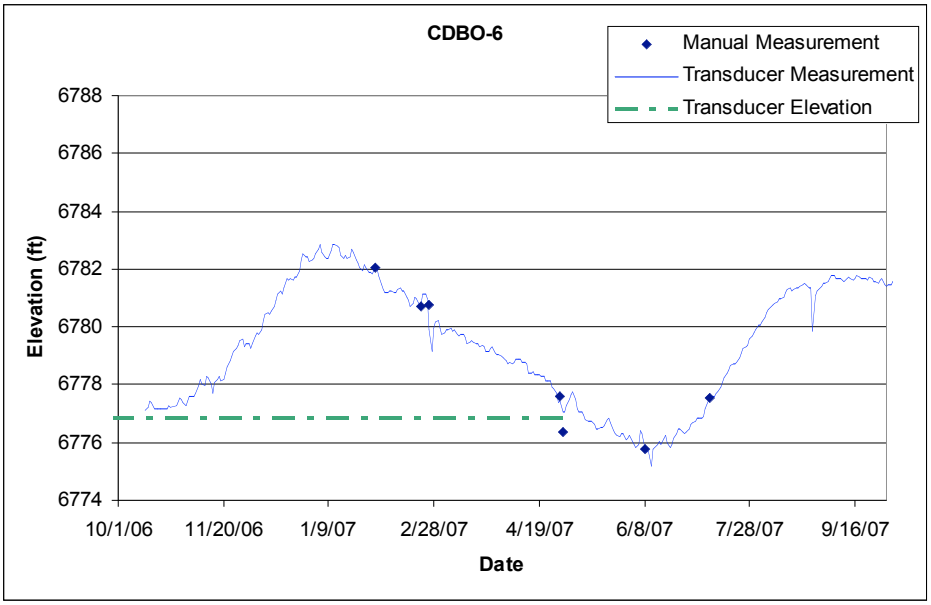
5.17 CDBO-6

Location: Alluvial well CDBO-6 is located in Cañada del Buey, approximately 420 ft east of production well PM-4.

Period of Record: June 1, 1992, through September 30, 2007

Remarks: The pressure transducer was installed above the pump at an elevation of 6776.83 ft until April 30, 2007, when the pump was removed from the well. Transducer data before April 30, 2007, do not represent water level elevations below 6776.83 ft. The screen bottom elevation is 6773.2 ft.



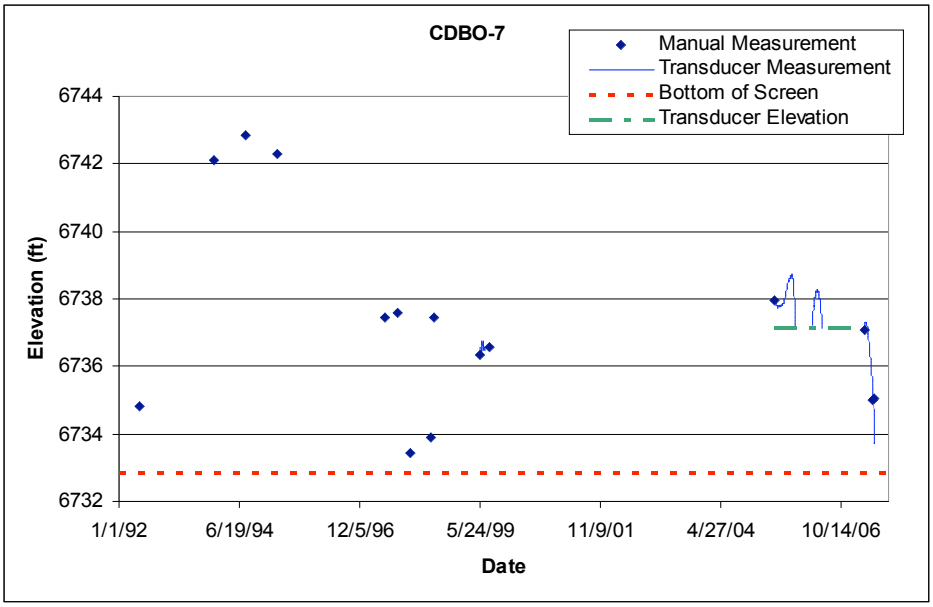


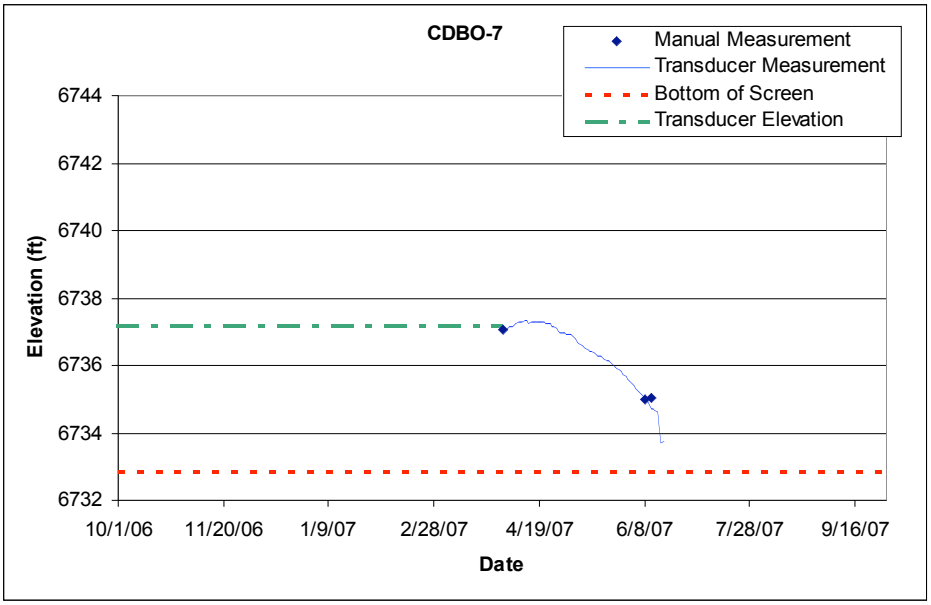
5.18 CDBO-7

Location: Alluvial well CDBO-7 is located in Cañada del Buey, approximately 0.3 miles southeast of CDBO-6.

Period of Record: June 1,1992, through September 30, 2007

Remarks: Alluvial well CDBO-7 had a bladder pump installed in a 2-in. casing until April 2, 2007. The pressure transducer was set above the pump at an elevation of 6737.14 ft. The transducer was lowered in the well after removal of the pump on April 2, 2007. Data before April 2, 2007, do not represent water levels below 6737.14 ft. The water level declined below the screen in late June 2007. The screen bottom elevation is 6732.8 ft.





5.19 CDBO-8

Location: Alluvial well CDBO-8 is located in Cañada del Buey, approximately 0.4 miles southeast of CDBO-7.
Period of Record: July 2, 2001, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-8	7/2/2001 12:00:00 PM		Dry
CDBO-8	8/22/2001 12:00:00 PM		Dry
CDBO-8	10/18/2001 12:00:00 PM		Dry
CDBO-8	4/16/2002 12:00:00 PM		Dry
CDBO-8	8/27/2002 12:00:00 PM		Dry
CDBO-8	11/15/2002 12:00:00 PM		Dry
CDBO-8	2/19/2003 12:00:00 PM		Dry
CDBO-8	2/19/2003 12:00:00 PM		Dry
CDBO-8	12/7/2005 1:30:00 PM		Dry
CDBO-8	3/8/2006 2:51:00 PM		Dry
CDBO-8	6/26/2006 10:53:00 AM		Dry, TD = 25.66 ft
CDBO-8	9/7/2006 8:14:00 AM		Dry
CDBO-8	10/2/2006 12:48:00 PM		Dry
CDBO-8	12/8/2006 12:59:00 PM		Dry
CDBO-8	2/22/2007 9:10:00 AM		Dry
CDBO-8	3/19/2007 11:59:00 AM		Dry
CDBO-8	6/5/2007 9:11:00 AM		Dry
CDBO-8	6/8/2007 11:50:00 AM		Dry
CDBO-8	9/10/2007 1:25:00 PM		Dry

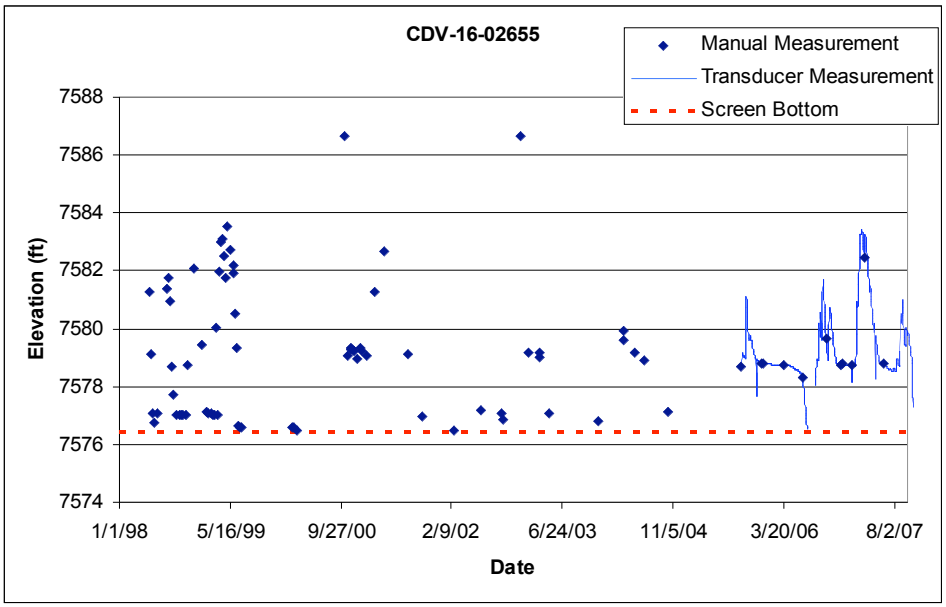
5.20 CDBO-9

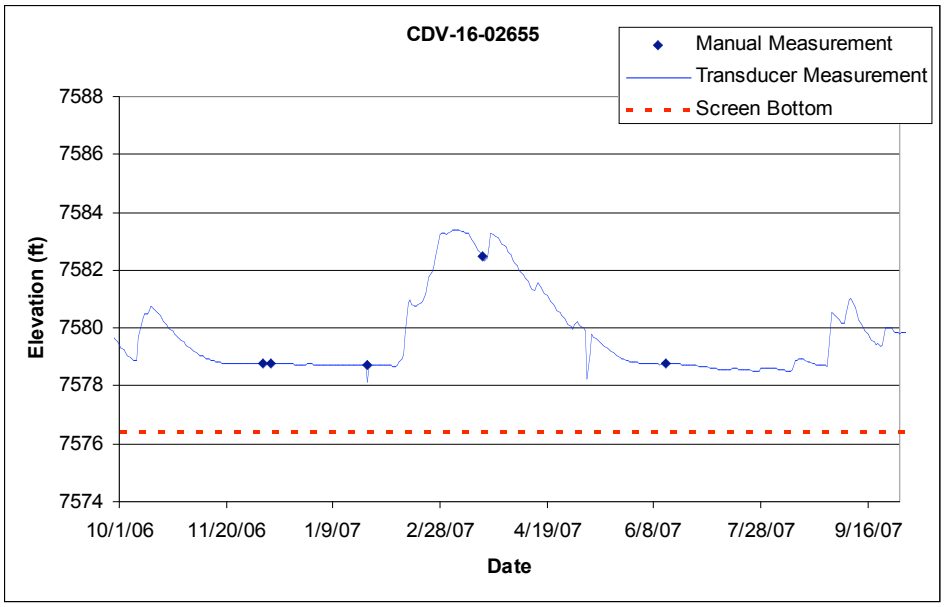
Location: Alluvial well CDBO-9 is located in Cañada del Buey, approximately 0.7 miles southeast of CDBO-8.
Period of Record: July 2, 2001, through September 10, 2007
Remarks: Well was dry during quarterly measurements.

Well Name	Date Time	Water Level (ft)	Comments
CDBO-9	7/2/2001 12:00:00 PM		Dry
CDBO-9	8/22/2001 12:00:00 PM		Dry
CDBO-9	10/18/2001 12:00:00 PM		Dry
CDBO-9	4/16/2002 12:00:00 PM		Dry
CDBO-9	8/27/2002 12:00:00 PM		Dry
CDBO-9	11/15/2002 12:00:00 PM		Dry
CDBO-9	2/19/2003 12:00:00 PM		Dry
CDBO-9	6/3/2003 12:00:00 PM		Dry
CDBO-9	12/6/2005 1:45:00 PM		Dry
CDBO-9	3/8/2006 2:42:00 PM		Dry
CDBO-9	6/26/2006 10:34:00 AM		Dry, TD = 33.58 ft
CDBO-9	9/6/2006 10:27:00 AM		Dry
CDBO-9	10/2/2006 1:10:00 PM		Dry
CDBO-9	12/8/2006 1:14:00 PM		Dry
CDBO-9	2/22/2007 9:23:00 AM		Dry
CDBO-9	3/19/2007 12:10:00 PM		Dry
CDBO-9	6/5/2007 9:00:00 AM		Dry
CDBO-9	6/8/2007 12:05:00 PM		Dry
CDBO-9	9/10/2007 1:36:00 PM		Dry

5.21 CDV-16-02655

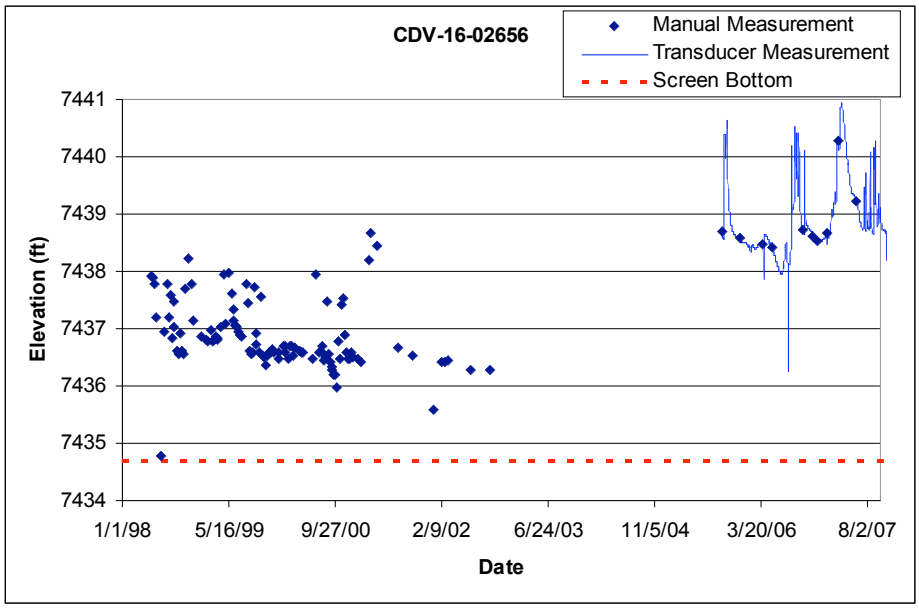
Location: Westernmost upper Cañon de Valle in TA-16, approximately 800 ft east of Anchor Ranch Road.
Period of Record: May 15, 1998, through September 30, 2007.
Remarks: None.

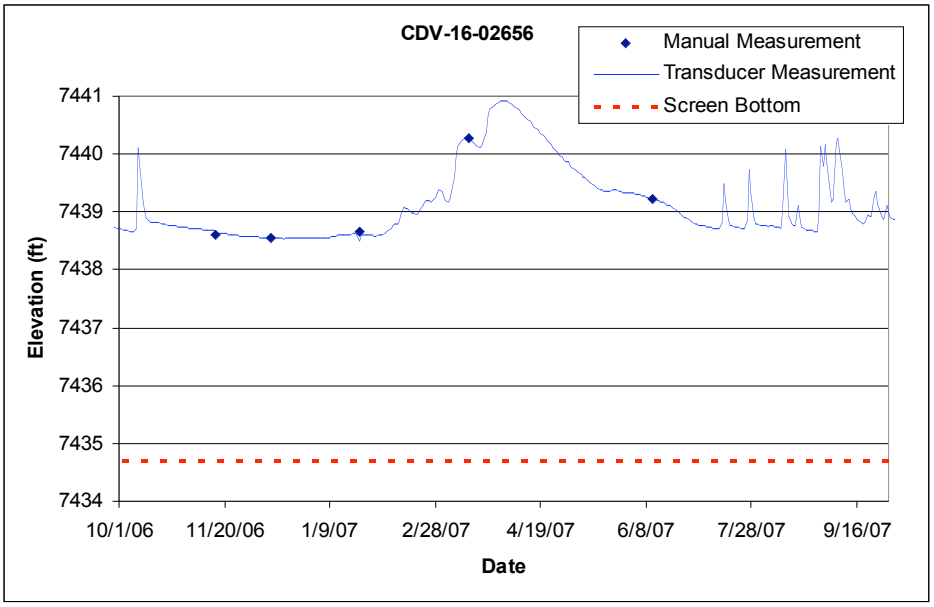




5.22 CDV-16-02656

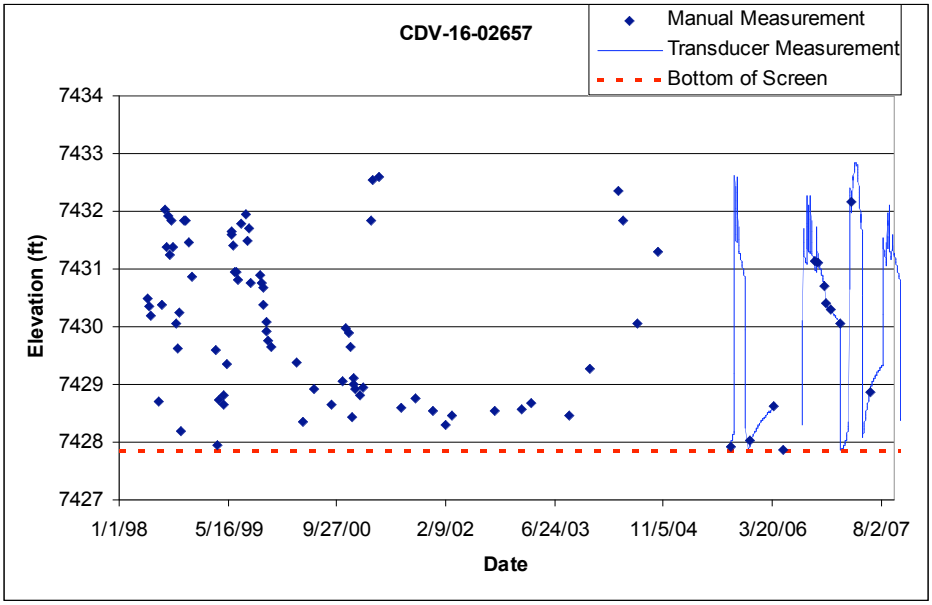
Location: Upper Cañon de Valle at northern boundary of TA-16.
Period of Record: May 15, 1998, through September 30, 2007
Remarks: None.

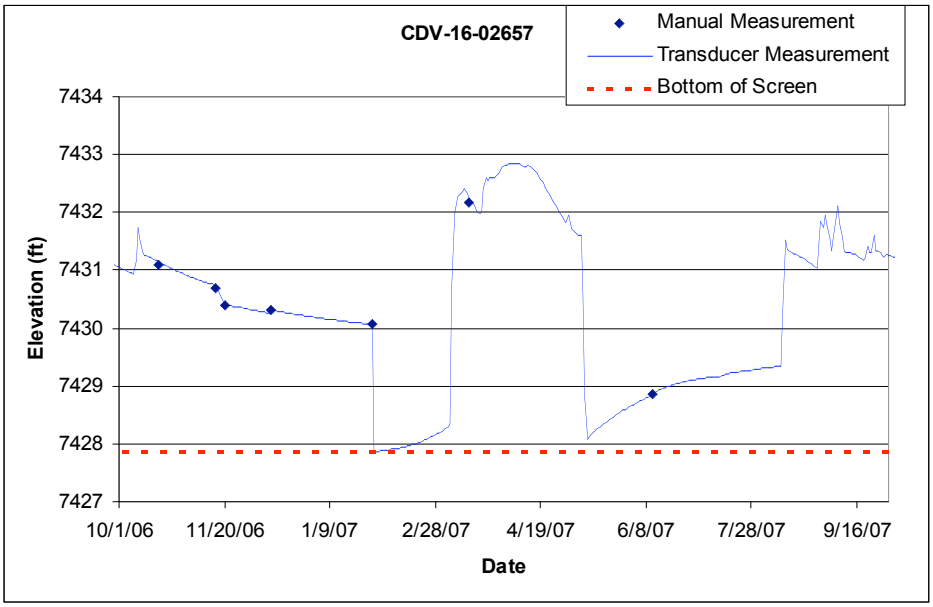




5.23 CDV-16-02657

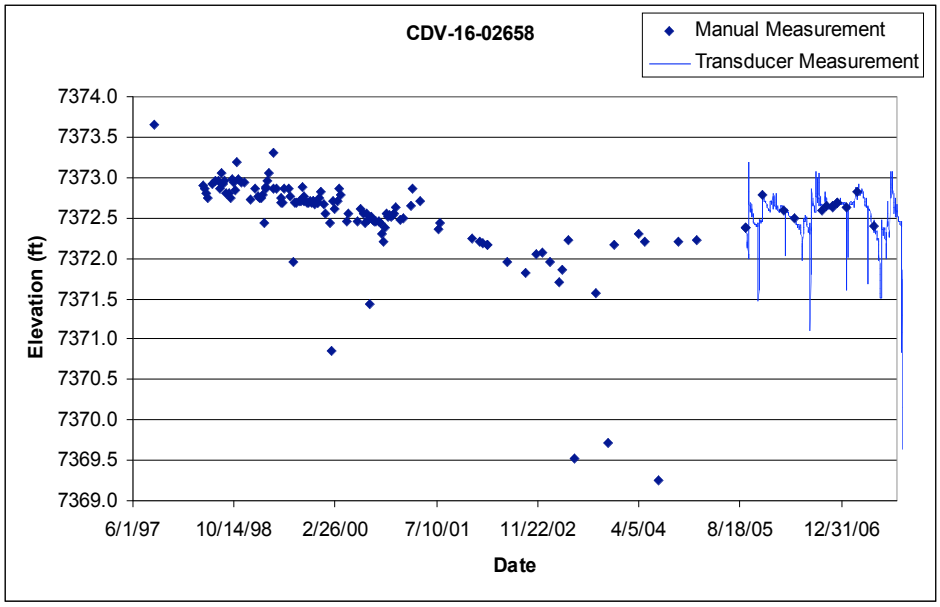
Location: Upper Cañon de Valle at northern boundary of TA-16, approximately 200 ft east-southeast of well CDV-16-02656.
Period of Record: May 15, 1998, through September 30, 2007
Remarks: CDV-16-02657 was bailed dry during sampling events on January 29, 2007, May 10, 2007, and May 11, 2007.

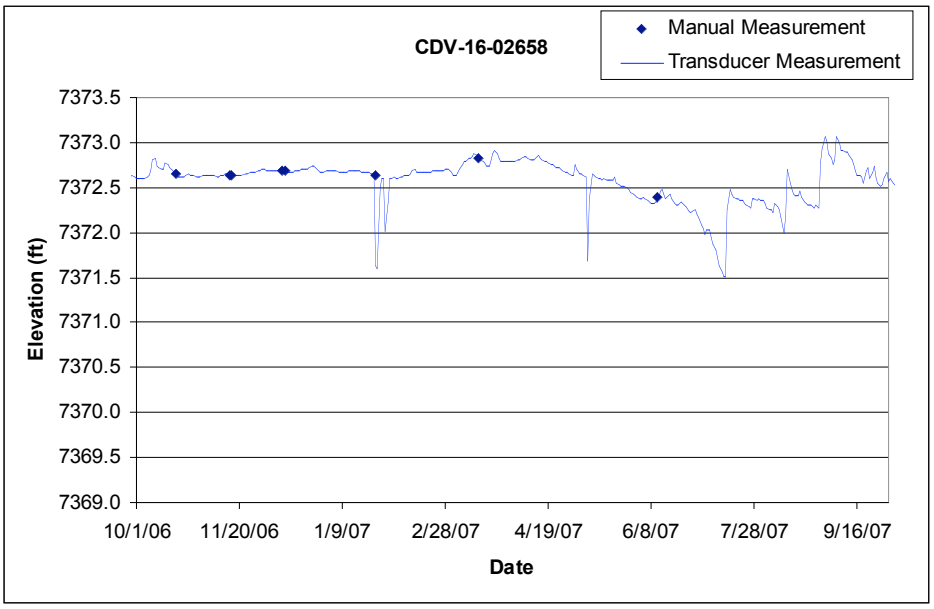




5.24 CDV-16-02658

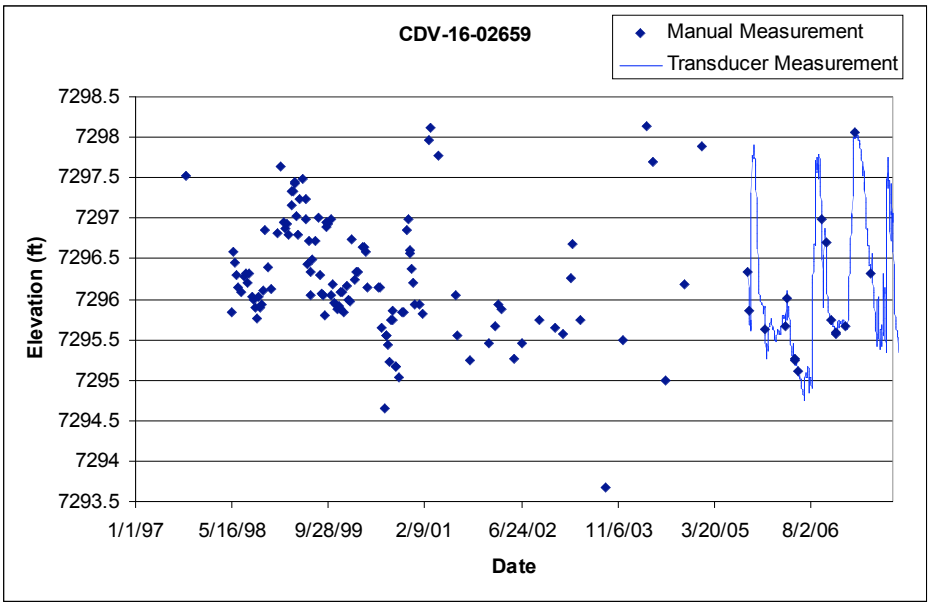
Location: Upper Cañon de Valle at northern boundary of TA-16, approximately 200 ft east-southeast of well CDV-16-02657 and approximately 800 ft east-southeast of Burning Ground Spring.
Period of Record: September 15, 1997, through September 30, 2007
Remarks: Screen bottom elevation is 7368.26 ft.

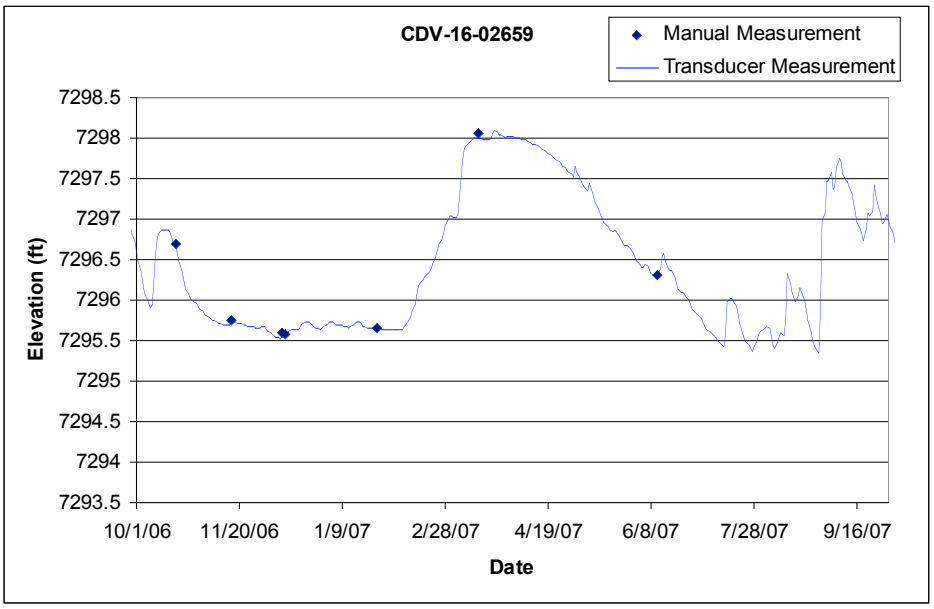




5.25 CDV-16-02659

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, through September 30, 2007
Remarks: Screen bottom elevation is 7293.32 ft.





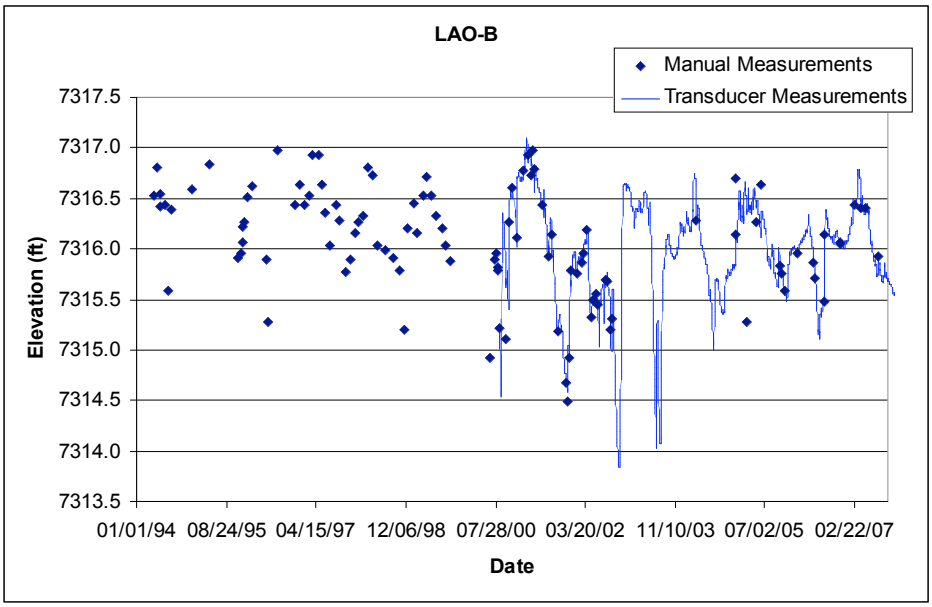
5.26 FCO-1

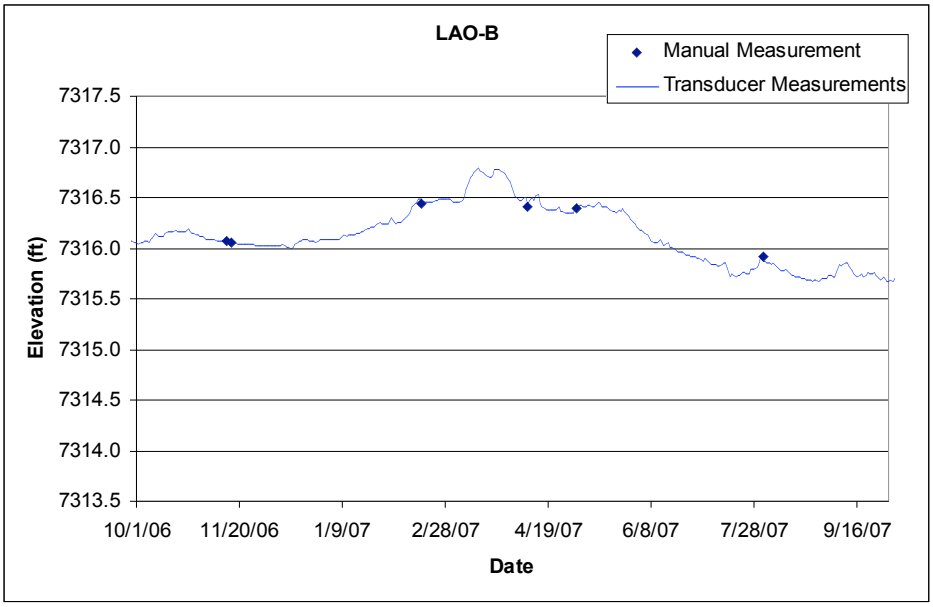
Location: Fence Canyon, approximately 0.1 miles northwest of SR-4.
Period of Record: June 9, 1997, through September 05, 2007
Remarks: Well has been dry during all measuring events.

Well Name	Date Time	Water Levels (ft)	Comments
FCO-1	6/9/1997 12:00:00 PM		Dry
FCO-1	10/13/1997 12:00:00 PM		Dry
FCO-1	3/25/1998 12:00:00 PM		Dry
FCO-1	5/29/1998 12:00:00 PM		Dry
FCO-1	7/28/1998 12:00:00 PM		Dry
FCO-1	3/3/1999 12:00:00 PM		Dry
FCO-1	6/23/1999 12:00:00 PM		Dry
FCO-1	8/30/1999 12:00:00 PM		Dry
FCO-1	11/15/1999 12:00:00 PM		Dry
FCO-1	3/26/2000 12:00:00 PM		Dry
FCO-1	5/16/2000 12:00:00 PM		Dry
FCO-1	8/30/2000 12:00:00 PM		Dry
FCO-1	10/8/2000 12:00:00 PM		Dry
FCO-1	4/16/2002 12:00:00 PM		Dry
FCO-1	8/19/2002 12:00:00 PM		Dry
FCO-1	11/13/2002 12:00:00 PM		Dry
FCO-1	2/19/2003 12:00:00 PM		Dry
FCO-1	5/18/2003 12:00:00 PM		Dry
FCO-1	4/7/2004 12:00:00 PM		Dry
FCO-1	9/14/2005 10:26:00 AM		Dry
FCO-1	6/23/2006 1:08:00 PM		Dry, TD = 13.50 ft
FCO-1	9/8/2006 9:21:00 AM		Dry
FCO-1	12/15/2006 10:20:00 AM		Dry
FCO-1	1/24/2007 10:45:00 AM		Dry
FCO-1	3/15/2007 10:55:00 AM		Dry
FCO-1	5/24/2007 2:37:00 PM		Dry
FCO-1	6/6/2007 9:28:00 AM		Dry
FCO-1	9/5/2007 1:25:00 PM		Dry

5.27 LAO-B

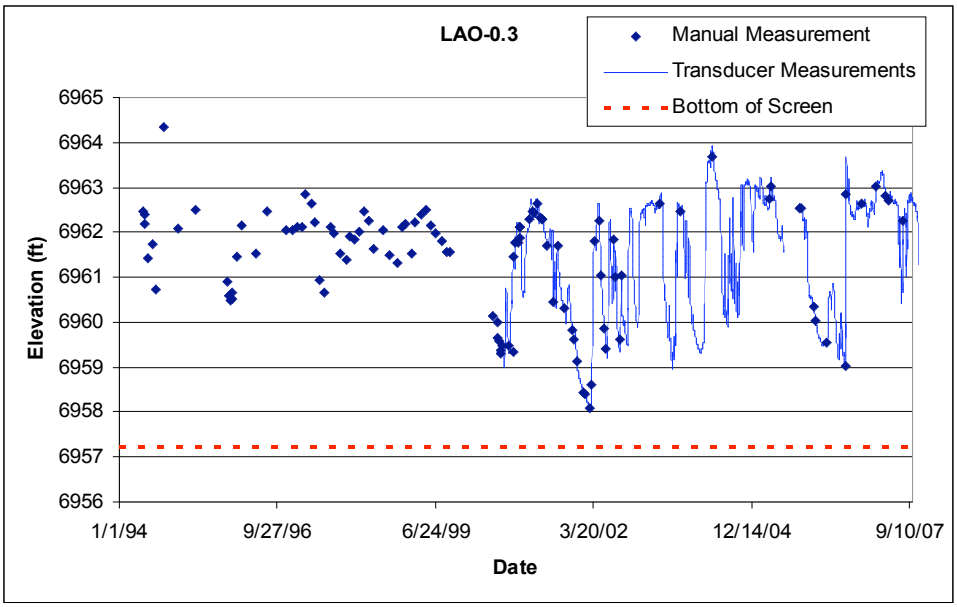
Location: Upper Los Alamos Canyon, approximately 3000 ft west of the Diamond Drive bridge.
Period of Record: April 28, 1994, through September 30, 2007
Remarks: Screen bottom elevation is 7296.8 ft; some of the manual measurements in the upper chart were taken during sampling events and are not representative of static water level elevations.

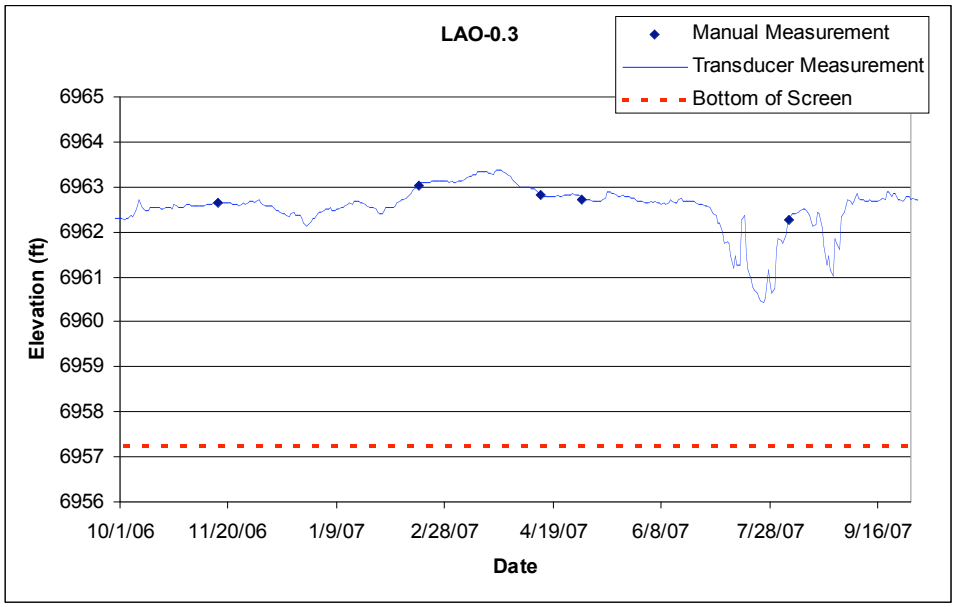




5.28 LAO-0.3

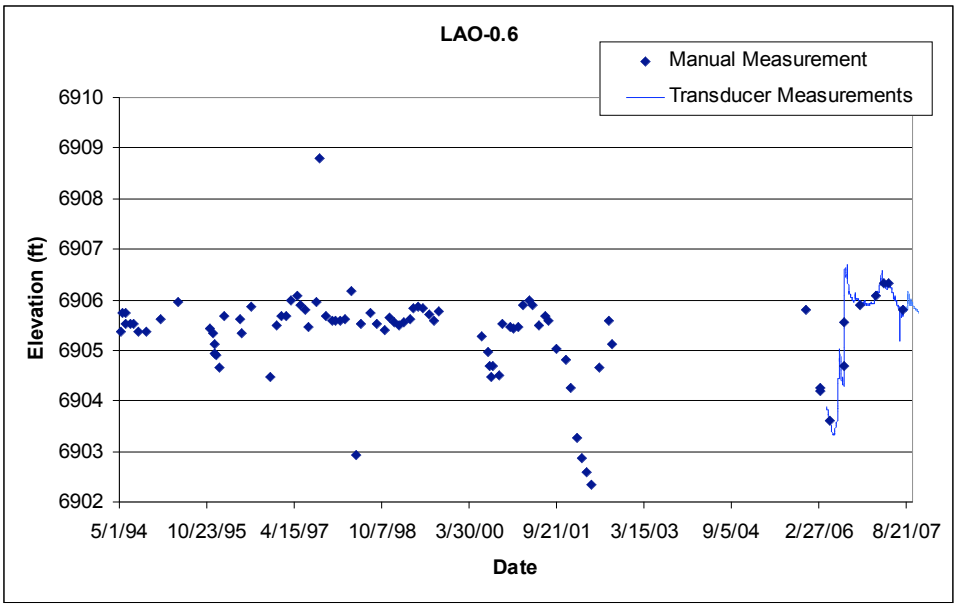
Location: Upper Los Alamos Canyon, approximately 5700 ft east of the Diamond Drive bridge.
Period of Record: June 1, 1994, through September 30, 2007
Remarks: Transducer readings were not valid from July 7, 2005, through October 12, 2005. The pressure sensor was in the mud at the bottom of the well.

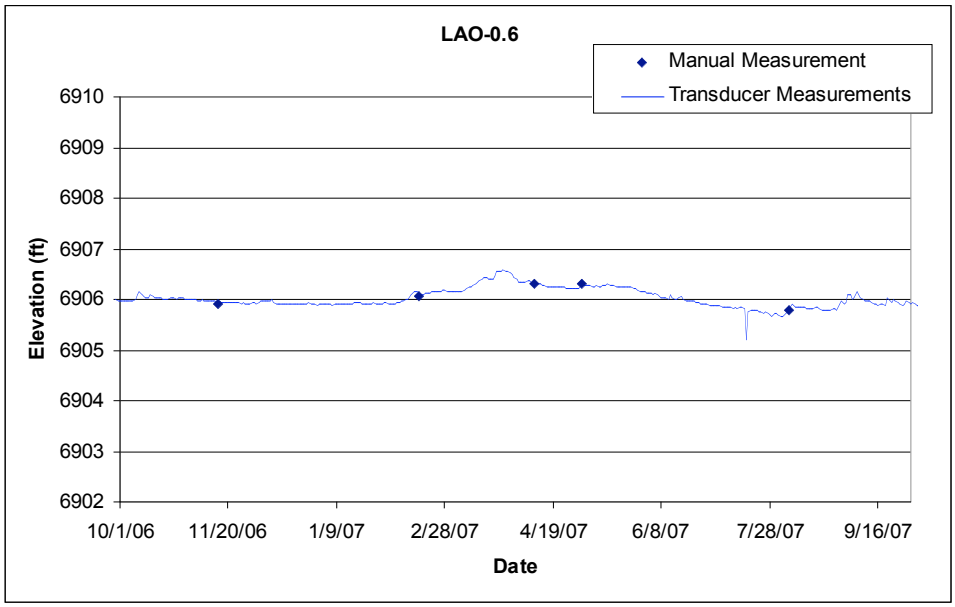




5.29 LAO-0.6

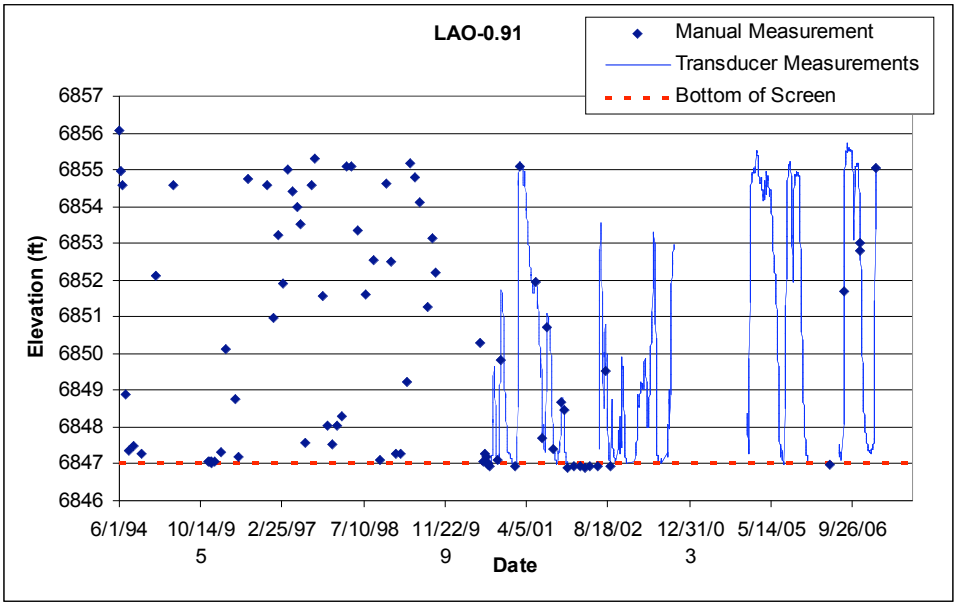
Location: Los Alamos Canyon, approximately 7500 ft east of the Diamond Drive bridge.
Period of Record: May 6, 1994, through September 30, 2007
Remarks: Screen bottom elevation is 6897.34 ft.

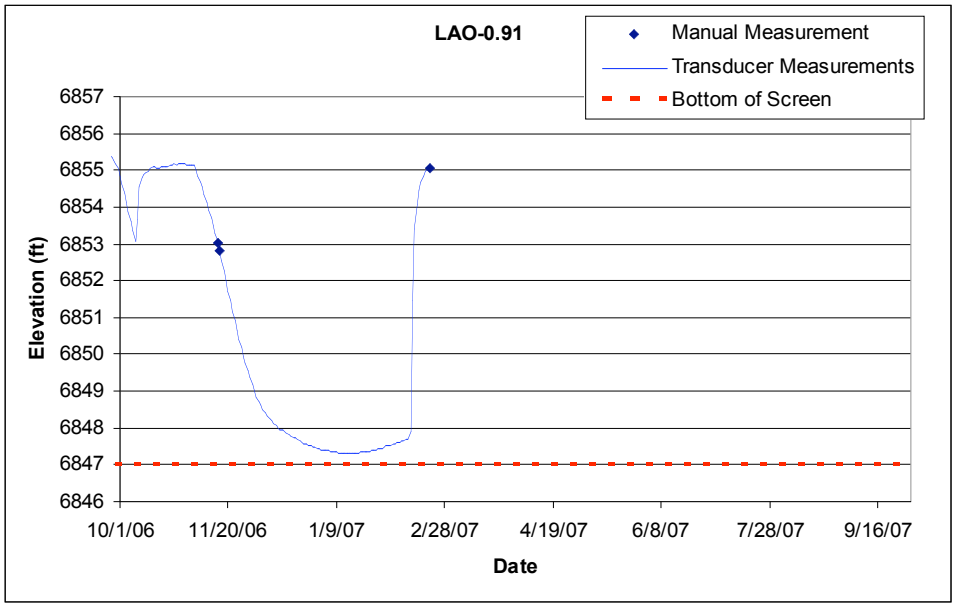




5.30 LAO-0.91

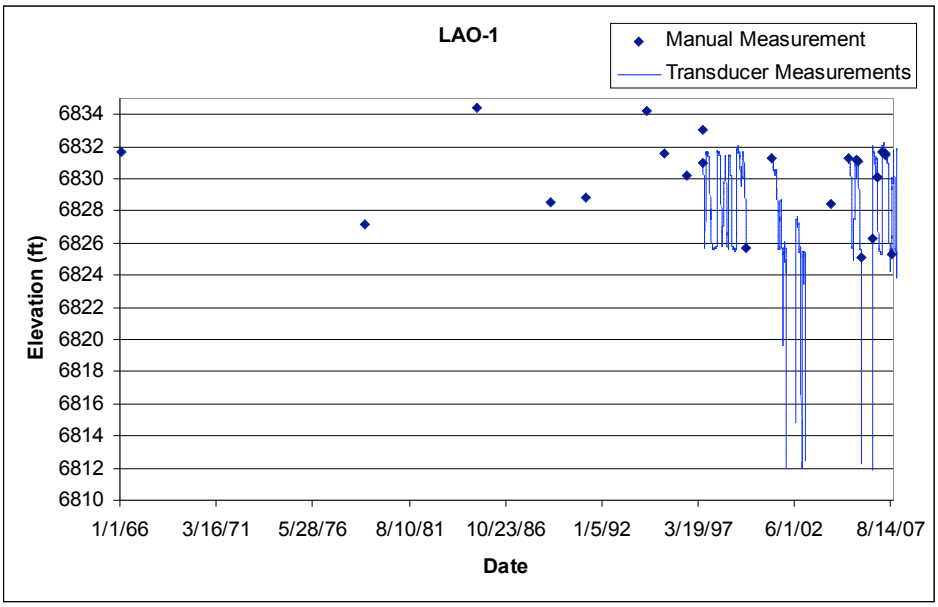
Location: Los Alamos Canyon approximately 10,200 ft east of the Diamond Drive bridge and approximately 100 ft east of the eastern boundary of TA-2.
Period of Record: June 1, 1994, through September 30, 2007
Remarks: The transducer was removed on February 21, 2007. No further water level monitoring at LAO-0.91 is planned.

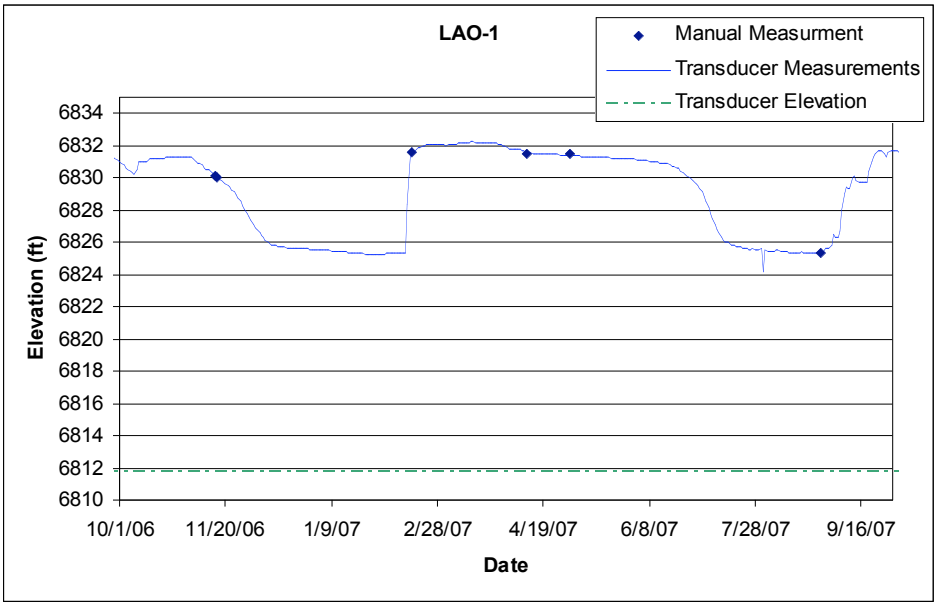




5.31 LAO-1

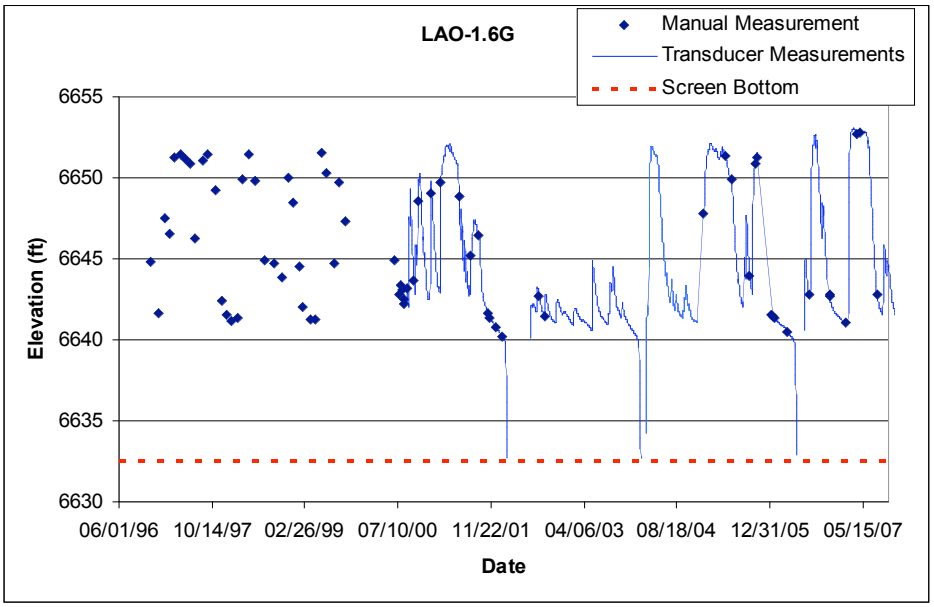
Location: Los Alamos Canyon, near the eastern border of TA-2.
Period of Record: February 15, 1966, through September 30, 2007
Remarks: LAO-1 is a 2-in.-diameter well with a dedicated bladder pump. The transducer is sitting on top of the pump. Screen bottom elevation is 6808.24 ft.

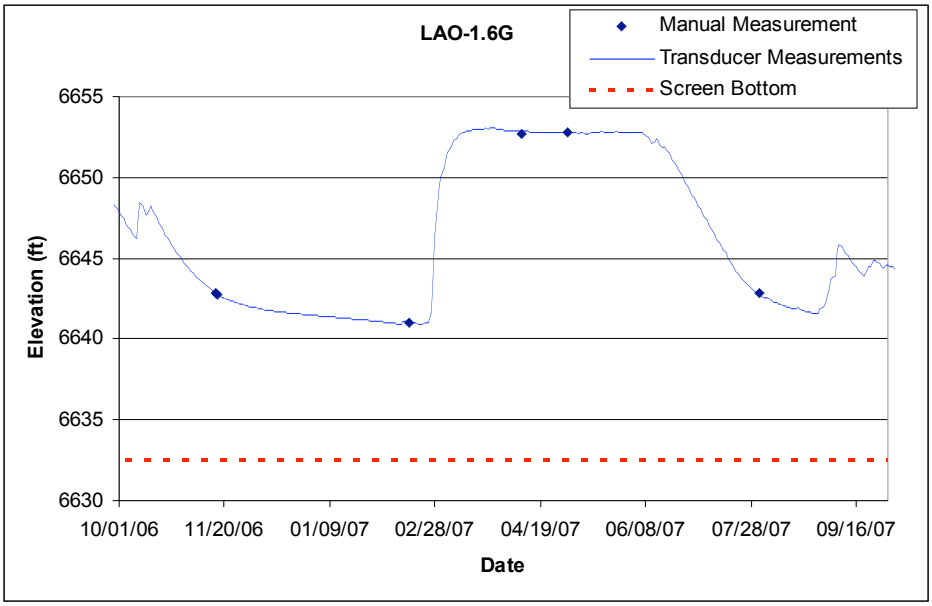




5.32 LAO-1.6g

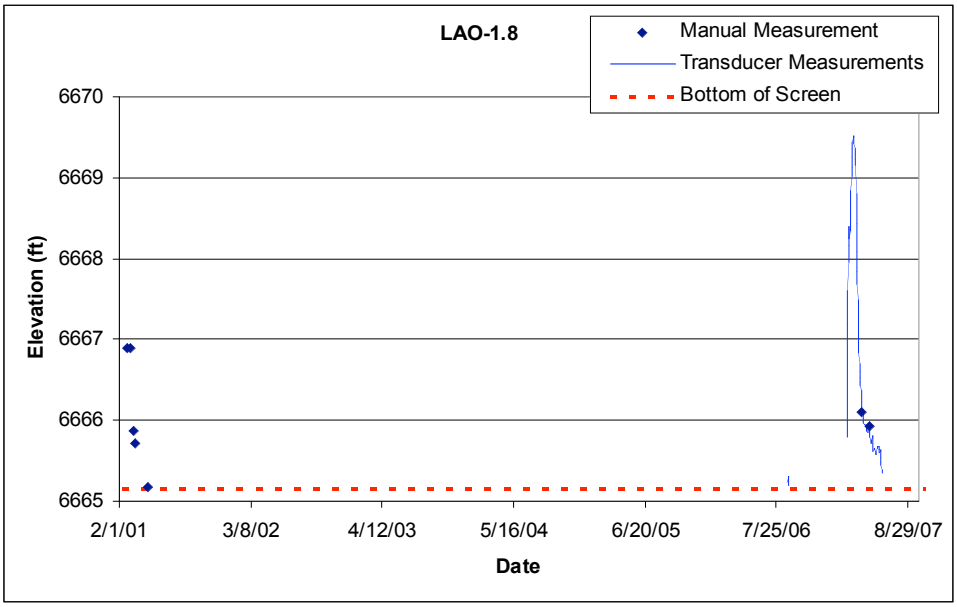
Location: Los Alamos Canyon, approximately 400 ft west of the confluence with DP Canyon.
Period of Record: November 22, 1996, through September 30, 2007
Remarks: None.

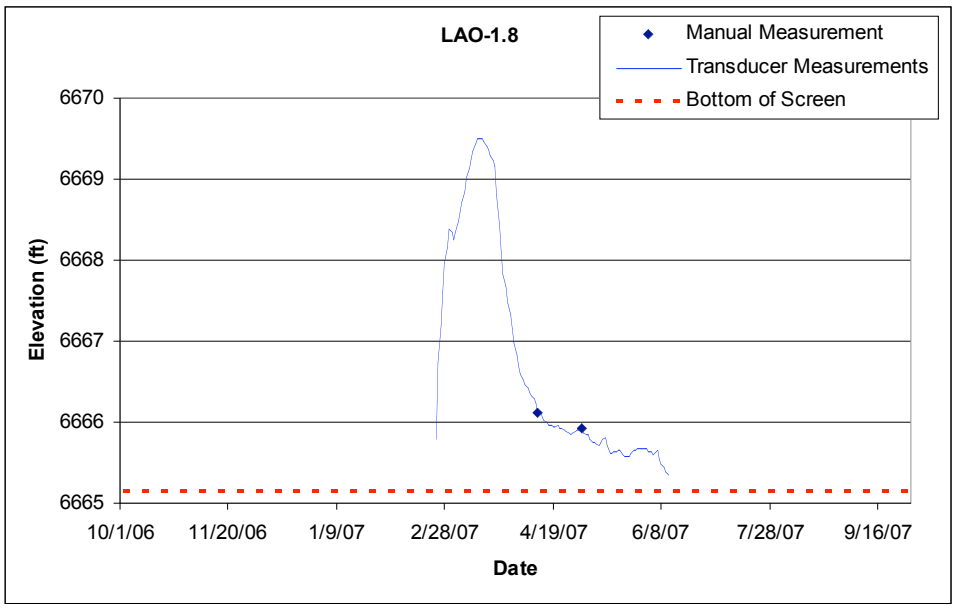




5.33 LAO-1.8

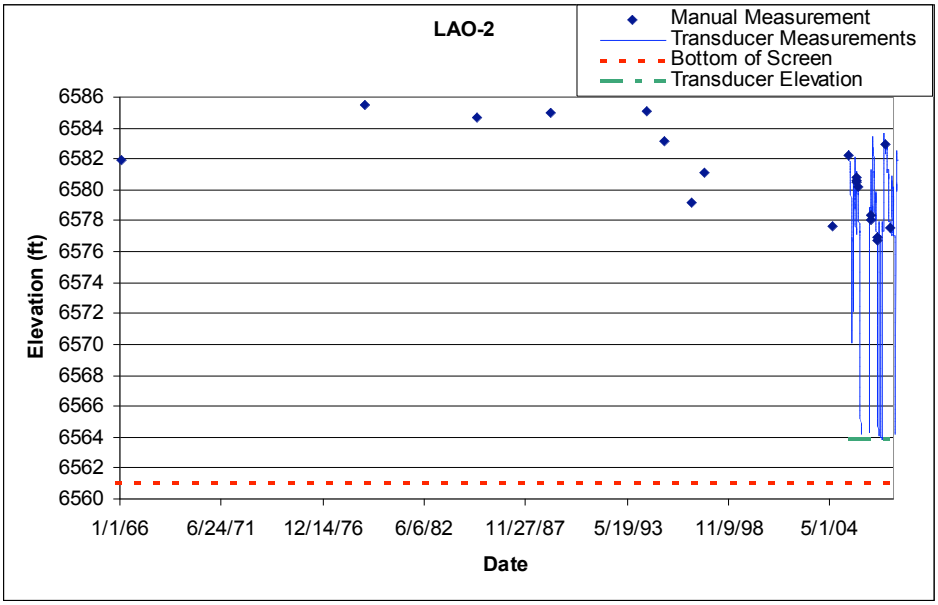
Location: Los Alamos Canyon, approximately 650 ft west of LAO-1.6g.
Period of Record: January 8, 2001, through September 30, 2007
Remarks: None.

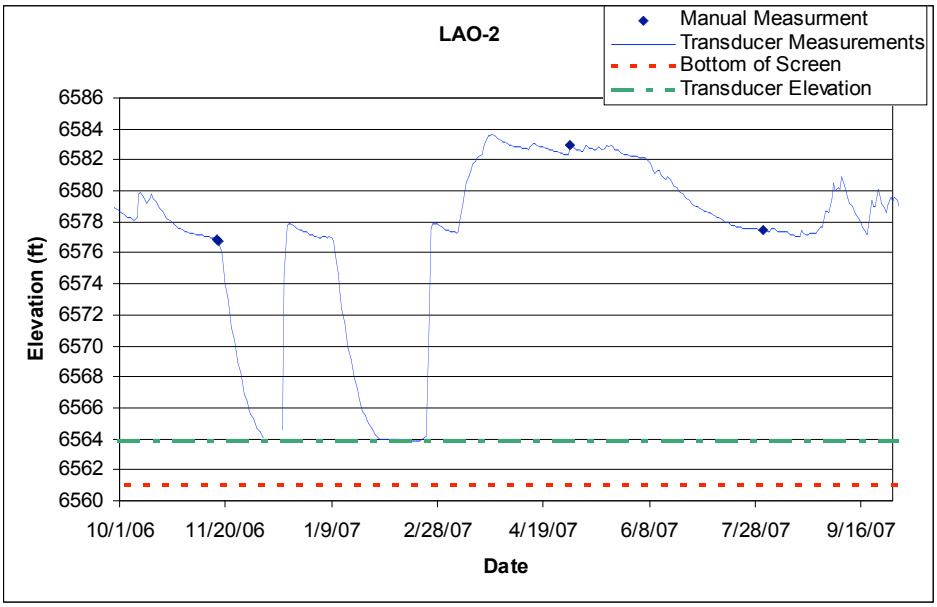




5.34 LAO-2

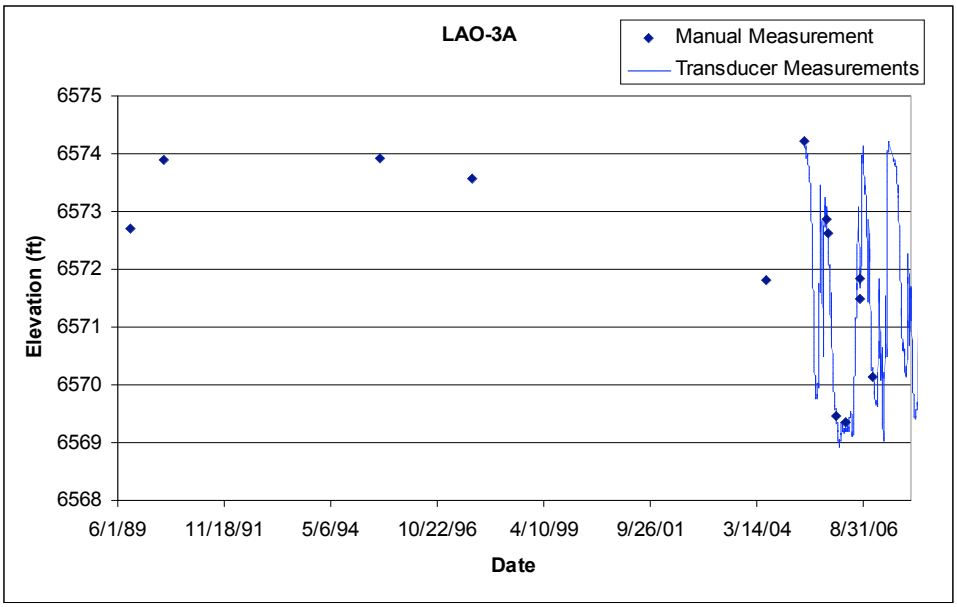
Location: Los Alamos Canyon, approximately 75 ft north of the confluence with DP Canyon.
Period of Record: February 1, 1966, through September 30, 2007
Remarks: Screen bottom elevation 6560.97 ft. LAO-2 is a 2-in.-diameter well with a bladder pump. The transducer is installed above the top of the pump. The transducer sensor elevation is 6563.88 ft. Water level elevations below 6563.88 ft are not represented by transducer data.

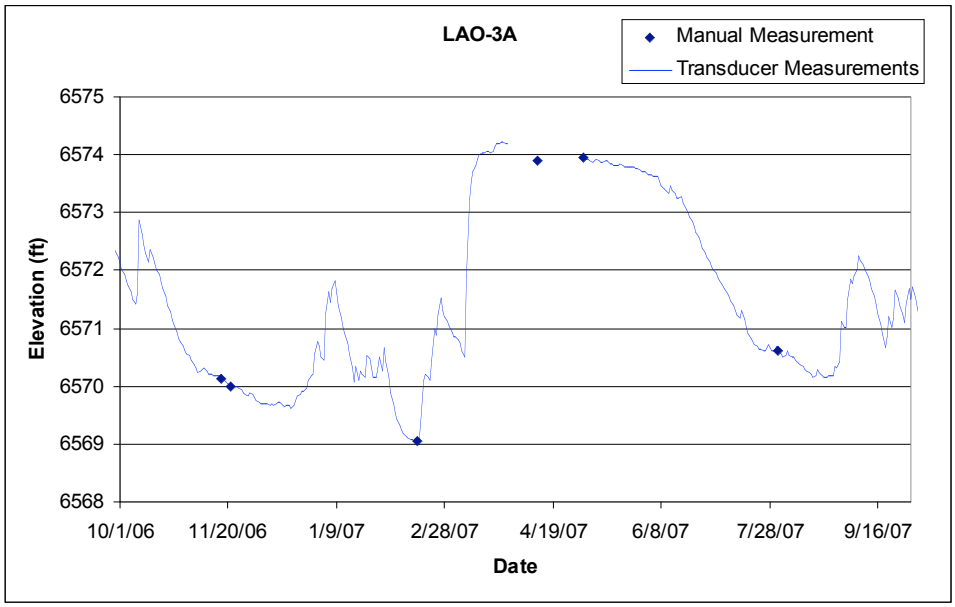




5.35 LAO-3a

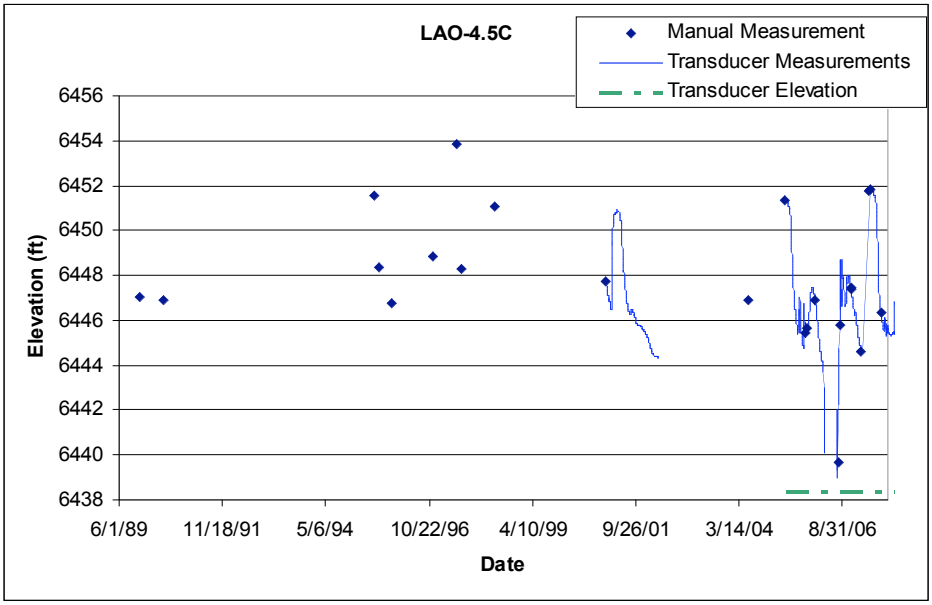
Location: Los Alamos Canyon, approximately 1000 ft east of the confluence with DP Canyon.
Period of Record: September 15,1989, through September 30, 2007
Remarks: Screen bottom elevation is 6564.7 ft. The transducer batteries died on March 29, 2007. No data were collected from March 29, 2007, to May 3, 2007.

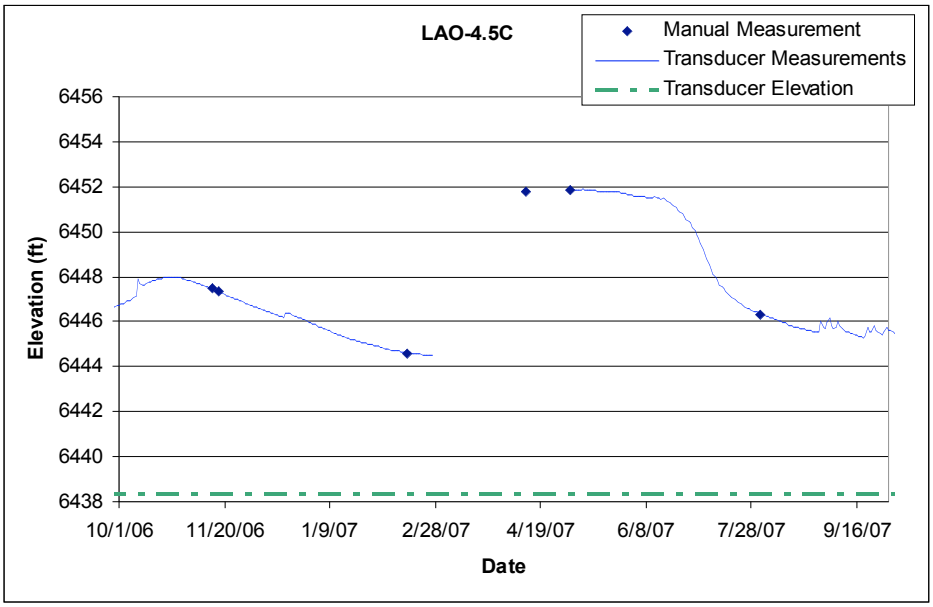




5.36 LAO-4.5c

Location: Los Alamos Canyon, approximately 1.25 miles east of the confluence with DP Canyon.
Period of Record: November 22, 1989, through September 30, 2007
Remarks: Screen bottom elevation is 6434.33 ft. The elevation of the transducer is 6438.34 ft and is sitting on top of the bladder pump. The transducer batteries died on February 27, 2007, and were replaced on May 3, 2007. No transducer data were collected from February 27, 2007, to May 3, 2007.

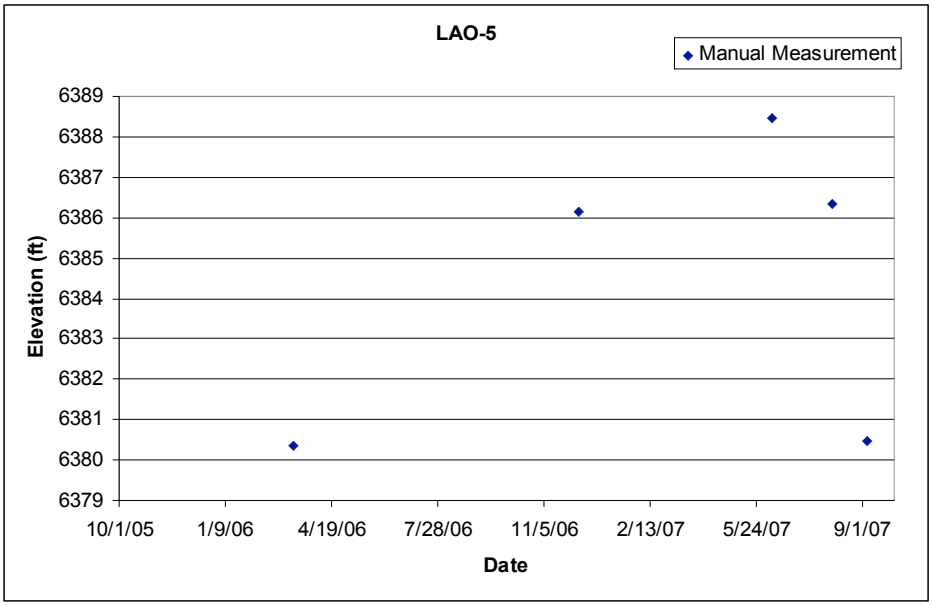




5.37 LAO-5

Location: Los Alamos Canyon, approximately 1 mile west of SR-4.
Period of Record: December 14, 2005, through September 5, 2007
Remarks: LAO-5 is not installed with a pressure transducer and is measured manually on a quarterly schedule. The bottom of the screen is 6368.3 ft.

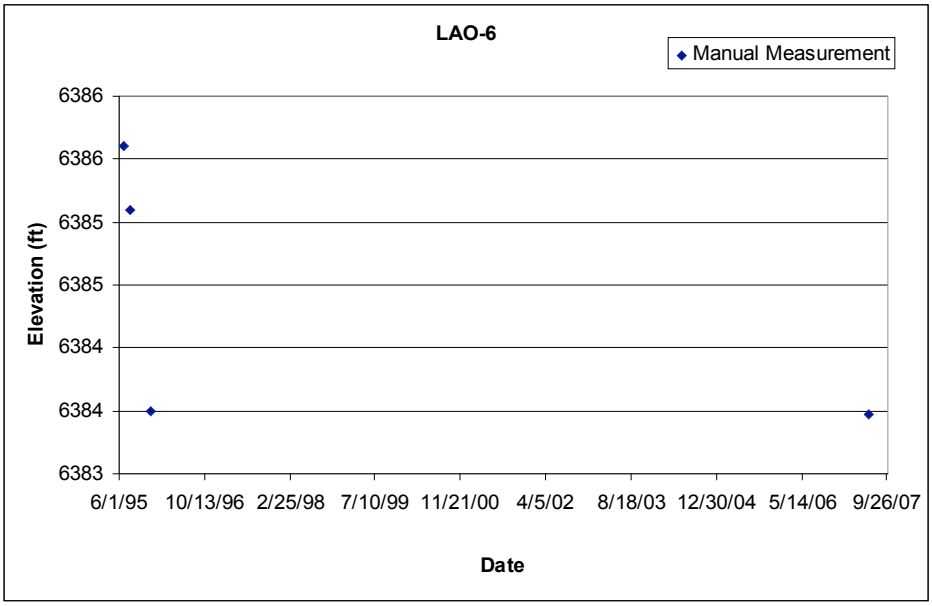
Well Name	Date Time	Water Level (ft)	Comments
LAO-5	12/14/2005 2:10:00 PM		Dry
LAO-5	3/14/2006 11:00:00 AM	6380.35	
LAO-5	6/13/2006 9:24:00 AM		Dry, TD = 23.28 ft
LAO-5	8/3/2006 8:26:00 AM		Dry
LAO-5	9/7/2006 9:35:00 AM		Dry
LAO-5	8/2/2006 12:45:00 PM		Dry
LAO-5	12/8/2006 2:28:00 PM	6386.15	
LAO-5	3/13/2007 1:45:00 PM		Dry
LAO-5	6/7/2007 10:19:00 AM	6388.45	
LAO-5	8/3/2007 3:50:00 PM	6386.33	GW sample
LAO-5	9/5/2007 3:06:00 PM	6380.46	



5.38 LAO-6

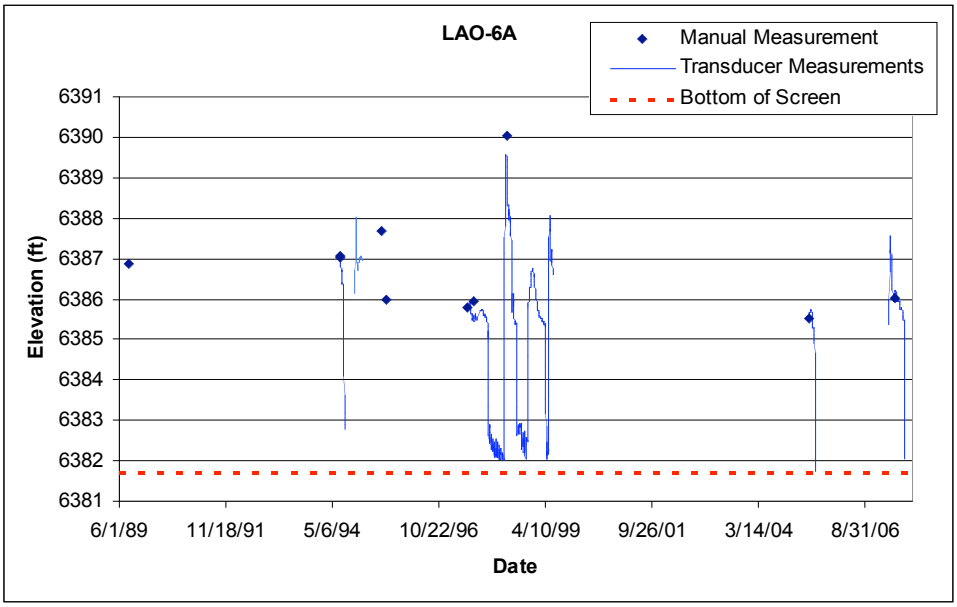
Location: Los Alamos Canyon, approximately 1 mile west of SR-4.
Period of Record: June 26, 1995, through September 5, 2007
Remarks: LAO-6 is measured quarterly; the bottom of the screen is 6379.3 ft.

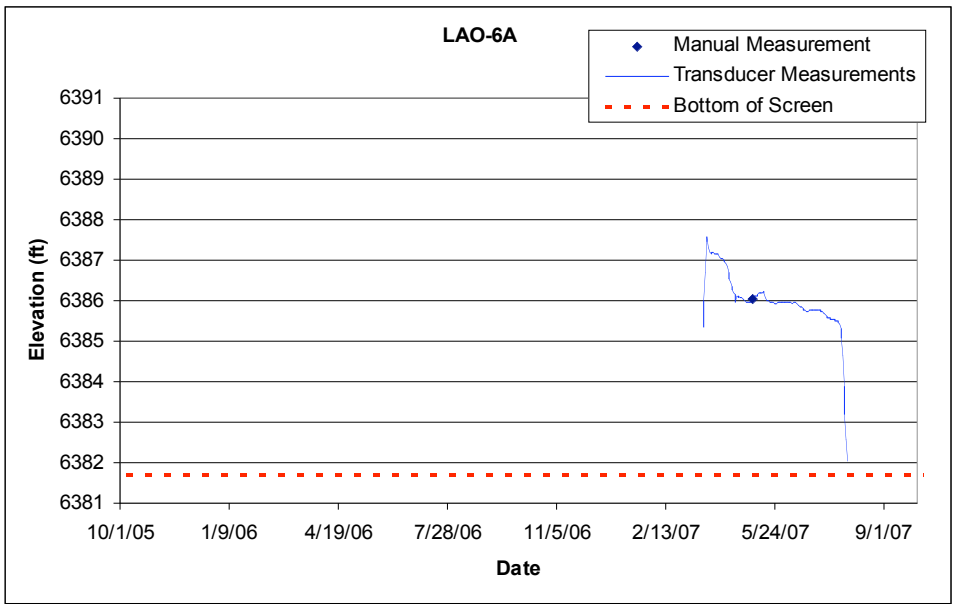
Well Name	Date Time	Water Level (ft)	Comments
LAO-6	6/26/1995 12:00:00 PM	6385.6	
LAO-6	8/8/1995 12:00:00 PM	6385.1	
LAO-6	12/7/1995 12:00:00 PM	6383.5	
LAO-6	3/14/2006 11:05:00 AM		Dry
LAO-6	6/13/2006 8:54:00 AM		Dry, TD = 16.45 ft
LAO-6	4/19/2006 11:34:00 AM		Dry to top of pump.
LAO-6	9/7/2006 9:21:00 AM		Dry
LAO-6	7/27/2006 11:40:00 AM		Dry
LAO-6	12/8/2006 2:36:00 PM		Dry
LAO-6	3/13/2007 1:00:00 PM		Dry
LAO-6	6/7/2007 10:04:00 AM	6383.47	
LAO-6	9/5/2007 2:54:00 PM		Dry



5.39 LAO-6a

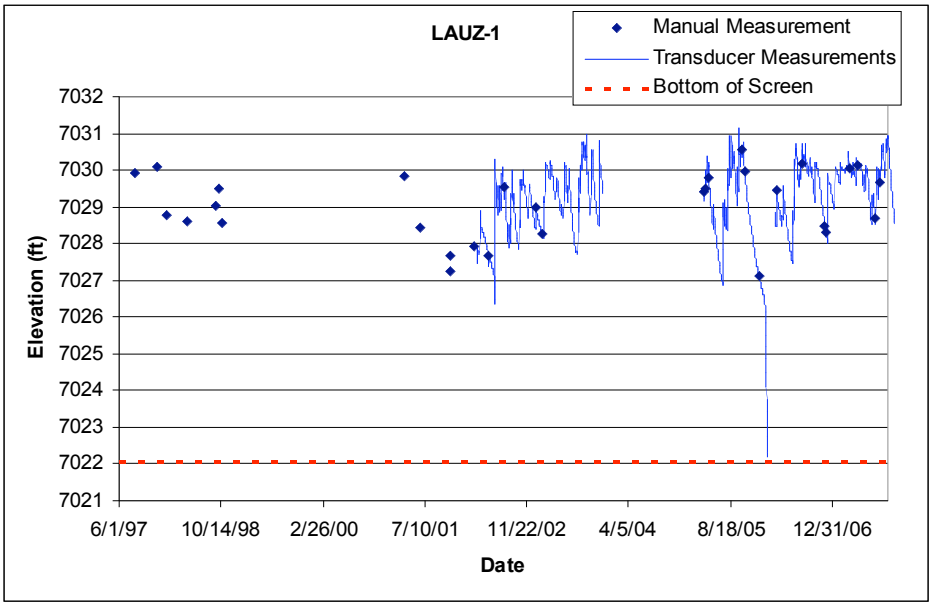
Location: Los Alamos Canyon, approximately 1 mile west of SR-4.
Period of Record: August 17, 1989, through September 30, 2007
Remarks: LAO-6a was predominantly dry in FY 2007; water was in the well March 19, 2007, to July 29, 2007.

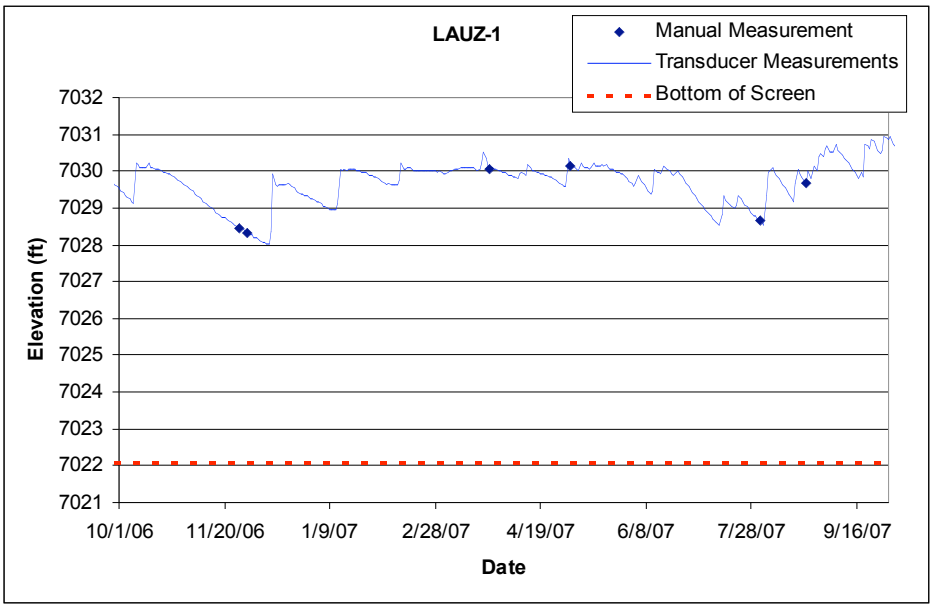




5.40 LAUZ-1

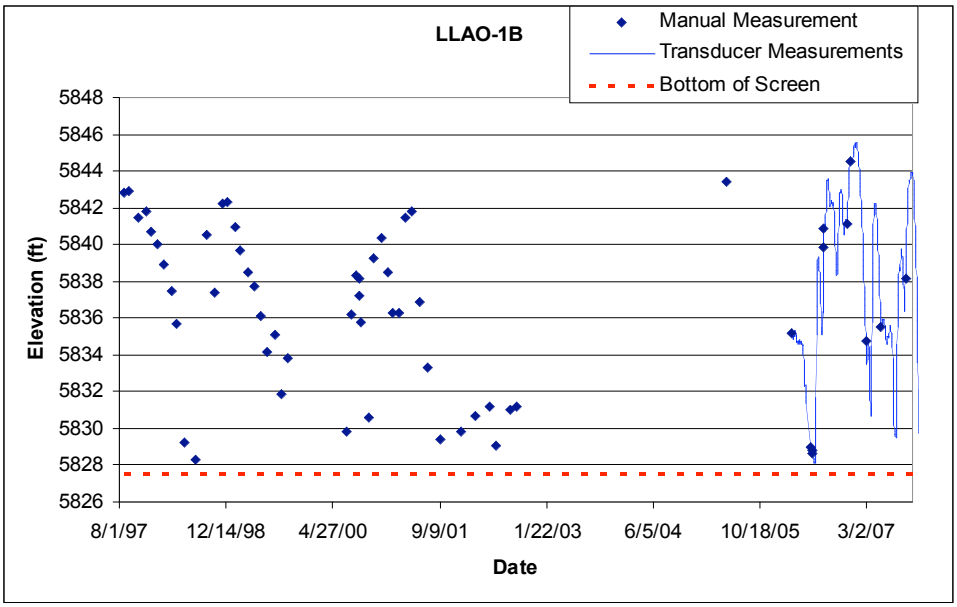
Location: DP Canyon, north of TA-21.
Period of Record: August 20, 1997, through September 30, 2007
Remarks: Screen bottom elevation is 7022.1 ft.

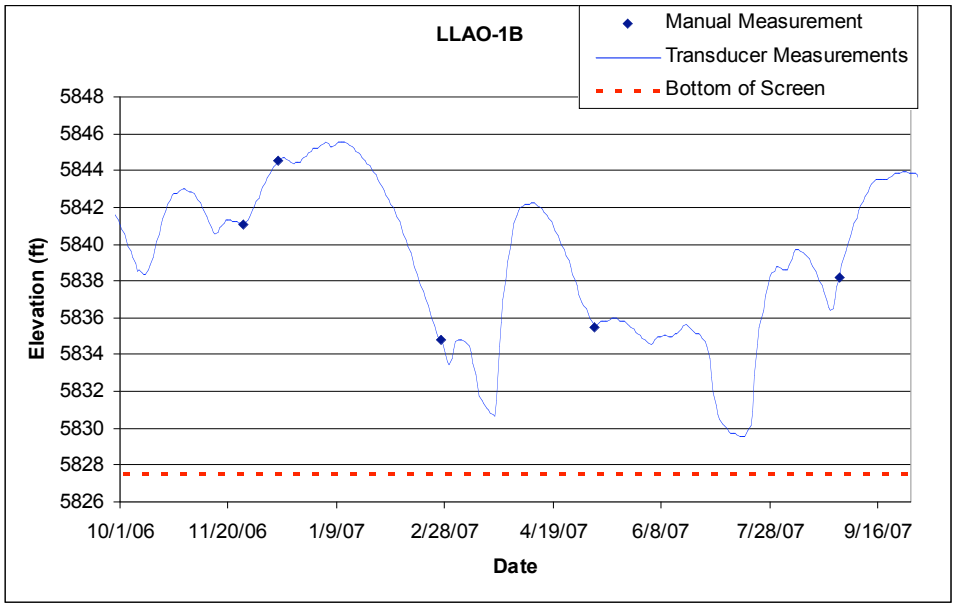




5.41 LLAO-1(b)

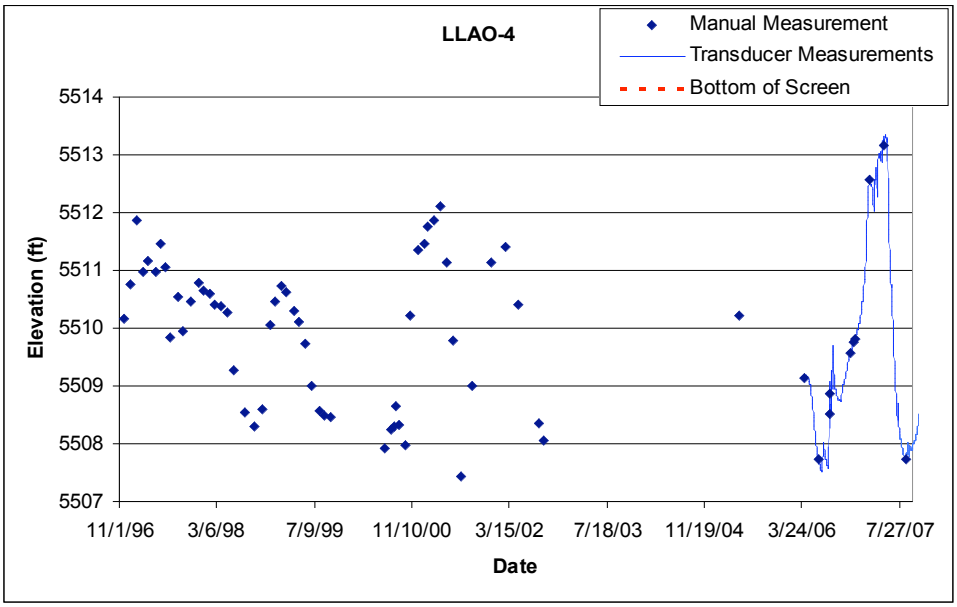
Location: Lower Los Alamos Canyon, approximately 3000 ft southwest of Totavi, San Ildefonso.
Period of Record: August 27, 1997, through September 30, 2007
Remarks: None.

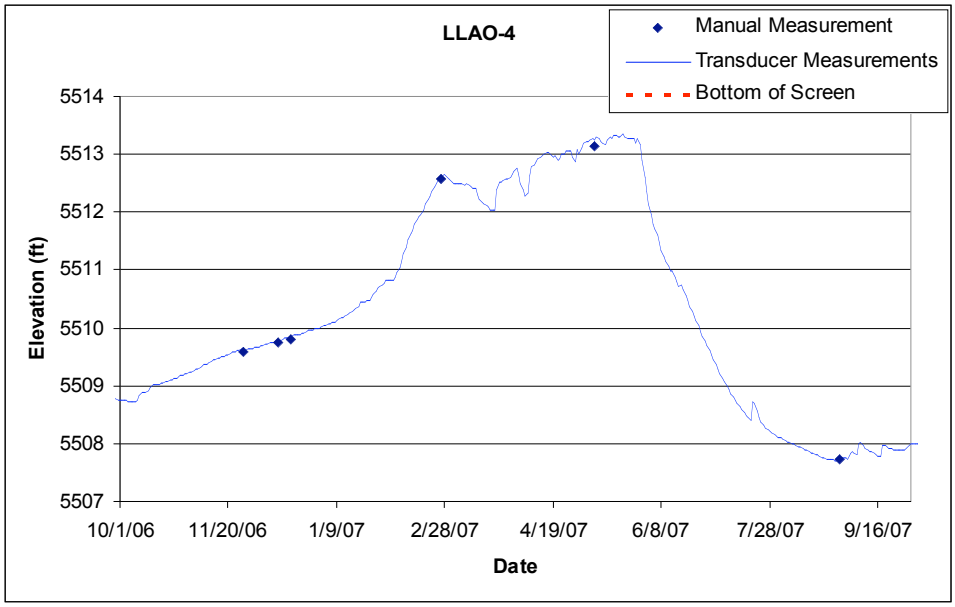




5.42 LLAO-4

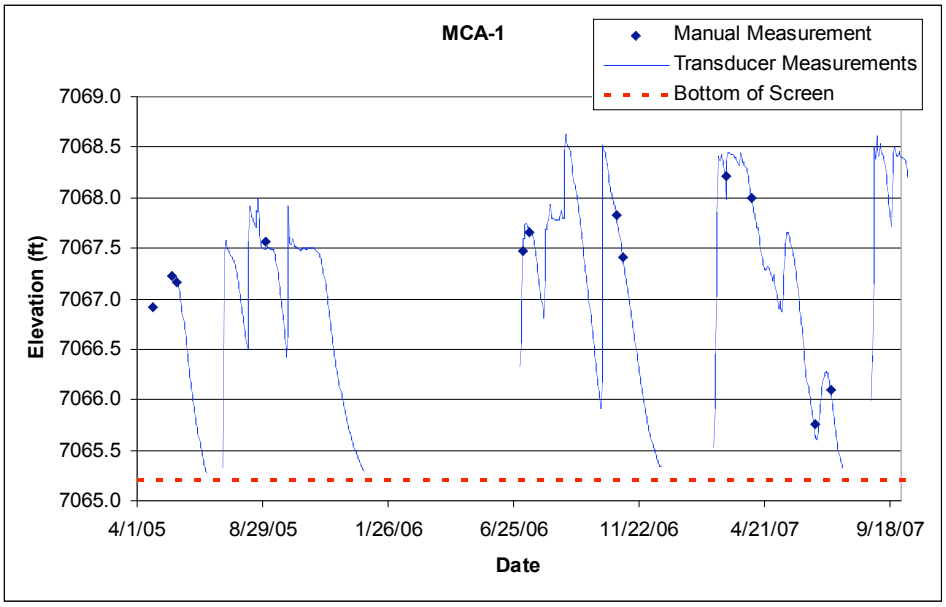
Location: Lower Los Alamos Canyon, approximately 700 ft northwest of the Rio Grande at SR-502.
Period of Record: November 22, 1996, through September 30, 2007
Remarks: Screen bottom elevation is 5499.97 ft.

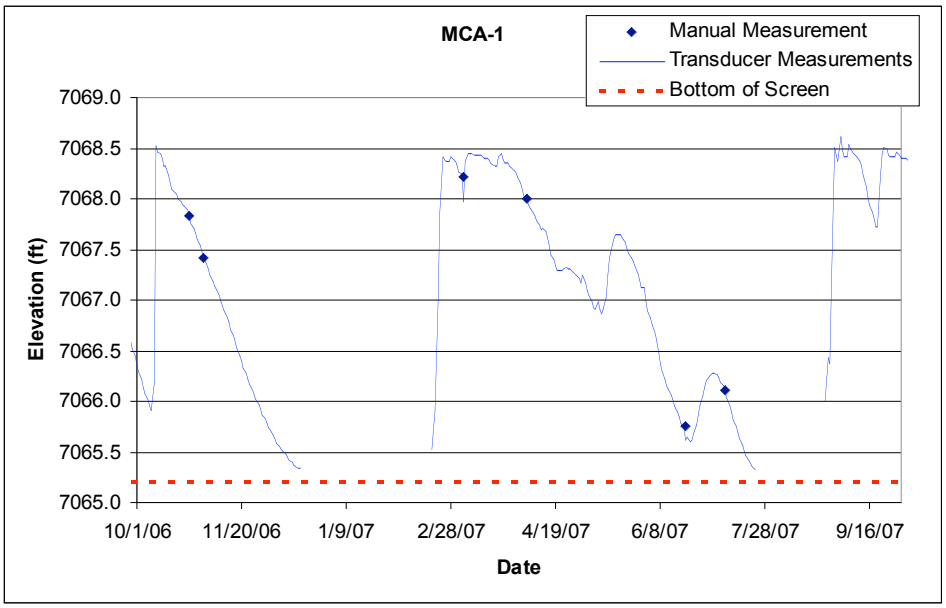




5.43 MCA-1

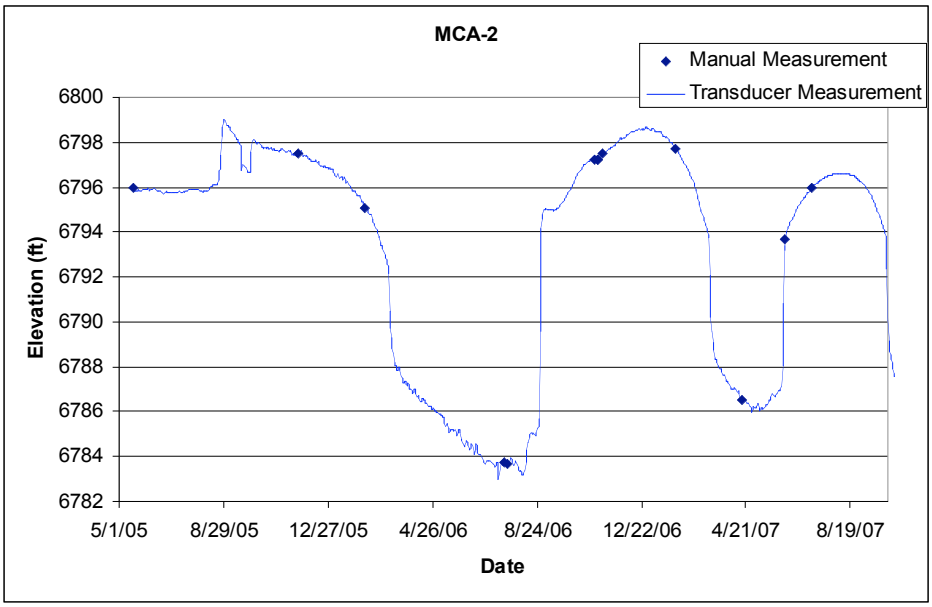
Location: Upper Mortandad Canyon, approximately 700 ft northeast of the TA-50 outfall.
Period of Record: April 20, 2005, through September 30, 2007
Remarks: None.

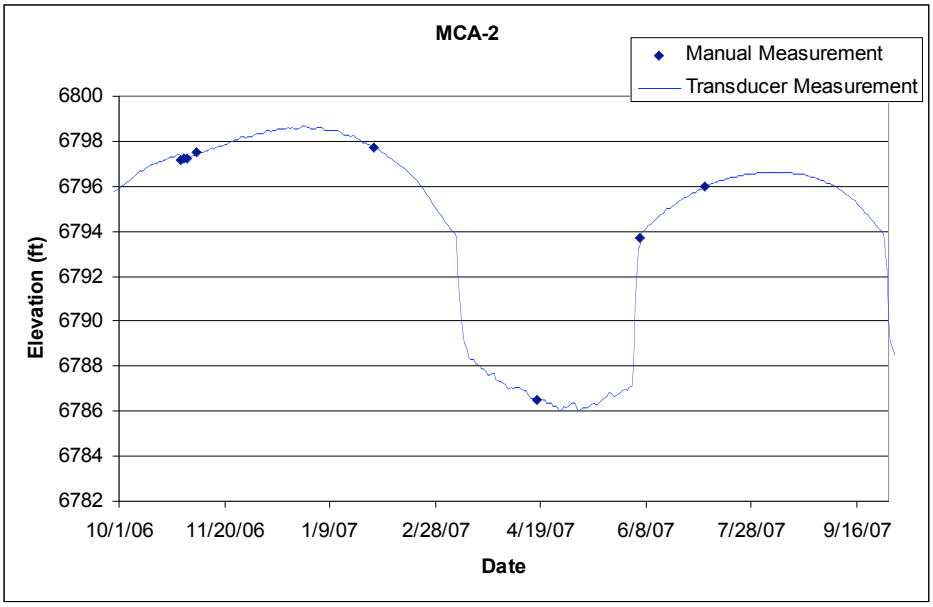




5.44 MCA-2

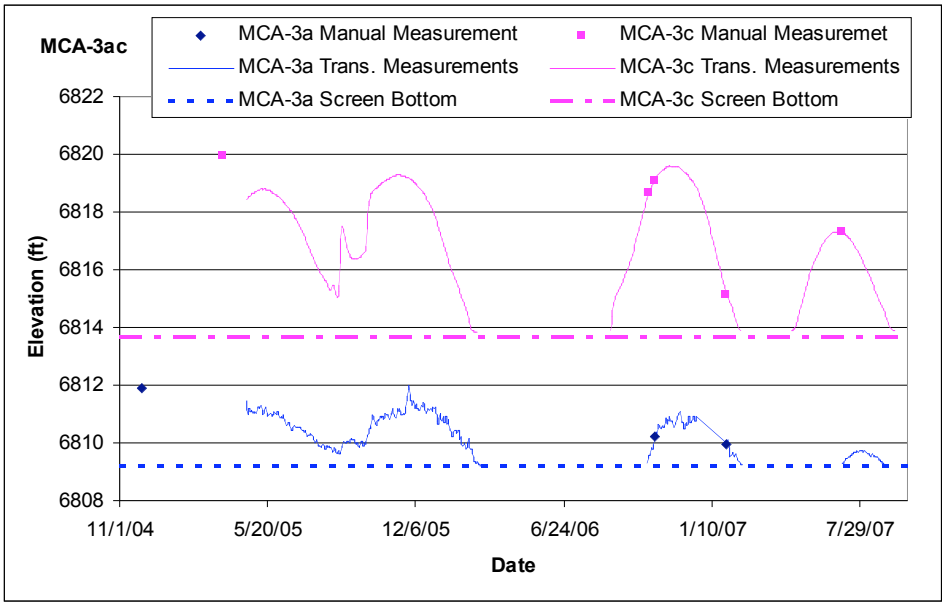
Location: Mortandad Canyon, approximately 400 ft up canyon of the upper sediment trap.
Period of Record: May 18, 2005, through September 30, 2007
Remarks: Screen bottom elevation is 6777.2 ft.

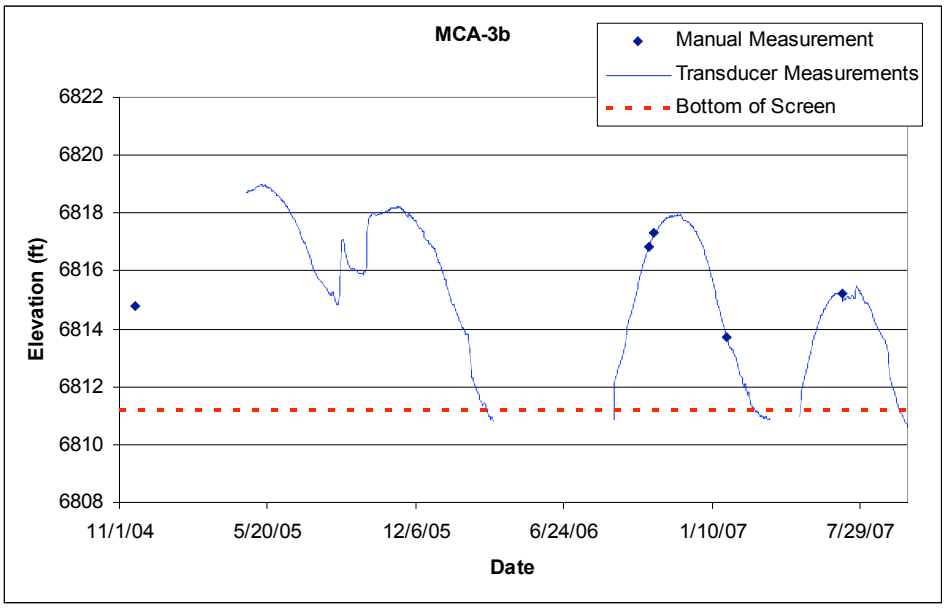




5.45 MCA-3ac & MCA-3b

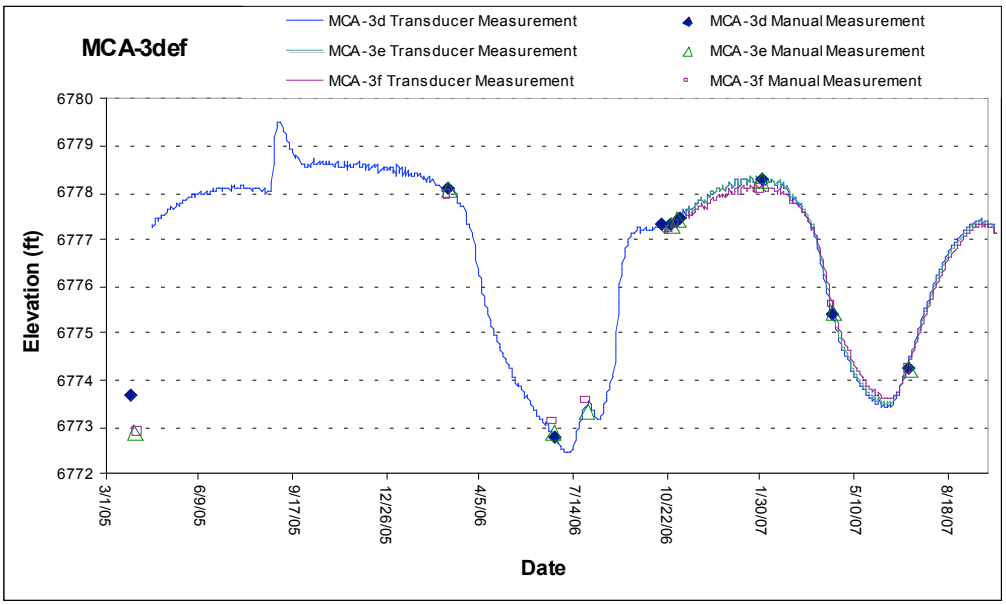
Location: Middle Mortandad Canyon
Period of Record: MCA-3ac November 30, 2004, through September 30, 2007. MCA-3b November 22, 2004, through September 30, 2007.
Remarks: MCA-3ac is a nested piezometer located about 5 ft south of MCA-3b. Valid manual measurements in 1-in. PVC casing were not possible with transducer installed until 2006 when a small-diameter water level tape was purchased.

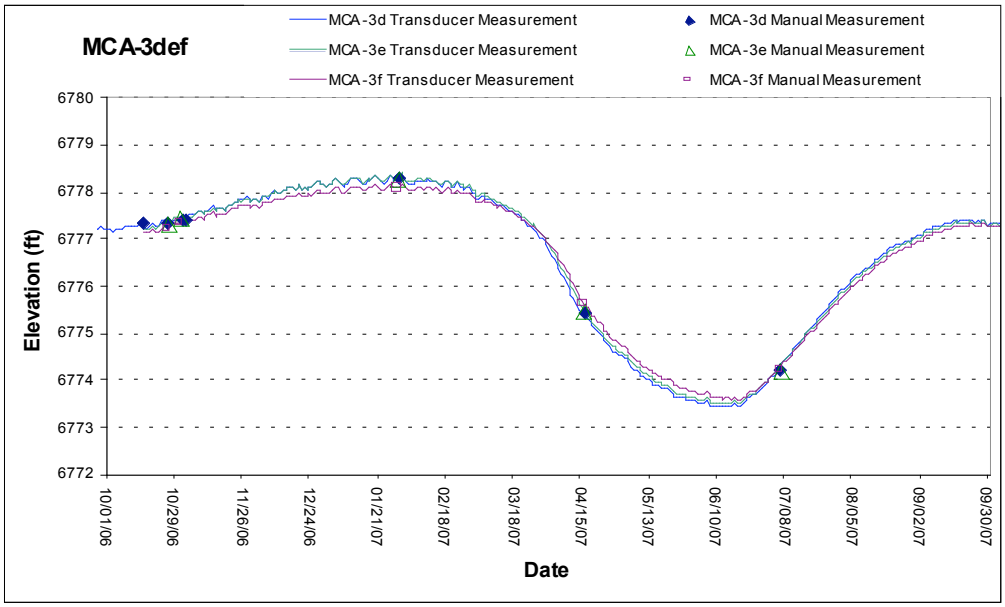




5.46 MCA-3def

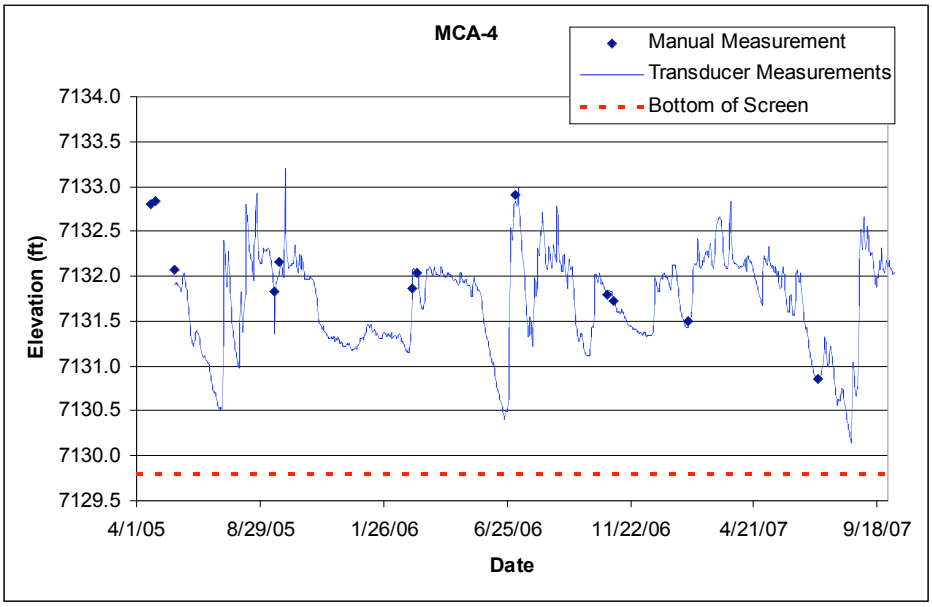
Location: Middle Mortandad Canyon, south of sediment traps.
Period of Record: MCA-3d March 25, 2005, through September 30, 2007; MCA-3e March 30, 2005, through September 30, 2007; MCA-3f April 5, 2005, through September 30, 2007.
Remarks: MCA-3def is a nested piezometer. Screen bottom elevations: MCA-3d 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, to October 16, 2006, no valid data available. Transducers in MCA-3e and MCA-3f were replaced on October 16, 2006.

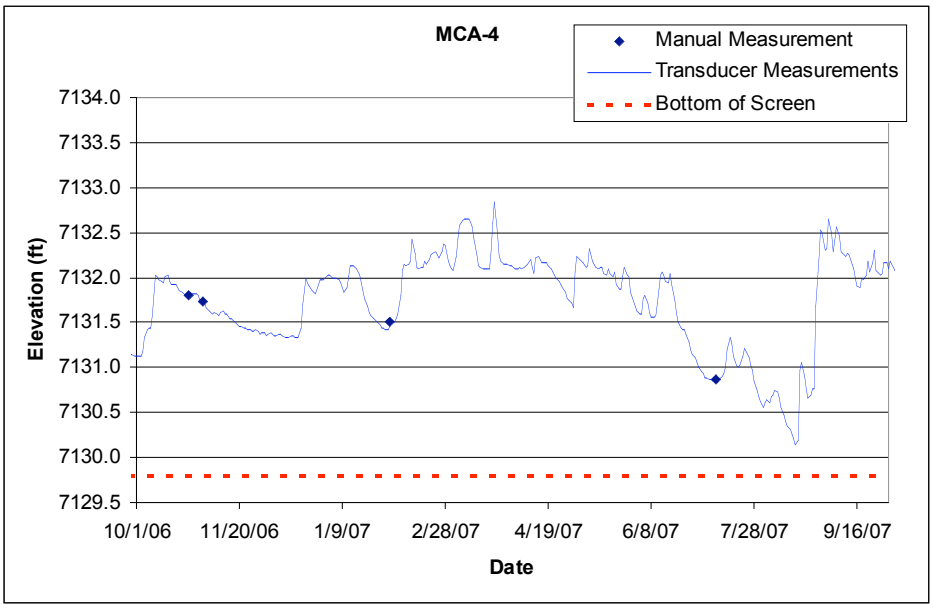




5.47 MCA-4

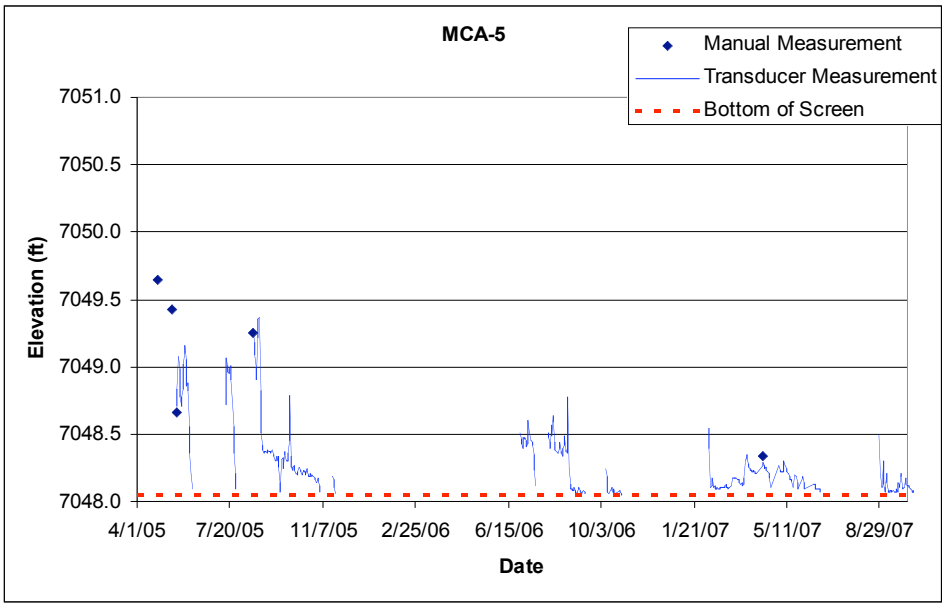
Location: Upper Effluent Canyon, approximately 200 ft west of TA-50 outfall.
Period of Record: April 18, 2005, through September 30, 2007
Remarks: Screen bottom elevation is 7129.8 ft.

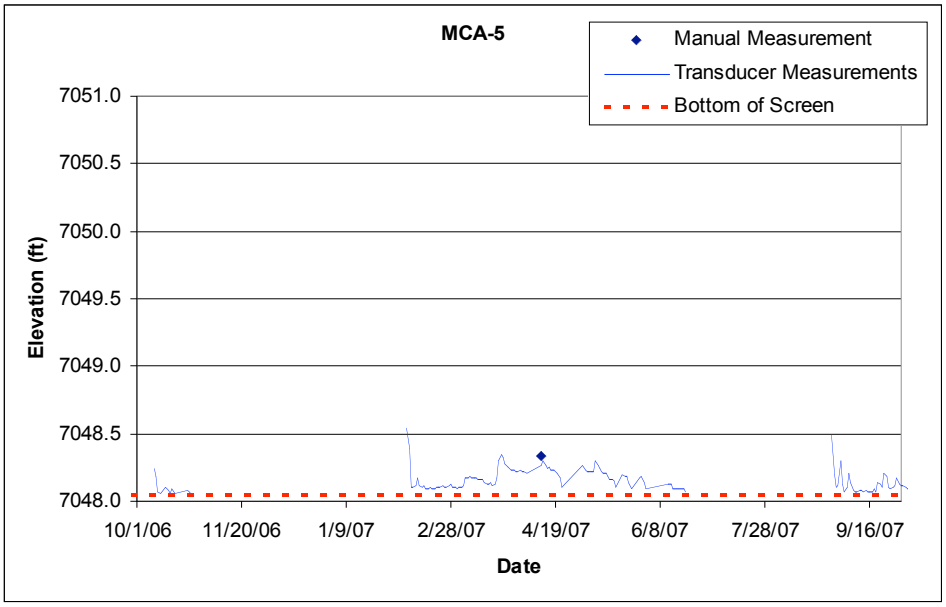




5.48 MCA-5

Location: Upper Mortandad Canyon, approximately 1250 ft downstream of TA-50 outfall.
Period of Record: April 25, 2005, through September 30, 2007
Remarks: Well is intermittently dry.





5.49 MCA-8

Location: Lower Mortandad Canyon.
Period of Record: October 3, 2005, through November 29, 2007
Remarks: No valid water level data exist for this well. Water has occurred only in the sump since completion on September 29, 2004.

Well Name	Date Time	Water Level (ft)	Comments
MCA-8	10/3/2005 9:50:00 AM	6582.43	Install transducer
MCA-8	1/4/2006 12:27:00 PM	6583.52	Water is in the sump
MCA-8	4/13/2006 10:29:00 AM	6584.09	Water is in the sump
MCA-8	7/18/2006 12:26:00 PM	6584.14	Water is in the sump
MCA-8	10/30/2006 1:12:00 PM	6584.17	Water is in the sump
MCA-8	9/5/2006 1:03:00 PM	6584.16	Water is in the sump
MCA-8	1/26/2007 9:10:00 AM	6584.12	Water is in the sump
MCA-8	4/12/2007 9:25:00 AM	6584.11	Water is in the sump
MCA-8	7/3/2007 11:05:00 AM	6584.1	Water is in the sump
MCA-8	11/29/2007 2:12:00 PM	6584.11	Water is in the sump

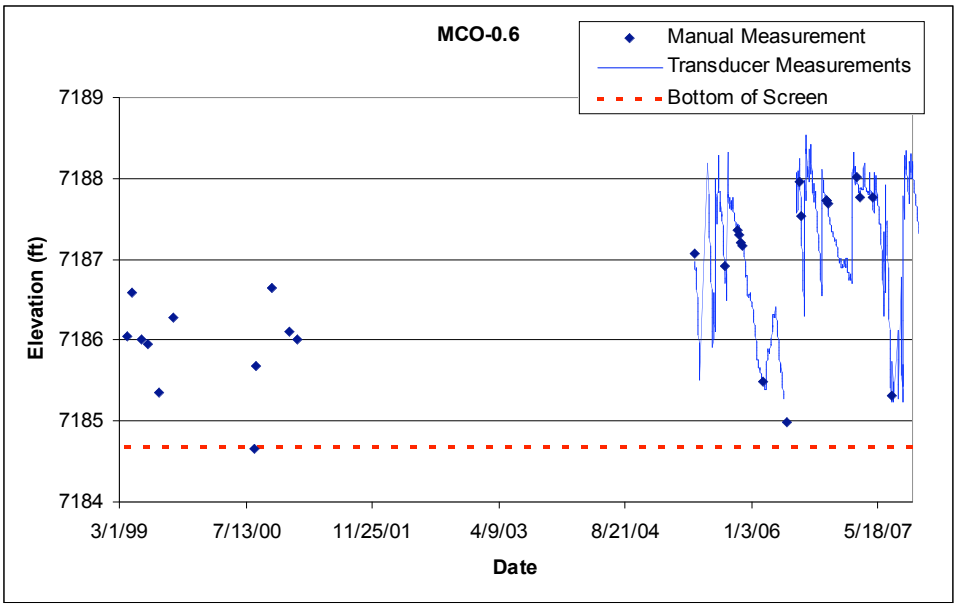
5.50 MCA-9

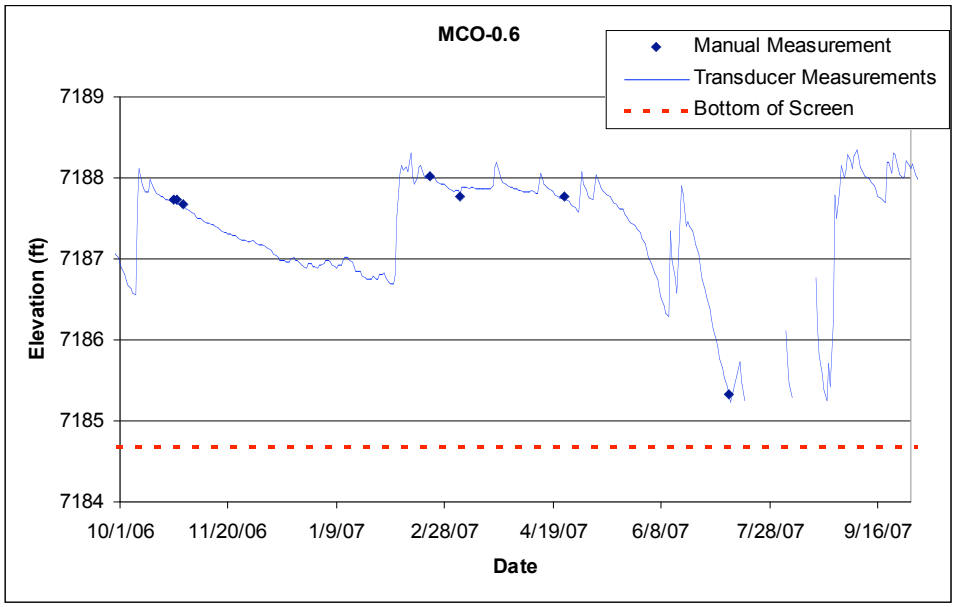
Location: Lower Mortandad Canyon.
Period of Record: August 17, 2005, through November 29, 2007
Remarks: No valid water level data exist for this well. Water has occurred only in the sump since completion on December 4, 2004.

Well Name	Date Time	Water Level (ft)	Comments
MCA-9	8/17/2005 11:52:00 AM	6558.59	Install transducer Dry
MCA-9	2/23/2006 2:23:00 PM	6558.76	Water is in the sump
MCA-9	7/18/2006 12:07:00 PM	6558.76	Water is in the sump
MCA-9	5/16/2006 12:26:00 PM	6558.74	Water is in the sump
MCA-9	5/16/2006 1:01:00 PM	6558.77	Water is in the sump
MCA-9	10/30/2006 12:31:00 PM	6558.95	Water is in the sump
MCA-9	10/31/2006 9:57:00 AM	6558.72	Water is in the sump
MCA-9	1/26/2007 9:34:00 AM	6559.13	Water is in the sump
MCA-9	4/12/2007 9:07:00 AM	6559.42	Water is in the sump
MCA-9	7/3/2007 10:45:00 AM	6559.46	Water is in the sump
MCA-9	11/29/2007 3:38:00 PM	6559.35	Water is in the sump

5.51 MCO-0.6

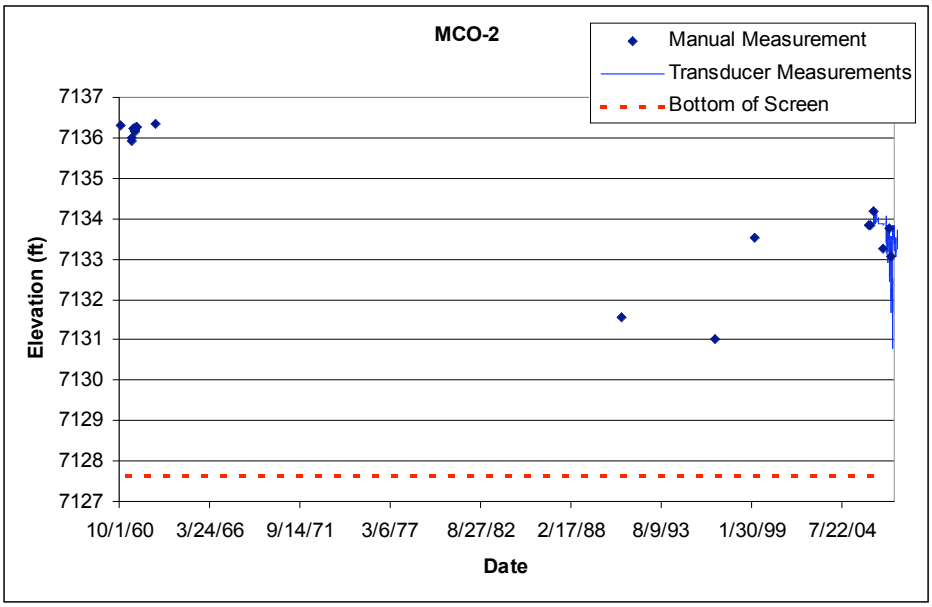
Location: Upper Mortandad Canyon, north of TA-48.
Period of Record: March 31, 1999, through September 30, 2007
Remarks: None.

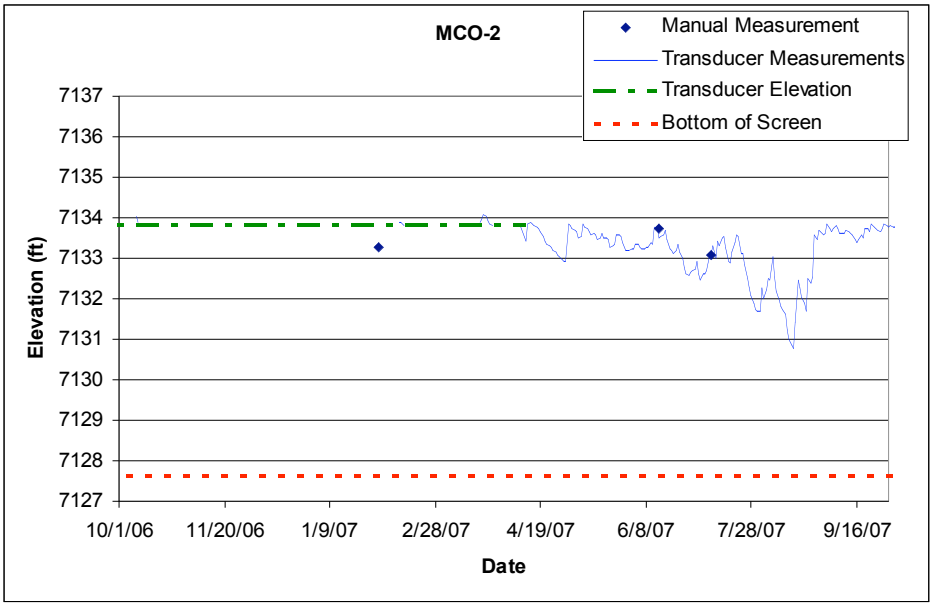




5.52 MCO-2

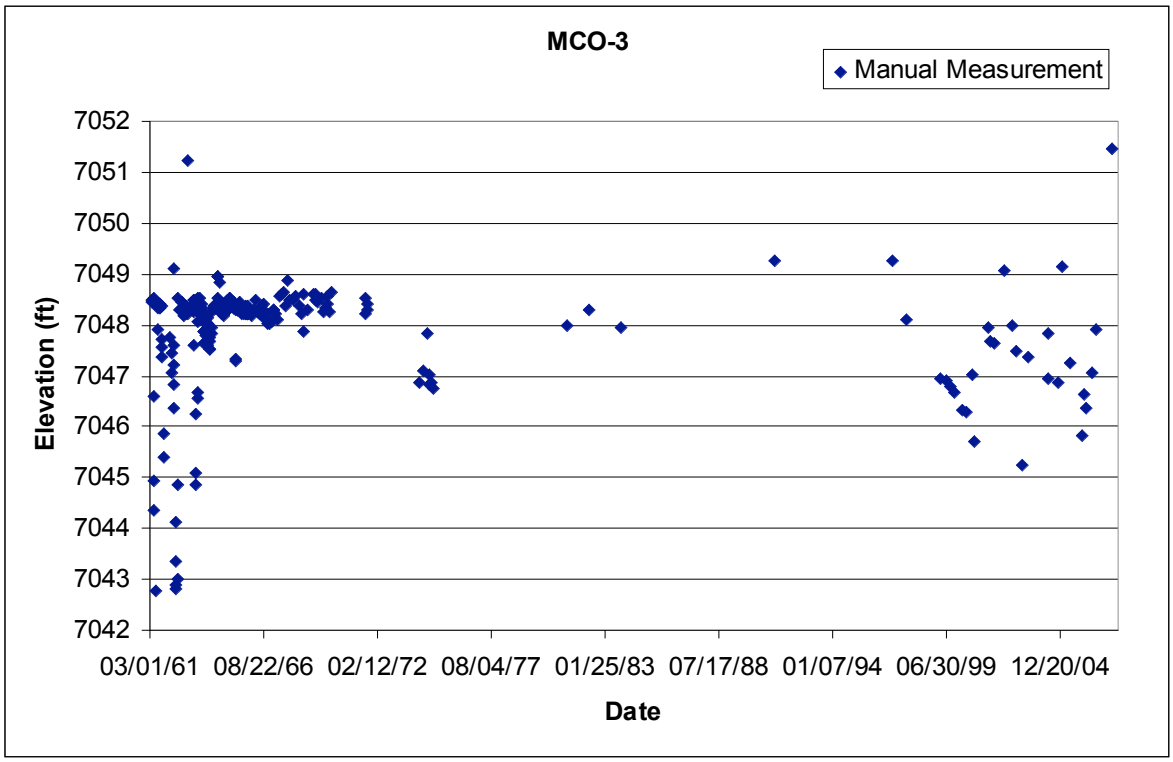
Location: Upper Effluent Canyon, approximately 200 ft west of TA-50 outfall.
Period of Record: November 1, 1960, through September 30, 2007
Remarks: The transducer was sitting on top of the bladder pump in a 2-in.-diameter well at an elevation of 7133.8 ft until April 12, 2007. The pump was removed from the well on April 12, 2007, to allow for more complete water level monitoring by lowering the transducer.





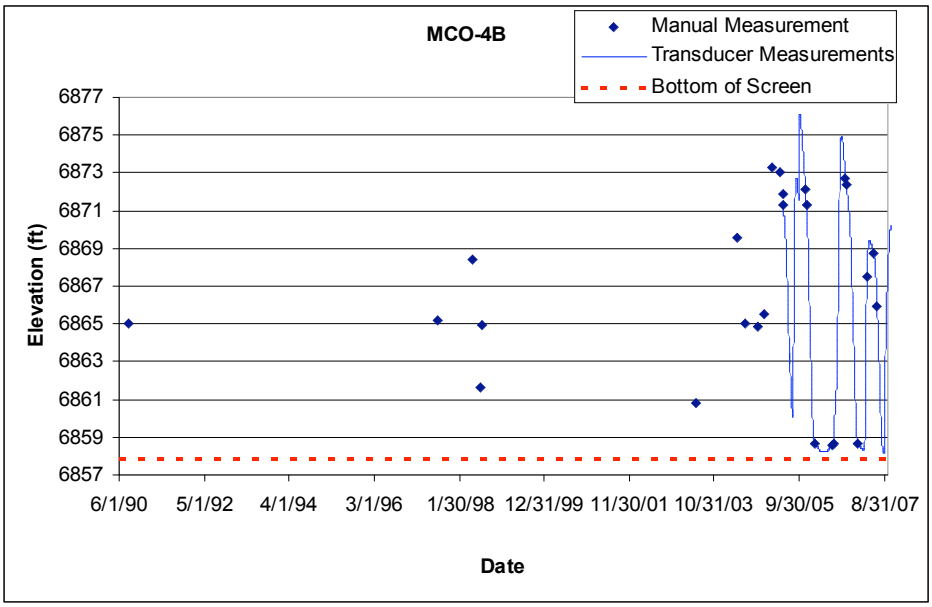
5.53 MCO-3

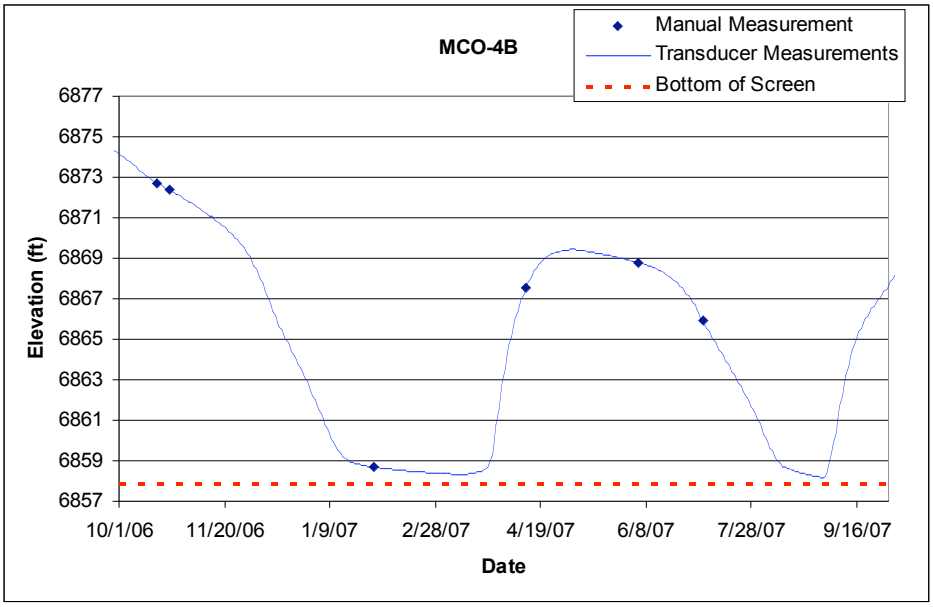
Location: Upper Mortandad Canyon, approximately 1250 ft downstream of TA-50 outfall.
Period of Record: March 27, 1961, through June 20, 2007.
Remarks: Bottom of screen elevation is 7040.72 ft.



5.54 MCO-4B

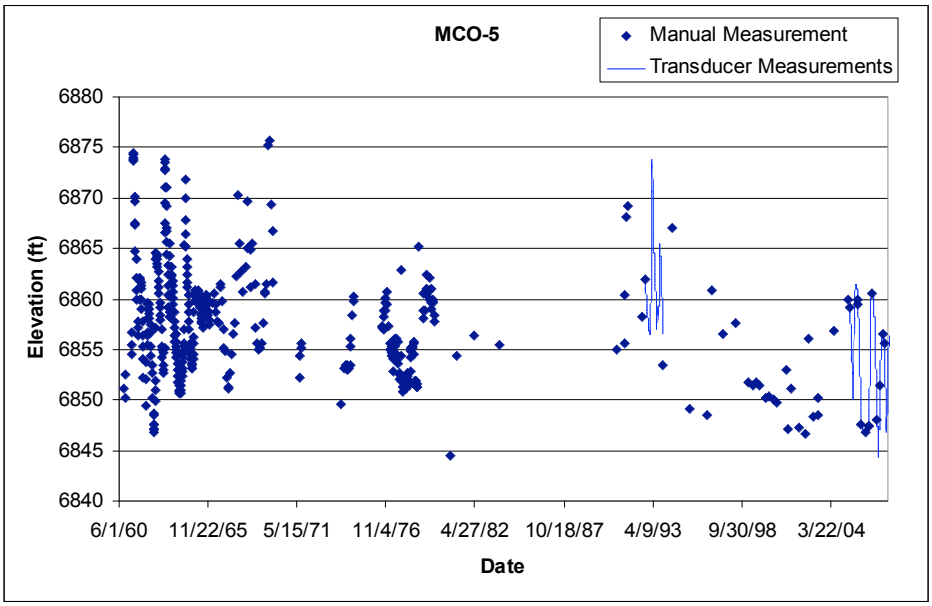
Location: Middle Mortandad Canyon, approximately 3000 ft up canyon from sediment traps.
Period of Record: August 21, 1990, through September 30, 2007
Remarks: Screen bottom elevation is 6857.9 ft.

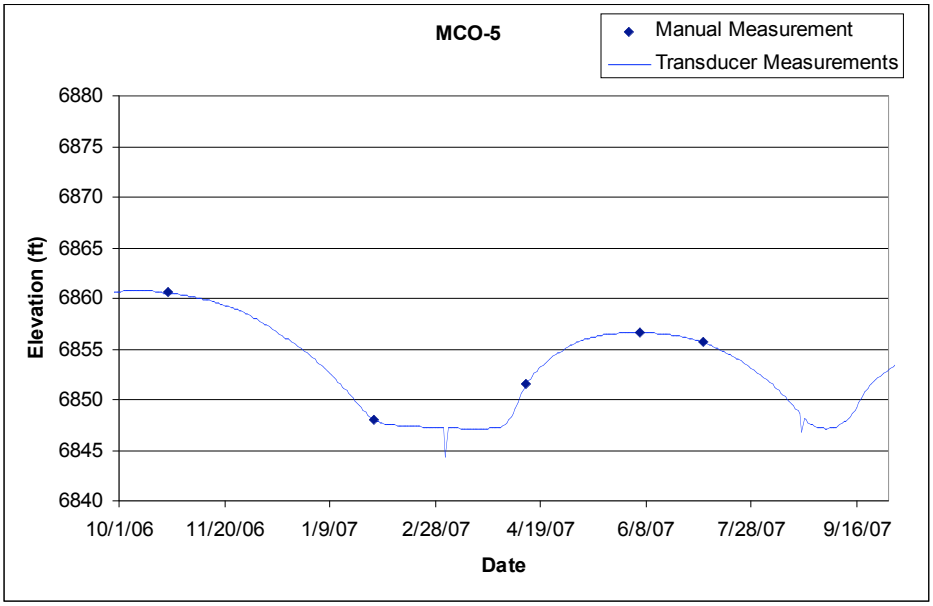




5.55 MCO-5

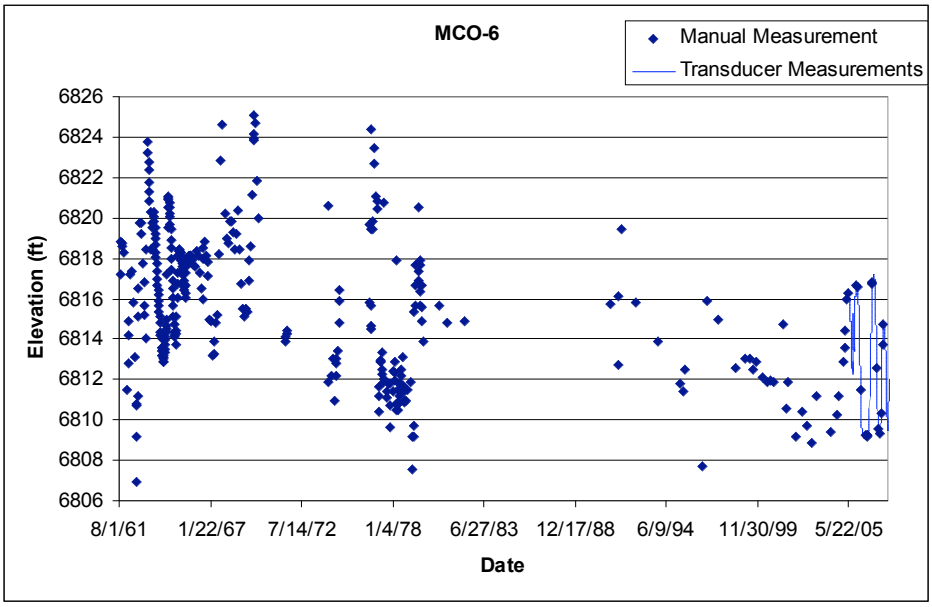
Location: Middle Mortandad Canyon, approximately 2300 ft up canyon from sediment traps.
Period of Record: October 1, 1960, through September 30, 2007
Remarks: Bottom of screen elevation is 6829.66 ft.

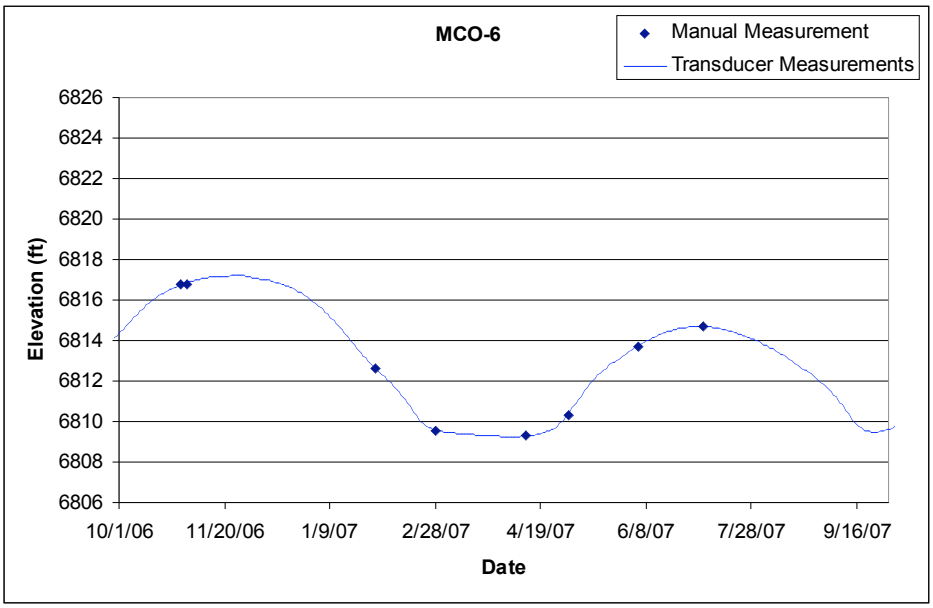




5.56 MCO-6

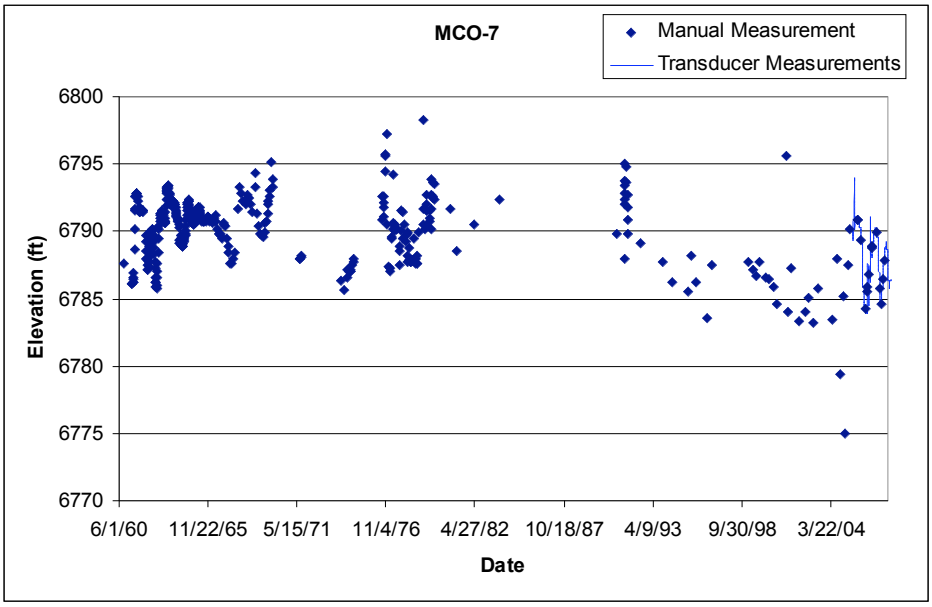
Location: Middle Mortandad Canyon, approximately 0.25 miles east of MCO-5.
Period of Record: August 25, 1961, through September 30, 2007
Remarks: Bottom of screen elevation is 6802.5 ft.

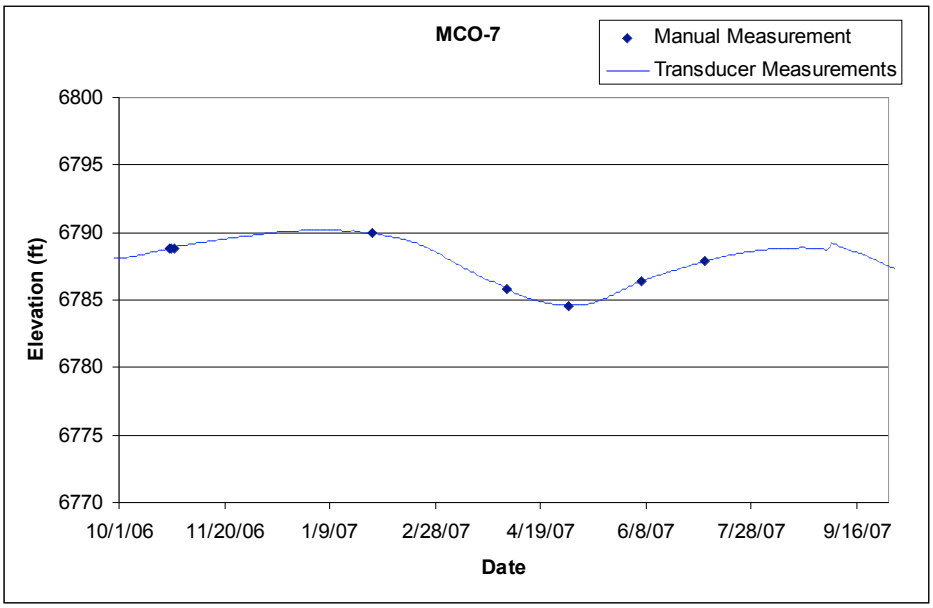




5.57 MCO-7

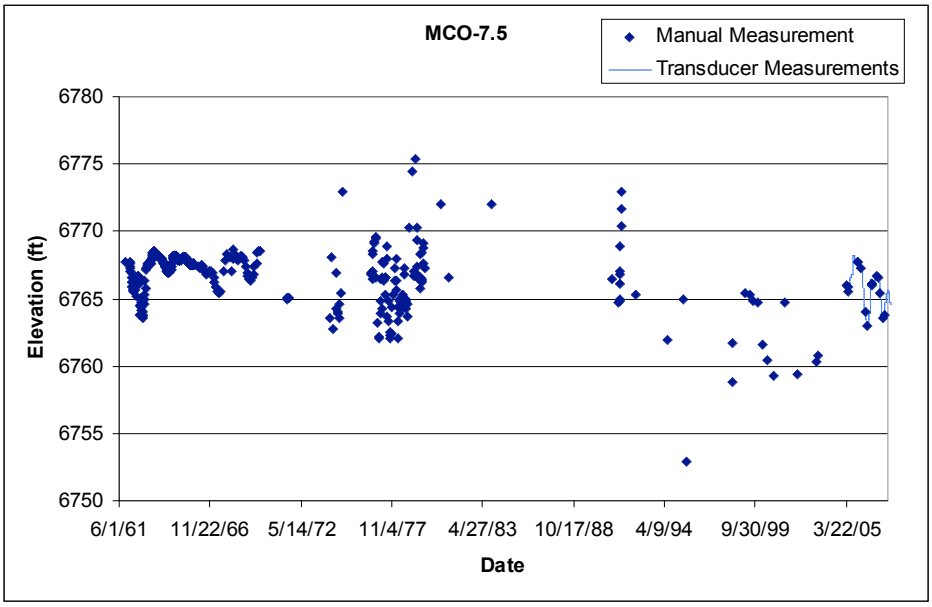
Location: Middle Mortandad Canyon, approximately 0.2 miles east of MCO-6.
Period of Record: October 1, 1960, through September 30, 2007
Remarks: Bottom of screen elevation is 6758.31 ft.

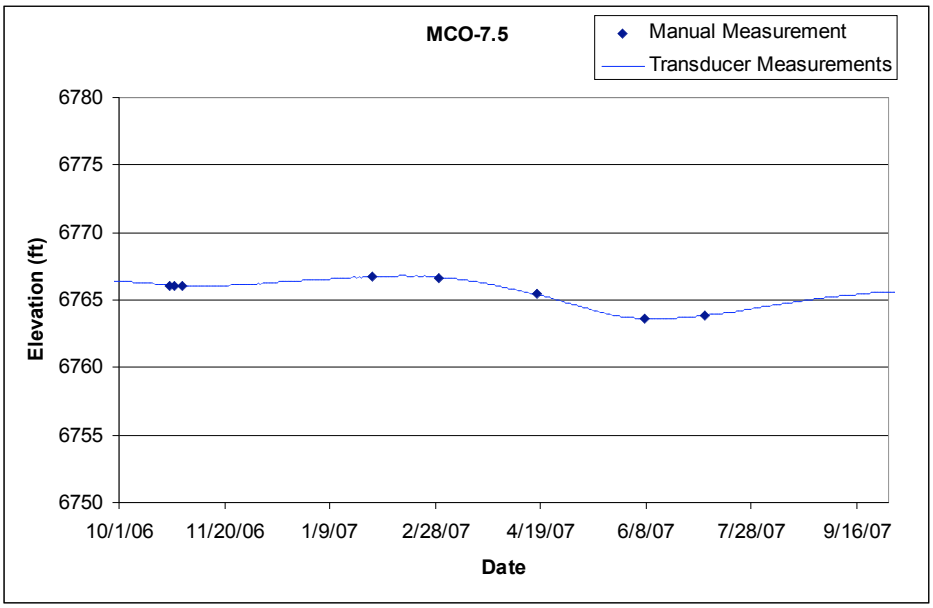




5.58 MCO-7.5

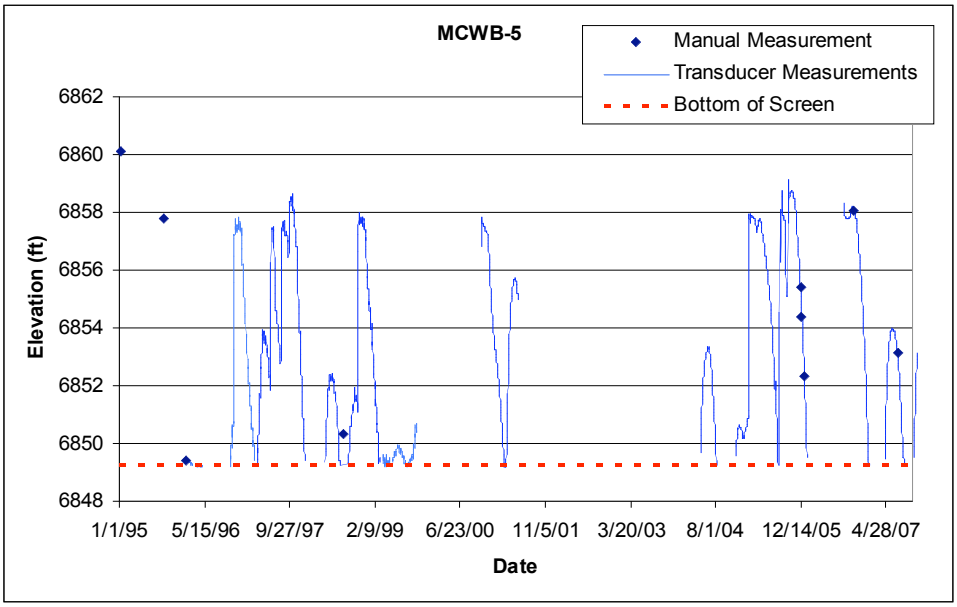
Location: Middle Mortandad Canyon, approximately 0.2 miles east of MCO-7.
Period of Record: November 1, 1961, through September 30, 2007
Remarks: Bottom of screen elevation is 6748.88 ft.

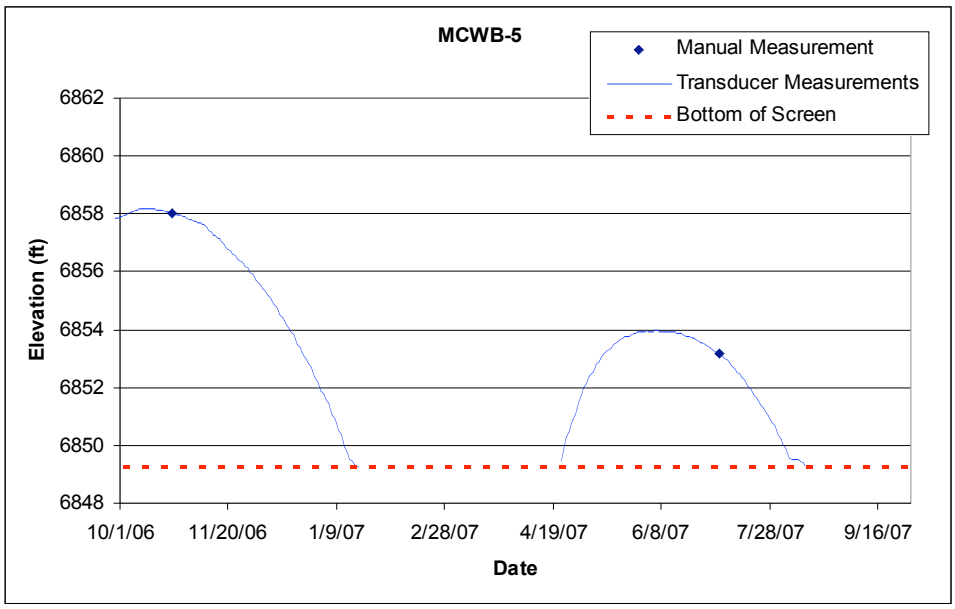




5.59 MCWB-5

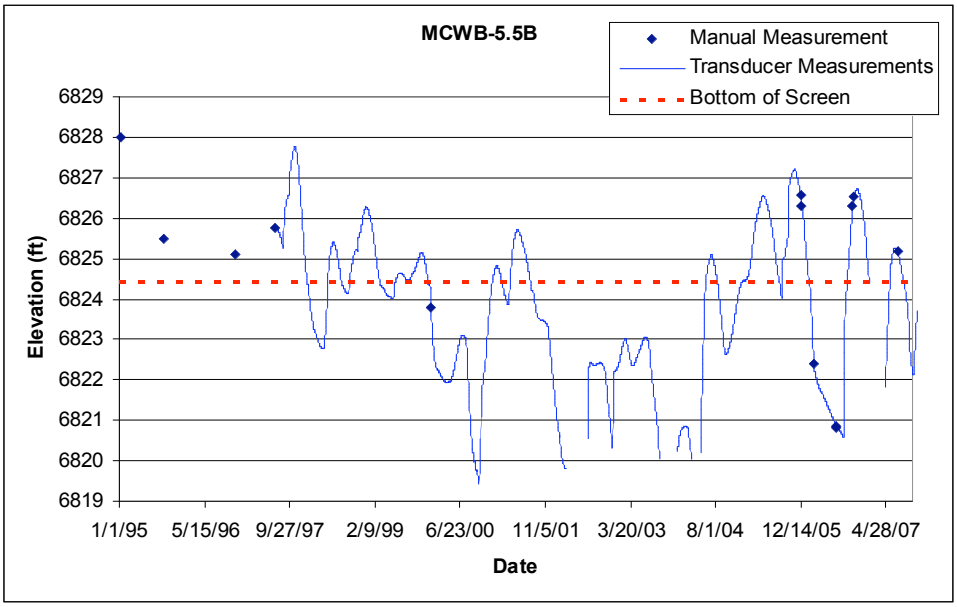
Location: Middle Mortandad Canyon, up canyon from the sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: None.

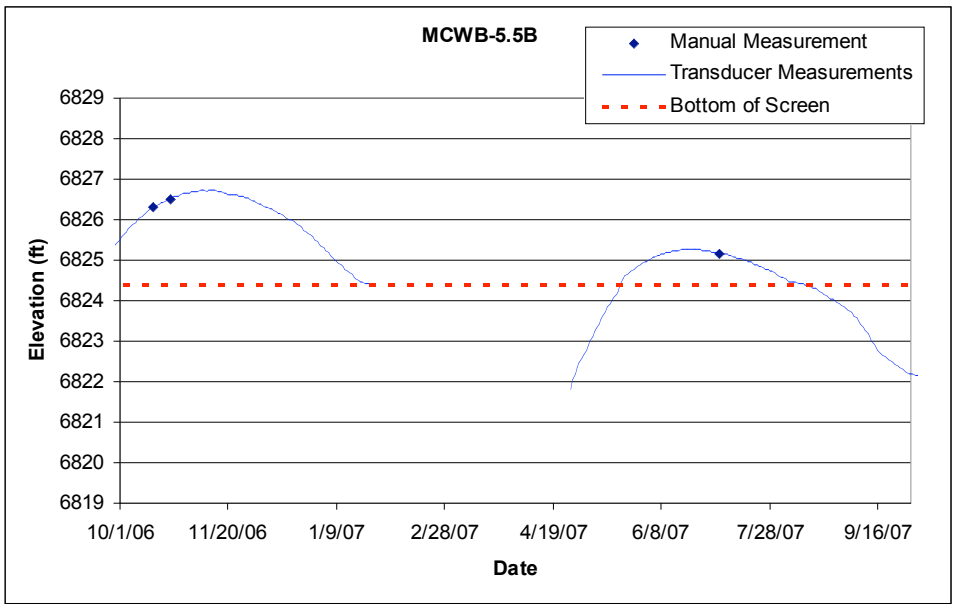




5.60 MCWB-5.5B

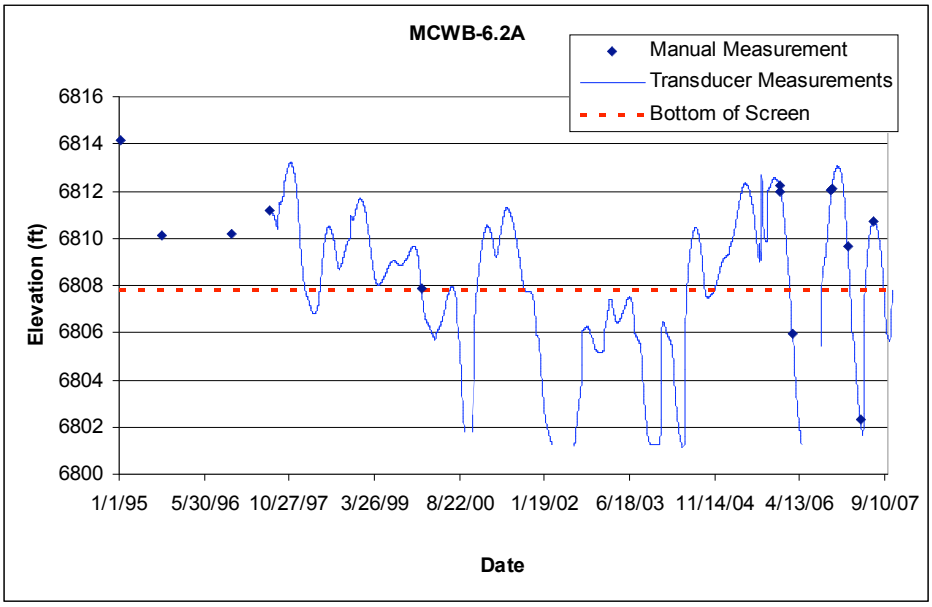
Location: Middle Mortandad Canyon, up canyon from sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: Water in sump appears to respond to groundwater level fluctuations.

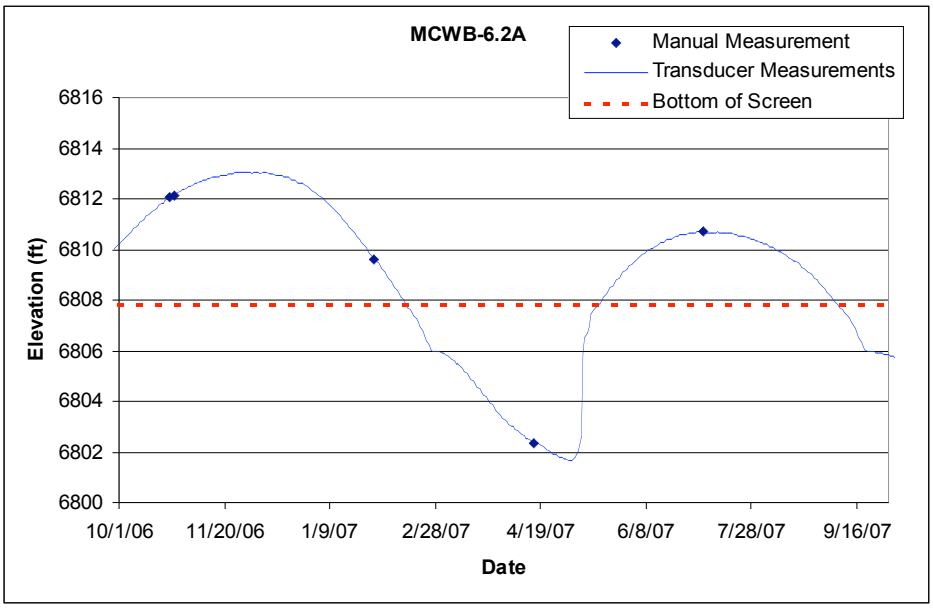




5.61 MCWB-6.2A

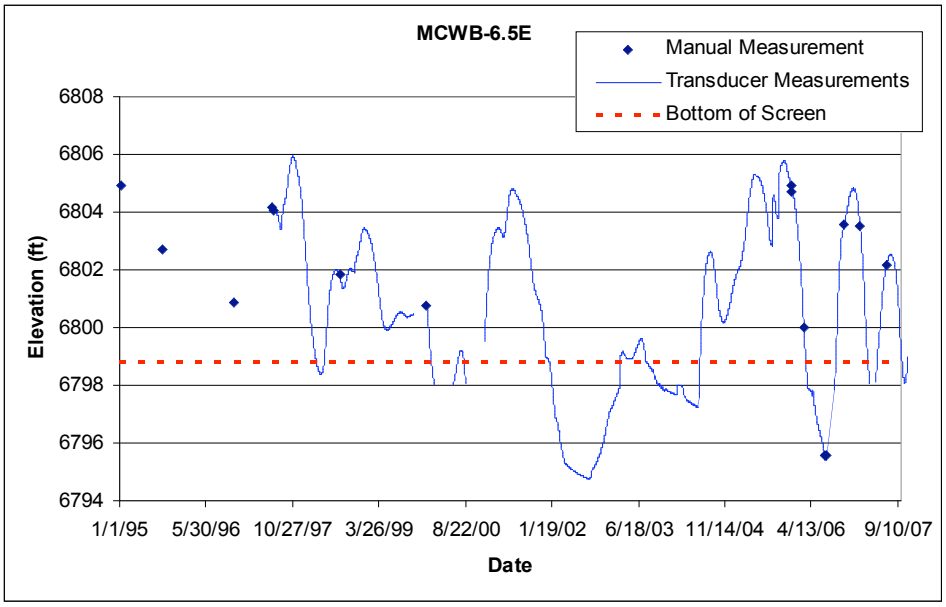
Location: Middle Mortandad Canyon, up canyon from sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: Water in the sump appears to respond to groundwater level fluctuations.

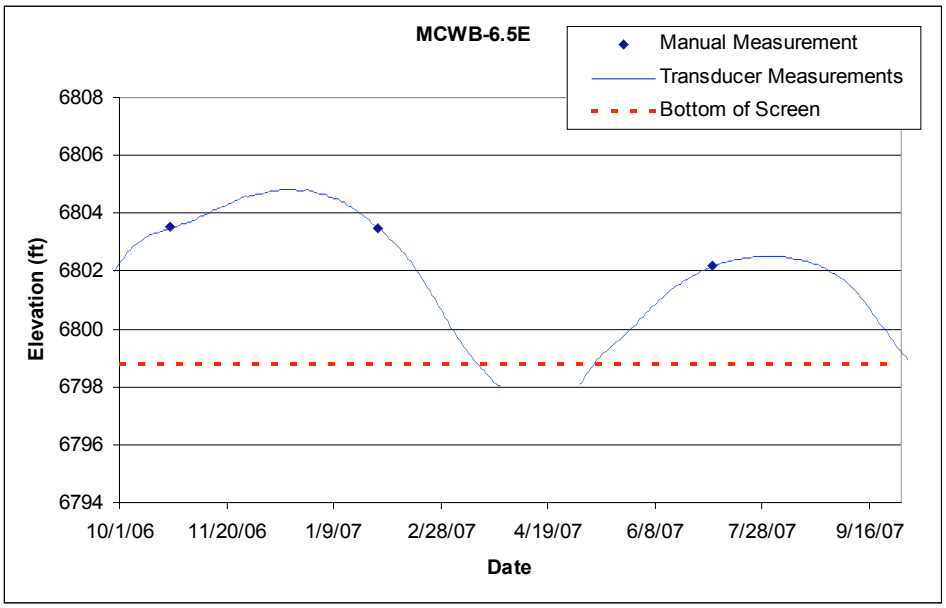




5.62 MCWB-6.5E

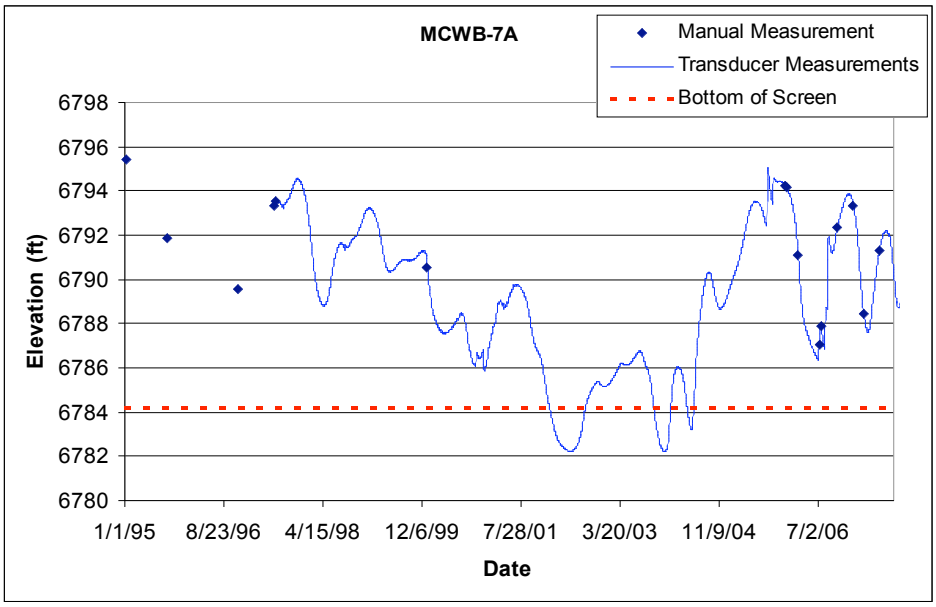
Location: Middle Mortandad Canyon, up canyon of the sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: Water in sump appears to respond to groundwater level fluctuations.

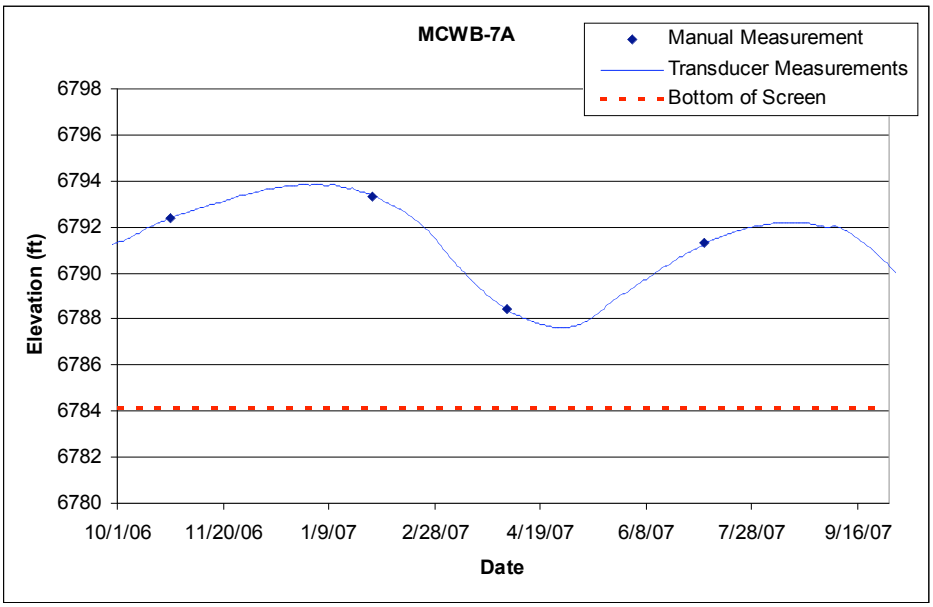




5.63 MCWB-7A

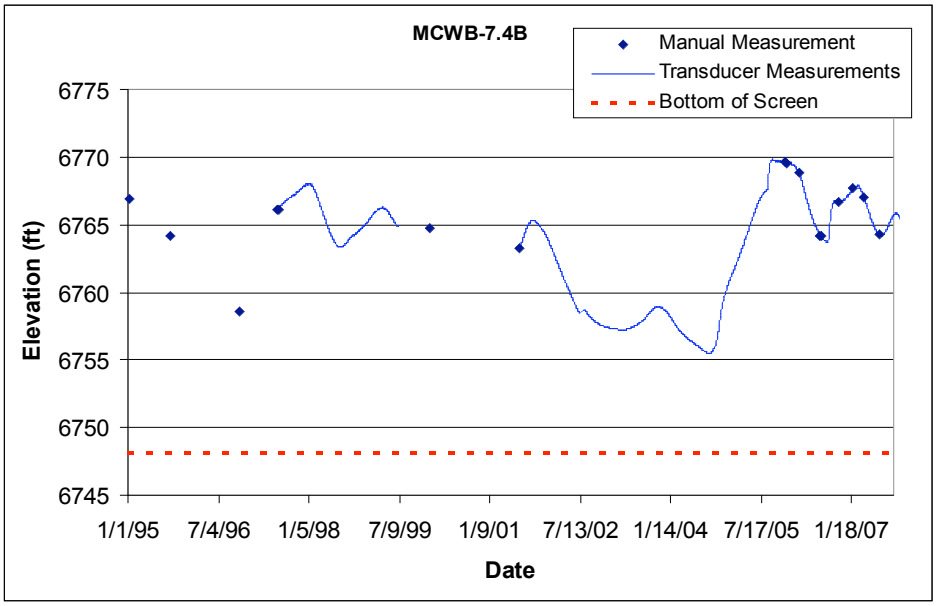
Location: Middle Mortandad Canyon, near sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: Water in sump appears to respond to groundwater level fluctuations.

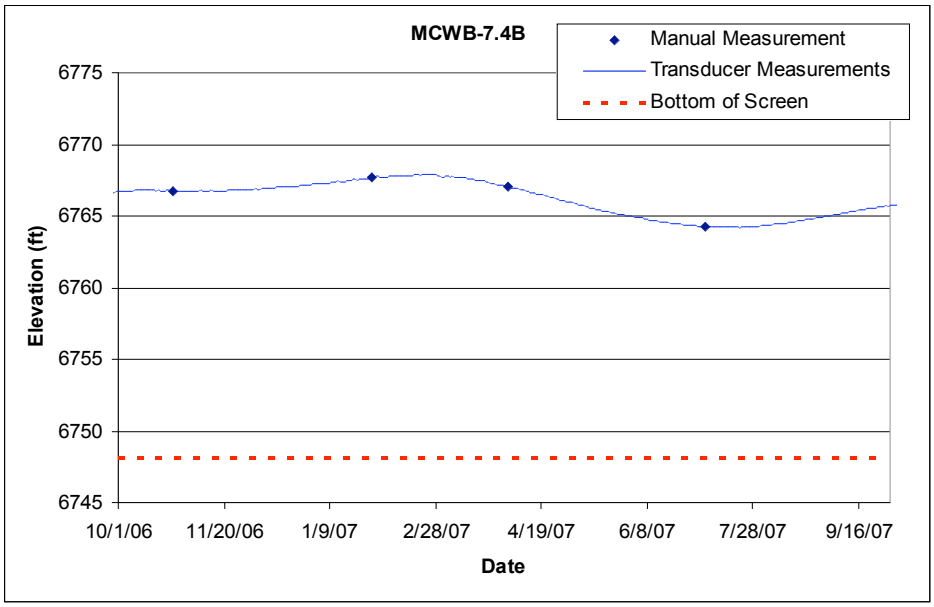




5.64 MCWB-7.4B

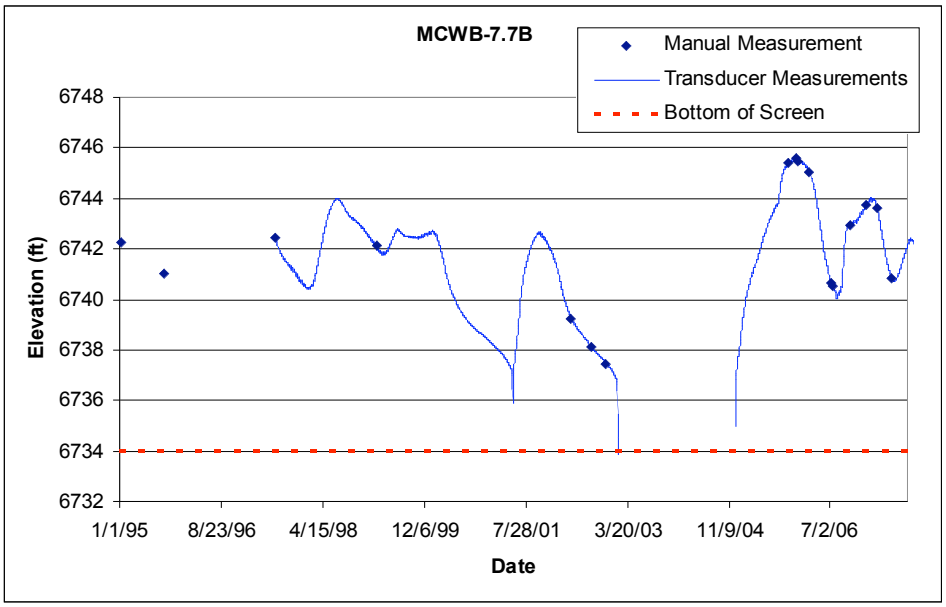
Location: Middle Mortandad Canyon, down canyon from sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: None.

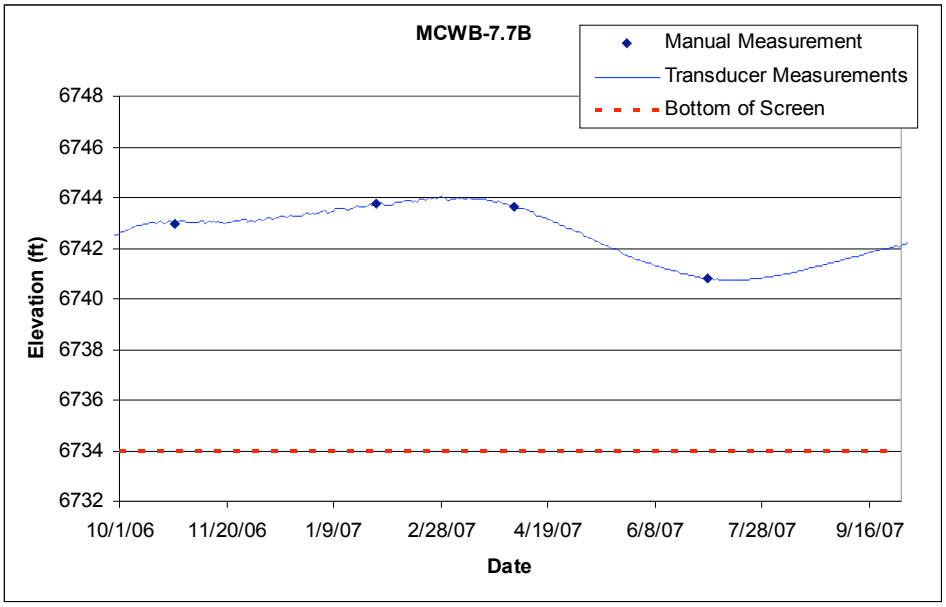




5.65 MCWB-7.7B

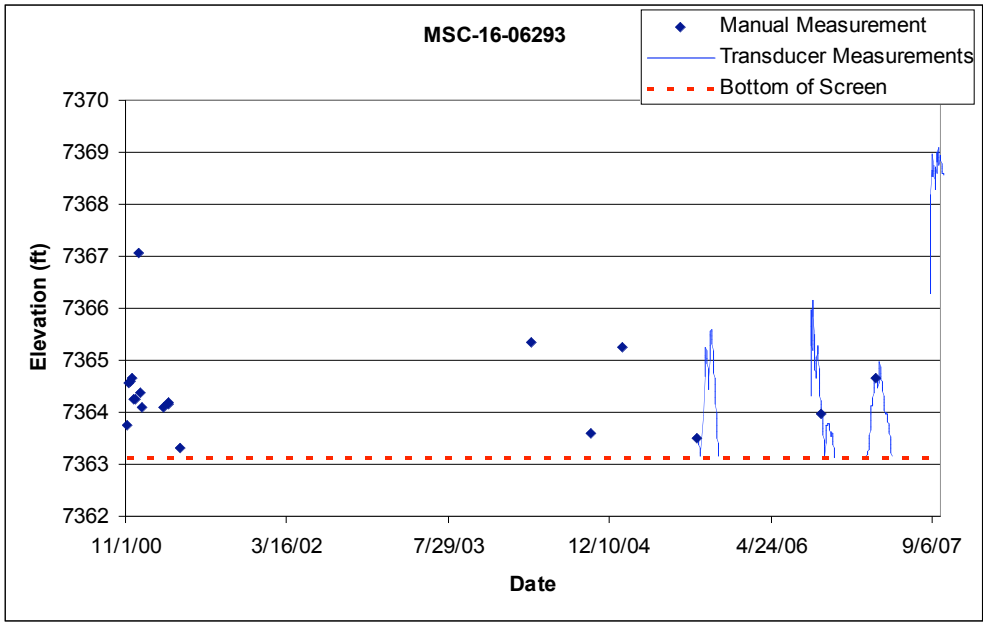
Location: Middle Mortandad Canyon, down canyon from sediment traps.
Period of Record: January 9, 1995, through September 30, 2007
Remarks: None.

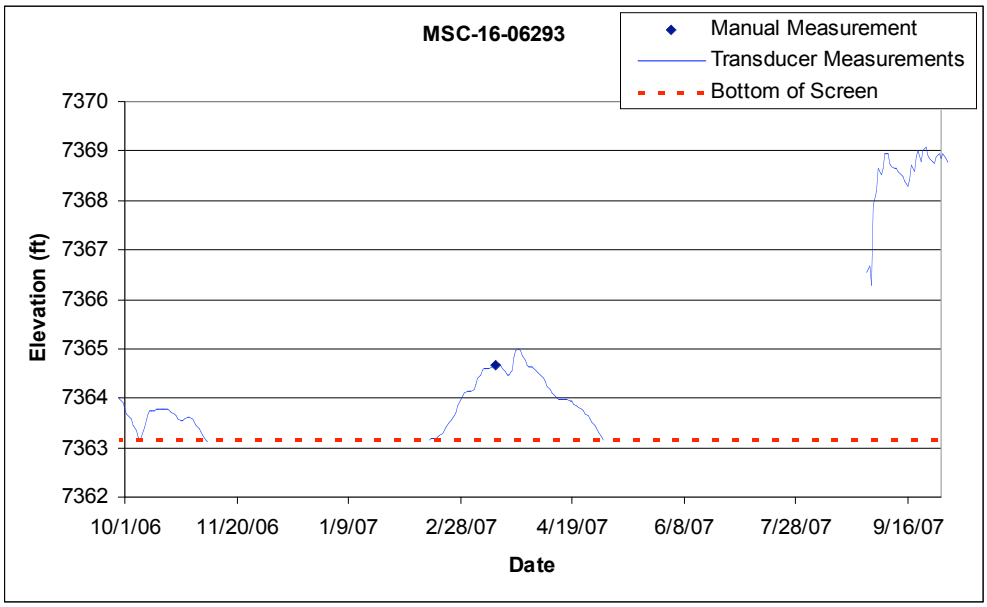




5.66 MSC-16-06293

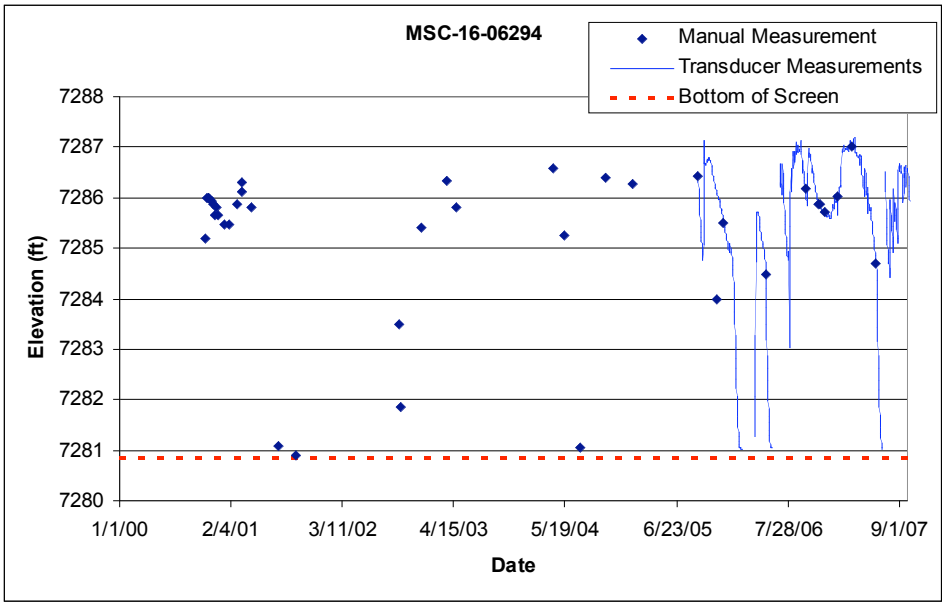
Location: Martin Spring Canyon, about 1600 feet down drainage from Martin Spring outlet.
Period of Record: November 6, 2000, through September 30, 2007
Remarks: MSC-16-06293 was dry from November 7, 2006, to February 14, 2007, and May 3, 2007, to August 29, 2007.

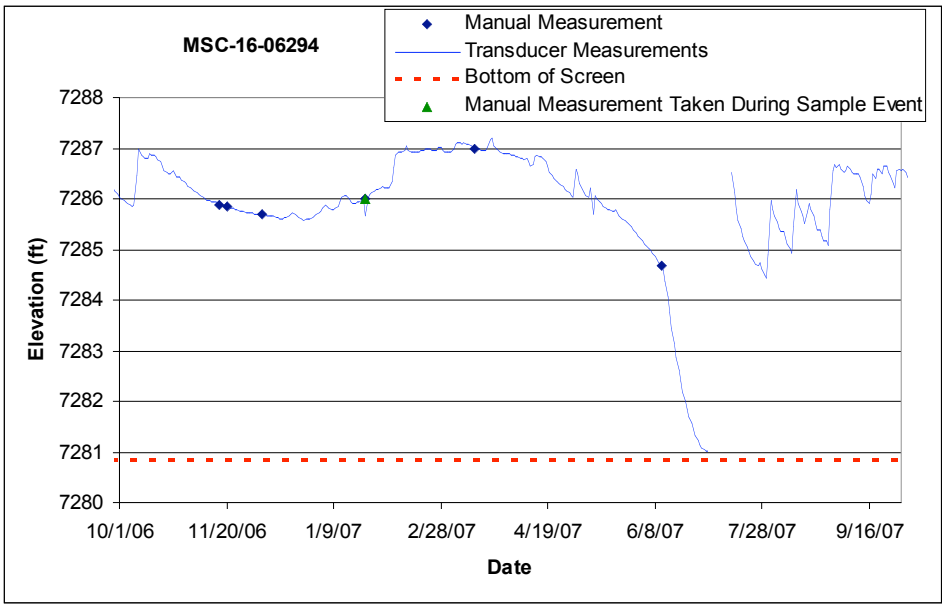




5.67 MSC-16-06294

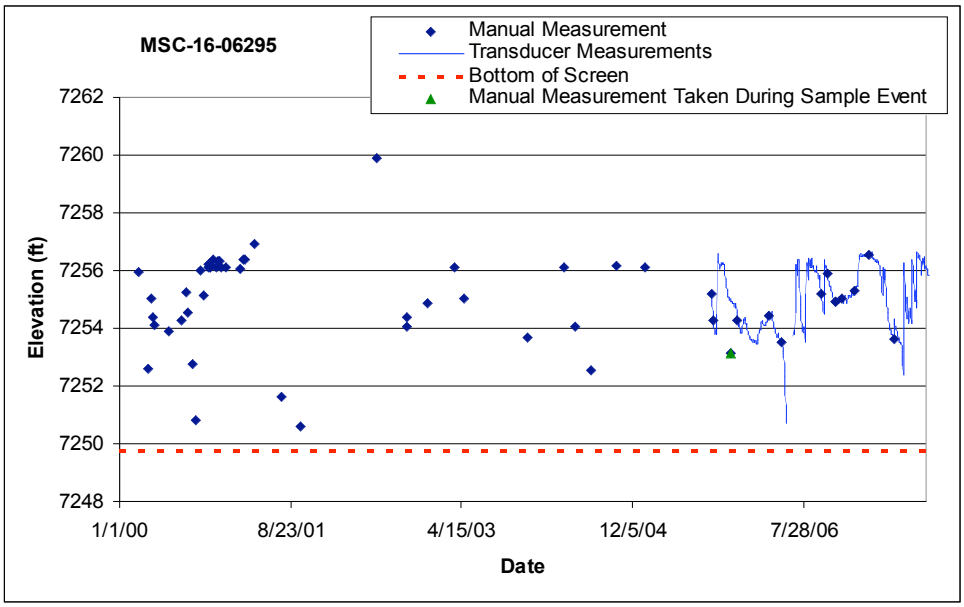
Location: Martin Spring Canyon, about 1600 ft upstream of the K-site wetlands.
Period of Record: November 6, 2000, through September 30, 2007
Remarks: The water was in the sump July 3, 2007, to July 14, 2007.

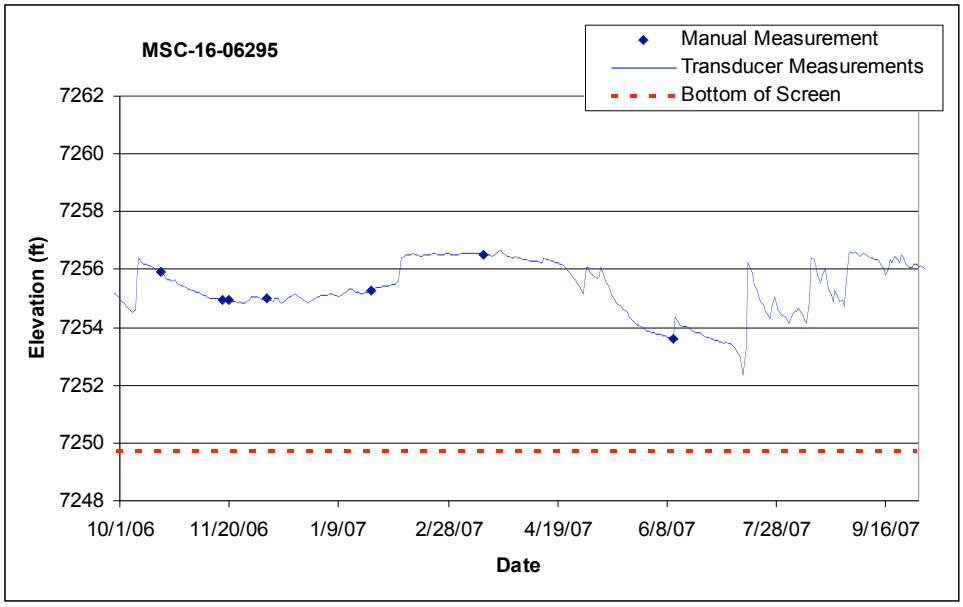




5.68 MSC-16-06295

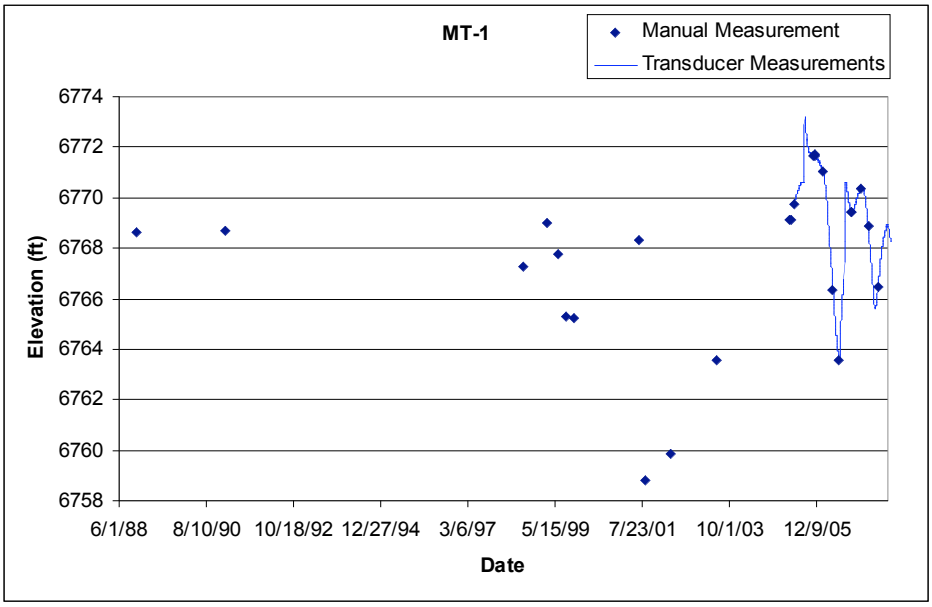
Location: Martin Spring Canyon, just downstream of the K-site wetlands and north of the TA-11 drop tower.
Period of Record: March 10, 2000, through September 30, 2007
Remarks: None.

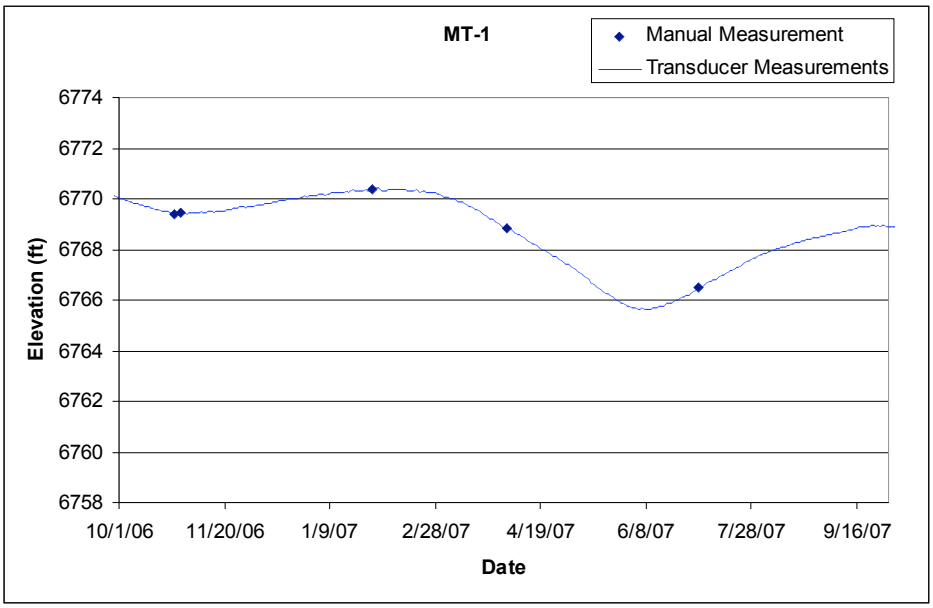




5.69 MT-1

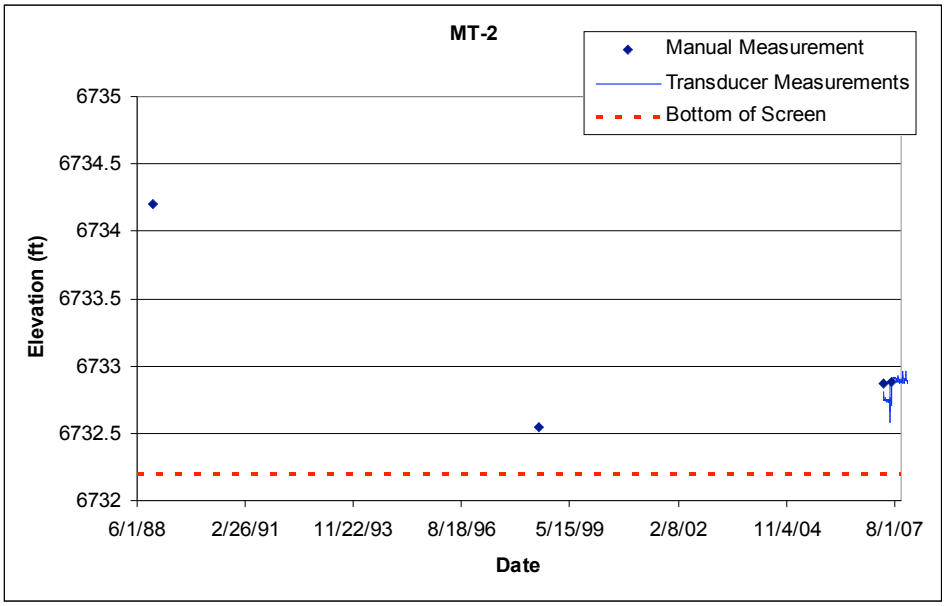
Location: Middle Mortandad Canyon, approximately 0.12 miles east of MCO-7.
Period of Record: November 1, 1988, through September 30, 2007
Remarks: Bottom of screen elevation is 6752.6 ft.

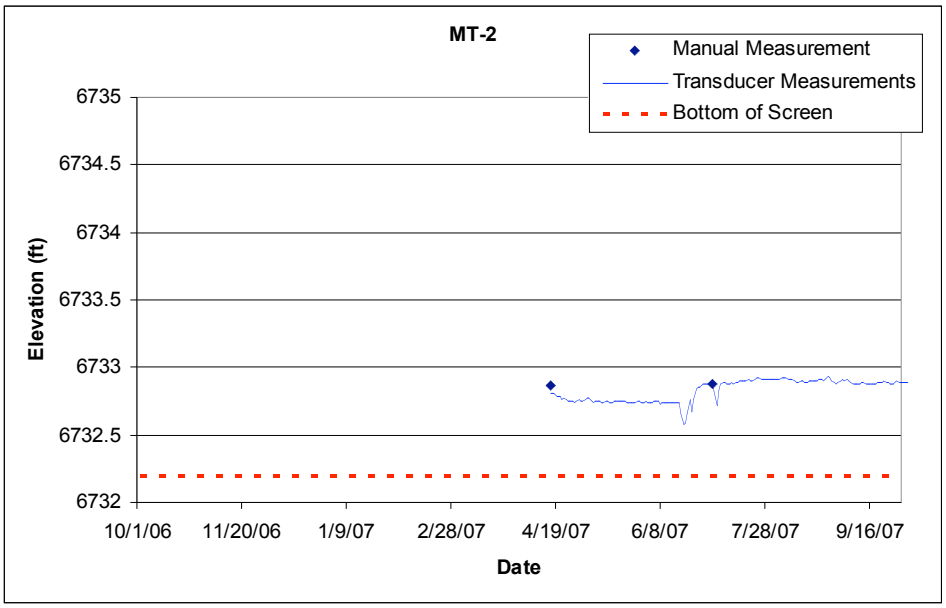




5.70 MT-2

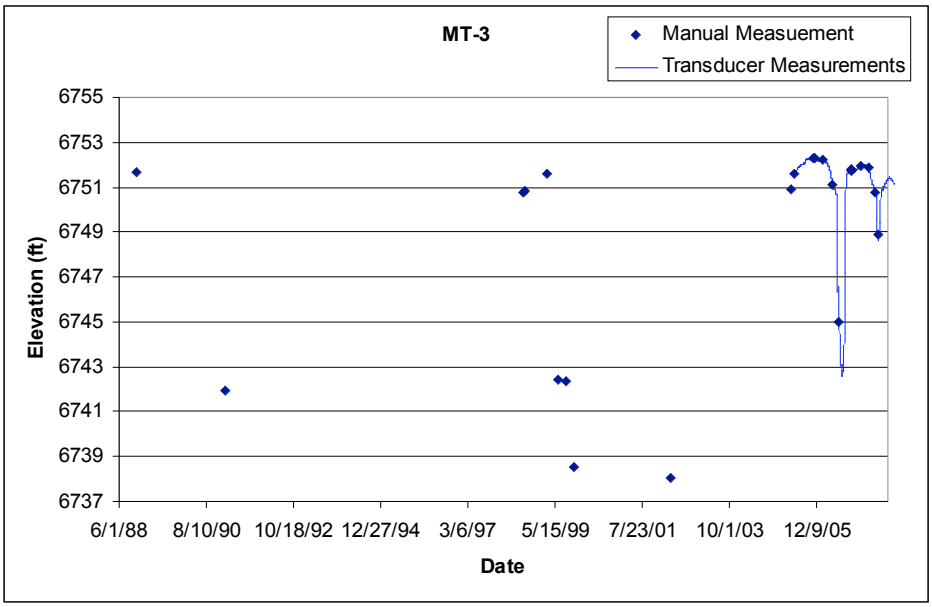
Location: Middle Mortandad Canyon, down canyon of sediment traps, approximately 0.12 miles east of MT-1.
Period of Record: November 1, 1988, through September 30, 2007
Remarks: The transducer was above the pump until April 17, 2007, when the pump was removed from MT-2 and the transducer was lowered in the well. Transducer data before April 17, 2007, do not represent water levels below the top of the pump, at an approximate elevation of 6749.3 ft.

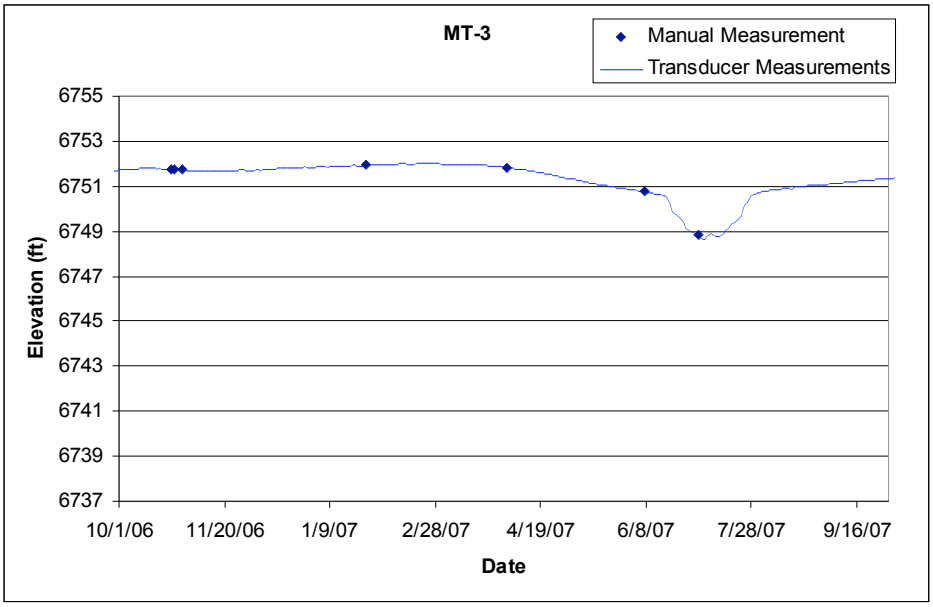




5.71 MT-3

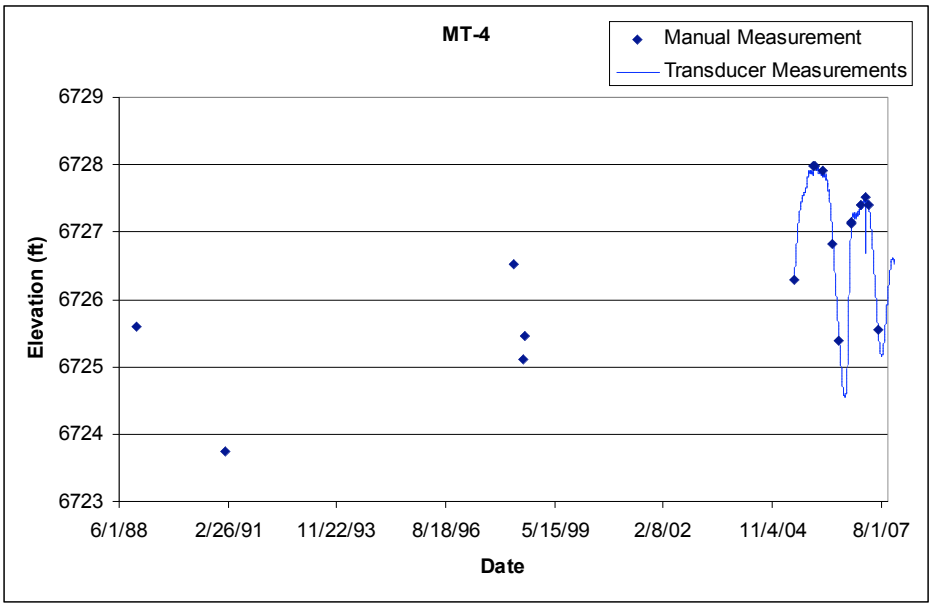
Location: Middle Mortandad Canyon, down canyon of sediment traps, approximately 0.12 miles east of MT-1 and approximately 50 ft north of MT-2.
Period of Record: November 1, 1988, through September 30, 2007
Remarks: Bottom of screen elevation is 6732.7 ft.

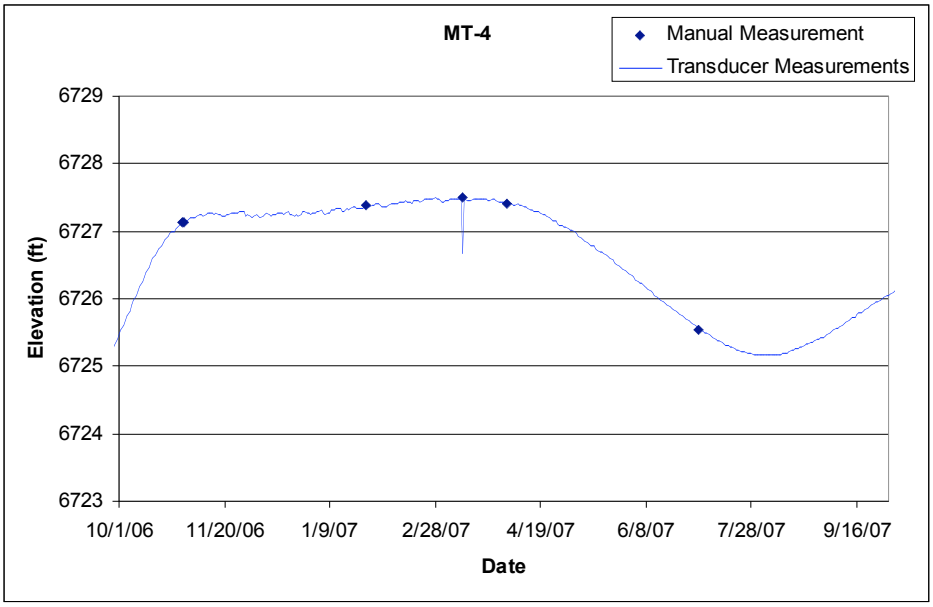




5.72 MT-4

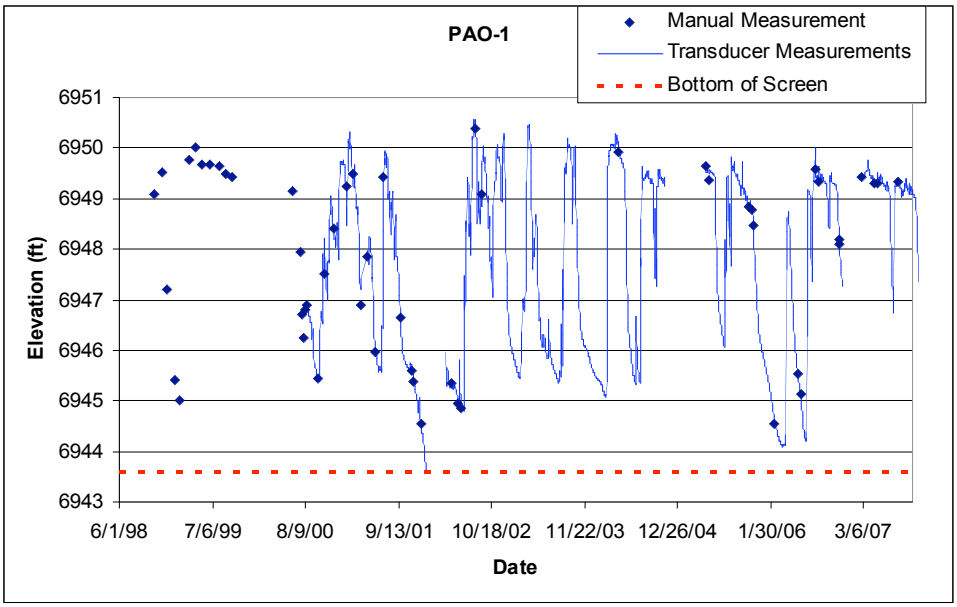
Location: Middle Mortandad Canyon, down canyon of the sediment traps, approximately 525 ft east of MT-3.
Period of Record: November 1, 1988, through September 30, 2007
Remarks: Bottom of screen elevation is 6719.59 ft.

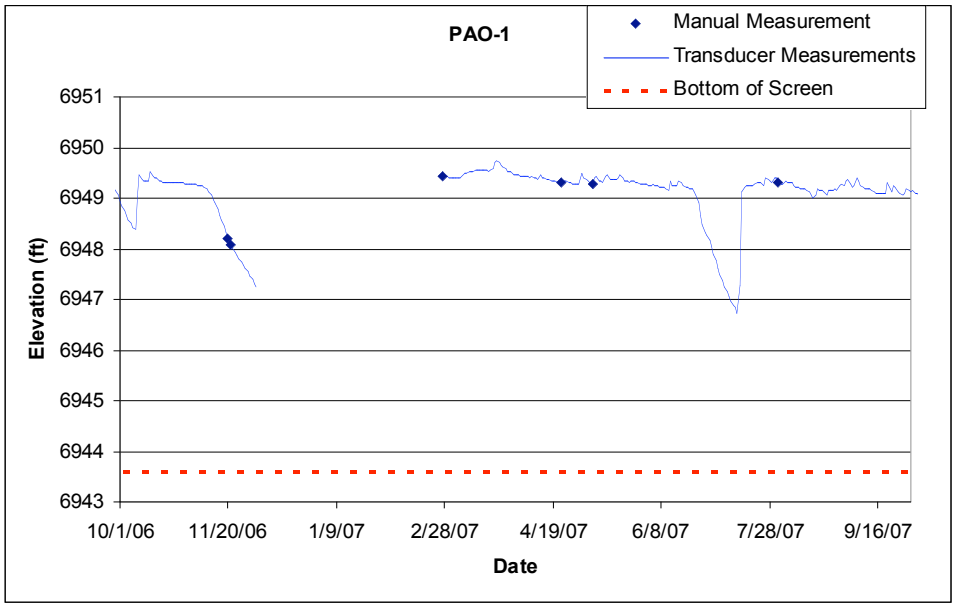




5.73 PAO-1

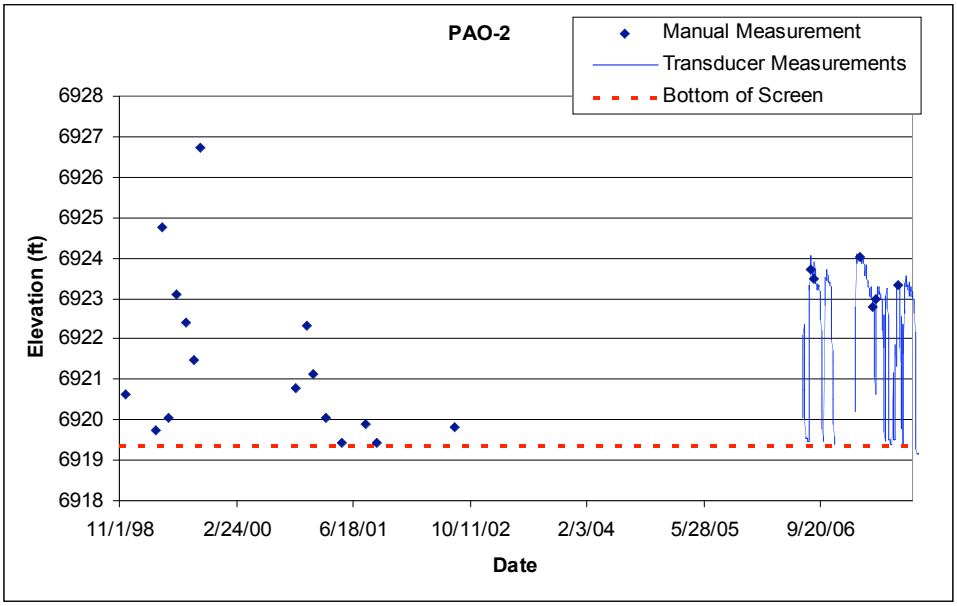
Location: Upper Pueblo Canyon, approximately 1000 ft west of the confluence with Acid Canyon.
Period of Record: October 29,1998, through September 30, 2007
Remarks: The transducer batteries failed on December 3, 2006, possibly due to cold conditions, and were replaced on February 27, 2007.

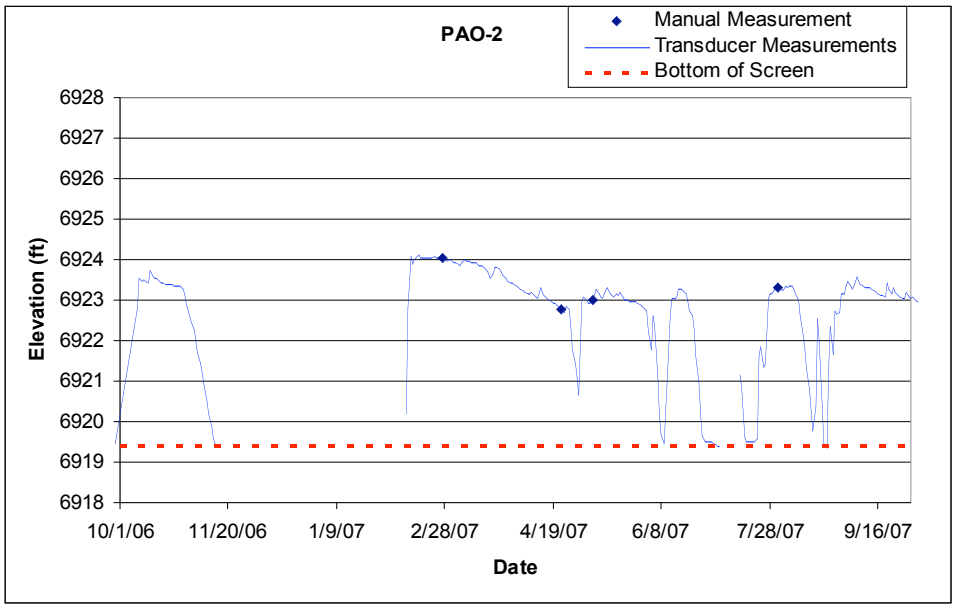




5.74 PAO-2

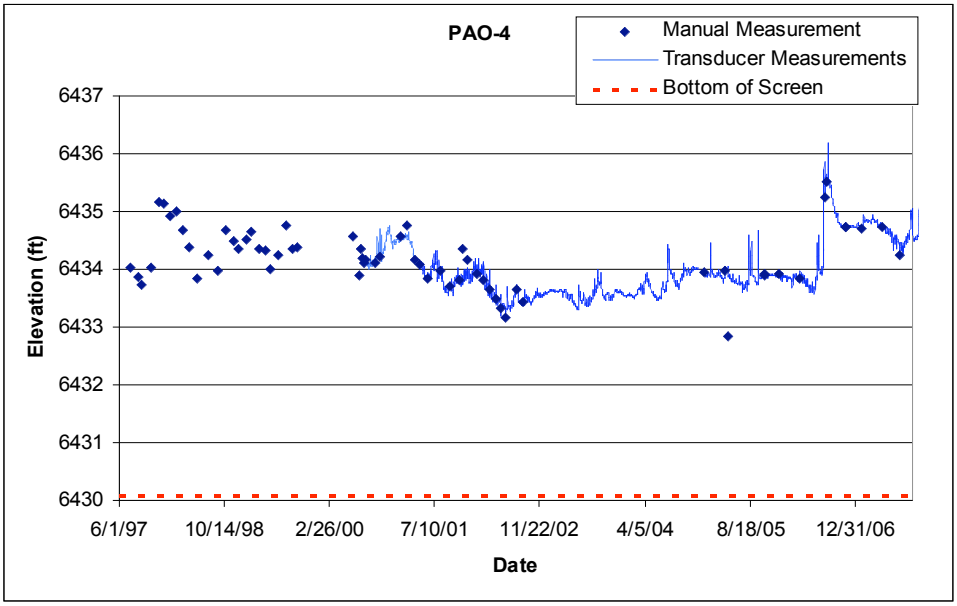
Location: Upper Pueblo Canyon, approximately 500 ft east of the Acid Canyon confluence.
Period of Record: November 30, 1998, through September 30, 2007
Remarks: The water level dropped below the bottom of the screen November 15, 2006, to February 10, 2007, and July 5, 2007, to July 14, 2007.

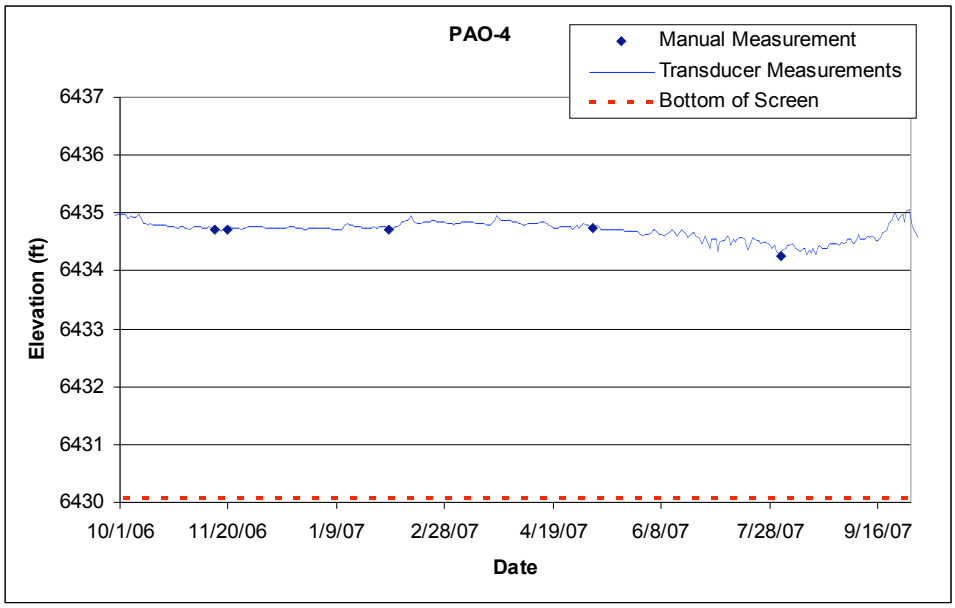




5.75 PAO-4

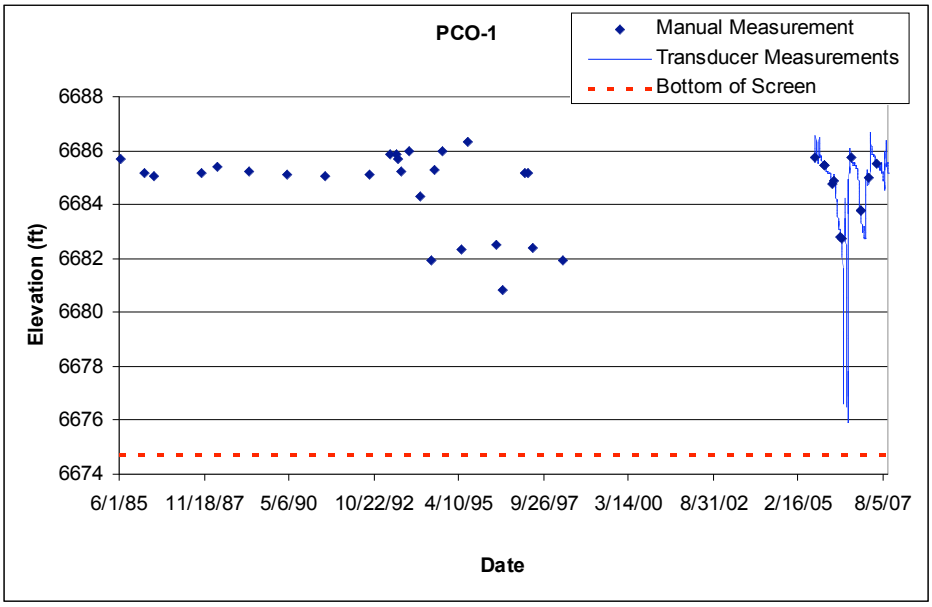
Location: Lower Pueblo Canyon, approximately 3100 ft southeast of the old Los Alamos County Sewage Treatment Plant location.
Period of Record: July 24, 1997, through September 30, 2007
Remarks: The manual measurement taken on May 9, 2005, represents drawdown during a sampling event.

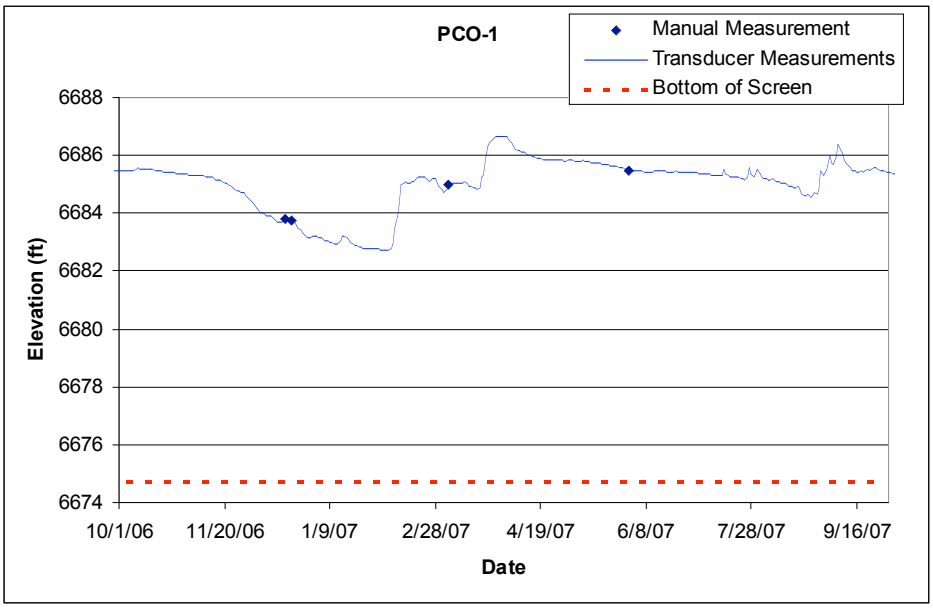




5.76 PCO-1

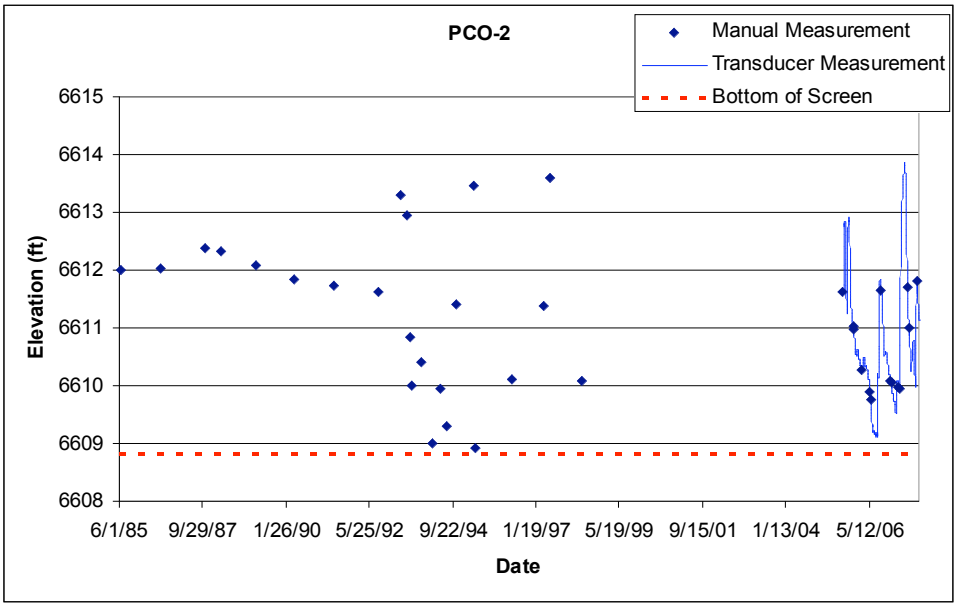
Location: Pajarito Canyon, approximately 200 ft north of R-20.
Period of Record: June 11, 1985, through September 30, 2007
Remarks: Bottom of screen elevation is 6674.7 ft.

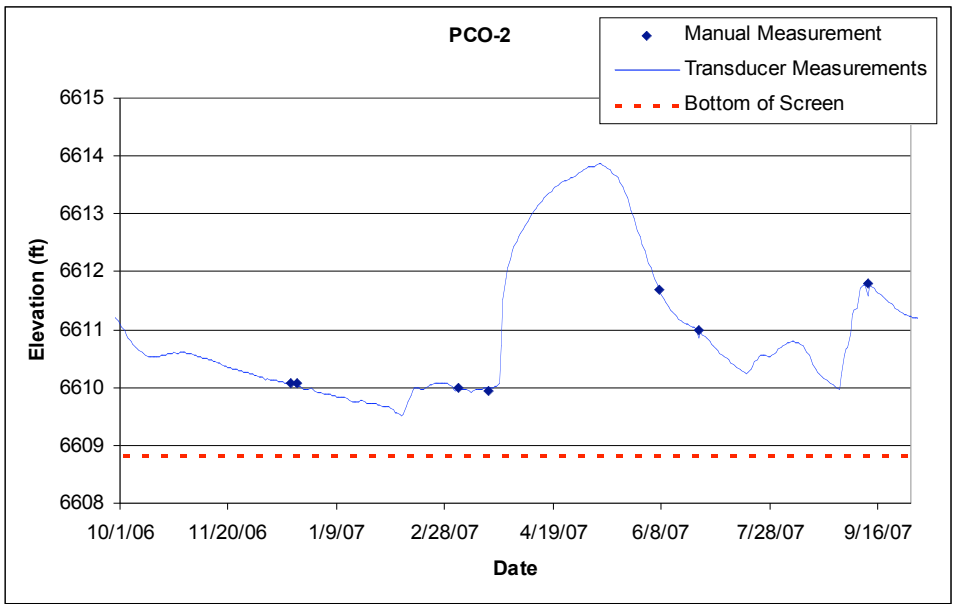




5.77 PCO-2

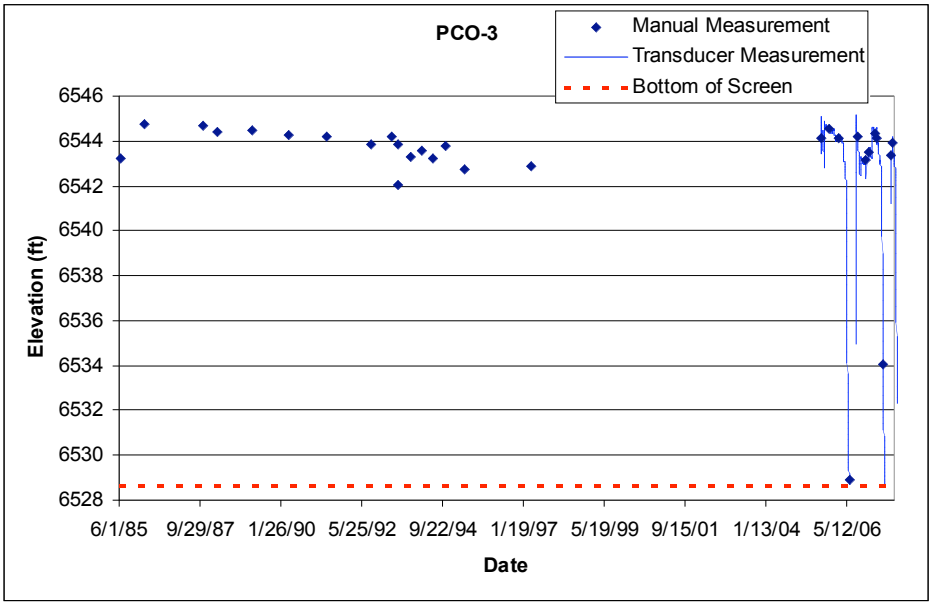
Location: Pajarito Canyon, approximately 0.1 miles east of R-32.
Period of Record: June 11, 1985, through September 30, 2007
Remarks: None.

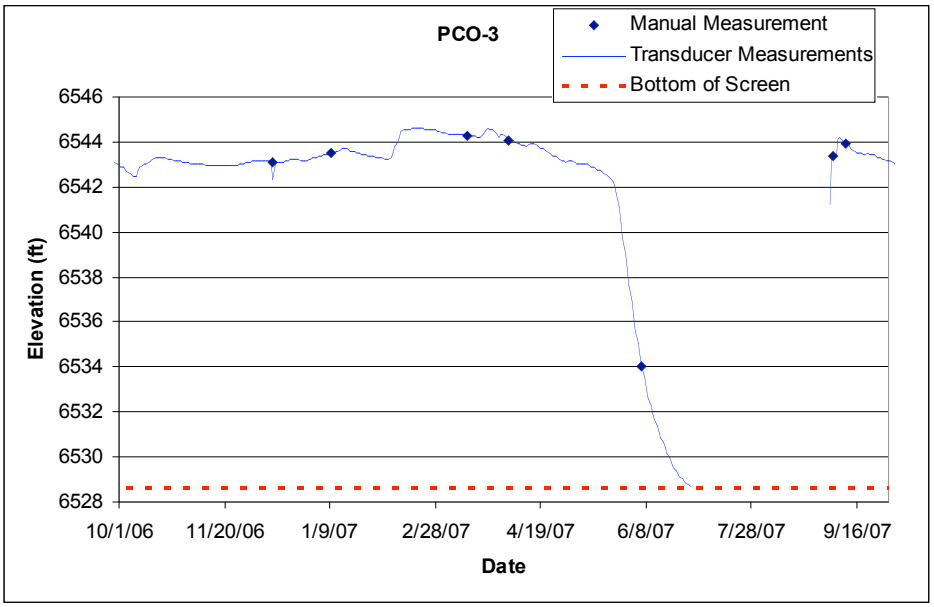




5.78 PCO-3

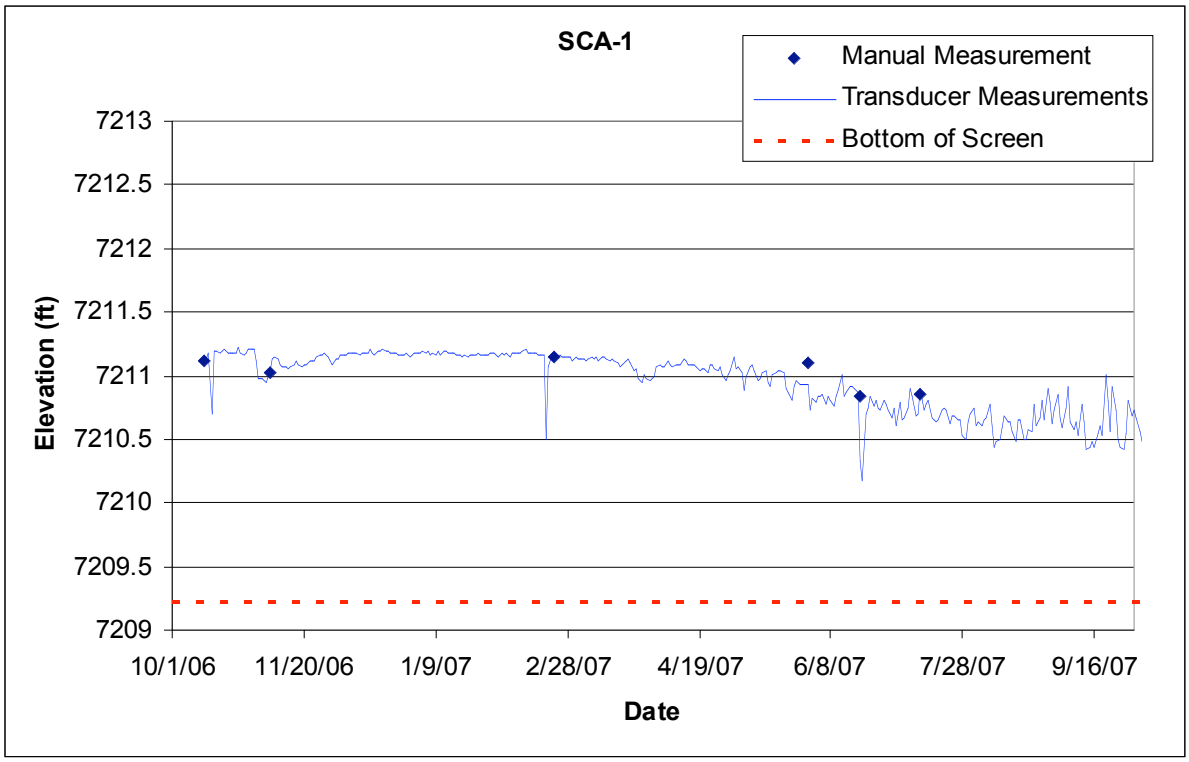
Location: Pajarito Canyon, approximately 1 mile east of R-32, in wetlands on the south side of the road.
Period of Record: June 11, 1985, through September 30, 2007
Remarks: Bottom of screen elevation is 6529.3 ft. The water level was below the bottom of the screen from July 2, 2007, to September 3, 2007.





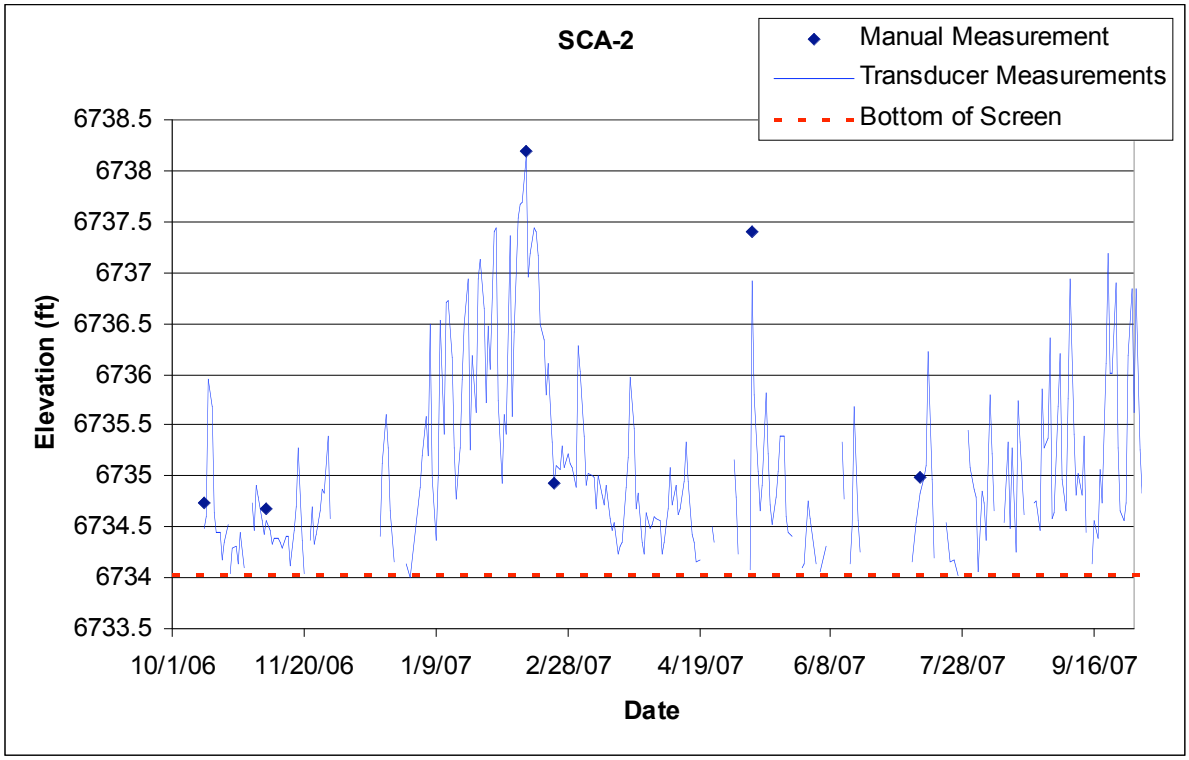
5.79 SCA-1

Location: Upper Sandia Canyon, in the wetlands approximately 350 ft upstream from gaging station E123.
Period of Record: October 13, 2006, through September 30, 2007
Remarks: SCA-1 is a shallow alluvial well located in a wetland. A transducer was installed on October 13, 2006. The screen may be clogged with organic material inhibiting the equilibration of the water level.



5.80 SCA-2

Location: Middle Sandia Canyon, approximately 700 ft upstream of gaging station E124.
Period of Record: October 13, 2006, through September 30, 2007
Remarks: SCA-2 responds to the sewer treatment plant discharge in upper Sandia Canyon.



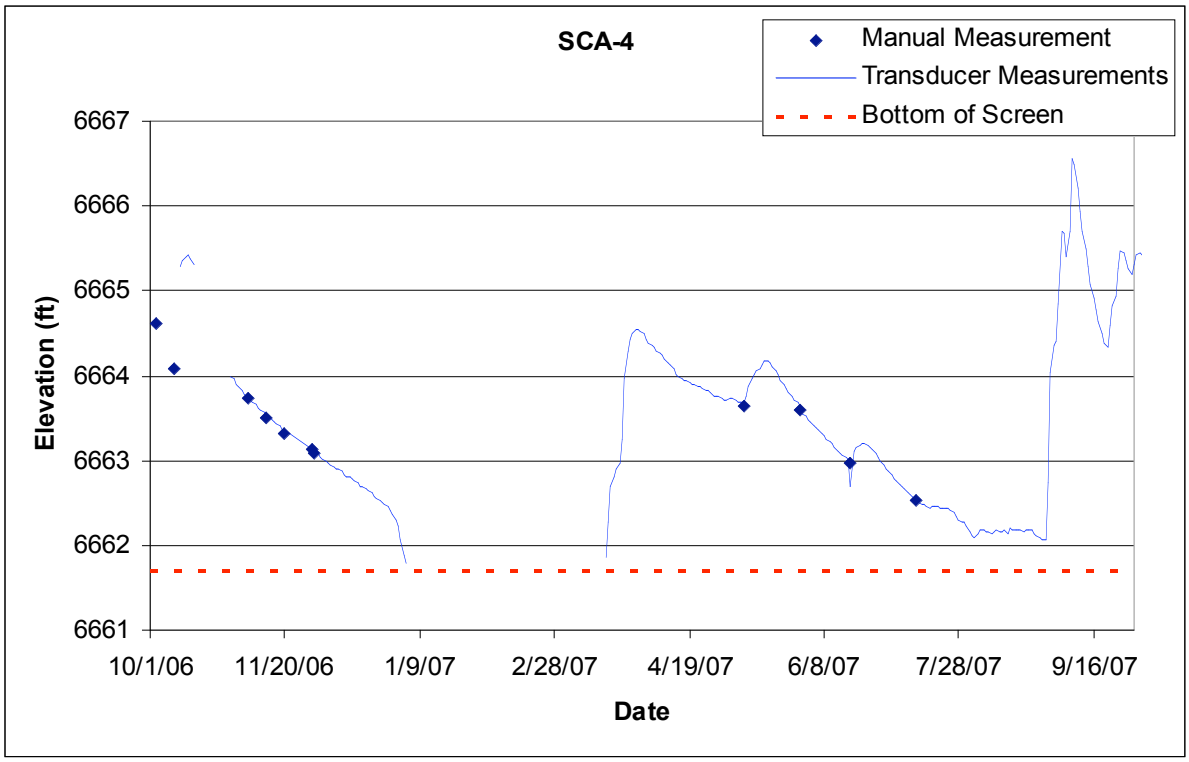
5.81 SCA-3

Location: Middle Sandia Canyon, approximately 700 ft downstream of gaging station E124.
Period of Record: October 13, 2006, through November 30, 2007
Remarks: A transducer was installed in SCA-3 on October 13, 2006. The well has been dry or there has been water in the sump since installation of the transducer.

Well Name	Date Time	Water Level (ft)	Comments
SCA-3	10/13/2006 12:33:00 PM	6690.77	Water is in sump
SCA-3	10/13/2006 12:41:00 PM	6690.83	Water is in sump
SCA-3	11/6/2006 1:33:00 PM	6690.82	Water is in sump
SCA-3	11/13/2006 10:12:00 AM	6690.8	Water is in sump
SCA-3	2/12/2007 10:11:00 AM		Dry
SCA-3	2/23/2007 11:07:00 AM	6690.82	Water is in sump
SCA-3	5/8/2007 8:35:00 AM	6690.82	Water is in the sump
SCA-3	6/14/2007 11:45:00 AM		Dry
SCA-3	7/12/2007 10:34:00 AM	6690.81	Water is in the sump
SCA-3	11/12/2007 3:05:00 PM	6690.81	Water is in sump
SCA-3	11/30/2007 11:24:00 AM	6690.77	Data are not valid; water is in the sump.

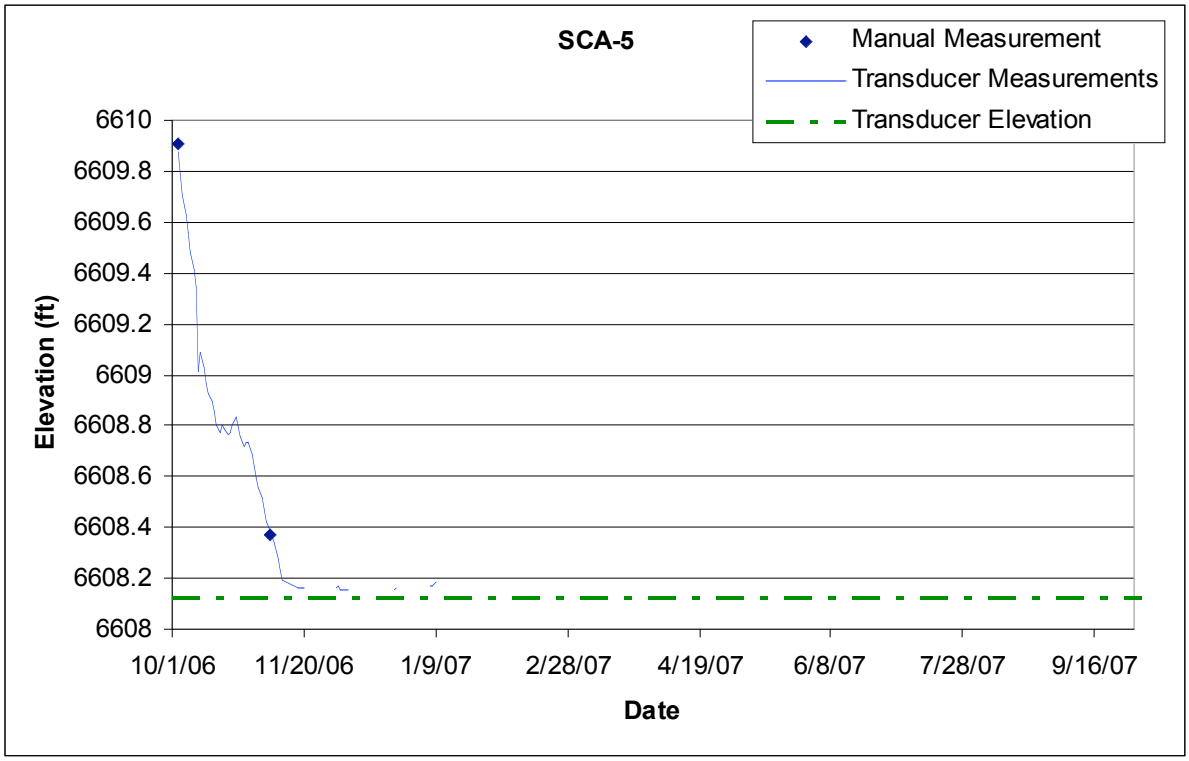
5.82 SCA-4

Location: Middle Sandia Canyon, approximately 700 ft downstream from SCA-3.
Period of Record: October 3, 2006, through September 30, 2007
Remarks: The transducer was installed on October 3, 2006, above the top of the pump at an elevation of 6665.28 ft. The pump was removed on October 31, 2006, to allow for complete water level monitoring. The well was dry from January 3, 2007, to February 23, 2007.



5.83 SCA-5

Location: Middle Sandia Canyon, approximately 650 ft upstream from the firing range at TA-72 and about 325 ft north of R-11.
Period of Record: October 3, 2006, through September 30, 2007
Remarks: The transducer is installed above the pump in the 2-in. casing. The transducer elevation is 6608.1 ft. The transducer data do not represent water levels below 6608.1 ft. Bottom of screen elevation is 6604.62 ft.



5.84 SCO-1

Location: Sandia Canyon, approximately 0.1 miles east of R-11.
Period of Record: June 7, 1997, through November 2, 2007
Remarks: No valid data; well has been dry during every measurement event.

Well Name	Date Time	Water Level (ft)	Comments
SCO-1	8/14/1989 12:00:00 PM		Dry
SCO-1	6/9/1997 12:00:00 PM		Dry
SCO-1	10/13/1997 12:00:00 PM		Dry
SCO-1	3/25/1998 12:00:00 PM		Dry
SCO-1	5/29/1998 12:00:00 PM		Dry
SCO-1	7/28/1998 12:00:00 PM		Dry
SCO-1	3/3/1999 12:00:00 PM		Dry
SCO-1	6/23/1999 12:00:00 PM		Dry
SCO-1	8/30/1999 12:00:00 PM		Dry
SCO-1	11/15/1999 12:00:00 PM		Dry
SCO-1	3/26/2000 12:00:00 PM		Dry
SCO-1	5/16/2000 12:00:00 PM		Dry
SCO-1	8/30/2000 12:00:00 PM		Dry
SCO-1	10/8/2000 12:00:00 PM		Dry
SCO-1	7/2/2001 12:00:00 PM		Dry
SCO-1	8/22/2001 12:00:00 PM		Dry
SCO-1	10/18/2001 12:00:00 PM		Dry
SCO-1	1/27/2002 12:00:00 PM		Dry
SCO-1	4/19/2002 12:00:00 PM		Dry
SCO-1	8/27/2002 12:00:00 PM		Dry
SCO-1	2/19/2003 12:00:00 PM		Dry
SCO-1	5/18/2003 12:00:00 PM		Dry
SCO-1	2/28/2005 1:00:00 PM		Dry
SCO-1	6/7/2005 12:00:00 PM		Dry
SCO-1	6/14/2005 1:40:00 PM		Dry
SCO-1	12/8/2005 10:30:00 AM		Dry
SCO-1	10/18/2005 8:08:00 AM		Dry
SCO-1	3/7/2006 9:36:00 AM		Dry
SCO-1	6/13/2006 8:32:00 AM		Dry, TD = 20.44 ft
SCO-1	8/28/2006 3:15:00 PM		Dry
SCO-1	9/7/2006 9:05:00 AM		Dry
SCO-1	10/3/2006 8:35:00 AM		Dry

Well Name	Date Time	Water Level (ft)	Comments
SCO-1	12/8/2006 2:01:00 PM		Dry
SCO-1	2/12/2007 10:44:00 AM		Dry
SCO-1	3/13/2007 12:17:00 PM		Dry
SCO-1	6/7/2007 9:46:00 AM		Dry
SCO-1	6/12/2007 7:20:00 AM		Dry
SCO-1	9/5/2007 2:37:00 PM		Dry
SCO-1	11/12/2007 12:20:00 PM		Dry

5.85 SCO-2

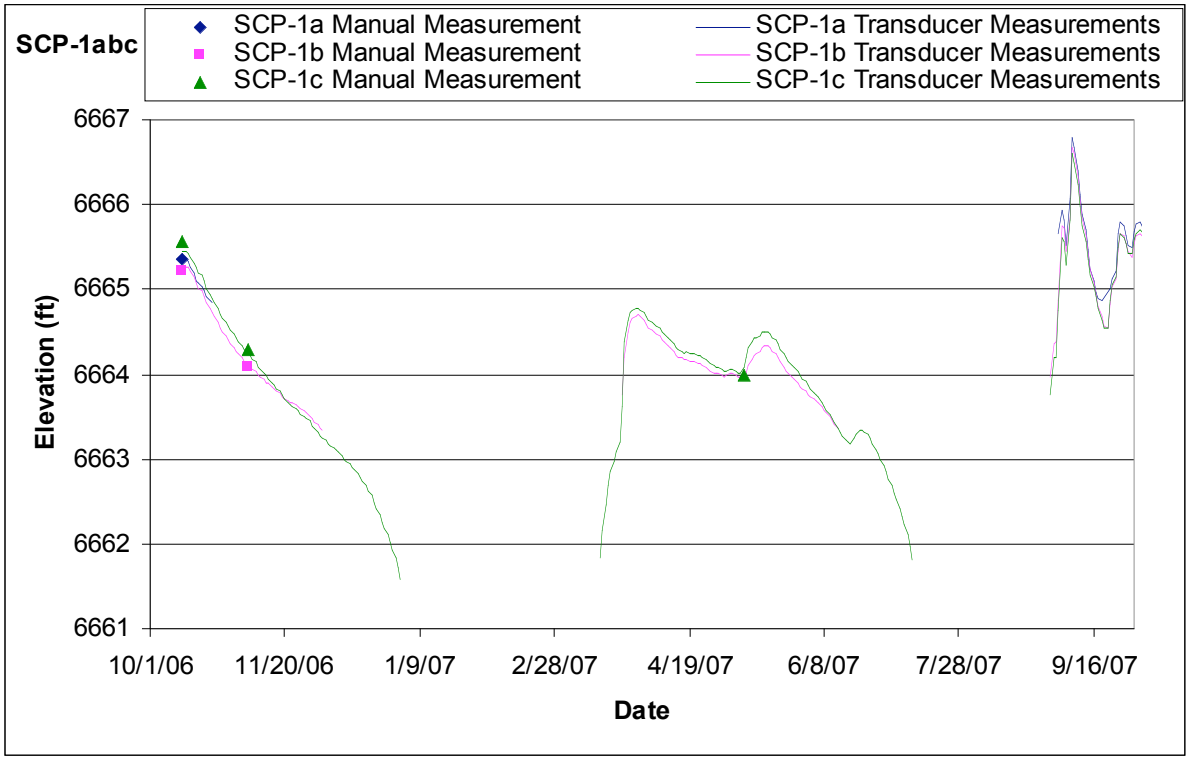
Location: Sandia Canyon, approximately 300 ft west of R-12.
Period of Record: June 9, 1997, through November 12, 2007
Remarks: No valid data; well has been dry during every measurement event.

Well Name	Date Time	Water Level (ft)	Comments
SCO-2	8/16/1989 12:00:00 PM		Dry
SCO-2	6/9/1997 12:00:00 PM		Dry
SCO-2	10/13/1997 12:00:00 PM		Dry
SCO-2	3/25/1998 12:00:00 PM		Dry
SCO-2	5/29/1998 12:00:00 PM		Dry
SCO-2	7/28/1998 12:00:00 PM		Dry
SCO-2	3/3/1999 12:00:00 PM		Dry
SCO-2	6/23/1999 12:00:00 PM		Dry
SCO-2	8/30/1999 12:00:00 PM		Dry
SCO-2	11/15/1999 12:00:00 PM		Dry
SCO-2	3/26/2000 12:00:00 PM		Dry
SCO-2	5/16/2000 12:00:00 PM		Dry
SCO-2	8/30/2000 12:00:00 PM		Dry
SCO-2	10/8/2000 12:00:00 PM		Dry
SCO-2	7/2/2001 12:00:00 PM		Dry
SCO-2	8/22/2001 12:00:00 PM		Dry
SCO-2	10/18/2001 12:00:00 PM		Dry
SCO-2	4/19/2002 12:00:00 PM		Dry
SCO-2	8/27/2002 12:00:00 PM		Dry
SCO-2	10/27/2002 12:00:00 PM		Dry
SCO-2	2/19/2003 12:00:00 PM		Dry
SCO-2	5/18/2003 12:00:00 PM		Dry
SCO-2	6/7/2005 12:00:00 PM		Dry
SCO-2	6/14/2005 1:30:00 PM		Dry

Well Name	Date Time	Water Level (ft)	Comments
SCO-2	12/8/2005 10:00:00 AM		Dry
SCO-2	10/18/2005 7:40:00 AM		Dry
SCO-2	3/7/2006 9:55:00 AM		Dry
SCO-2	6/13/2006 8:14:00 AM		Dry, TD = 19.16 ft
SCO-2	8/28/2006 3:00:00 PM		Dry
SCO-2	9/7/2006 8:48:00 AM		Dry
SCO-2	10/3/2006 8:50:00 AM		Dry
SCO-2	12/8/2006 1:50:00 PM		Dry
SCO-2	2/12/2007 11:22:00 AM		Dry
SCO-2	3/13/2007 12:32:00 PM		Dry
SCO-2	6/7/2007 9:11:00 AM		Dry
SCO-2	6/12/2007 7:35:00 AM		Dry
SCO-2	9/5/2007 2:26:00 PM		Dry
SCO-2	11/12/2007 12:05:00 PM		Dry

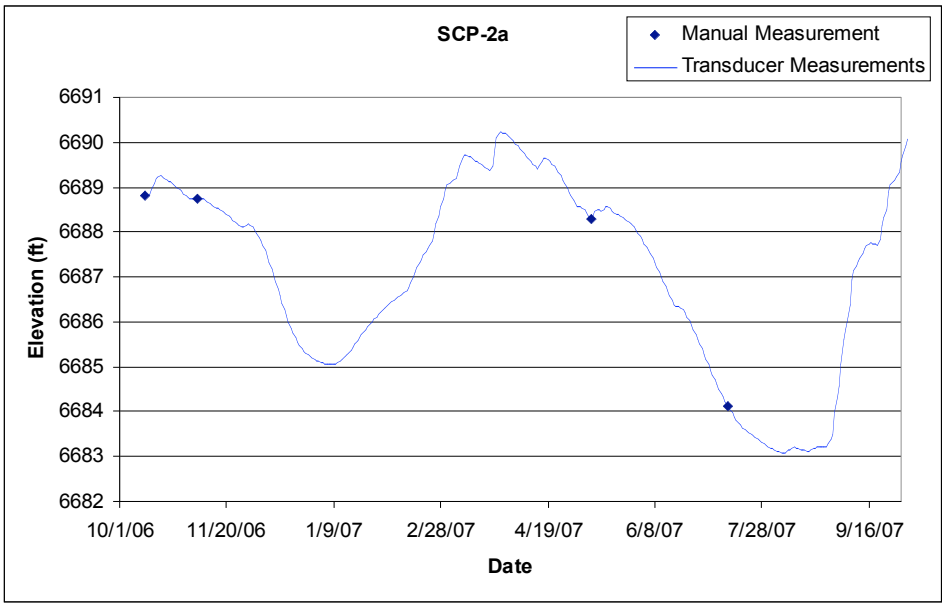
5.86 SCP-1abc

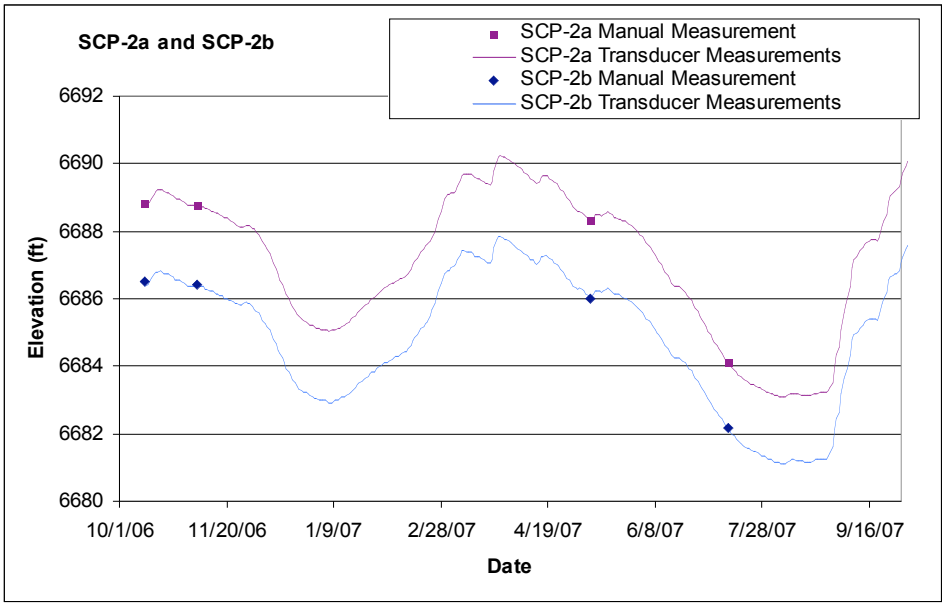
Location: Middle Sandia Canyon, approximately 5 ft west of SCA-4.
Period of Record: October 13, 2006, through September 30, 2007
Remarks: SCP-1abc is a triple-nested piezometer. The bottom of screen 1a elevation is 6664.90 ft, the bottom of screen 1b elevation is 6663.34 ft, and the bottom of screen 1c elevation is 6661.54 ft.



5.87 SCP-2a

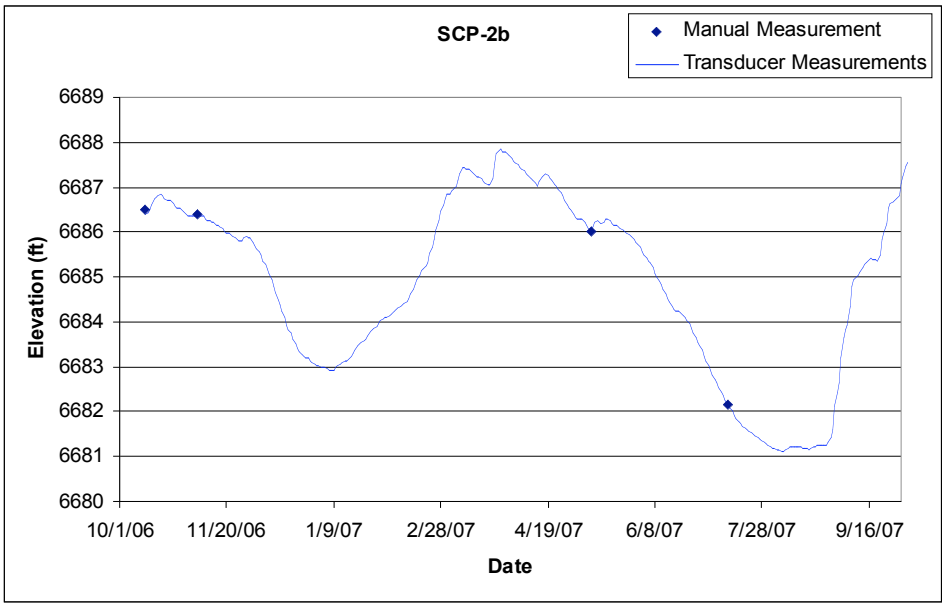
Location: Middle Sandia Canyon, approximately 10 ft east of SCA-3 and 5 ft east of SCP-2b.
Period of Record: October 13, 2006, through September 30, 2007
Remarks: Screen bottom elevation is 6677.6 ft.

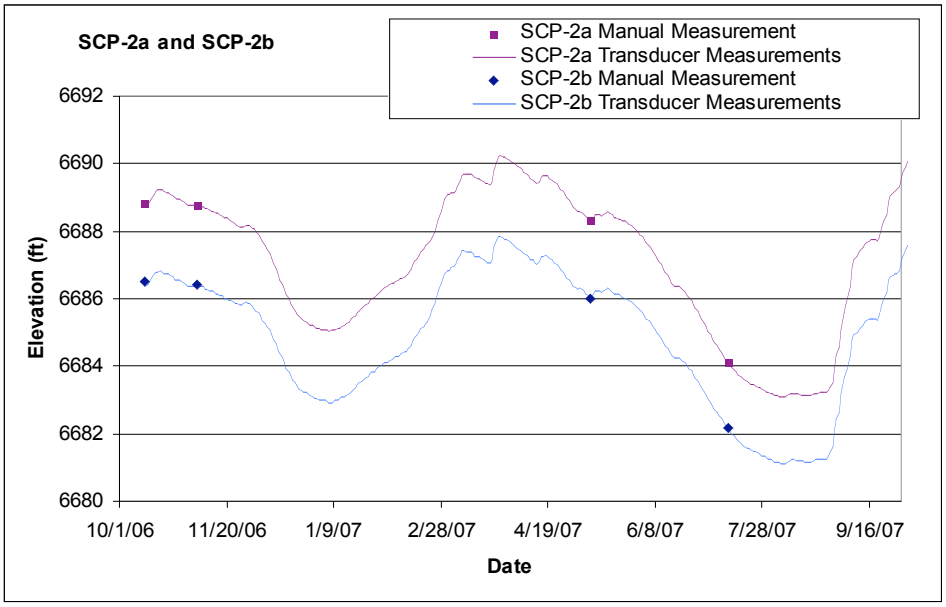




5.88 SCP-2b

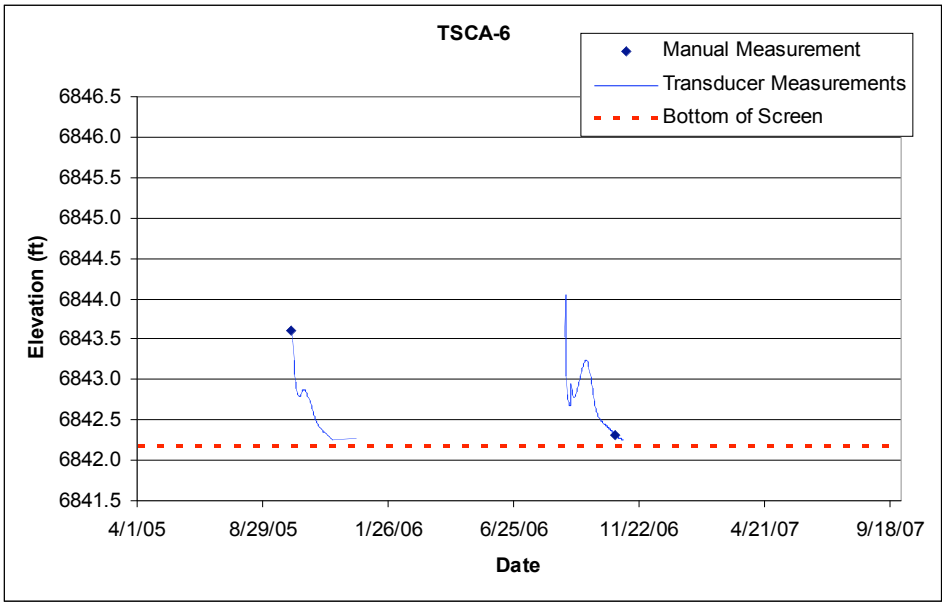
Location: Middle Sandia Canyon, approximately 5 ft east of SCA-3 and 5 ft west of SCP-2a.
Period of Record: October 13, 2006, through September 30, 2007
Remarks: Bottom of screen elevation is 6672.5 ft.

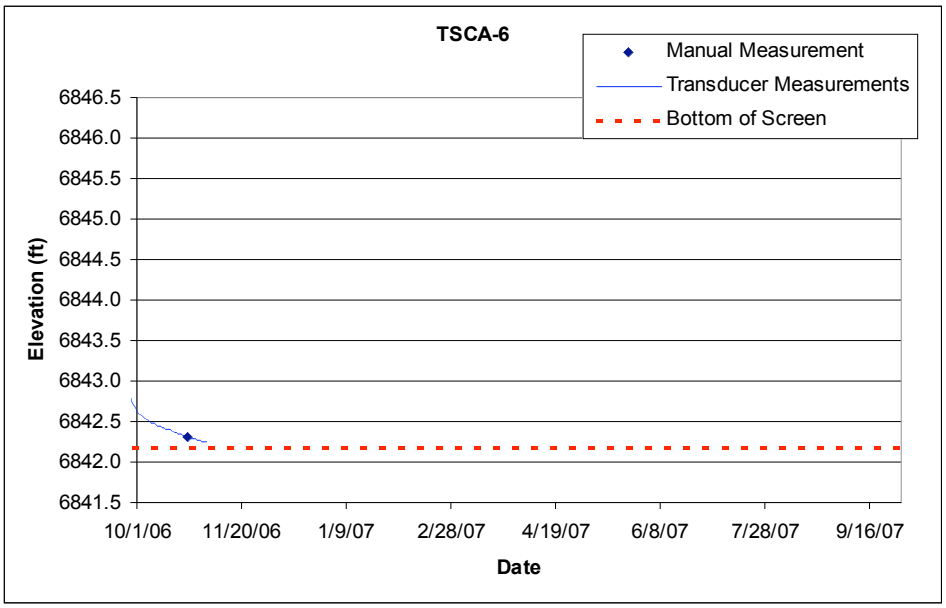




5.89 TSCA-6

Location: Ten Site Canyon, approximately 600 ft west of Mortandad Canyon confluence.
Period of Record: April 18, 2005, through September 30, 2007
Remarks: TSCA-6 was dry from November 4, 2006, to the end of the period of record.





5.90 TSWB-6

Location: Ten Site Canyon, approximately 300 ft west of Mortandad Canyon confluence.
Period of Record: January 9, 1995, through November 1, 2007
Remarks: No valid groundwater level data exist for TSWB-6. Well has been dry during every measurement event. A transducer has been installed since July 5, 2006.

Well Name	Date Time	Water Level (ft)	Comments
TSWB-6	1/9/1995		Dry
TSWB-6	9/18/1995		Dry
TSWB-6	11/13/1996		Dry
TSWB-6	6/25/1997 12:00:00 PM		Dry
TSWB-6	7/7/1997 12:00:00 PM		Dry
TSWB-6	2/9/2000 2:07:00 PM		Dry
TSWB-6	3/27/2000 12:00:00 PM		Dry
TSWB-6	6/23/2000 12:00:00 PM		Dry
TSWB-6	9/28/2000 12:00:00 PM		Dry
TSWB-6	11/15/2000 12:00:00 PM		Dry
TSWB-6	7/2/2001 12:00:00 PM		Dry
TSWB-6	8/22/2001 12:00:00 PM		Dry
TSWB-6	10/18/2001 12:00:00 PM		Dry
TSWB-6	4/17/2002 12:00:00 PM		Dry
TSWB-6	8/19/2002 12:00:00 PM		Dry
TSWB-6	11/14/2002 12:00:00 PM		Dry
TSWB-6	2/21/2003 12:00:00 PM		Dry
TSWB-6	6/11/2003 12:00:00 PM		Dry
TSWB-6	12/11/2000 12:00:00 PM		Dry
TSWB-6	6/11/2001 11:32:00 AM		Dry
TSWB-6	7/2/2002 9:58:00 AM		Dry
TSWB-6	12/14/2005 2:49:00 PM		Dry
TSWB-6	7/5/2006 8:30:00 AM		Dry
TSWB-6	7/10/2006 10:15:00 AM		Dry
TSWB-6	10/26/2006 11:14:00 AM		Dry
TSWB-6	9/26/2006 12:50:00 PM		Dry
TSWB-6	11/1/2006 11:42:00 AM		Dry
TSWB-6	1/30/2007 2:08:00 PM		Dry
TSWB-6	10/30/2006		Dry
TSWB-6	3/7/2007 8:30:00 AM		Dry
TSWB-6	4/16/2007 12:32:00 PM		Dry
TSWB-6	7/5/2007 1:09:00 PM		Dry

Well Name	Date Time	Water Level (ft)	Comments
TSWB-6	11/1/2007 12:43:00 PM		Well dry

5.91 WCO-1

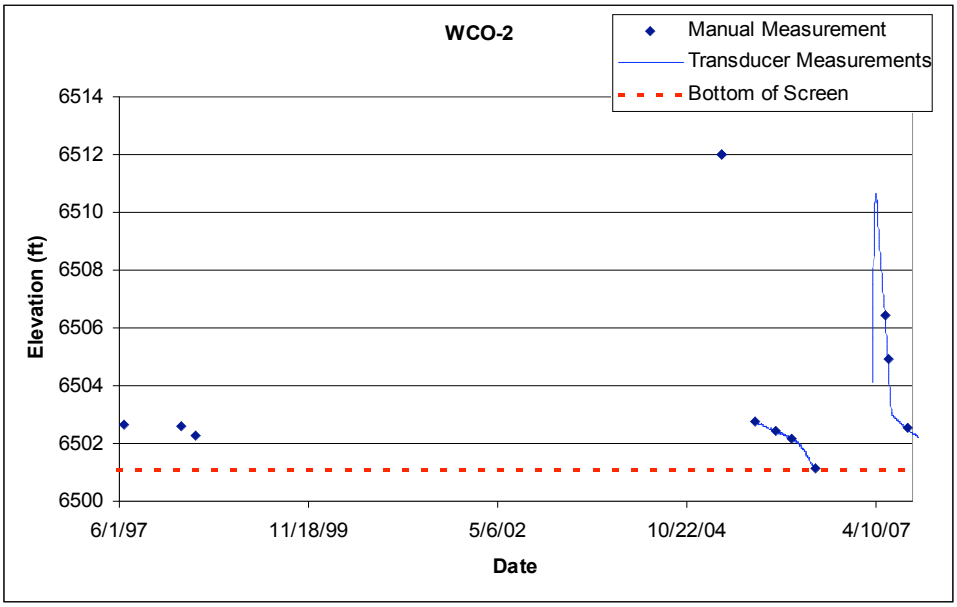
Location: Water Canyon, near western border of TA-68.
Period of Record: October 31,1989, through October 17, 2007
Remarks: Intermittently dry, there are only two records indicating water in well.

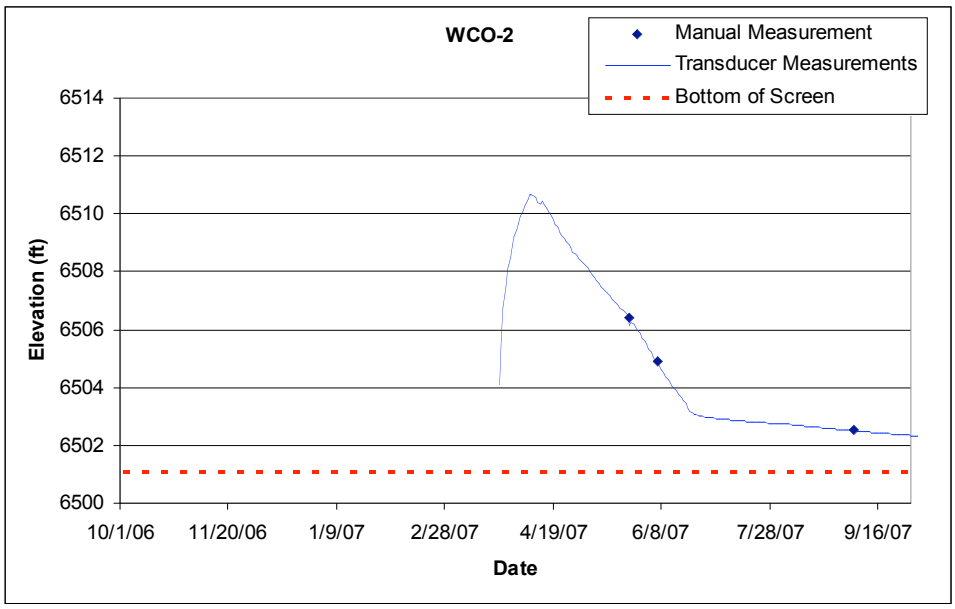
Well Name	Date Time	Water Level (ft)	Comments
WCO-1	10/31/1989 12:00:00 PM		Dry
WCO-1	11/1/1989 12:00:00 PM		Dry
WCO-1	8/24/1990 12:00:00 PM		Dry
WCO-1	6/23/1997 12:00:00 PM	6582.75	
WCO-1	10/13/1997 12:00:00 PM		Dry
WCO-1	3/25/1998 12:00:00 PM		Dry
WCO-1	5/29/1998 12:00:00 PM	6582.75	
WCO-1	7/28/1998 12:00:00 PM		Dry
WCO-1	3/3/1999 12:00:00 PM		Dry
WCO-1	6/23/1999 12:00:00 PM		Dry
WCO-1	8/30/1999 12:00:00 PM		Dry
WCO-1	11/15/1999 12:00:00 PM		Dry
WCO-1	3/26/2000 12:00:00 PM		Dry
WCO-1	5/16/2000 12:00:00 PM		Dry
WCO-1	8/30/2000 12:00:00 PM		Dry
WCO-1	10/8/2000 12:00:00 PM		Dry
WCO-1	7/2/2001 12:00:00 PM		Dry
WCO-1	8/22/2001 12:00:00 PM		Dry
WCO-1	10/18/2001 12:00:00 PM		Dry
WCO-1	4/19/2002 12:00:00 PM		Dry
WCO-1	8/19/2002 12:00:00 PM		Dry
WCO-1	11/13/2002 12:00:00 PM		Dry
WCO-1	2/18/2003 12:00:00 PM		Dry
WCO-1	6/19/2003 12:00:00 PM		Dry
WCO-1	9/14/2005 12:30:00 PM		Dry
WCO-1	12/22/2005 2:30:00 PM		Dry
WCO-1	3/13/2006 11:11:00 AM		Dry
WCO-1	6/23/2006 12:10:00 PM		Dry, TD = 35.74 ft
WCO-1	9/13/2006 12:12:00 PM		Dry
WCO-1	12/15/2006 10:05:00 AM		Dry
WCO-1	1/24/2007 9:55:00 AM		Dry

Well Name	Date Time	Water Level (ft)	Comments
WCO-1	3/15/2007 10:07:00 AM		Dry
WCO-1	5/24/2007 8:54:00 AM		Dry
WCO-1	6/6/2007 7:31:00 AM		Dry
WCO-1	9/5/2007 12:49:00 PM		Dry
WCO-1	10/17/2007 11:38:00 AM		Dry

5.92 WCO-2

Location: Water Canyon, about 0.9 miles west of gate 9 on SR-4.
Period of Record: October 26, 1989, through September 30, 2007
Remarks: Seasonally dry, a pressure transducer was installed on September 14, 2005.





5.93 WCO-3

Location: Water Canyon, approximately 0.1 miles west of gate 9 on SR-4.
Period of Record: October 25, 1989, through October 17, 2007
Remarks: Often dry, only one record indicating water in well.

Well Name	Date Time	Water Level (ft)	Comments
WCO-3	10/25/1989 12:00:00 PM		Dry
WCO-3	8/24/1990 12:00:00 PM		Dry
WCO-3	6/23/1997 12:00:00 PM	6424.6	
WCO-3	10/13/1997 12:00:00 PM	6423.87	
WCO-3	3/25/1998 12:00:00 PM		Dry
WCO-3	5/29/1998 12:00:00 PM		Dry
WCO-3	7/28/1998 12:00:00 PM		Dry
WCO-3	3/3/1999 12:00:00 PM		Dry
WCO-3	6/23/1999 12:00:00 PM		Dry
WCO-3	8/30/1999 12:00:00 PM		Dry
WCO-3	11/15/1999 12:00:00 PM		Dry
WCO-3	3/26/2000 12:00:00 PM		Dry
WCO-3	5/16/2000 12:00:00 PM		Dry
WCO-3	8/30/2000 12:00:00 PM		Dry
WCO-3	10/8/2000 12:00:00 PM		Dry
WCO-3	7/2/2001 12:00:00 PM		Dry
WCO-3	8/22/2001 12:00:00 PM		Dry
WCO-3	10/18/2001 12:00:00 PM		Dry
WCO-3	4/19/2002 12:00:00 PM		Dry
WCO-3	8/19/2002 12:00:00 PM		Dry
WCO-3	11/13/2002 12:00:00 PM		Dry
WCO-3	2/18/2003 12:00:00 PM		Dry
WCO-3	6/19/2003 12:00:00 PM		Dry
WCO-3	9/14/2004 1:35:00 PM		Dry
WCO-3	12/22/2005 3:00:00 PM		Dry
WCO-3	3/13/2006 10:51:00 AM		Dry
WCO-3	6/23/2006 12:39:00 PM		Dry, TD = 13.63 ft
WCO-3	9/13/2006 11:33:00 AM		Dry
WCO-3	12/15/2006 9:30:00 AM		Dry
WCO-3	1/24/2007 9:15:00 AM		Dry
WCO-3	3/15/2007 9:25:00 AM		Dry
WCO-3	5/24/2007 10:20:00 AM		Dry

Well Name	Date Time	Water Level (ft)	Comments
WCO-3	6/6/2007 8:00:00 AM		Dry
WCO-3	9/5/2007 12:26:00 PM		Dry
WCO-3	10/17/2007 11:50:00 AM		Dry

6.0 Groundwater Level Data from Water Supply Wells

Table 6-1 lists the Los Alamos County water supply wells; all supply wells except G-1A and O-4 were monitored for groundwater levels in FY 2007. 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. See Figure 3-1 for the locations of the wells.

The LANL GWLM Project integrated the water supply wells in the monitoring project beginning in FY 2007 with the cooperation of Los Alamos County Utility personnel. Recently obtained groundwater level data for the supply wells are provided in the following sections. Historical groundwater level data for the supply wells were most recently summarized by Koch and Rogers (2003) and in other preceding Water Supply Reports for Los Alamos.

Table 6-1. General Information for Los Alamos County Water Supply Wells

Well Name	Date Completed	Completed Depth (ft)	Easting (ft)	Northing (ft)	Surface Elevation (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)
G-1A	12/15/1954	1519	1655240.9	1784353.3	6014	272	1513
G-2A	3/21/1998	2000	1651973.8	1786166.3	6138	565	1980
G-3	8/25/1999	1800	1651676.4	1786218.3	6139	441	1100
G-3A	5/9/1998	2000	1649661.5	1786585.3	6212	590	1980
G-4A	4/1/1998	2000	1647318.2	1787112.9	6299	655	1980
G-5A	5/20/1998	2000	1644877.2	1789636.0	6414	765	1980
O-1	8/1/1990	2497	1649396.3	1772232.1	6396	1017	2477
O-4	3/1/1990	2617	1637337.4	1772995.1	6627	1115	2596
PM-1	2/1/1965	2499	1647734.3	1768112.1	6520	945	2479
PM-2	7/15/1965	2300	1636697.5	1760406.4	6715	1004	2280
PM-3	11/1/1966	2552	1642590.0	1769530.0	6610	956	2532
PM-4	8/15/1981	2874	1635623.0	1764740.0	6920	1260	2854
PM-5	9/1/1982	3092	1632110.0	1767790.0	7095	1440	3072

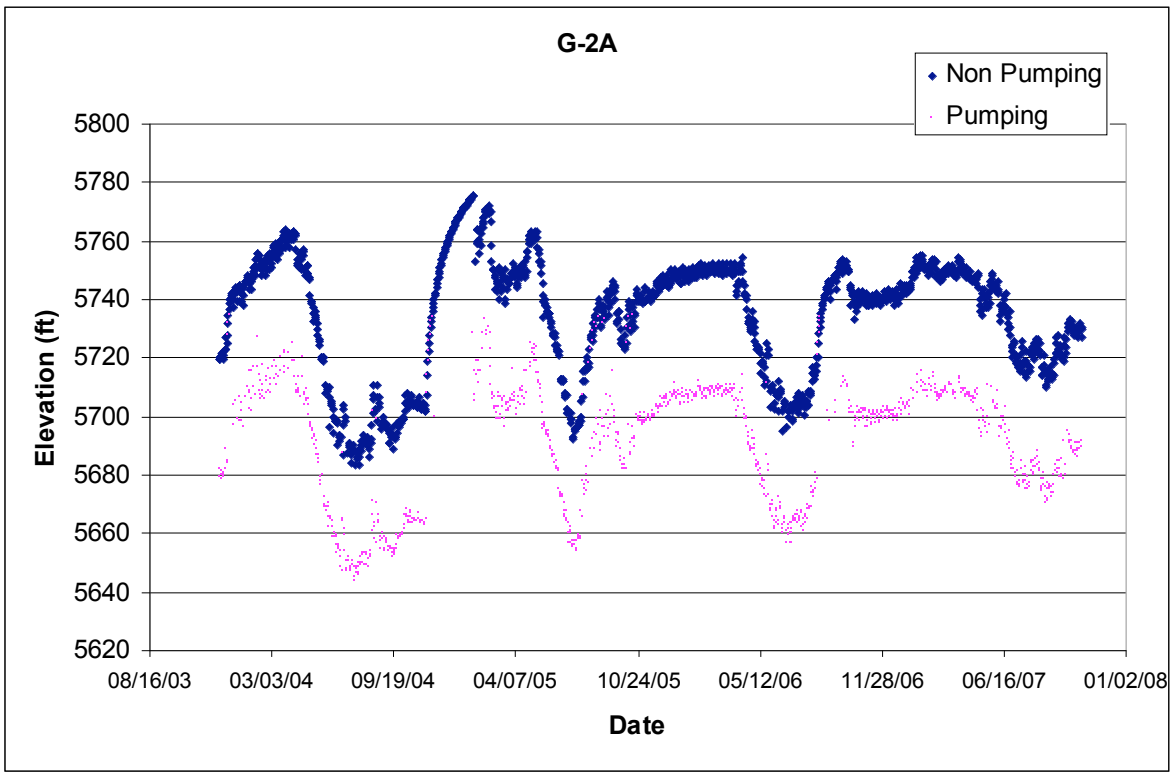
All Los Alamos County water supply wells are powered by electric motors except for PM-4, which has a natural-gas-powered motor. The electric-powered wells are typically operated at night and on weekends when electricity rates are lower. Thus these wells usually cycle on and off daily, in contrast to PM-4, which usually runs continuously when in use, which is usually just during the summer months when water demand is highest. Thus, due to the operational characteristics of the electric-powered wells, the data displayed in the following sections for these wells are the maximum daily water level, or the “non-pumping” water level, and the minimum daily or “pumping” water level. The difference between the non-pumping and the pumping water level is the drawdown for each well. The data shown for the wells that aren’t operated cyclically, which are PM-4 and O-1 (which hasn’t been used in recent years), are mean daily water levels.

6.1 G-2A

Location: G-2A is located in Guaje Canyon about 300 ft east of monitoring well G-3.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed in 1998, transducer installed December 2003; data through 2007.
Remarks: The pumping and non-pumping water levels overlap depending on pumping stress to the aquifer. The drawdown is about 40 ft.

G-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	565	1980	5573	4158	1415	540	5598	1980	4158	2000	20	444.8	Supply Well

Note: Ground Elevation: 6138.0 ft; all depths are from this elevation

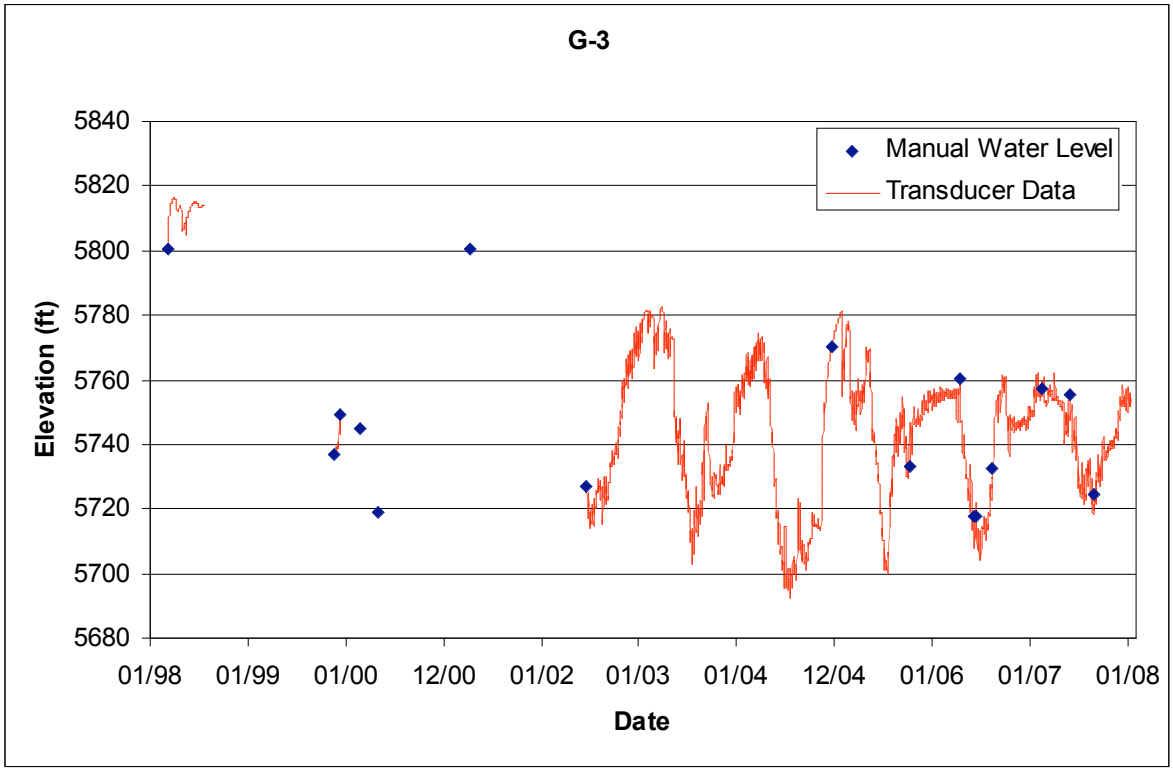


6.2 G-3

Location: G-3 is located in Guaje Canyon about 300 ft west of supply well G-2A.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well originally completed as a supply well in July 1951; plugged back to 1103 ft and converted to a monitoring well in 1998, transducer installed June 2002; data through 2007.
Remarks: G-3 responds primarily to pumping at supply well G-2A. The aquifer in the Guaje well field fluctuates seasonally 40 to 70 ft depending on pumping stresses.

G-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	441	1100	5698	5039	659			1100	5039	1103	3.0	66.7	Regional aquifer

Note: Ground Elevation: 6139.0 ft; all depths are from this elevation



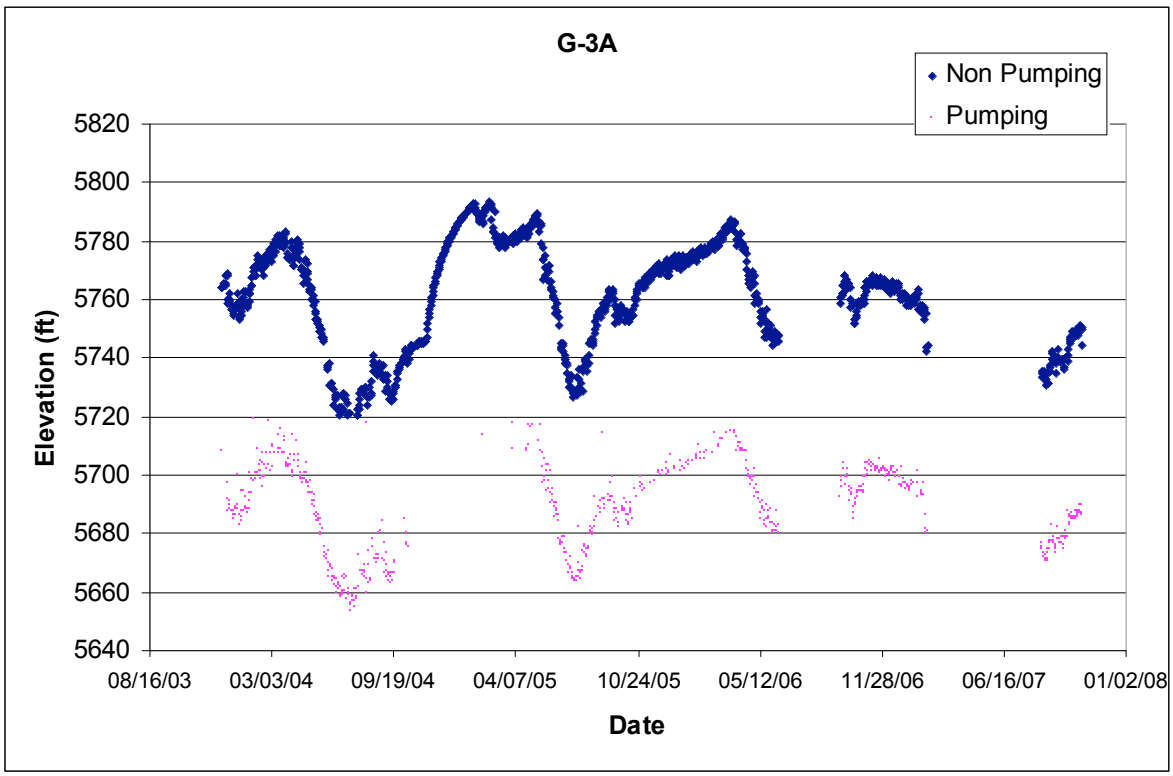
Note: mean daily water level values displayed

6.3 G-3A

Location: G-3A is located in Guaje Canyon about 1.5 miles west of monitoring well G-3.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in May 1998; transducer installed December 2003; intermittent data through 2007.
Remarks: Drawdown is 60 to 65 ft.

G-3A 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	590	1980	5622	4232	1390	560	5652	1980	4232	2000	20	853.7	Supply Well

Note: Ground Elevation: 6212.0 ft; all measurements are from this elevation

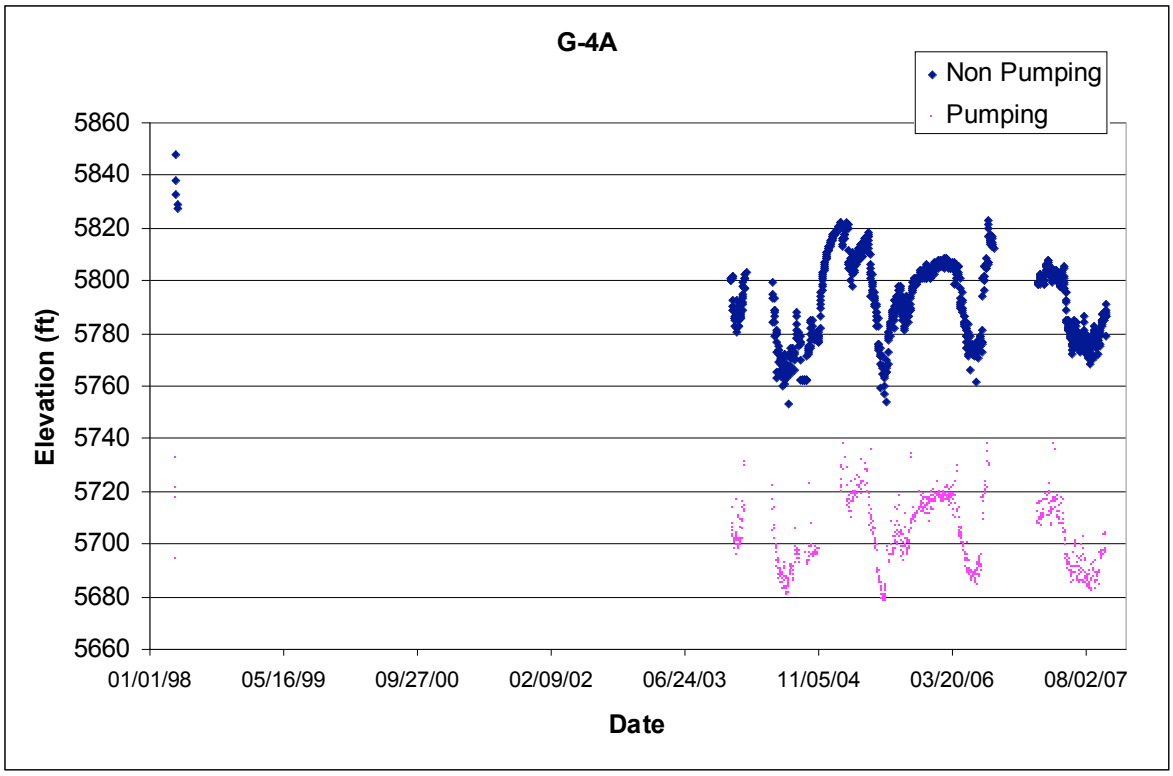


6.4 G-4A

Location: G-4A is located in lower Rendija Canyon near the confluence with Guaje Canyon and about 0.5 miles west of supply well G-3A.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in April 1998; transducer installed December 2003; intermittent data through 2007.
Remarks: Drawdown is 80 to 85 ft.

G-4A 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	655	1980	5644	4319	1325	630	5669	1980	4319	2000	20.0	853.7	Supply Well

Note: Ground Elevation: 6299.0 ft; all measurements are from this elevation



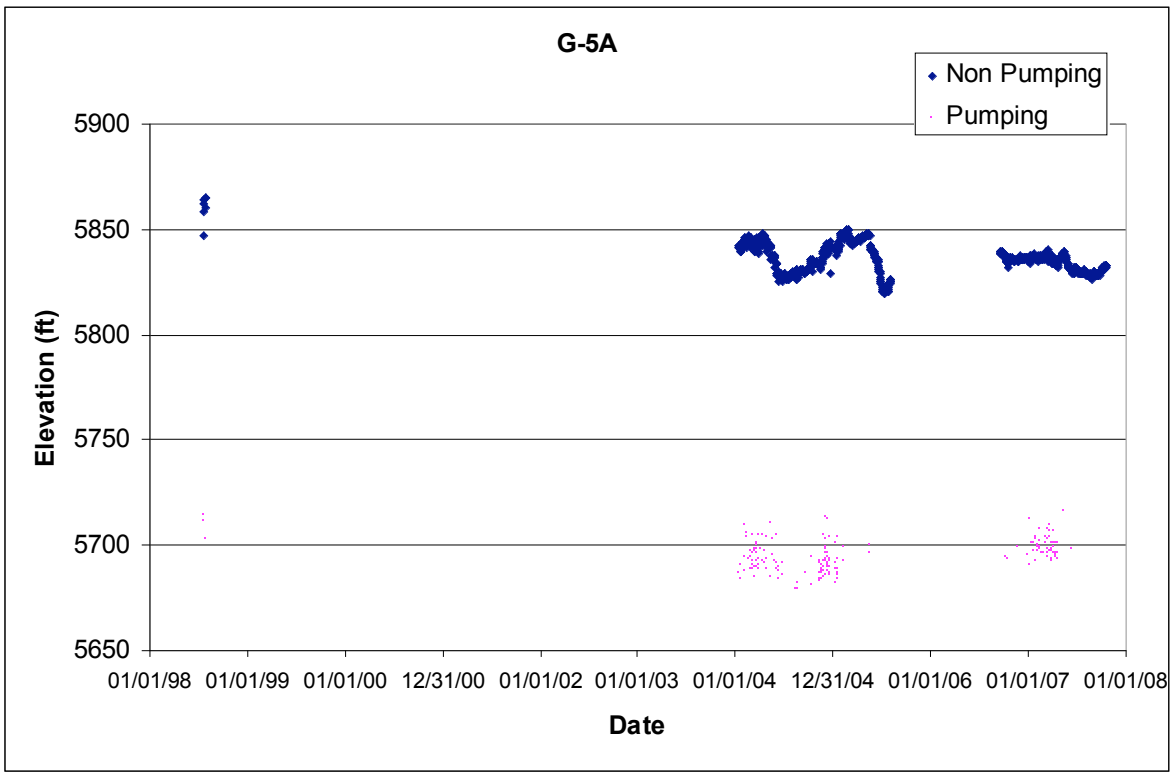
6.5 G-5A

Location: G-5A is located in Guaje Canyon upstream of Rendija Canyon and about 1.9 miles northwest of supply well G-4A.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in May 1998; transducer installed January 2004; intermittent data through 2007.
Remarks: G-5A is not used on a regular basis. Drawdown is 140 to 150 ft.

G-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	765	1980	5649	4434	1215	740	5674	1980	4434	2000	20	853.7	Supply Well

Note: Ground Elevation: 6414.0 ft; all measurements are from this elevation



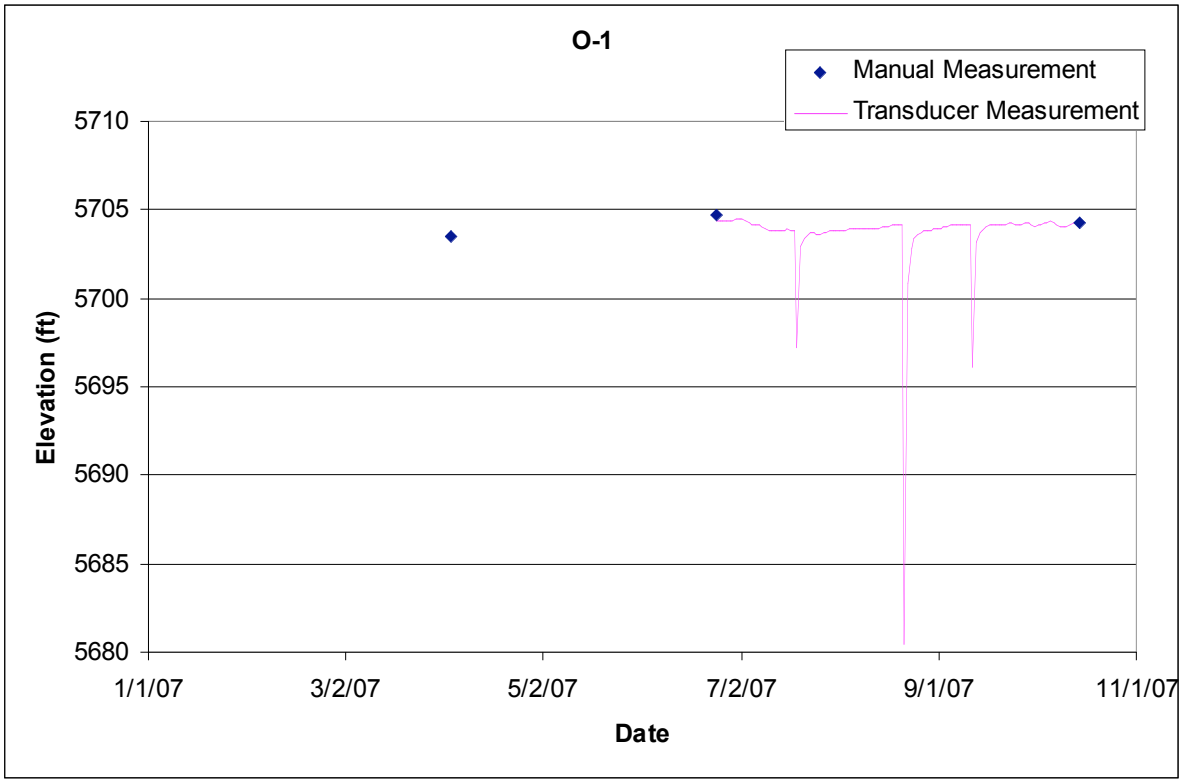
6.6 O-1

Location: O-1 is located in lower Pueblo Canyon about 0.5 miles downstream of monitoring well R-5.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in August 1990; transducer installed June 2007; data through 2007.
Remarks: O-1 has not been used on a regular basis except for quarterly groundwater sampling. Drawdown is about 100 ft. O-1 responds to pumping of supply well PM-1.

O-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	1017	2477	5379	3919	1460	877	5519	2477	2477	2497	20	790.8	Regional Aquifer

Note: Ground Elevation: 6396 ft; all measurements are from this elevation



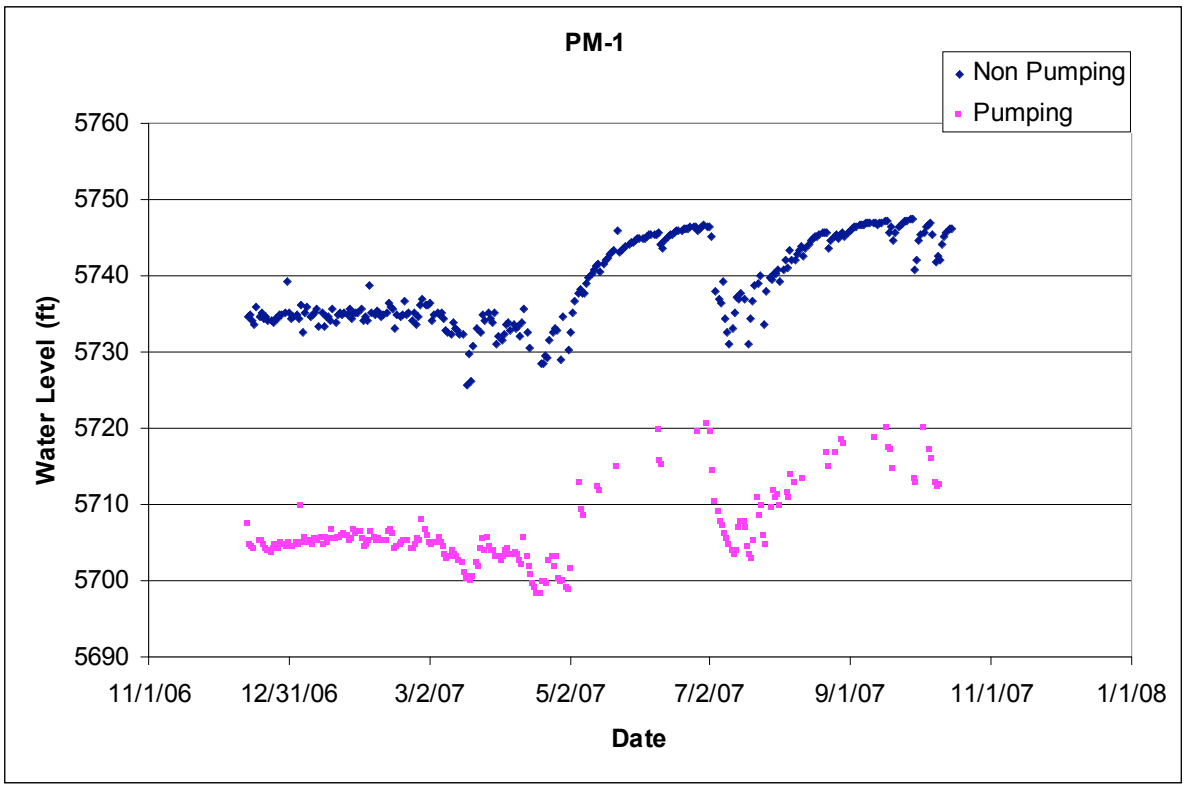
Note: Mean daily values shown

6.7 PM-1

Location: PM-1 is located in lower Sandia Canyon near the eastern Laboratory boundary and about 360 ft northeast of monitoring well R-12.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in February 1965; transducer installed December 2006; data through 2007.
Remarks: Drawdown is about 30 ft.

PM-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	945	2479	5575	4041	1534	877	5643	2479	2479	2499	20.0	790.8	Regional Aquifer

Note: Ground Elevation: 6520 ft; all measurements are from this elevation

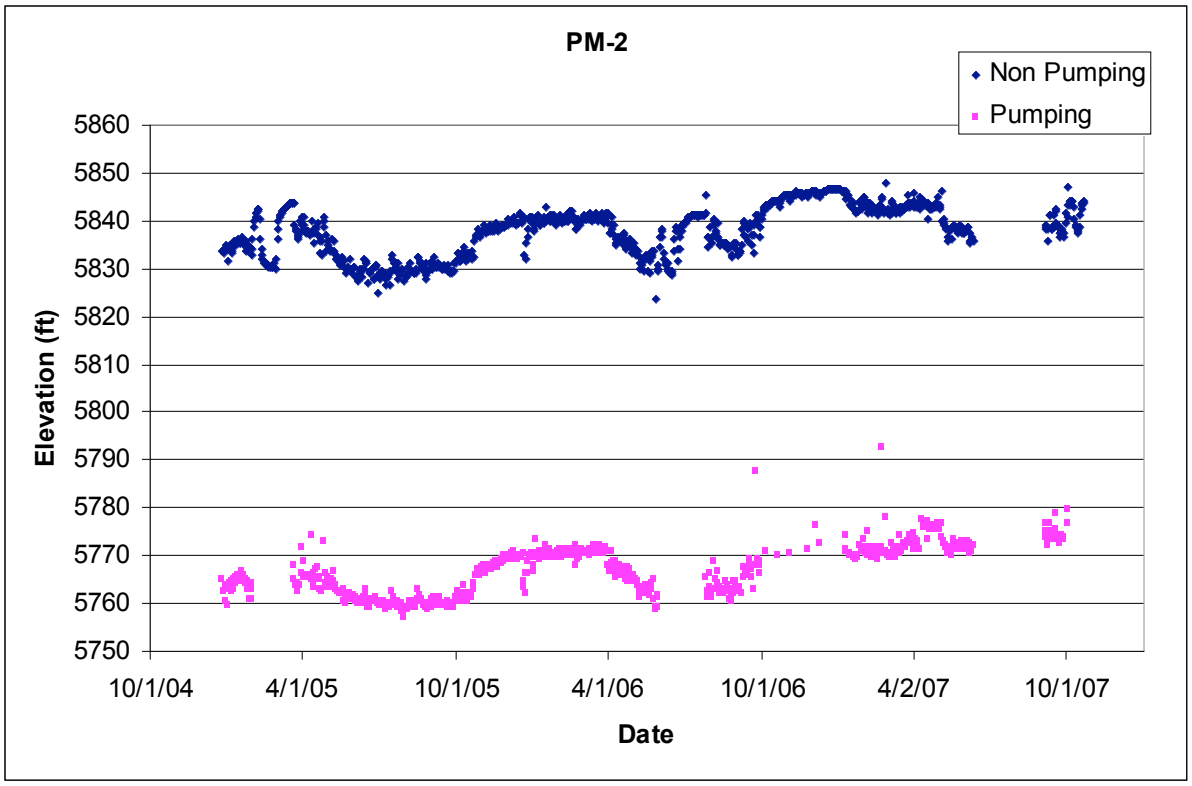


6.8 PM-2

Location: PM-2 is located in Pajarito Canyon about 0.25 miles west of monitoring well R-20.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in July 1965; transducer installed December 2004; data to October 23, 2007. The transducer was removed in October 2007 during pump removal and well rehabilitation.
Remarks: Drawdown is about 70 ft. PM-2 responds to pumping at PM-4 (McLin 2006).

PM-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	1004	2280	5711	4435	1276	980	5735	2280	4435	2300	20.0	790.8	Regional Aquifer

Note: Ground Elevation: 6715 ft; all measurements are from this elevation

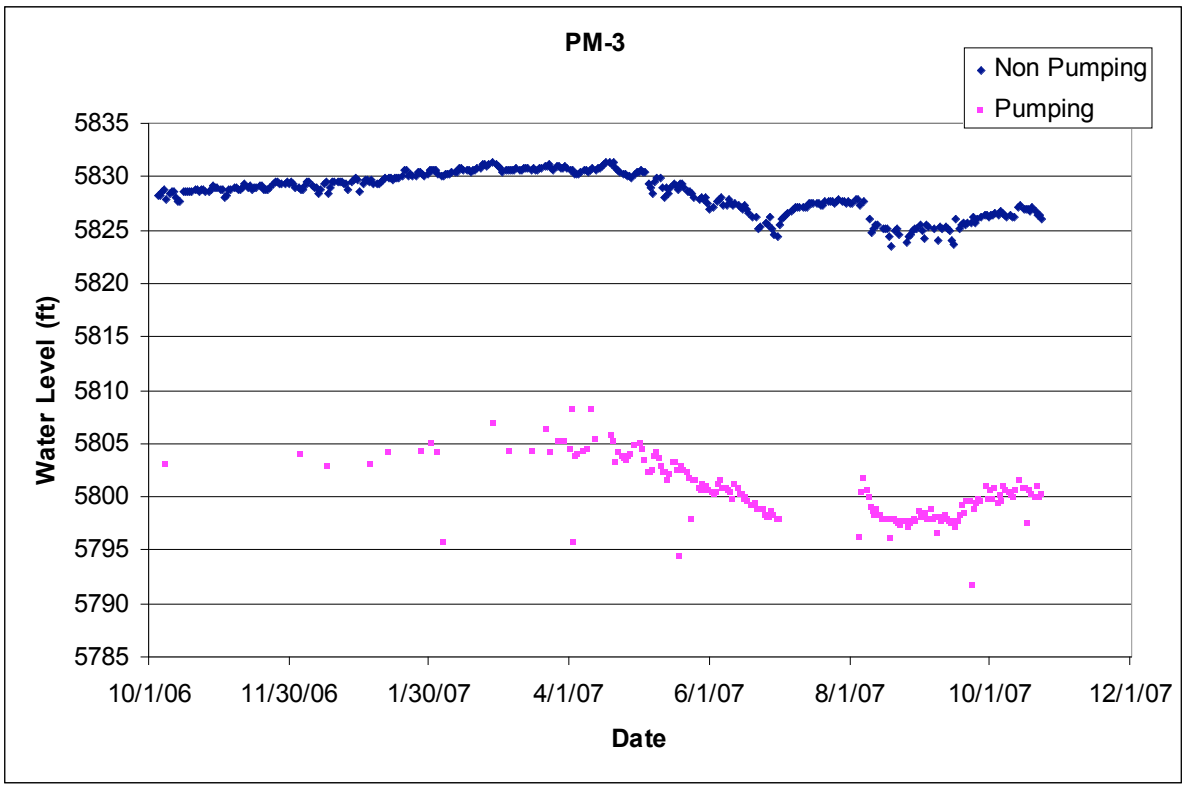


6.9 PM-3

Location: PM-3 is located in Sandia Canyon about 1 mile west of PM-1 and about 330 ft northeast of monitoring well R-35a.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in November 1966; transducer installed October 2006; data through 2007.
Remarks: Drawdown is about 27 ft. PM-3 responds to pumping at O-4.

PM-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	956	2532	5654	4078	1576	830	5780	2532	4078	2552	20	605.4	Regional Aquifer

Note: Ground Elevation: 6610 ft; all measurements are from this elevation

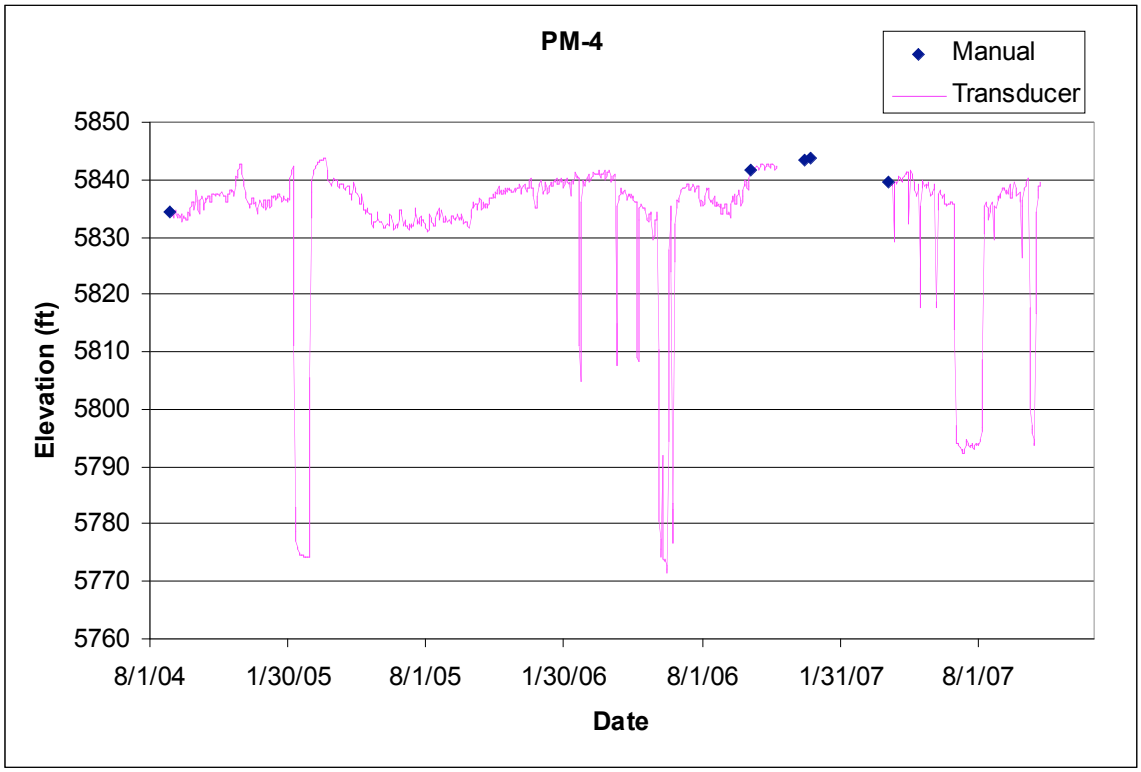


6.10 PM-4

Location: PM-4 is located on Mesita del Buey about mid way between supply wells PM-2 and PM-5. The nearest monitoring well is R-15 in Mortandad Canyon, about 0.67 miles to the north.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in August 1981; transducer installed August 2004. The transducer failed in November 2006 and was replaced in April 2007; data through 2007.
Remarks: Well is powered by a natural gas motor and when used is operated continuously. Drawdown in 2007 was about 40 ft. PM-4 responds to pumping at PM-2.

PM-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	1260	2854	5660	4066	1594	1210	5710	2854	4066	2874	20	790.8	Regional Aquifer

Note: Ground Elevation: 6920 ft; all measurements are from this elevation



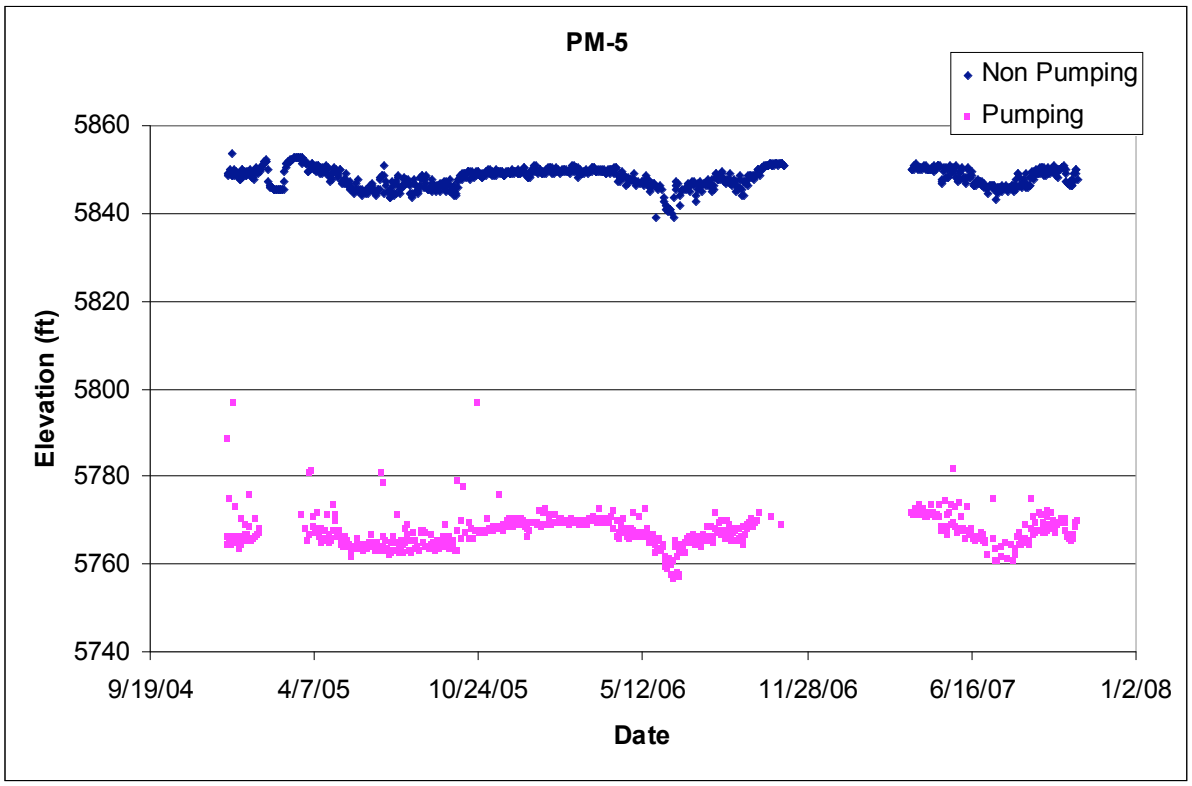
Note: mean daily water level values shown

6.11 PM-5

Location: PM-5 is located on a mesa south of Ten Site and Mortandad canyons. The nearest monitoring well is R-33 in Ten Site Canyon about 1500 ft to the northeast.
Completion Type: Single completion in the Santa Fe Group.
Period of Record: Well completed as a supply well in September 1982; transducer installed December 2004. The transducer failed in October 2006 and was replaced in April 2007; data through 2007.
Remarks: PM-5 responds to pumping PM-4. Drawdown is about 80 ft.

PM-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	1440	3072	5655	4023	1632		7095	3072	3072	3092	20	790.8	Regional Aquifer

Note: Ground Elevation: 7095 ft; all measurements are from this elevation



7.0 Acknowledgments

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Appendix A
Mean Annual Water Level at the Surface of the Regional Aquifer in LANL Monitoring Wells for 2007

Well Name	Top of Regional Aquifer (ft)	No. of Data Values	Std. Dev. (ft)	Last Data Date
CDV-R-15-3	6019.7	6306	0.04	10/18/07
CDV-R-37-2	6137.1	8045	0.04	12/31/07
G-3	5743.9	8757	11.66	12/31/07
R-1	5878.7	7954	0.48	11/28/07
R-10a	5740.4	8250	1.58	11/30/07
R-11	5838.0	10251	0.37	12/4/07
R-12	No data			
R-13	5836.0	10090	0.33	11/27/07
R-14	5883.4	7106	0.46	12/5/07
R-15	5850.5	7953	1.03	11/28/07
R-16r	5692.6	8000	0.19	11/30/07
R-17	5884.7	6782	0.32	10/17/07
R-18	6117.0	6795	0.20	10/11/07
R-19	5887.5	3797	0.10	7/17/07
R-2	5871.1	8757	0.30	12/31/07
R-20	No data			
R-21	5854.2	7617	0.67	11/25/07
R-22	5762.2	7551	0.13	12/20/07
R-23	5697.6	6803	0.16	10/11/07
R-24	5830.0	8757	2.03	12/31/07
R-25	6234.4	6698	1.30	12/31/07
R-26	6539.4	5024	2.28	10/18/07
R-27	5898.1	8755	0.21	12/31/07
R-28	5838.4	12032	0.41	12/4/07
R-31	5827.7	8216	0.13	12/31/07
R-32	5858.8	5413	0.09	8/31/07
R-33	No data			
R-34	5834.8	8000	0.38	11/30/07
R-35b	5837.1	6243	0.14	12/31/07
R-4	5831.5	8738	0.96	12/31/07
R-5	5767.2	9911	0.17	12/31/07
R-6	5838.9	8437	0.64	12/18/07
R-7	5877.8	8277	0.12	12/18/07
R-8	5853.5	9286	0.95	12/31/07
R-9	5691.7	10598	0.16	12/18/07
Test Well 8	5875.0	7952	0.37	11/28/07
Test Well DT-10	5918.8	8336	0.11	12/31/07
Test Well DT-5A	5958.1	8758	0.25	12/31/07
Test Well DT-9	5915.2	8756	0.11	12/31/07

Appendix B
Summary of Transient Responses to Supply Well Pumping in LANL Monitoring Wells

Well	Screen	Seasonal Response	Guaje	Otowi 1	Otowi 4	PM-1	PM-2	PM-3	PM-4	PM-5	Comment
CdV-R-15-3	4	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response not related to pumping
CdV-R-15-3	5	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response not related to pumping
CdV-R-15-3	6	Yes	NE	NE	NE	NE	No	NE	No	Possible	Seasonal response not related to pumping
CdV-R-37-2	2	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response not related to pumping
CdV-R-37-2	3	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response not related to pumping
CdV-R-37-2	4	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response not related to pumping
G-3	Single	Yes	Yes	NE	NE	NE	NE	NE	NE	NE	Guaje well field monitoring well
R-1	Single	Yes	NE	NE	Possible	NE	No	No	Possible	Yes	Primarily responds to PM-5
R-2	Single	No	No	NE	No	NE	NE	NE	NE	NE	Gradual decline of about 0.5 ft/yr
R-4	Single	Yes	Possible	No	Possible	NE	NE	Yes	NE	NE	Seasonal response but not to a specific well
R-5	3	No	No	No	No	No	NE	No	NE	NE	Gradual decline of about 0.6 ft/yr
R-5	4	Yes	No	Possible	No	Yes	NE	No	NE	NE	Seasonal response but not to a specific well
R-6	Single	Yes	No	No	Possible	NE	NE	Yes	NE	No	Seasonal response but not to a specific well
R-7	3	No	No	No	No	NE	NE	No	NE	NE	Gradual decline of about 0.5 ft/yr
R-8	1	Yes	No	NE	Possible	No	NE	Yes	NE	NE	Responds primarily to pumping at PM-3
R-8	2	Yes	No	NE	Possible	No	NE	Yes	NE	NE	Responds primarily to pumping at PM-3
R-9	Single	Yes	No	No	NE	No	NE	No	NE	NE	Gradual decline of about 0.4 ft/yr
R-10	1	ID	NE	NE	NE	Yes	NE	NE	NE	NE	Responds primarily to PM-1
R-10	2	ID	ID	ID	ID	ID	ID	ID	ID	ID	No water level data as of 01/08
R-10a	Single	No	NE	NE	NE	No	NE	No	NE	NE	No apparent response to pumping
R-11	Single	Yes	NE	NE	No	NE	Possible	No	No	Possible	Seasonal response but not to a specific well
R-12	3	No	No	No	No	No	NE	No	No	No	No apparent response to nearby well PM-1
R-13	Single	Yes	NE	NE	No	No	Possible	No	Yes	Possible	Seasonal response but not to a specific well
R-14	1	Yes	NE	NE	Possible	NE	Possible	NE	No	Yes	Responds primarily to PM-5
R-14	2	Yes	NE	NE	Possible	NE	Possible	NE	No	Yes	Responds primarily to PM-5
R-15	Single	Yes	NE	NE	Possible	NE	No	No	Yes	Yes	Responds primarily to pumping at PM-4 and PM-5
R-16	2	No	NE	NE	NE	No	No	NE	NE	NE	No apparent response to Buckman pumping
R-16	3	No	NE	NE	NE	No	No	NE	NE	NE	No apparent response to Buckman pumping
R-16	4	No	NE	NE	NE	No	No	NE	NE	NE	No apparent response to Buckman pumping
R-16r	Single	No	No	No	No	No	No	No	No	No	No apparent response to Buckman pumping
R-17	1	Yes	NE	NE	NE	NE	No	NE	No	No	Seasonal response but not to a specific well
R-17	2	Yes	NE	NE	NE	NE	Possible	NE	Possible	Yes	Responds primarily to pumping at PM-5
R-18	Single	No	NE	NE	NE	NE	No	NE	No	No	No apparent response to pumping
R-19	3	Yes	NE	NE	NE	NE	Possible	NE	No	Possible	Muted response
R-19	4	Yes	NE	NE	NE	NE	Yes	NE	Yes	Possible	Responds primarily to PM-2
R-19	5	Yes	NE	NE	NE	NE	Yes	NE	Yes	Possible	Responds primarily to PM-2
R-19	6	Yes	NE	NE	NE	NE	Yes	NE	Yes	Possible	Responds primarily to PM-2
R-19	7	Yes	NE	NE	NE	NE	Yes	NE	Yes	Possible	Responds primarily to PM-2
R-20	1	Yes	NE	NE	NE	NE	Yes	NE	Yes	NE	Highly muted response
R-20	2	Yes	NE	NE	NE	NE	Yes	NE	Yes	NE	Muted response
R-20	3	Yes	NE	NE	NE	NE	Yes	NE	Yes	NE	Responds primarily to PM-2 but also to PM-4
R-21	Single	Yes	NE	NE	NE	No	Yes	No	Possible	NE	Seasonal response but not to a specific well
R-22	1	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-22	2	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-22	3	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-22	4	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-22	5	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-23	Single	No	NE	NE	NE	No	No	NE	NE	NE	No apparent response to pumping
R-24	Single	Yes	Possible	No	Possible	No	NE	Yes	NE	NE	Responds primarily to pumping at PM-3
R-25	5	No	NE	NE	NE	NE	No	No	No	No	No apparent response to pumping
R-25	6	No	NE	NE	NE	NE	No	No	No	No	No apparent response to pumping
R-25	7	No	NE	NE	NE	NE	No	No	No	No	No apparent response to pumping
R-25	8	No	NE	NE	NE	NE	No	No	No	No	No apparent response to pumping
R-26	2	No	NE	NE	NE	NE	No	No	No	No	No apparent response to pumping
R-27	Single	Yes	NE	NE	NE	NE	NE	NE	NE	NE	Seasonal response but not to a specific well
R-28	Single	Yes	NE	NE	NE	NE	Possible	No	Yes	Possible	Seasonal response but not to a specific well
R-31	2	No	NE	NE	NE	No	No	No	No	NE	No apparent response to pumping
R-31	3	No	NE	NE	NE	No	No	No	No	NE	No apparent response to pumping
R-31	4	No	NE	NE	NE	No	Possible	No	No	NE	Limited data for evaluation
R-31	5	Yes	NE	NE	NE	No	Yes	No	Possible	NE	Appears to respond seasonally like PM-2
R-32	1	No	NE	NE	NE	NE	No	No	No	NE	No apparent response to pumping
R-32	2	Yes	NE	NE	NE	No	Yes	No	Yes	NE	Responds primarily to pumping at PM-2 and PM-4
R-32	3	Yes	NE	NE	NE	No	Yes	No	Yes	NE	Responds primarily to pumping at PM-2 and PM-4
R-33	1	No	NE	NE	NE	NE	NE	NE	NE	NE	Limited data for evaluation
R-33	2	Yes	NE	NE	NE	NE	NE	No	Yes	Yes	Responds primarily to pumping at PM-5
R-34	Single	Yes	NE	NE	NE	No	No	No	No	NE	Seasonal response but not to a specific well
R-35a	Single	Yes	NE	NE	Yes	NE	NE	Yes	NE	NE	Responds primarily to nearby supply well PM-3
R-35b	Single	ID	NE	NE	NE	NE	NE	No	NE	NE	Insufficient data to evaluate
TW-1	Single	No	No	No	NE	No	NE	NE	NE	NE	Water level impacted by surface water near well
TW-2	Single	Yes	NE	NE	NE	NE	NE	NE	NE	NE	No recent valid water level data
TW-3	Single	Yes	No	NE	No	NE	NE	No	NE	NE	Gradual decline of about 0.8 ft/yr
TW-4	Single	Yes	No	NE	No	NE	NE	NE	NE	NE	Seasonal fluctuations not related to pumping

NE = not evaluated; ID = insufficient Data

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