Doc No. WRD-ED-0014

SOUTHERN NEVADA WATER AUTHORITY

Water Resources Division

2011 Spring Valley Hydrologic Monitoring, Management, and Mitigation Plan Status and Data Report

March 2012

Prepared by
Southern Nevada Water Authority
Water Resources Division
P.O. Box 99956
Las Vegas, Nevada 89193-9956

Submitted to the
Nevada State Engineer and the
Spring Valley Stipulation
Executive Committee

Suggested citation:
Southern Nevada Water Authority, 2012, 2011 Spring Valley hydrologic monitoring, management, and mitigation plan status and data report: Southern Nevada Water Authority, Las Vegas, Nevada, Doc. No. WRD-ED-0014, 165 p.

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ACRONYMS

BLM	Bureau of Land Management
BWG	Biological Work Group
CPB	Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-Day Saints
DOI	U.S. Department of the Interior
EC	Executive Committee
GBNP	Great Basin National Park
HA	hydrographic area
MOU	Memorandum of Understanding
NDWR	Nevada Division of Water Resources
NSE	Nevada State Engineer
NWIS	National Water Information System
SNPLMA	Southern Nevada Public Lands Management Act
SNWA	Southern Nevada Water Authority
SVMM	Spring Valley Monitoring and Mitigation
TRP	Technical Review Panel
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
WY	water year

ABBREVIATIONS

°C	degrees Celsius
afy	acre-feet per year
amsl	above mean sea level
bgs	below ground surface
cfs	cubic feet per second
ft	foot
gpm	gallons per minute
in.	inch
m	meter
mi	mile
mi^2	square mile

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1.0 INTRODUCTION

This report was prepared by the Southern Nevada Water Authority (SNWA) in satisfaction of monitoring and reporting requirements set forth in the *Hydrologic Monitoring and Mitigation Plan for Spring Valley (Hydrographic Area 184)* (SVMM Plan) (SNWA, 20011a). The location of Spring Valley is presented in Figure 1-1. The report provides the Nevada State Engineer (NSE) hydrologic data collected in 2011 and the current status of each element of the SVMM plan. The hydrologic data contained in this report were submitted to the NSE in electronic format.

This report also satisfies the hydrologic data reporting requirements of the U.S. Department of the Interior (DOI) and SNWA Stipulation Agreement. The SVMM Plan contains all the hydrologic monitoring elements of the Stipulation Agreement as well as monitoring required by the NSE that relate to existing non-federal water-rights.

This is the fifth annual status and data report in a series of reports associated with the Spring Valley hydrologic monitoring, management and mitigation program. The reports document historic hydrologic conditions and plan status since 2007 (SNWA, 2008, 2009b, 2010, and 2011b).

1.1 Background

On September 8, 2006, prior to the NSE hearing for applications 54003 through 54020, a Stipulation for Withdrawal of Protests (Stipulation, 2006) was established between SNWA and DOI on behalf of the Bureau of Indian Affairs, the Bureau of Land Management (BLM), the National Park Service, and the U.S. Fish and Wildlife Service (USFWS) (collectively known as the DOI Bureaus). Exhibits A and B of the Stipulation require the development of biologic and hydrologic monitoring plans. As part of the Stipulation, an Executive Committee (EC) was established to oversee the implementation of the agreement. The hydrologic Technical Review Panel (TRP), composed of technical expert representatives of parties to the stipulation, was established to develop and oversee implementation of the monitoring and mitigation plan, review program data, and modify the monitoring plan, if necessary. A Biological Working Group (BWG) was also establish to oversee the development and implementation of the biological monitoring plan.

On April 16, 2007, SNWA was granted groundwater rights in Spring Valley hydrographic area (HA) 184 for municipal and domestic purposes under permits 54003 through 54015, inclusive, as well as 54019 and 54020. Ruling 5726 required the development of biologic and hydrologic monitoring plans. The hydrologic SVMM plan associated with this ruling was approved by the NSE on February 9, 2009.

Since the issuance of Ruling 5726, an opinion by the Nevada Supreme Court concluded that the NSE must re-notice SNWA's original groundwater applications and reopen the protest period (Great Basin

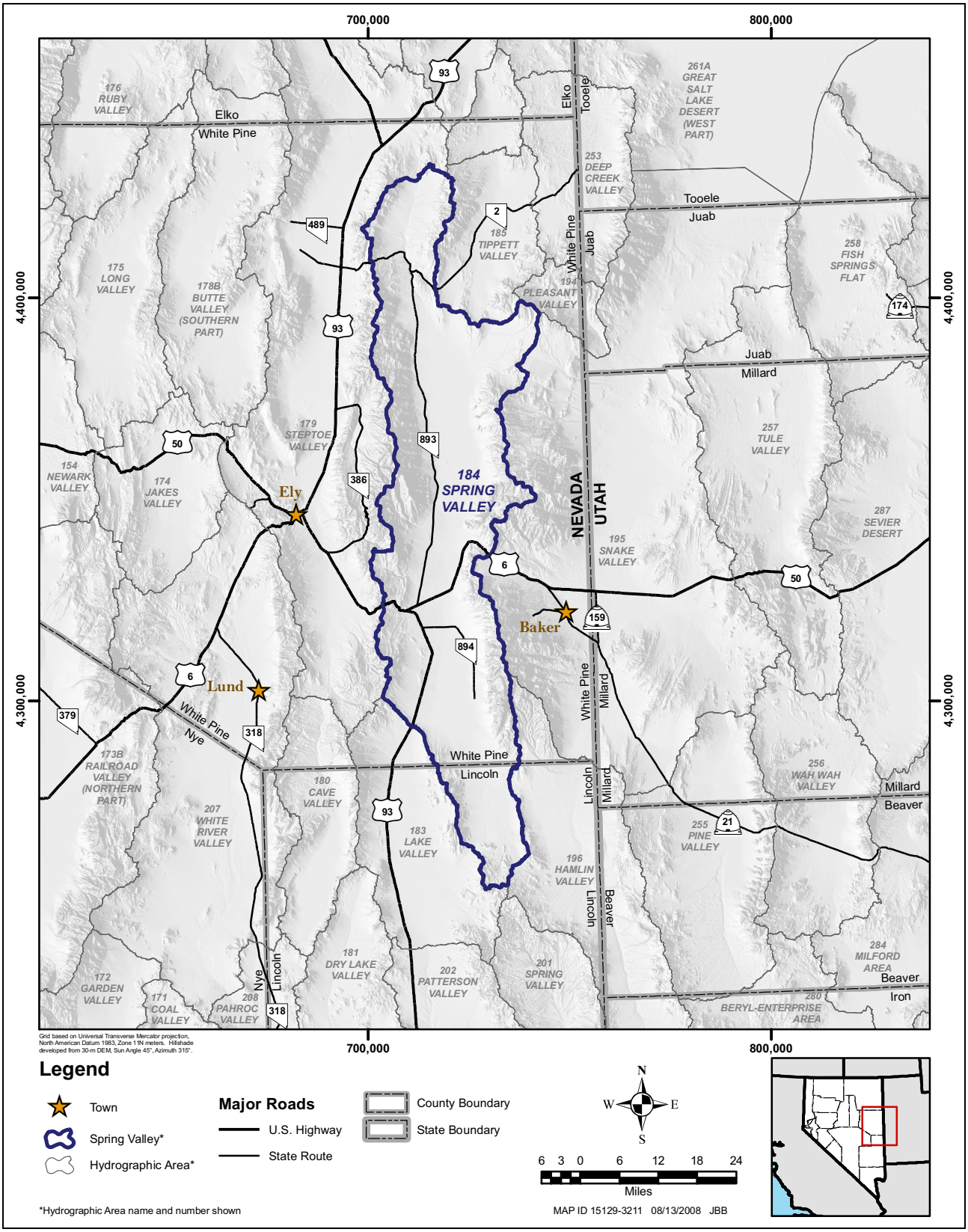


Figure 1-1
Spring Valley Hydrographic Area 184

Water Network, et. al. v. NSE, et. al., June 17, 2010) (NSC, 2010). A second hearing was held by the NSE in regard to the water right applications in September through November, 2011. On March 22, 2012, the NSE issued Ruling 6164 granting SNWA Spring Valley Application Numbers 54003 through 54015, and 54019 and 54020. Ruling 6164 approved the SNWA Hydrologic Monitoring and Mitigation Plan for Spring Valley and required annual data reports be submitted to the NSE. This report is submitted for the purpose of meeting the Stipulation reporting requirements as well as the reporting requirements under Ruling 6164.

1.2 Major Activities Performed in 2011

Major activities associated with the SVMM Plan performed in 2011 were as follows:

- Continued the implementation of the SVMM Plan including data collection efforts and maintenance of the monitoring network.

- Obtained property access and completed installation of two flumes to measure spring discharge, two monitor wells, and one piezometer located on the Cleveland Ranch owned by The Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-Day Saints (CPB).

- Constructed two monitor wells, SPR7024M and SPR7024M2, southeast of Shoshone Ponds. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7024M and SPR7024M2 in Spring Valley* (Mace, 2011a).

- Constructed two monitor wells, SPR7029M and SPR7029M2, west of Cleveland Ranch on the Cleve alluvial fan. The wells will replace the existing Cleve well in the groundwater monitoring network. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7029M and SPR7029M2 in Spring Valley* (Mace, 2011b).

- Performed a step-drawdown test and a constant-rate aquifer test at SPR7029M2. The step test ranged from 200 to 825 gpm. The constant-rate aquifer test was conducted for a duration of 120 hours at 500 gpm. A summary of the pre- and post-test groundwater level trends, test specifications, and results are presented in *Well Development and Aquifer Testing Results Test Well SPR7029M2, Spring Valley, NV* (Prieur and Ashinhurst, 2011).

- Constructed two monitor wells, SPR7030M and SPR7030M2, on Cleveland Ranch near the Cleveland South Spring. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7030M and SPR7030M2 in Spring Valley* (Mace, 2011c).

- Completed the collection and laboratory analysis of water-chemistry program samples as described in Section 2.7.

- Equipped 12 piezometers associated with the spring monitoring network with integrated datalogger and pressure transducer instrumentation to collect continuous water-level data.

- Completed a professional survey of elevation and coordinates at the monitor well and piezometer locations.

- Maintained the SNWA data-exchange web site accessible by the NSE, EC, TRP, and BWG. The web site contains project reports, monitoring network attributes, and hydrologic data.

- Worked cooperatively with the TRP to obtain updates on the Southern Nevada Public Lands Management Act (SNPLMA) Round 8 hydrologic study in and around the Great Basin National Park (GBNP). The study includes well installations and surface water groundwater interaction studies at the GBNP and near Big Springs.

- Provided technical assistance to the Biological Working Group (BWG) with implementation of the Biological Monitoring Plan. Held a joint meeting with the TRP and BWG to provide an update of project activities.

1.3 Report Scope

Section 2.0 presents the status and data collected for each major element of the SVMM Plan. Section 3.0 discusses the planned activities for 2012, and Section 4.0 provides a list of references. Lastly, Appendix A through Appendix G present tables and graphs of the various data discussed in the report.

2.0 SVMM PLAN STATUS AND DATA

The hydrologic data collected in 2011 and current status of each major element of the SVMM Plan are presented in this section. Each subsection follows the order of topic presentation in the SVMM Plan.

2.1 Exploratory- and Production-Well Monitoring

The exploratory- and production-well monitoring section of the SVMM Plan states that SNWA shall record discharge and water levels in all completed SNWA production wells on a continuous basis. SNWA does not currently have any production wells associated with this project; however, continuous measurements will be collected from all future production wells.

Quarterly measurements of groundwater levels are required in all SNWA exploratory wells, at least quarterly. Fourteen test and exploratory wells were installed by SNWA in Spring Valley between 2006 and 2008 (SNWA, 2009a). The wells are presented in Figure 2-1. An attribute table for these wells including well construction, location coordinates, and ground-surface elevation, is presented in Table 2-1. Seven of the wells were incorporated into the existing-well monitoring network and are monitored continuously as described in Section 2.2. Water levels at the other seven locations are measured quarterly. Periodic water-level measurements for the exploratory and test wells are presented in Appendix A with hydrographs of the wells measured periodically. Hydrographs of the wells with continuous monitoring are presented in Appendix B.

2.2 Existing-Well Monitoring Network

The SVMM Plan states that SNWA shall monitor water levels quarterly in 10 representative existing monitor wells and continuously in 15 representative existing monitor wells in the Spring Valley and Hamlin Valley HAs at locations agreed upon by the TRP and NSE.

In 2007, the TRP, in consultation with the NSE, selected 25 wells to include in the existing-well monitoring network. Wells were selected based upon integrity of construction, spatial distribution, and completion information. Wells included in the network are completed in carbonate-rock, volcanic, and basin-fill aquifers. The locations of the wells and the aquifers monitored are presented in Figure 2-2. Simplified well-identification numbers relate to the list of wells presented in Table D.1-1 in SNWA (2006). Each well-identification number on the figure includes a Q or C designation for quarterly or continuous measurements.

An attribute table for wells included in this monitoring network, including well construction, location coordinates, and ground-surface elevation, is presented in Table 2-2. A professional-grade survey of

location coordinates and ground-surface and top-of-casing measuring-point elevations was performed for each existing well in the network in 2008.

The network includes wells owned by SNWA, USGS, and BLM and two wells owned by the owners of Eldridge Ranch. All continuously monitored wells are owned by SNWA or USGS. SNWA and USGS developed a Memorandum of Understanding (MOU) to upgrade the well pads and install an equipment housing and pressure transducer and datalogger instrumentation at seven USGS well locations. The well-upgrade program began in 2008 and was completed in 2009.

The Cleve Creek Well (site number 391224114293601), as agreed to by the TRP and NSE, will be dropped from the network and has been replaced with new paired shallow and deeper monitor wells, SPR7029M and SPR7029M2, located approximately 1 mi to the north of the existing Cleve Creek Well. The construction details of the existing Cleve Creek well are not available and the new monitor wells provide higher-quality data as well as more information on the lithologic and hydrogeologic characteristics of the surficial aquifer including vertical hydraulic gradient. Hydrologic data will be collected from both locations for a period of time agreed upon by the TRP and NSE until a sound comparison of the record can be established. SPR7029M and SPR7029M2 were completed in April 2011 and are reported in Section 2.3.4.1.

The periodic water-level data collected in 2011 for each monitor well are presented in Appendix A. Historic water-level data are also presented on hydrographs for the wells which are not continuously monitored. Appendix B presents the 2011 daily mean values derived from continuous data collection, and hydrographs presenting both periodic and continuous data from monitoring network wells where continuous groundwater-level data collection is required. Historical hydrographs are also presented for those monitoring sites. Some of the early historical data collected prior to establishment of the SNWA monitoring program at certain well locations are approximate or are omitted because of the uncertainty associated with collection methods and procedures or variations in the reference point used for the measurement at the time of collection.

2.3 New Monitor Wells

The SVMM Plan requires the installation of new monitor wells at specific locations. New well locations and design were selected with the approval of the NSE and TRP. This section presents a description and the current status of the new wells. Status of the rights-of-way for each related element of the program are also presented.

2.3.1 Interbasin Monitoring Zone Network

The Stipulation Agreement established an Interbasin Monitoring Zone (Zone) and requires data collection intended to characterize the hydraulic gradient from Spring Valley to Snake Valley via Hamlin Valley. In the fall of 2007, the TRP selected six wells to include in the Zone monitoring program. The network includes carbonate monitor well 184W502M, which was installed in 2006, and five additional future well locations. The future locations include three carbonate and two basin-fill wells. The locations of the well sites and the Zone boundary are presented in Figure 2-3 and the location coordinates for the wells are listed in Table 2-3.

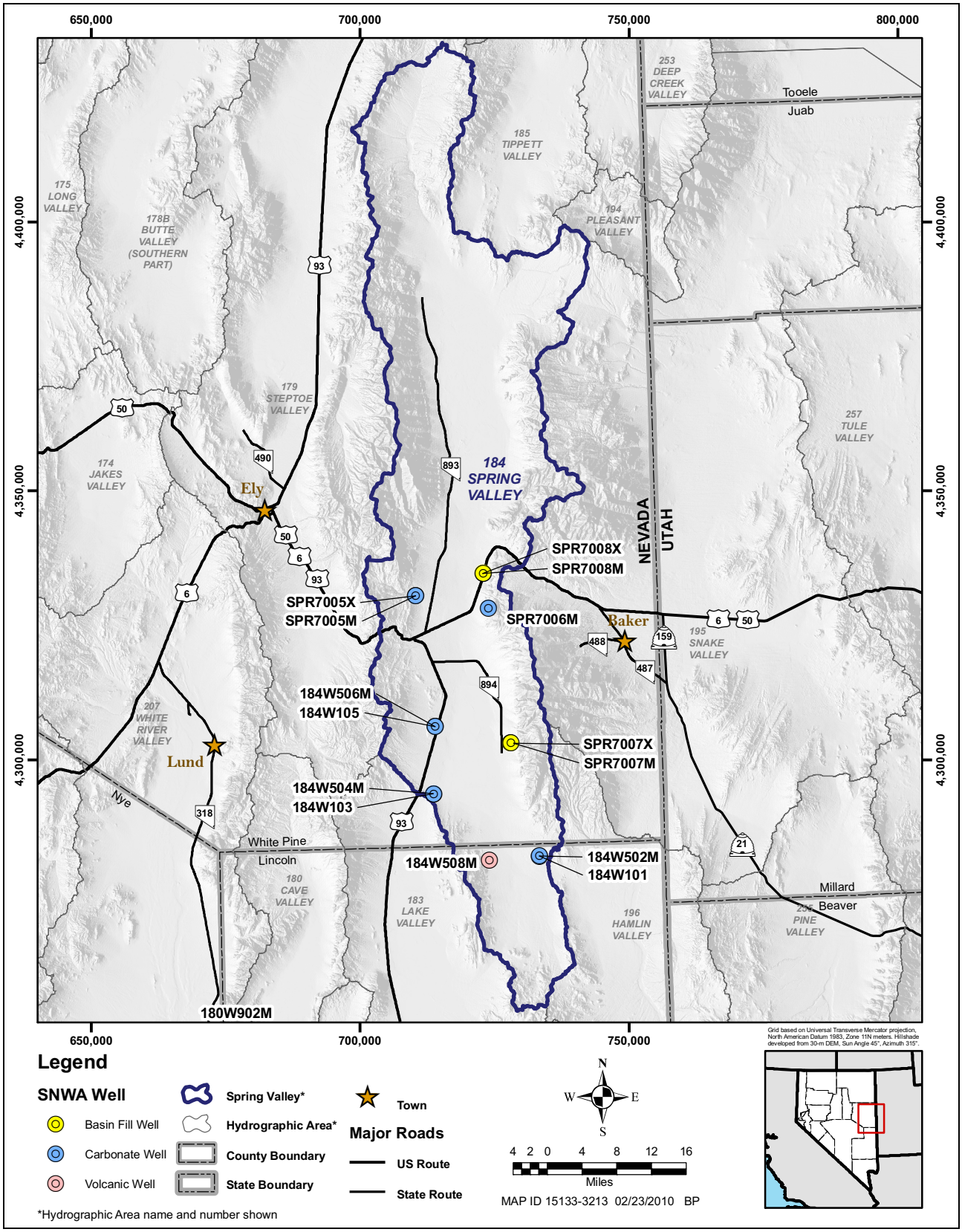


Figure 2-1
SNWA Exploratory and Test Wells in Spring Valley (as of March 2012)

Table 2-1
SNWA Exploratory and Test Wells in Spring Valley, Nevada (as of March 2012)

Site Number	Station Local Number[b]	Location[a]		Surface[c] Elevation (ft amsl)	Completion Date	Drill depth (ft bgs)	Well depth (ft bgs)	Well Casing Diameter (in.)	Screened Interval (ft bgs)	Open Interval (ft bgs)	Aquifer	Specific Capacity (gpm/ft)
		UTM Northing (m)	UTM Easting (m)									
184W508M[d]	184 N09 E67 11DBCD1	4,281,308.68	724,070.89	6,056.19	12/15/2006	1,180	1,160	8	376 to 1,140	241 to 1,180	Volcanic	---
184W101	---	4,282,062.02	733,297.65	6,190.90	2/24/2007	1,760	1,749	20	796 to 1,728	135 to 1,760	Carbonate	11.13
184W502M[d]	184 N09 E68 11BDBD1	4,282,116.35	733,294.42	6,189.72	1/25/2007	1,828	1,799	8	495 to 1,779	58 to 1,828	Carbonate	---
184W103	---	4,293,693.03	713,697.74	5,899.06	12/6/2006	1,046	1,017	20	296 to 996	60 to 1,046	Carbonate	4.18
184W504M[d]	184 N11 E66 35CCCC1	4,293,712.49	713,647.12	5,900.11	11/17/2006	1,040	1,020	8	309 to 999	61 to 1,040	Carbonate	---
184W105	---	4,306,176.07	713,991.23	6,007.30	11/7/2006	1,160	1,135	20	418 to 1,114	60 to 1,160	Carbonate	54.89
184W506M[d]	184 N12 E66 26BADC1	4,306,214.21	713,939.81	6,014.04	10/19/2006	1,160	1,140	8	430 to 1,120	80 to 1,160	Carbonate	---
SPR7005X	---	4,330,506.86	710,356.78	6,397.56	4/11/2008	1,395	1,350	20	669 to 1,330	511 to 1,395	Carbonate	75.21
SPR7005M[d]	184 N14 E66 09ABCA1	4,330,471.51	710,372.44	6,395.68	7/10/2007	1,412	1,404	8	663 to 1,383	439 to 1,412	Carbonate	---
SPR7006M	---	4,328,163.49	723,872.61	6,525.18	9/20/2007	1,720	1,701	8	980 to 1,680	167 to 1,720	Carbonate	---
SPR7007X	---	4,303,152.00	727,946.17	6,017.53	1/24/2008	1,040	1,020	20	299 to 1,000	155 to 1,040	Basin-Fill	95.54
SPR7007M[d]	184 N11 E68 05BCBC1	4,303,146.59	727,976.03	6,017.73	8/17/2007	1,040	1,020	8	300 to 1,000	101 to 1,040	Basin-Fill	---
SPR7008X	---	4,334,727.66	722,847.72	5,702.99	11/27/2007	970	960	20	240 to 940	102 to 970	Basin-Fill	11.78
SPR7008M[d]	184 N15 E67 26CDAB1	4,334,702.61	722,865.27	5,704.86	7/25/2007	960	946	8	226 to 926	54 to 960	Basin-Fill	---

[a]Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Station Local Numbers provided by the Nevada Department of Water Resources.
[c]Elevations are North American Vertical Datum of 1988 (NAVD88).
[d]Sites included in the Existing-Well Monitoring Network.

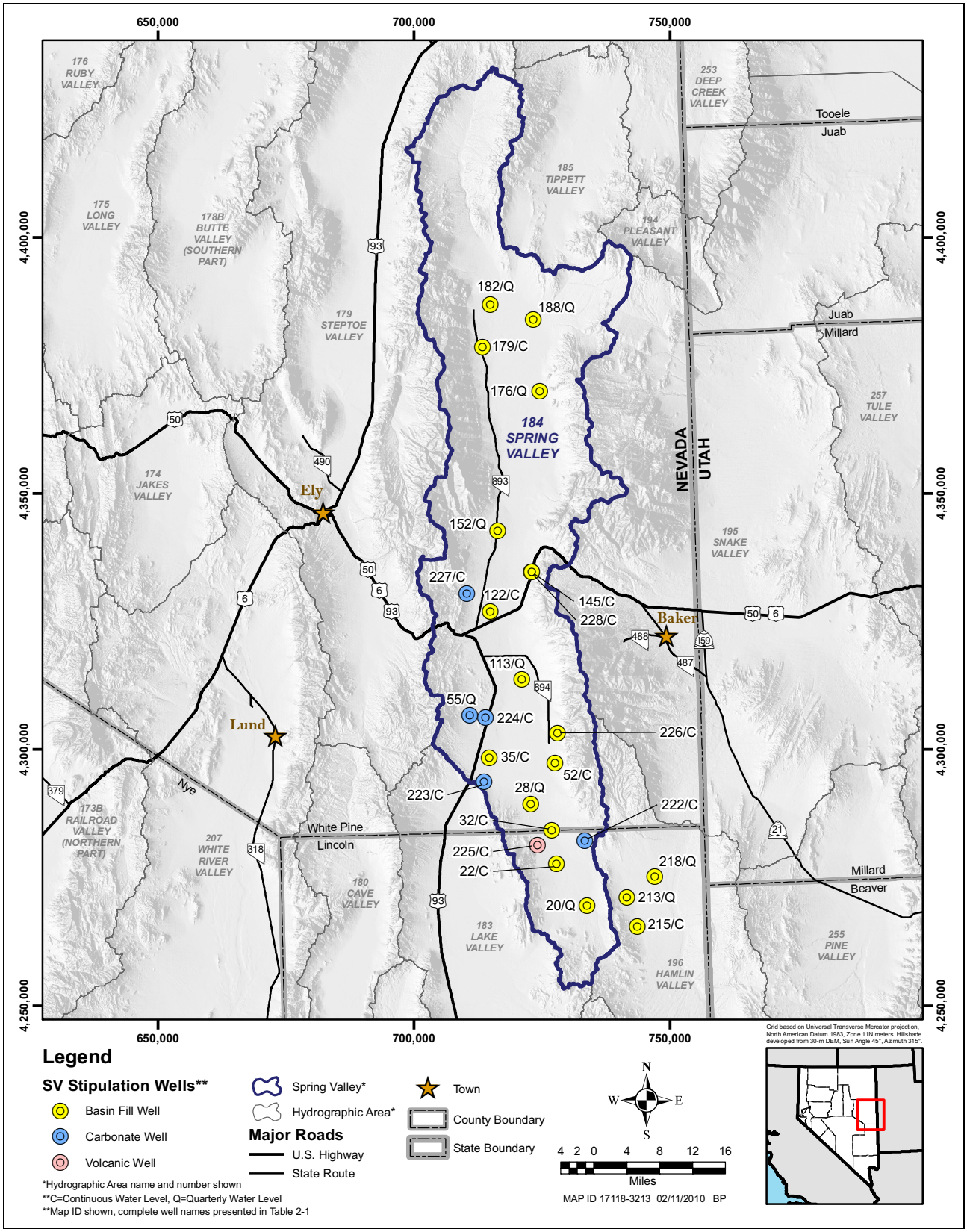
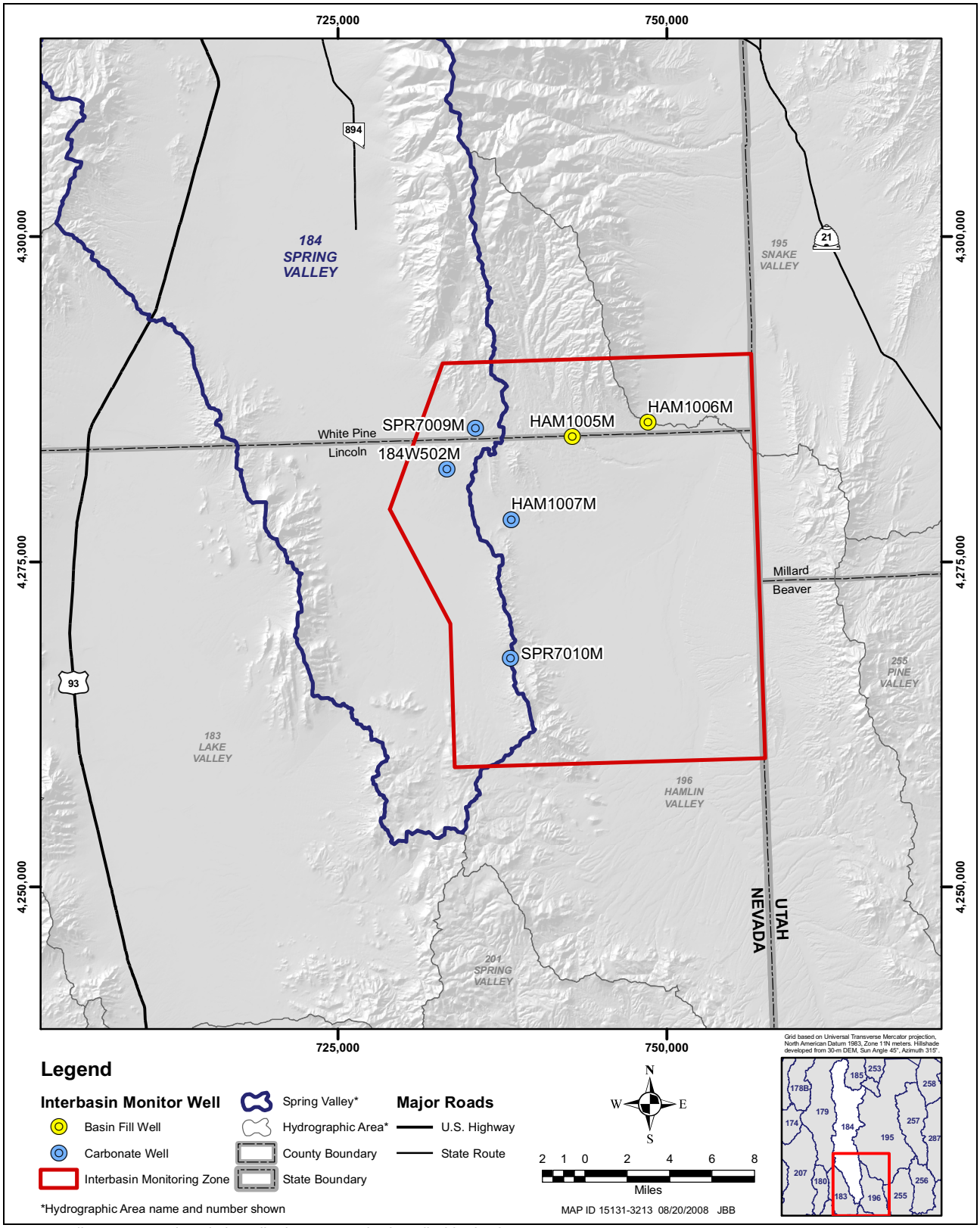


Figure 2-2
Spring Valley Existing-Well Monitoring Network

Table 2-2
Spring Valley Existing-Well Monitoring Network

Map ID	Site Number	Station Local Number[c]	Location[a]		Surface[b] Elevation (ft amsl)	Completion Date	Drill Depth (ft bgs)	Well Depth (ft bgs)	Well Casing Diameter (in.)	Screened Interval (ft bgs)	Open Interval (ft bgs)	Aquifer	Monitor Frequency
			UTM Northing (m)	UTM Easting (m)									
22	383704114225001	184 N09 E68 30AAAB1	4,277,594.57	727,759.99	6,002.52	8/7/1980	700	679	11	559 to 679	50 to 700	Basin Fill	Continuous
32	384039114232701	184 N10 E68 31CD 1	4,284,275.68	726,871.51	5,896.49	---	---	150	2	---	50 to 150	Basin Fill	Continuous
35	384831114314301	184 N11 E66 23AB 1	4,298,411.13	714,633.01	5,842.94	---	102	102	2	---	50 to 102	Basin Fill	Continuous
52	384745114224401	184 N11 E68 19DCDC1	4,297,304.22	727,554.19	5,900.18	---	200	200	2	---	50 to 200	Basin Fill	Continuous
122	390352114305401	184 N14 E66 24BDDD1	4,326,894.19	714,873.84	5,846.04	1980	---	160	2	---	50 to 160	Basin Fill	Continuous
145	390803114251001	184 N15 E67 26CA 1	4,334,740.47	722,963.02	5,727.21	---	---	200	2	---	50 to 200	Basin Fill	Continuous
179	393211114320701	184 N19 E66 11B 1	4,378,627.03	713,381.69	5,698.43	4/22/1960	---	400	---	---	50 to 400	Basin Fill	Continuous
215	383023114115302	196 N08 E69 35DC 2	4,265,403.02	743,597.36	5,837.67	8/7/1980	520	435	2	320 to 420	35 to 520	Basin Fill	Continuous
222	184W502M	184 N09 E68 11BDBD1	4,282,116.34	733,294.42	6,189.72	1/25/2007	1,828	1,799	8	495 to 1,779	58 to 1,828	Carbonate	Continuous
223	184W504M	184 N11 E66 35CCCC1	4,293,712.49	713,647.12	5,900.11	11/17/2006	1,040	1,020	8	309 to 999	61 to 1,040	Carbonate	Continuous
224	184W506M	184 N12 E66 26BADC1	4,306,214.21	713,939.81	6,014.04	10/19/2006	1,160	1,140	8	430 to 1,120	80 to 1,160	Carbonate	Continuous
225	184W508M	184 N09 E67 11DBCD1	4,281,308.68	724,070.89	6,056.19	12/15/2006	1,180	1,160	8	376 to 1,140	241 to 1,180	Volcanic	Continuous
226	SPR7007M	184 N11 E68 05BCBC1	4,303,146.59	727,976.03	6,017.73	8/17/2007	1,040	1,020	8	300 to 1,000	101 to 1,040	Basin Fill	Continuous
227	SPR7005M	184 N14 E66 09ABCA1	4,330,471.51	710,372.44	6,395.68	7/10/2007	1,412	1,404	8	663 to 1,383	439 to 1,412	Carbonate	Continuous
228	SPR7008M	184 N15 E67 26CDAB1	4,334,702.61	722,865.27	5,704.86	7/25/2007	960	946	8	226 to 926	54 to 960	Basin Fill	Continuous
20	383351114180201	184 N08 E68 14A 1	4,269,504.76	733,845.43	6,184.22	---	---	495	6	50 to 495	50 to 495	Basin Fill	Quarterly
28	384310114261401	184 N10 E67 22AA 1	4,289,331.34	722,826.33	5,853.54	---	---	100	2	---	50 to 100	Basin Fill	Quarterly
55	184 N12 E66 21CD 1	184 N12 E66 21DCCB1	4,306,700.53	710,871.15	6,370.31	9/13/1966	631	631	6	3 to 631	3 to 631	Carbonate	Quarterly
113	385636114265501	184 N13 E67 33DDA 1	4,313,590.54	721,086.82	5,769.73	---	---	--	36	---	---	Basin Fill	Quarterly
152[d]	391224114293601	184 N16 E66 36DBAD1	4,342,683.25	716,362.90	5,870.25	---	---	--	---	---	---	Basin Fill	Quarterly
176	392703114230501	184 N18 E67 01CCAA1	4,369,956.56	724,523.82	5,587.78	---	---	42	38	---	---	Basin Fill	Quarterly
182	184 N20 E66 13AB 1	184 N20 E66 13BADA1	4,386,884.19	714,871.84	5,774.93	6/26/1966	907	296	16	135 to 296	---	Basin Fill	Quarterly
188	393442114231801	184 N20 E67 26ABBD1	4,383,955.15	723,240.35	5,708.77	---	130	130	6	---	50 to 130	Basin Fill	Quarterly
213	383325114134901	196 N08 E69 15B 1	4,271,103.41	741,539.28	5,729.98	---	---	110	6	---	50 to 110	Basin Fill	Quarterly
218	383533114102901	196 N08 E70 06B 1	4,275,166.91	747,014.36	5,676.76	7/22/1947	---	164	6	111 to 115/ 152 to 164	---	Basin Fill	Quarterly

[a]All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Elevations are North American Vertical Datum of 1988 (NAVD88).
[c]Station Local Numbers provided by the Nevada Department of Water Resources.
[d]The Cleve Creek well will be replaced by a new monitor well approximately 1 mi to the north.
Well-construction data are based upon best available information from well logs, MX Project Report, and direct field measurements.



Note: Well 184W502M is existing all others are to be installed in the future.

Figure 2-3
Locations of SNWA Interbasin Monitoring Zone Wells

Table 2-3
SNWA Interbasin Monitoring Zone Future and Existing Well Locations

Site Number	Station Local Number	Well Common Name	Location[a]		Estimated[a] Surface Elevation (ft amsl)
			UTM Northing (m)	UTM Easting (m)	
Basin Fill					
HAM1005M	196 N10 E69 02 BBA 1	Wash Alluvial Well	4,284,588	742,819	6,397
HAM1006M	196 N95 E70 32 AAD 1	Big Springs Well	4,285,699	748,554	5,797
Carbonate					
SPR7009M	184 N10 E68 36 ACC 1	North Carbonate Well	4,285,242	735,445	6,494
HAM1007M	196 N09 E69 20 BCB 1	Troughs Carbonate Well	4,279,203	737,774	6,025
SPR7010M	184 N08 E69 29 CBB 1	Limestone Hills Well	4,267,545	738,113	6,458
184W502M[b]	184 N09 E68 11 BD 2	184W502M	4,282,116.34	733,294.42	6,189.72

[a]Coordinates and elevations are approximate and will be updated based upon a professional survey of the well location. All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11. Elevation are North American Vertical Datum (NAVD88).
[b]Existing well, professional survey complete. All other locations will be installed in the future.

Right-of-way applications for the SNWA well sites in the Zone were submitted in 2007 and were approved by BLM in late 2009. Construction of the five new wells were delayed until the project is approved for implementation. Wells will be installed to meet monitoring timeframe requirements ahead of groundwater withdrawals as required by the Stipulation and SVMM Plan. No target date for Zone well installations has been set as of the date of this report. After completion of each well, a short-term aquifer test will be performed, and water-chemistry samples will be collected. The wells will then be equipped with datalogger and pressure transducer instrumentation to collect continuous water-level data. A professional survey of location coordinates, ground-surface elevation, and top-of-casing measuring-point elevations will also be performed after completion.

In addition to the five future SNWA monitor wells, four existing basin-fill wells and one carbonate well, which are included in the existing-well monitoring network, are located within the Zone. Furthermore, two additional new monitor wells, one carbonate and one basin-fill, were constructed by USGS within the Zone as part of the Round 8 SNPLMA Program. A basin-fill monitor well constructed as part of this program, located northwest of Big Springs, was completed in fall 2009. The carbonate well was completed southwest of Big Springs in 2010. A total of 12 wells will be included in monitoring programs within the Zone after completion of the future SNWA wells.

2.3.2 Two Monitor Wells between the Zone and Closest Production Well

The SVMM Plan states that SNWA shall construct and equip two monitor wells in conjunction with the two SNWA production wells in Spring Valley that are proposed for construction closest to the Zone boundary, unless alternative sites are recommended by the TRP and approved by the EC and NSE.

The location of the two monitor wells will be determined after additional information is developed on the location of the two production wells closest to the Zone. After installation, the monitor wells will be equipped with datalogger and pressure transducer instrumentation to collect continuous water-level data.

2.3.3 Two Monitor Wells between Shoshone Ponds and Closest Production Well

The SVMM Plan states that SNWA shall construct and equip two monitor wells in the vicinity of Shoshone Ponds. The new wells, identified as SPR7024M and SPR7024M2, were located with consensus of the TRP and NSE. The well locations are presented in Figure 2-4. The wells were completed in March, 2011 in the basin-fill aquifer to depths of 260 and 720 ft bgs, respectively. Attributes of the wells are presented in Table 2-4, including well construction, location coordinates, and ground-surface elevation.

After installation, the wells were developed and water-chemistry samples collected. Laboratory analytical results are presented in Appendix F. The wells were equipped with datalogger and pressure transducer instrumentation to collect continuous water-level data. A professional survey of location coordinates, ground-surface elevation, and top-of-casing measuring point elevations was performed. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7024M and SPR7024M2 in Spring Valley* (Mace, 2011a).

2.3.4 Additional Monitoring Required by the Nevada State Engineer

The SVMM Plan includes three monitoring requirements requested by the NSE which are in addition to those specified in the Stipulation Agreement. These requirements include (1) groundwater and spring discharge monitoring in the vicinity of the Cleveland Ranch, (2) spring discharge monitoring of Turnley Spring located on Sacramento Pass, and (3) an additional deep basin-fill or carbonate monitor well located 1 mi north of the northernmost future production well on the east side of Spring Valley based upon the configuration of production wells at the commencement of water export from the basin. The locations of Cleveland Ranch and Turnley Spring are presented in Figure 2-5.

Monitoring locations in the vicinity of Cleveland Ranch are presented in Figure 2-6 and consist of two flumes and five groundwater monitoring locations. These include a flume and shallow piezometer at the north Cleveland spring, a flume and two monitor wells near Cleveland South spring and two monitor wells west of Cleveland Ranch. Turnley Spring is discussed further in Section 2.3.5. Historical spring discharge data from Turnley Spring is presented Appendix C.

2.3.4.1 Cleveland Ranch Monitor Wells SPR7029M and SPR7029M2

Two new monitor wells, SPR7029M and SPR7029M2, were located with consensus of the NSE and The Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-Day Saints (CPB). The objective of the clustered wells is to determine and monitor changes to the vertical hydraulic gradient. The wells were completed in April, 2011 in the basin-fill aquifer at depths of 275 and 437 ft bgs, respectively. Attributes for these wells are presented in Table 2-4.

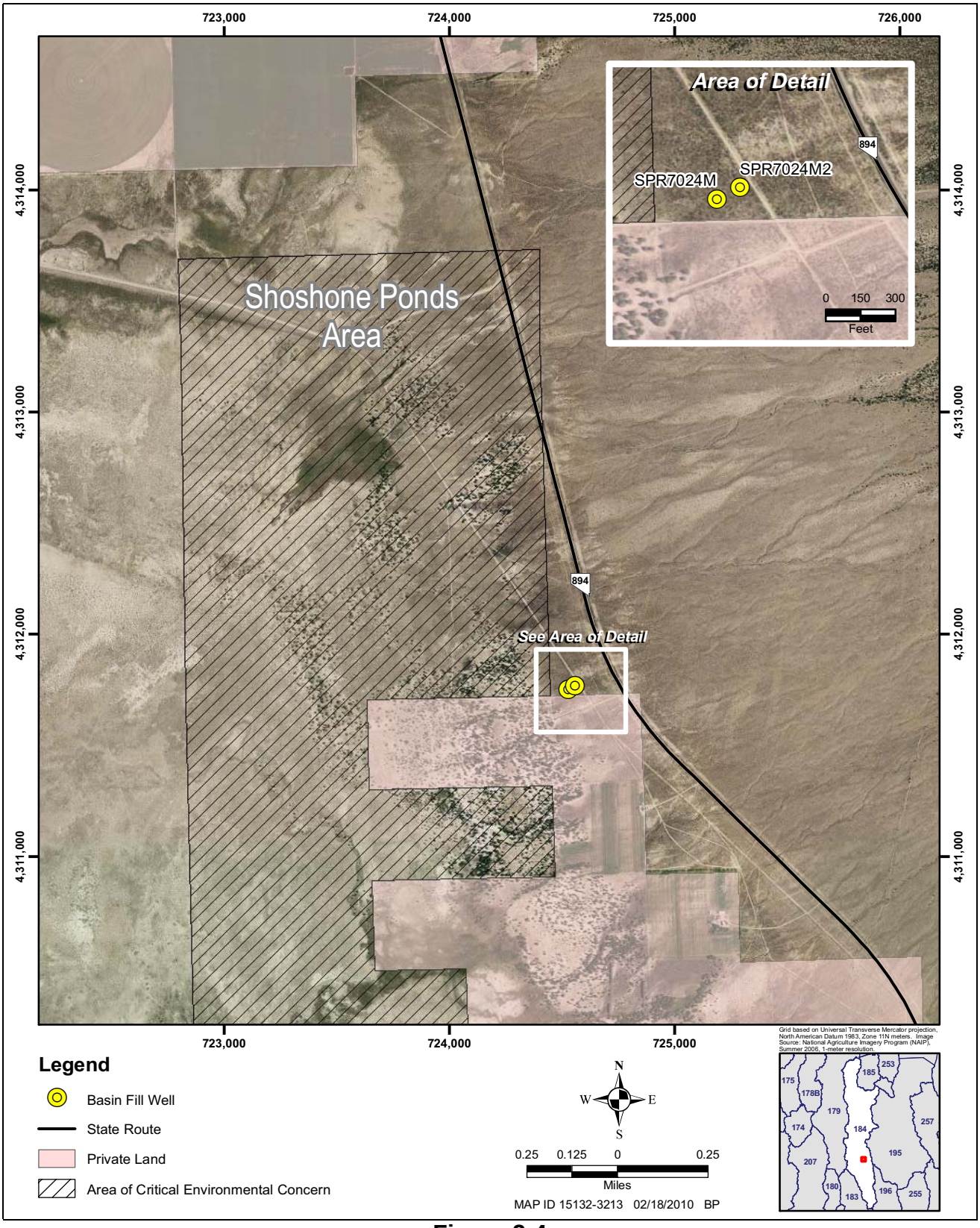


Figure 2-4
Location of Monitor Wells near Shoshone Ponds

Table 2-4
Shoshone Ponds and Cleveland Ranch Well-Monitoring Network

Site Number	Station Local Number[b]	Location[a]		Surface[c] Elevation (ft amsl)	Completion Date	Drill Depth (ft bgs)	Well Depth (ft bgs)	Well Casing Diameter (in.)	Screened Interval (ft bgs)	Open Interval	Aquifer	Monitoring Frequency
		UTM Northing (m)	UTM Easting (m)									
SPR7024M	184 N12 E67 01CCCD1	4,311,753.95	724,554.55	5,861.10	3/30/2011	260	249.76	4	209.3 to 249.46	200.5 to 260	Basin Fill	Continuous
SPR7024M2	184 N12 E67 01CCCD2	4,311,765.99	724,560.80	5,863.08	3/27/2011	720	699.38	4	661.13 to 669.08	650.08 to 720	Basin Fill	Continuous
SPR7029M	184 N16 E66 25DBCD1	4,344,090.03	716,054.99	5,876.83	4/29/2011	275	260.34	4	219.75 to 260.04	213 to 261.75	Basin Fill	Quarterly
SPR7029M2	184 N16 E66 25DBCA1	4,344,123.42	716,052.20	5,876.66	4/18/2011	437	422.6	12	382.14 to 422.1	360 to 430	Basin Fill	Quarterly
SPR7030M	184 N16 E67 32ABAB1	4,343,631.40	719,460.97	5,617.15	2/19/2011	98	96.67	4	53.67 to 96.37	53.67 to 98	Basin Fill	Quarterly
SPR7030M2	184 N16 E67 32ABAB2	4,343,620.29	719,454.00	5,617.79	2/11/2011	240	236.42	4	194.17 to 236.12	173.8 to 237	Basin Fill	Quarterly

[a]Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Station Local Numbers provided by the Nevada Department of Water Resources.
[c]Elevations are North American Vertical Datum of 1988 (NAVD88).

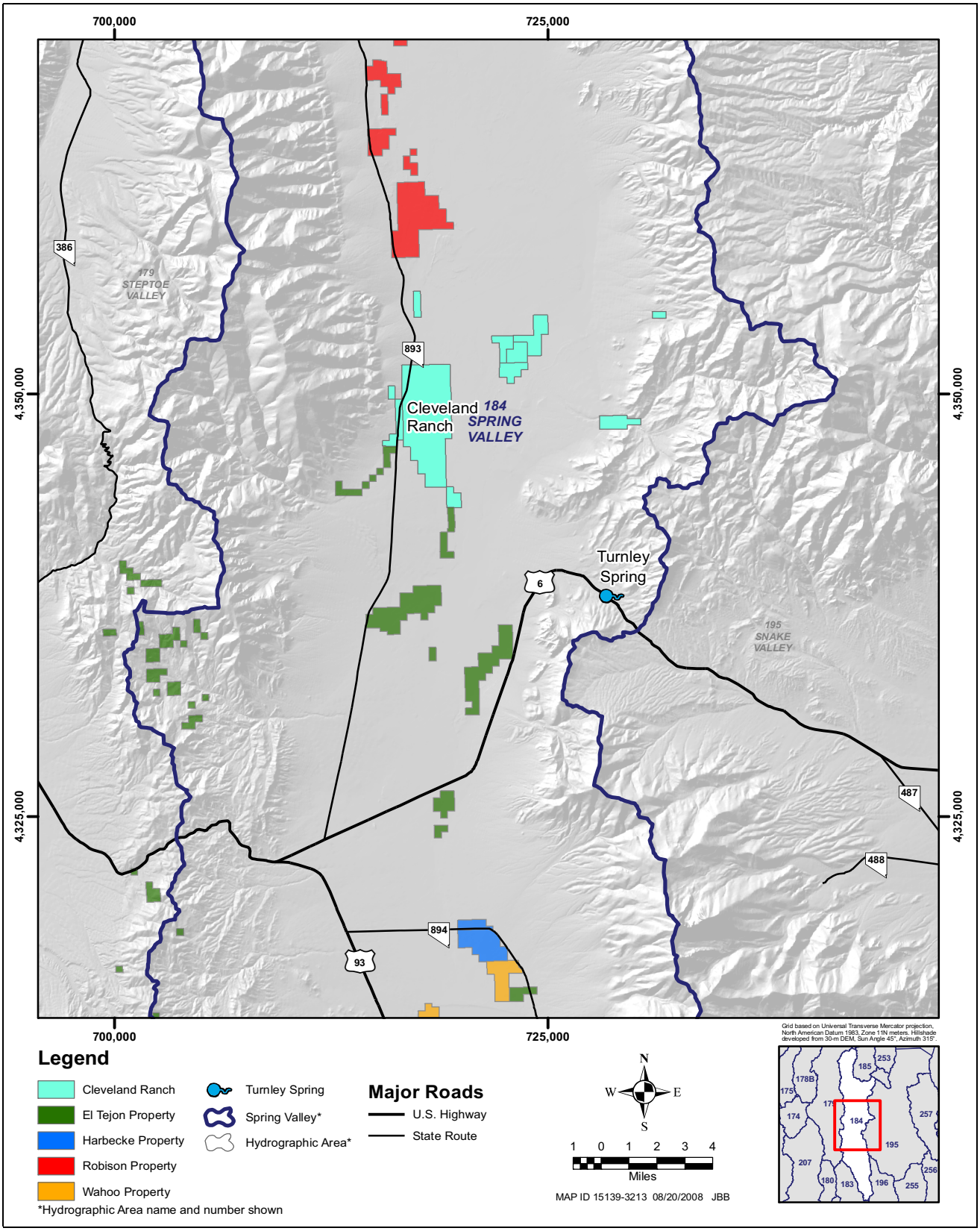


Figure 2-5
Location Map of Cleveland Ranch and Turnley Spring

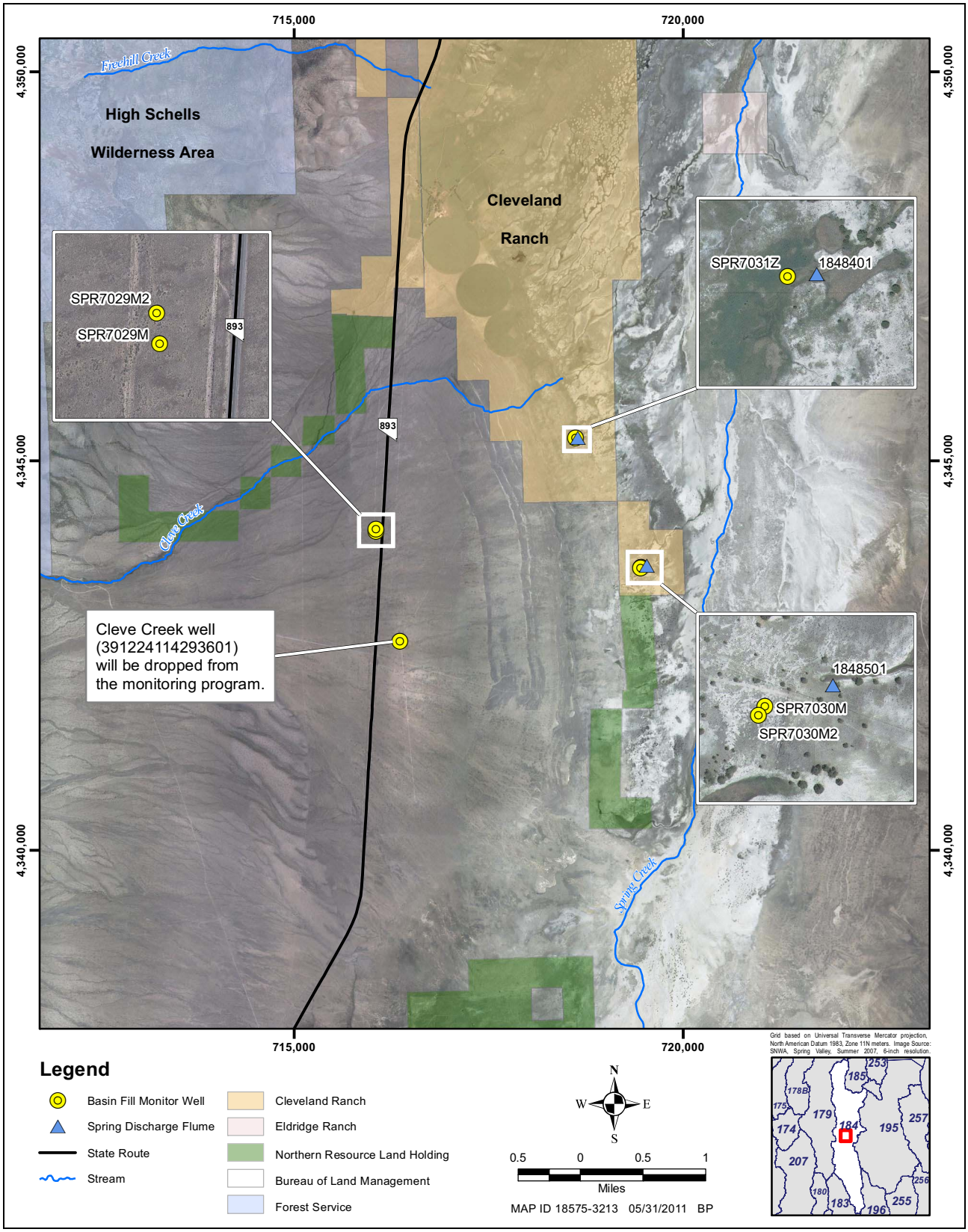


Figure 2-6
Monitoring Locations Associated with Cleveland Ranch

After installation, the wells were developed and water-chemistry samples collected. Laboratory analytical results are presented in Appendix F. The wells were equipped with datalogger and pressure transducer instrumentation to collect continuous water-level data. A professional survey of location coordinates, ground-surface elevation, and top-of-casing measuring point elevations was performed. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7029M and SPR7029M2 in Spring Valley* (Mace, 2011b).

A step-drawdown test and a constant-rate aquifer test were performed at SPR7029M2 in May 2011. The pumping rates for the step test ranged from 200 to 825 gpm. The constant-rate aquifer test was conducted for a duration of 120 hours at 500 gpm. A summary of the pre- and post-test groundwater level trends, test specifications, and results are presented in *Well Development and Aquifer Testing Results Test Well SPR7029M2, Spring Valley, NV* (Prieur and Ashinhurst, 2011).

2.3.4.2 Cleveland Ranch Monitor Wells SPR7030M and SPR7030M2

SNWA advanced two boreholes and completed clustered shallow and deep monitor wells near the Cleveland South spring in the southeast part of Section 29, T16N, R67E in February 2011. The objective of the clustered wells is to determine and monitor changes to the vertical hydraulic gradient and compare groundwater elevations with spring discharge. The wells were completed in separate confined units at depths of 98 and 240 ft bgs. Attributes for these wells including well construction, location coordinates, and ground-surface elevation are presented in Table 2-4. Both wells encountered flowing artesian conditions. A flume to gage the discharge of the Cleveland South spring was installed in late 2010. The gage and well locations were determined in consultation with the NSE and a representative from the CPB.

After installation, the wells were developed and water-chemistry samples collected. Laboratory analytical results are presented in Appendix F. Quarterly groundwater level elevation measurements have been performed as is required by the monitoring plan. A professional survey of location coordinates, ground-surface elevation, and top-of-casing measuring point elevations was performed. Details of the site geology and well construction are presented in *Well Completion and Geologic Data Analysis Report for Monitor Wells SPR7030M and SPR7030M2 in Spring Valley* (Mace, 2011c).

2.3.4.3 Cleveland Ranch Piezometer SPR7031Z

A shallow piezometer, SPR7031Z and a flume were installed in the immediate vicinity of two small springs located in the southwest part of Section 20, T16, R67E. The purpose of these monitoring points are to measure shallow groundwater levels and gage discharge associated with these springs. The gage and well locations were determined in consultation with the NSE and a representative from the CPB. The 2-in.-diameter shallow piezometer was completed to a depth of 10.3 ft bgs. A professional survey of location coordinates, ground-surface elevation, and top-of-casing measuring point elevations was performed. A summary of the SPR7031Z construction attributes are presented in Section 2.3.5.

2.3.5 Spring Monitoring Network

The SVMM Plan states that SNWA shall install, equip, and maintain at least one piezometer near 12 spring locations. In 2007, the TRP, in conjunction with the BWG and NSE, reviewed and conducted a field visit to potential spring monitoring locations. At that time, the group agreed to add an additional spring to the network for a total of 13 spring locations. Later, the NSE required Turnley Spring and the two monitored springs located on Cleveland Ranch to be added to the network for discharge monitoring. Currently, a total of 16 representative springs located in Spring Valley comprise the spring monitoring network.

The spring monitoring network is spatially distributed across Spring Valley and includes locations on the valley floor, mountain-block, and range-front areas. Spring monitoring locations are presented on Figure 2-7. The springs are monitored using periodic or continuous discharge measurements, spring pool elevations, and/or spring piezometers.

Twelve piezometers located in the vicinity of network springs were installed in 2010. One piezometer (SPR7007Z) located at Minerva Spring, on SNWA property, was installed in 2008. Location and construction attribute information of the 12 piezometers are presented in Table 2-5. Continuous groundwater level data from the Minerva piezometer is presented in Appendix B, Table B-2. Continuous discharge monitoring is conducted at Swallow Springs.

A professional survey of location coordinates, ground-surface, and top-of-casing measuring-point elevation was performed for each piezometer. The piezometers were equipped with integrated datalogger and pressure transducer instrumentation in 2011 to collect continuous water-level data. One additional piezometer, SPR7031Z located on Cleveland Ranch as described in Section 2.3.4.3 was recently installed in March 2011.

Turnley, Rock, and Swallow springs are monitored for discharge only due to site hydrogeologic conditions. Rock and Swallow spring discharge are monitored continuously. The 2011 water year mean daily discharge values for Rock and Swallow are presented in Appendix B, Tables B-3 and B-4, respectively. The associated hydrograph is also presented in Appendix B. Discharge measurements are also being obtained at four other spring locations where measuring of flow is physically possible. These springs are Layton, South Millick, Keegan, and Willow. Discharge is measured downstream of the reservoir at Minerva Spring. However, the discharge measurements at Minerva are influenced by the operation of the reservoir. Spring discharge monitoring locations are presented in Table 2-6. Hydrologic and field water-quality data collected at Swallow, Minerva, Layton, South Millick, Keegan, Willow, Rock, and Turnley springs are presented in Appendix B. Springs with staff plates installed to monitor pool elevations are presented in Table 2-7.

2.4 Aquifer Testing

The SVMM Plan requires that two constant-rate tests be performed in Spring Valley, at the closest production well completed in basin-fill and carbonate-rock aquifers nearest to the Zone. To date, seven 72- to 120-hour constant-rate tests have been performed on SNWA test and irrigation wells in Spring Valley. Test summaries and results have been reported in previous annual reports and Hydrologic Analysis Reports were prepared for each well test. A summary of parameters and results

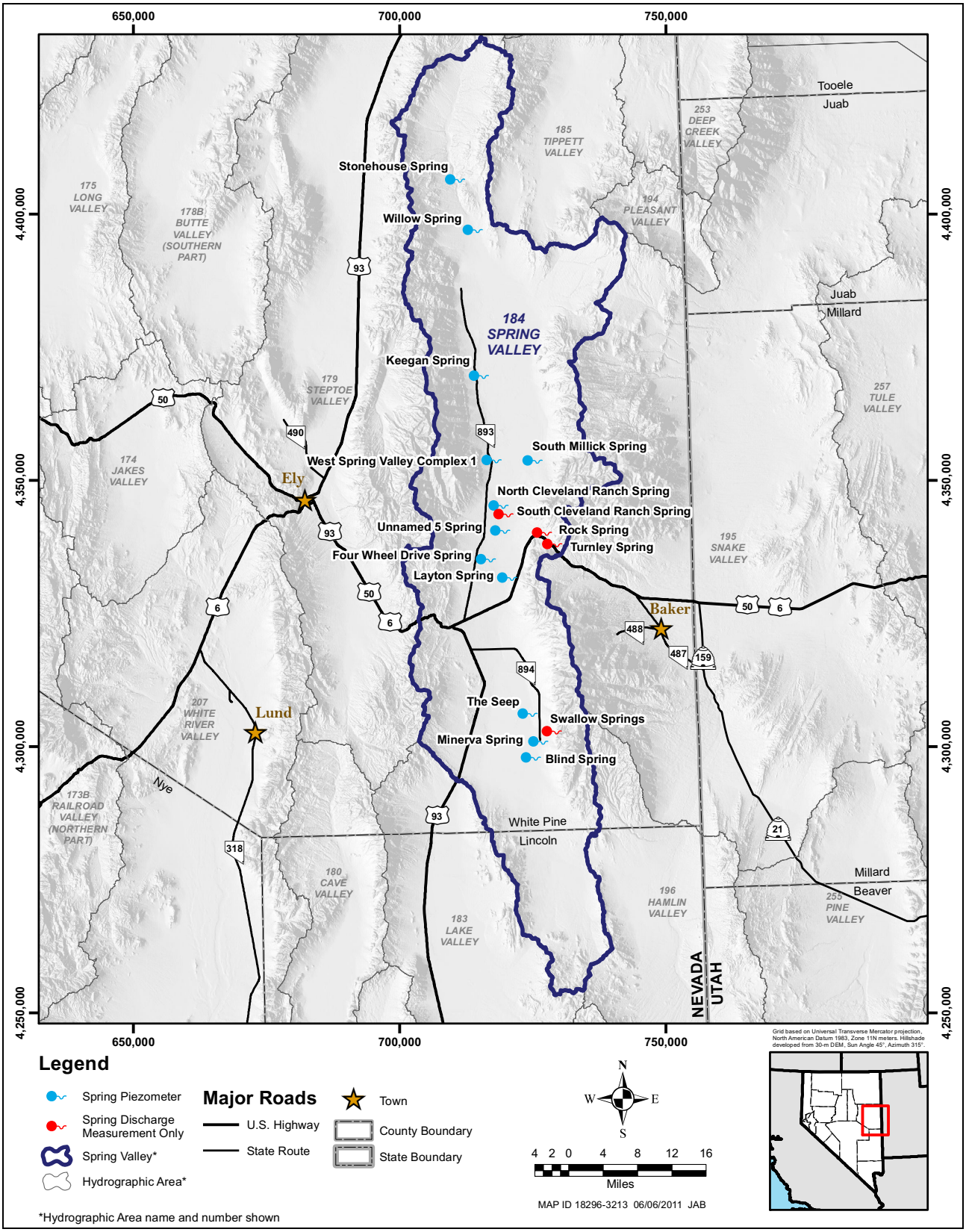


Figure 2-7
Spring Monitoring Locations

Table 2-5
Spring Piezometer Location and Completion Information

Site Number	Associated Spring	Location[a]		Surface[b] Elevation (ft amsl)	Completion Date	Drill Depth (ft bgs)	Well Depth (ft bgs)	Well Diameter (in.)	Open Interval (ft bgs)	Screened Interval (ft bgs)	Aquifer
		UTM Northing (m)	UTM Easting (m)								
SPR7007Z	Minerva Spring	4,301,057.50	726,134.41	5,828.66	1/18/2008	35	31	4	12 to 31.3	16 to 31	Basin Fill
SPR7011Z	Blind Spring	4,297,998.80	724,727.36	5,769.71	5/6/2010	31.3	31.3	2	13 to 31.3	16.1 to 31.1	Basin Fill
SPR7012Z	4WD Spring	4,335,263.36	716,235.95	5,756.22	5/8/2010	25	25	2	4 to 25	9.8 to 24.8	Basin Fill
SPR7014Z	The Seep	4,306,272.49	724,093.39	5,778.54	5/7/2010	31	30.7	2	6 to 30.7	15.5 to 30.5	Basin Fill
SPR7015Z	West Spring Valley Complex	4,353,816.21	717,284.37	5,602.90	5/8/2010	40	38.2	2	8 to 38.2	23 to 38	Basin Fill
SPR7016Z	Unnamed Spring 5	4,340,637.10	718,885.72	5,645.67	5/4/2010	35	32	2	15 to 32.0	16.8 to 31.8	Basin Fill
SPR7018Z	S. Millick Spring	4,353,623.95	725,156.47	5,587.16	5/4/2010	31	25.2	2	8 to 25.2	10 to 25	Basin Fill
SPR7019Z	Layton Spring	4,331,753.27	720,064.21	5,686.63	5/7/2010	35.3	35.3	2	9 to 35.3	20.1 to 35.1	Basin Fill
SPR7020Z	Stonehouse Spring	4,406,416.78	710,617.88	6,264.62	5/5/2010	9.3	9.3	2	2 to 9.3	4.1 to 9.1	Basin Fill
SPR7021Z	Keegan Spring	4,369,693.31	714,898.91	5,613.12	5/8/2010	20.7	20.7	2	4 to 20.7	5.5 to 20.5	Basin Fill
SPR7022Z	Willow Spring	4,397,090.42	713,752.68	5,987.54	5/5/2010	35	33.5	2	7 to 33.5	18.3 to 33.3	Basin Fill
SPR7031Z	Cleveland Ranch North Spring	4,345,295.85	718,622.45	5,637.32	3/3/2011	11.5	10.3	2	4 to 10.3	5 to 10	Basin Fill

[a]All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Elevations are North American Vertical Datum of 1988 (NAVD88).

Table 2-6
Spring Discharge Monitoring Locations

Site Number	Spring Name	Location[a]		Geology
		UTM Northing (m)	UTM Easting (m)	
1848401	Cleveland Ranch Spring North	4,345,297	718,646	Basin Fill/Valley Floor
1848501	Cleveland Ranch Spring South	4,343,655	719,532	Basin Fill/Valley Floor
1845501	Willow Spring	4,397,069	713,756	Basin Fill/Valley Floor
1845702	South Millick Spring	4,353,754	725,031	Basin Fill/Valley Floor
1845901	Layton Spring	4,331,794	720,204	Basin Fill/Valley Floor
1846201	Swallow Springs	4,302,920	728,597	Basin Fill/Range Front
1847101	Keegan Spring	4,369,664	715,050	Basin Fill/Fan Margin
1847301	Rock Spring	4,340,204	726,798	Carbonate/Mountain Block
1848001	Turnley Spring	4,338,050	728,695	Carbonate/Mountain Block

[a]Coordinates are approximate. All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.

Table 2-7
Staff Plates Locations

Site Number	Spring Name	Location[a]		Elevation[b]
		UTM Northing (m)	UTM Easting (m)	
1846401	Blind Spring	4,298,001.24	724,711.44	---
1847001	Four Wheel Drive Spring	4,335,264.12	716,242.93	---
1847501	The Seep	4,306,283.33	724,074.65	---
1845702	South Millick Spring	4,353,656.91	725,127.28	5,578.24

[a]Coordinates are approximate. All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Elevations are North American Vertical Datum of 1988 (NADV88).

for the tests are summarized in Table 2-8. Aquifer tests are planned for future carbonate and basin-fill production wells closest to the Zone once they are completed.

2.5 Stream Discharge Measurements

This section presents the current status and data associated with the stream monitoring program at Cleve Creek, Big Springs, and the Big Springs Creek - Lake Creek Complex.

2.5.1 Discharge Sites at Big Springs Creek and Cleve Creek

The SVMM Plan states that SNWA shall directly, or indirectly through funding of a third party, operate and maintain a discharge monitoring site on Big Springs Creek and Cleve Creek. Stream-flow gaging stations, which are funded by SNWA through a Cooperative Agreement with USGS and NDWR, are identified as Cleve Creek near Ely, Nevada, in Spring Valley USGS Station Number 10243700 and the north and south channels of Big Springs Creek near Baker, Nevada in Snake Valley USGS Station numbers 102432241 and 10243224. The gaging-station locations are presented in Table 2-9 and Figure 2-8. Throughout the year, SNWA also conducted miscellaneous stream discharge measurements at the sites. These data were provided to the USGS for inclusion into the records. Data collected in 2011 from these locations are presented in Appendix D.

Miscellaneous discharge measurements performed by SNWA and USGS are presented in Appendix D, Tables D-1 and D-2. All USGS data from 2011 are considered preliminary. The continuous stream flow data for 2011 are presented in hydrographs with miscellaneous discharge-measurement data and mean daily-discharge data for the entire period of record. Discharge data are also available through the National Water Information System (USGS, 2012).

2.5.1.1 Cleve Creek

Cleve Creek is located on the eastern slope of the Schell Creek Range. Stream flow is measured by the Cleve Creek near the Ely, Nevada, gaging station. The drainage area encompasses approximately 32 mi^2, making it the largest drainage area in Spring Valley. The USGS has maintained the Cleve Creek near the Ely, Nevada USGS Station Number 10243700, gaging station intermittently since 1914. The complete period of record of Cleve Creek follows: June 1914 to December 1916; October 1959 to September 1967; October 1976 to September 1981; December 1982 to September 1987; and March 1990 through the present year (2012). A crest-stage partial record exists for the station from October 1967 to September 1976.

The mean annual discharge over the period of record is 10.5 cfs, and the minimum and maximum mean annual discharges were 5.15 cfs in 1960 and 22.2 cfs in 1984. In Water Year (WY) 2008 (October 1, 2007 to September 30, 2008), the mean annual discharge was 6.66 cfs. The WY 2009 mean annual discharge was 7.91 cfs. The WY 2010 mean annual discharge was 9.30 cfs. The WY 2011 mean annual discharge was 20.9 cfs, which is 199 percent of the mean annual discharge over the period of record at the Cleve Creek gaging station.

2.5.1.2 Big Springs Creek

Big Springs Creek is located at the base of the eastern slope of the southern Snake Range, approximately 17 mi south of Garrison, Utah. The spring discharge is measured by stream gaging stations located on the north and south channels near the spring orifice. Miscellaneous measurements have been collected since 1972.

In early 2005, the USGS, in cooperation with SNWA and NDWR, installed a gaging station at Big Springs. The record is published as Big Springs Creek South Channel near Baker, Nevada, and Big

Table 2-8
Aquifer-Test Summary Data for SNWA Spring Valley Test Wells

Test Well	Observation Well/Spring	Distance from Test Well (ft)	Step Test Discharge Range (gpm)	Constant Rate (CR) Specific Capacity (gpm/ft)	CR Test Duration (hr)	CR Discharge Rate (gpm)	Drawdown at end of Constant-Rate Test (ft)	Saturated Thickness (ft)	Solution Model	T (ft^2/day)	K (ft/day)	S or Sy	Ss	K' (ft/day)	K" (ft/day)	Ss'
184W101	184W101	---	2,200 - 2,600	11.0 - 11.3	72	2,520	226.38	1,280	Barker GRFM[b]	9,700	7.6	5.80E-03	6.85E-07	1.07E-05	---	4.50E-06
	184W502M	175					21.12									
	184W504M[a]	14 miles					0.00		Barker GRFM[c]	10,200	8	5.00E-03	6.85E-07	6.50E-05		3.90E-06
184W103	184W103	---	410 - 630	4.17 - 4.19	72	550	131.50	943	Barker GRFM[b]	11,000	11.64	3.50E-02	5.05E-07	5.29E-07	---	3.75E-05
	184W504M	177					3.92									
	184W502M[a]	14 miles					0.00		Barker GRFM[c]	11,000	11.66	6.90E-02	5.27E-07	3.13E-06	---	7.27E-05
	384620114313601[a]	4,300					0.00									
184W105	184W105	---	2,300 - 3,700	54.32 - 55.62	72	3,000	54.65	946	Barker GRFM[b]	60,544	64	9.46E-03	1.25E-07	4.83E-04	---	1.00E-05
	184W506M	212					4.63									
	184W504M[a]	8 miles					0.00		Barker GRFM[c]	57,233	60.5	9.46E-03	1.53E-07	6.30E-03	---	1.00E-05
SPR7005X	SPR7005X	---	2,000 - 3,800	74.9 - 75.4	120	3,000	39.82	875	Cooper Jacob	41,520	47.5	---	---	---	---	---
	SPR7005M	127					2.88			30,600	35	---	---	---	---	---
	184 N14 E66 14CA1[a]	2.4 miles					0.00									
	390352114305401[a]	3.5 miles					0		Barker GRFM[d]	---	2,658	---	1.02E-06	1.80E-03	---	4.08E-05
	184W506M	15 miles					0									
SPR7007X	SPR7007X	---	2,000 - 4,000	95.6 - 96.5	120	3,000	31.40	883	Moench	35,600	40.3	0.22[e]	---	---	---	---
	SPR7007M	99					13.50									
	390352114305401[a]	17 miles					0.00									
	Swallow Springs	2,300					Spring discharge constant									
	Minerva Spring Piezometer	1.7 miles					0.00									
SPR7008X	SPR7008X	---	1,500 - 3,300	11.70 - 11.77	72	2,000	169.71	800	Moench	3,319	4.15	3.03E-04	---	---	1.90E-01	---
	SPR7008M	100					42.74									
	390803114251001	376					0.38									
	SPR7006M[a]	4.1 miles					0.00			3,539	4.42	3.03E-04			1.70E-01	
	390352114305401[a]	7 miles					0.00									
	Layton Spring	2.5 miles					Spring discharge constant									
	MX Flowing Well	3,900					Well discharge constant			4,729	5.91	3.03E-04			4.00E-02	
SPR7029M2	SPR7029M2	---	200 - 825	18.40 - 18.55	120	500	27.17	215	Cooper Jacob[f]	16,000	74	---	---	---	---	---
	SPR7029M	110					0.05									
	SPR7030M[a]	2.1 miles					0.00									
	SPR7030M2[a]	2.1 miles					0.00		Moench[f]	17,000	79	0.21[e]	---	---	---	---
	391224114293601[a]	4,834					0.00									
	184 N15 E66 24CD 1[a]	5 miles					0.00									
	Cleveland Ranch South Spring	2.1 miles					Spring discharge constant									

[a]Background Well
[b]Model fracture spacing set to 3.3 ft
[c]Model fracture spacing set to 10 ft
[d]Fracture only properties
[e]Specific Yield (dimensionless)
[f]Preliminary analysis results subject to revision

K = Aquifer/fracture hydraulic conductivity (ft/day)
K' = Matrix hydraulic conductivity (ft/day)
K" = Aquitard vertical hydraulic conductivity (ft/day)
Q = Pumping discharge rate (gpm)
Ss = Fracture-specific storage (ft^{-1})
Ss' = Matrix-specific storage (ft^{-1})

t = Time
T = Transmissivity (ft/day)
S = Storativity (dimensionless)

Table 2-9
Cleve Creek and Big Springs Monitoring Locations

Station Number	Station Name	Basin Number	Stream Number	Location[a]		Watershed (mi^2)
				UTM Northing (m)	UTM Easting (m)	
1841611	Cleve Creek near Ely	184	18416	4,343,423	712,669	32.0
1951901	Big Springs at Gaging Station	195	19519	4,287,293	749,422	N/A

[a]All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.
N/A = Not applicable

Springs Creek North Channel near Baker, Nevada. The USGS has maintained these gaging stations since 2005.

The complete period of record of Big Springs Creek, both north and south channels, is April 2005 to present. The mean annual discharge for WY 2006–2011 for Big Springs Creek South Channel is 6.01 cfs. The minimum mean annual discharge of 5.76 cfs occurred in WY2011 and the maximum mean annual discharge of 6.33 cfs occurred in WY 2008. The WY 2011 mean annual discharge is 96 percent of the mean annual discharge over the period of record.

For Big Springs Creek North Channel, the mean annual discharge over the period of record is 3.80 cfs. The minimum mean annual discharge of 3.63 cfs occurred in WY2011 and the maximum mean annual discharge of 4.00 cfs occurred in WY 2006. The WY 2011 mean annual discharge is 96 percent of the mean annual discharge over the period of record.

2.5.2 Synoptic-Discharge Study of Big Springs and Lake Creeks

The SVMM Plan states that SNWA shall collect, or fund the collection of, at least two sets of synoptic-discharge measurements for the Big Springs Creek surface-water system from the spring orifice to Preuss Lake. Data would be collected during irrigation and nonirrigation seasons at least 1 year prior to groundwater withdrawals by SNWA. The collection would be repeated every 5 years after withdrawals begin. No target date has been determined for this task. The Utah Geologic Survey (UGS) currently operates gages on the creek near Stateline and Clay springs. The study area and current USGS and UGS gaging stations are presented in Figure 2-9.

2.5.3 Relationship Between Big Springs and Basin-Fill and Carbonate-Rock Aquifers

The SVMM Plan states that SNWA shall work with the TRP to collect data to investigate the relationship between discharge at Big Springs and hydraulic head in the basin-fill and regional carbonate-rock aquifers. This task will be accomplished using hydrologic and water-chemistry data collected from Big Springs, future SNWA monitor wells, and SNPLMA-funded study wells.

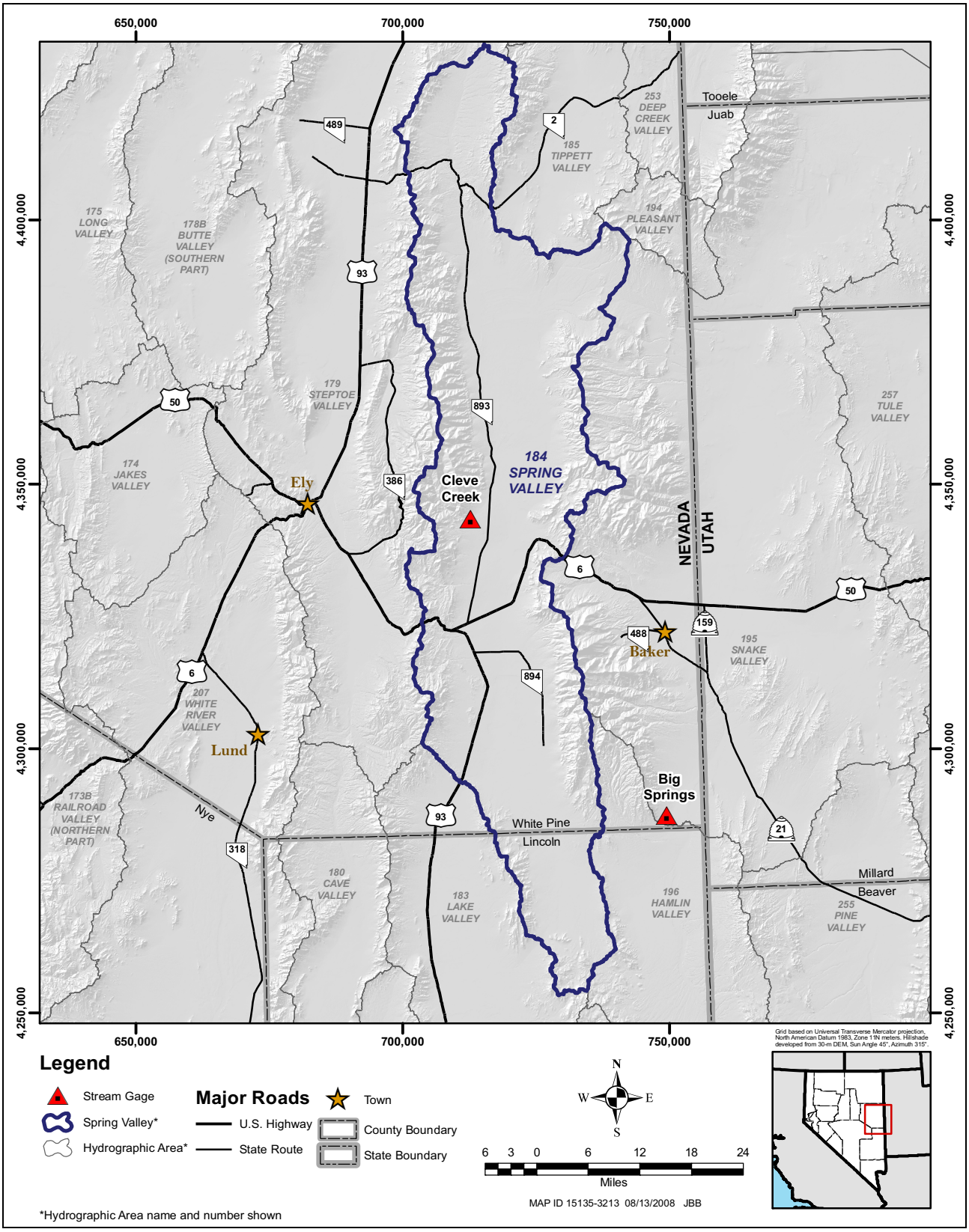


Figure 2-8
Cleve and Big Springs Creeks Gaging Stations

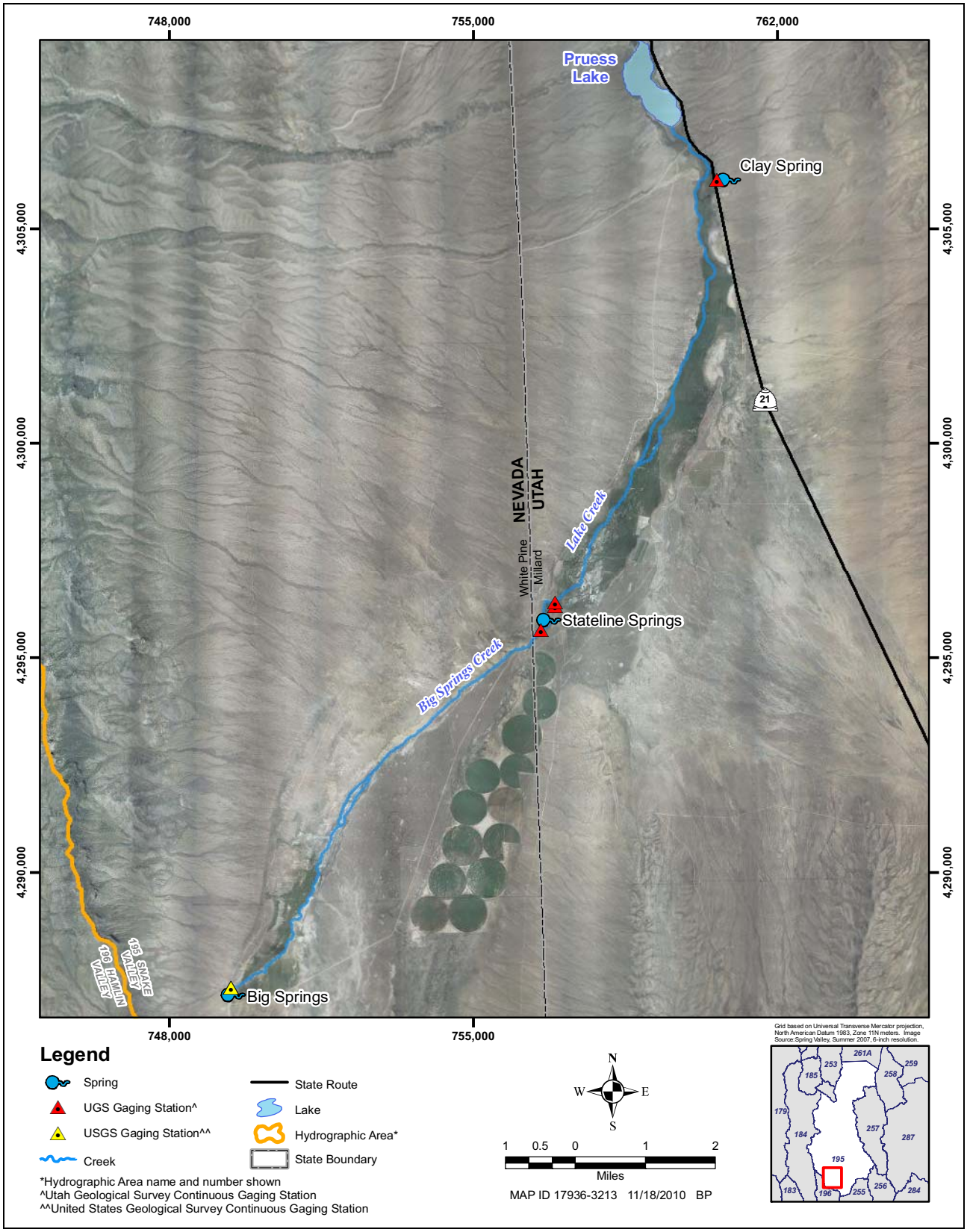


Figure 2-9
Big Springs Synoptic-Discharge Measurement Study Area, Snake Valley

2.6 Precipitation Station Network

The precipitation network includes three high-altitude precipitation stations located in the Snake and Schell Creek ranges; these stations are maintained by USGS through a cooperative funding agreement with SNWA and NDWR. Four established precipitation stations located in Ely and McGill, Nevada, the GBNP, and Eskdale, Utah, which are national weather service cooperation sites, provide regional data. SNWA has also established additional valley-floor stations at Shoshone 5N, located on the east side of the valley at the Bransford Ranch and the Robison Ranch in northwest Spring Valley, as well as precipitation stations associated with temporary evapotranspiration stations. Other stations include the Berry Creek (SnoTel) and the EPSCOR station. The network precipitation stations are listed in Table 2-10 and presented on Figure 2-10.

Table 2-10
Precipitation Station Locations

Site Number	Station Name	Source	Elevation[b] (ft amsl)	Location[a]	
				UTM Northing (m)	UTM Easting (m)
391913114143101	Bulk Precipitation Station NW of Mt. Moriah	USGS	9,300	4,355,938	737,691
390946114364901	Bulk Precipitation Station on Cave Mountain	USGS	10,650	4,337,545	706,106
385409114185401	Mt. Washington Bulk Precipitation Station	USGS	10,440	4,309,376	732,764
P1840001	Shoshone 5N	SNWA	5,930	4,310,746	725,419
P1840003	Robison Ranch	SNWA	5,695	4,378,103	713,347
P1840101	SV1 ET	SNWA	5,780	4,294,921	720,012
P1840103	SV3 ET	SNWA	5,614	4,375,833	715,822
---	Sagebrush-West	EPSCOR	5,880	4,311,711	724,716
263340	Great Basin National Park (GBNP)	WRCC	6,830	4,320,462	741,031
264950	McGill	WRCC	6,300	4,363,546	692,301
422607	Eskdale	WRCC	4,980	4,334,157	763,696
262631	Ely WBO	WRCC	6,260	4,350,419	685,436
14K02S	Berry Creek (SnoTel)	NRCS	9,100	4,354,989	705,169

[a]All coordinates are Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]Elevations are North American Vertical Datum of 1988 (NAVD88).

Reported data collected in 2011 from the four regional stations are presented in Appendix D. Data collected by USGS at the high-altitude stations between 2005 and 2010 are also presented in the appendix. Annual precipitation data had been reported in 2010 for the Shoshone 5N and Robison Ranch stations, however due to equipment malfunctions a complete record could not be compiled for 2011. Annual precipitation data measured by SNWA at the SV1 evapotranspiration (ET) station which is located southwest of the Shoshone 5N station, and SV3 ET station which is located south of the Robison Ranch station are 8.64 and 8.52 in., respectively. Annual precipitation data was collected by the DRI at the Sagebrush-west station as part of the EPSCOR Snake Range Transect project. The Sagebrush-west station is located north of the Shoshone 5N station and recorded 8.51 in. of precipitation in 2011.

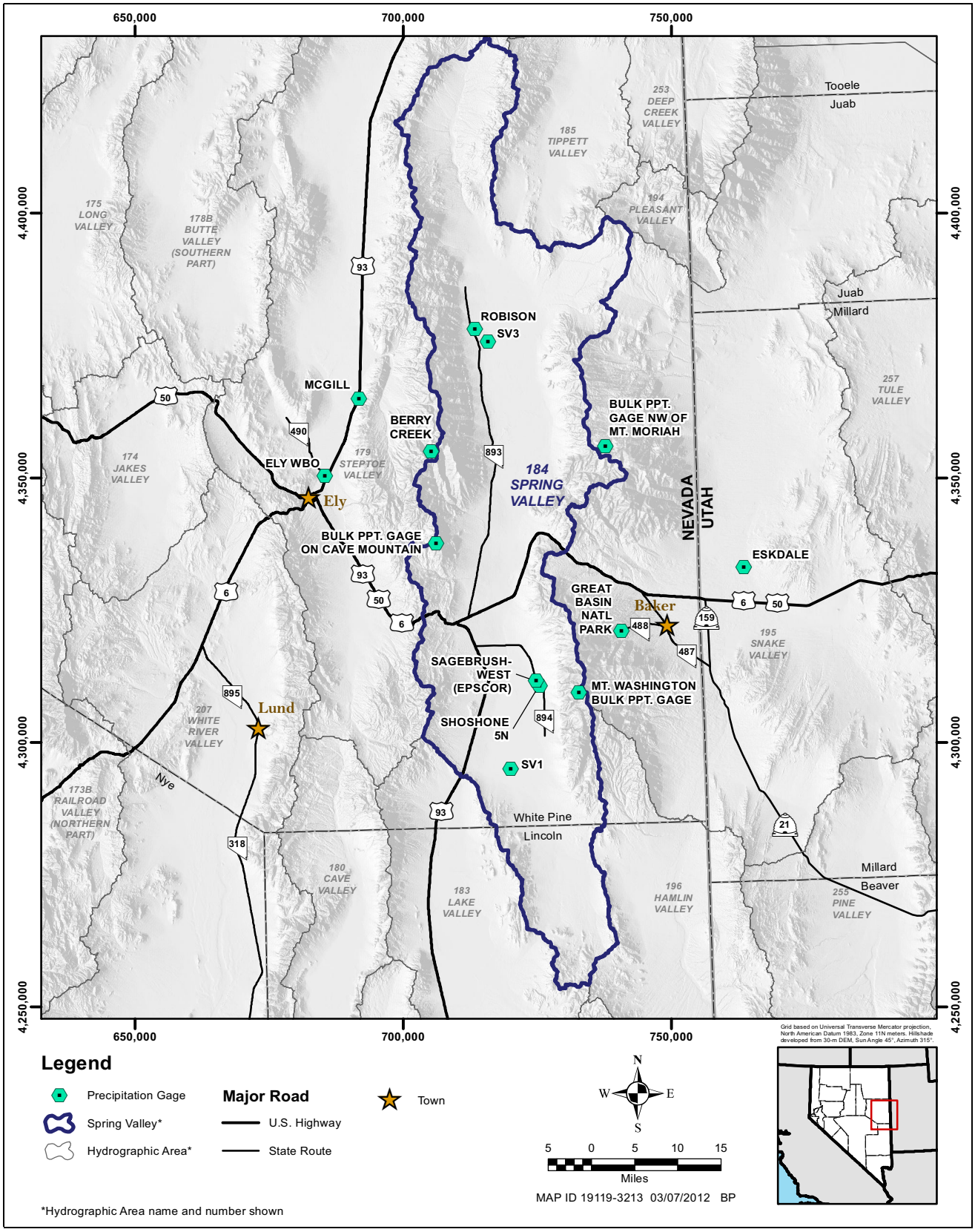


Figure 2-10
Precipitation Station Locations

Data sources for precipitation information presented in this report are as follows:

- USGS data is cited from USGS National Water Information System (USGS, 2012)
- SNOTEL data is cited from U.S. Department of Agriculture Natural Resources Conservation Service (USDA, 2012)
- National Weather Service data is cited from Western Regional Climate Center (WRCC, 2012)
- EPSCOR data is cited from the Western Regional Climate Center (WRCC, 2012)

2.7 Water-Chemistry-Sampling Program

The SVMM Plan states that SNWA shall collect and analyze water-chemistry samples for specific parameters at 40 locations selected from monitoring network wells, springs, and streams for three rounds of samples collected at 6-month intervals. Water-chemistry analysis results from SNWA exploratory and test wells were presented in the 2007 and 2008 data reports (SNWA, 2008, 2009b).

The TRP held a conference call on March 31, 2010 to discuss the water-chemistry sampling programs required by the Spring Valley Stipulation Hydrologic Monitoring, Management, and Mitigation Plans. The Stipulation Agreement for Spring Valley requires that three rounds of water-chemistry sampling at 40 locations be completed within 5 years from the approval date of the agreement (September 8, 2006). The Spring Valley hydrologic monitoring networks include new monitor wells which will not be installed in time to meet the water-chemistry sampling requirements set forth in the agreements. The TRP evaluated various implementation alternatives for the water-chemistry programs, including: (1) sampling in 2010 and 2011 from the existing network without the planned new monitor wells; (2) delaying the sampling until the monitor wells are installed, and then sampling from the complete monitoring network; or (3) some combination of these alternatives. The TRP reached a consensus agreement as to the preferred course of action which is summarized below.

For Spring Valley, the TRP recommended that the water-chemistry sampling program be modified to proceed with the collection and analysis of water-chemistry samples at 35 locations which were selected by the TRP in 2010. The remainder of the water-chemistry program will be postponed until after the five new Interbasin Groundwater Monitoring Zone (Zone) monitor wells specified in the SVMM Plan have been installed. SNWA will complete the final two rounds of water-chemistry sampling within 2 years after installing the five Zone wells. The program will consist of the collection of water-chemistry samples from the five new Zone wells, followed by two rounds of sample collection 6 months apart at the 35 locations sampled in the first round and the five Zone wells (a total of 40 sites per sampling event as originally specified in the SVMM Plan). The sample sites and parameters may be modified by the TRP based upon results of previous sampling rounds.

The spring, stream, and well sampling locations are presented in Figure 2-11. All surface water and spring discharge locations have been sampled. Results from the water-chemistry sampling program are presented in Appendix F. Results for well SPR7029M have not been received from the laboratory and therefore are not reported.

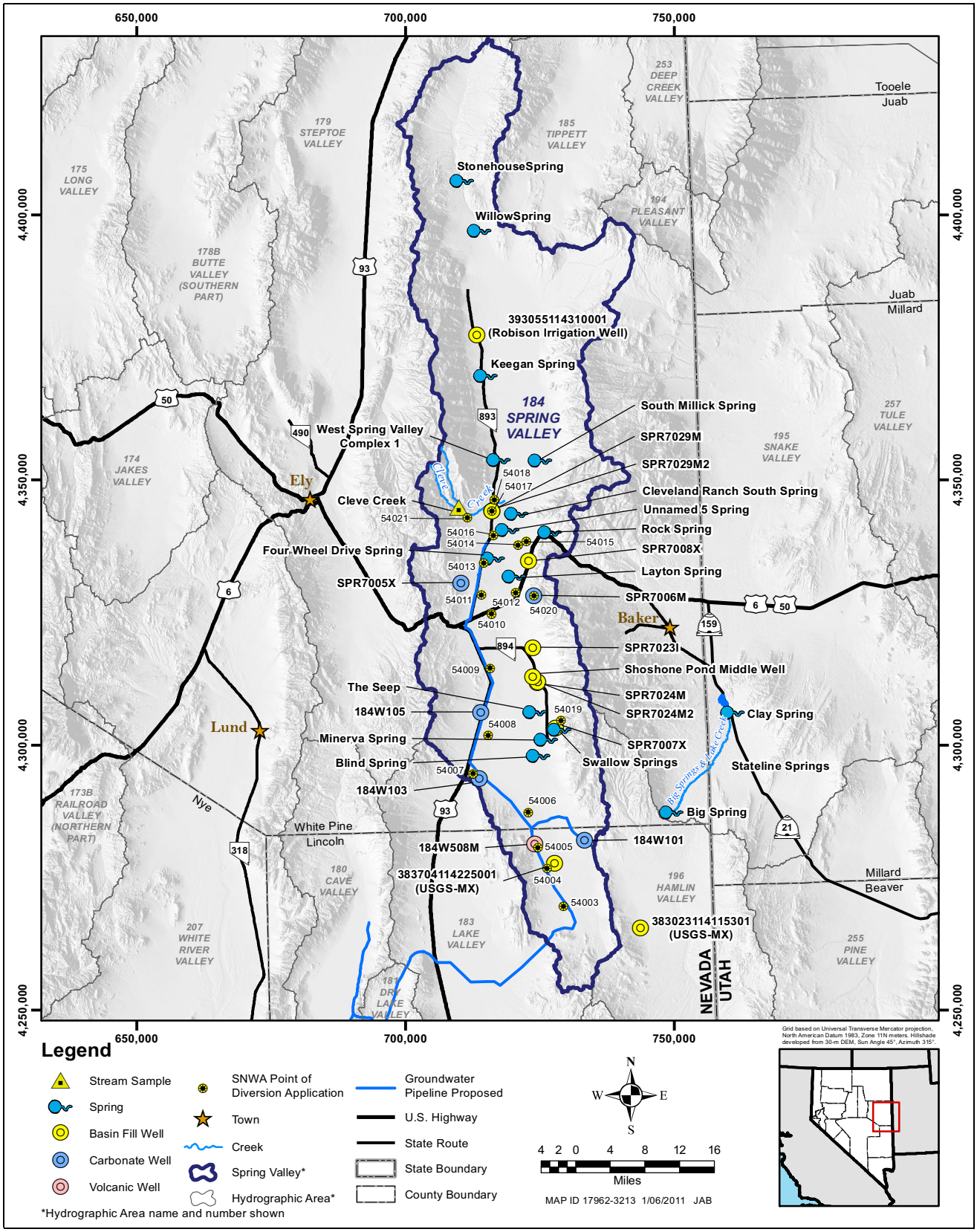


Figure 2-11
Spring Valley Monitoring Plan Water-Chemistry Program Sample Locations

Many of the locations sampled as part of the program have been sampled previously. Historic water-chemistry data for previously sampled sites are presented in Appendix G.

2.8 Reporting

A data-exchange web site accessible by the NSE, EC, TRP, and BWG members was implemented in April 2008. The data-exchange web site is used to distribute SVMM Plan monitoring data to the TRP within 90 days of collection. Data will also be submitted directly to the NSE on a quarterly basis in electronic format.

2.9 Proposed Schedule of Groundwater Withdrawals

No groundwater production is scheduled for the next 2 years with the exception of short-term well development and performance testing and aquifer testing of any new wells drilled during this time-frame. The duration of well-performance tests is usually 1 day. The duration of constant-rate aquifer testing is usually less than 1 week.

3.0 ANTICIPATED 2012 SNWA SVMM PLAN ACTIVITIES

Anticipated SVMM Plan activities in 2012 are summarized below. Some activities are contingent upon property access or NSE and TRP approval.

- Continue to collect required quarterly and continuous water-level measurements at specified locations throughout 2012. Data will be reported quarterly to the TRP through the SNWA data-exchange web site. Data will be submitted to NSE in an approved electronic format and included in the annual data report to be submitted in March 2013.

- Maintain and periodically measure two flumes, two monitor wells, and one piezometer on the CPB Cleveland Ranch property.

- Maintain continuous spring discharge monitoring at Rock and Swallow springs. Turnley spring discharge will continue to be measured on a schedule agreed to by the owner and NSE.

- Ensure the continued operation and maintenance of discharge gaging stations on Cleve and Big Springs Creeks.

- Coordinate activities and provide technical assistance to the BWG as requested including evaluation of spring hydrologic data.

- Work with the TRP to coordinate activities and share data with the SNPLMA Round 8 study conducted in Spring, Hamlin, and Snake valleys.

SNWA will continue to work with NSE and TRP participants to implement the SVMM Plan.

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Appendix A

Periodic Water-Level Measurements Collected at SNWA Exploratory and Test Wells

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 1 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
---	184W101	---	1,749	6,190.90	2/7/2011	483.12	S	T
					3/24/2011	483.33	S	T
					5/3/2011	483.13	S	T
					6/14/2011	482.42	S	T
					8/3/2011	480.46	S	T
					9/21/2011	480.25	S	T
					11/28/2011	480.32	S	T
---	184W103	---	1,017	5,899.06	1/4/2011	99.09	S	T
					2/9/2011	99.15	S	T
					3/22/2011	99.39	S	T
					5/3/2011	99.19	S	T
					6/14/2011	99.11	S	T
					8/4/2011	99.04	S	T
					9/22/2011	98.97	S	T
					11/28/2011	98.81	S	T
---	184W105	---	1,135	6,007.30	1/6/2011	209.61	S	S
					3/22/2011	209.62	S	T
					5/3/2011	209.47	S	T
					6/14/2011	209.49	S	T
					8/1/2011	209.14	S	T
					9/22/2011	208.97	S	T
					11/30/2011	208.87	S	T
---	SPR7006M	---	1,700	6,525.18	2/9/2011	770.98	S	T
					5/3/2011	769.10	S	T
					7/19/2011	765.38	S	T
					8/3/2011	765.18	S	T
					9/20/2011	765.69	S	T
					11/30/2011	766.75	S	T
---	SPR7008X	---	960	5,702.99	1/5/2011	13.18	S	S
					2/9/2011	13.15	S	T
					3/23/2011	12.95	S	T
					5/3/2011	12.44	S	S
					6/14/2011	12.21	S	T
					8/3/2011	11.68	S	T
					9/20/2011	11.65	S	T
					11/30/2011	11.33	S	S

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 2 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
---	SPR7005X	---	1,350	6,397.56	2/8/2011	496.63	S	T
					3/23/2011	496.71	S	T
					5/3/2011	495.77	S	T
					6/14/2011	494.25	S	T
					8/2/2011	490.70	S	T
					9/20/2011	490.79	S	T
					11/29/2011	492.11	S	T
---	SPR7007X	---	1,020	6,017.53	1/4/2011	151.71	S	T
					2/7/2011	152.42	S	T
					2/14/2011	152.36	S	T
					3/22/2011	152.86	S	T
					5/3/2011	150.68	S	T
					6/14/2011	137.58	S	T
					8/3/2011	130.98	S	T
					9/21/2011	135.08	S	T
					11/30/2011	140.44	S	T
---	SPR7029M	184 N16 E66 25DBCD1	260	5,876.83	5/17/2011	215.54	S	T
					6/14/2011	215.01	S	T
					8/2/2011	214.45	S	T
					9/20/2011	215.12	S	T
					11/29/2011	215.46	S	T
---	SPR7029M2	184 N16 E66 25DBCA1	423	5,876.65	6/14/2011	214.70	S	T
					8/2/2011	214.15	S	T
					9/20/2011	214.83	S	T
					11/29/2011	215.17	S	T
---	SPR7030M	184 N16 E67 32ABAB1	98	5,617.15	5/10/2011	-29.58	S	G
					5/16/2011	-29.46	S	G
					8/2/2011	-30.14	S	G
					8/4/2011	-30.25	S	G
					9/20/2011	-29.68	S	G
					11/29/2011	-29.68	S	G
---	SPR7030M2	184 N16 E67 32ABAB2	236	5,617.79	5/10/2011	-40.54	S	G
					5/16/2011	-40.31	S	G
					8/2/2011	-41.10	S	G
					8/4/2011	-40.17	S	G
					9/20/2011	-36.48	S	G
					11/29/2011	-36.94	S	G

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 3 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
22	383704114225001[d]	184 N09 E68 30AAAB1	679	6,002.52	2/9/2011	225.09	S	T
					3/22/2011	225.14	S	T
					5/2/2011	224.98	S	T
					5/26/2011	225.05	S	T
					6/14/2011	224.93	S	T
					8/3/2011	224.85	S	T
					9/21/2011	224.86	S	T
					11/28/2011	224.86	S	T
32	384039114232701[d]	184 N10 E68 31CD 1	150	5,896.49	3/22/2011	118.30	S	T
					5/4/2011	118.27	S	T
					6/14/2011	118.28	S	T
					8/3/2011	118.32	S	T
					9/21/2011	118.28	S	T
					11/28/2011	118.30	S	T
35	384831114314301[d]	184 N11 E66 23AB 1	102	5,842.94	2/9/2011	47.66	S	T
					3/22/2011	47.61	S	T
					5/4/2011	47.67	S	T
					6/14/2011	47.60	S	T
					8/1/2011	47.53	S	T
					9/22/2011	47.58	S	T
					11/30/2011	47.42	S	T
52	384745114224401[d]	184 N11 E68 19DCDC1	200	5,900.18	1/4/2011	100.26	S	T
					2/9/2011	100.27	S	T
					3/24/2011	100.41	S	T
					5/4/2011	100.30	S	T
					6/14/2011	100.27	S	T
					8/3/2011	99.91	S	T
					9/21/2011	99.47	S	T
					11/28/2011	98.99	S	T
122	390352114305401[d]	184 N14 E66 24BDDD1	160	5,846.04	2/8/2011	38.83	S	T
					3/23/2011	38.82	S	T
					5/3/2011	38.71	S	T
					5/16/2011	38.70	S	T
					6/14/2011	38.71	S	T
					8/2/2011	38.75	S	T
					9/20/2011	38.85	S	T
					11/29/2011	38.87	S	T

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 4 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
145	390803114251001[d]	184 N15 E67 26CA 1	200	5,727.21	1/5/2011	40.42	S	T
					2/9/2011	40.37	S	T
					3/23/2011	40.47	S	S
					5/3/2011	40.25	S	T
					6/14/2011	40.20	S	T
					8/3/2011	39.91	S	T
					9/20/2011	39.87	S	T
					11/30/2011	39.64	S	T
179	393211114320701[d]	184 N19 E66 11B 1	400	5,698.43	1/5/2011	43.01	S	T
					2/9/2011	42.77	S	T
					3/23/2011	42.55	S	T
					5/3/2011	41.88	S	T
					8/2/2011	35.08	S	T
					9/20/2011	36.73	S	T
					11/29/2011	36.90	S	T
215	383023114115302[d]	196 N08 E69 35DC 2	435	5,837.67	2/9/2011	175.39	S	T
					3/22/2011	175.73	S	T
					5/2/2011	175.66	S	T
					6/14/2011	175.12	S	T
					8/2/2011	174.28	S	T
					9/21/2011	173.42	S	T
					11/30/2011	172.88	S	T
222	184W502M[d]	184 N09 E68 11BDBD1	1,799	6,189.72	2/7/2011	482.19	S	T
					3/24/2011	482.38	S	T
					5/3/2011	482.23	S	T
					6/14/2011	481.51	S	T
					8/3/2011	479.59	S	T
					9/21/2011	479.37	S	T
					11/28/2011	479.48	S	T
223	184W504M[d]	184 N11 E66 35CCCC1	1,020	5,900.11	1/4/2011	100.75	S	T
					2/9/2011	100.74	S	T
					3/22/2011	100.83	S	T
					5/3/2011	100.58	S	T
					8/4/2011	100.41	S	T
					9/22/2011	100.43	S	T
					11/28/2011	100.24	S	T

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 5 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
224	184W506M[d]	184 N12 E66 26BADC1	1,140	6,014.04	1/6/2011	216.27	S	S
					2/9/2011	216.34	S	T
					3/22/2011	216.26	S	T
					5/3/2011	216.16	S	T
					6/14/2011	216.11	S	T
					8/1/2011	215.78	S	T
					9/22/2011	215.65	S	T
					11/30/2011	215.48	S	T
225	184W508M[d]	184 N09 E67 11DBCD1	1,160	6,056.19	2/9/2011	277.00	S	T
					2/15/2011	276.74	S	T
					3/24/2011	276.83	S	T
					5/3/2011	276.73	S	T
					6/14/2011	276.84	S	T
					8/3/2011	276.70	S	T
					9/21/2011	276.69	S	T
					11/28/2011	276.73	S	T
226	SPR7007M[d]	184 N11 E68 05BCBC1	1,020	6,017.73	1/4/2011	151.75	S	T
					2/14/2011	152.52	S	T
					3/22/2011	152.93	S	T
					5/3/2011	150.70	S	T
					6/14/2011	137.66	S	T
					8/3/2011	130.78	S	T
					9/21/2011	135.23	S	T
					11/30/2011	140.56	S	T
227	SPR7005M[d]	184 N14 E66 09ABCA1	1,404	6,395.68	2/8/2011	494.72	S	T
					3/23/2011	494.86	S	T
					5/3/2011	494.34	S	T
					6/14/2011	492.28	S	T
					8/2/2011	488.82	S	T
					9/20/2011	488.84	S	T
					11/29/2011	490.25	S	T

Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 6 of 8)

Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
228	SPR7008M[d]	184 N15 E67 26CDAB1	946	5,704.86	1/5/2011	14.43	S	T
					2/9/2011	14.23	S	T
					3/23/2011	14.28	S	T
					5/3/2011	13.63	S	T
					6/14/2011	13.10	S	T
					8/3/2011	12.85	S	T
					9/20/2011	12.70	S	T
					11/30/2011	12.55	S	T
20	383351114180201	184 N08 E68 14A 1	495	6,184.22	2/7/2011	406.30	S	T
					5/2/2011	406.58	S	T
					8/3/2011	406.41	S	T
					11/28/2011	406.41	S	T
28	384310114261401	184 N10 E67 22AA 1	100	5,853.54	2/9/2011	65.75	S	T
					5/4/2011	65.79	S	T
					8/3/2011	65.56	S	T
					11/28/2011	65.23	S	T
55	184 N12 E66 21CD 1	184 N12 E66 21DCCB1	631	6,370.31	2/9/2011	570.61	S	T
					5/4/2011	571.16	S	T
					8/10/2011	568.46	S	T
					8/15/2011	568.69	S	T
					11/30/2011	568.20	S	T
113	385636114265501	184 N13 E67 33DDA 1	---	5,769.73	5/3/2011	7.28	S	T
					8/1/2011	8.04	S	T
					11/30/2011	8.18	S	T

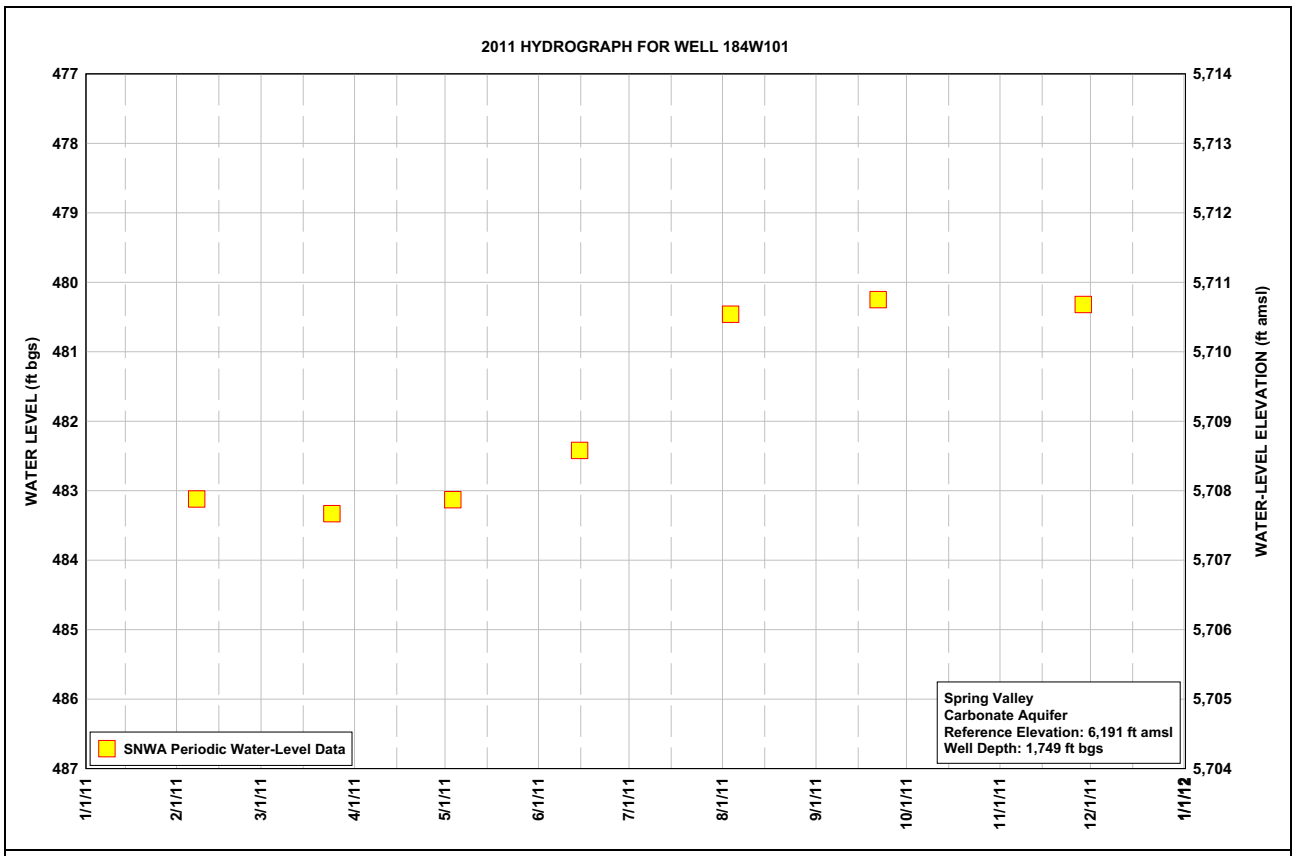
Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 7 of 8)

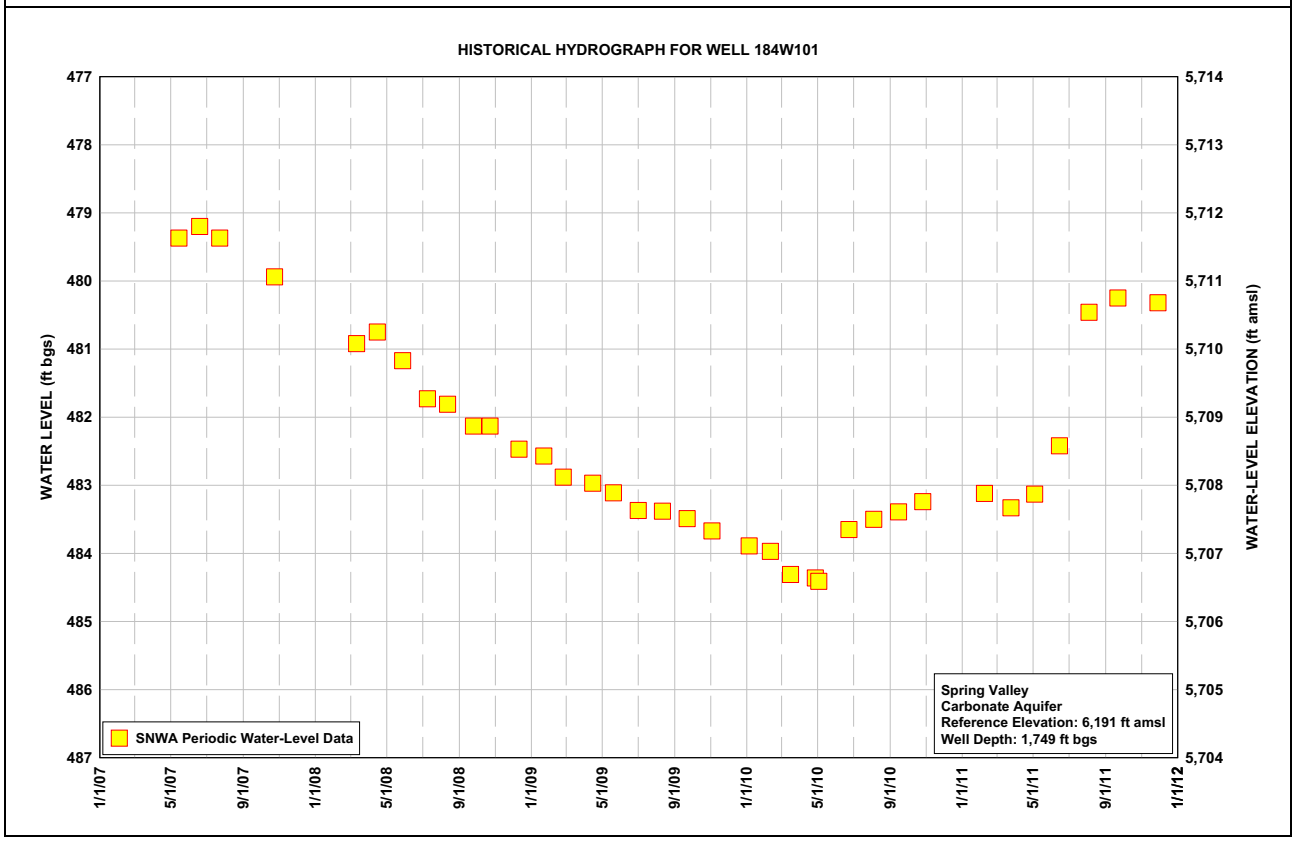
Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
152	391224114293601[e]	184 N16 E66 36DBAD1	---	5,870.25	2/8/2011	210.75	S	S
					5/3/2011	207.52	S	S
					5/16/2011	207.90	S	S
					5/17/2011	207.37	S	S
					5/18/2011	207.35	S	S
					5/20/2011	207.37	S	S
					5/20/2011	207.36	S	T
					5/21/2011	207.29	S	T
					5/22/2011	207.28	S	T
					5/23/2011	207.28	S	T
					5/24/2011	207.29	S	T
					5/25/2011	207.23	S	T
					8/2/2011	206.19	S	S
					11/29/2011	206.98	S	T
176	392703114230501	184 N18 E67 01CCAA1	42	5,587.78	2/9/2011	35.16	S	T
					5/3/2011	34.89	S	T
					8/3/2011	35.25	S	T
					11/29/2011	35.36	S	T
182	184 N20 E66 13AB 1	184 N20 E66 13BADA1	296	5,774.93	2/9/2011	137.51	S	S
					5/3/2011	127.66	S	S
					11/29/2011	122.12	S	T
188	393442114231801	184 N20 E67 26ABBD1	130	5,708.77	2/9/2011	118.45	S	T
					5/3/2011	118.40	S	T
					8/3/2011	118.57	S	T
					11/29/2011	118.50	S	T
213	383325114134901	196 N08 E69 15B 1	110	5,729.98	2/9/2011	71.21	S	T
					5/2/2011	71.21	S	T
					8/2/2011	71.28	S	T
					11/30/2011	70.18	S	T
218	383533114102901	196 N08 E70 06B 1	164	5,676.76	2/9/2011	89.77	S	T
					5/2/2011	89.64	S	T
					8/2/2011	89.68	S	T
					11/30/2011	89.55	S	T

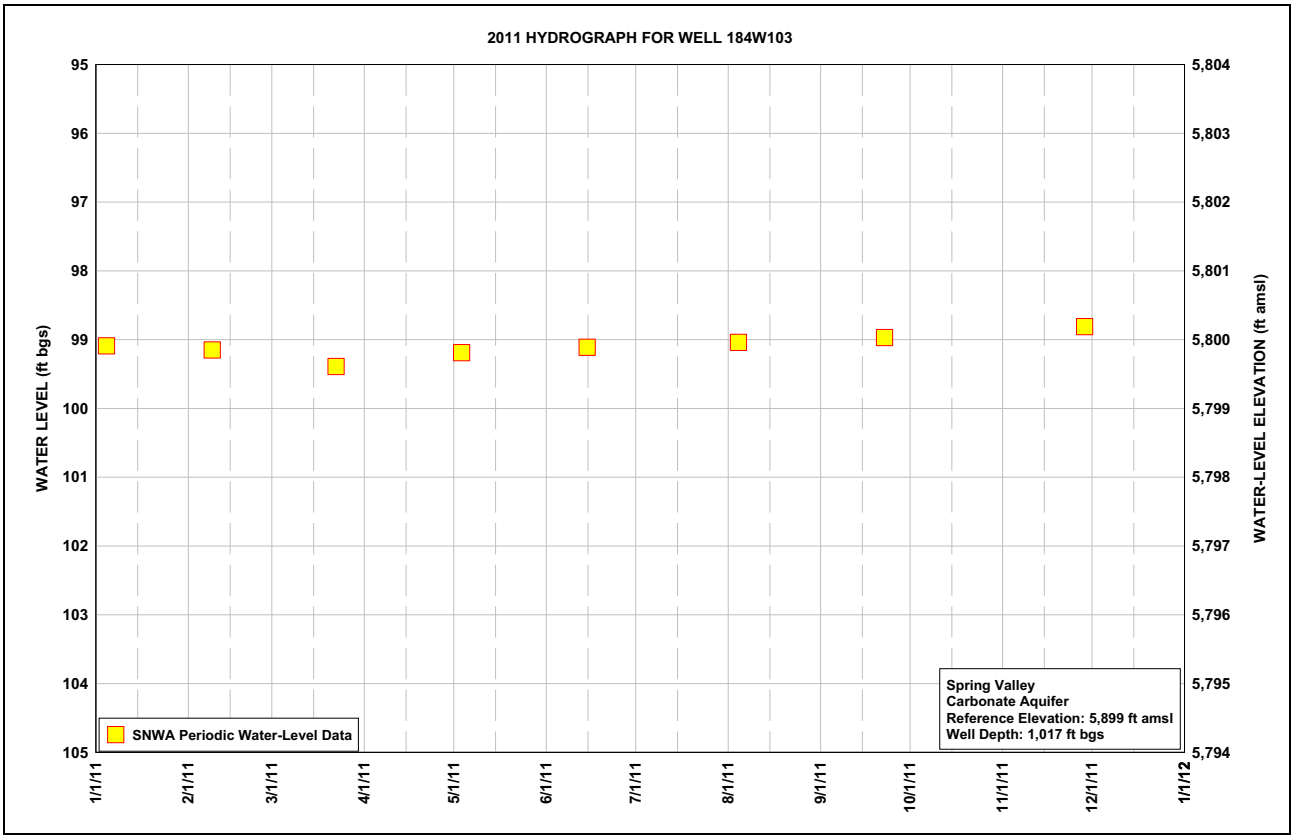
Table A-1
Periodic Water-Level Measurement Data from the Existing-Well Monitoring Network, the SNWA Exploratory and Test Wells, and the Shoshone and Cleveland Ranch Monitoring Wells
(Page 8 of 8)

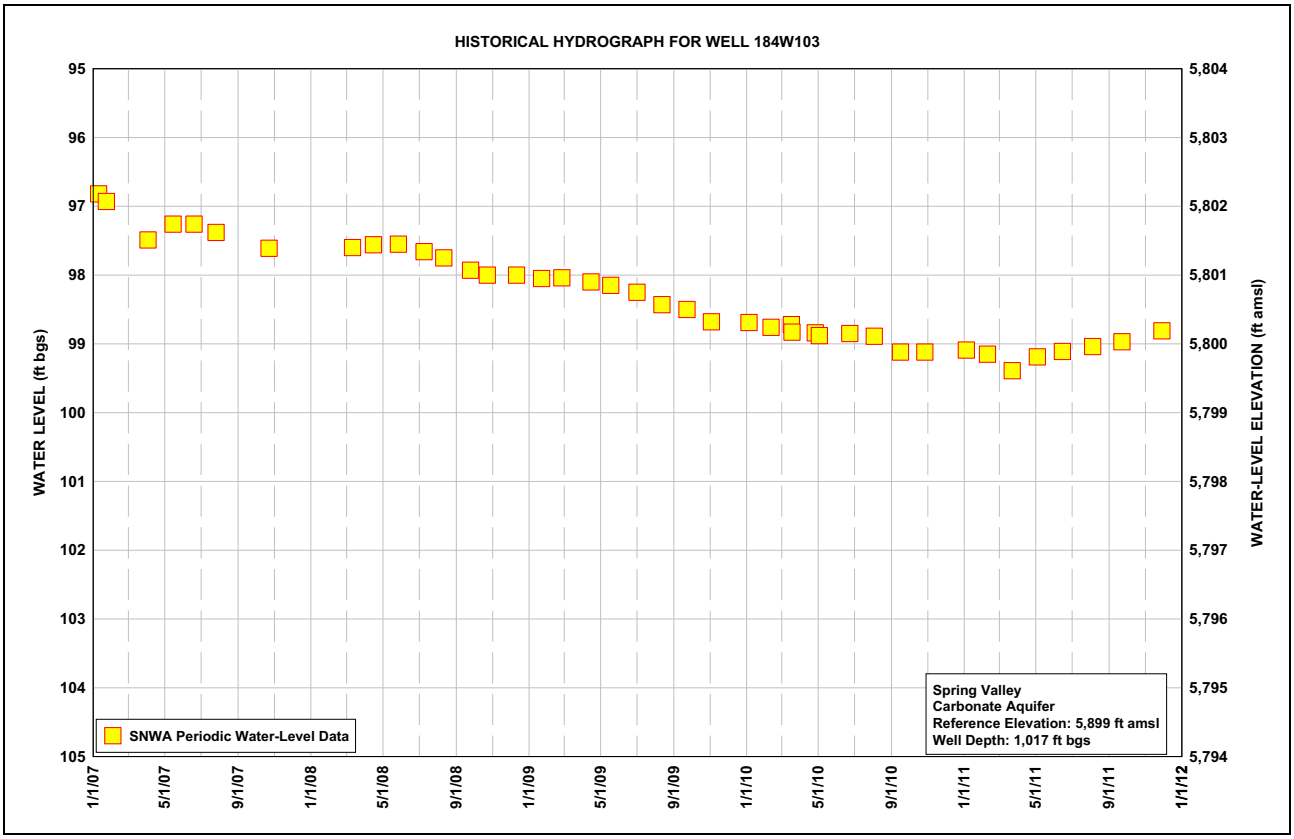
Map ID	Site Number	Station Local Number[a]	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
---	SPR7024M[d]	184 N12 E67 01CCCD1	250	5,861.10	4/6/2011	20.27	S	T
					5/10/2011	20.40	S	T
					7/19/2011	19.21	S	T
					8/1/2011	18.71	S	T
					9/21/2011	17.93	S	T
					11/30/2011	17.24	S	T
---	SPR7024M2[d]	184 N12 E67 01CCCD2	699	5,863.08	4/6/2011	12.95	S	T
					5/10/2011	13.42	S	T
					7/19/2011	10.78	S	T
					8/1/2011	10.52	S	T
					9/21/2011	10.42	S	T
					11/30/2011	8.89	S	T

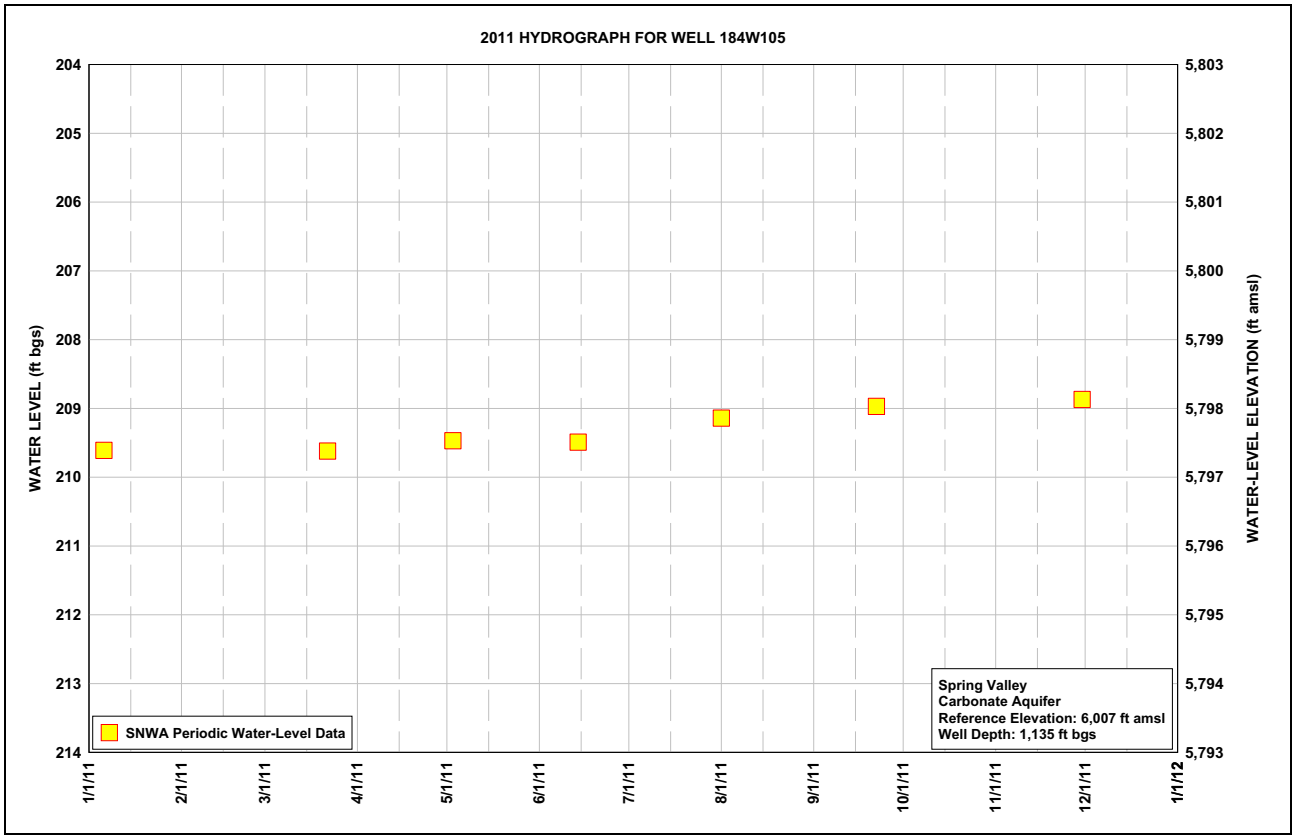
[a]Station Local Numbers provided by the Nevada Department of Water Resources.
[b]S = Static conditions, P = Pumping or recently pumping conditions, D = Dry
[c]T = Electric tape measurement, S = Steel tape measurement, G = Pressure gage
[d]2011 and historical hydrographs with periodic and continuous data are presented in Appendix B.
[e]The Cleve Creek well will be replaced by SPR7029M, SPR7029M2, or both.
Note: SNWA tape calibration program started in August 2008.

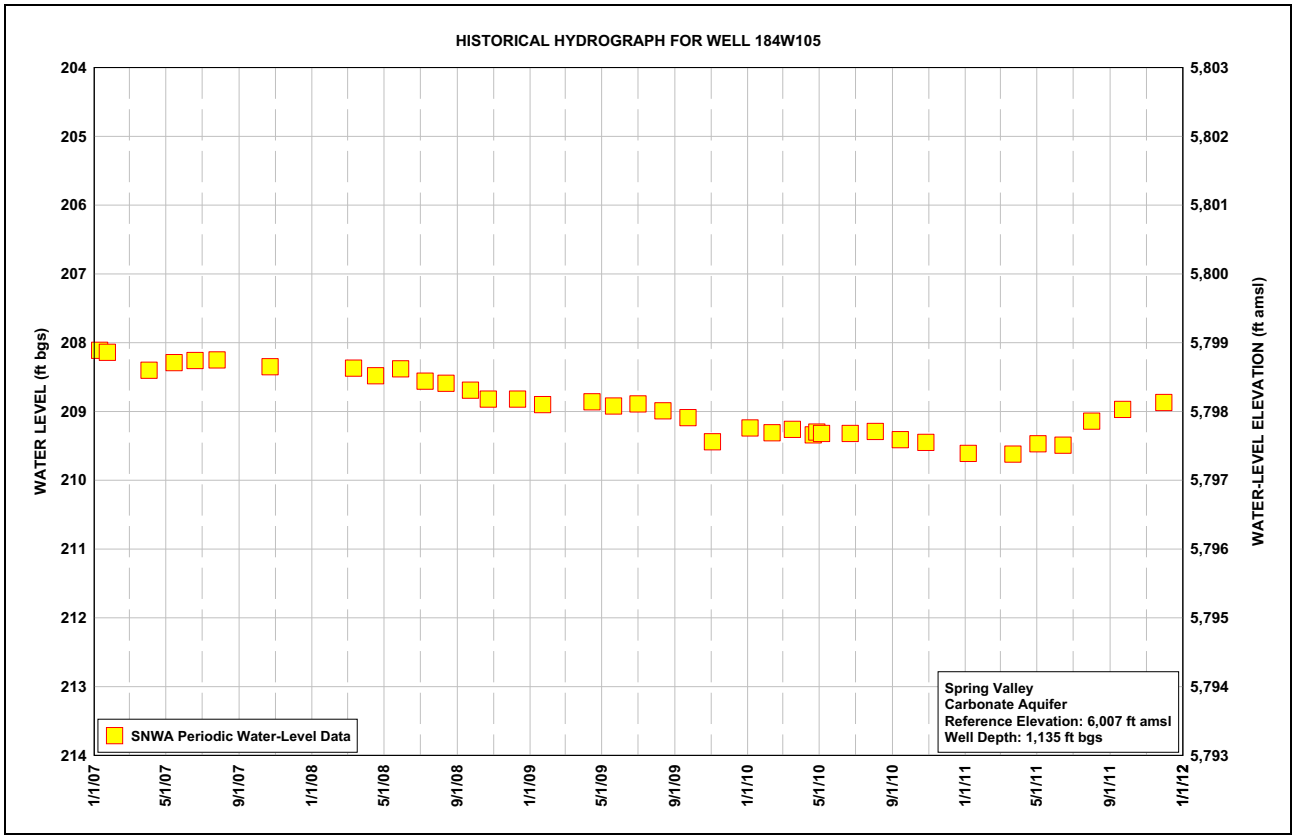

2011 HYDROGRAPH FOR WELL 184W101
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
477
478
479
480
481
482
483
484
485
486
487
5,714
5,713
5,712
5,711
5,710
5,709
5,708
5,707
5,706
5,705
5,704
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,191 ft amsl
Well Depth: 1,749 ft bgs

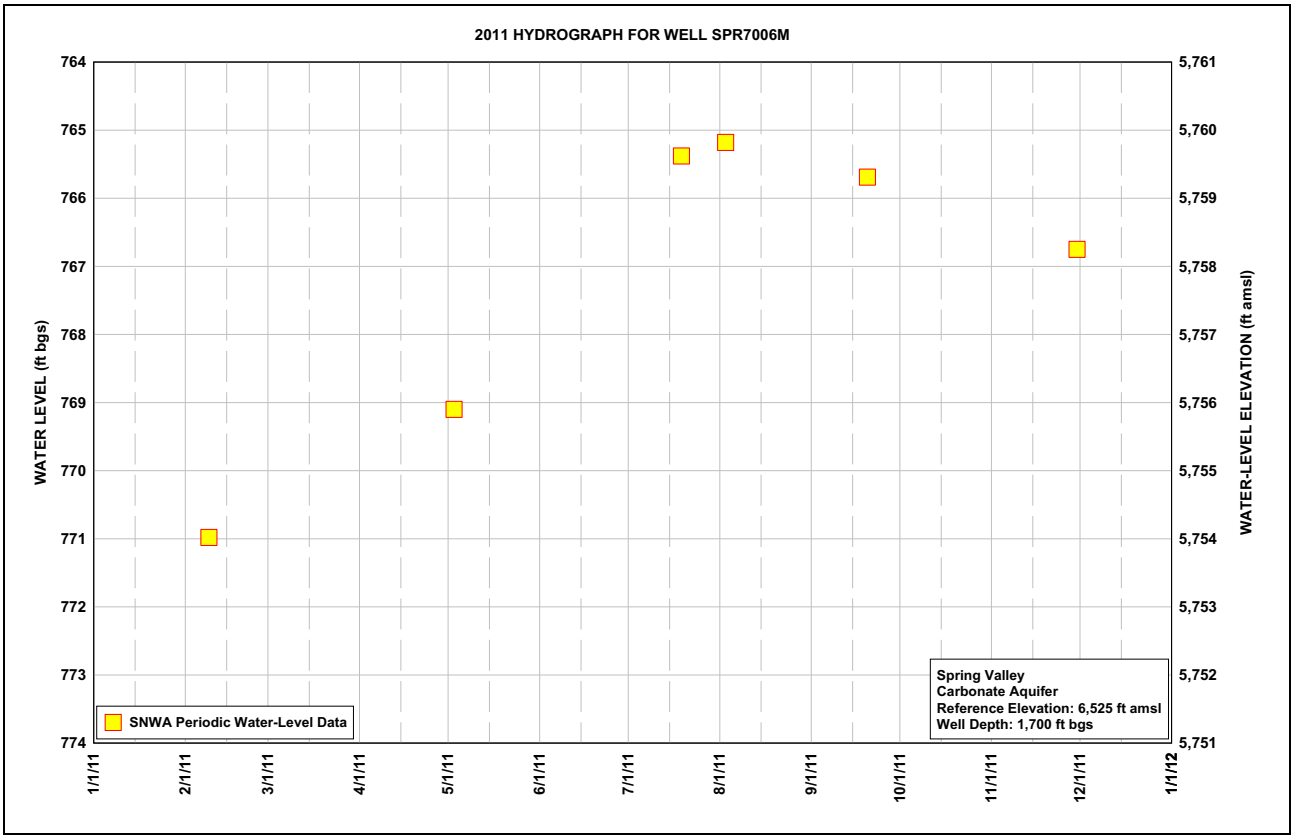

HISTORICAL HYDROGRAPH FOR WELL 184W101
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
477
478
479
480
481
482
483
484
485
486
487
5,714
5,713
5,712
5,711
5,710
5,709
5,708
5,707
5,706
5,705
5,704
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,191 ft amsl
Well Depth: 1,749 ft bgs

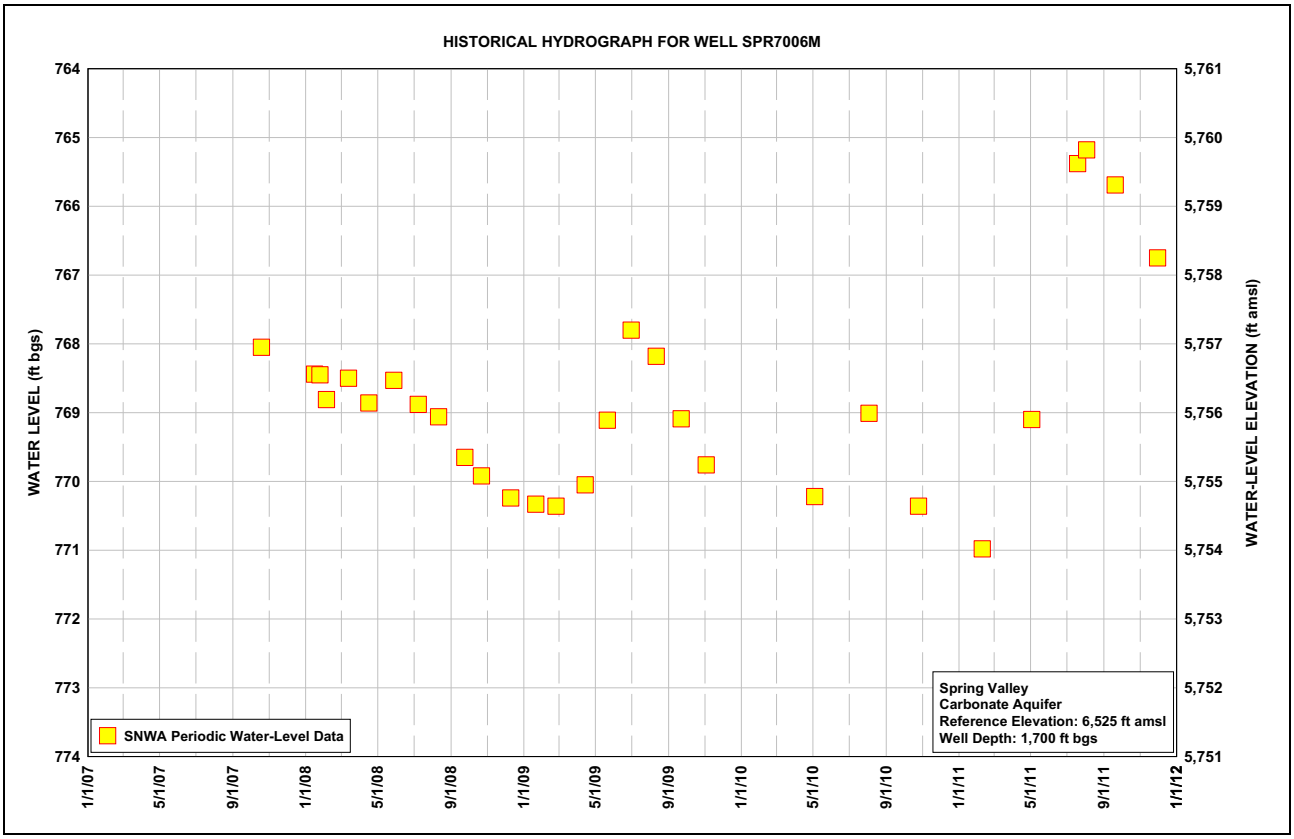

2011 HYDROGRAPH FOR WELL 184W103
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,899 ft amsl
Well Depth: 1,017 ft bgs


HISTORICAL HYDROGRAPH FOR WELL 184W103
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,899 ft amsl
Well Depth: 1,017 ft bgs


2011 HYDROGRAPH FOR WELL 184W105
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
204
205
206
207
208
209
210
211
212
213
214
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
5,793
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,007 ft amsl
Well Depth: 1,135 ft bgs


HISTORICAL HYDROGRAPH FOR WELL 184W105
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
204
205
206
207
208
209
210
211
212
213
214
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
5,793
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,007 ft amsl
Well Depth: 1,135 ft bgs


2011 HYDROGRAPH FOR WELL SPR7006M
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
764
765
766
767
768
769
770
771
772
773
774
5,761
5,760
5,759
5,758
5,757
5,756
5,755
5,754
5,753
5,752
5,751
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,525 ft amsl
Well Depth: 1,700 ft bgs


HISTORICAL HYDROGRAPH FOR WELL SPR7006M
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
764
765
766
767
768
769
770
771
772
773
774
5,761
5,760
5,759
5,758
5,757
5,756
5,755
5,754
5,753
5,752
5,751
1/1/07
5/1/07
9/1/07
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9/1/08
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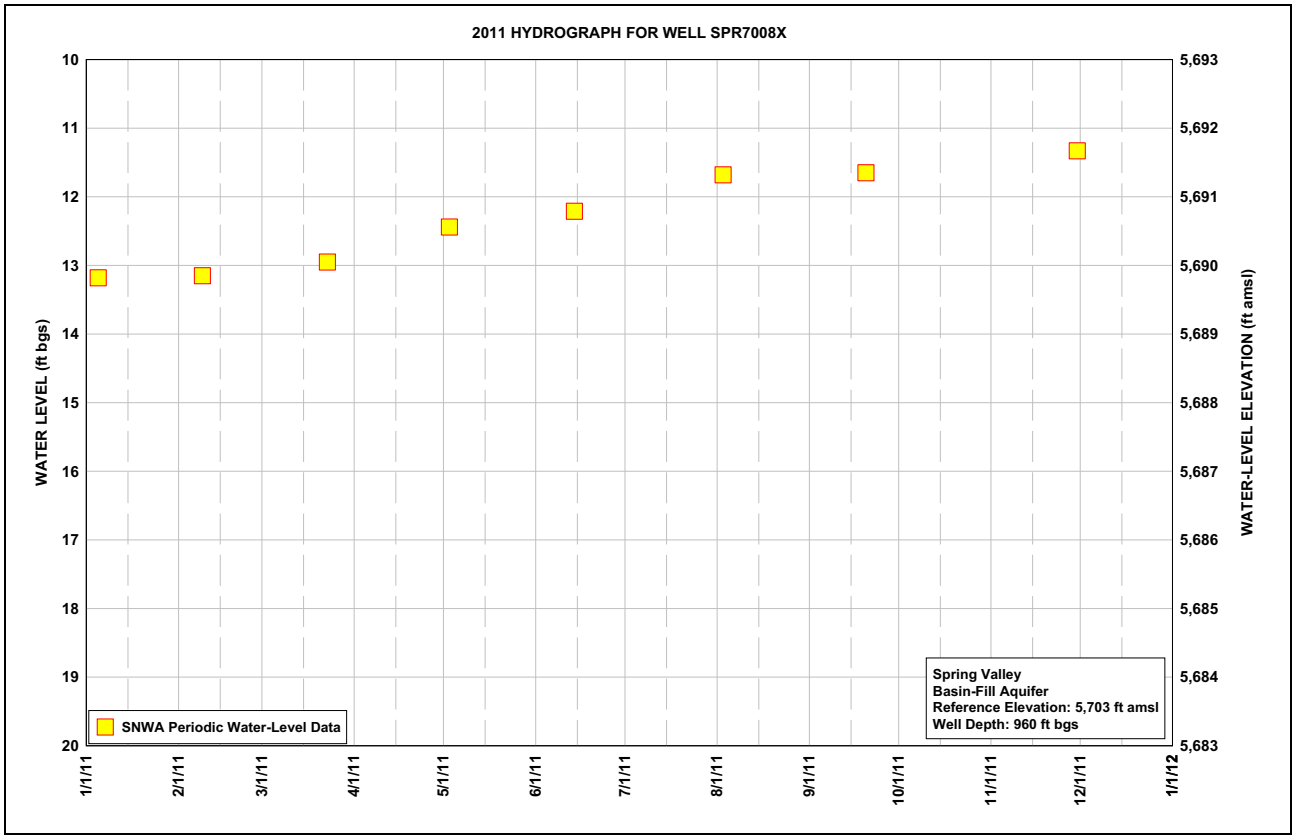
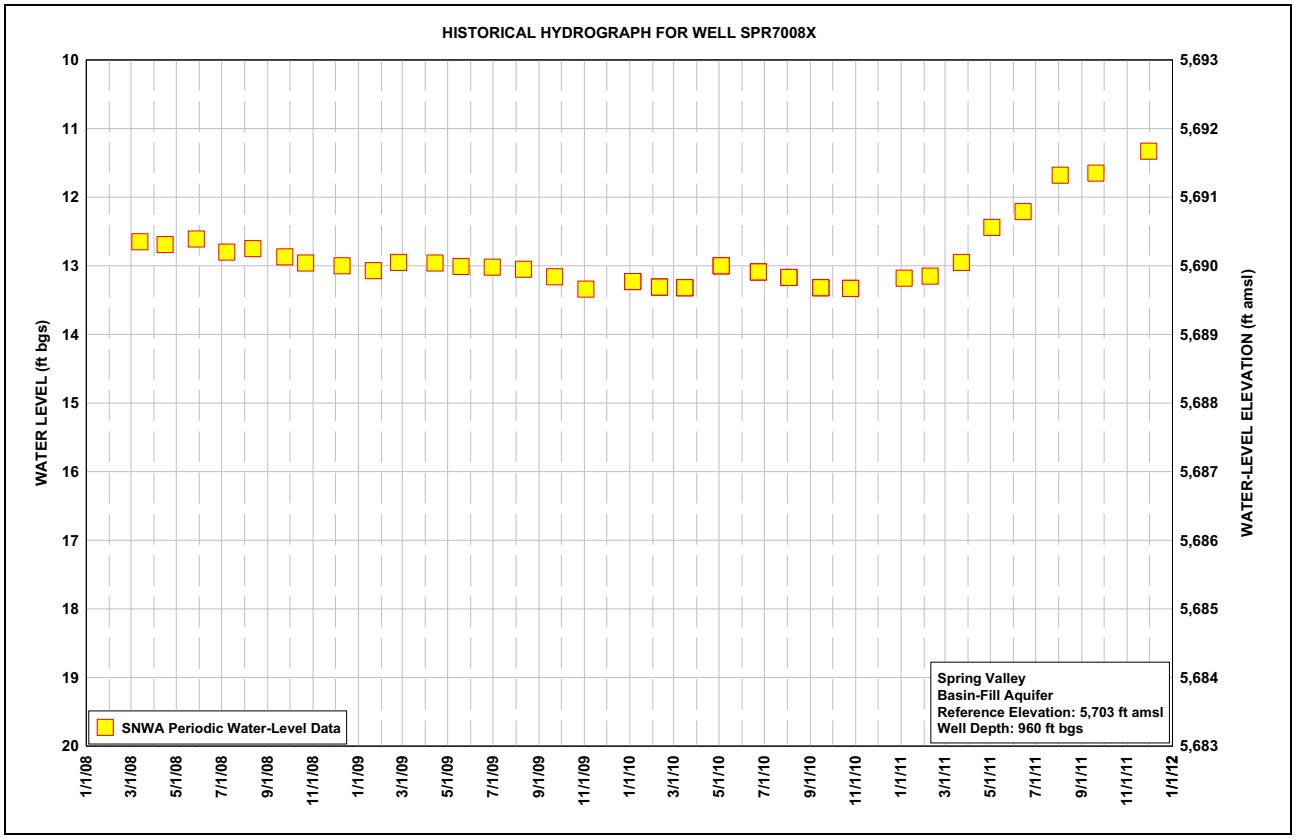
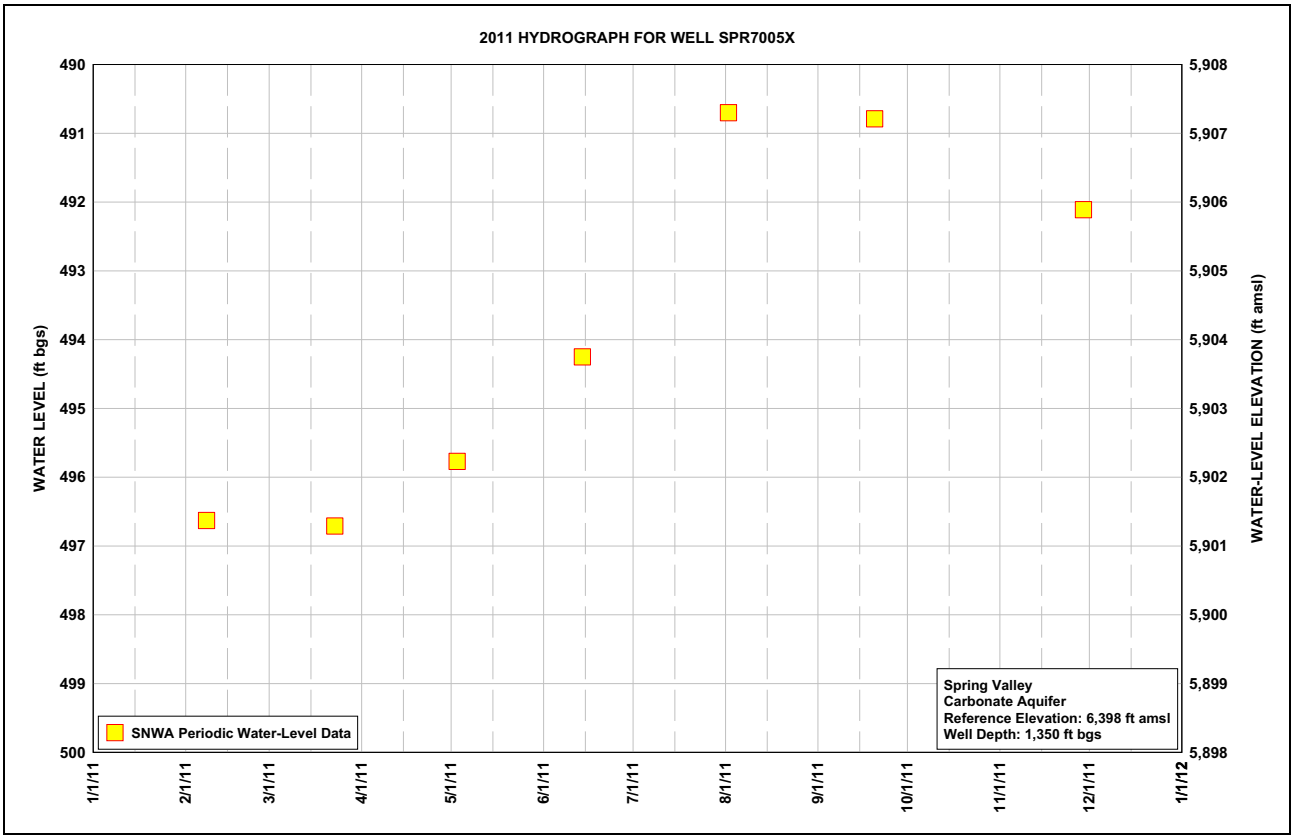
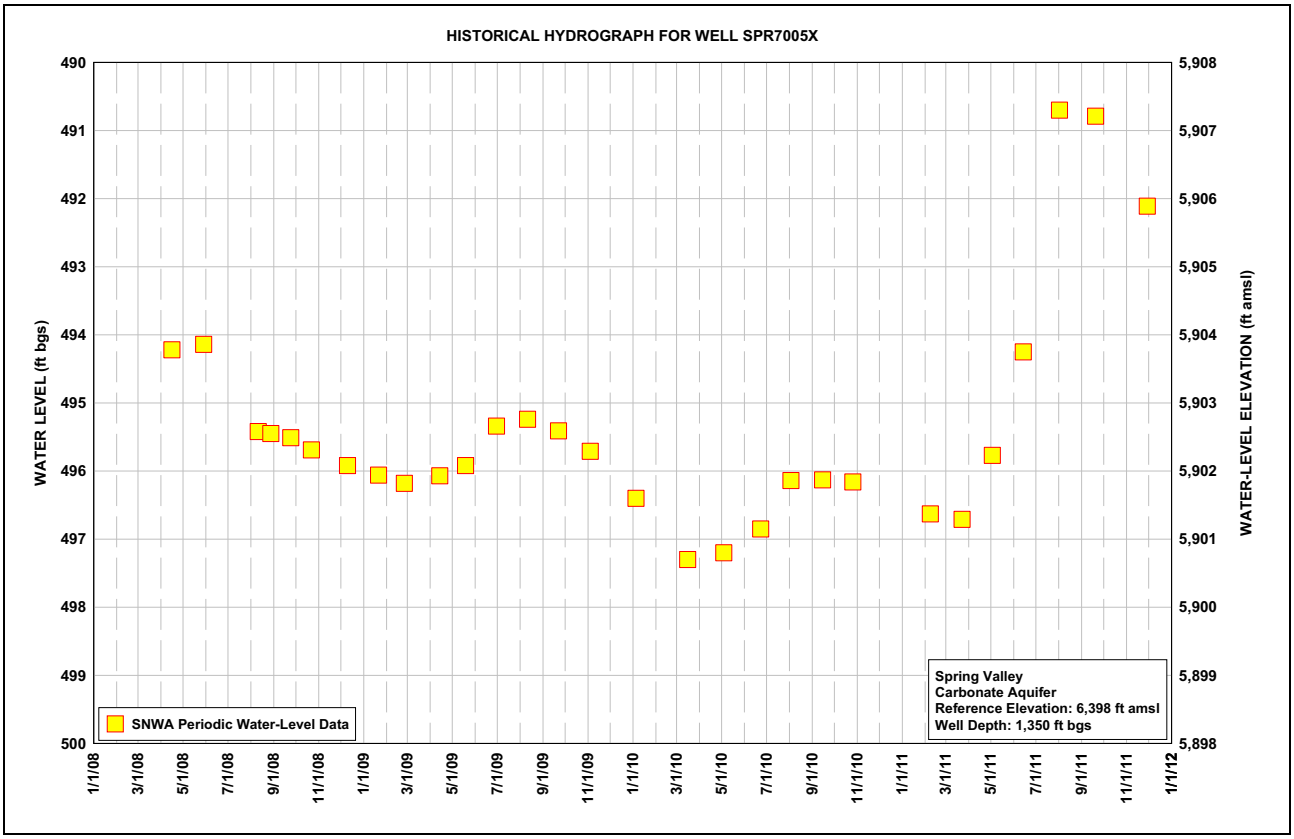
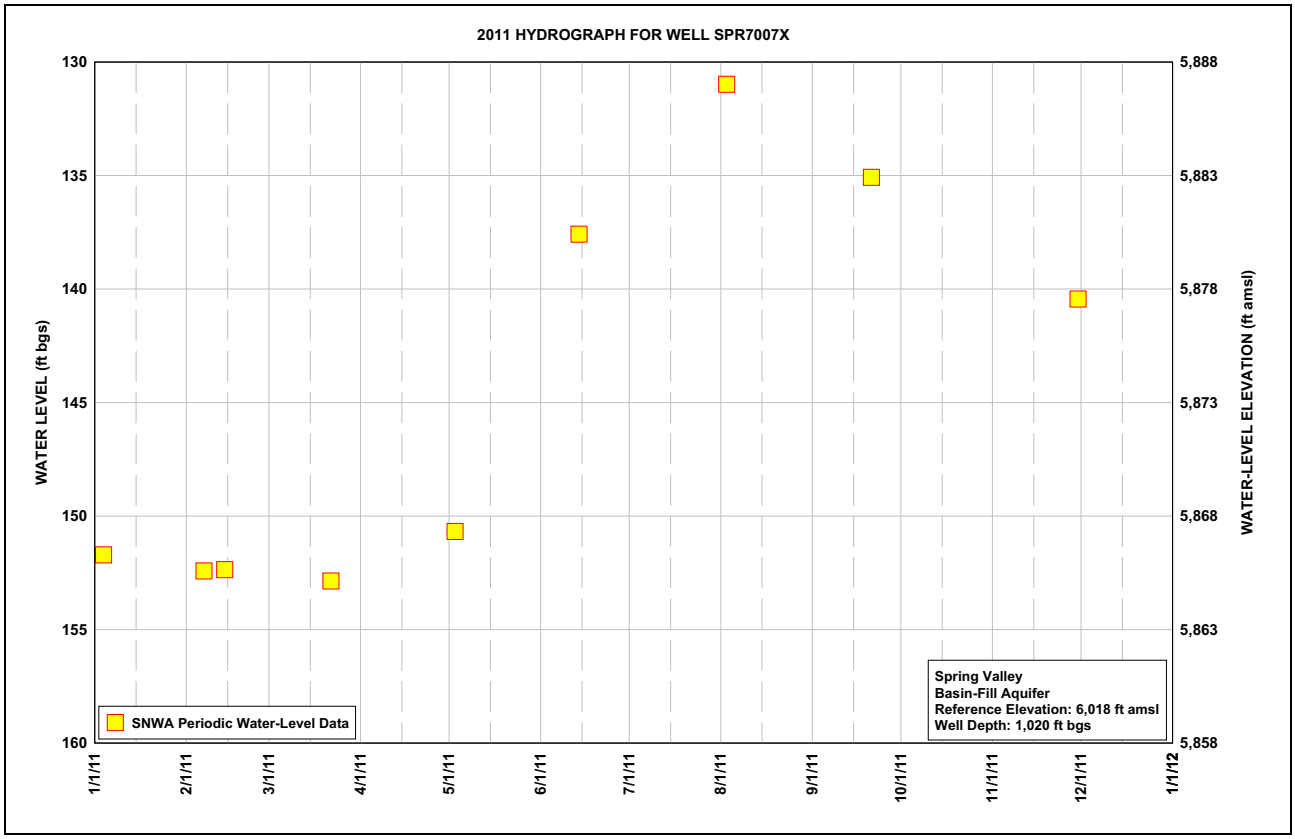
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,525 ft amsl
Well Depth: 1,700 ft bgs


2011 HYDROGRAPH FOR WELL SPR7008X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
5,684
5,683
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,703 ft amsl
Well Depth: 960 ft bgs


HISTORICAL HYDROGRAPH FOR WELL SPR7008X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
5,684
5,683
1/1/08
3/1/08
5/1/08
7/1/08
9/1/08
11/1/08
1/1/09
3/1/09
5/1/09
7/1/09
9/1/09
11/1/09
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,703 ft amsl
Well Depth: 960 ft bgs


2011 HYDROGRAPH FOR WELL SPR7005X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
490
491
492
493
494
495
496
497
498
499
500
5,908
5,907
5,906
5,905
5,904
5,903
5,902
5,901
5,900
5,899
5,898
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,398 ft amsl
Well Depth: 1,350 ft bgs


HISTORICAL HYDROGRAPH FOR WELL SPR7005X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
490
491
492
493
494
495
496
497
498
499
500
5,908
5,907
5,906
5,905
5,904
5,903
5,902
5,901
5,900
5,899
5,898
1/1/08
3/1/08
5/1/08
7/1/08
9/1/08
11/1/08
1/1/09
3/1/09
5/1/09
7/1/09
9/1/09
11/1/09
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,398 ft amsl
Well Depth: 1,350 ft bgs


2011 HYDROGRAPH FOR WELL SPR7007X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
130
135
140
145
150
155
160
5,888
5,883
5,878
5,873
5,868
5,863
5,858
1/1/11
2/1/11
3/1/11
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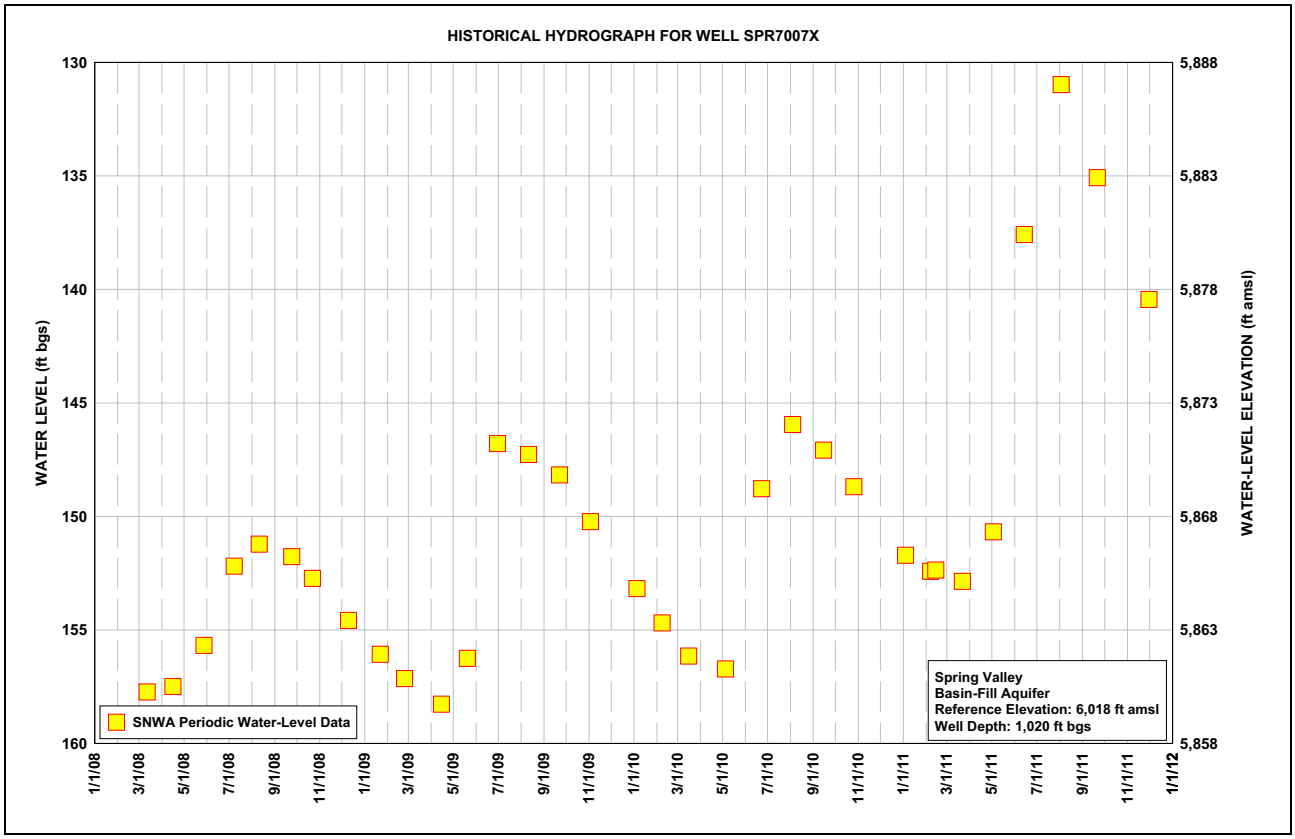
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs


HISTORICAL HYDROGRAPH FOR WELL SPR7007X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
130
135
140
145
150
155
160
5,888
5,883
5,878
5,873
5,868
5,863
5,858
1/1/08
3/1/08
5/1/08
7/1/08
9/1/08
11/1/08
1/1/09
3/1/09
5/1/09
7/1/09
9/1/09
11/1/09
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3/1/10
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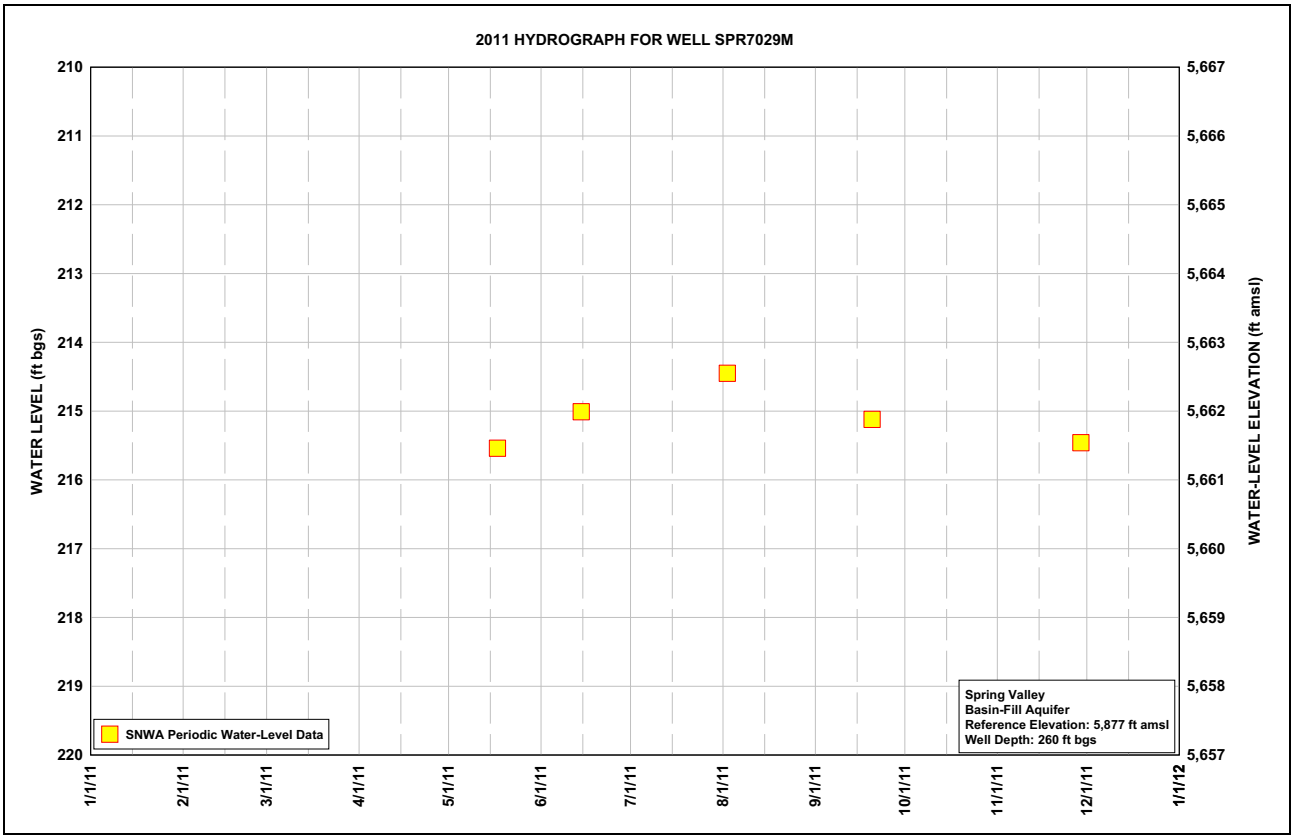
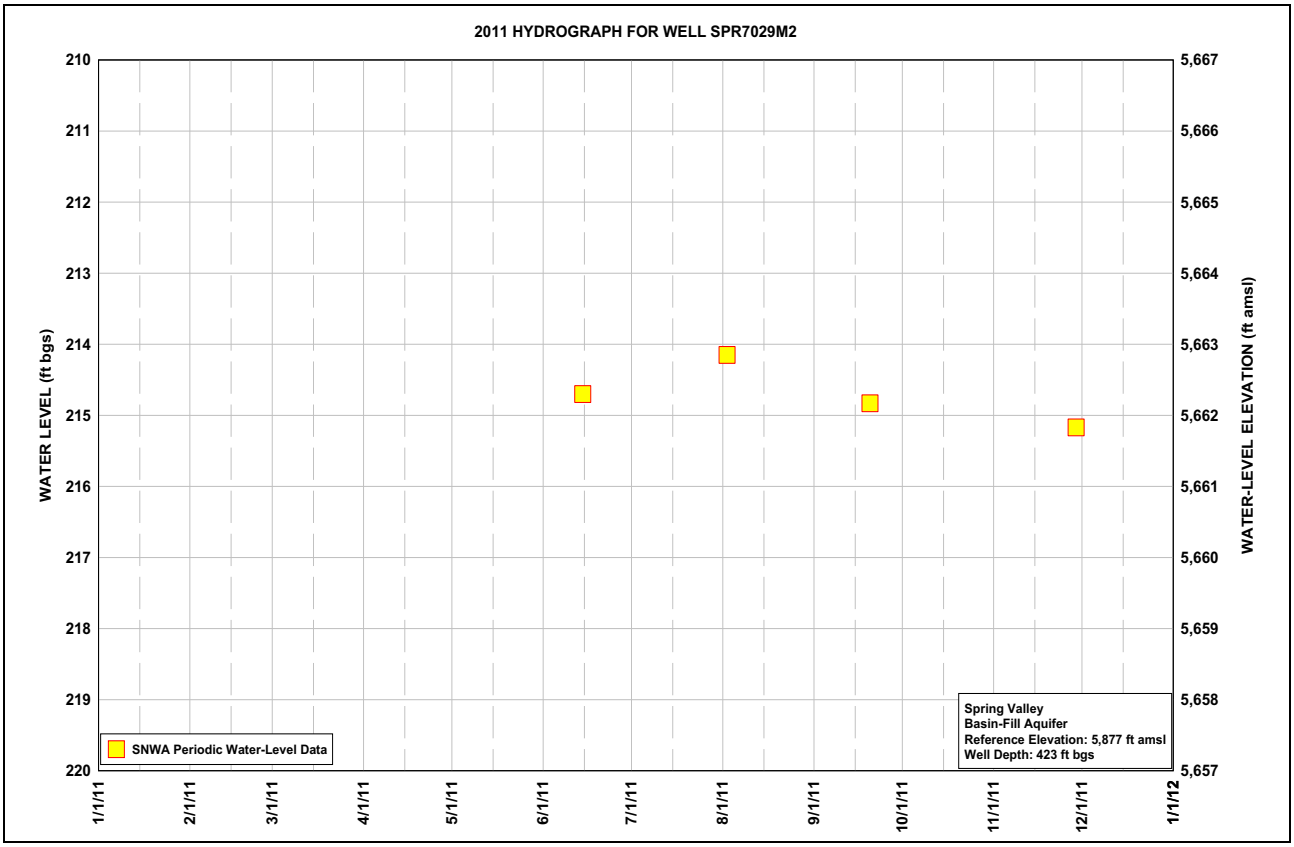
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs


2011 HYDROGRAPH FOR WELL SPR7029M
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,877 ft amsl
Well Depth: 260 ft bgs


2011 HYDROGRAPH FOR WELL SPR7029M2
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
1/1/11
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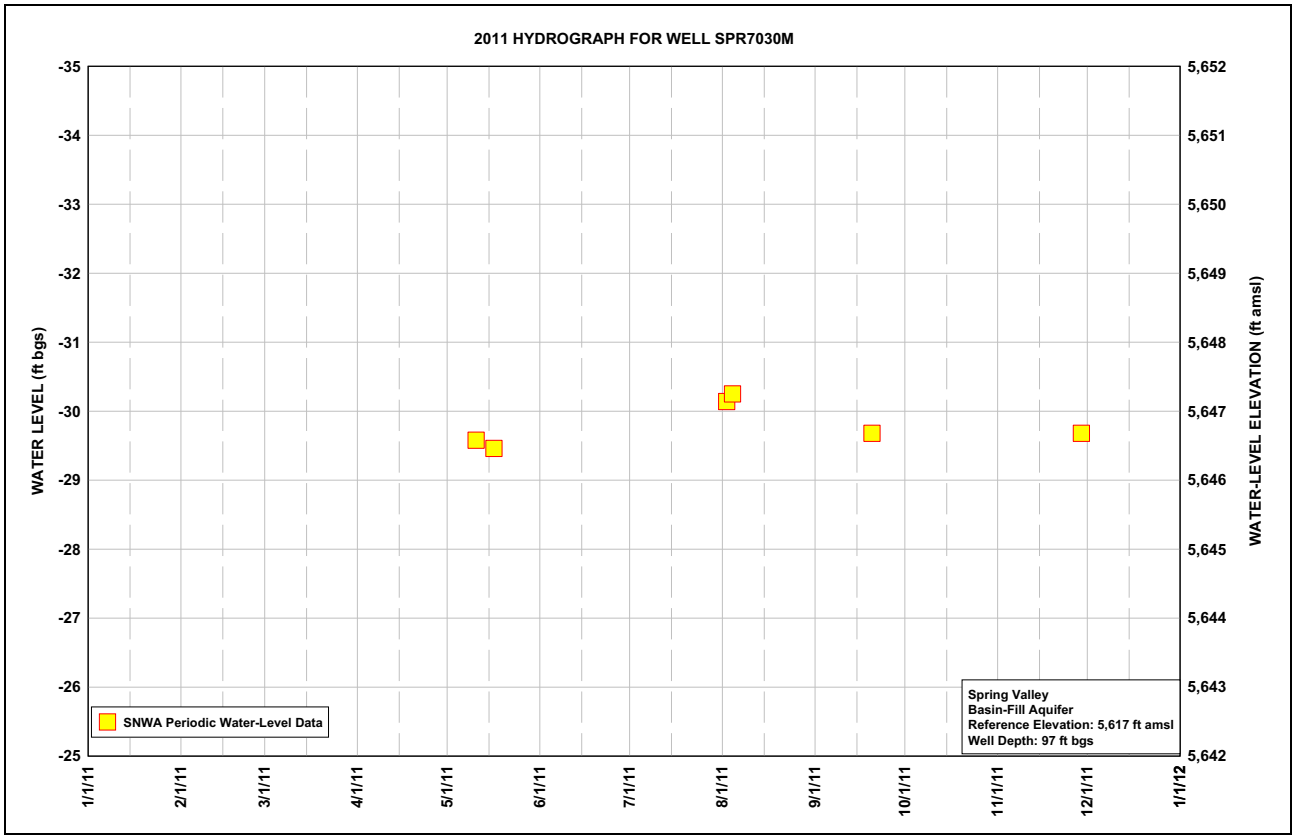
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,877 ft amsl
Well Depth: 423 ft bgs


2011 HYDROGRAPH FOR WELL SPR7030M
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
-35
-34
-33
-32
-31
-30
-29
-28
-27
-26
-25
5,652
5,651
5,650
5,649
5,648
5,647
5,646
5,645
5,644
5,643
5,642
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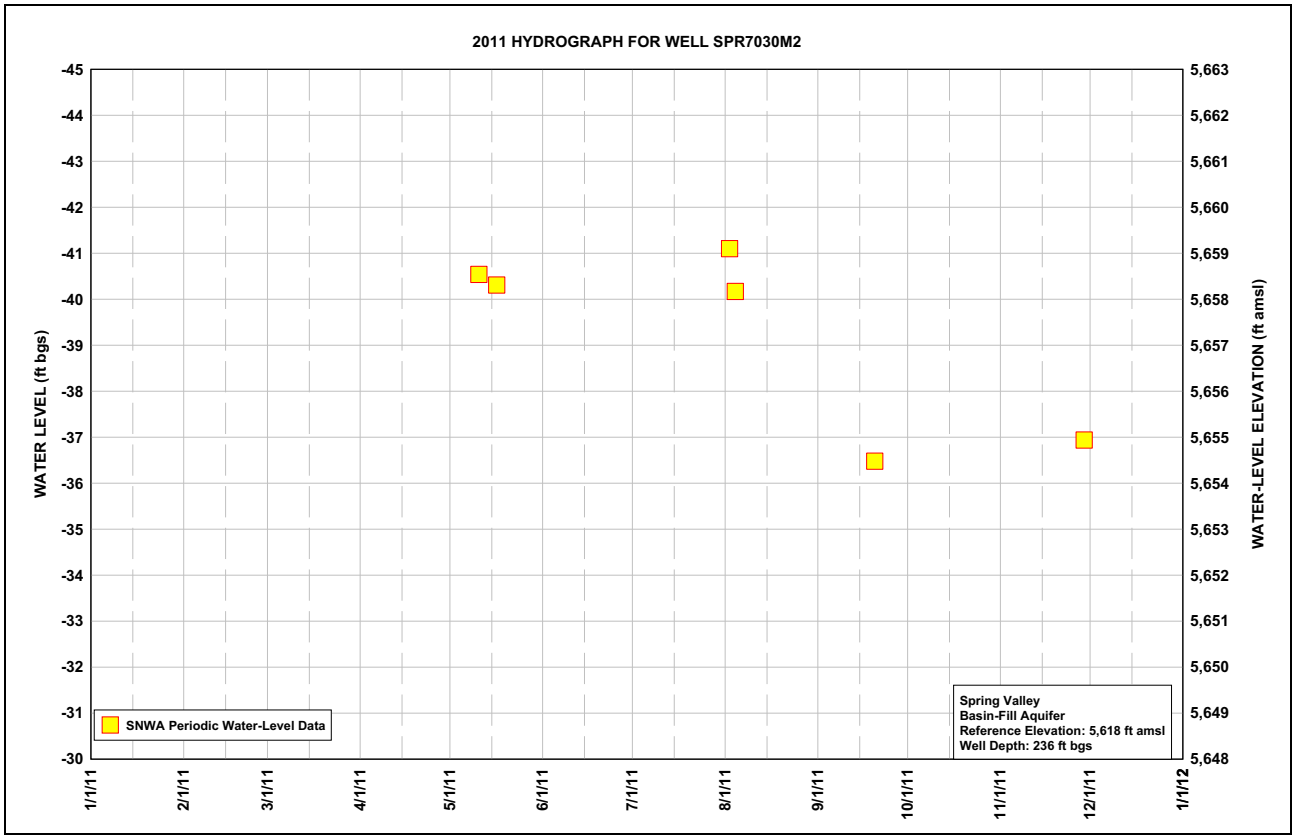
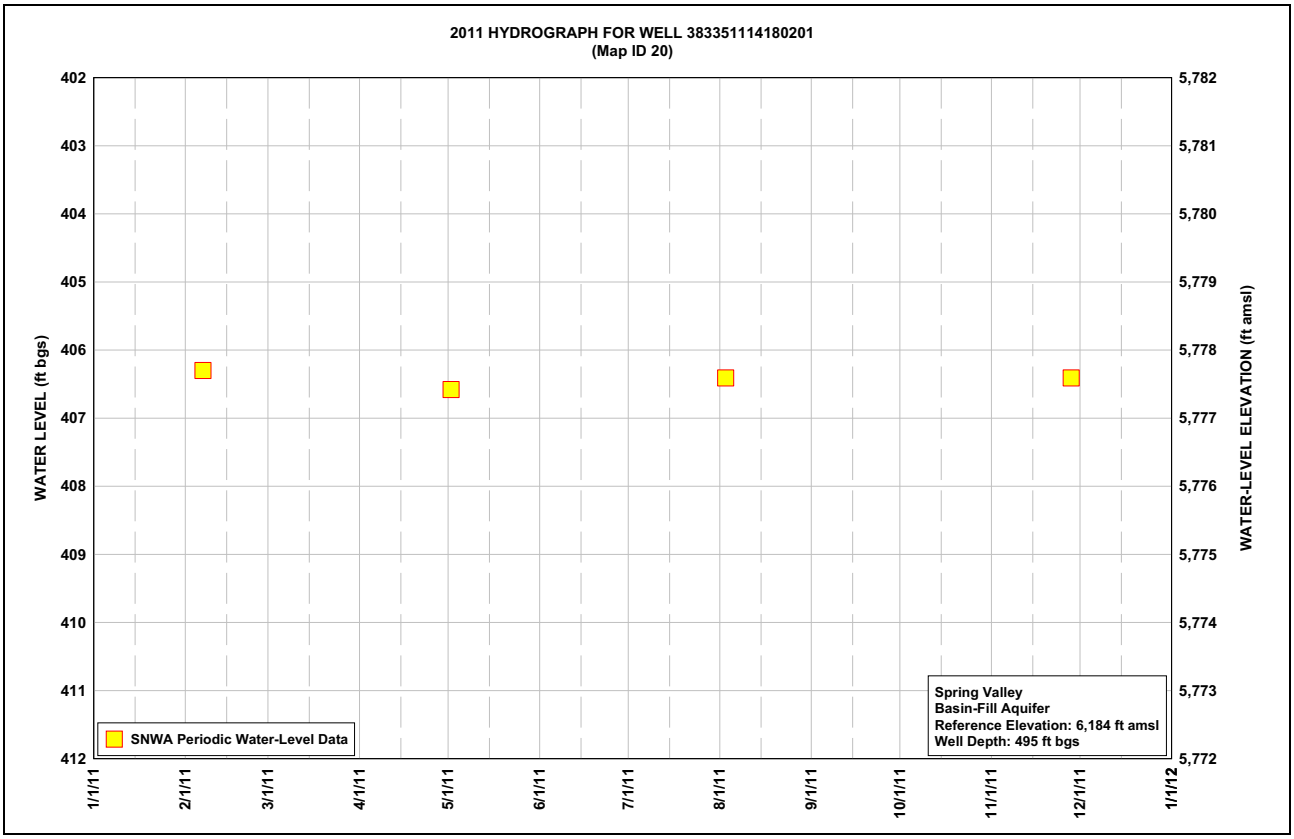
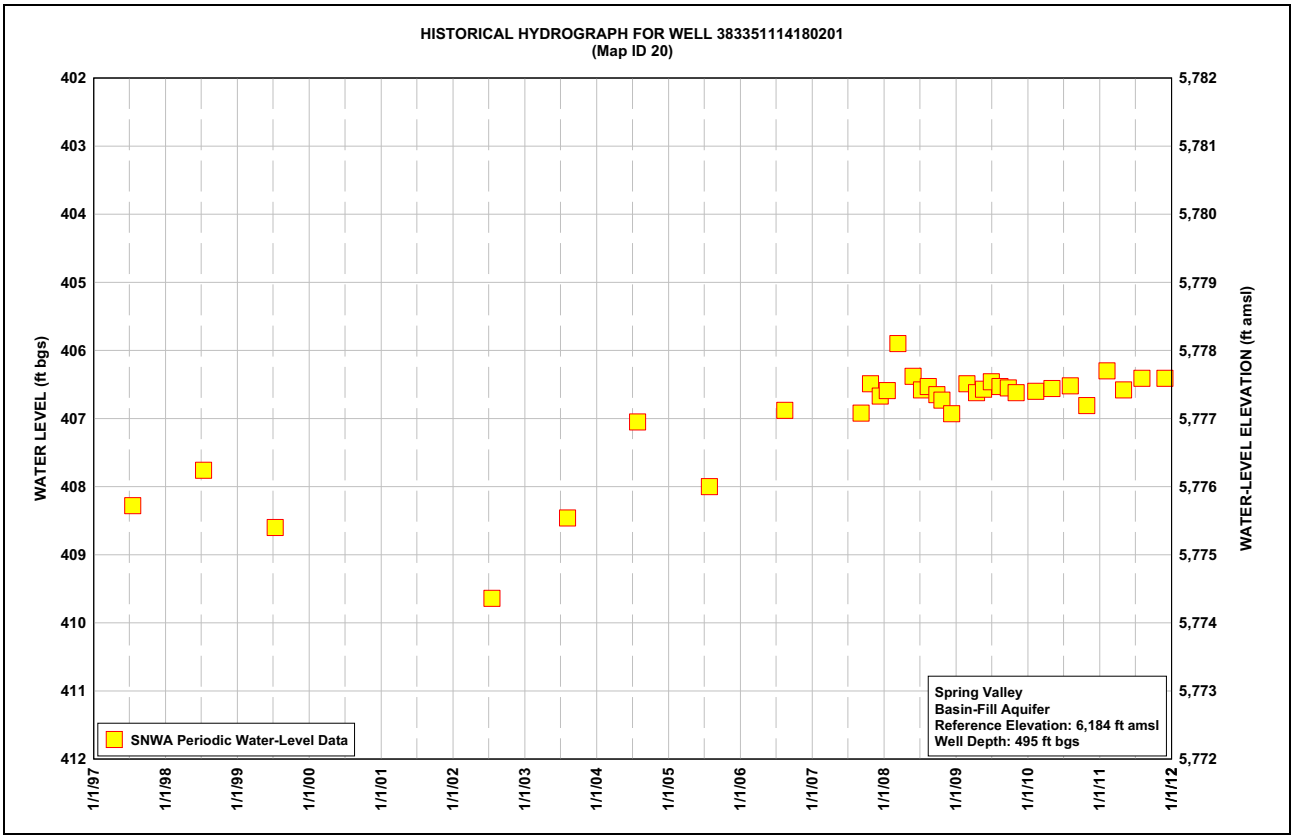
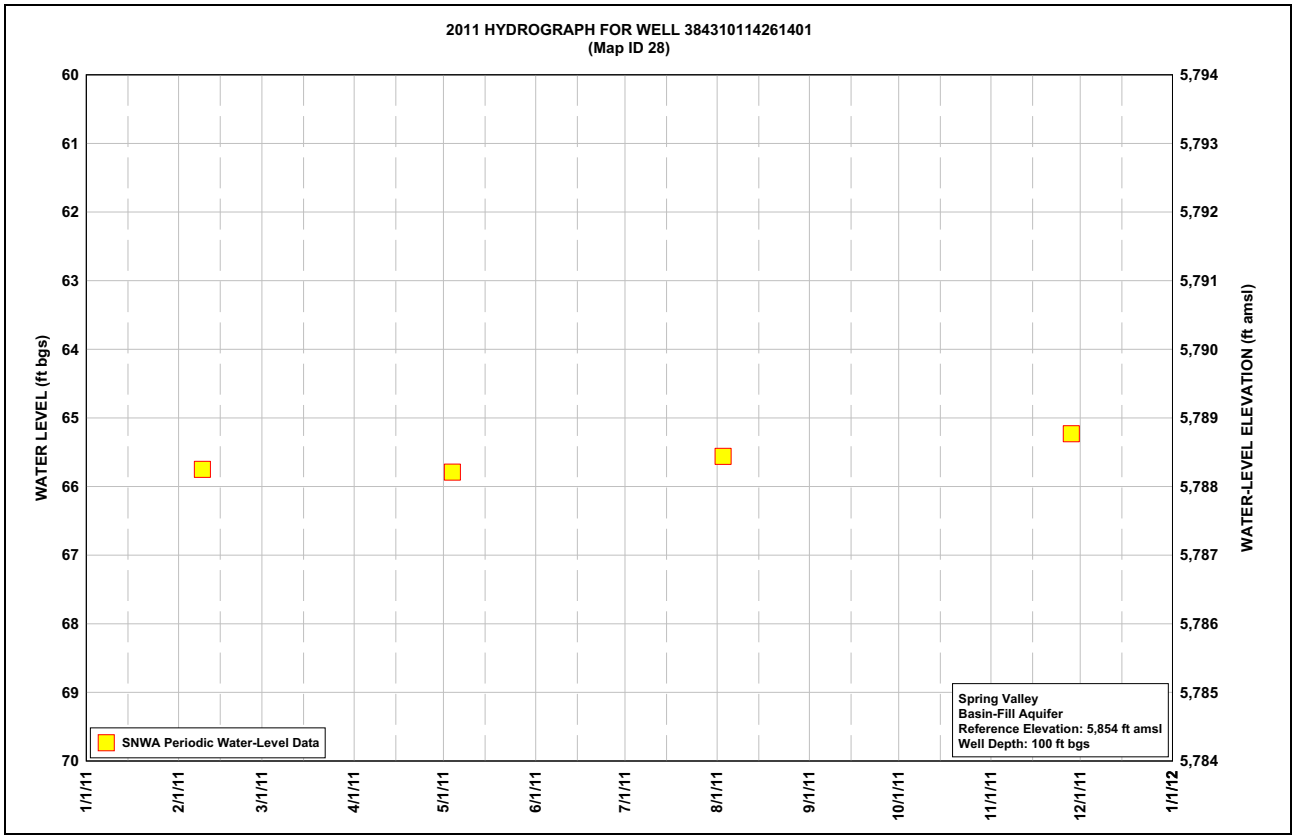
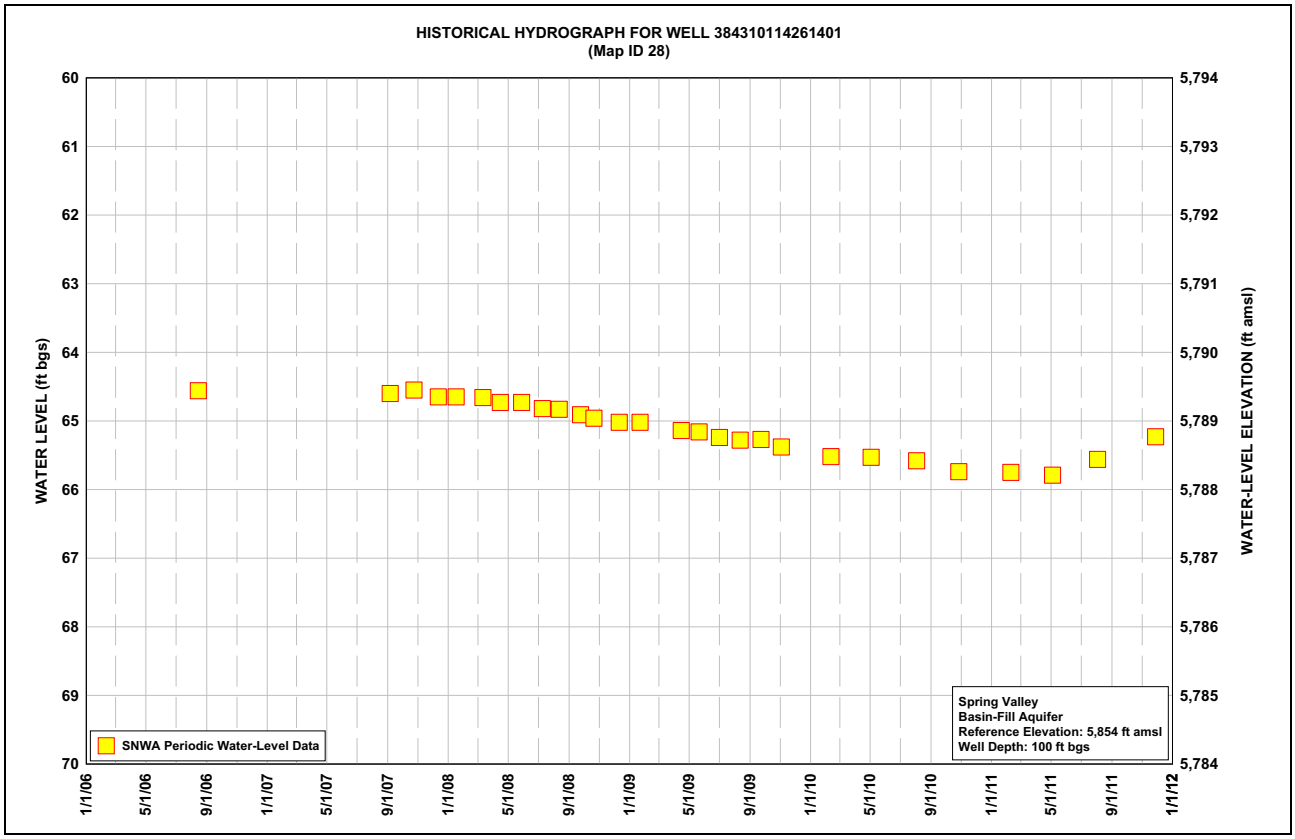
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,617 ft amsl
Well Depth: 97 ft bgs

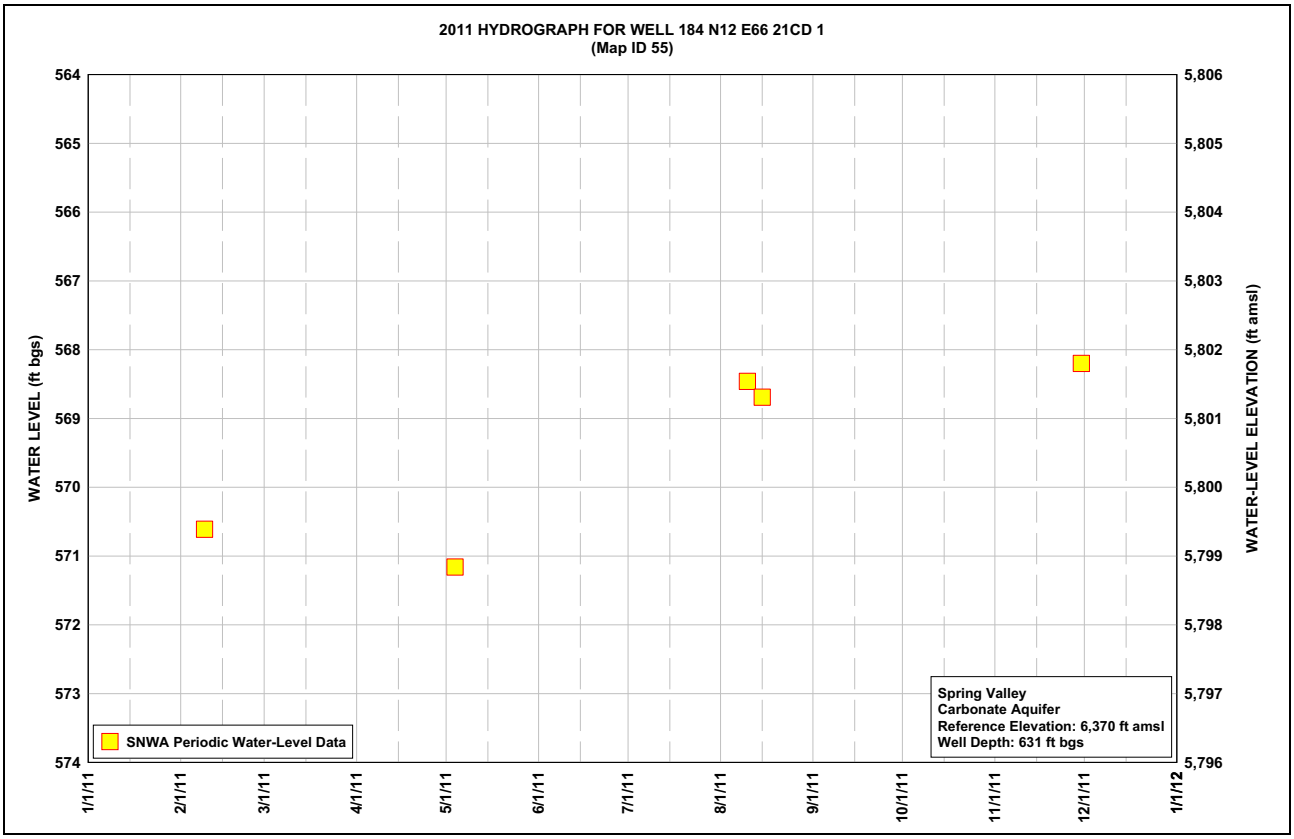

2011 HYDROGRAPH FOR WELL SPR7030M2
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
-45
-44
-43
-42
-41
-40
-39
-38
-37
-36
-35
-34
-33
-32
-31
-30
5,663
5,662
5,661
5,660
5,659
5,658
5,657
5,656
5,655
5,654
5,653
5,652
5,651
5,650
5,649
5,648
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,618 ft amsl
Well Depth: 236 ft bgs

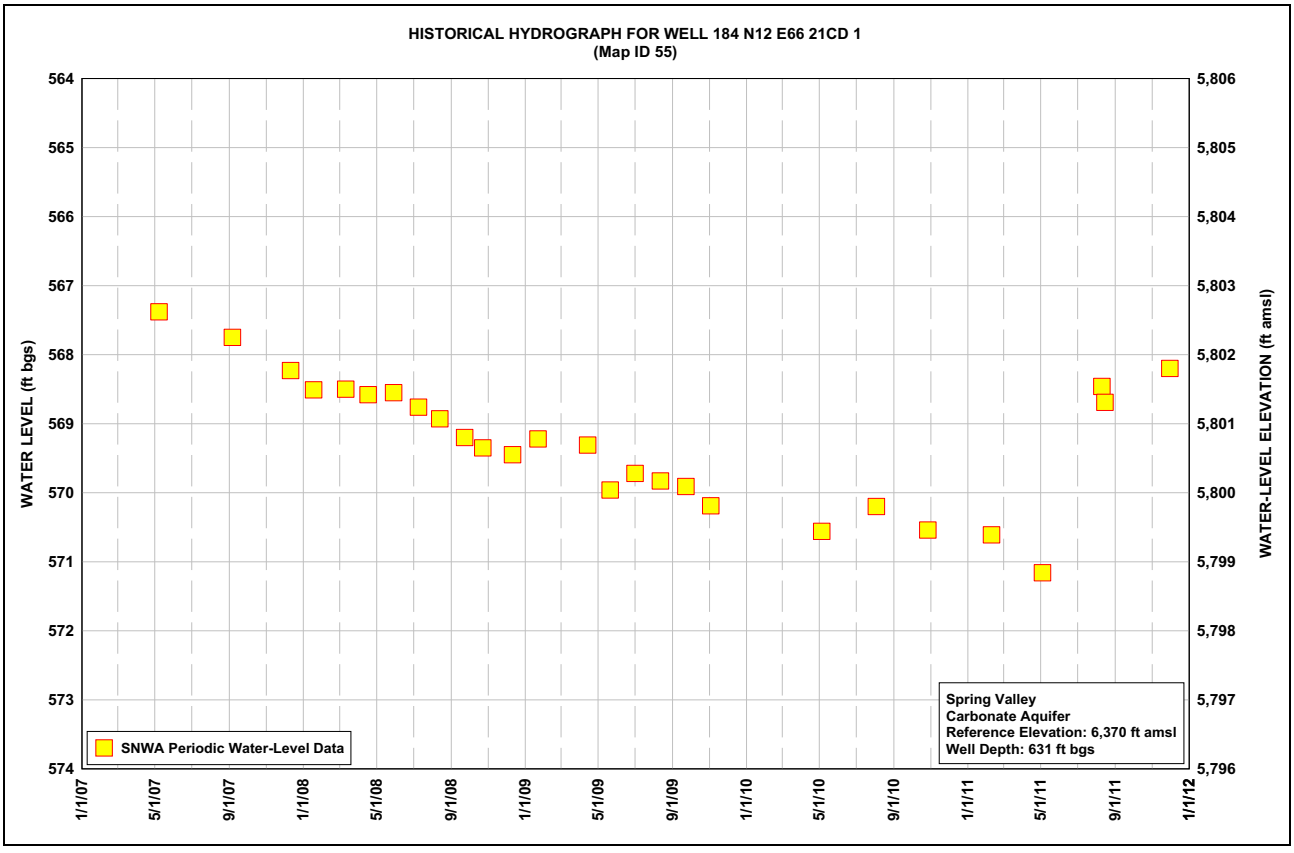

2011 HYDROGRAPH FOR WELL 383351114180201
(Map ID 20)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
402
403
404
405
406
407
408
409
410
411
412
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,184 ft amsl
Well Depth: 495 ft bgs

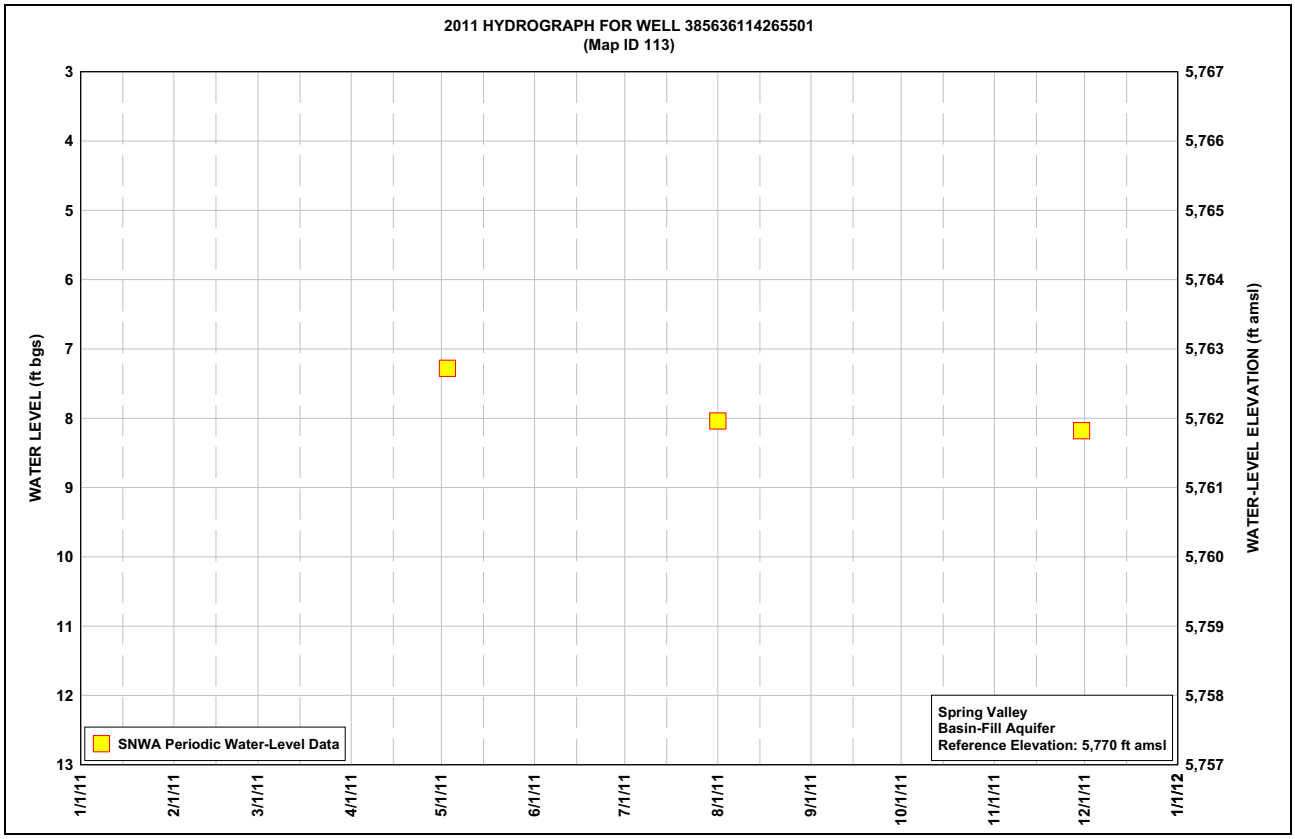

HISTORICAL HYDROGRAPH FOR WELL 383351114180201
(Map ID 20)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
402
403
404
405
406
407
408
409
410
411
412
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,184 ft amsl
Well Depth: 495 ft bgs

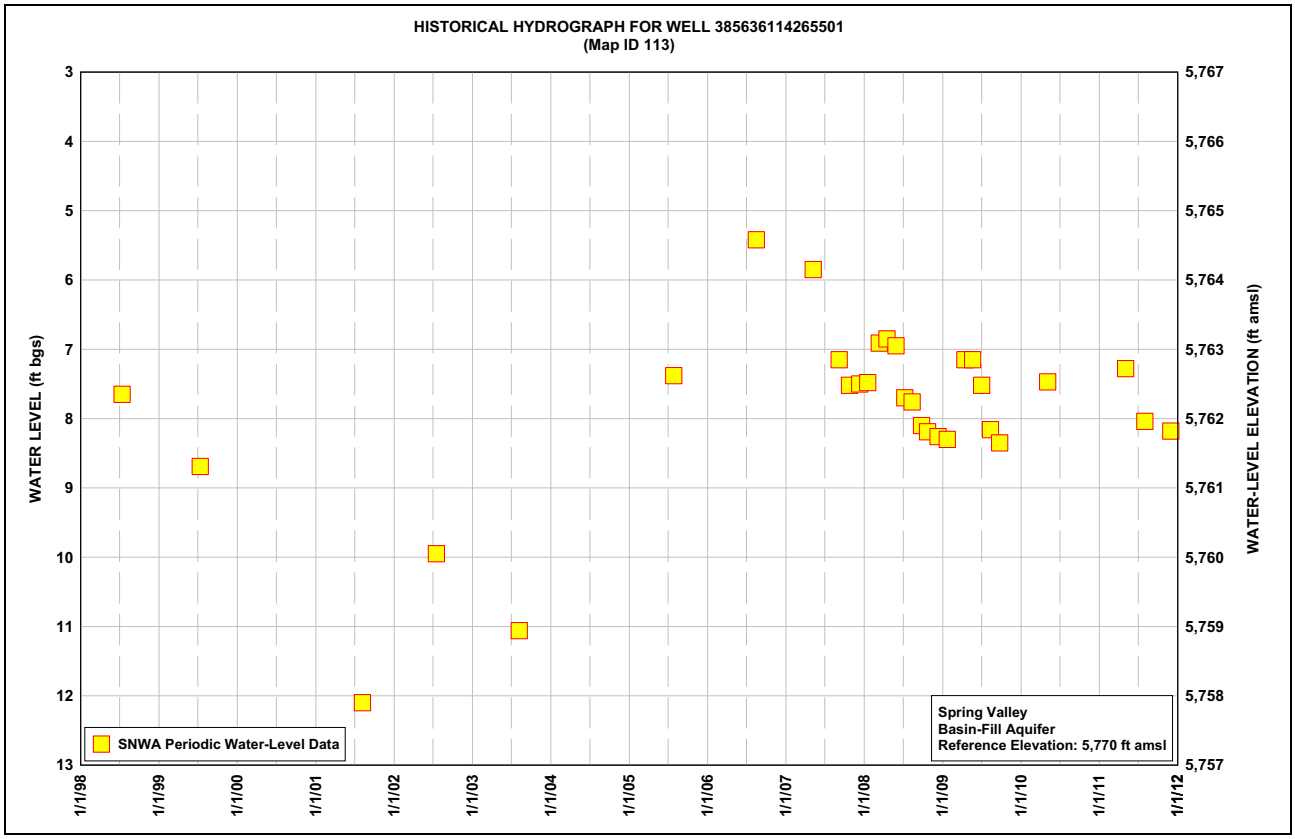

2011 HYDROGRAPH FOR WELL 384310114261401
(Map ID 28)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
60
61
62
63
64
65
66
67
68
69
70
5,794
5,793
5,792
5,791
5,790
5,789
5,788
5,787
5,786
5,785
5,784
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,854 ft amsl
Well Depth: 100 ft bgs

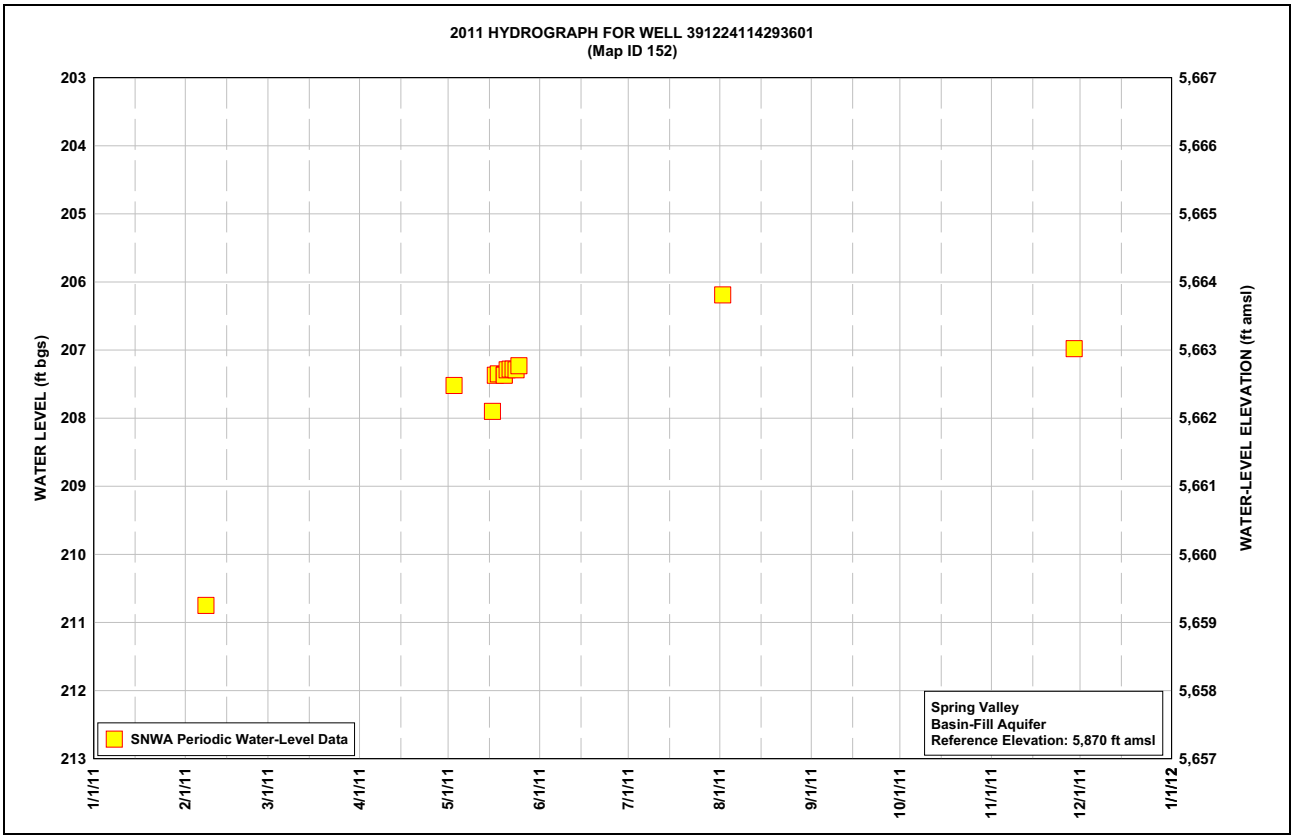

HISTORICAL HYDROGRAPH FOR WELL 384310114261401
(Map ID 28)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
60
61
62
63
64
65
66
67
68
69
70
5,794
5,793
5,792
5,791
5,790
5,789
5,788
5,787
5,786
5,785
5,784
1/1/06
5/1/06
9/1/06
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,854 ft amsl
Well Depth: 100 ft bgs

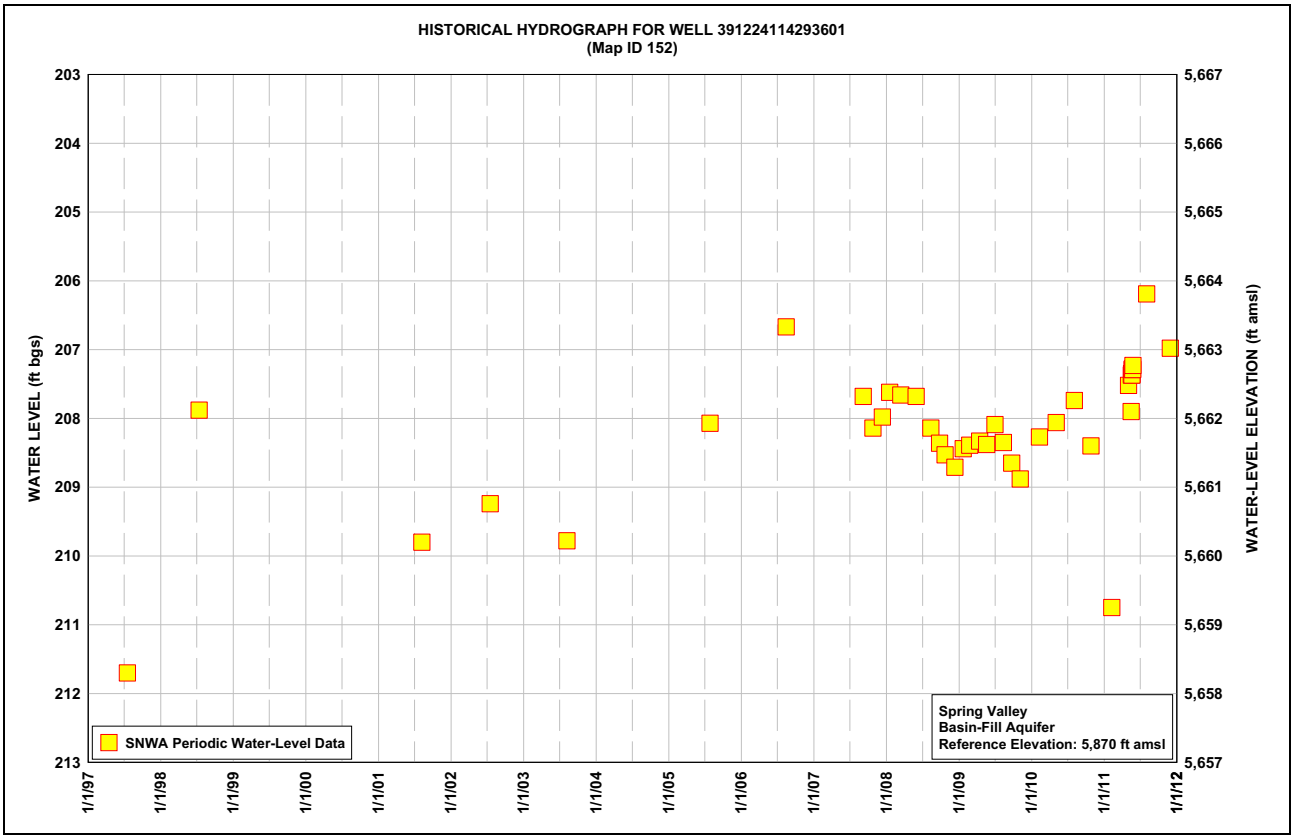

2011 HYDROGRAPH FOR WELL 184 N12 E66 21CD 1
(Map ID 55)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
564
565
566
567
568
569
570
571
572
573
574
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,370 ft amsl
Well Depth: 631 ft bgs

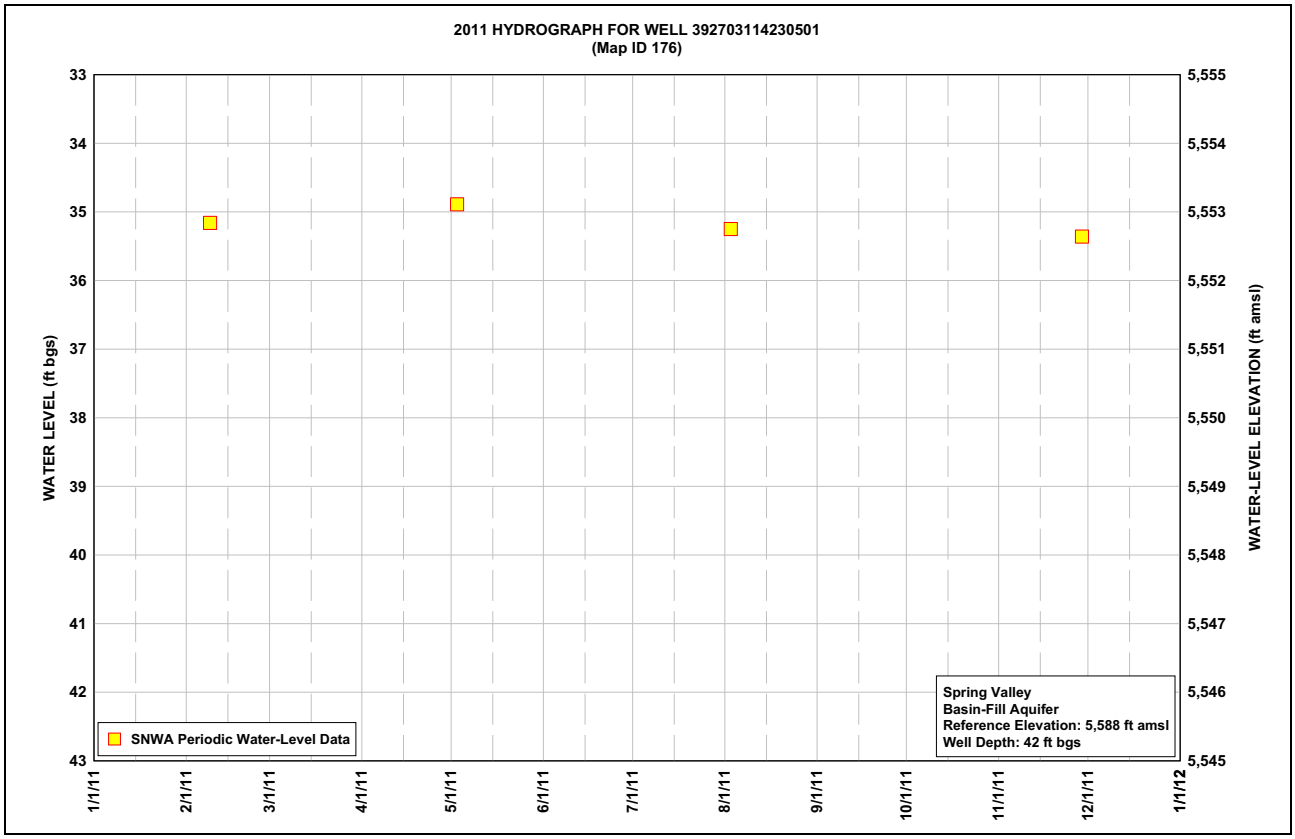

HISTORICAL HYDROGRAPH FOR WELL 184 N12 E66 21CD 1
(Map ID 55)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
564
565
566
567
568
569
570
571
572
573
574
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,370 ft amsl
Well Depth: 631 ft bgs

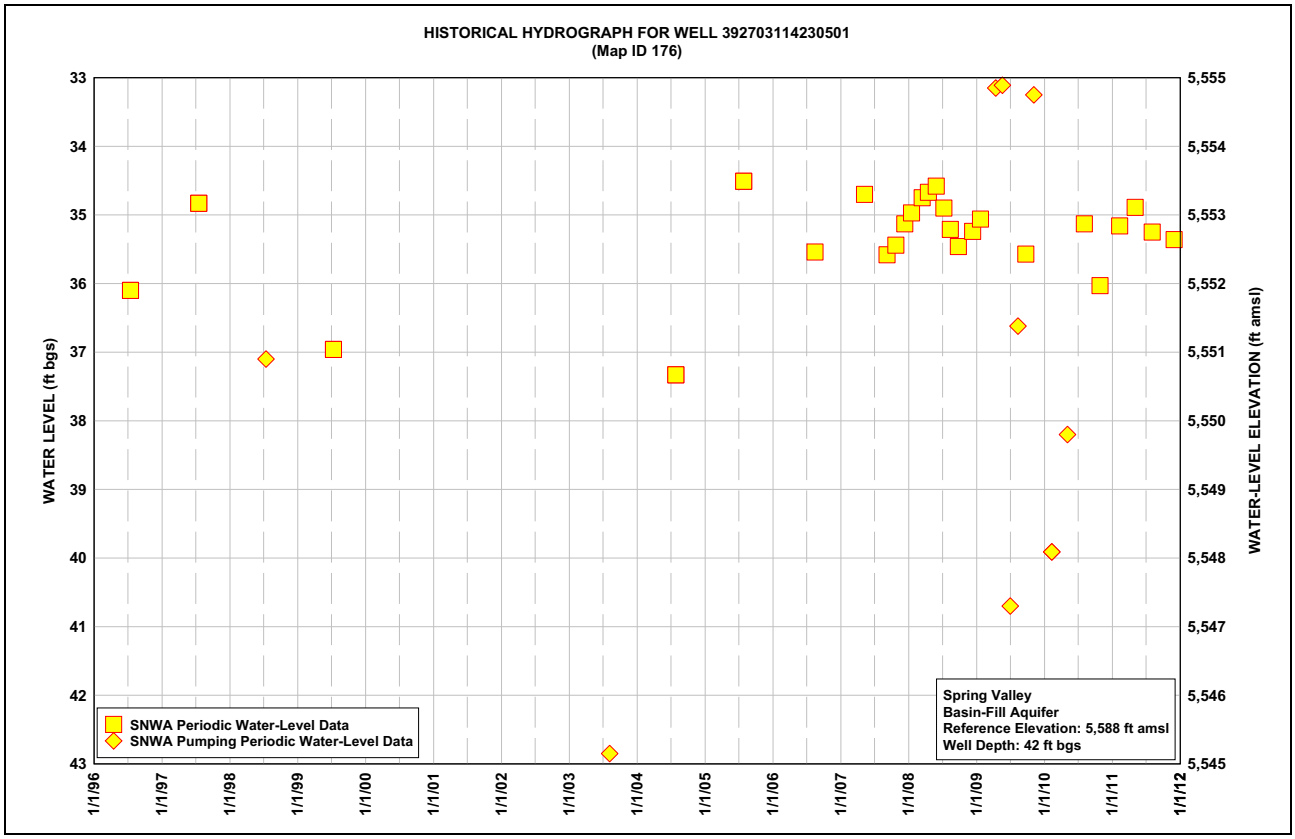

2011 HYDROGRAPH FOR WELL 385636114265501
(Map ID 113)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
3
4
5
6
7
8
9
10
11
12
13
5,767
5,766
5,765
5,764
5,763
5,762
5,761
5,760
5,759
5,758
5,757
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,770 ft amsl

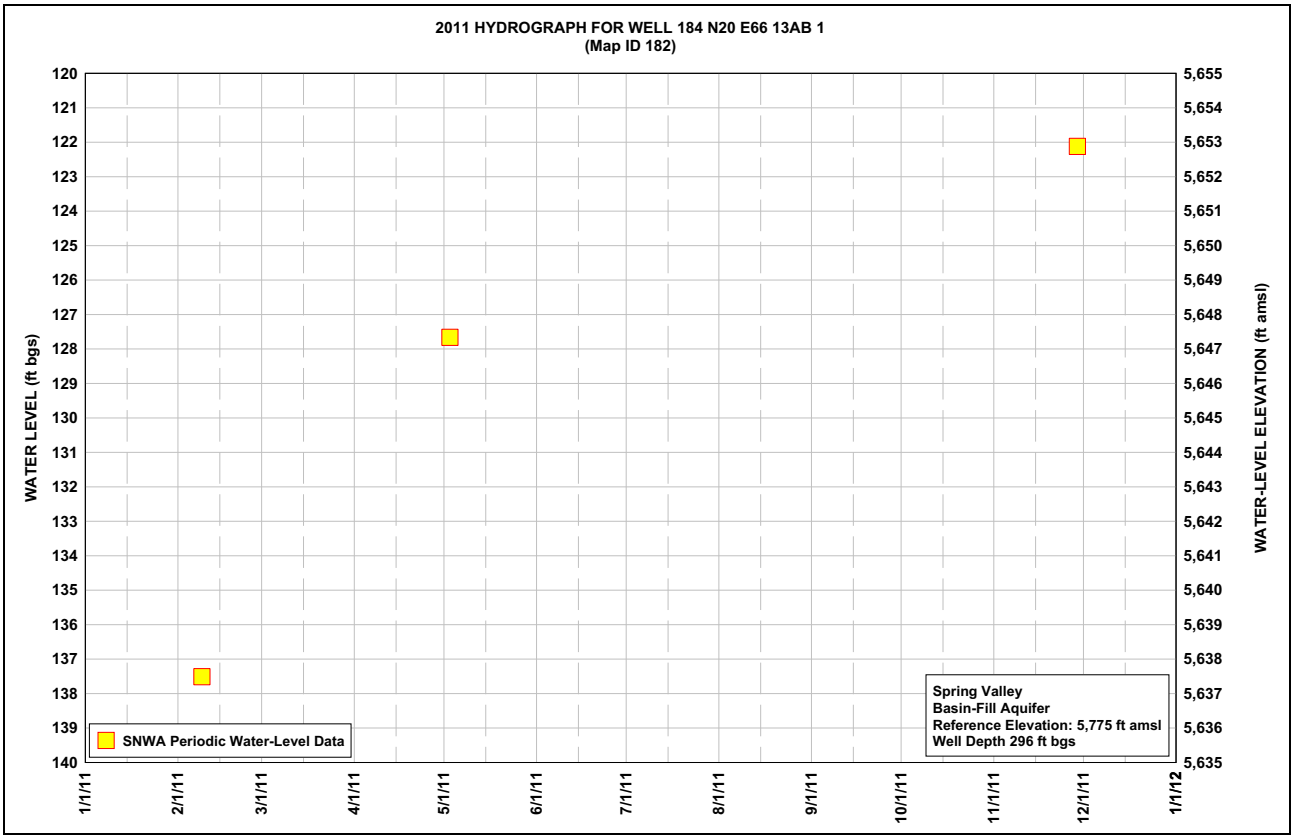

HISTORICAL HYDROGRAPH FOR WELL 385636114265501
(Map ID 113)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
3
4
5
6
7
8
9
10
11
12
13
5,767
5,766
5,765
5,764
5,763
5,762
5,761
5,760
5,759
5,758
5,757
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,770 ft amsl

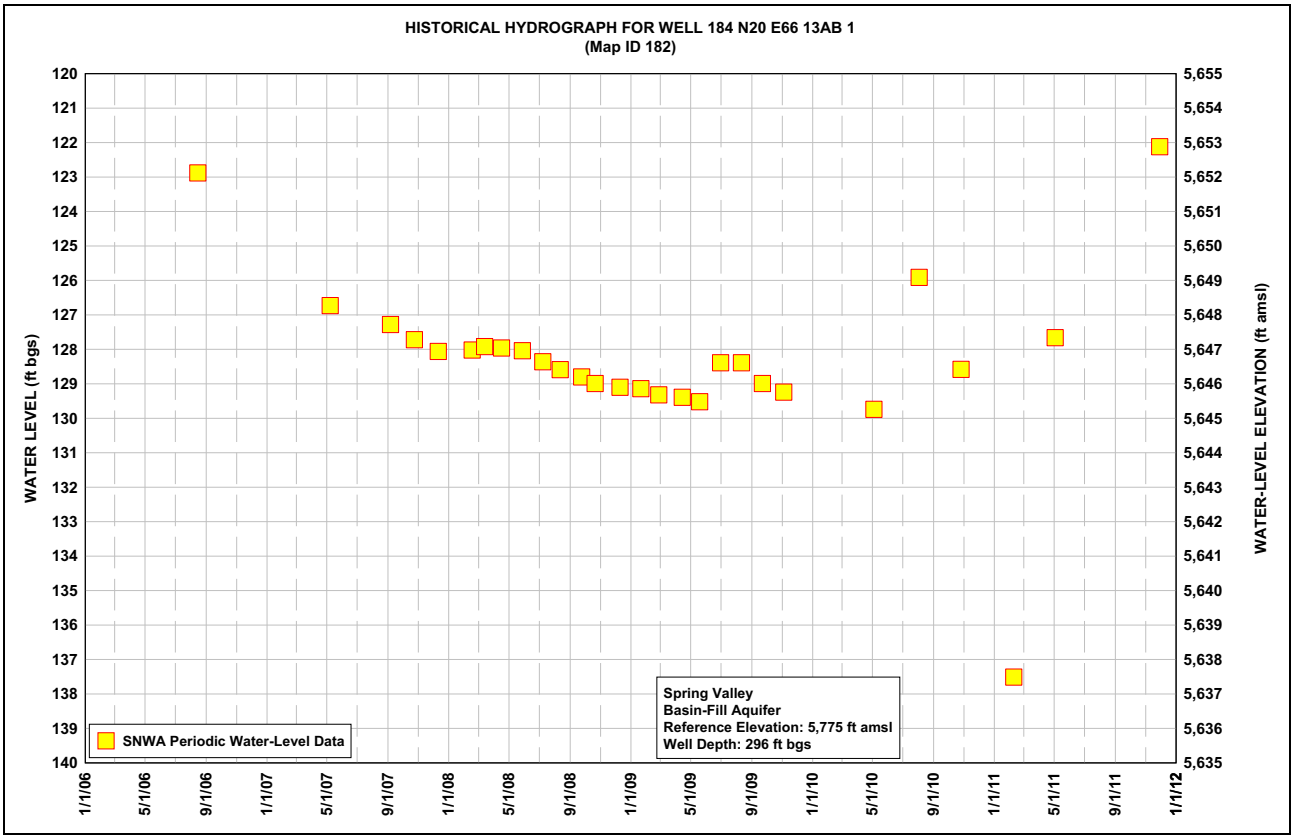

2011 HYDROGRAPH FOR WELL 391224114293601
(Map ID 152)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
203
204
205
206
207
208
209
210
211
212
213
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,870 ft amsl

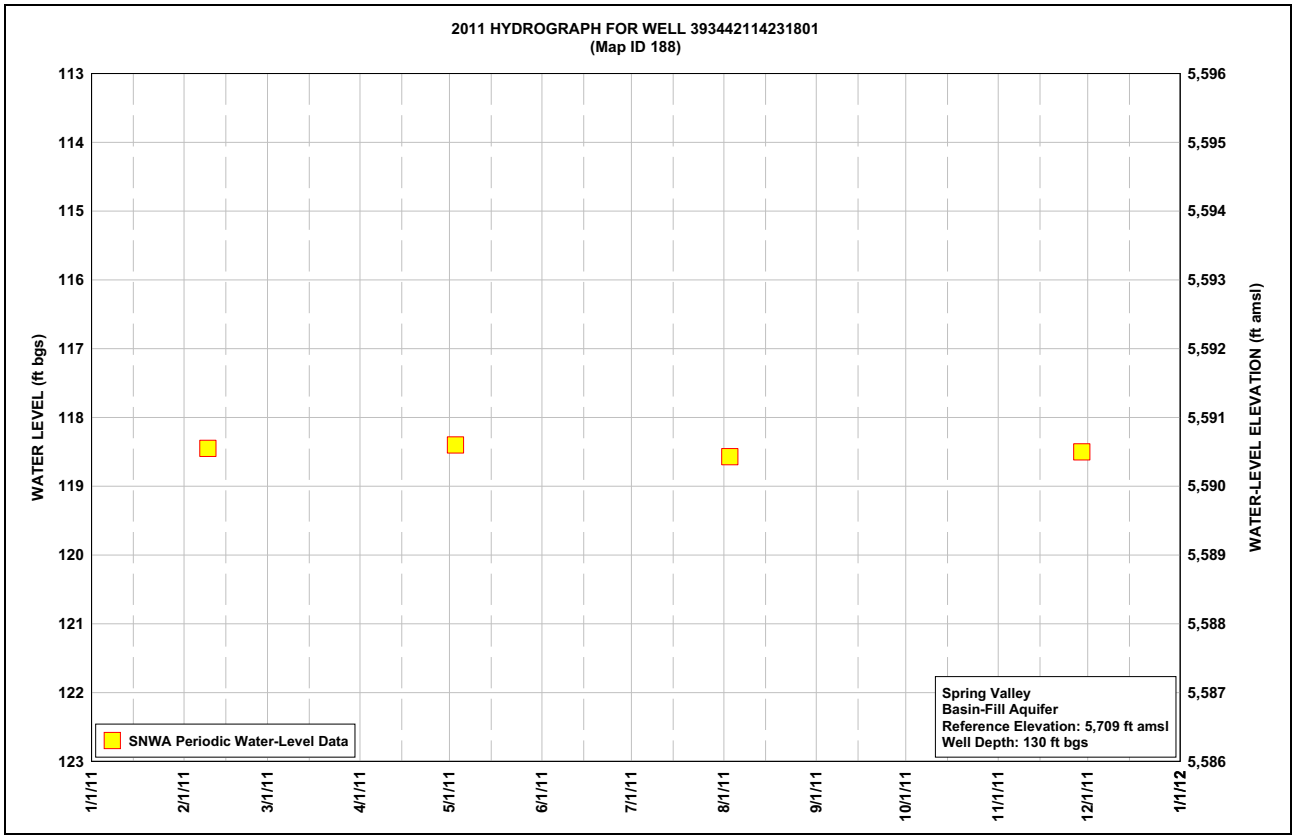

HISTORICAL HYDROGRAPH FOR WELL 391224114293601
(Map ID 152)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
203
204
205
206
207
208
209
210
211
212
213
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,870 ft amsl

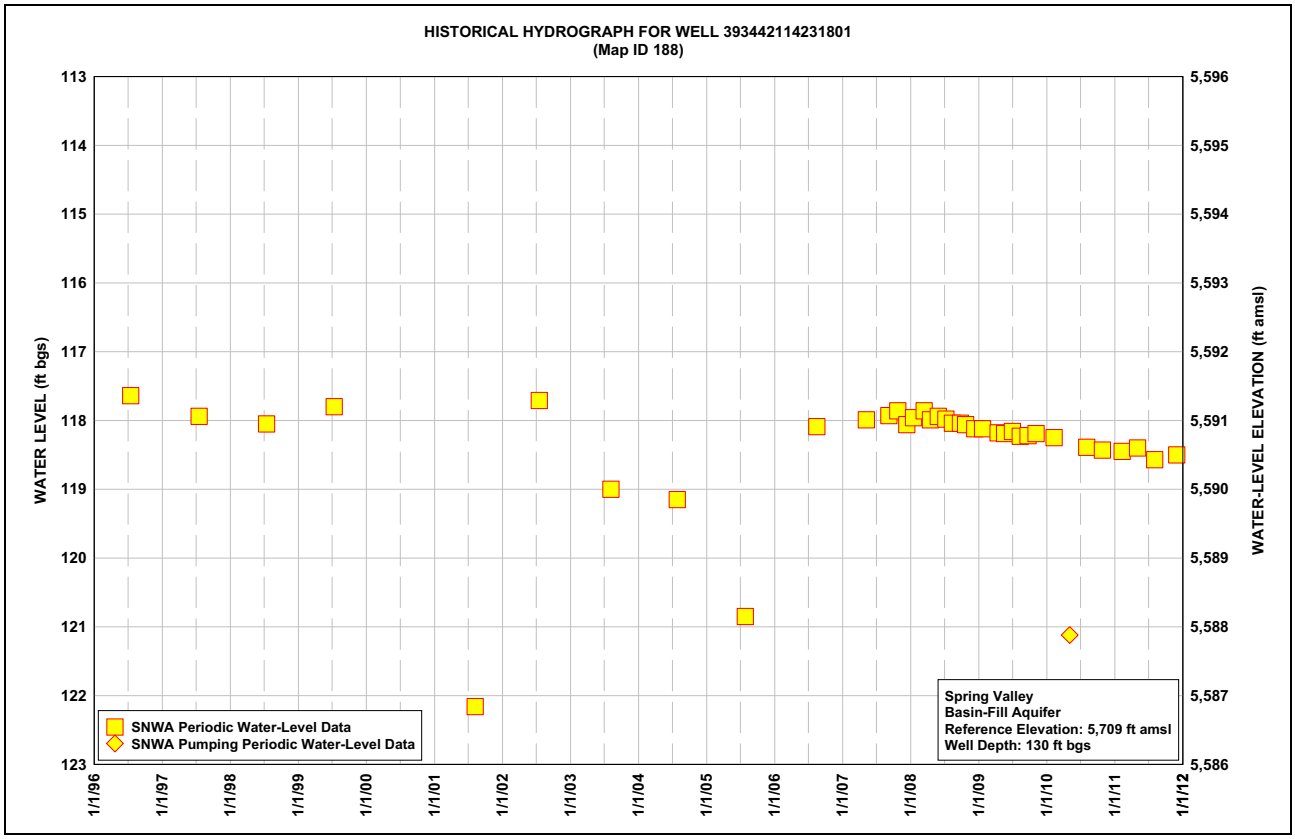

2011 HYDROGRAPH FOR WELL 392703114230501
(Map ID 176)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
33
34
35
36
37
38
39
40
41
42
43
5,555
5,554
5,553
5,552
5,551
5,550
5,549
5,548
5,547
5,546
5,545
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,588 ft amsl
Well Depth: 42 ft bgs

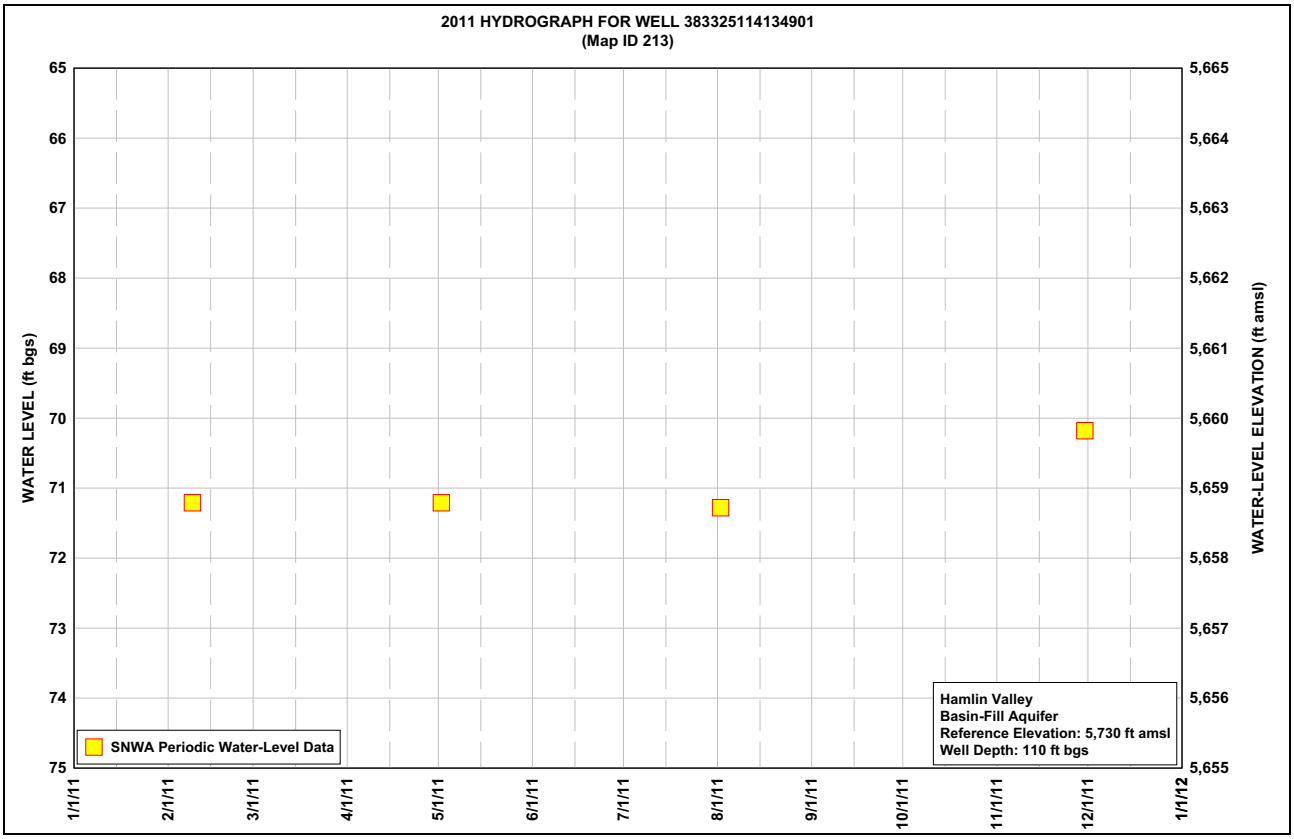

HISTORICAL HYDROGRAPH FOR WELL 392703114230501
(Map ID 176)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
33
34
35
36
37
38
39
40
41
42
43
5,555
5,554
5,553
5,552
5,551
5,550
5,549
5,548
5,547
5,546
5,545
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
SNWA Periodic Water-Level Data
SNWA Pumping Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,588 ft amsl
Well Depth: 42 ft bgs

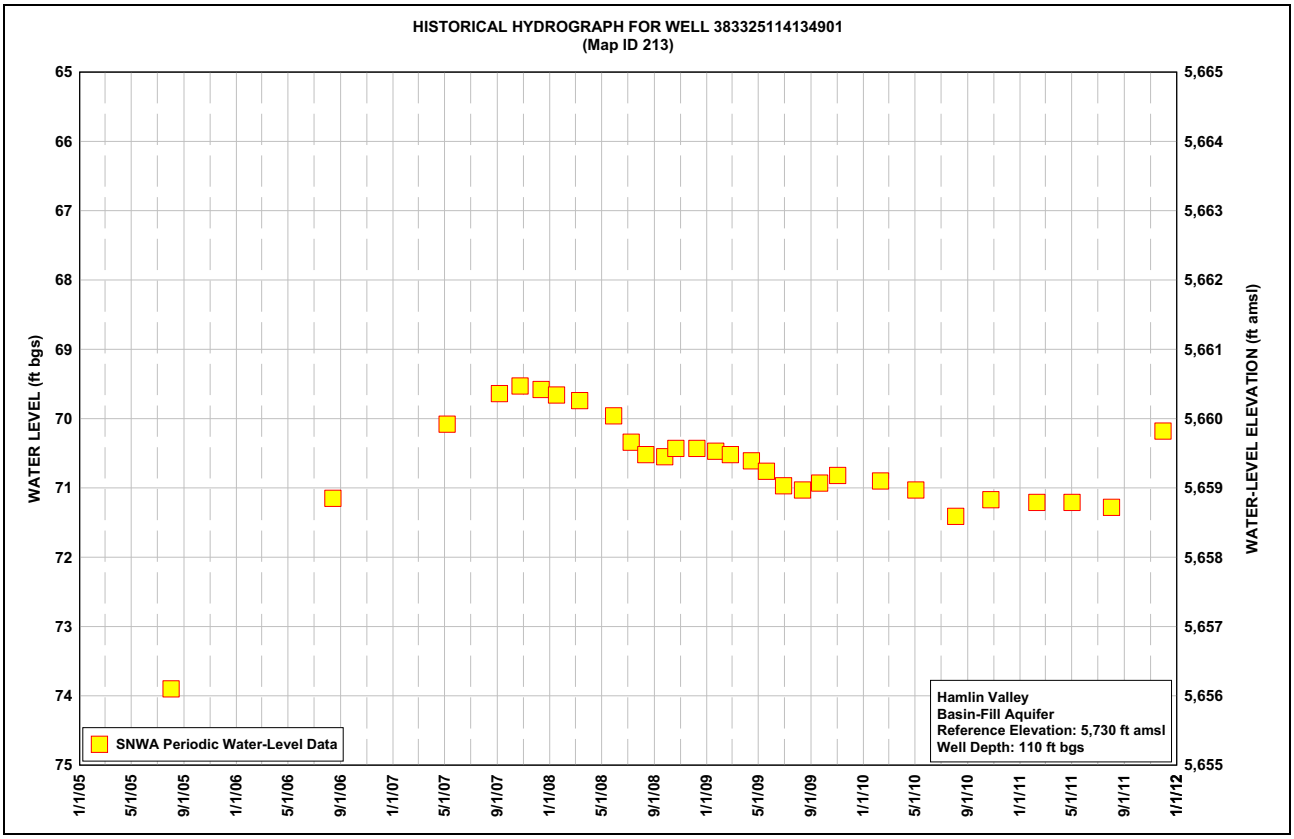

2011 HYDROGRAPH FOR WELL 184 N20 E66 13AB 1
(Map ID 182)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
5,655 5,654 5,653 5,652 5,651 5,650 5,649 5,648 5,647 5,646 5,645 5,644 5,643 5,642 5,641 5,640 5,639 5,638 5,637 5,636 5,635
1/1/11 2/1/11 3/1/11 4/1/11 5/1/11 6/1/11 7/1/11 8/1/11 9/1/11 10/1/11 11/1/11 12/1/11 1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,775 ft amsl
Well Depth 296 ft bgs

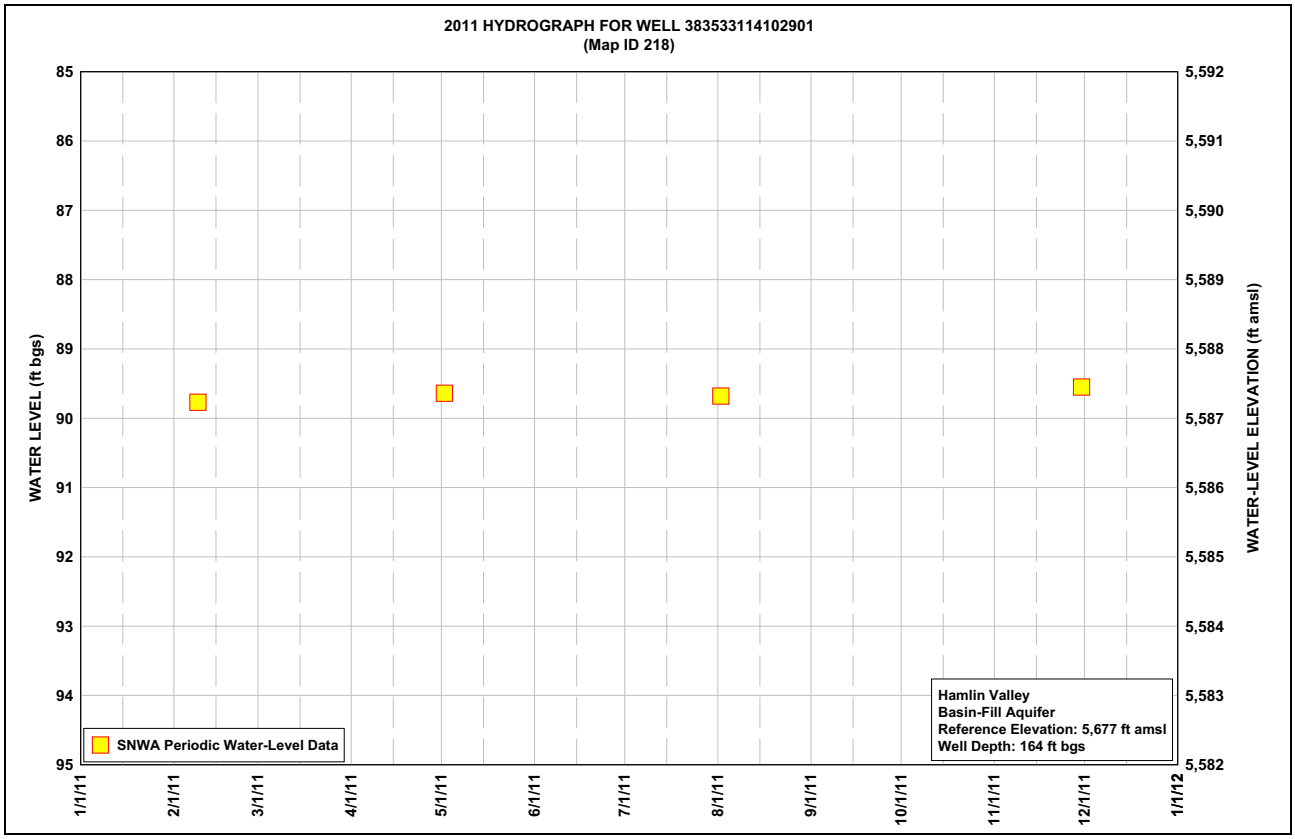

HISTORICAL HYDROGRAPH FOR WELL 184 N20 E66 13AB 1
(Map ID 182)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
5,655 5,654 5,653 5,652 5,651 5,650 5,649 5,648 5,647 5,646 5,645 5,644 5,643 5,642 5,641 5,640 5,639 5,638 5,637 5,636 5,635
1/1/06 5/1/06 9/1/06 1/1/07 5/1/07 9/1/07 1/1/08 5/1/08 9/1/08 1/1/09 5/1/09 9/1/09 1/1/10 5/1/10 9/1/10 1/1/11 5/1/11 9/1/11 1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,775 ft amsl
Well Depth: 296 ft bgs


2011 HYDROGRAPH FOR WELL 393442114231801
(Map ID 188)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
113
114
115
116
117
118
119
120
121
122
123
5,596
5,595
5,594
5,593
5,592
5,591
5,590
5,589
5,588
5,587
5,586
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,709 ft amsl
Well Depth: 130 ft bgs


HISTORICAL HYDROGRAPH FOR WELL 393442114231801
(Map ID 188)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
113
114
115
116
117
118
119
120
121
122
123
5,596
5,595
5,594
5,593
5,592
5,591
5,590
5,589
5,588
5,587
5,586
1/1/96
1/1/97
1/1/98
1/1/99
1/1/00
1/1/01
1/1/02
1/1/03
1/1/04
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
SNWA Periodic Water-Level Data
SNWA Pumping Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,709 ft amsl
Well Depth: 130 ft bgs


2011 HYDROGRAPH FOR WELL 383325114134901
(Map ID 213)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
65
66
67
68
69
70
71
72
73
74
75
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
5,656
5,655
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,730 ft amsl
Well Depth: 110 ft bgs


HISTORICAL HYDROGRAPH FOR WELL 383325114134901
(Map ID 213)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
65
66
67
68
69
70
71
72
73
74
75
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
5,656
5,655
1/1/05
5/1/05
9/1/05
1/1/06
5/1/06
9/1/06
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,730 ft amsl
Well Depth: 110 ft bgs


2011 HYDROGRAPH FOR WELL 383533114102901
(Map ID 218)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
85
86
87
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89
90
91
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93
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95
5,592
5,591
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5,589
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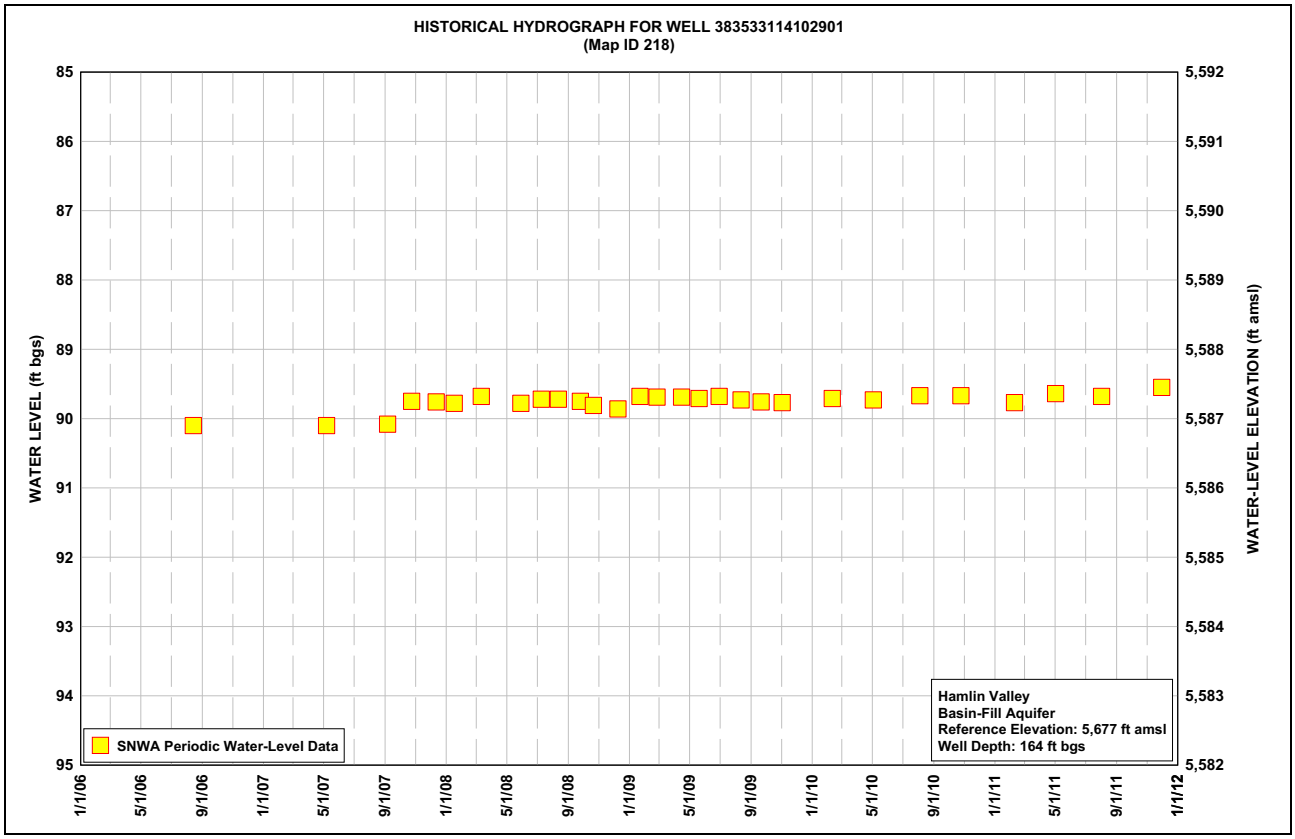
5,584
5,583
5,582
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,677 ft amsl
Well Depth: 164 ft bgs


HISTORICAL HYDROGRAPH FOR WELL 383533114102901
(Map ID 218)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
85
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5/1/09
9/1/09
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5/1/10
9/1/10
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1/1/12
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,677 ft amsl
Well Depth: 164 ft bgs

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Appendix B

Continuous Water-Level Measurement Data from the Spring Valley Existing-Well Monitoring Network

B.1.0 MONITORING PROGRAM WELLS WITH CONTINUOUS TRANSDUCER DATA

Continuous data collection was performed in 2011 for the following monitor wells:

- 383704114225001
- 384039114232701
- 384831114314301
- 384745114224401
- 390352114305401
- 390803114251001
- 393211114320701
- 383023114115302
- 184W502M
- 184W504M
- 184W506M
- 184W508M
- SPR7007M
- SPR7005M
- SPR7008M
- SPR7024M
- SPR7024M2

For these sites, the graphs are shown below and include historical data and data collected in 2011. Continuous data have been corrected for temperature and line stretch. Additional data processing, including barometric pressure corrections, may be applied in the future.

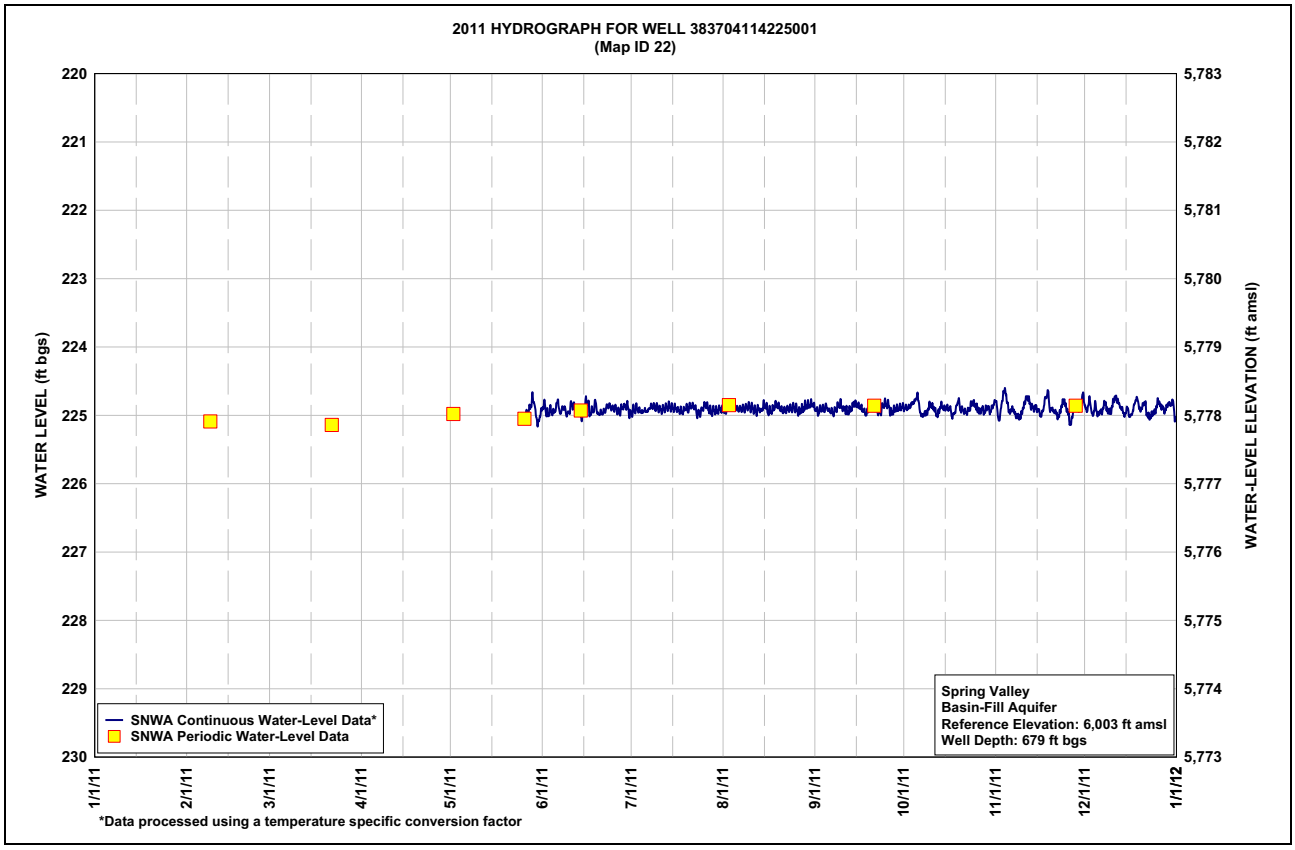
Table B-1
Spring Valley Well 383704114225001, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	[a]---	[a]---	[a]---	[a]---	[a]---	224.86	224.94	224.93	224.92	224.89	224.91	224.90
2	[a]---	[a]---	[a]---	[a]---	[a]---	224.96	224.91	224.90	224.94	224.89	224.99	224.81
3	[a]---	[a]---	[a]---	[a]---	[a]---	224.95	224.92	224.88	224.91	224.85	224.72	224.96
4	[a]---	[a]---	[a]---	[a]---	[a]---	224.95	224.95	224.87	224.90	224.80	224.71	224.89
5	[a]---	[a]---	[a]---	[a]---	[a]---	224.90	224.93	224.90	224.92	224.74	224.92	224.98
6	[a]---	[a]---	[a]---	[a]---	[a]---	224.86	224.93	224.91	224.94	224.93	224.92	224.95
7	[a]---	[a]---	[a]---	[a]---	[a]---	224.93	224.88	224.90	224.95	225.00	224.97	224.86
8	[a]---	[a]---	[a]---	[a]---	[a]---	224.91	224.87	224.90	224.89	224.97	225.02	224.90
9	[a]---	[a]---	[a]---	[a]---	[a]---	224.97	224.89	224.87	224.85	224.87	225.00	224.94
10	[a]---	[a]---	[a]---	[a]---	[a]---	224.89	224.92	224.89	224.90	224.87	224.86	224.84
11	[a]---	[a]---	[a]---	[a]---	[a]---	224.86	224.92	224.92	224.93	224.93	224.75	224.75
12	[a]---	[a]---	[a]---	[a]---	[a]---	224.93	224.89	224.93	224.93	224.97	224.81	224.82
13	[a]---	[a]---	[a]---	[a]---	[a]---	224.97	224.87	224.92	224.89	224.87	224.89	224.90
14	[a]---	[a]---	[a]---	[a]---	[a]---	224.98	224.89	224.87	224.83	224.89	224.89	224.98
15	[a]---	[a]---	[a]---	[a]---	[a]---	224.83	224.90	224.88	224.86	224.89	224.94	224.92
16	[a]---	[a]---	[a]---	[a]---	[a]---	224.85	224.91	224.94	224.89	224.91	224.98	225.00
17	[a]---	[a]---	[a]---	[a]---	[a]---	224.95	224.93	224.93	224.93	225.00	224.81	224.90
18	[a]---	[a]---	[a]---	[a]---	[a]---	224.89	224.94	224.87	224.96	224.91	224.70	224.77
19	[a]---	[a]---	[a]---	[a]---	[a]---	224.92	224.89	224.87	224.89	224.81	224.90	224.89
20	[a]---	[a]---	[a]---	[a]---	[a]---	224.97	224.90	224.91	224.88	224.92	224.93	224.87
21	[a]---	[a]---	[a]---	[a]---	[a]---	224.96	224.87	224.93	224.91	224.94	224.98	224.87
22	[a]---	[a]---	[a]---	[a]---	[a]---	224.90	224.89	224.92	224.95	224.94	224.98	225.01
23	[a]---	[a]---	[a]---	[a]---	[a]---	224.86	224.97	224.90	224.92	224.87	224.84	225.00
24	[a]---	[a]---	[a]---	[a]---	[a]---	224.89	224.95	224.89	224.84	224.83	224.84	224.95
25	[a]---	[a]---	[a]---	[a]---	[a]---	224.90	224.87	224.90	224.84	224.88	224.99	224.84
26	[a]---	[a]---	[a]---	[a]---	224.97	224.93	224.86	224.95	224.94	224.93	225.08	224.85
27	[a]---	[a]---	[a]---	[a]---	224.94	224.93	224.92	224.92	224.93	224.92	224.89	224.90
28	[a]---	[a]---	[a]---	[a]---	224.80	224.88	224.94	224.88	224.91	224.92	224.86	224.90
29	[a]---	---	[a]---	[a]---	224.89	224.86	224.93	224.86	224.90	224.90	224.88	224.84
30	[a]---	---	[a]---	[a]---	225.09	224.97	224.92	224.84	224.88	224.92	224.74	224.82
31	[a]---	---	[a]---	[a]---	224.97	---	224.91	224.86	---	224.82	---	225.00
Max	---	---	---	---	225.09	224.98	224.97	224.95	224.96	225.00	225.08	225.01
Min	---	---	---	---	224.80	224.83	224.86	224.84	224.83	224.74	224.70	224.75

Year 2011 Statistics: **Year Max 225.09; Year Min 224.70**

Note: Water level in ft bgs

[a]Transducer removed in preparation for sampling.


2011 HYDROGRAPH FOR WELL 383704114225001
(Map ID 22)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
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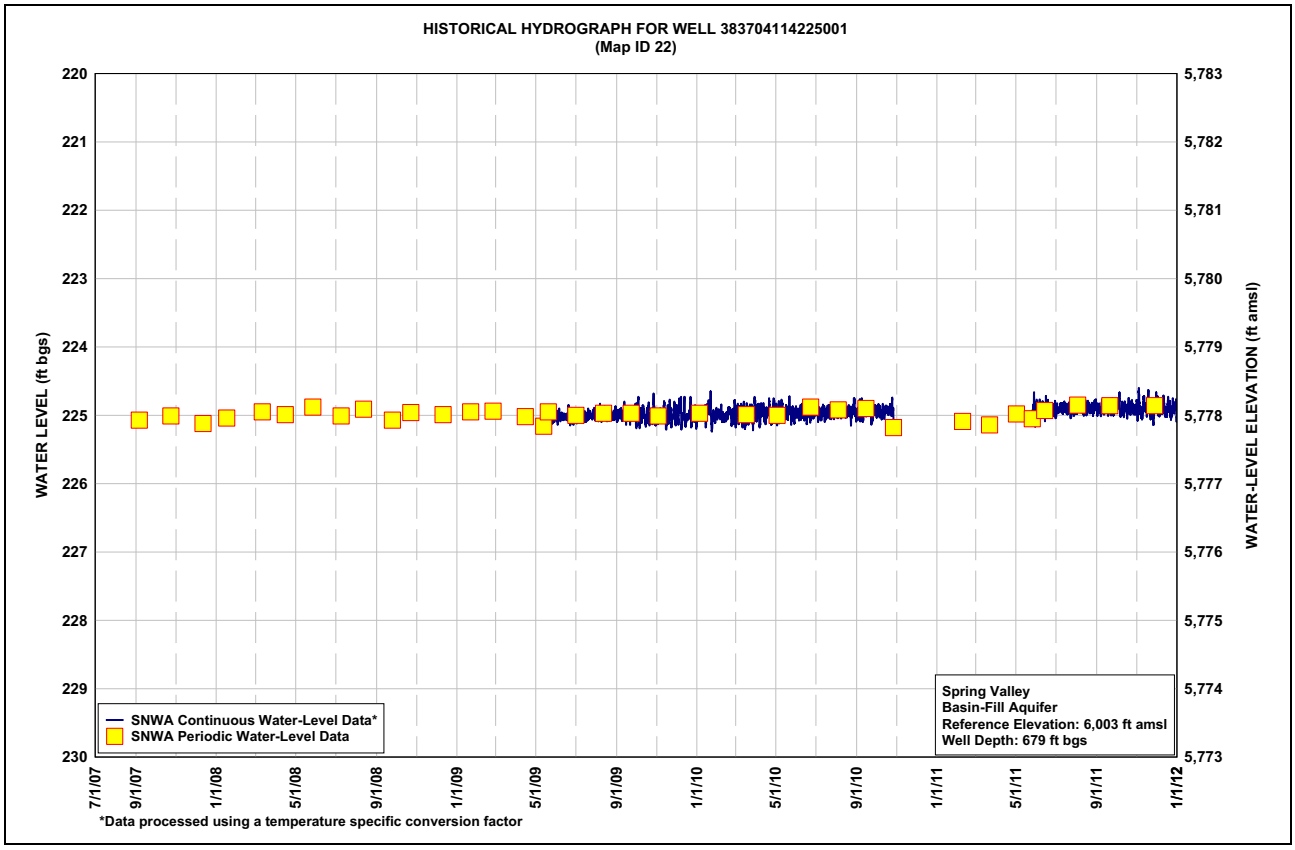
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,003 ft amsl
Well Depth: 679 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 383704114225001
(Map ID 22)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
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SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,003 ft amsl
Well Depth: 679 ft bgs
*Data processed using a temperature specific conversion factor

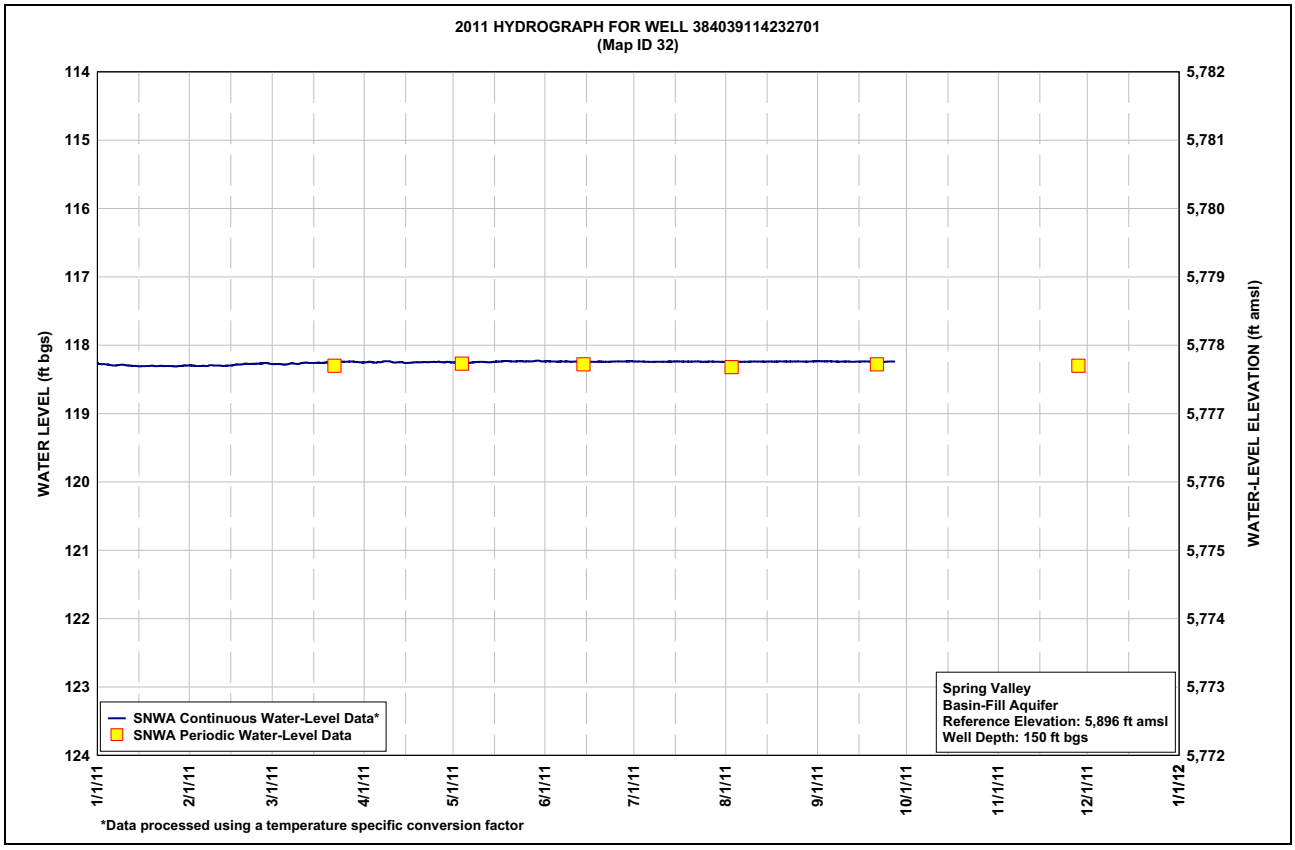
Table B-2
Spring Valley Well 384039114232701, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	118.27	118.30	118.28	118.25	118.25	118.23	118.24	118.24	118.23	[a]---	[a]---	[a]---
2	118.28	118.30	118.28	118.24	118.26	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
3	118.28	118.30	118.28	118.25	118.26	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
4	118.28	118.30	118.28	118.25	118.26	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
5	118.29	118.30	118.28	118.25	118.26	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
6	118.30	118.30	118.27	118.25	118.26	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
7	118.29	118.30	118.26	118.24	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
8	118.29	118.29	118.27	118.23	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
9	118.29	118.30	118.27	118.24	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
10	118.29	118.30	118.27	118.25	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
11	118.30	118.30	118.26	118.25	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
12	118.30	118.30	118.25	118.25	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
13	118.30	118.30	118.26	118.25	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
14	118.31	118.30	118.26	118.26	118.24	118.25	118.24	118.24	118.24	[a]---	[a]---	[a]---
15	118.31	118.29	118.26	118.26	118.24	118.25	118.24	118.24	118.24	[a]---	[a]---	[a]---
16	118.31	118.29	118.26	118.26	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
17	118.30	118.28	118.26	118.25	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
18	118.30	118.28	118.26	118.25	118.23	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
19	118.30	118.27	118.25	118.25	118.23	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
20	118.31	118.27	118.25	118.25	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
21	118.31	118.27	118.24	118.25	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
22	118.30	118.27	118.25	118.25	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
23	118.30	118.27	118.25	118.25	118.23	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
24	118.30	118.27	118.24	118.24	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
25	118.30	118.27	118.24	118.24	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
26	118.31	118.26	118.24	118.24	118.24	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---
27	118.31	118.26	118.24	118.25	118.24	118.24	118.24	118.24	[a]---	[a]---	[a]---	[a]---
28	118.31	118.27	118.24	118.25	118.23	118.24	118.24	118.24	[a]---	[a]---	[a]---	[a]---
29	118.30	---	118.25	118.25	118.23	118.23	118.24	118.24	[a]---	[a]---	[a]---	[a]---
30	118.30	---	118.25	118.25	118.23	118.24	118.24	118.24	[a]---	[a]---	[a]---	[a]---
31	118.30	---	118.25	---	118.24	---	118.24	118.23	---	[a]---	[a]---	[a]---
Max	118.31	118.30	118.28	118.26	118.26	118.25	118.24	118.24	118.24	---	---	---
Min	118.27	118.26	118.24	118.23	118.23	118.23	118.24	118.23	118.23	---	---	---

Year 2011 Statistics: **Year Max 118.31; Year Min 118.23**

Note: Water level in ft bgs

[a]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 384039114232701
(Map ID 32)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
114
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12/1/11
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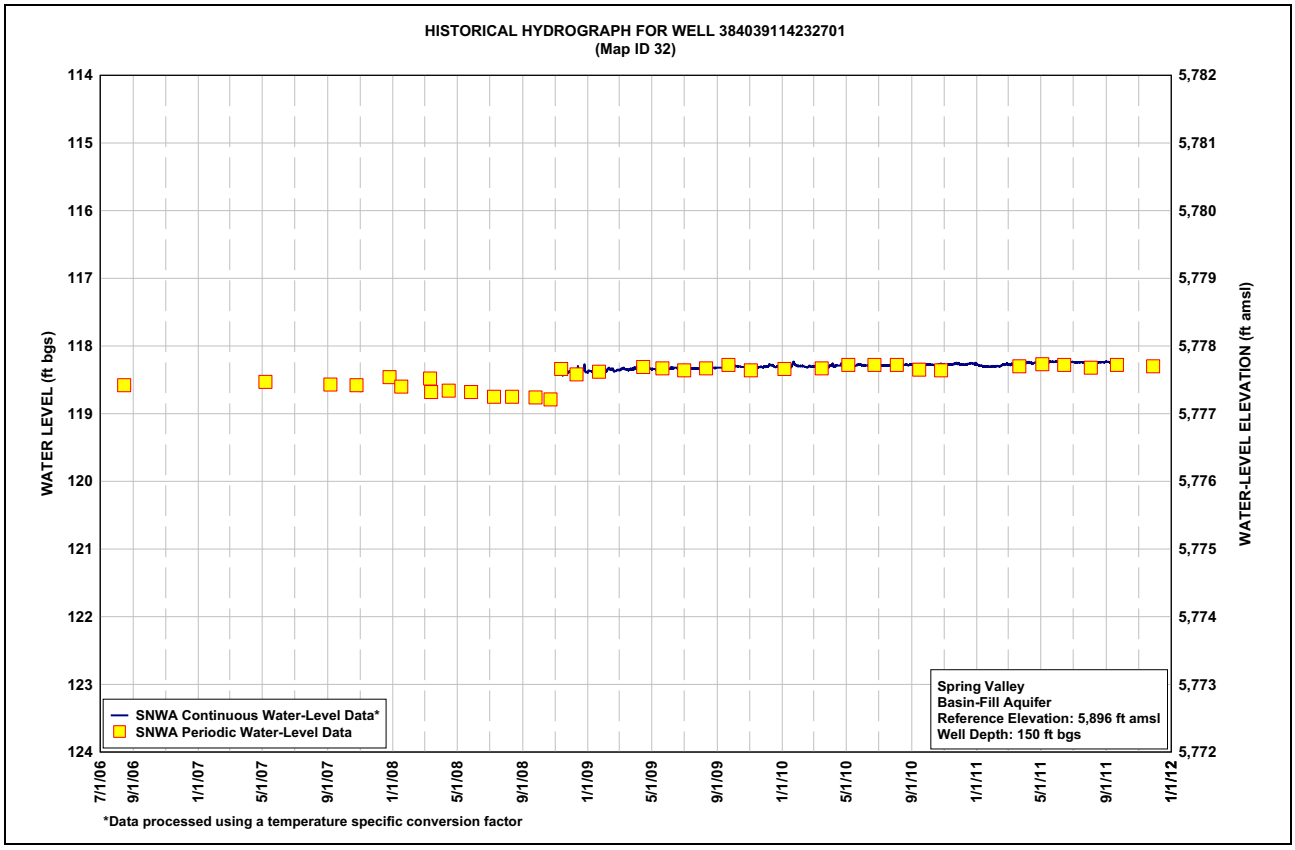
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,896 ft amsl
Well Depth: 150 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 384039114232701
(Map ID 32)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
114
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9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,896 ft amsl
Well Depth: 150 ft bgs
*Data processed using a temperature specific conversion factor

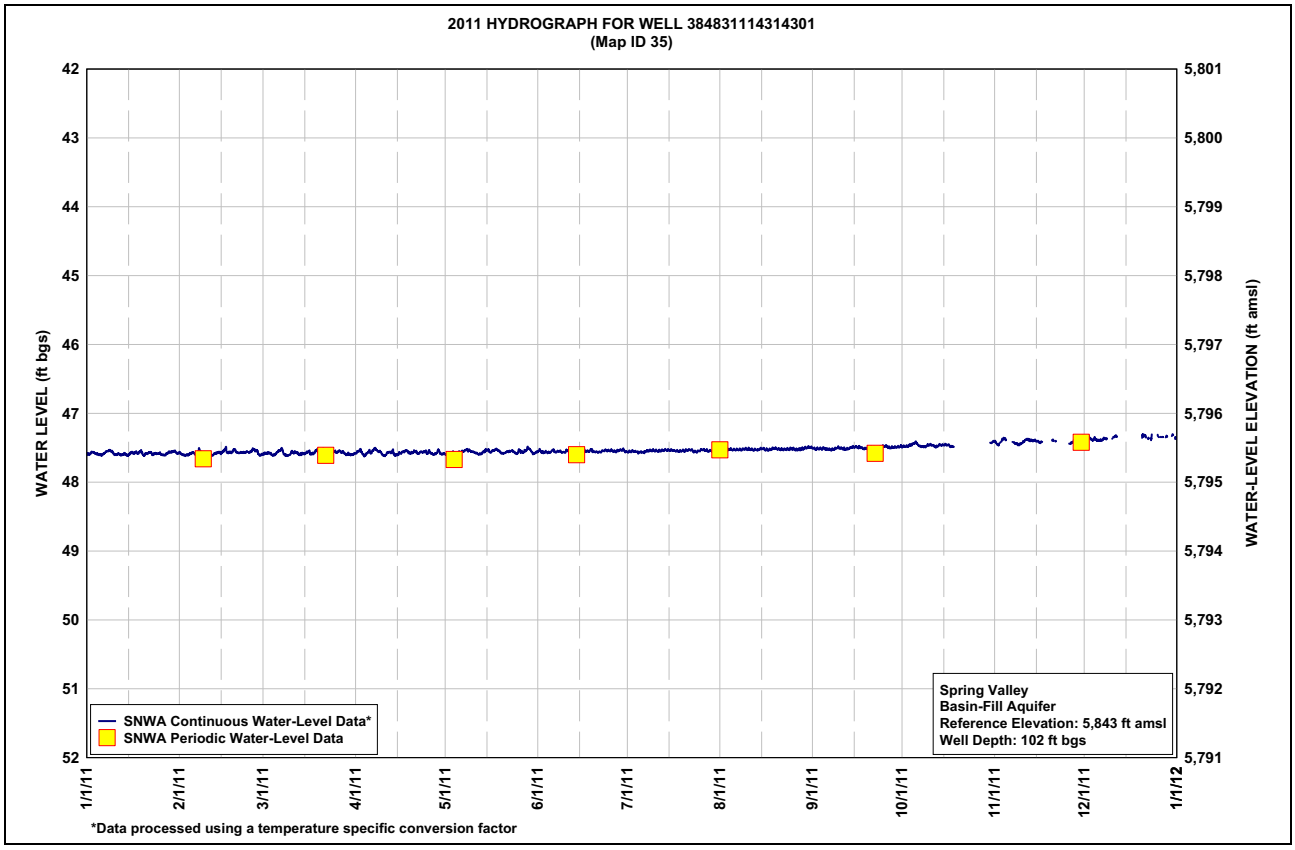
Table B-3
Spring Valley Well 384831114314301, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	47.59	47.58	47.58	47.57	47.60	47.54	47.56	47.54	47.51	47.48	47.42	47.37
2	47.57	47.61	47.58	47.54	47.60	47.56	47.55	47.53	47.52	47.48	47.45	47.35
3	47.57	47.60	47.58	47.59	47.58	47.56	47.55	47.53	47.51	47.47	47.38	47.38
4	47.59	47.59	47.61	47.59	47.60	47.57	47.56	47.52	47.51	47.45	47.37	47.37
5	47.60	47.57	47.58	47.55	47.57	47.55	47.56	47.53	47.52	47.43	[b]---	47.39
6	47.59	47.60	47.54	47.56	47.56	47.54	47.56	47.53	47.52	47.46	[a]---	47.39
7	47.56	47.55	47.54	47.52	47.54	47.55	47.55	47.53	47.53	47.48	47.43	47.37
8	47.54	47.57	47.60	47.55	47.53	47.55	47.54	47.52	47.51	47.49	47.45	47.37
9	47.56	47.60	47.61	47.57	47.55	47.57	47.54	47.52	47.50	47.47	47.45	[b]---
10	47.60	47.59	47.57	47.61	47.56	47.55	47.54	47.52	47.51	47.46	47.42	[a]---
11	47.59	47.61	47.57	47.58	47.58	47.54	47.55	47.52	47.51	47.47	47.38	47.33
12	47.60	47.60	47.58	47.57	47.59	47.55	47.54	47.53	47.52	47.48	47.38	[b]---
13	47.59	47.58	47.60	47.56	47.57	47.56	47.53	47.53	47.51	47.46	47.39	[b]---
14	47.61	47.57	47.59	47.60	47.54	47.57	47.53	47.52	47.49	47.46	47.39	[b]---
15	47.59	47.56	47.57	47.59	47.54	47.54	47.53	47.52	47.49	47.46	47.41	[b]---
16	47.58	47.53	47.56	47.57	47.56	47.54	47.54	47.53	47.49	47.46	47.42	[b]---
17	47.57	47.57	47.59	47.55	47.54	47.55	47.55	47.53	47.50	47.48	[b]---	[b]---
18	47.57	47.56	47.56	47.55	47.53	47.54	47.55	47.52	47.51	[a]---	[b]---	[b]---
19	47.57	47.54	47.55	47.57	47.56	47.55	47.54	47.51	47.50	[b]---	[b]---	[b]---
20	47.60	47.57	47.54	47.56	47.58	47.56	47.54	47.52	47.49	[b]---	47.39	[a]---
21	47.58	47.57	47.54	47.57	47.56	47.56	47.53	47.52	47.50	[b]---	[a]---	[a]---
22	47.57	47.57	47.58	47.57	47.55	47.55	47.53	47.52	47.51	[b]---	[b]---	[a]---
23	47.59	47.56	47.55	47.56	47.55	47.54	47.55	47.52	47.50	[b]---	[b]---	[a]---
24	47.59	47.56	47.55	47.56	47.58	47.54	47.55	47.52	47.48	[b]---	[b]---	[b]---
25	47.59	47.53	47.56	47.56	47.55	47.54	47.54	47.52	47.48	[b]---	[a]---	[a]---
26	47.61	47.54	47.55	47.58	47.56	47.55	47.53	47.53	47.49	[b]---	47.43	[a]---
27	47.60	47.58	47.56	47.59	47.55	47.55	47.54	47.52	47.50	[b]---	47.40	[a]---
28	47.57	47.60	47.59	47.55	47.52	47.54	47.55	47.52	47.49	[b]---	47.39	[a]---
29	47.56	---	47.59	47.58	47.53	47.53	47.55	47.50	47.49	[b]---	47.39	[b]---
30	47.55	---	47.60	47.59	47.58	47.56	47.54	47.50	47.48	[a]---	47.35	[b]---
31	47.58	---	47.59	---	47.56	---	47.54	47.49	---	47.41	---	[a]---
Max	47.61	47.61	47.61	47.61	47.60	47.57	47.56	47.54	47.53	47.49	47.45	47.39
Min	47.54	47.53	47.54	47.52	47.52	47.53	47.53	47.49	47.48	47.41	47.35	47.33

Year 2011 Statistics: **Year Max 47.61; Year Min 47.33**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.
[b]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 384831114314301
(Map ID 35)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
42
43
44
45
46
47
48
49
50
51
52
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
5,793
5,792
5,791
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,843 ft amsl
Well Depth: 102 ft bgs
*Data processed using a temperature specific conversion factor

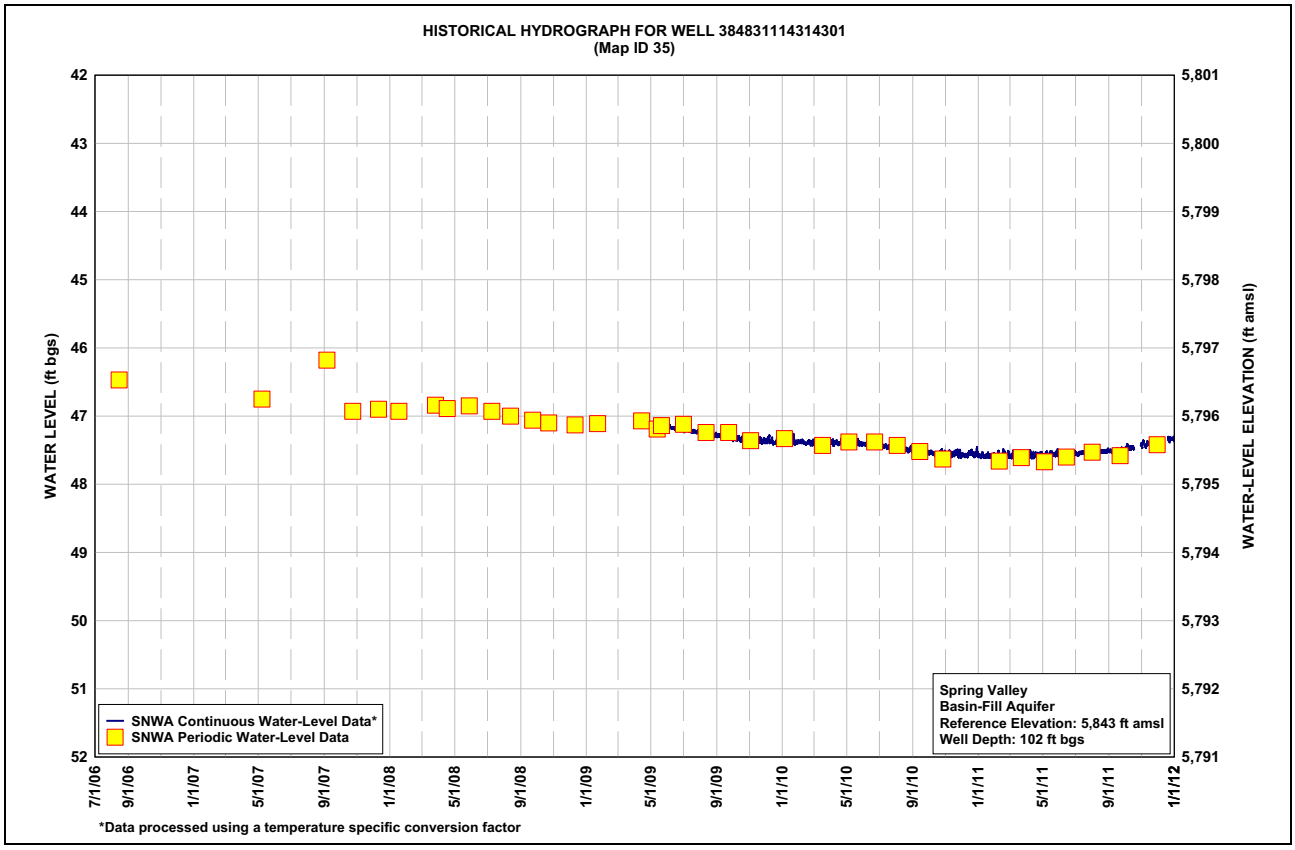
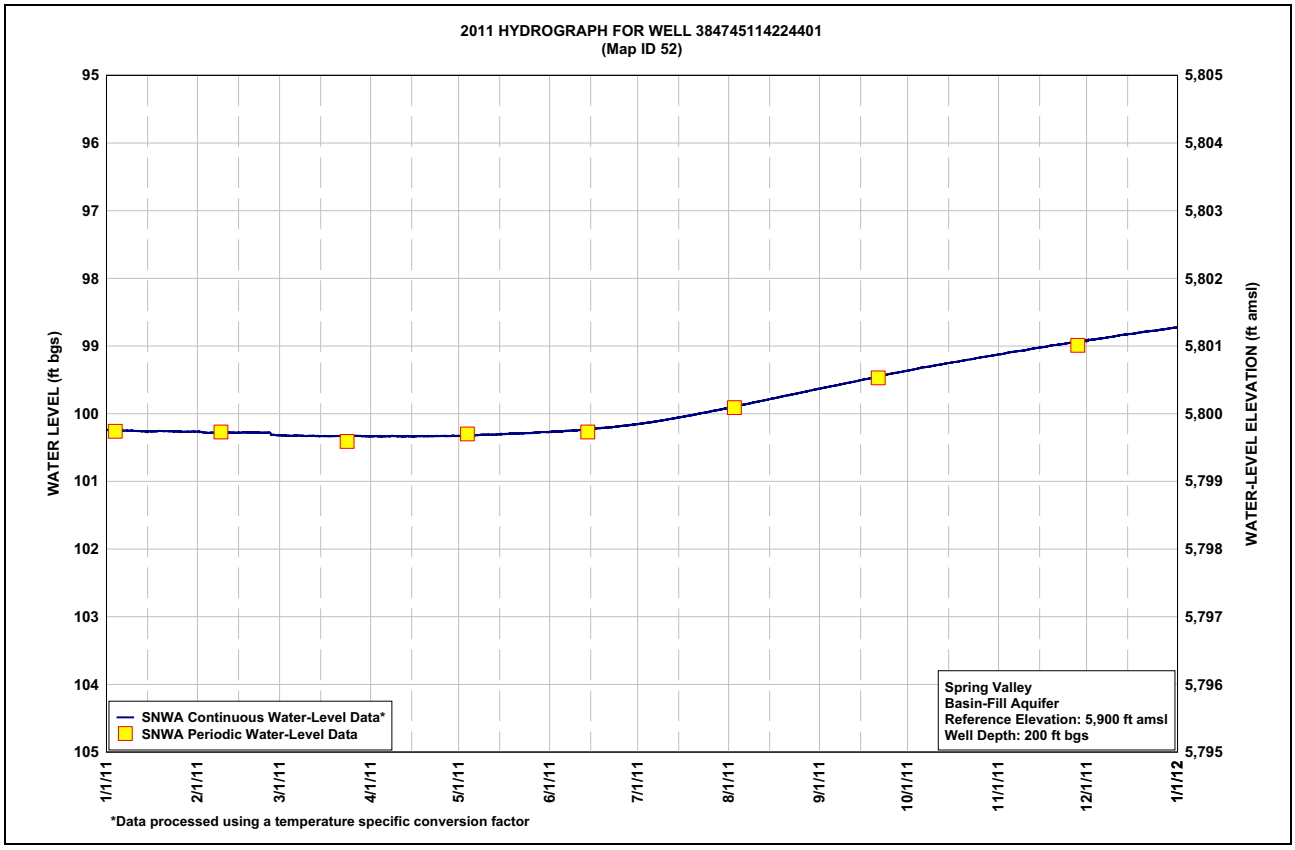

HISTORICAL HYDROGRAPH FOR WELL 384831114314301
(Map ID 35)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
42
43
44
45
46
47
48
49
50
51
52
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
5,793
5,792
5,791
7/1/06
9/1/06
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,843 ft amsl
Well Depth: 102 ft bgs
*Data processed using a temperature specific conversion factor

Table B-4
Spring Valley Well 384745114224401, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	100.24	100.27	100.32	100.33	100.33	100.27	100.15	99.91	99.63	99.36	99.12	98.91
2	100.24	100.27	100.32	100.33	100.33	100.26	100.15	99.90	99.62	99.35	99.12	98.91
3	100.25	100.28	100.32	100.33	100.33	100.26	100.14	99.89	99.61	99.34	99.11	98.90
4	100.25	100.28	100.33	100.34	100.33	100.26	100.13	99.88	99.60	99.33	99.10	98.90
5	100.25	100.28	100.33	100.33	100.32	100.26	100.13	99.87	99.59	99.32	99.09	98.89
6	100.25	100.28	100.32	100.33	100.32	100.25	100.12	99.86	99.58	99.31	99.08	98.88
7	100.25	100.28	100.32	100.33	100.32	100.25	100.11	99.85	99.57	99.31	99.08	98.88
8	100.25	100.28	100.33	100.33	100.31	100.25	100.11	99.84	99.56	99.30	99.07	98.87
9	100.25	100.28	100.33	100.33	100.31	100.25	100.10	99.83	99.56	99.29	99.07	98.86
10	100.25	100.28	100.33	100.33	100.31	100.24	100.09	99.83	99.55	99.29	99.06	98.86
11	100.26	100.28	100.33	100.34	100.31	100.24	100.08	99.82	99.54	99.28	99.05	98.85
12	100.26	100.28	100.33	100.33	100.31	100.24	100.08	99.81	99.53	99.27	99.04	98.84
13	100.26	100.28	100.33	100.33	100.31	100.24	100.07	99.80	99.52	99.26	99.03	98.83
14	100.26	100.28	100.33	100.34	100.31	100.23	100.06	99.79	99.51	99.25	99.03	98.83
15	100.26	100.28	100.33	100.34	100.30	100.22	100.05	99.78	99.50	99.25	99.02	98.82
16	100.26	100.28	100.33	100.33	100.30	100.22	100.04	99.77	99.49	99.24	99.01	98.82
17	100.26	100.28	100.33	100.33	100.30	100.22	100.04	99.76	99.48	99.23	99.01	98.81
18	100.26	100.28	100.33	100.33	100.29	100.21	100.03	99.75	99.48	99.23	99.00	98.80
19	100.26	100.28	100.33	100.33	100.29	100.21	100.02	99.74	99.47	99.22	98.99	98.80
20	100.26	100.28	100.33	100.33	100.29	100.21	100.01	99.73	99.46	99.21	98.98	98.79
21	100.26	100.28	100.33	100.33	100.29	100.20	100.00	99.73	99.45	99.20	98.98	98.78
22	100.26	100.28	100.33	100.33	100.29	100.20	99.99	99.72	99.43	99.20	98.97	98.78
23	100.26	100.28	100.33	100.33	100.29	100.19	99.99	99.71	99.43	99.19	98.97	98.78
24	100.26	100.28	100.33	100.33	100.29	100.19	99.98	99.70	99.42	99.18	98.96	98.77
25	100.26	100.28	100.33	100.33	100.29	100.18	99.97	99.69	99.41	99.17	98.95	98.76
26	100.27	100.31	100.33	100.33	100.28	100.18	99.96	99.68	99.40	99.16	98.95	98.76
27	100.27	100.32	100.33	100.33	100.28	100.17	99.95	99.67	99.39	99.16	98.94	98.75
28	100.27	100.32	100.33	100.33	100.27	100.17	99.94	99.66	99.38	99.15	98.94	98.75
29	100.27	---	100.33	100.33	100.27	100.16	99.94	99.65	99.38	99.14	98.93	98.74
30	100.26	---	100.33	100.33	100.27	100.16	99.93	99.64	99.37	99.14	98.92	98.73
31	100.27	---	100.33	---	100.27	---	99.92	99.63	---	99.13	---	98.73
Max	100.27	100.32	100.33	100.34	100.33	100.27	100.15	99.91	99.63	99.36	99.12	98.91
Min	100.24	100.27	100.32	100.33	100.27	100.16	99.92	99.63	99.37	99.13	98.92	98.73

Year 2011 Statistics: **Year Max 100.34; Year Min 98.73**

Note: Water level in ft bgs


2011 HYDROGRAPH FOR WELL 384745114224401
(Map ID 52)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 200 ft bgs
*Data processed using a temperature specific conversion factor

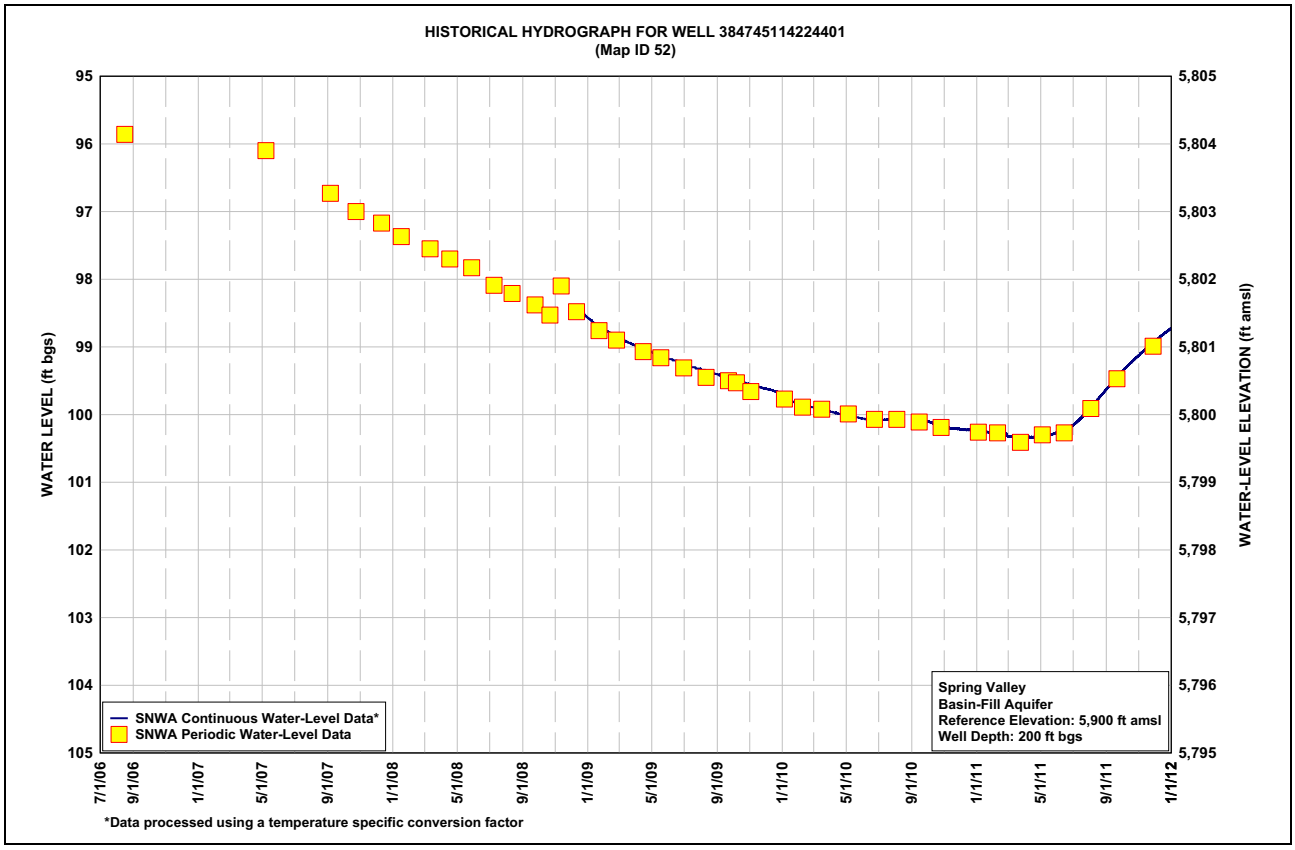

HISTORICAL HYDROGRAPH FOR WELL 384745114224401
(Map ID 52)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
7/1/06
9/1/06
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 200 ft bgs
*Data processed using a temperature specific conversion factor

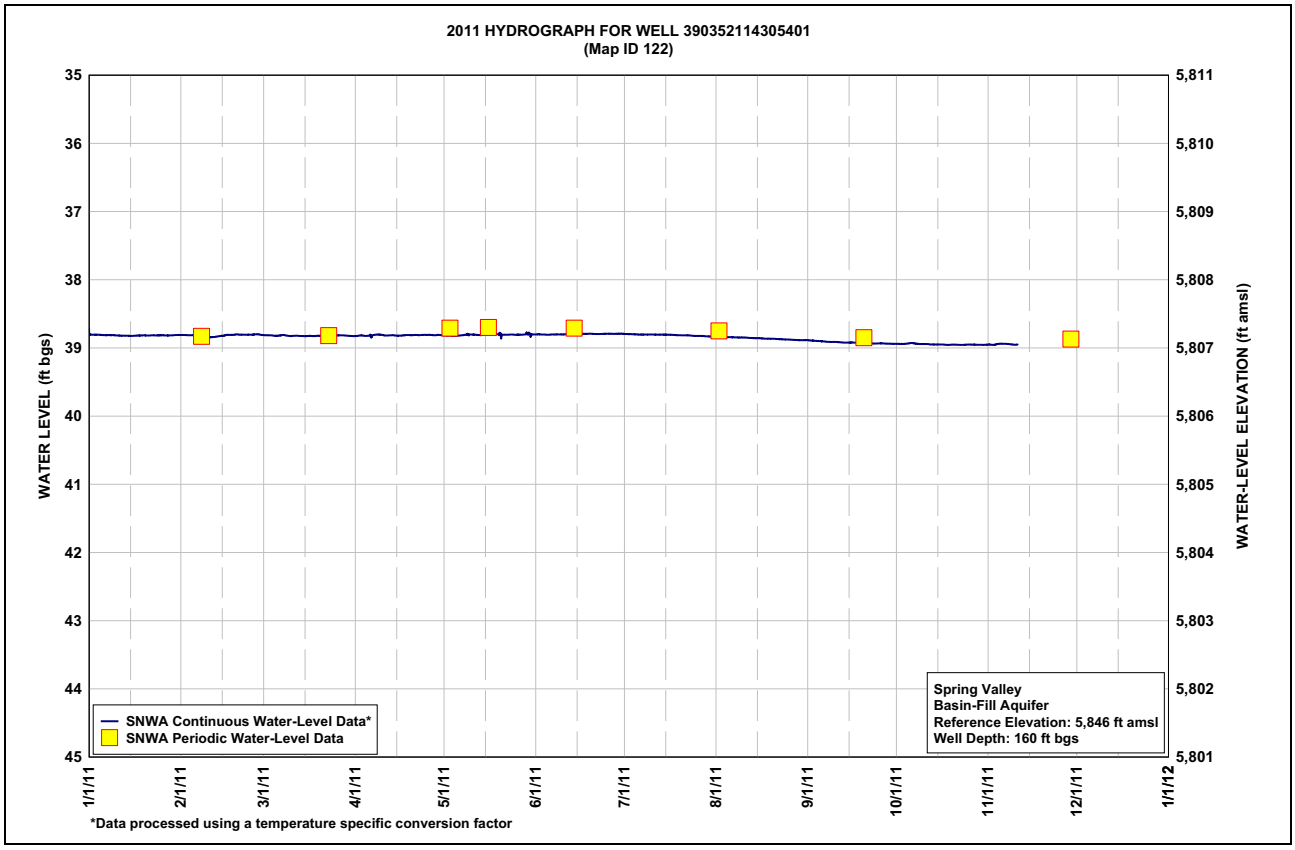
Table B-5
Spring Valley Well 390352114305401, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	38.72	38.81	38.81	38.82	38.82	38.80	38.80	38.84	38.89	38.94	38.95	[a]---
2	38.72	38.81	38.81	38.82	38.82	38.80	38.80	38.84	38.89	38.94	38.95	[a]---
3	38.72	38.81	38.82	38.82	38.82	38.80	38.80	38.84	38.90	38.94	38.95	[a]---
4	38.72	38.81	38.82	38.82	38.82	38.81	38.80	38.84	38.90	38.94	38.94	[a]---
5	38.73	38.81	38.82	38.82	38.82	38.81	38.80	38.84	38.90	38.93	38.94	[a]---
6	38.73	38.81	38.82	38.82	38.82	38.80	38.80	38.84	38.91	38.93	38.94	[a]---
7	38.73	38.81	38.81	38.81	38.81	38.80	38.80	38.85	38.91	38.94	38.94	[a]---
8	38.73	38.84	38.82	38.80	38.80	38.80	38.80	38.85	38.91	38.94	38.95	[a]---
9	38.73	38.86	38.82	38.81	38.80	38.80	38.80	38.85	38.91	38.94	38.95	[a]---
10	38.73	38.85	38.82	38.81	38.80	38.80	38.80	38.85	38.91	38.94	38.95	[a]---
11	38.73	38.84	38.82	38.82	38.81	38.80	38.80	38.85	38.92	38.94	[a]---	[a]---
12	38.73	38.84	38.82	38.82	38.81	38.80	38.81	38.85	38.92	38.95	[a]---	[a]---
13	38.73	38.83	38.83	38.81	38.81	38.80	38.80	38.86	38.92	38.95	[a]---	[a]---
14	38.73	38.82	38.83	38.82	38.81	38.80	38.80	38.86	38.92	38.95	[a]---	[a]---
15	38.74	38.82	38.83	38.82	38.80	38.80	38.81	38.86	38.92	38.95	[a]---	[a]---
16	38.73	38.81	38.82	38.82	38.80	38.79	38.81	38.86	38.92	38.95	[a]---	[a]---
17	38.73	38.81	38.83	38.81	38.80	38.79	38.81	38.86	38.92	38.95	[a]---	[a]---
18	38.73	38.81	38.83	38.81	38.80	38.79	38.81	38.86	38.93	38.96	[a]---	[a]---
19	38.73	38.80	38.82	38.81	38.80	38.79	38.81	38.86	38.93	38.95	[a]---	[a]---
20	38.73	38.80	38.82	38.81	38.81	38.79	38.82	38.87	38.93	38.95	[a]---	[a]---
21	38.73	38.81	38.82	38.81	38.81	38.80	38.82	38.87	38.93	38.95	[a]---	[a]---
22	38.73	38.81	38.82	38.81	38.81	38.80	38.82	38.87	38.93	38.96	[a]---	[a]---
23	38.73	38.81	38.82	38.81	38.80	38.79	38.82	38.87	38.94	38.96	[a]---	[a]---
24	38.73	38.81	38.82	38.81	38.80	38.79	38.82	38.88	38.93	38.95	[a]---	[a]---
25	38.72	38.80	38.82	38.81	38.81	38.79	38.82	38.88	38.93	38.95	[a]---	[a]---
26	38.73	38.80	38.82	38.81	38.80	38.79	38.82	38.88	38.93	38.95	[a]---	[a]---
27	38.73	38.80	38.82	38.81	38.81	38.79	38.83	38.88	38.94	38.95	[a]---	[a]---
28	38.73	38.81	38.82	38.81	38.80	38.79	38.83	38.88	38.94	38.95	[a]---	[a]---
29	38.72	---	38.82	38.81	38.79	38.79	38.83	38.89	38.94	38.95	[a]---	[a]---
30	38.72	---	38.82	38.81	38.80	38.79	38.83	38.89	38.94	38.96	[a]---	[a]---
31	38.72	---	38.83	---	38.80	---	38.84	38.89	---	38.95	[a]---	[a]---
Max	38.74	38.86	38.83	38.82	38.82	38.81	38.84	38.89	38.94	38.96	38.95	---
Min	38.72	38.80	38.81	38.80	38.79	38.79	38.80	38.84	38.89	38.93	38.94	---

Year 2011 Statistics: **Year Max 38.96; Year Min 38.72**

Note: Water level in ft bgs

[a]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 390352114305401
(Map ID 122)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,811
5,810
5,809
5,808
5,807
5,806
5,805
5,804
5,803
5,802
5,801
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,846 ft amsl
Well Depth: 160 ft bgs
*Data processed using a temperature specific conversion factor

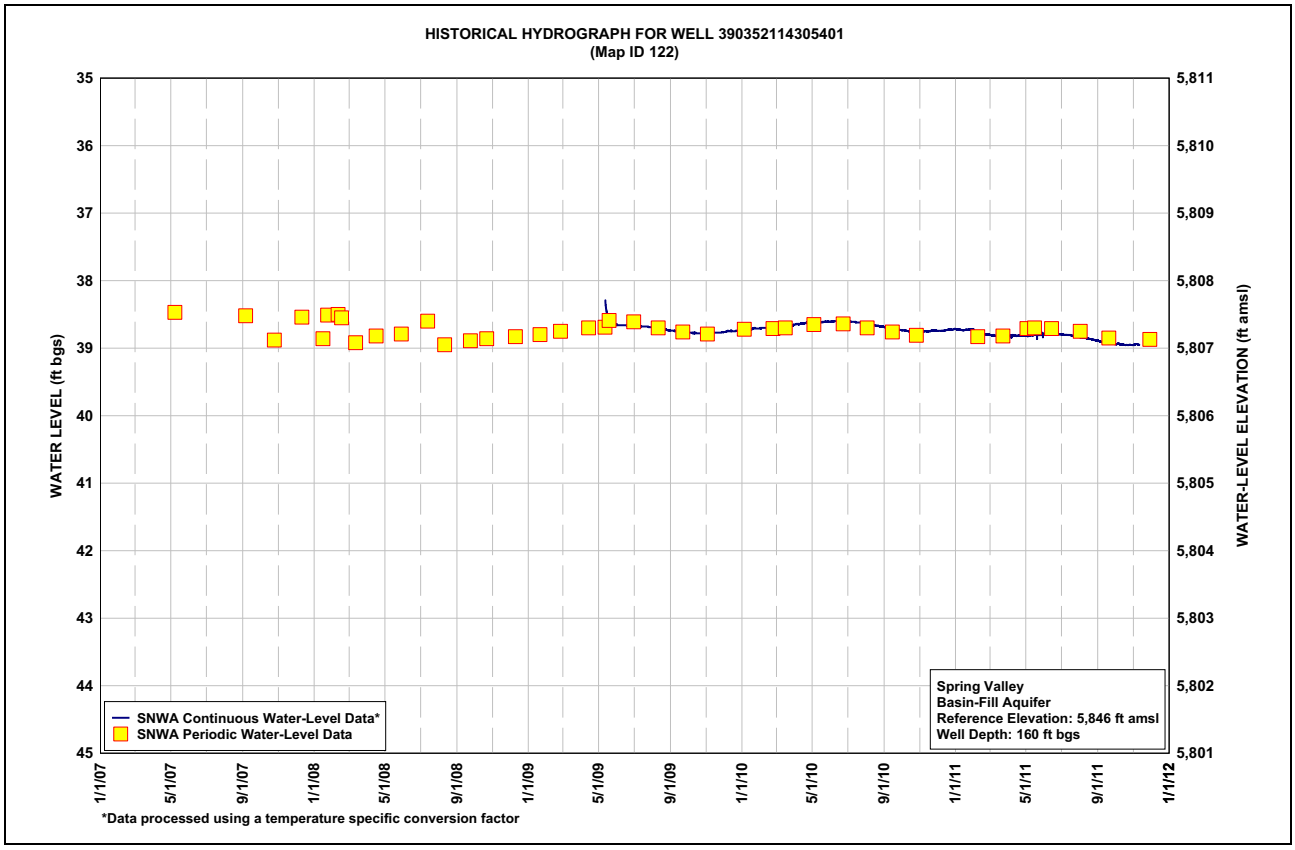

HISTORICAL HYDROGRAPH FOR WELL 390352114305401
(Map ID 122)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,811
5,810
5,809
5,808
5,807
5,806
5,805
5,804
5,803
5,802
5,801
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,846 ft amsl
Well Depth: 160 ft bgs
*Data processed using a temperature specific conversion factor

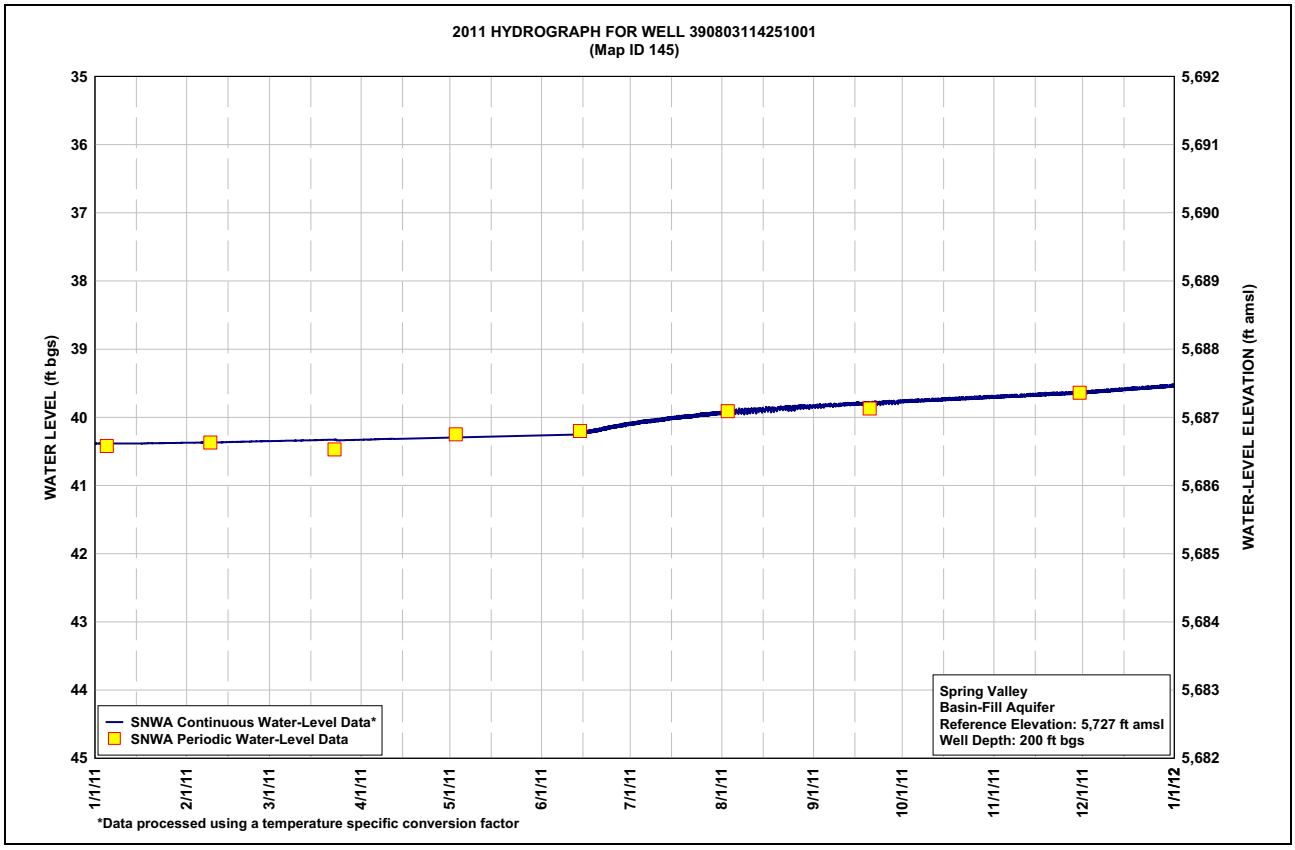
Table B-6
Spring Valley Well 390803114251001, Calendar Year 2011
Water-Level Data, Daily Mean Values

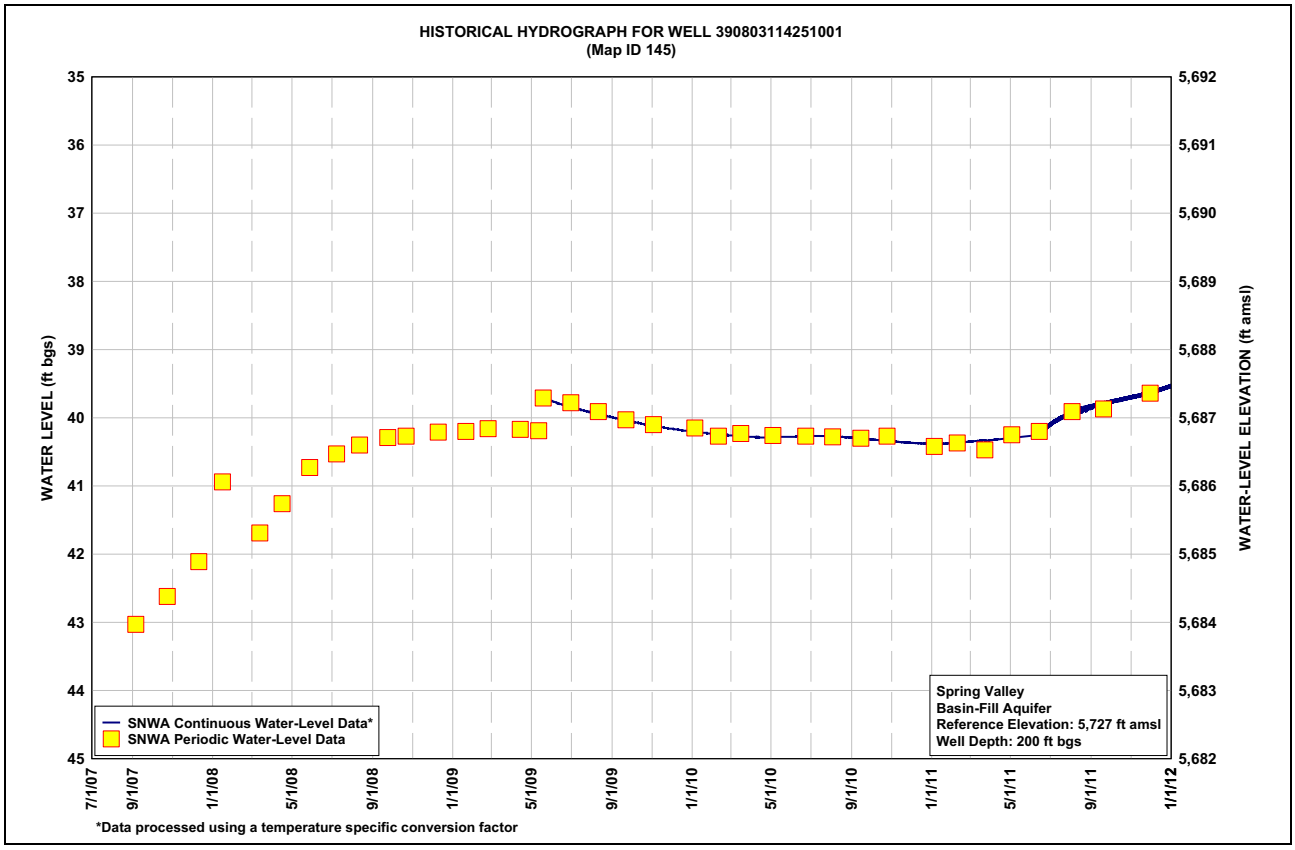
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	40.38	40.37	40.35	40.33	[b]---	[b]---	40.09	39.93	39.84	39.77	39.71	39.64
2	40.38	40.37	40.35	40.33	[b]---	[b]---	40.09	39.93	39.84	39.76	39.70	39.63
3	40.38	40.37	40.35	40.33	[b]---	[b]---	40.08	39.91	39.84	39.76	39.70	39.63
4	40.38	40.37	40.35	40.32	[b]---	[b]---	40.07	39.92	39.83	39.76	39.69	39.63
5	40.39	40.37	40.34	40.32	[b]---	[b]---	40.07	39.92	39.83	39.76	39.69	39.63
6	40.39	40.37	40.34	40.32	[b]---	[b]---	40.06	39.92	39.82	39.76	39.70	39.62
7	40.38	40.37	40.34	40.32	[b]---	[b]---	40.06	39.91	39.83	39.76	39.69	39.62
8	40.38	40.37	40.34	40.32	[b]---	[b]---	40.06	39.92	39.82	39.76	39.69	39.62
9	40.38	40.37	40.34	40.32	[b]---	[b]---	40.05	39.91	39.83	39.75	39.69	39.61
10	40.38	40.37	40.34	40.32	[b]---	[b]---	40.04	39.90	39.82	39.75	39.69	39.61
11	40.38	40.37	40.34	40.32	[b]---	[b]---	40.04	39.90	39.81	39.75	39.69	39.61
12	40.38	40.37	40.34	[a]---	[b]---	[b]---	40.03	39.90	39.81	39.75	39.68	39.60
13	40.38	40.37	40.34	[b]---	[b]---	[b]---	40.02	39.89	39.81	39.75	39.68	39.60
14	40.38	40.36	40.34	[b]---	[b]---	40.23	40.01	39.89	39.81	39.74	39.68	39.60
15	40.38	40.36	40.34	[b]---	[b]---	40.22	40.01	39.89	39.81	39.74	39.67	39.59
16	40.38	40.36	40.33	[b]---	[b]---	40.22	40.01	39.88	39.80	39.74	39.67	39.59
17	40.38	40.36	40.33	[b]---	[b]---	40.21	40.00	39.88	39.81	39.74	39.67	39.59
18	40.38	40.36	40.33	[b]---	[b]---	40.20	39.99	39.88	39.80	39.74	39.66	39.58
19	40.38	40.36	40.33	[b]---	[b]---	40.19	39.99	39.88	39.80	39.73	39.67	39.58
20	40.38	40.36	40.33	[b]---	[b]---	40.18	39.99	39.87	39.80	39.73	39.66	39.58
21	40.38	40.36	40.33	[b]---	[b]---	40.17	40.00	39.87	39.79	39.73	39.66	39.57
22	40.38	40.36	40.33	[b]---	[b]---	40.17	39.98	39.86	39.79	39.73	39.66	39.57
23	40.38	40.35	40.33	[b]---	[b]---	40.15	39.98	39.86	39.79	39.72	39.66	39.57
24	40.38	40.35	40.34	[b]---	[b]---	40.14	39.96	39.86	39.79	39.72	39.66	39.56
25	40.38	40.35	40.34	[b]---	[b]---	40.14	39.96	39.86	39.79	39.72	39.65	39.56
26	40.38	40.35	40.33	[b]---	[b]---	40.13	39.96	39.86	39.78	39.71	39.65	39.56
27	40.38	40.35	40.33	[b]---	[b]---	40.13	39.96	39.85	39.78	39.71	39.65	39.55
28	40.38	40.35	40.33	[b]---	[b]---	40.12	39.95	39.85	39.78	39.71	39.65	39.55
29	40.37	---	40.33	[b]---	[b]---	40.10	39.95	39.85	39.78	39.71	39.64	39.55
30	40.37	---	40.33	[b]---	[b]---	40.10	39.94	39.85	39.77	39.70	39.65	39.55
31	40.37	---	40.33	---	[b]---	---	39.94	39.84	---	39.70	---	39.54
Max	40.39	40.37	40.35	40.33	---	40.23	40.09	39.93	39.84	39.77	39.71	39.64
Min	40.37	40.35	40.33	40.32	---	40.10	39.94	39.84	39.77	39.70	39.64	39.54

Year 2011 Statistics: **Year Max 40.39; Year Min 39.54**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.
[b]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 390803114251001
(Map ID 145)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
5,684
5,683
5,682
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,727 ft amsl
Well Depth: 200 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 390803114251001
(Map ID 145)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,692
5,691
5,690
5,689
5,688
5,687
5,686
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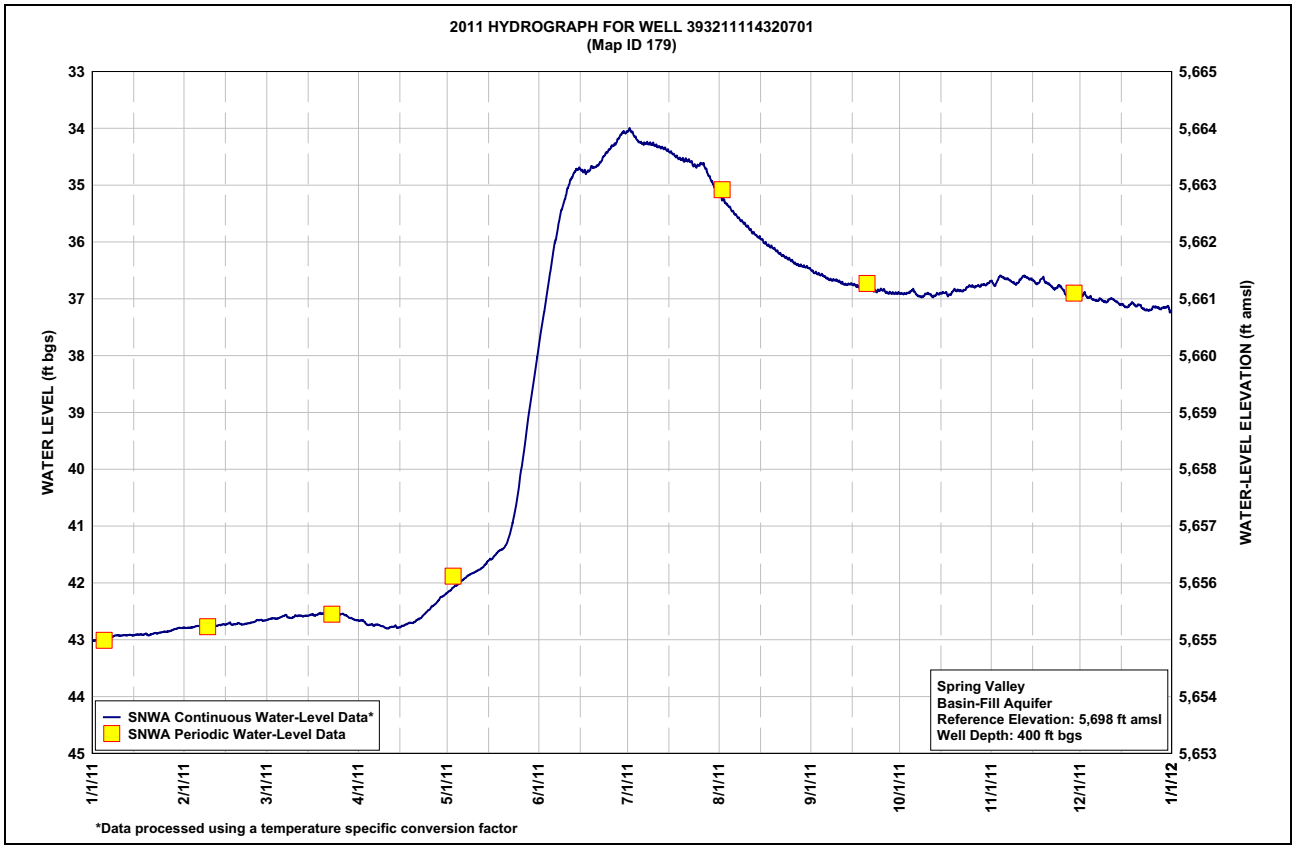
5,684
5,683
5,682
7/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,727 ft amsl
Well Depth: 200 ft bgs
*Data processed using a temperature specific conversion factor

Table B-7
Spring Valley Well 393211114320701, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	43.02	42.79	42.64	42.66	42.15	37.65	34.03	35.20	36.51	36.91	36.72	36.94
2	43.00	42.79	42.63	42.67	42.11	37.33	34.07	35.27	36.54	36.91	36.74	36.91
3	42.99	42.78	42.62	42.71	42.06	36.99	34.15	35.33	36.56	36.91	36.64	36.97
4	42.98	42.77	42.63	42.74	42.03	36.65	34.22	35.39	36.58	36.88	36.61	36.97
5	42.98	42.76	42.61	42.73	41.98	36.31	34.25	35.46	36.61	36.85	36.64	37.01
6	42.98	42.76	42.59	42.75	41.94	36.00	34.27	35.52	36.64	36.91	36.65	37.03
7	42.95	42.74	42.57	42.73	41.90	35.74	34.26	35.58	36.66	36.95	36.68	37.01
8	42.92	42.75	42.61	42.75	41.86	35.48	34.27	35.63	36.67	36.96	36.72	37.03
9	42.91	42.75	42.61	42.77	41.83	35.30	34.28	35.67	36.67	36.93	36.73	37.05
10	42.92	42.75	42.58	42.80	41.81	35.11	34.30	35.73	36.70	36.91	36.69	37.03
11	42.91	42.75	42.58	42.79	41.78	34.95	34.33	35.78	36.72	36.93	36.62	37.00
12	42.90	42.75	42.58	42.77	41.75	34.83	34.34	35.84	36.75	36.96	36.61	37.02
13	42.90	42.74	42.59	42.76	41.70	34.74	34.36	35.88	36.75	36.92	36.64	37.06
14	42.90	42.73	42.58	42.79	41.64	34.71	34.39	35.92	36.74	36.91	36.66	37.10
15	42.89	42.72	42.57	42.77	41.59	34.74	34.42	35.96	36.75	36.89	36.69	37.10
16	42.88	42.71	42.56	42.75	41.56	34.76	34.46	36.02	36.77	36.89	36.73	37.14
17	42.88	42.73	42.57	42.72	41.50	34.76	34.50	36.06	36.80	36.94	36.68	37.13
18	42.88	42.72	42.55	42.70	41.44	34.71	34.53	36.09	36.83	36.91	36.64	37.08
19	42.87	42.71	42.54	42.70	41.41	34.69	34.55	36.12	36.82	36.85	36.71	37.11
20	42.88	42.73	42.53	42.67	41.36	34.67	34.56	36.16	36.82	36.85	36.74	37.12
21	42.86	42.72	42.53	42.63	41.25	34.62	34.57	36.21	36.84	36.86	36.79	37.12
22	42.85	42.71	42.55	42.60	41.08	34.54	34.59	36.24	36.86	36.86	36.82	37.18
23	42.84	42.70	42.54	42.54	40.85	34.45	34.65	36.27	36.86	36.82	36.79	37.20
24	42.82	42.69	42.53	42.49	40.57	34.39	34.67	36.30	36.84	36.78	36.79	37.20
25	42.81	42.66	42.55	42.44	40.21	34.33	34.64	36.33	36.84	36.78	36.86	37.16
26	42.81	42.66	42.55	42.39	39.86	34.29	34.63	36.37	36.89	36.79	36.93	37.14
27	42.79	42.66	42.57	42.34	39.48	34.22	34.72	36.40	36.90	36.77	36.90	37.16
28	42.77	42.66	42.60	42.28	39.08	34.13	34.83	36.42	36.90	36.77	36.90	37.17
29	42.75	---	42.62	42.24	38.70	34.07	34.94	36.43	36.90	36.75	36.91	37.15
30	42.73	---	42.64	42.20	38.38	34.07	35.03	36.44	36.90	36.75	36.88	37.14
31	42.73	---	42.66	---	38.02	---	35.11	36.46	---	36.70	---	37.21
Max	43.02	42.79	42.66	42.80	42.15	37.65	35.11	36.46	36.90	36.96	36.93	37.21
Min	42.73	42.66	42.53	42.20	38.02	34.07	34.03	35.20	36.51	36.70	36.61	36.91

Year 2011 Statistics: **Year Max 43.02; Year Min 34.03**

Note: Water level in ft bgs


2011 HYDROGRAPH FOR WELL 393211114320701
(Map ID 179)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
33
34
35
36
37
38
39
40
41
42
43
44
45
5,665
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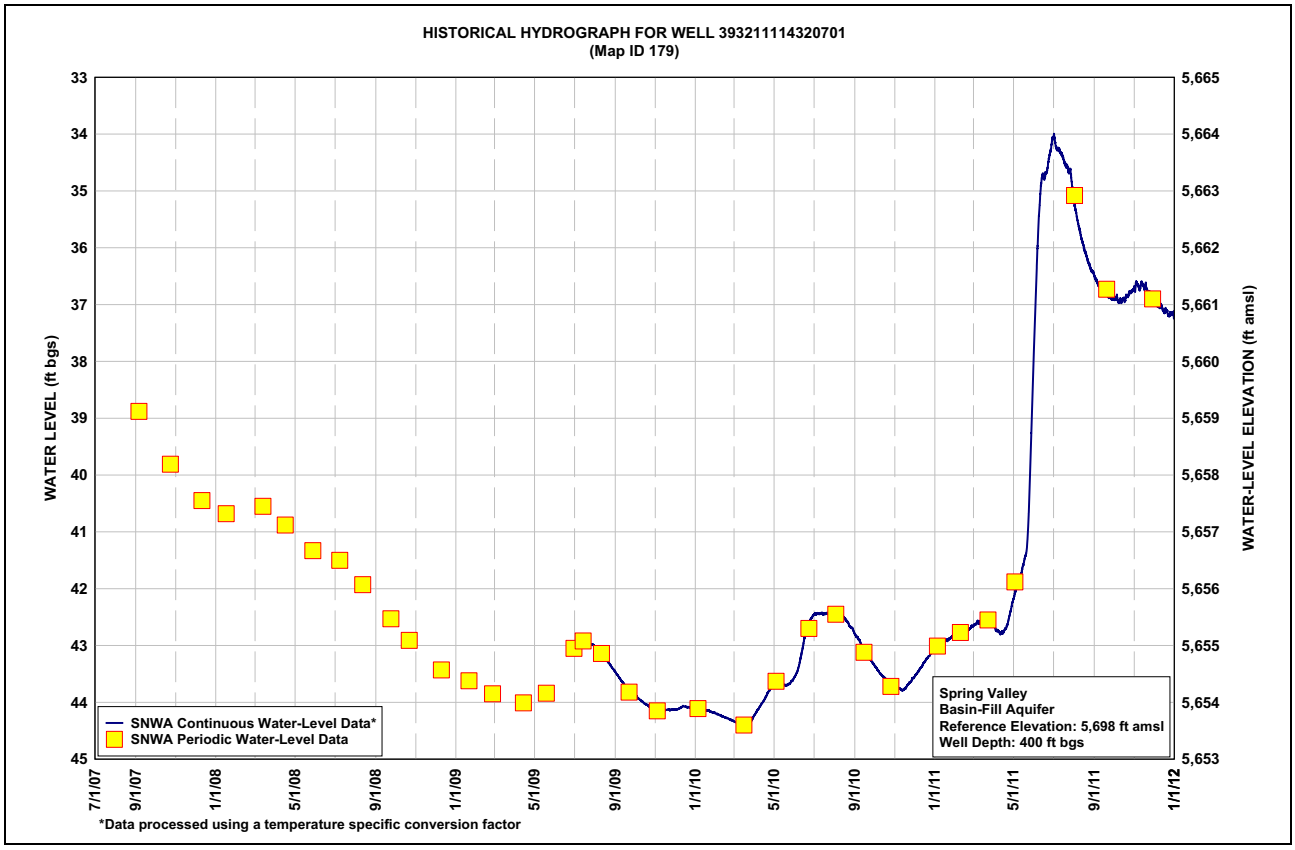
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,698 ft amsl
Well Depth: 400 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 393211114320701
(Map ID 179)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
33
34
35
36
37
38
39
40
41
42
43
44
45
5,665
5,664
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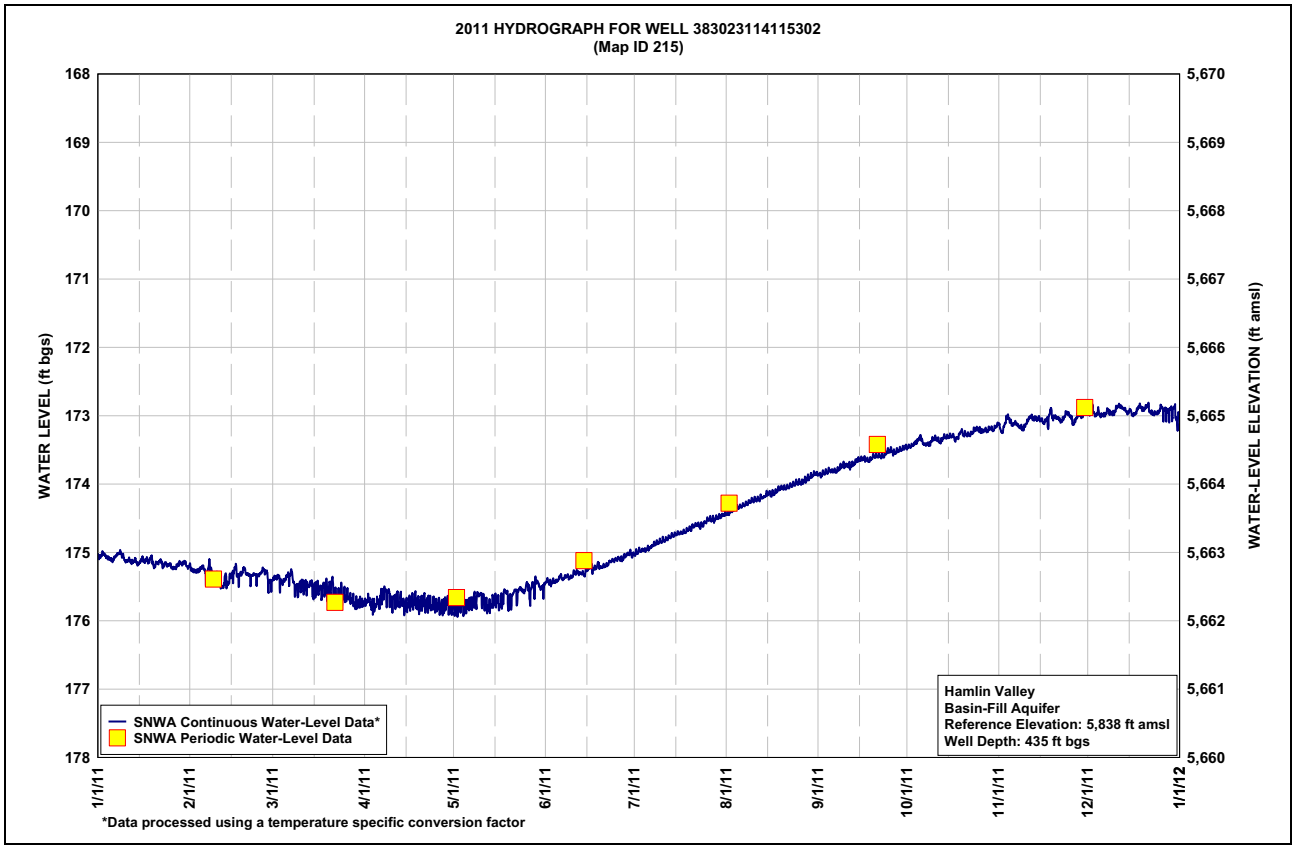
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,698 ft amsl
Well Depth: 400 ft bgs
*Data processed using a temperature specific conversion factor

Table B-8
Hamlin Valley Well 383023114115302, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	174.98	175.23	175.37	175.74	175.81	175.42	175.01	174.43	173.86	173.46	173.18	172.97
2	174.94	175.27	175.36	175.70	175.82	175.45	174.98	174.39	173.85	173.44	173.19	172.91
3	174.96	175.27	175.43	175.82	175.75	175.43	174.97	174.37	173.83	173.41	173.06	172.98
4	174.99	175.25	175.43	175.79	175.84	175.42	174.97	174.34	173.81	173.37	173.05	172.95
5	175.01	175.22	175.37	175.74	175.80	175.38	174.94	174.33	173.81	173.32	173.12	173.00
6	174.99	175.33	175.36	175.69	175.79	175.37	174.92	174.31	173.81	173.40	173.11	172.99
7	174.94	175.20	175.33	175.61	175.74	175.36	174.89	174.29	173.80	173.42	173.14	172.94
8	174.91	175.30	175.51	175.62	175.72	175.35	174.86	174.27	173.76	173.41	173.17	172.95
9	174.97	175.34	175.53	175.64	175.61	175.36	174.84	174.24	173.73	173.35	173.17	172.97
10	175.03	175.35	175.47	175.68	175.65	175.31	174.84	174.23	173.73	173.34	173.09	172.91
11	175.02	175.43	175.48	175.69	175.72	175.29	174.82	174.22	173.73	173.35	173.02	172.86
12	175.05	175.45	175.49	175.72	175.80	175.30	174.79	174.21	173.72	173.37	173.03	172.88
13	175.02	175.42	175.47	175.68	175.79	175.31	174.76	174.19	173.68	173.31	173.05	172.91
14	175.07	175.38	175.54	175.80	175.73	175.30	174.74	174.15	173.65	173.31	173.04	172.95
15	175.02	175.32	175.51	175.76	175.69	175.23	174.73	174.14	173.64	173.30	173.07	172.94
16	175.01	175.25	175.51	175.74	175.76	175.23	174.72	174.15	173.64	173.30	173.09	172.98
17	175.01	175.37	175.55	175.71	175.72	175.23	174.70	174.12	173.64	173.34	173.08	172.93
18	175.01	175.30	175.52	175.72	175.57	175.19	174.69	174.08	173.65	173.29	172.95	172.86
19	175.03	175.25	175.54	175.75	175.70	175.21	174.66	174.06	173.60	173.24	173.03	172.91
20	175.07	175.32	175.51	175.71	175.69	175.20	174.64	174.06	173.59	173.27	173.03	172.88
21	175.04	175.37	175.53	175.74	175.57	175.19	174.60	174.05	173.59	173.27	173.06	172.89
22	175.05	175.32	175.64	175.76	175.63	175.15	174.59	174.03	173.59	173.27	173.06	172.96
23	175.06	175.36	175.60	175.77	175.53	175.12	174.61	174.01	173.57	173.22	172.98	172.97
24	175.07	175.32	175.62	175.75	175.56	175.11	174.58	173.99	173.52	173.19	172.98	172.96
25	175.08	175.26	175.67	175.77	175.50	175.09	174.53	173.97	173.50	173.21	173.05	172.89
26	175.11	175.29	175.66	175.80	175.60	175.09	174.51	173.98	173.54	173.22	173.09	172.92
27	175.10	175.42	175.70	175.81	175.50	175.07	174.52	173.95	173.52	173.21	173.01	172.92
28	175.05	175.45	175.75	175.74	175.48	175.03	174.50	173.92	173.50	173.21	172.99	172.93
29	175.04	---	175.76	175.78	175.45	175.01	174.49	173.89	173.48	173.19	172.98	172.93
30	175.04	---	175.77	175.76	175.52	175.04	174.46	173.86	173.46	173.19	172.91	172.95
31	175.09	---	175.76	---	175.50	---	174.44	173.85	---	173.13	---	173.04
Max	175.11	175.45	175.77	175.82	175.84	175.45	175.01	174.43	173.86	173.46	173.19	173.04
Min	174.91	175.20	175.33	175.61	175.45	175.01	174.44	173.85	173.46	173.13	172.91	172.86

Year 2011 Statistics: **Year Max 175.84; Year Min 172.86**

Note: Water level in ft bgs


2011 HYDROGRAPH FOR WELL 383023114115302
(Map ID 215)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
168
169
170
171
172
173
174
175
176
177
178
5,670
5,669
5,668
5,667
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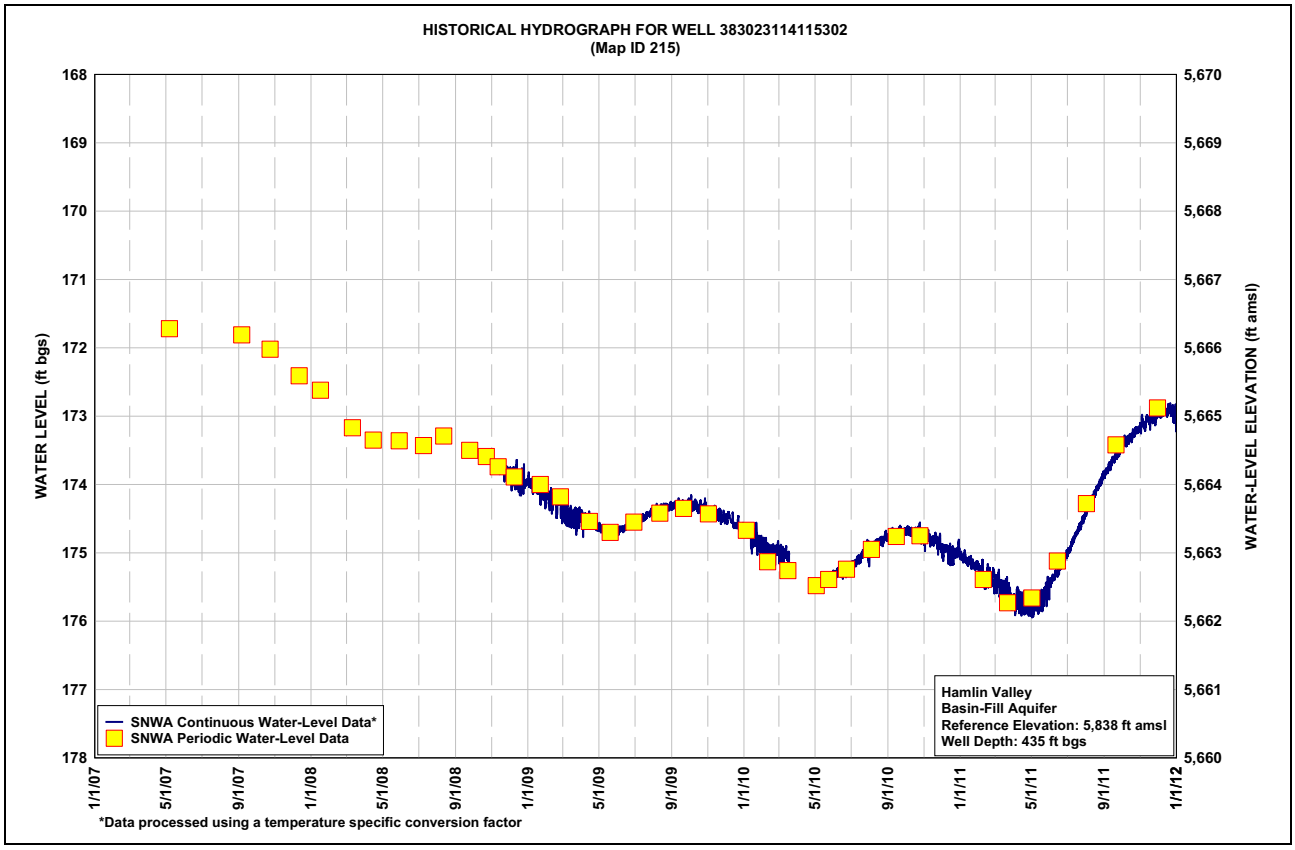
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,838 ft amsl
Well Depth: 435 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 383023114115302
(Map ID 215)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
168
169
170
171
172
173
174
175
176
177
178
5,670
5,669
5,668
5,667
5,666
5,665
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5,660
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
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5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,838 ft amsl
Well Depth: 435 ft bgs
*Data processed using a temperature specific conversion factor

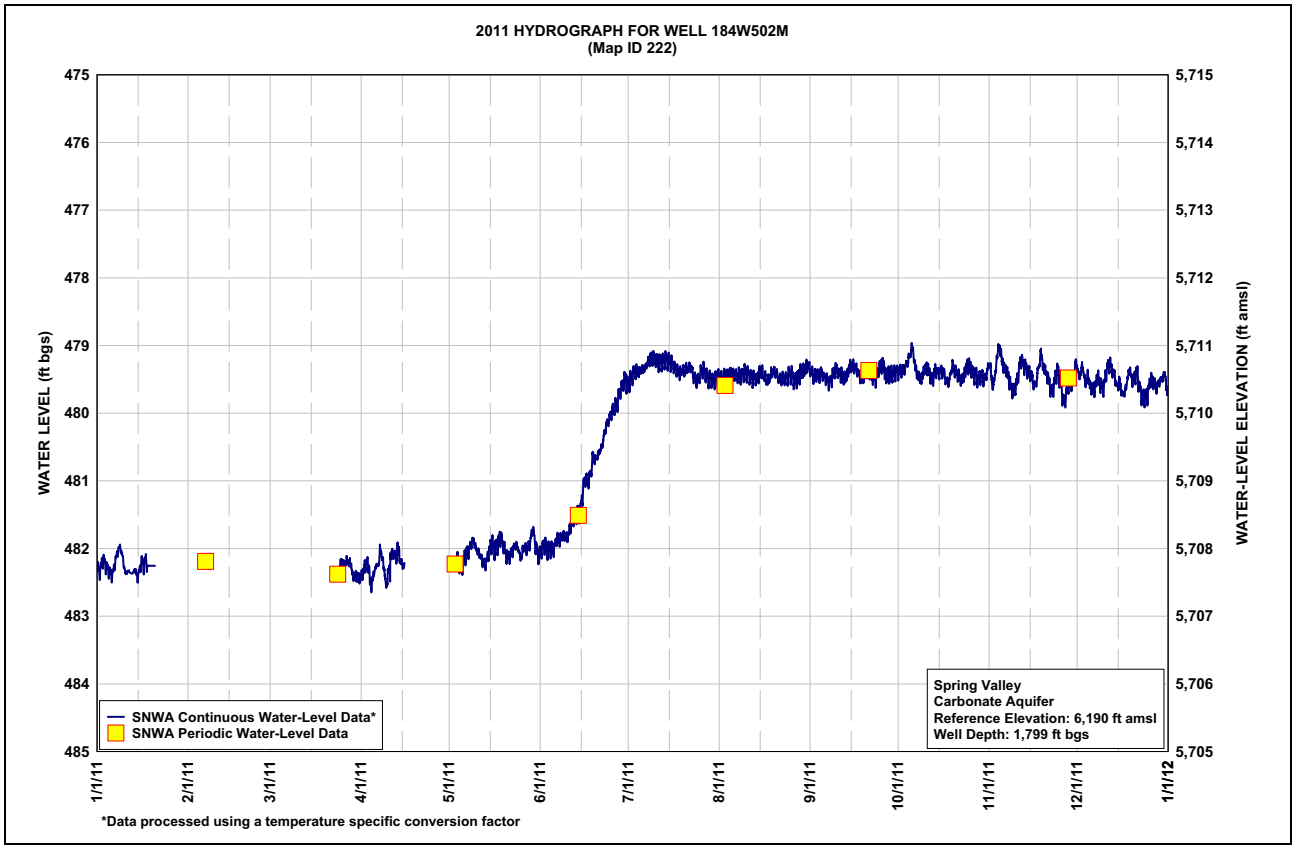
Table B-9
Spring Valley Well 184W502M Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	482.31	[b]---	[b]---	482.37	[b]---	482.01	479.53	479.50	479.40	479.38	479.37	479.42
2	482.24	[b]---	[b]---	482.24	[b]---	481.96	479.44	479.47	479.46	479.38	479.56	479.36
3	482.20	[b]---	[b]---	482.28	[a]---	482.02	479.39	479.43	479.45	479.32	479.26	479.49
4	482.29	[b]---	[b]---	482.52	482.23	482.01	479.39	479.39	479.43	479.22	479.05	479.50
5	482.36	[b]---	[b]---	482.35	482.25	482.00	479.36	479.41	479.45	479.08	479.24	479.61
6	482.33	[b]---	[b]---	482.25	482.12	481.89	479.35	479.44	479.50	479.23	479.35	479.64
7	482.14	[b]---	[b]---	482.07	482.04	481.88	479.26	479.44	479.54	479.42	479.46	479.55
8	482.00	[b]---	[b]---	482.23	481.93	481.84	479.19	479.44	479.47	479.48	479.61	479.52
9	482.09	[b]---	[b]---	482.50	481.92	481.82	479.19	479.40	479.38	479.41	479.67	479.60
10	482.32	[b]---	[b]---	482.31	482.03	481.80	479.22	479.41	479.39	479.35	479.53	479.50
11	482.34	[b]---	[b]---	482.09	482.11	481.65	479.25	479.45	479.44	479.40	479.30	479.31
12	[a]---	[b]---	[b]---	482.11	482.19	481.53	479.23	479.48	479.49	479.50	479.25	479.31
13	[a]---	[b]---	[b]---	482.05	482.20	481.48	479.21	479.49	479.44	479.40	479.33	479.41
14	482.40	[b]---	[b]---	482.19	482.06	481.45	479.23	479.45	479.32	479.39	479.38	479.58
15	482.32	[b]---	[b]---	482.26	481.94	481.19	479.26	479.40	479.31	479.38	479.47	479.57
16	482.22	[b]---	[b]---	[b]---	482.00	481.00	479.30	479.48	479.34	479.40	479.59	479.71
17	482.20	[b]---	[b]---	[b]---	481.94	480.98	479.36	479.52	479.42	479.54	479.43	479.65
18	[b]---	[b]---	[b]---	[b]---	481.85	480.80	479.41	479.45	479.51	479.49	479.18	479.44
19	[b]---	[b]---	[b]---	[b]---	481.96	480.66	479.38	479.40	479.45	479.33	479.32	479.47
20	[a]---	[b]---	[b]---	[b]---	482.10	480.63	479.38	479.43	479.40	479.40	479.43	479.49
21	[b]---	[b]---	[b]---	[b]---	482.12	480.54	479.33	479.48	479.42	479.46	479.56	479.45
22	[b]---	[b]---	[b]---	[b]---	482.04	480.39	479.35	479.50	479.47	479.50	479.65	479.66
23	[b]---	[b]---	[b]---	[b]---	481.97	480.20	479.48	479.47	479.48	479.43	479.50	479.76
24	[b]---	[b]---	482.29	[b]---	482.01	480.09	479.52	479.46	479.36	479.32	479.41	479.75
25	[b]---	[b]---	482.21	[b]---	482.12	479.98	479.43	479.45	479.30	479.32	479.58	479.61
26	[b]---	[b]---	482.21	[b]---	482.00	479.91	479.37	479.50	479.40	479.41	479.81	479.52
27	[b]---	[b]---	482.19	[b]---	482.00	479.82	479.43	479.50	479.45	479.44	479.68	479.57
28	[b]---	[b]---	482.26	[b]---	481.91	479.66	479.49	479.44	479.44	479.48	479.56	479.59
29	[b]---	---	482.41	[b]---	481.75	479.52	479.50	479.38	479.41	479.45	479.54	479.51
30	[b]---	---	482.42	[b]---	481.97	479.55	479.50	479.33	479.38	479.48	479.31	479.45
31	[b]---	---	482.43	---	482.09	---	479.48	479.31	---	479.36	---	479.62
Max	482.40	---	482.43	482.52	482.25	482.02	479.53	479.52	479.54	479.54	479.81	479.76
Min	482.00	---	482.19	482.05	481.75	479.52	479.19	479.31	479.30	479.08	479.05	479.31

Year 2011 Statistics: **Year Max 482.52; Year Min 479.05**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.
[b]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 184W502M
(Map ID 222)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
475
476
477
478
479
480
481
482
483
484
485
5,715
5,714
5,713
5,712
5,711
5,710
5,709
5,708
5,707
5,706
5,705
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,190 ft amsl
Well Depth: 1,799 ft bgs
*Data processed using a temperature specific conversion factor

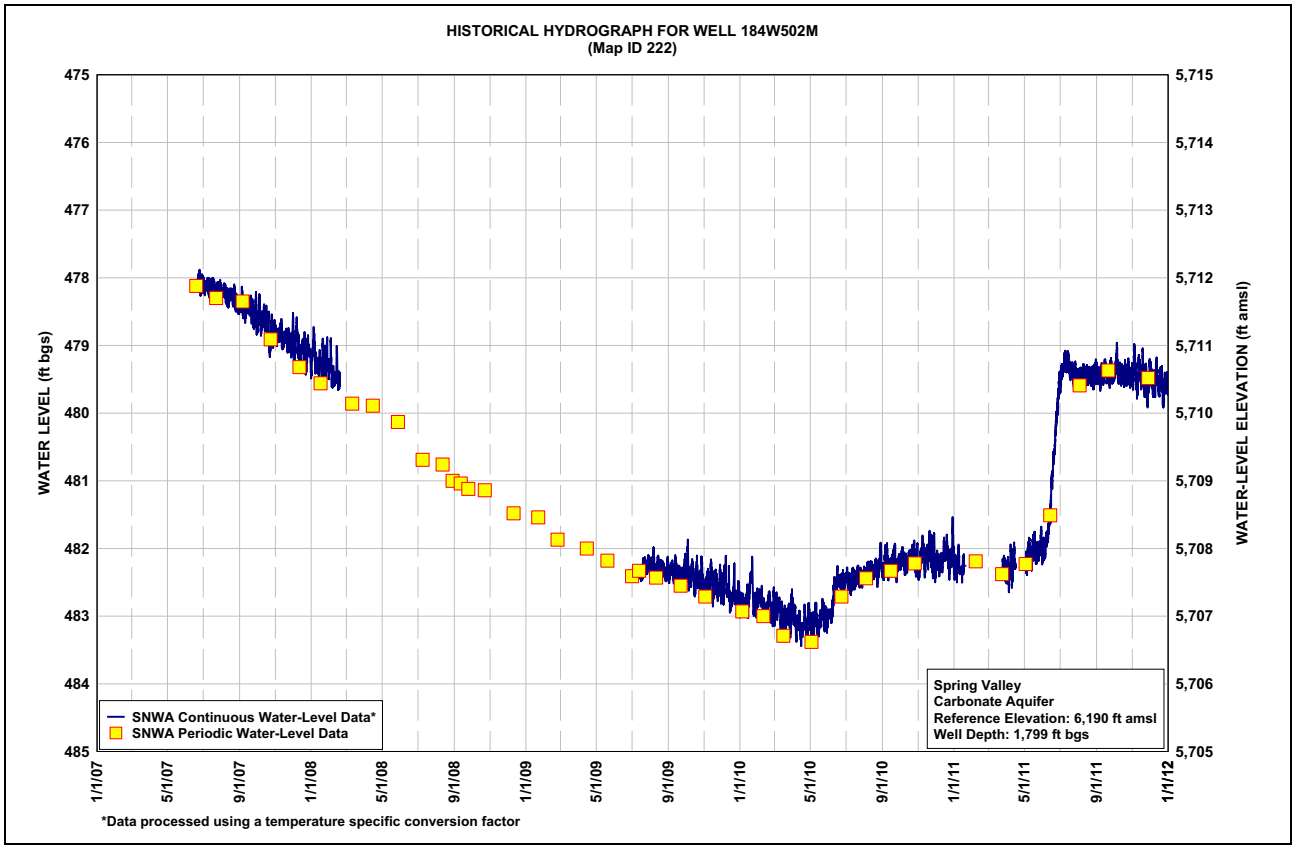

HISTORICAL HYDROGRAPH FOR WELL 184W502M
(Map ID 222)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
475
476
477
478
479
480
481
482
483
484
485
5,715
5,714
5,713
5,712
5,711
5,710
5,709
5,708
5,707
5,706
5,705
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,190 ft amsl
Well Depth: 1,799 ft bgs
*Data processed using a temperature specific conversion factor

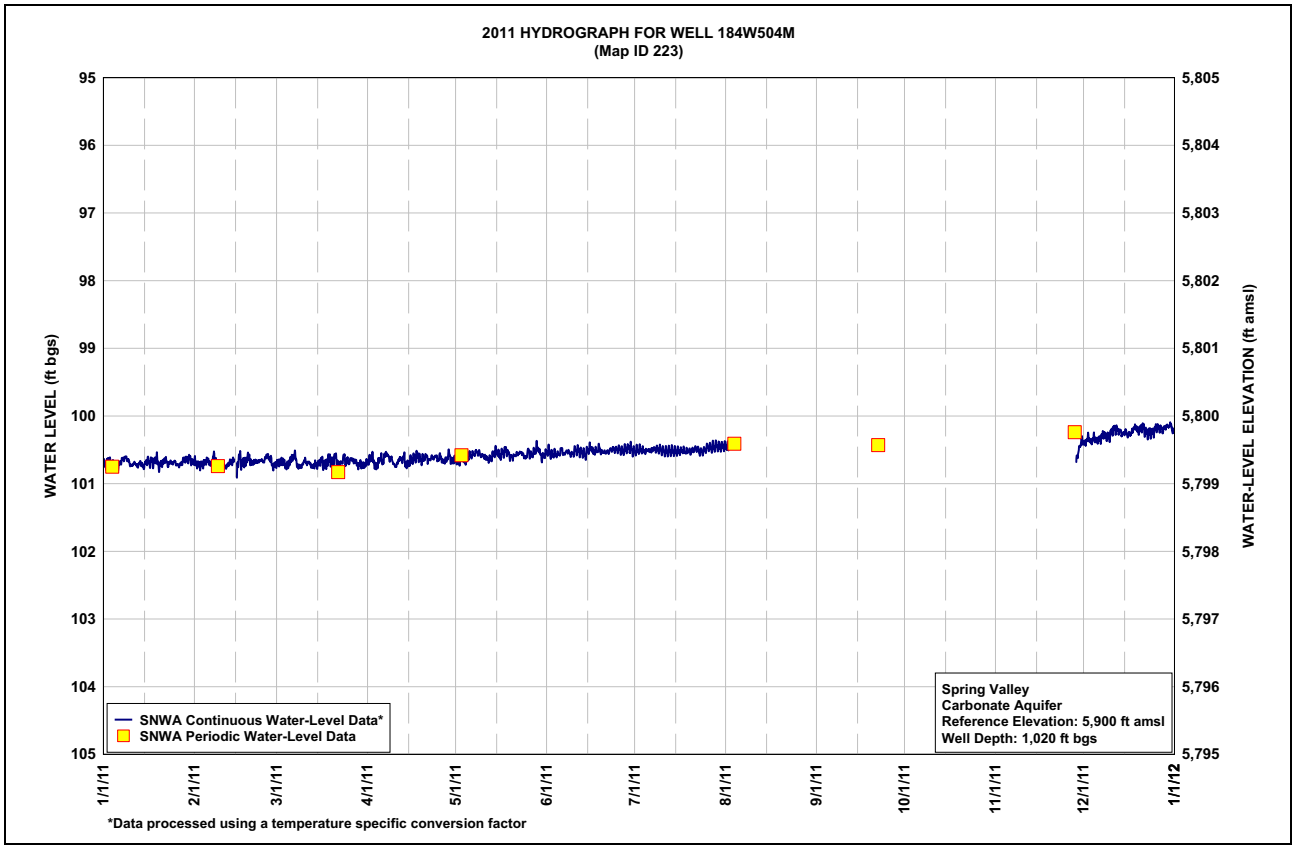
Table B-10
Spring Valley Well 184W504M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	100.71	100.69	100.69	100.66	100.66	100.52	100.51	100.46	[a]---	[a]---	[a]---	100.40
2	100.67	100.72	100.68	100.61	100.66	100.57	100.50	100.43	[a]---	[a]---	[a]---	100.33
3	100.69	100.72	100.70	100.73	100.62	100.56	100.51	100.43	[a]---	[a]---	[a]---	100.38
4	100.71	100.69	100.74	100.70	100.66	100.57	100.52	[a]---	[a]---	[a]---	[a]---	100.33
5	100.73	100.66	100.67	100.63	100.60	100.54	100.51	[a]---	[a]---	[a]---	[a]---	100.36
6	100.71	100.70	100.61	100.64	100.58	100.53	100.51	[a]---	[a]---	[a]---	[a]---	100.35
7	100.65	100.62	100.62	100.57	100.55	100.54	100.49	[a]---	[a]---	[a]---	[a]---	100.29
8	100.62	100.67	100.74	100.63	100.54	100.53	100.49	[a]---	[a]---	[a]---	[a]---	100.30
9	100.67	100.71	100.74	100.66	100.57	100.56	100.50	[a]---	[a]---	[a]---	[a]---	100.31
10	100.73	100.71	100.67	100.73	100.59	100.52	100.51	[a]---	[a]---	[a]---	[a]---	100.25
11	100.71	100.75	100.69	100.67	100.62	100.50	100.53	[a]---	[a]---	[a]---	[a]---	100.20
12	100.73	100.72	100.72	100.64	100.63	100.53	100.52	[a]---	[a]---	[a]---	[a]---	100.20
13	100.70	100.68	100.75	100.64	100.59	100.55	100.52	[a]---	[a]---	[a]---	[a]---	100.23
14	100.74	100.95	100.72	100.71	100.53	100.55	100.52	[a]---	[a]---	[a]---	[a]---	100.26
15	100.69	101.06	100.69	100.67	100.55	100.49	100.52	[a]---	[a]---	[a]---	[a]---	100.25
16	100.68	100.63	100.68	100.64	100.57	100.50	100.52	[a]---	[a]---	[a]---	[a]---	100.28
17	100.67	100.69	100.71	100.60	100.53	100.52	100.51	[a]---	[a]---	[a]---	[a]---	100.24
18	100.66	100.67	100.66	100.61	100.53	100.49	100.53	[a]---	[a]---	[a]---	[a]---	100.17
19	100.68	100.61	100.66	100.65	100.59	100.52	100.52	[a]---	[a]---	[a]---	[a]---	100.21
20	100.71	100.69	100.64	100.62	100.60	100.53	100.52	[a]---	[a]---	[a]---	[a]---	100.19
21	100.67	100.68	100.65	100.63	100.57	100.54	100.49	[a]---	[a]---	[a]---	[a]---	100.19
22	100.68	100.67	100.71	100.63	100.56	100.51	100.49	[a]---	[a]---	[a]---	[a]---	100.25
23	100.69	100.66	100.65	100.62	100.55	100.49	100.53	[a]---	[a]---	[a]---	[a]---	100.25
24	100.70	100.67	100.66	100.62	100.60	100.50	100.52	[a]---	[a]---	[a]---	[a]---	100.24
25	100.69	100.60	100.67	100.61	100.55	100.49	100.48	[a]---	[a]---	[a]---	[a]---	100.19
26	100.73	100.63	100.64	100.66	100.57	100.51	100.46	[a]---	[a]---	[a]---	[a]---	100.18
27	100.70	100.71	100.67	100.66	100.55	100.50	100.46	[a]---	[a]---	[a]---	[a]---	100.19
28	100.65	100.73	100.72	100.58	100.48	100.48	100.45	[a]---	[a]---	[a]---	[b]---	100.18
29	100.64	---	100.71	100.66	100.52	100.47	100.46	[a]---	[a]---	[a]---	100.49	100.15
30	100.64	---	100.73	100.65	100.60	100.52	100.45	[a]---	[a]---	[a]---	100.38	100.14
31	100.68	---	100.70	---	100.57	---	100.45	[a]---	---	[a]---	---	100.22
Max	100.74	101.06	100.75	100.73	100.66	100.57	100.53	100.46	---	---	100.49	100.40
Min	100.62	100.60	100.61	100.57	100.48	100.47	100.45	100.43	---	---	100.38	100.14

Year 2011 Statistics: **Year Max 101.06; Year Min 100.14**

Note: Water level in ft bgs

[a]No data available due to data logger malfunction.
[b]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR WELL 184W504M
(Map ID 223)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 1,020 ft bgs
*Data processed using a temperature specific conversion factor

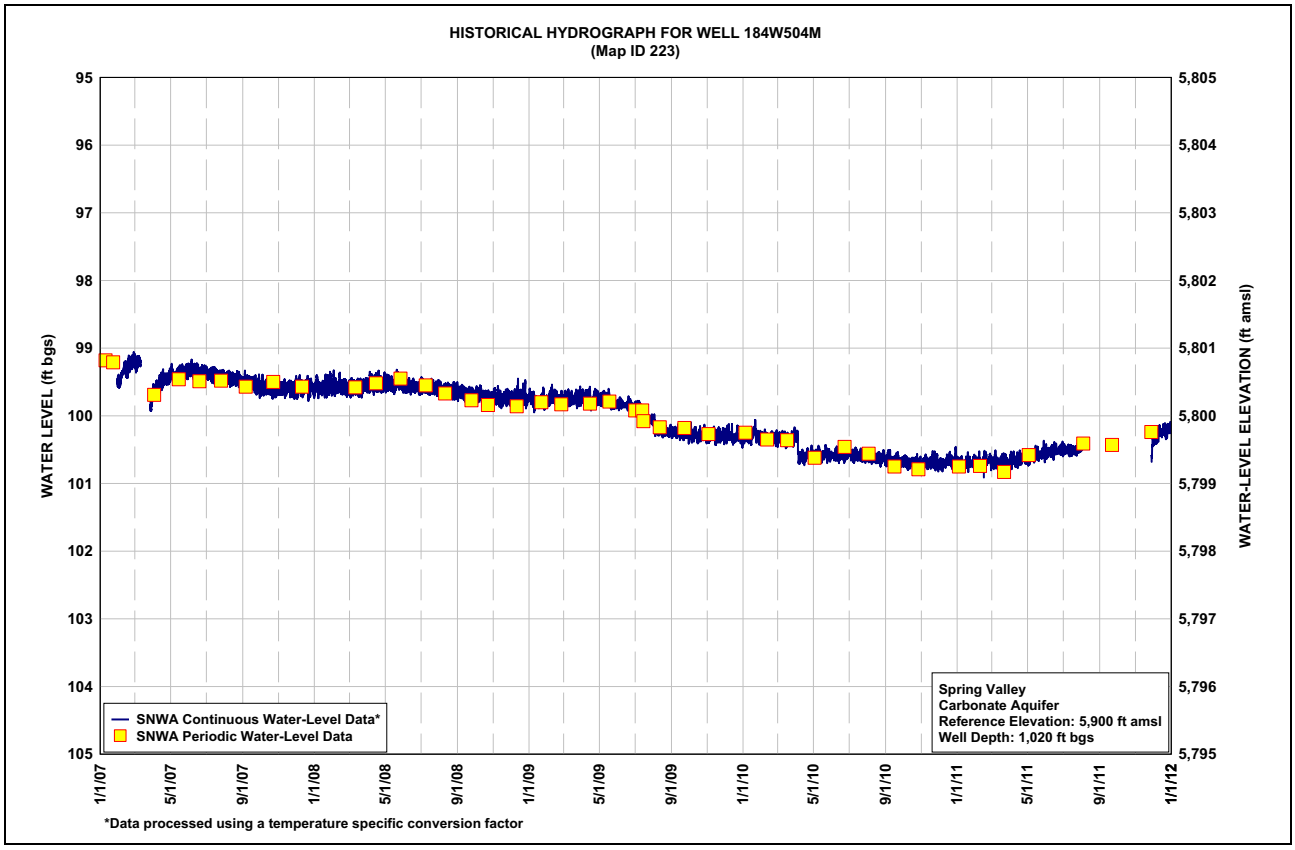

HISTORICAL HYDROGRAPH FOR WELL 184W504M
(Map ID 223)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 1,020 ft bgs
*Data processed using a temperature specific conversion factor

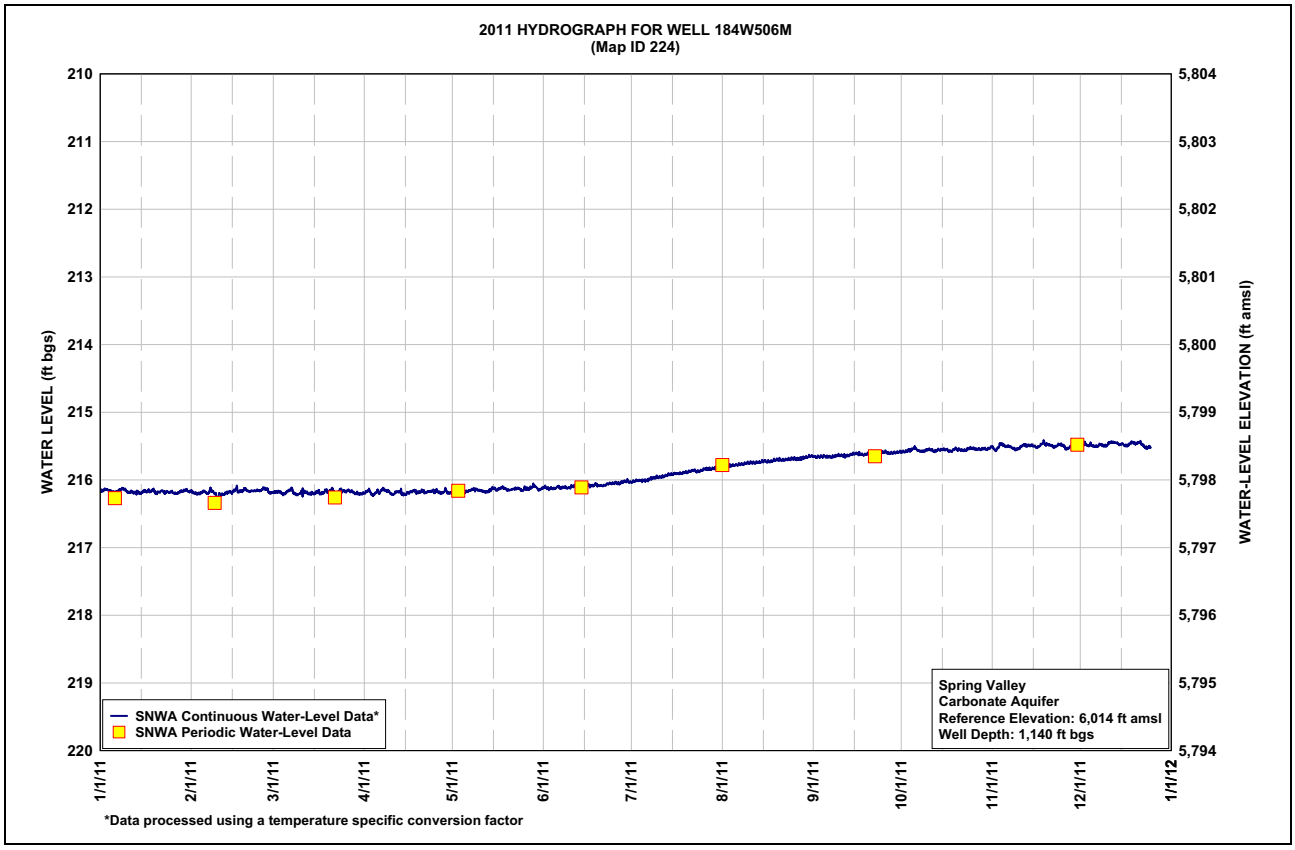
Table B-11
Spring Valley Well 184W506M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	216.16	216.18	216.18	216.18	216.20	216.11	216.02	215.82	215.66	215.59	215.54	215.49
2	216.14	216.20	216.18	216.16	216.20	216.13	216.01	215.80	215.66	215.58	215.55	215.47
3	216.15	216.20	216.19	216.21	216.18	216.12	216.01	215.79	215.66	215.57	215.49	215.49
4	216.16	216.19	216.21	216.21	216.20	216.13	216.01	215.78	215.65	215.55	215.48	215.48
5	216.18	216.17	216.18	216.17	216.18	216.11	216.01	215.78	215.65	215.53	215.50	215.50
6	216.17	216.20	216.15	216.18	216.16	216.11	216.00	215.77	215.66	215.56	215.50	215.50
7	216.15	216.16	216.15	216.14	216.15	216.11	215.98	215.77	215.66	215.57	215.52	215.48
8	216.13	216.18	216.21	216.16	216.14	216.11	215.97	215.76	215.65	215.58	215.54	215.49
9	216.15	216.23	216.21	216.18	216.15	216.12	215.96	215.75	215.63	215.56	215.55	215.50
10	216.18	216.23	216.18	216.21	216.15	216.10	215.96	215.75	215.64	215.55	215.52	215.47
11	216.18	216.22	216.18	216.19	216.17	216.09	215.95	215.75	215.64	215.56	215.49	215.45
12	216.19	216.20	216.19	216.18	216.18	216.10	215.94	215.74	215.64	215.57	215.49	215.44
13	216.18	216.19	216.21	216.18	216.16	216.11	215.93	215.74	215.63	215.56	215.49	215.46
14	216.19	216.18	216.20	216.21	216.13	216.11	215.92	215.73	215.62	215.56	215.49	215.48
15	216.18	216.16	216.19	216.20	216.13	216.08	215.91	215.72	215.61	215.55	215.50	215.47
16	216.17	216.14	216.18	216.18	216.14	216.08	215.91	215.73	215.61	215.55	215.52	215.49
17	216.16	216.17	216.20	216.17	216.12	216.09	215.90	215.73	215.62	215.57	215.48	215.48
18	216.16	216.16	216.17	216.17	216.12	216.07	215.90	215.71	215.63	215.57	215.45	215.45
19	216.17	216.14	216.17	216.18	216.14	216.08	215.89	215.70	215.62	215.54	215.48	215.46
20	216.19	216.17	216.16	216.17	216.15	216.08	215.88	215.70	215.61	215.55	215.48	215.45
21	216.17	216.16	216.16	216.17	216.14	216.08	215.87	215.71	215.61	215.56	215.50	215.45
22	216.17	216.16	216.19	216.18	216.13	216.07	215.86	215.70	215.62	215.56	215.51	215.49
23	216.18	216.16	216.16	216.17	216.13	216.05	215.87	215.69	215.61	215.55	215.48	215.52
24	216.18	216.16	216.16	216.17	216.15	216.05	215.87	215.69	215.59	215.53	215.48	215.52
25	216.18	216.13	216.17	216.16	216.13	216.05	215.85	215.69	215.59	215.53	215.51	[a]---
26	216.20	216.14	216.16	216.19	216.13	216.05	215.84	215.69	215.60	215.54	215.54	[a]---
27	216.19	216.17	216.17	216.19	216.12	216.04	215.84	215.69	215.60	215.55	215.51	[a]---
28	216.17	216.19	216.19	216.16	216.09	216.02	215.84	215.68	215.60	215.54	215.51	[a]---
29	216.16	---	216.20	216.19	216.10	216.01	215.83	215.67	215.59	215.54	215.50	[a]---
30	216.15	---	216.21	216.19	216.14	216.03	215.82	215.65	215.59	215.54	215.47	[a]---
31	216.17	---	216.20	---	216.13	---	215.82	215.65	---	215.52	---	[a]---
Max	216.20	216.23	216.21	216.21	216.20	216.13	216.02	215.82	215.66	215.59	215.55	215.52
Min	216.13	216.13	216.15	216.14	216.09	216.01	215.82	215.65	215.59	215.52	215.45	215.44

Year 2011 Statistics: **Year Max 216.23; Year Min 215.44**

Note: Water level in ft bgs

[a]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL 184W506M
(Map ID 224)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
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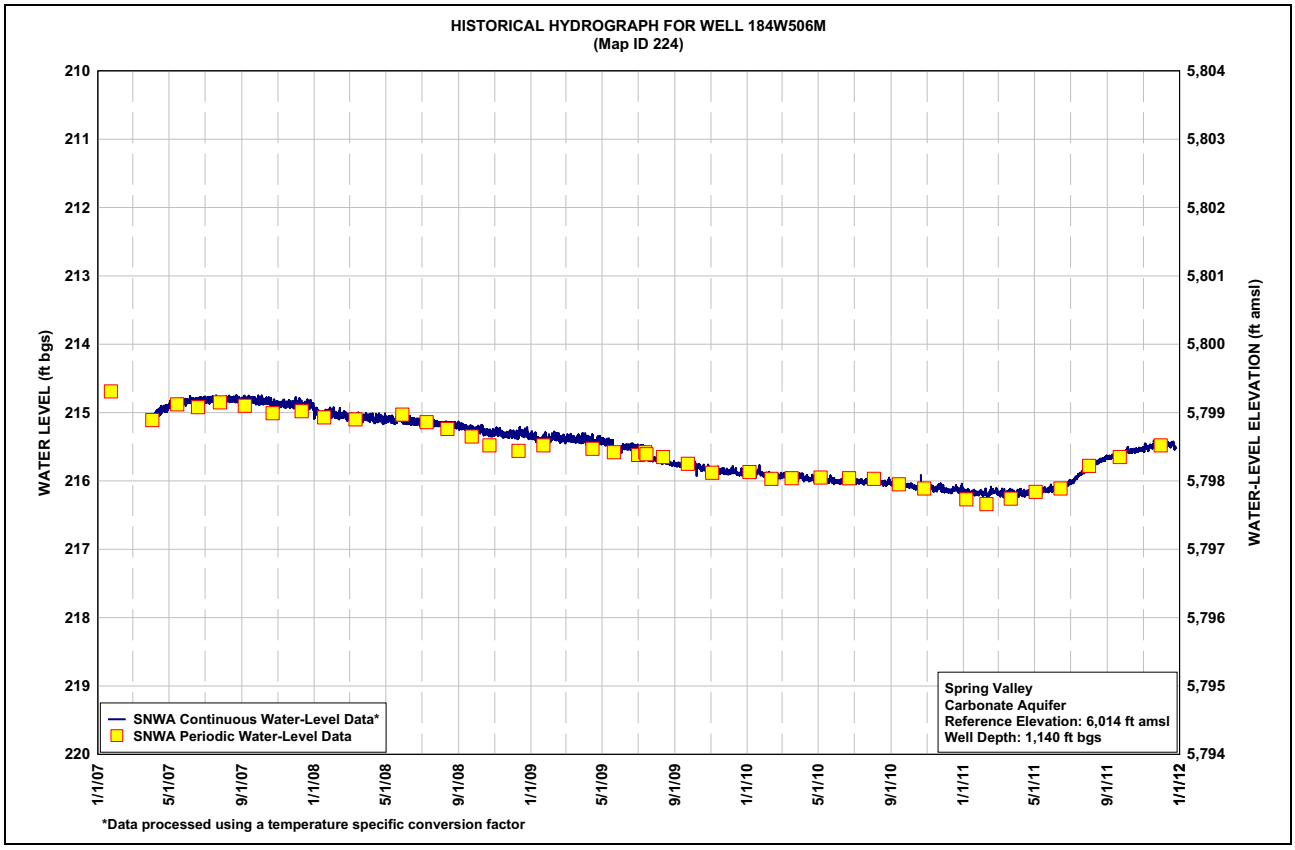
5,794
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,014 ft amsl
Well Depth: 1,140 ft bgs
*Data processed using a temperature specific conversion factor


HISTORICAL HYDROGRAPH FOR WELL 184W506M
(Map ID 224)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,804
5,803
5,802
5,801
5,800
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5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,014 ft amsl
Well Depth: 1,140 ft bgs
*Data processed using a temperature specific conversion factor

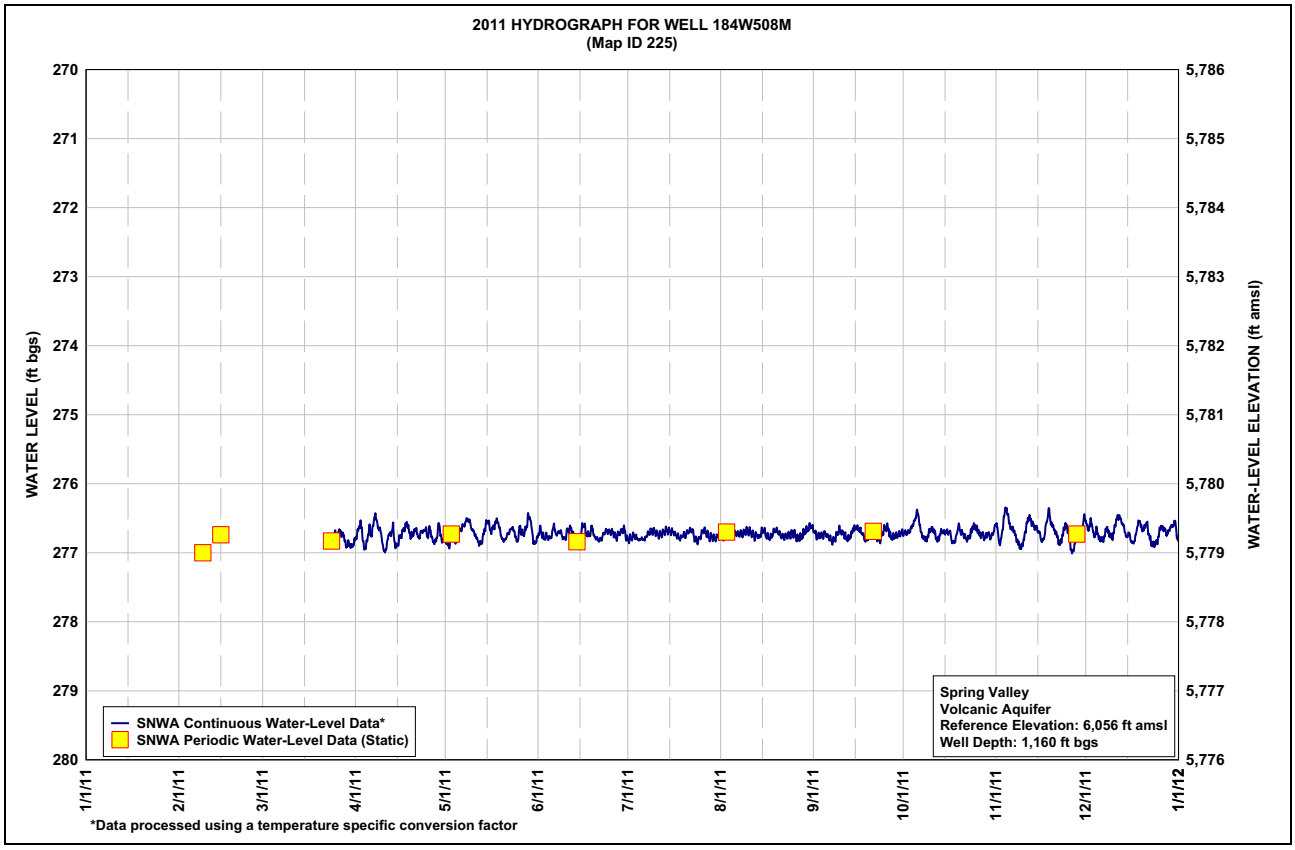
Table B-12
Spring Valley Well 184W508M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	[a]---	[a]---	[a]---	276.73	276.85	276.69	276.80	276.78	276.71	276.71	276.67	276.62
2	[a]---	[a]---	[a]---	276.61	276.86	276.75	276.77	276.75	276.77	276.71	276.83	276.58
3	[a]---	[a]---	[a]---	276.81	276.76	276.77	276.77	276.72	276.75	276.66	276.56	276.69
4	[a]---	[a]---	[a]---	276.89	276.83	276.78	276.81	276.69	276.74	276.57	276.39	276.70
5	[a]---	[a]---	[a]---	276.69	276.74	276.75	276.80	276.71	276.75	276.45	276.57	276.79
6	[a]---	[a]---	[a]---	276.69	276.64	276.65	276.80	276.72	276.79	276.59	276.65	276.81
7	[a]---	[a]---	[a]---	276.50	276.59	276.72	276.74	276.72	276.83	276.76	276.75	276.72
8	[a]---	[a]---	[a]---	276.61	276.53	276.71	276.69	276.72	276.77	276.80	276.86	276.69
9	[a]---	[a]---	[a]---	276.73	276.60	276.78	276.69	276.69	276.69	276.73	276.91	276.76
10	[a]---	[a]---	[a]---	276.95	276.70	276.73	276.72	276.69	276.70	276.66	276.76	276.67
11	[a]---	[a]---	[a]---	276.87	276.79	276.66	276.74	276.72	276.76	276.71	276.56	276.51
12	[a]---	[a]---	[a]---	276.73	276.86	276.71	276.72	276.76	276.79	276.80	276.52	276.51
13	[a]---	[a]---	[a]---	276.69	276.79	276.78	276.69	276.76	276.75	276.72	276.60	276.60
14	[a]---	[a]---	[a]---	276.89	276.61	276.84	276.68	276.72	276.65	276.70	276.65	276.75
15	[a]---	[a]---	[a]---	276.83	276.58	276.68	276.70	276.69	276.64	276.70	276.72	276.74
16	[a]---	[a]---	[a]---	276.73	276.67	276.63	276.72	276.76	276.67	276.71	276.82	276.85
17	[a]---	[a]---	[a]---	276.63	276.60	276.73	276.76	276.78	276.74	276.83	276.66	276.78
18	[a]---	[a]---	[a]---	276.62	276.56	276.70	276.79	276.72	276.81	276.80	276.44	276.59
19	[a]---	[a]---	[a]---	276.74	276.72	276.71	276.75	276.68	276.76	276.64	276.57	276.62
20	[a]---	[a]---	[a]---	276.71	276.82	276.79	276.73	276.71	276.72	276.71	276.67	276.64
21	[a]---	[a]---	[a]---	276.70	276.76	276.81	276.68	276.76	276.73	276.76	276.78	276.62
22	[a]---	[a]---	[a]---	276.75	276.69	276.77	276.69	276.77	276.79	276.80	276.85	276.79
23	[a]---	[a]---	[a]---	276.69	276.66	276.69	276.79	276.75	276.79	276.73	276.70	276.88
24	[a]---	[a]---	[b]---	276.68	276.77	276.69	276.82	276.73	276.68	276.63	276.63	276.85
25	[a]---	[a]---	276.74	276.71	276.74	276.70	276.74	276.73	276.64	276.65	276.78	276.72
26	[a]---	[a]---	276.70	276.77	276.69	276.74	276.68	276.78	276.72	276.72	276.97	276.64
27	[a]---	[a]---	276.73	276.84	276.70	276.76	276.73	276.78	276.77	276.74	276.84	276.68
28	[a]---	[a]---	276.83	276.68	276.54	276.71	276.78	276.73	276.76	276.77	276.73	276.70
29	[a]---	---	276.88	276.74	276.55	276.67	276.79	276.68	276.74	276.74	276.71	276.63
30	[a]---	---	276.90	276.82	276.82	276.77	276.78	276.64	276.71	276.76	276.52	276.58
31	[a]---	---	276.85	---	276.81	---	276.76	276.63	---	276.65	---	276.74
Max	---	---	276.90	276.95	276.86	276.84	276.82	276.78	276.83	276.83	276.97	276.88
Min	---	---	276.70	276.50	276.53	276.63	276.68	276.63	276.64	276.45	276.39	276.51

Year 2011 Statistics: **Year Max 276.97; Year Min 276.39**

Note: Water level in ft bgs

[a]Transducer removed in preparation for sampling.
[b]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR WELL 184W508M
(Map ID 225)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
270
271
272
273
274
275
276
277
278
279
280
5,786
5,785
5,784
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data (Static)
Spring Valley
Volcanic Aquifer
Reference Elevation: 6,056 ft amsl
Well Depth: 1,160 ft bgs
*Data processed using a temperature specific conversion factor

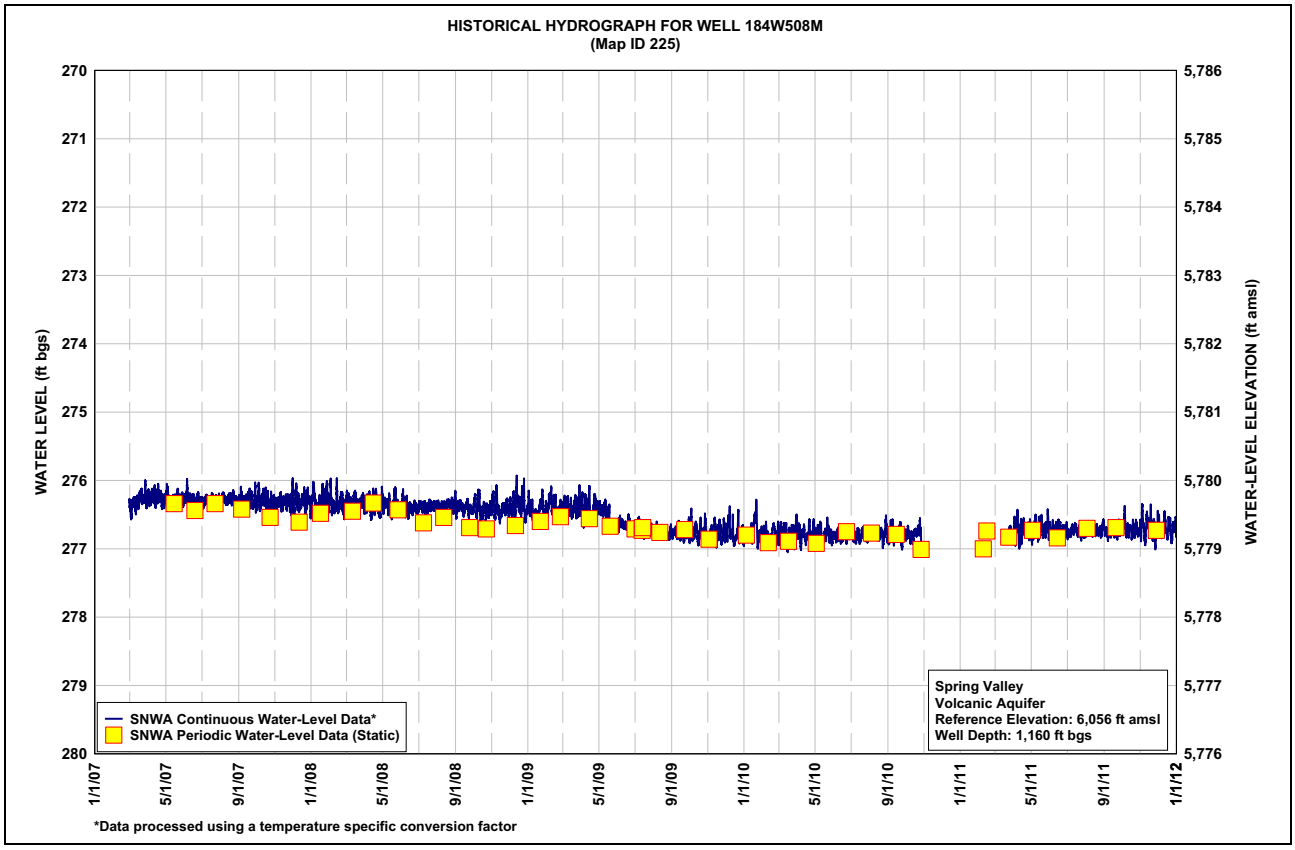
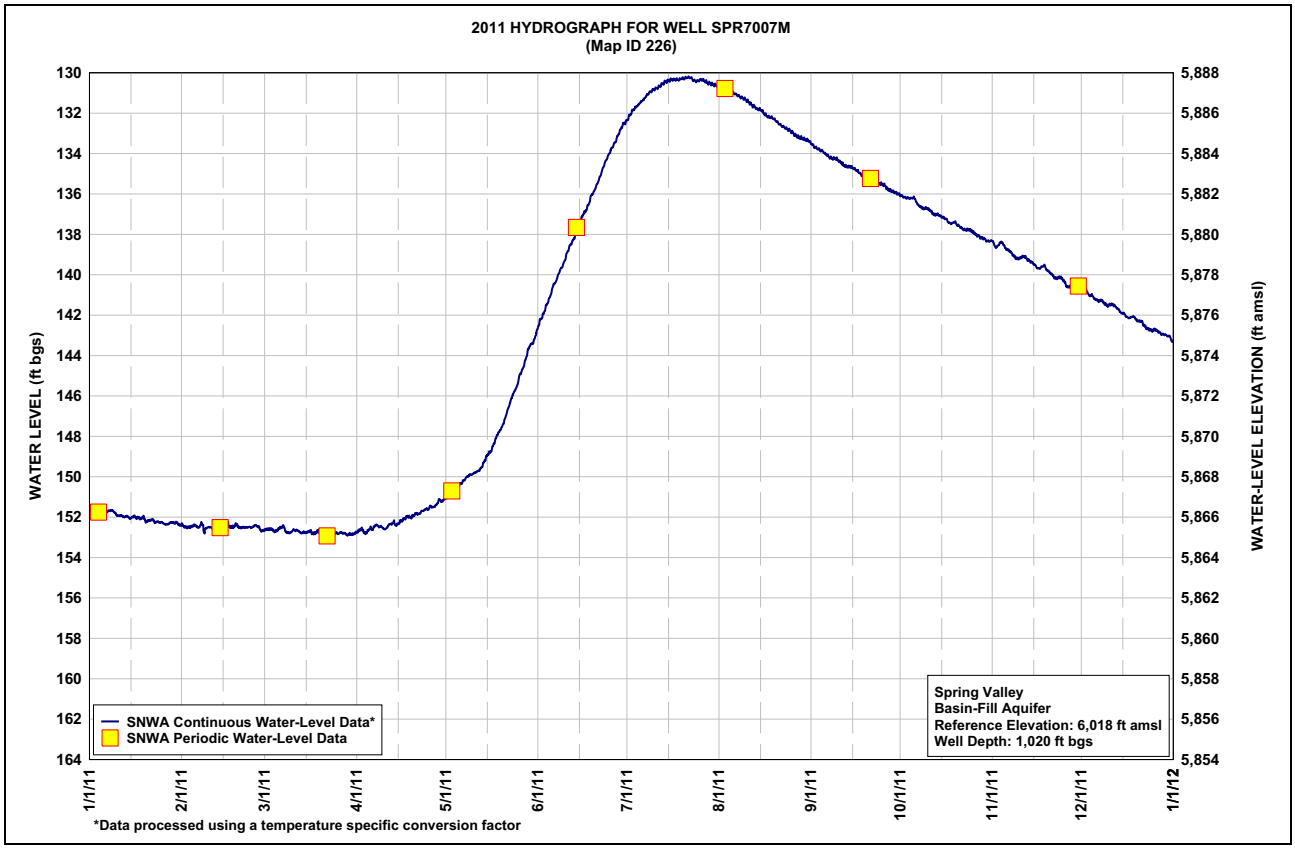

HISTORICAL HYDROGRAPH FOR WELL 184W508M
(Map ID 225)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
270
271
272
273
274
275
276
277
278
279
280
5,786
5,785
5,784
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
1/1/07
5/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data (Static)
Spring Valley
Volcanic Aquifer
Reference Elevation: 6,056 ft amsl
Well Depth: 1,160 ft bgs
*Data processed using a temperature specific conversion factor

Table B-13
Spring Valley Well SPR7007M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	151.64	152.41	152.61	152.69	151.01	142.38	132.23	130.73	133.57	136.09	138.44	140.76
2	151.60	152.49	152.59	152.60	150.89	142.06	131.98	130.77	133.70	136.17	138.62	140.79
3	151.64	152.49	152.62	152.74	150.71	141.68	131.78	130.81	133.78	136.20	138.46	140.97
4	151.72	152.45	152.70	152.72	150.65	141.31	131.64	130.86	133.86	136.21	138.45	141.02
5	151.77	152.41	152.61	152.56	150.45	140.89	131.48	130.96	133.97	136.20	138.67	141.19
6	151.77	152.49	152.51	152.56	150.28	140.46	131.34	131.05	134.08	136.40	138.78	141.27
7	151.69	152.37	152.51	152.40	150.12	140.16	131.15	131.14	134.20	136.59	138.93	141.28
8	151.67	152.59	152.75	152.47	149.96	139.78	130.99	131.22	134.24	136.69	139.09	141.37
9	151.78	152.53	152.77	152.50	149.89	139.50	130.88	131.29	134.26	136.71	139.19	141.49
10	151.92	152.50	152.66	152.58	149.82	139.08	130.80	131.39	134.38	136.75	139.16	141.49
11	151.92	152.55	152.65	152.45	149.74	138.68	130.72	131.52	134.50	136.87	139.10	141.48
12	151.98	152.52	152.70	152.34	149.63	138.38	130.61	131.65	134.61	137.01	139.18	141.57
13	151.96	152.46	152.78	152.29	149.40	138.10	130.50	131.75	134.65	137.01	139.31	141.72
14	152.04	152.45	152.75	152.37	149.07	137.79	130.43	131.81	134.67	137.09	139.40	141.89
15	152.00	152.43	152.73	152.24	148.84	137.32	130.37	131.89	134.75	137.16	139.54	141.94
16	152.00	152.33	152.72	152.14	148.62	136.96	130.34	132.06	134.85	137.25	139.68	142.10
17	152.02	152.48	152.80	152.03	148.25	136.71	130.34	132.17	134.99	137.42	139.63	142.12
18	152.05	152.46	152.73	151.98	147.89	136.32	130.34	132.21	135.12	137.45	139.57	142.08
19	152.09	152.38	152.73	151.99	147.64	135.97	130.29	132.29	135.15	137.41	139.77	142.22
20	152.19	152.51	152.73	151.88	147.31	135.67	130.28	132.42	135.21	137.56	139.90	142.29
21	152.15	152.51	152.74	151.83	146.85	135.31	130.24	132.56	135.31	137.67	140.05	142.36
22	152.17	152.51	152.87	151.77	146.40	134.91	130.25	132.66	135.43	137.76	140.17	142.56
23	152.24	152.49	152.78	151.67	145.97	134.50	130.37	132.74	135.50	137.77	140.14	142.68
24	152.25	152.51	152.77	151.60	145.66	134.17	130.41	132.83	135.50	137.79	140.19	142.74
25	152.27	152.43	152.80	151.53	145.20	133.85	130.36	132.93	135.55	137.88	140.39	142.73
26	152.35	152.45	152.76	151.50	144.79	133.57	130.35	133.07	135.71	138.01	140.59	142.77
27	152.34	152.60	152.79	151.43	144.39	133.28	130.43	133.16	135.81	138.09	140.56	142.87
28	152.27	152.66	152.85	151.21	143.85	132.93	130.52	133.22	135.88	138.18	140.58	142.95
29	152.28	---	152.84	151.20	143.48	132.62	130.56	133.27	135.95	138.24	140.66	142.99
30	152.29	---	152.84	151.10	143.31	132.45	130.61	133.33	136.01	138.33	140.59	143.04
31	152.39	---	152.78	---	142.87	---	130.65	133.41	---	138.32	---	143.26
Max	152.39	152.66	152.87	152.74	151.01	142.38	132.23	133.41	136.01	138.33	140.66	143.26
Min	151.60	152.33	152.51	151.10	142.87	132.45	130.24	130.73	133.57	136.09	138.44	140.76

Year 2011 Statistics: **Year Max 152.87; Year Min 130.24**

Note: Water level in ft bgs


2011 HYDROGRAPH FOR WELL SPR7007M
(Map ID 226)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
130
132
134
136
138
140
142
144
146
148
150
152
154
156
158
160
162
164
5,888
5,886
5,884
5,882
5,880
5,878
5,876
5,874
5,872
5,870
5,868
5,866
5,864
5,862
5,860
5,858
5,856
5,854
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs
*Data processed using a temperature specific conversion factor

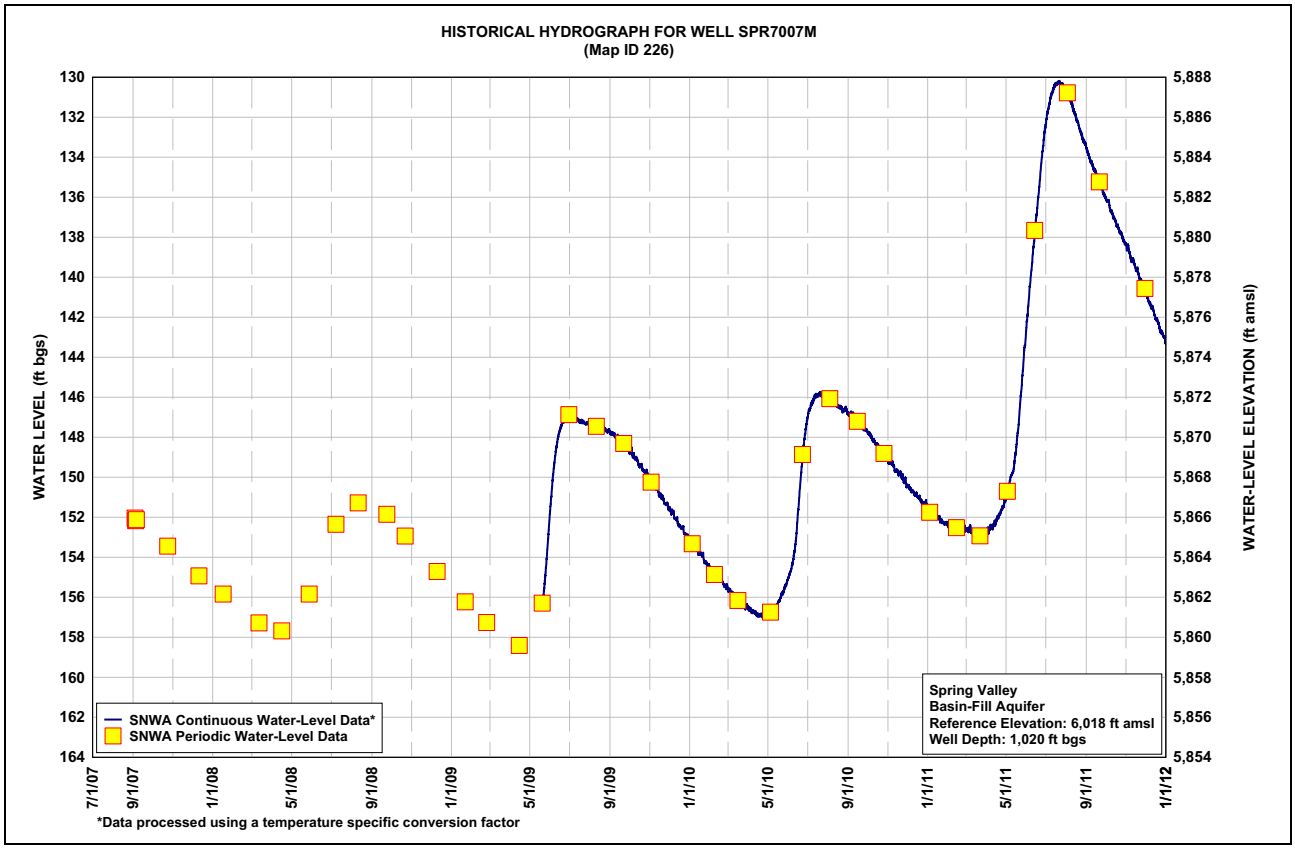
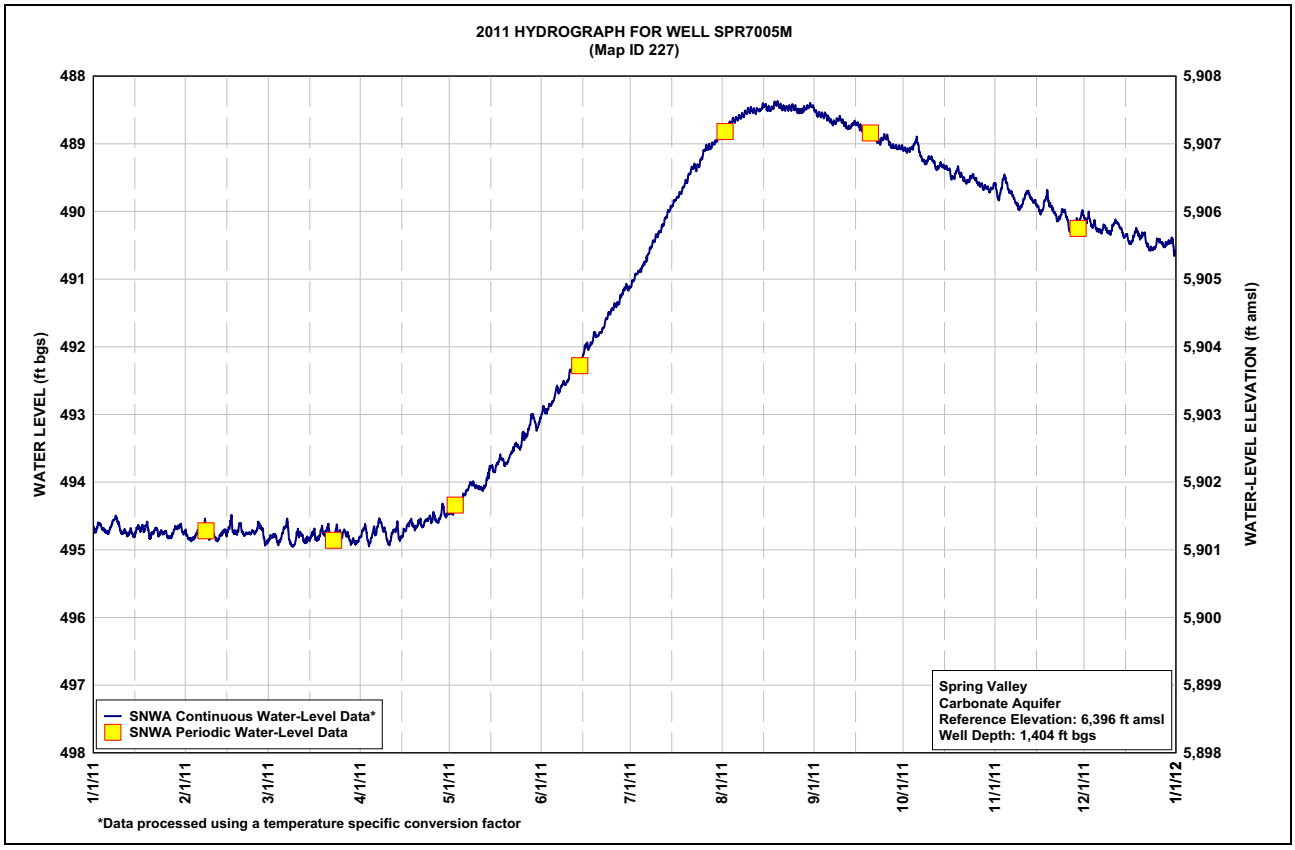

HISTORICAL HYDROGRAPH FOR WELL SPR7007M
(Map ID 226)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
130
132
134
136
138
140
142
144
146
148
150
152
154
156
158
160
162
164
5,888
5,886
5,884
5,882
5,880
5,878
5,876
5,874
5,872
5,870
5,868
5,866
5,864
5,862
5,860
5,858
5,856
5,854
7/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs
*Data processed using a temperature specific conversion factor

Table B-14
Spring Valley Well SPR7005M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	494.71	494.77	494.83	494.76	494.45	492.94	491.07	488.84	488.53	489.08	489.69	490.13
2	494.65	494.84	494.80	494.67	494.42	492.95	490.98	488.77	488.57	489.10	489.78	490.08
3	494.64	494.84	494.81	494.84	494.33	492.89	490.91	488.71	488.58	489.09	489.59	490.20
4	494.70	494.79	494.89	494.86	494.36	492.84	490.87	488.66	488.58	489.04	489.52	490.19
5	494.74	494.73	494.80	494.72	494.24	492.74	490.78	488.64	488.61	488.96	489.67	490.28
6	494.71	494.80	494.68	494.72	494.16	492.63	490.71	488.62	488.66	489.10	489.73	490.29
7	494.59	494.67	494.65	494.58	494.08	492.62	490.58	488.59	488.69	489.23	489.82	490.24
8	494.53	494.73	494.90	494.67	494.02	492.54	490.48	488.56	488.67	489.27	489.91	490.26
9	494.61	494.82	494.94	494.75	494.04	492.53	490.40	488.52	488.63	489.22	489.94	490.31
10	494.74	494.79	494.80	494.90	494.07	492.41	490.33	488.50	488.67	489.22	489.86	490.25
11	494.73	494.84	494.77	494.81	494.09	492.31	490.26	488.51	488.72	489.29	489.74	490.16
12	494.77	494.82	494.81	494.72	494.09	492.30	490.15	488.52	488.76	489.36	489.75	490.18
13	494.73	494.75	494.87	494.68	493.99	492.28	490.04	488.50	488.74	489.31	489.83	490.26
14	494.79	494.73	494.84	494.83	493.83	492.24	489.96	488.46	488.70	489.33	489.87	490.36
15	494.72	494.71	494.79	494.75	493.79	492.06	489.88	488.44	488.71	489.35	489.94	490.37
16	494.68	494.59	494.76	494.68	493.81	491.98	489.82	488.49	488.76	489.39	490.01	490.46
17	494.68	494.74	494.84	494.61	493.71	491.98	489.76	488.49	488.82	489.49	489.90	490.40
18	494.68	494.73	494.76	494.60	493.64	491.88	489.69	488.44	488.89	489.47	489.77	490.29
19	494.70	494.63	494.74	494.67	493.71	491.84	489.59	488.41	488.86	489.38	489.90	490.35
20	494.79	494.76	494.73	494.62	493.71	491.81	489.51	488.44	488.86	489.46	489.97	490.36
21	494.72	494.76	494.71	494.61	493.61	491.76	489.40	488.47	488.90	489.52	490.06	490.37
22	494.72	494.76	494.85	494.62	493.52	491.65	489.34	488.48	488.95	489.56	490.11	490.51
23	494.76	494.74	494.76	494.56	493.45	491.54	489.35	488.47	488.96	489.52	490.02	490.55
24	494.75	494.74	494.73	494.54	493.48	491.48	489.29	488.46	488.91	489.48	490.01	490.55
25	494.75	494.65	494.78	494.52	493.37	491.41	489.16	488.47	488.90	489.53	490.14	490.46
26	494.82	494.67	494.73	494.56	493.33	491.38	489.07	488.51	489.00	489.60	490.28	490.44
27	494.78	494.81	494.78	494.56	493.26	491.31	489.06	488.52	489.04	489.62	490.18	490.48
28	494.69	494.89	494.86	494.41	493.09	491.20	489.03	488.49	489.05	489.65	490.14	490.50
29	494.67	---	494.87	494.46	493.05	491.12	488.99	488.47	489.06	489.66	490.14	490.46
30	494.66	---	494.89	494.47	493.19	491.14	488.93	488.44	489.06	489.69	490.03	490.43
31	494.74	---	494.85	---	493.09	---	488.86	488.45	---	489.62	---	490.58
Max	494.82	494.89	494.94	494.90	494.45	492.95	491.07	488.84	489.06	489.69	490.28	490.58
Min	494.53	494.59	494.65	494.41	493.05	491.12	488.86	488.41	488.53	488.96	489.52	490.08

Year 2011 Statistics: **Year Max 494.94; Year Min 488.41**

Note: Water level in ft bgs


2011 HYDROGRAPH FOR WELL SPR7005M
(Map ID 227)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
488
489
490
491
492
493
494
495
496
497
498
5,908
5,907
5,906
5,905
5,904
5,903
5,902
5,901
5,900
5,899
5,898
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,396 ft amsl
Well Depth: 1,404 ft bgs
*Data processed using a temperature specific conversion factor

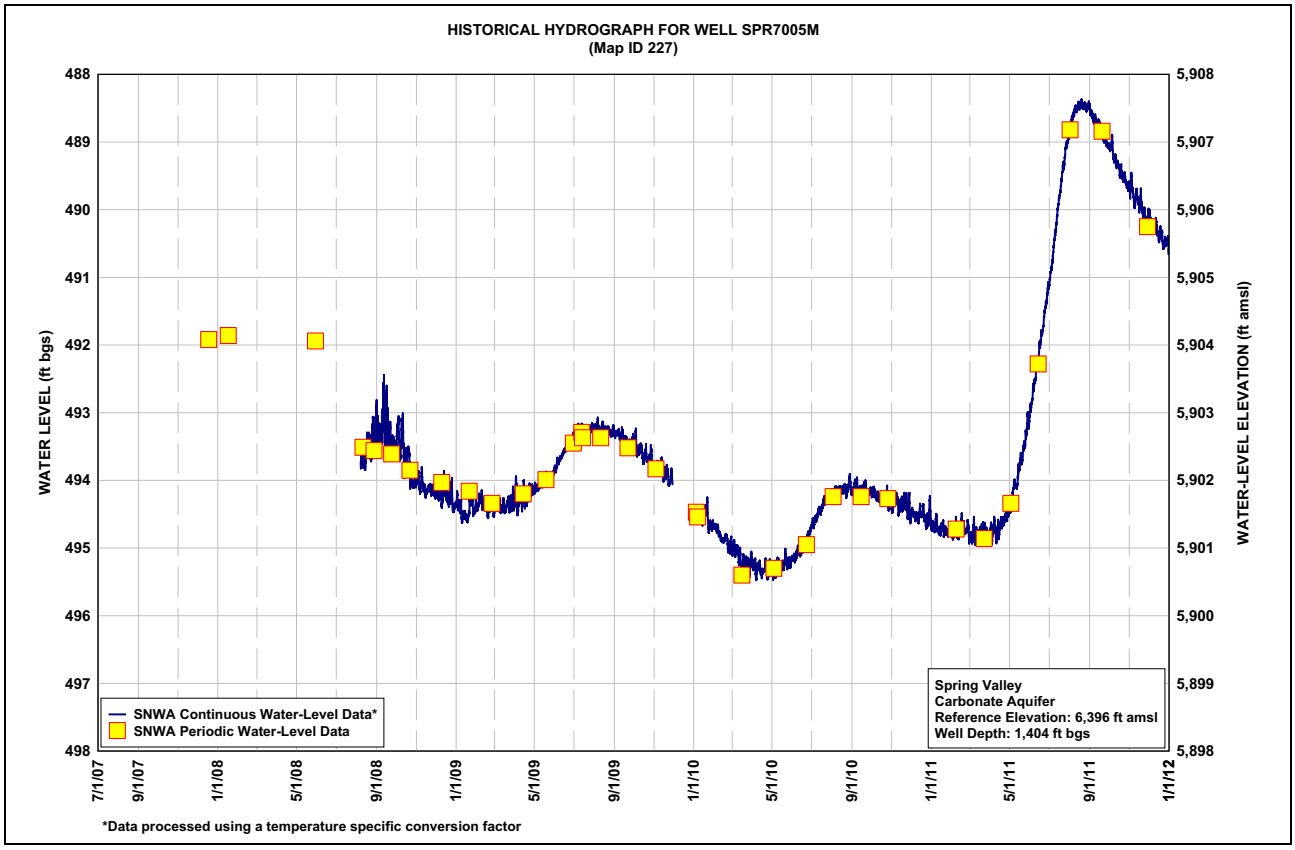

HISTORICAL HYDROGRAPH FOR WELL SPR7005M
(Map ID 227)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
488
489
490
491
492
493
494
495
496
497
498
5,908
5,907
5,906
5,905
5,904
5,903
5,902
5,901
5,900
5,899
5,898
7/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,396 ft amsl
Well Depth: 1,404 ft bgs
*Data processed using a temperature specific conversion factor

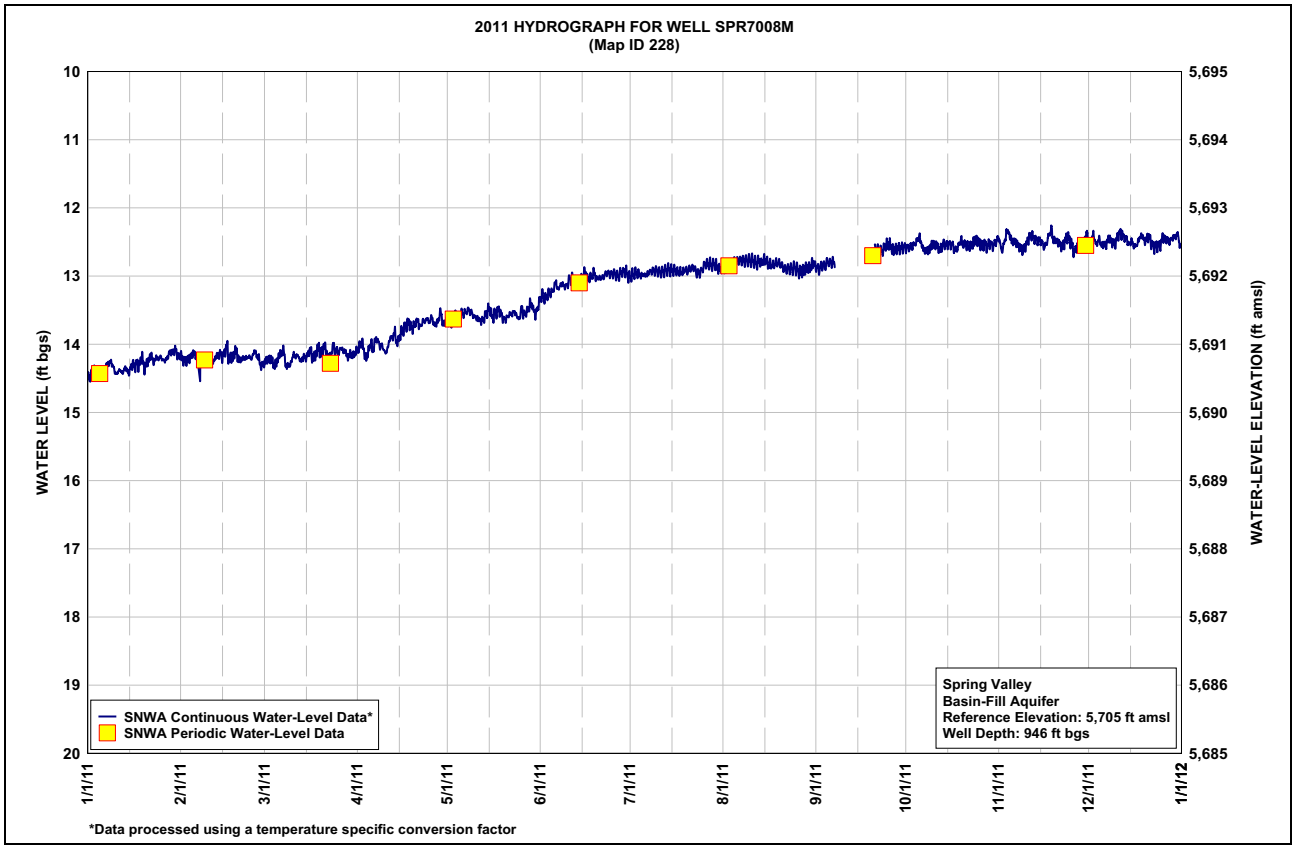
Table B-15
Spring Valley Well SPR7008M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14.48	14.20	14.24	14.05	13.69	13.30	12.99	12.90	12.88	12.58	12.53	12.49
2	14.40	14.24	14.22	13.99	13.66	13.33	12.97	12.85	12.87	12.58	12.57	12.42
3	14.39	14.22	14.24	14.15	13.61	13.28	12.97	12.82	12.85	12.56	12.40	12.51
4	14.41	14.17	14.30	14.13	13.66	13.25	12.99	12.78	12.82	12.50	12.39	12.48
5	14.44	14.14	14.21	14.02	13.58	13.18	12.98	12.78	12.81	12.45	12.49	12.54
6	14.39	14.20	14.13	14.03	13.55	13.14	12.98	12.77	12.80	12.56	12.50	12.54
7	14.31	14.22	14.14	13.93	13.52	13.15	12.94	12.77	[a]---	12.62	12.55	12.47
8	14.26	14.22	14.31	14.02	13.51	13.12	12.92	12.78	[b]---	12.62	12.60	12.49
9	14.33	14.24	14.29	14.05	13.57	13.15	12.92	12.77	[b]---	12.56	12.60	12.51
10	14.42	14.21	14.18	14.11	13.61	13.07	12.94	12.77	[b]---	12.54	12.51	12.45
11	14.39	14.25	14.18	13.98	13.63	13.04	12.94	12.79	[b]---	12.57	12.41	12.37
12	14.41	14.21	14.20	13.90	13.65	13.07	12.92	12.81	[b]---	12.60	12.42	12.41
13	14.36	14.17	14.23	13.86	13.60	13.08	12.91	12.80	[b]---	12.54	12.47	12.45
14	14.40	14.16	14.19	13.95	13.51	13.08	12.91	12.78	[b]---	12.54	12.47	12.52
15	14.34	14.14	14.14	13.85	13.53	12.98	12.92	12.78	[b]---	12.53	12.52	12.51
16	14.31	14.08	14.13	13.78	13.58	12.99	12.93	12.84	[b]---	12.54	12.55	12.56
17	14.29	14.20	14.18	13.71	13.53	13.03	12.94	12.84	[b]---	12.61	12.44	12.50
18	14.27	14.17	14.10	13.71	13.52	12.98	12.94	12.82	[b]---	12.57	12.36	12.42
19	14.26	14.11	14.10	13.76	13.61	13.01	12.92	12.81	[b]---	12.49	12.47	12.47
20	14.29	14.22	14.07	13.69	13.62	13.03	12.91	12.85	[a]---	12.54	12.50	12.45
21	14.22	14.21	14.08	13.70	13.58	13.03	12.89	12.89	12.61	12.56	12.54	12.46
22	14.21	14.20	14.17	13.70	13.55	12.99	12.89	12.89	12.63	12.57	12.55	12.56
23	14.23	14.19	14.09	13.66	13.54	12.96	12.95	12.89	12.61	12.52	12.46	12.56
24	14.21	14.20	14.08	13.65	13.60	12.97	12.94	12.88	12.56	12.48	12.46	12.54
25	14.20	14.13	14.11	13.63	13.53	12.96	12.86	12.90	12.55	12.51	12.55	12.47
26	14.24	14.17	14.06	13.69	13.55	12.99	12.83	12.94	12.61	12.55	12.62	12.45
27	14.20	14.27	14.10	13.68	13.52	12.98	12.83	12.93	12.61	12.54	12.52	12.48
28	14.13	14.29	14.16	13.57	13.44	12.94	12.84	12.89	12.60	12.55	12.50	12.46
29	14.11	---	14.15	13.67	13.46	12.94	12.84	12.88	12.59	12.53	12.48	12.43
30	14.11	---	14.16	13.68	13.54	13.00	12.89	12.85	12.58	12.53	12.40	12.40
31	14.17	---	14.11	---	13.42	---	12.89	12.83	---	12.47	---	12.54
Max	14.48	14.29	14.31	14.15	13.69	13.33	12.99	12.94	12.88	12.62	12.62	12.56
Min	14.11	14.08	14.06	13.57	13.42	12.94	12.83	12.77	12.55	12.45	12.36	12.37

Year 2011 Statistics: **Year Max 14.48; Year Min 12.36**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.
[b]No data available due to data logger malfunction.


2011 HYDROGRAPH FOR WELL SPR7008M
(Map ID 228)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,695
5,694
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,705 ft amsl
Well Depth: 946 ft bgs
*Data processed using a temperature specific conversion factor

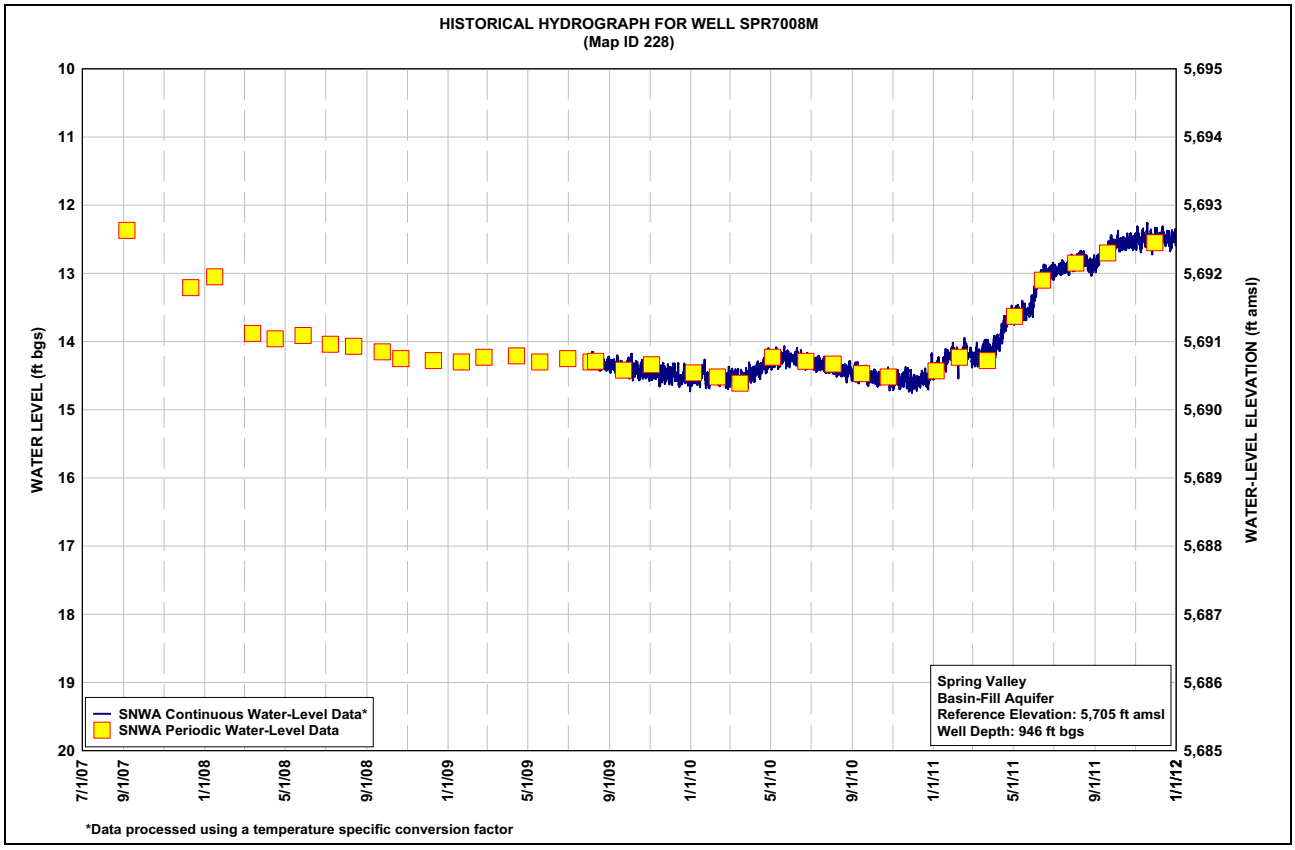

HISTORICAL HYDROGRAPH FOR WELL SPR7008M
(Map ID 228)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,695
5,694
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
7/1/07
9/1/07
1/1/08
5/1/08
9/1/08
1/1/09
5/1/09
9/1/09
1/1/10
5/1/10
9/1/10
1/1/11
5/1/11
9/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,705 ft amsl
Well Depth: 946 ft bgs
*Data processed using a temperature specific conversion factor

Table B-16
Spring Valley Well SPR7024M, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	18.71	18.01	17.83	17.55	17.26
2	---	---	---	---	---	---	---	18.67	18.02	17.82	17.58	17.24
3	---	---	---	---	---	---	---	18.62	18.02	17.80	17.49	17.26
4	---	---	---	---	---	---	---	18.56	18.01	17.74	17.45	17.25
5	---	---	---	---	---	---	---	18.52	18.02	17.71	17.49	17.27
6	---	---	---	---	---	---	---	18.48	18.03	17.74	17.50	17.26
7	---	---	---	---	---	---	---	18.44	18.04	17.78	17.51	17.23
8	---	---	---	---	---	---	---	18.40	18.03	17.78	17.53	17.22
9	---	---	---	---	---	---	---	18.36	18.01	17.75	17.53	17.23
10	---	---	---	---	---	---	---	18.32	18.02	17.73	17.48	17.19
11	---	---	---	---	---	---	---	18.29	18.03	17.74	17.42	17.14
12	---	---	---	---	---	---	---	18.27	18.03	17.75	17.41	17.14
13	---	---	---	---	---	---	---	18.23	18.01	17.72	17.42	17.15
14	---	---	---	---	---	---	---	18.21	17.97	17.71	17.42	17.18
15	---	---	---	---	---	---	---	18.18	17.96	17.70	17.43	17.17
16	---	---	---	---	---	---	---	18.19	17.95	17.69	17.44	17.19
17	---	---	---	---	---	---	---	18.17	17.95	17.72	17.39	17.16
18	---	---	---	---	---	---	---	18.15	17.96	17.70	17.33	17.10
19	---	---	---	---	---	---	[a]---	18.12	17.93	17.65	17.36	17.11
20	---	---	---	---	---	---	19.26	18.12	17.91	17.66	17.37	17.10
21	---	---	---	---	---	---	19.18	18.12	17.91	17.67	17.39	17.09
22	---	---	---	---	---	---	19.12	18.10	17.91	17.66	17.39	17.12
23	---	---	---	---	---	---	19.10	18.09	17.90	17.64	17.35	17.14
24	---	---	---	---	---	---	19.06	18.08	17.87	17.60	17.32	17.13
25	---	---	---	---	---	---	18.98	18.07	17.85	17.60	17.36	17.08
26	---	---	---	---	---	---	18.89	18.06	17.87	17.61	17.40	17.06
27	---	---	---	---	---	---	18.83	18.06	17.87	17.61	17.35	17.06
28	---	---	---	---	---	---	18.84	18.03	17.86	17.60	17.32	17.05
29	---	---	---	---	---	---	18.82	18.01	17.85	17.59	17.31	17.02
30	---	---	---	---	---	---	18.78	18.00	17.83	17.58	17.24	17.00
31	---	---	---	---	---	---	18.74	17.99	---	17.55	---	17.04
Max	---	---	---	---	---	---	19.26	18.71	18.04	17.83	17.58	17.27
Min	---	---	---	---	---	---	18.74	17.99	17.83	17.55	17.24	17.00

Year 2011 Statistics: **Year Max 19.26; Year Min 17.00**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.

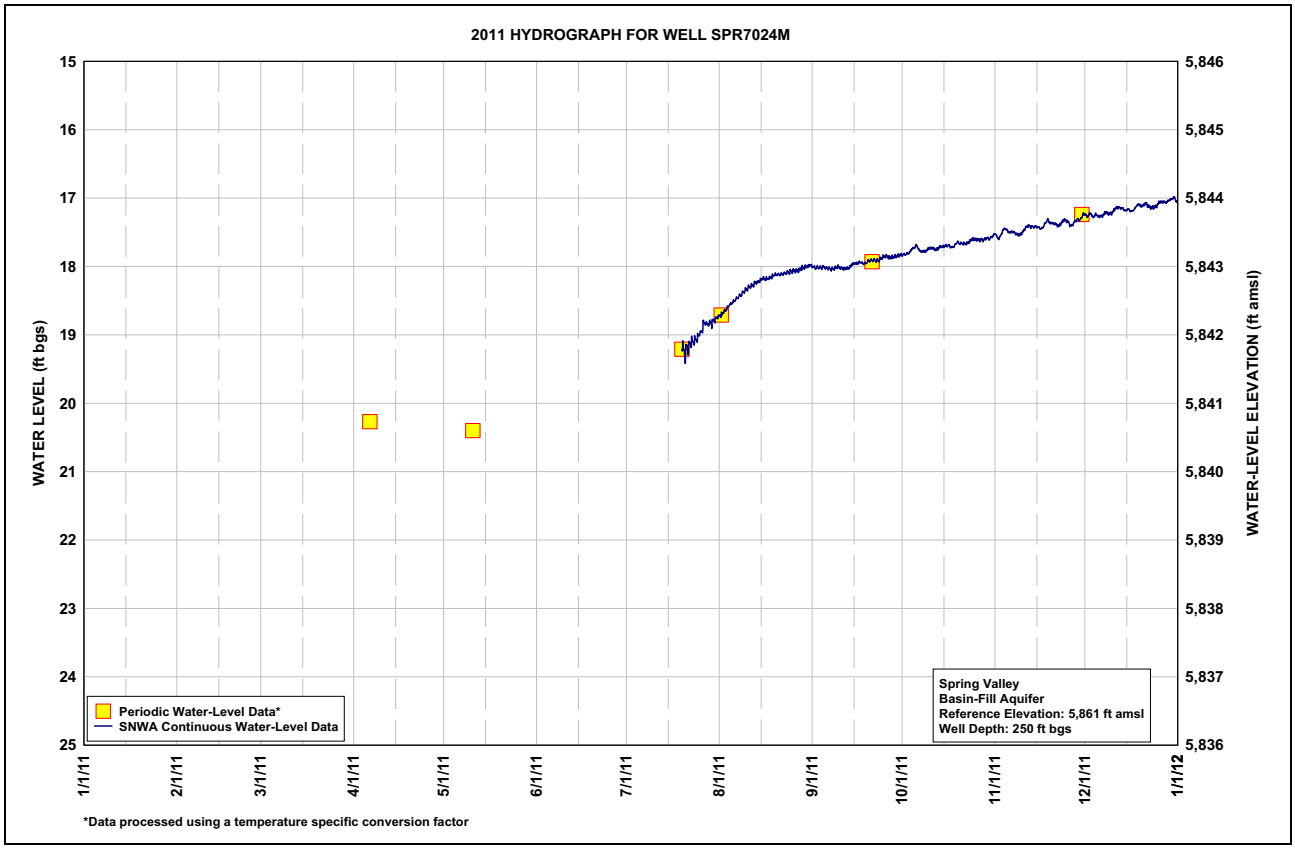

2011 HYDROGRAPH FOR WELL SPR7024M
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
15
16
17
18
19
20
21
22
23
24
25
5,846
5,845
5,844
5,843
5,842
5,841
5,840
5,839
5,838
5,837
5,836
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data*
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,861 ft amsl
Well Depth: 250 ft bgs
*Data processed using a temperature specific conversion factor

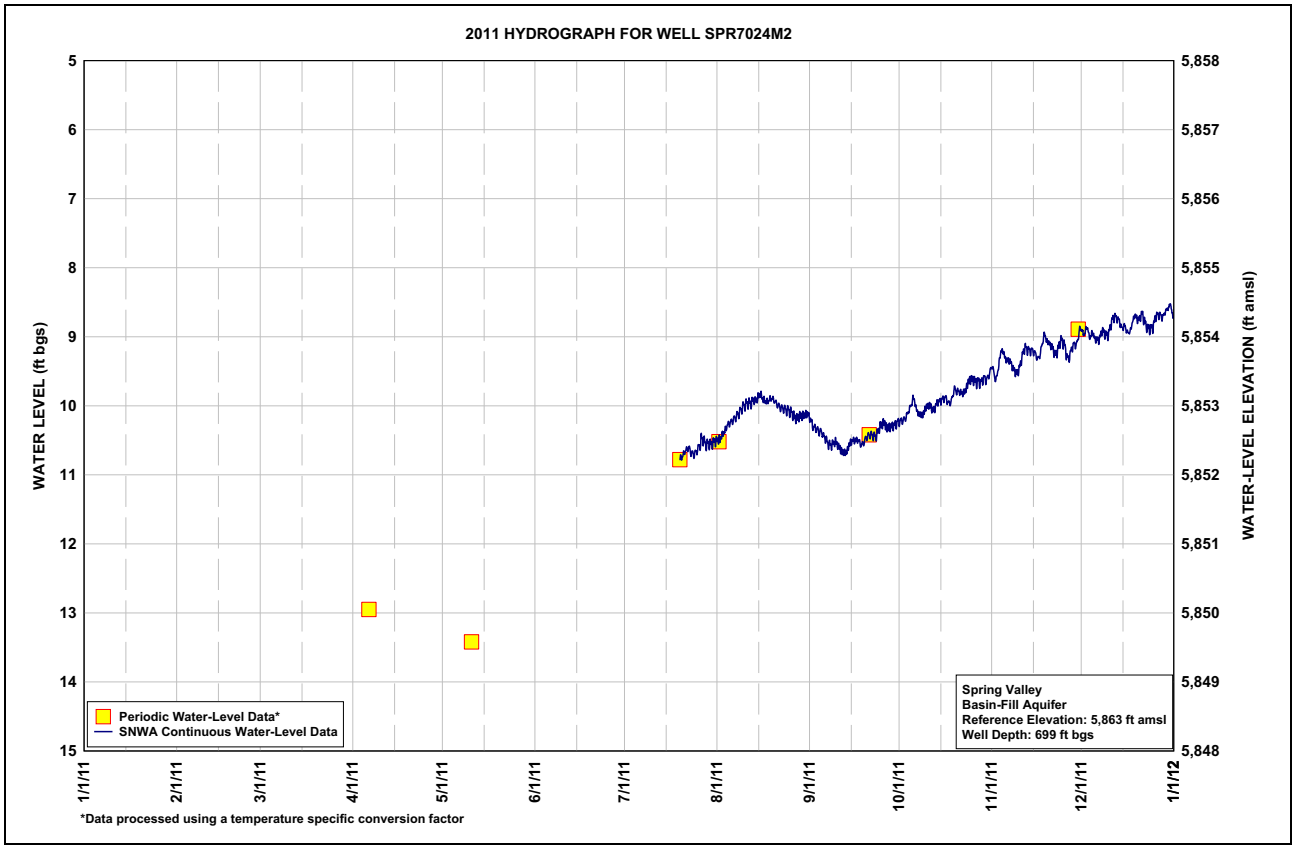
Table B-17
Spring Valley Well SPR7024M2, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	10.49	10.22	10.22	9.48	8.94
2	---	---	---	---	---	---	---	10.45	10.31	10.20	9.59	8.91
3	---	---	---	---	---	---	---	10.37	10.34	10.15	9.38	8.95
4	---	---	---	---	---	---	---	10.29	10.38	10.05	9.21	8.97
5	---	---	---	---	---	---	---	10.24	10.42	9.93	9.30	9.02
6	---	---	---	---	---	---	---	10.20	10.49	9.99	9.34	9.04
7	---	---	---	---	---	---	---	10.15	10.56	10.11	9.39	8.98
8	---	---	---	---	---	---	---	10.10	10.56	10.13	9.48	8.93
9	---	---	---	---	---	---	---	10.03	10.53	10.07	9.52	8.97
10	---	---	---	---	---	---	---	9.98	10.58	10.01	9.41	8.90
11	---	---	---	---	---	---	---	9.96	10.64	10.01	9.24	8.75
12	---	---	---	---	---	---	---	9.95	10.67	10.06	9.17	8.71
13	---	---	---	---	---	---	---	9.92	10.65	9.98	9.19	8.76
14	---	---	---	---	---	---	---	9.89	10.55	9.94	9.20	8.85
15	---	---	---	---	---	---	---	9.84	10.51	9.91	9.24	8.85
16	---	---	---	---	---	---	---	9.91	10.50	9.89	9.31	8.93
17	---	---	---	---	---	---	---	9.94	10.52	9.95	9.20	8.90
18	---	---	---	---	---	---	---	9.92	10.56	9.92	9.01	8.75
19	---	---	---	---	---	---	[a]---	9.90	10.50	9.78	9.06	8.73
20	---	---	---	---	---	---	10.73	9.94	10.44	9.79	9.11	8.74
21	---	---	---	---	---	---	10.65	10.00	10.42	9.81	9.18	8.69
22	---	---	---	---	---	---	10.62	10.03	10.44	9.81	9.24	8.80
23	---	---	---	---	---	---	10.68	10.05	10.42	9.75	9.14	8.88
24	---	---	---	---	---	---	10.70	10.07	10.32	9.64	9.06	8.87
25	---	---	---	---	---	---	10.63	10.09	10.26	9.62	9.14	8.78
26	---	---	---	---	---	---	10.53	10.14	10.29	9.64	9.30	8.69
27	---	---	---	---	---	---	10.51	10.18	10.32	9.65	9.22	8.69
28	---	---	---	---	---	---	10.56	10.16	10.29	9.65	9.12	8.70
29	---	---	---	---	---	---	10.55	10.14	10.28	9.60	9.09	8.62
30	---	---	---	---	---	---	10.54	10.13	10.24	9.60	8.92	8.56
31	---	---	---	---	---	---	10.51	10.13	---	9.50	---	8.66
Max	---	---	---	---	---	---	10.73	10.49	10.67	10.22	9.59	9.04
Min	---	---	---	---	---	---	10.51	9.84	10.22	9.50	8.92	8.56

Year 2011 Statistics: **Year Max 10.73; Year Min 8.56**

Note: Water level in ft bgs

[a]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR WELL SPR7024M2
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
5
6
7
8
9
10
11
12
13
14
15
5,858
5,857
5,856
5,855
5,854
5,853
5,852
5,851
5,850
5,849
5,848
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data*
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,863 ft amsl
Well Depth: 699 ft bgs
*Data processed using a temperature specific conversion factor

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Appendix C

Spring-Monitoring Program
Hydrologic and Field Chemistry Data

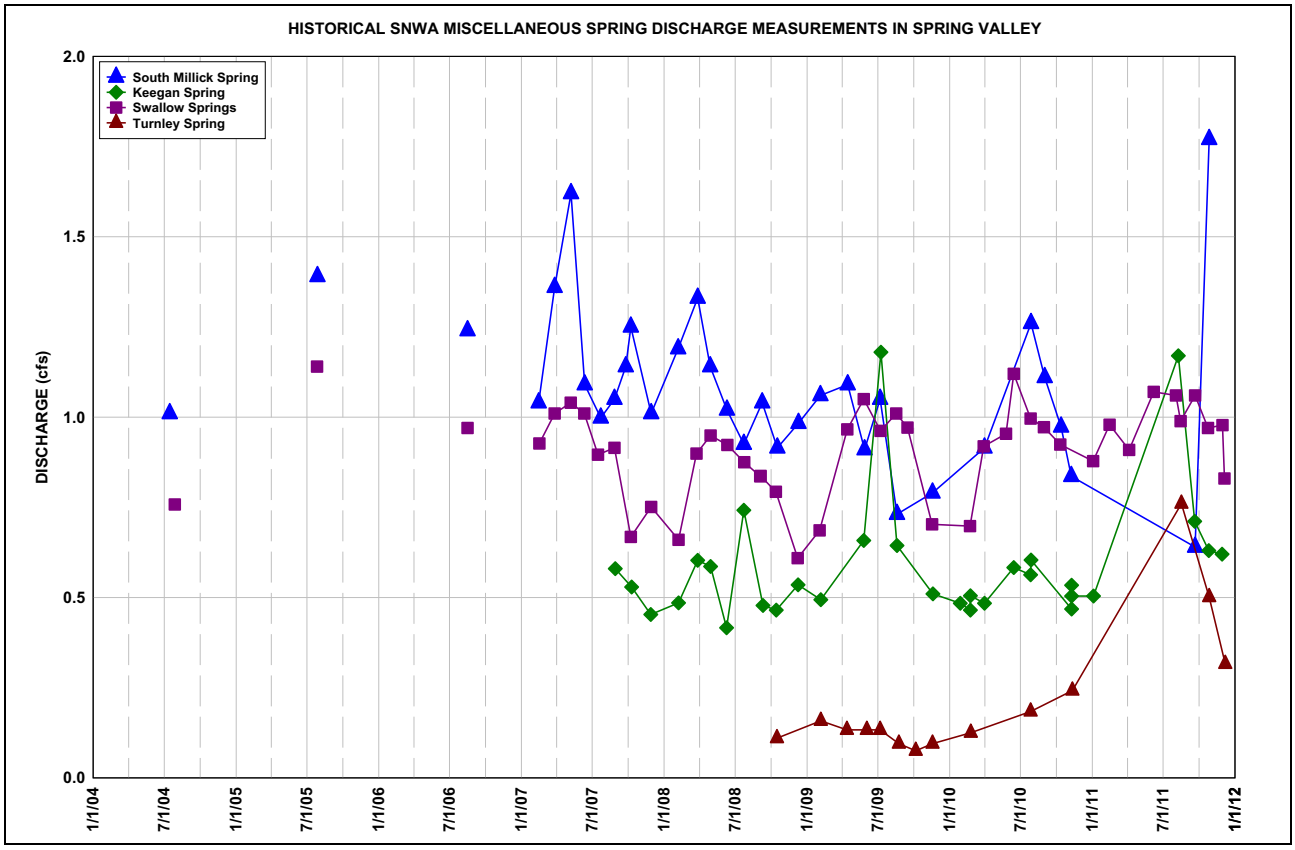
Table C-1
Spring Valley Miscellaneous Discharge Data
(Page 1 of 2)

Spring Number	Spring Name	Date	Time	Discharge[a] (gpm)	Discharge[a] (cfs)	Measurement Rated as: (E, G, F, P)[b]	Water Temp (°C)	Air Temp (°C)	Electrical Conductivity	pH	Method[c]	Remarks	Data Source
1845501	Willow Spring	9/20/2011	14:30	4.9	0.01	E	---	---	---	---	F	---	SNWA
		10/24/2011	14:38	6.7	0.02	E	12.7	---	510	7.55	F	---	SNWA
		11/29/2011	14:20	6.7	0.02	E	---	---	---	---	F	---	SNWA
1845702	South Millick Spring	9/21/2011	9:28	287	0.64	P	---	27	---	---	C	---	SNWA
		10/27/2011	9:31	794	1.8	P	10.8	10	319	7.72	C	---	SNWA
1845901	Layton Spring	7/19/2011	10:47	0.0	0.0	E	---	---	---	---	---	Dry, nearby site appears to have new well and water tank.	SNWA
		8/3/2011	12:07	0.0	0.0	E	---	---	---	---	---	Dry.	SNWA
		9/20/2011	16:50	0.0	0.0	E	---	---	---	---	---	Dry, possible nearby pumping.	SNWA
		10/27/2011	8:18	0.0	0.0	E	---	---	---	---	---	Dry, gravel quarry east of site is operating.	SNWA
		11/30/2011	8:30	0.0	0.0	E	---	---	---	---	---	Dry.	SNWA
1846201	Swallow Springs	1/3/2011	15:07	394	0.88	P	---	---	---	---	M	Sum of all channels.	SNWA
		2/14/2011	15:30	439	0.98	P	---	---	---	---	M	Sum of all channels.	SNWA
		4/5/2011	14:45	408	0.91	P	---	---	---	---	M	Sum of all channels.	SNWA
		6/7/2011	11:16	480	1.1	P	---	---	---	---	M	Sum of all channels.	SNWA
		8/3/2011	14:20	476	1.1	F	---	---	---	---	F	Sum of all channels.	SNWA
		8/15/2011	15:09	444	0.99	F	---	---	---	---	M	Sum of all channels.	SNWA
		9/21/2011	12:41	476	1.1	G	---	---	---	---	F	Sum of all channels.	SNWA
		10/24/2011	17:33	435	0.97	P	---	---	---	---	M	Sum of all channels.	SNWA
		11/30/2011	12:40	439	0.98	G	---	---	---	---	F	Sum of all channels.	SNWA
		12/5/2011	12:40	373	0.83	P	---	---	---	---	M	Sum of all channels.	SNWA
1847101	Keegan Spring	1/4/2011	11:42	226	0.50	G	---	---	---	---	F	---	SNWA
		8/9/2011	11:45	525	1.2	G	---	---	---	---	F	---	SNWA
		9/20/2011	13:16	319	0.71	E	---	---	---	---	F	---	SNWA
		10/26/2011	11:31	283	0.63	P	11.1	---	91	7.00	C	---	SNWA
		11/29/2011	12:50	281	0.62	E	---	---	---	---	F	---	SNWA
1847201	Minerva Spring	10/24/2011	13:50	1,683	3.8	P	11.8	22	264	7.23	M	Sum of north, south, and west channels.	SNWA

Table C-1
Spring Valley Miscellaneous Discharge Data
(Page 2 of 2)

Spring Number	Spring Name	Date	Time	Discharge[a] (gpm)	Discharge[a] (cfs)	Measurement Rated as: (E, G, F, P)[b]	Water Temp (°C)	Air Temp (°C)	Electrical Conductivity	pH	Method[c]	Remarks	Data Source
1847301	Rock Spring	2/16/2011	13:59	22.9	0.05	E	8.8	---	458	7.80	F	---	SNWA
		4/5/2011	16:20	22.9	0.05	E	---	---	---	---	F	---	SNWA
		6/6/2011	19:10	28.3	0.06	G	10.9	---	---	7.23	F	---	SNWA
		6/21/2011	12:18	25.6	0.06	E	19	29	606	---	F	---	SNWA
		8/3/2011	11:03	25.6	0.06	E	---	---	---	---	F	---	SNWA
		8/17/2011	14:40	22.9	0.05	E	16.9	---	625	7.72	F	---	SNWA
		9/21/2011	14:40	20.6	0.05	E	---	---	---	---	F	---	SNWA
		10/26/2011	18:03	22.9	0.05	E	9.2	---	755	8.12	F	---	SNWA
		12/7/2011	11:51	20.6	0.05	E	11	3	555	8.38	F	---	SNWA
1848001	Turnley Spring	6/23/2011	8:57	---	---	N	---	---	---	---	---	---	SNWA
		8/17/2011	14:05	341	0.76	G	11.8	33	515	7.31	F	---	SNWA
		10/27/2011	13:34	225	0.50	E	11.8	9	419	7.26	F	---	SNWA
		12/7/2011	15:10	142	0.32	G	11.4	1	511	7.45	F	---	SNWA
1848401	Cleveland Ranch Spring North	5/24/2011	9:31	31.0	0.07	E	---	---	---	---	F	---	SNWA
		9/20/2011	10:48	18.0	0.04	E	---	---	---	---	F	---	SNWA
		10/27/2011	10:56	22.9	0.05	F	---	---	---	---	F	---	SNWA
		11/29/2011	11:52	36.8	0.08	E	---	---	---	---	F	---	SNWA
1848501	Cleveland Ranch Spring South	5/10/2011	17:26	70.9	0.16	E	---	---	---	---	F	---	SNWA
		5/11/2011	9:52	63.3	0.14	E	---	---	---	---	F	---	SNWA
		5/24/2011	8:48	59.7	0.13	E	12.4	---	386	7.61	F	---	SNWA
		6/30/2011	9:14	63.3	0.14	E	---	---	---	---	F	---	SNWA
		9/20/2011	11:40	59.7	0.13	E	---	---	---	---	F	---	SNWA
		10/27/2011	11:36	63.3	0.14	E	12.7	---	340	7.82	F	---	SNWA
		11/29/2011	11:20	63.3	0.14	E	---	---	---	---	F	---	SNWA

[a]Discharge is reported in cfs for values >0.01 and in gpm for values <0.01 cfs.
[b]Measurement Rating: E = Excellent; G = Good; F = Fair; P = Poor
[c]Measurement Method: C = Current meter; O = Other; F = Flume; M = Multiple
Note: Minerva Spring Discharge is controlled by reservoir level and irrigation practices. Discharge is total of all channels. The Seep was observed to be dry in 2011.


HISTORICAL SNWA MISCELLANEOUS SPRING DISCHARGE MEASUREMENTS IN SPRING VALLEY
South Millick Spring
Keegan Spring
Swallow Springs
Turnley Spring
DISCHARGE (cfs)
2.0
1.5
1.0
0.5
0.0
1/1/04
7/1/04
1/1/05
7/1/05
1/1/06
7/1/06
1/1/07
7/1/07
1/1/08
7/1/08
1/1/09
7/1/09
1/1/10
7/1/10
1/1/11
7/1/11
1/1/12

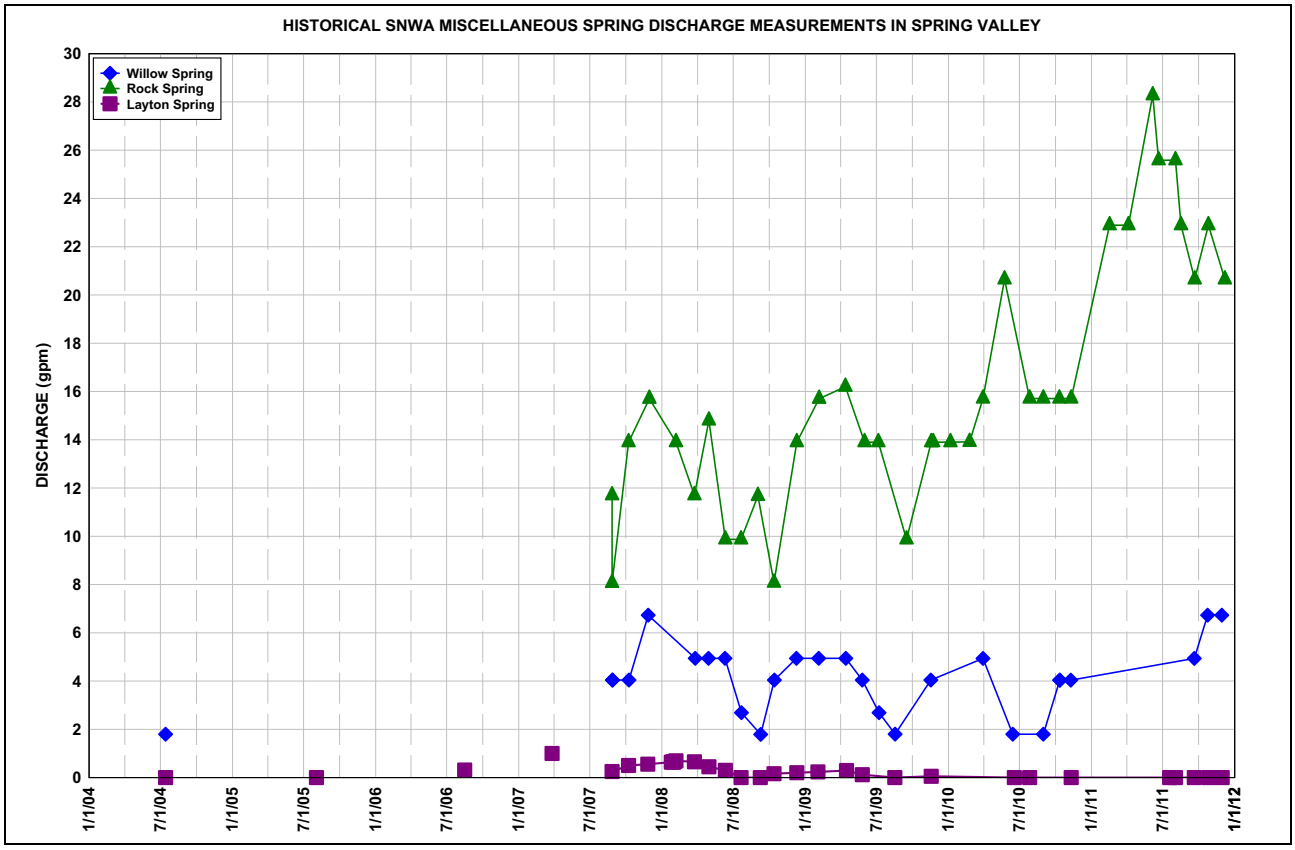

HISTORICAL SNWA MISCELLANEOUS SPRING DISCHARGE MEASUREMENTS IN SPRING VALLEY
Willow Spring
Rock Spring
Layton Spring
DISCHARGE (gpm)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1/1/04
7/1/04
1/1/05
7/1/05
1/1/06
7/1/06
1/1/07
7/1/07
1/1/08
7/1/08
1/1/09
7/1/09
1/1/10
7/1/10
1/1/11
7/1/11
1/1/12

Table C-2
Periodic Water-Level Measurement Data from the Spring Valley Spring-Piezometer Monitoring Network
(Page 1 of 3)

Site Number	Station Local Number[a]	Associated Spring	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
SPR7007Z	184 N11 E67 12DACA1	Minerva Spring	31	5,828.66	1/5/2011	11.67	S	T
					2/14/2011	11.91	S	T
					5/4/2011	8.85	S	T
					6/14/2011	5.63	S	T
					8/3/2011	4.79	S	T
					9/21/2011	6.18	S	T
					10/24/2011	7.60	S	T
					11/30/2011	8.65	S	T
SPR7011Z	184 N11 E67 23ADDD1	Blind Spring	31	5,769.71	2/9/2011	5.83	S	T
					3/22/2011	4.56	S	T
					5/4/2011	4.27	S	T
					6/14/2011	4.33	S	T
					7/20/2011	5.45	S	T
					8/15/2011	6.07	S	T
					9/21/2011	6.53	S	T
					11/28/2011	5.89	S	T
SPR7012Z	184 N15 E67 30BDBD1	Four Wheel Drive Spring	25	5,756.22	2/8/2011	1.46	S	T
					3/23/2011	1.31	S	T
					5/3/2011	1.16	S	T
					6/14/2011	1.26	S	T
					7/19/2011	1.54	S	T
					8/2/2011	1.69	S	T
					9/20/2011	2.07	S	T
					11/29/2011	1.69	S	T
SPR7014Z	184 N12 E67 26ACAD1	The Seep	31	5,778.54	1/4/2011	11.88	S	S
					3/22/2011	11.34	S	T
					5/4/2011	11.02	S	T
					6/15/2011	10.92	S	T
					7/19/2011	11.30	S	T
					8/3/2011	11.45	S	T
					9/21/2011	11.93	S	T
					11/30/2011	11.86	S	T

Table C-2
Periodic Water-Level Measurement Data from the Spring Valley Spring-Piezometer Monitoring Network
(Page 2 of 3)

Site Number	Station Local Number[a]	Associated Spring	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
SPR7015Z	184 N17 E67 30CADA1	West Spring Valley Complex	38	5,602.90	1/5/2011	5.19	S	T
					2/8/2011	5.01	S	T
					3/23/2011	3.89	S	S
					5/3/2011	4.95	S	T
					6/14/2011	2.31	S	T
					7/18/2011	3.89	S	T
					8/2/2011	4.21	S	T
					9/20/2011	4.54	S	T
					11/29/2011	4.22	S	T
SPR7016Z	184 N15 E67 09BBBA1	Unnamed Spring 5	32	5,645.67	2/8/2011	1.34	S	T
					5/3/2011	0.94	S	T
					6/14/2011	0.90	S	T
					7/19/2011	1.00	S	T
					8/2/2011	0.98	S	T
					9/20/2011	0.85	S	T
					11/29/2011	0.57	S	T
SPR7018Z	184 N17 E67 25CDCA1	South Millick Spring	25	5,587.16	3/23/2011	6.86	S	S
					5/3/2011	5.66	S	T
					6/14/2011	5.11	S	T
					7/19/2011	4.00	S	T
					8/3/2011	4.04	S	T
					8/16/2011	4.18	S	T
					9/21/2011	4.42	S	T
					11/29/2011	4.63	S	T
SPR7019Z	184 N14 E67 04DBAB1	Layton Spring	35	5,686.63	3/23/2011	10.45	S	T
					5/3/2011	10.18	S	T
					6/14/2011	9.88	S	T
					7/19/2011	10.16	S	T
					8/3/2011	10.26	S	T
					9/20/2011	10.66	S	T
					10/27/2011	10.74	S	T
					11/30/2011	10.54	S	T

Table C-2
Periodic Water-Level Measurement Data from the Spring Valley Spring-Piezometer Monitoring Network
(Page 3 of 3)

Site Number	Station Local Number[a]	Associated Spring	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth to Water (ft bgs)	Well Status[b]	Measurement Method[c]
SPR7020Z	184 N22 E66 17CAAC1	Stonehouse Spring	9	6,264.62	1/5/2011	1.36	S	T
					2/8/2011	1.23	S	T
					3/23/2011	1.21	S	T
					5/3/2011	1.06	S	T
					6/14/2011	1.07	S	T
					7/18/2011	2.42	S	T
					8/2/2011	2.38	S	T
					9/21/2011	2.81	S	T
					10/24/2011	1.92	S	T
					11/29/2011	1.71	S	T
SPR7021Z	184 N18 E66 01CCAA1	Keegan Spring	21	5,613.12	1/4/2011	-2.42	S	T
					2/8/2011	-2.42	S	T
					3/23/2011	-2.42	S	T
					5/3/2011	-2.45	S	T
					6/14/2011	-3.40	S	T
					8/2/2011	-4.40	S	G
					8/9/2011	-4.92	S	G
					9/20/2011	-4.11	S	G
					11/29/2011	-3.65	S	G
SPR7022Z	184 N21 E66 15BCDD1	Willow Spring	35	5,987.54	3/23/2011	13.13	S	T
					5/3/2011	13.15	S	T
					6/14/2011	13.27	S	T
					7/18/2011	13.59	S	T
					8/2/2011	13.46	S	T
					9/20/2011	13.13	S	T
					11/29/2011	12.23	S	T
SPR7031Z[d]	---	Cleveland Ranch North Spring	10.3	5,637.32	10/27/2011	0.82	S	T
					11/29/2011	0.47	S	T

[a]Station Local Numbers provided by the Nevada Department of Water Resources.
[b]S = Static Conditions.
[c]T = Electric tape measurement, S = Steel tape measurement, G = Pressure gage.
[d]No hydrograph presented due to limited data.
Note: SNWA tape calibration program started in August 2008.

Table C-3
1847301 - Rock Spring near Osceola, NV, Water Year 2011
Mean Daily Discharge Values

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.03	0.04E	0.04E	0.04	0.05	0.05	0.05E	0.05	0.06	0.06	0.06	0.05
2	0.03	0.04E	0.04E	0.04	0.05	0.05	0.05E	0.06	0.06	0.06	0.06	0.06
3	0.03	0.04E	0.04E	0.04	0.05	0.05	0.05E	0.06	0.06	0.06	0.06	0.05
4	0.04	0.04E	0.04E	0.04	0.05	0.05	0.05E	0.06	0.06E	0.06	0.06E	0.05
5	0.04	0.04E	0.04E	0.04	0.05	0.05	0.05E	0.06	0.06E	0.06	0.06E	0.05
6	0.04	0.04E	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06E	0.05
7	0.03	0.04	0.05E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06E	0.05
8	0.03	0.04	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06E	0.05
9	0.03	0.04	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.05E	0.05
10	0.03	0.04	0.04E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
11	0.03	0.04	0.04E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
12	0.04	0.04E	0.04E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
13	0.04	0.04E	0.04E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
14	0.04	0.04E	0.04E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
15	0.04	0.04E	0.05E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
16	0.04	0.04E	0.05E	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
17	0.04	0.04E	0.05E	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
18	0.04	0.04E	0.05E	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
19	0.04	0.04E	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
20	0.04	0.05E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
21	0.04	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
22	0.04	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
23	0.04E	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05E	0.05
24	0.04E	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05
25	0.04E	0.05E	0.04	0.05	0.05	0.05	0.06	0.06	0.05	0.06	0.05	0.05
26	0.04E	0.04E	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05
27	0.04E	0.04E	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05
28	0.04E	0.04E	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05
29	0.04E	0.04E	0.05	0.05	--	0.05E	0.06	0.06	0.06	0.06	0.05	0.05
30	0.04E	0.04E	0.04	0.05	--	0.05E	0.06	0.06	0.06	0.06	0.05	0.05
31	0.04E	--	0.04	0.05	--	0.05E	--	0.06	--	0.06	0.05	--
Total	1.16	1.22	1.31	1.39	1.40	1.55	1.69	1.85	1.79	1.86	1.63	1.51
Mean	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05
Max	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Min	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05
Ac-ft	2.3	2.4	2.6	2.8	2.8	3.1	3.4	3.7	3.5	3.7	3.2	3.0

Note: Values are in cfs unless noted otherwise.
E = Estimated day.

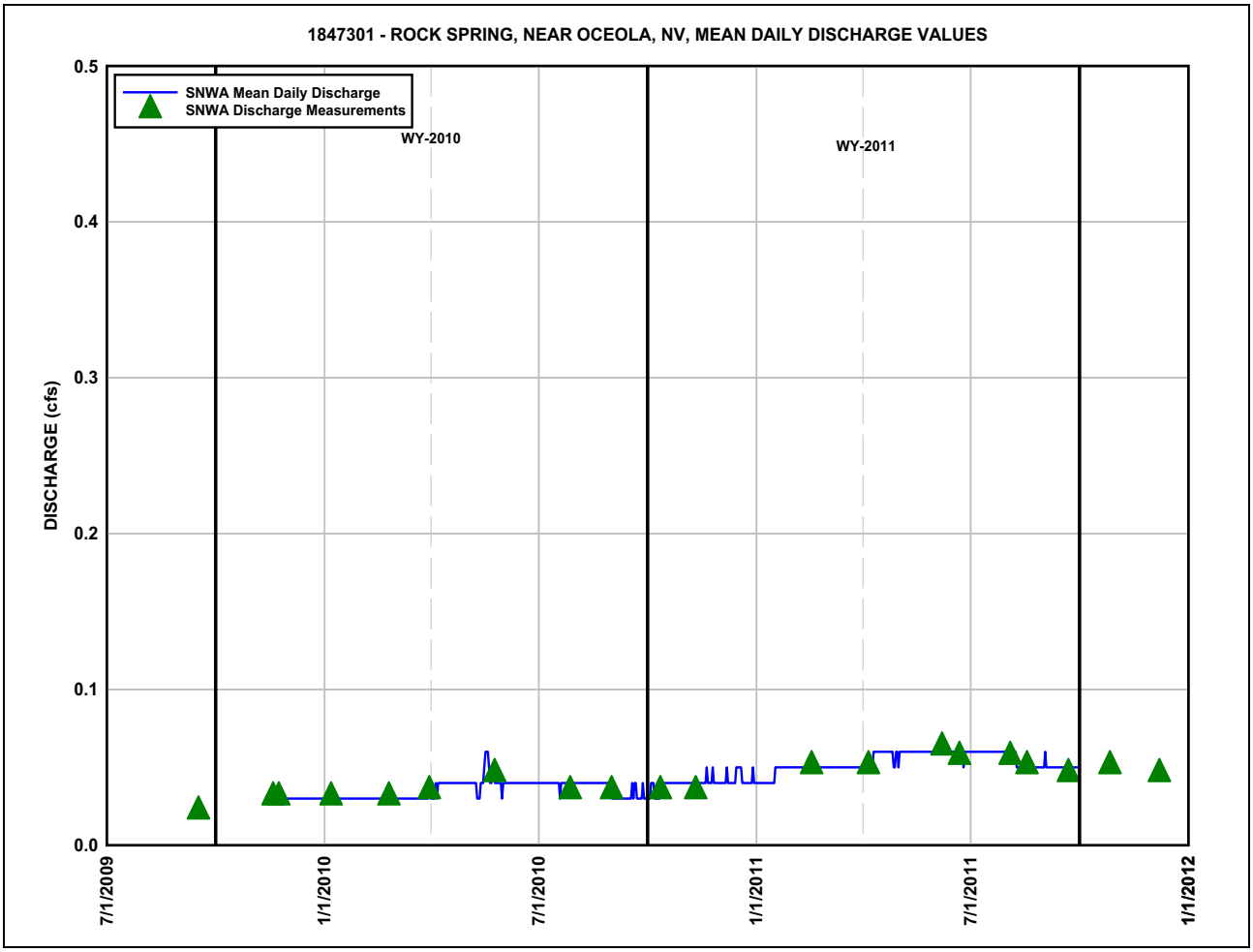

1847301 - ROCK SPRING, NEAR OCEOLA, NV, MEAN DAILY DISCHARGE VALUES
SNWA Mean Daily Discharge
SNWA Discharge Measurements
WY-2010
WY-2011
DISCHARGE (cfs)
0.5
0.4
0.3
0.2
0.1
0.0
7/1/2009
1/1/2010
7/1/2010
1/1/2011
7/1/2011
1/1/2012

Table C-4
1846203 - Swallow Springs South, Water Year 2011
Mean Daily Discharge Values

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.76	0.71	0.65	0.71	0.80	0.78	0.78	0.81	0.92	0.92	0.86	0.86
2	0.76	0.70	0.66	0.71	0.80	0.77	0.78	0.81	0.92	0.92	0.86	0.86
3	0.76	0.69	0.69	0.71	0.80	0.77	0.82	0.81	0.92	0.91	0.86	0.86
4	0.75	0.68	0.70	0.71	0.80	0.77	0.79	0.83	0.92	0.91	0.86	0.86
5	0.77	0.68	0.70	0.71	0.80	0.77	0.77	0.85	0.92	0.91	0.87	0.86
6	0.80	0.67	0.69	0.71	0.80	0.78	0.77	0.87	0.92	0.92	0.86	0.85
7	0.80	0.67	0.69	0.71	0.80	0.78	0.77	0.89	0.93	0.91	0.86	0.85
8	0.80	0.66	0.69	0.72	0.80	0.77	0.76	0.90	0.92	0.91	0.86	0.85
9	0.80	0.67	0.69	0.72	0.80	0.77	0.76	0.91	0.93	0.90	0.87	0.85
10	0.79	0.67	0.69	0.73	0.81	0.77	0.76	0.90	0.93	0.90	0.86	0.85
11	0.78	0.66	0.69	0.73	0.81	0.78	0.76	0.91	0.93	0.89	0.86	0.85
12	0.78	0.66	0.68	0.73	0.81	0.79	0.76	0.91	0.94	0.89	0.86	0.85
13	0.76	0.67	0.69	0.73	0.81	0.80	0.76	0.91	0.94	0.88	0.86	0.84
14	0.75	0.68	0.69	0.73	0.82	0.80	0.76	0.91	0.94	0.88	0.86	0.83
15	0.75	0.68	0.69	0.73	0.82	0.79	0.76	0.91	0.94	0.88	0.86	0.82
16	0.74	0.68	0.69	0.74	0.81	0.79	0.77	0.92	0.94	0.88	0.88	0.82
17	0.73	0.68	0.69	0.77	0.82	0.79	0.81	0.92	0.94	0.88	0.88	0.82
18	0.72	0.67	0.68	0.80	0.81	0.79	0.84	0.92	0.94	0.88	0.88	0.82
19	0.74	0.67	0.68	0.80	0.81	0.78	0.86	0.92	0.94	0.88	0.88	0.82
20	0.74	0.67	0.71	0.78	0.81	0.78	0.86	0.92	0.93	0.87	0.87	0.82
21	0.73	0.66	0.71	0.78	0.81	0.77	0.87	0.91	0.93	0.87	0.88	0.82
22	0.72	0.67	0.71	0.78	0.80	0.77	0.87	0.92	0.93	0.87	0.87	0.81
23	0.72	0.66	0.71	0.78	0.80	0.77	0.88	0.92	0.93	0.87	0.87	0.82
24	0.74	0.66	0.72	0.78	0.80	0.76	0.87	0.92	0.94	0.88	0.87	0.81
25	0.76	0.65	0.71	0.78	0.79	0.76	0.86	0.92	0.92	0.87	0.87	0.81
26	0.76	0.65	0.71	0.78	0.79	0.76	0.84	0.92	0.93	0.87	0.87	0.81
27	0.76	0.65	0.71	0.79	0.78	0.76	0.82	0.92	0.93	0.86	0.87	0.81
28	0.75	0.66	0.70	0.79	0.78	0.75	0.82	0.92	0.92	0.86	0.87	0.81
29	0.75	0.66	0.71	0.79	--	0.75	0.82	0.92	0.92	0.86	0.87	0.82
30	0.74	0.65	0.71	0.80	--	0.75	0.81	0.92	0.92	0.86	0.86	0.83
31	0.73	--	0.71	0.80	--	0.76	--	0.92	--	0.86	0.86	--
Total	23.44	20.09	21.55	23.33	22.49	23.98	24.16	27.84	27.88	27.45	26.87	24.99
Min	0.72	0.65	0.65	0.71	0.78	0.75	0.76	0.81	0.92	0.86	0.86	0.81
Mean	0.76	0.67	0.70	0.75	0.80	0.77	0.81	0.90	0.93	0.89	0.87	0.83
Max	0.80	0.71	0.72	0.80	0.82	0.80	0.88	0.92	0.94	0.92	0.88	0.86
Acre-feet	46.5	39.8	42.7	46.3	44.6	47.6	47.9	55.2	55.3	54.4	53.3	49.6

Note: Values are in cfs unless noted otherwise.

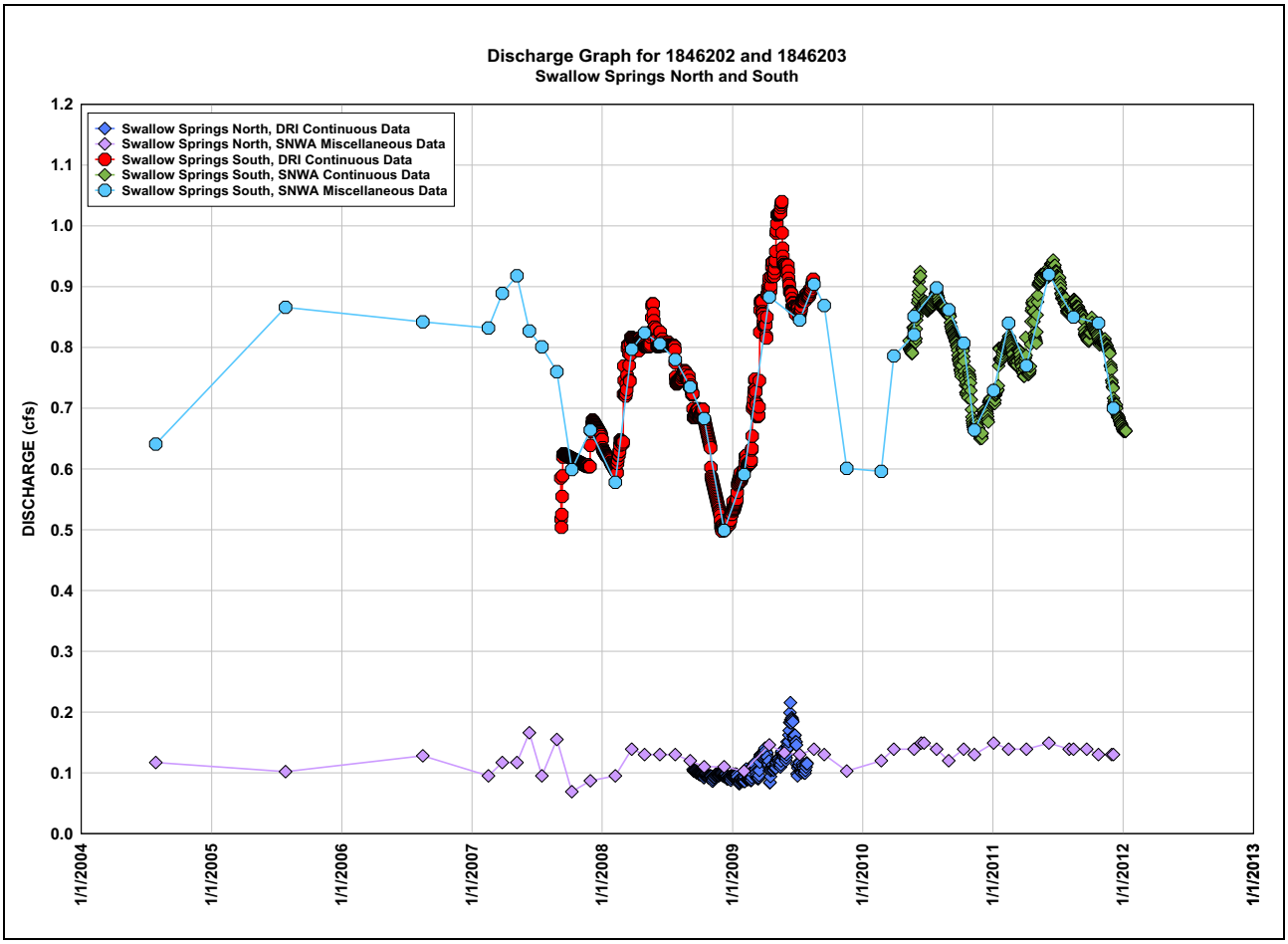
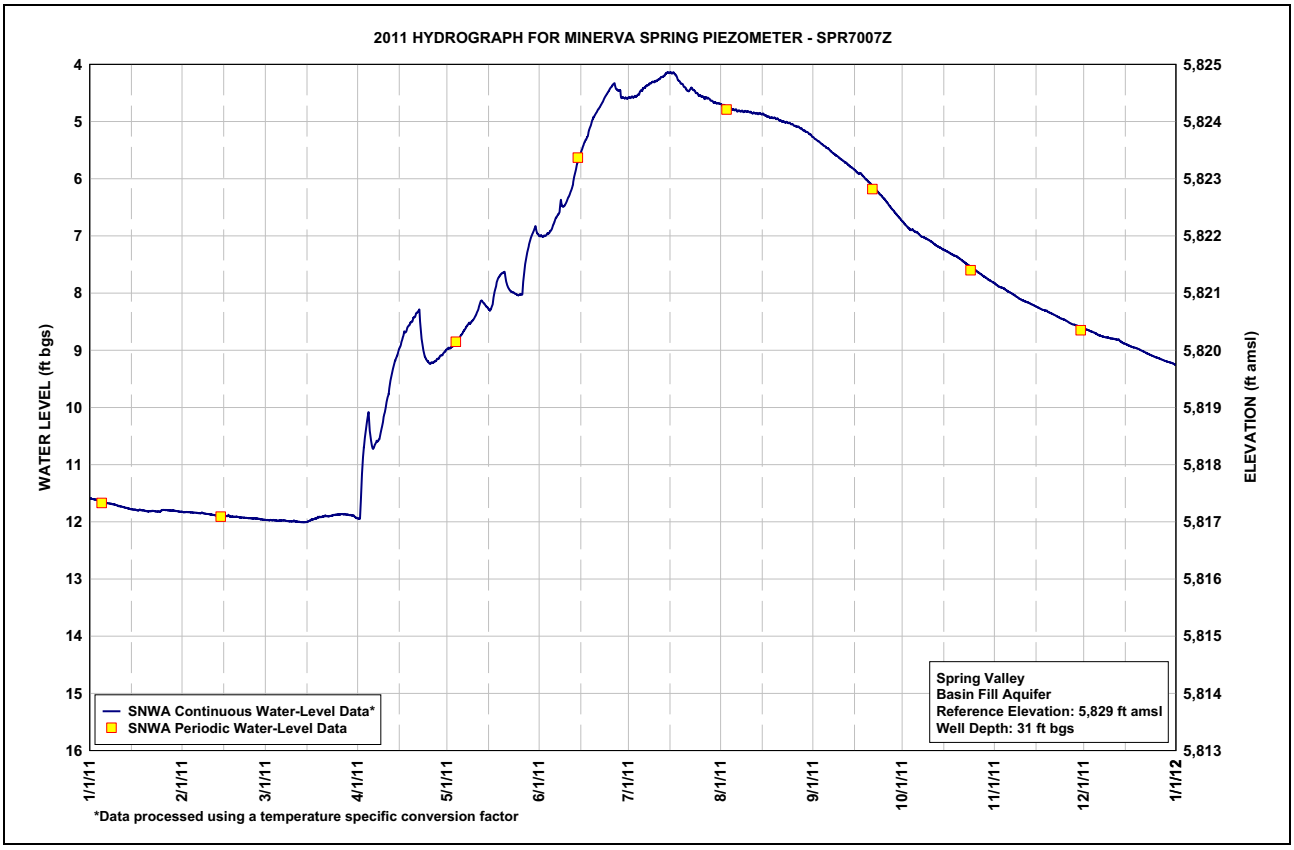

Discharge Graph for 1846202 and 1846203
Swallow Springs North and South
Swallow Springs North, DRI Continuous Data
Swallow Springs North, SNWA Miscellaneous Data
Swallow Springs South, DRI Continuous Data
Swallow Springs South, SNWA Continuous Data
Swallow Springs South, SNWA Miscellaneous Data
DISCHARGE (cfs)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013

Table C-5
Spring Valley Well SPR7007Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11.59	11.83	11.97	11.93	8.97	7.00	4.58	4.71	5.29	6.77	7.85	8.63
2	11.61	11.83	11.97	11.19	8.95	7.01	4.57	4.73	5.33	6.83	7.88	8.65
3	11.62	11.83	11.97	10.52	8.89	6.98	4.56	4.75	5.37	6.88	7.91	8.67
4	11.64	11.84	11.98	10.20	8.84	6.94	4.52	4.77	5.41	6.90	7.93	8.69
5	11.65	11.84	11.98	10.55	8.76	6.84	4.45	4.79	5.45	6.93	7.97	8.72
6	11.67	11.85	11.98	10.69	8.68	6.71	4.40	4.81	5.49	6.96	8.00	8.74
7	11.68	11.85	11.98	10.60	8.60	6.61	4.36	4.82	5.54	7.01	8.03	8.76
8	11.69	11.85	11.99	10.50	8.53	6.44	4.33	4.82	5.58	7.03	8.06	8.77
9	11.70	11.86	11.99	10.25	8.49	6.47	4.31	4.82	5.62	7.06	8.10	8.78
10	11.72	11.87	11.99	9.98	8.41	6.37	4.29	4.83	5.66	7.09	8.13	8.80
11	11.73	11.88	12.00	9.72	8.29	6.24	4.25	4.85	5.70	7.13	8.15	8.80
12	11.75	11.89	12.00	9.42	8.15	6.05	4.22	4.85	5.74	7.17	8.17	8.82
13	11.76	11.89	12.01	9.21	8.18	5.81	4.17	4.86	5.78	7.20	8.20	8.85
14	11.77	11.90	12.00	9.06	8.25	5.63	4.15	4.86	5.82	7.23	8.22	8.88
15	11.78	11.90	11.99	8.90	8.29	5.47	4.15	4.88	5.87	7.26	8.25	8.90
16	11.79	11.90	11.97	8.73	8.14	5.34	4.16	4.91	5.90	7.28	8.28	8.92
17	11.79	11.91	11.95	8.64	7.88	5.21	4.25	4.93	5.93	7.32	8.30	8.95
18	11.80	11.91	11.93	8.55	7.72	5.04	4.32	4.93	5.99	7.34	8.31	8.96
19	11.81	11.91	11.92	8.47	7.66	4.91	4.37	4.95	6.04	7.37	8.34	8.98
20	11.81	11.92	11.91	8.38	7.69	4.82	4.44	4.97	6.09	7.40	8.36	9.01
21	11.81	11.93	11.90	8.33	7.88	4.74	4.45	4.99	6.15	7.44	8.39	9.03
22	11.81	11.93	11.90	8.77	7.97	4.64	4.43	5.01	6.21	7.48	8.42	9.06
23	11.82	11.94	11.89	9.08	8.00	4.54	4.48	5.02	6.27	7.52	8.45	9.08
24	11.82	11.94	11.88	9.19	8.03	4.46	4.53	5.04	6.33	7.56	8.47	9.11
25	11.79	11.94	11.87	9.23	8.03	4.38	4.56	5.06	6.39	7.60	8.50	9.13
26	11.79	11.95	11.87	9.21	7.89	4.37	4.58	5.09	6.46	7.63	8.53	9.15
27	11.80	11.96	11.87	9.17	7.44	4.45	4.59	5.11	6.52	7.67	8.55	9.17
28	11.80	11.96	11.87	9.12	7.18	4.53	4.62	5.14	6.59	7.71	8.56	9.19
29	11.81	---	11.88	9.07	7.00	4.59	4.66	5.17	6.65	7.74	8.59	9.21
30	11.82	---	11.89	9.01	6.88	4.59	4.67	5.20	6.71	7.78	8.61	9.22
31	11.82	---	11.93	---	6.96	---	4.69	5.24	---	7.81	---	9.24
Max	11.82	11.96	12.01	11.93	8.97	7.01	4.69	5.24	6.71	7.81	8.61	9.24
Min	11.59	11.83	11.87	8.33	6.88	4.37	4.15	4.71	5.29	6.77	7.85	8.63

Year 2011 Statistics: **Year Max 12.01; Year Min 4.15**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR MINERVA SPRING PIEZOMETER - SPR7007Z
WATER LEVEL (ft bgs)
ELEVATION (ft amsl)
4
5
6
7
8
9
10
11
12
13
14
15
16
5,825
5,824
5,823
5,822
5,821
5,820
5,819
5,818
5,817
5,816
5,815
5,814
5,813
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,829 ft amsl
Well Depth: 31 ft bgs
*Data processed using a temperature specific conversion factor

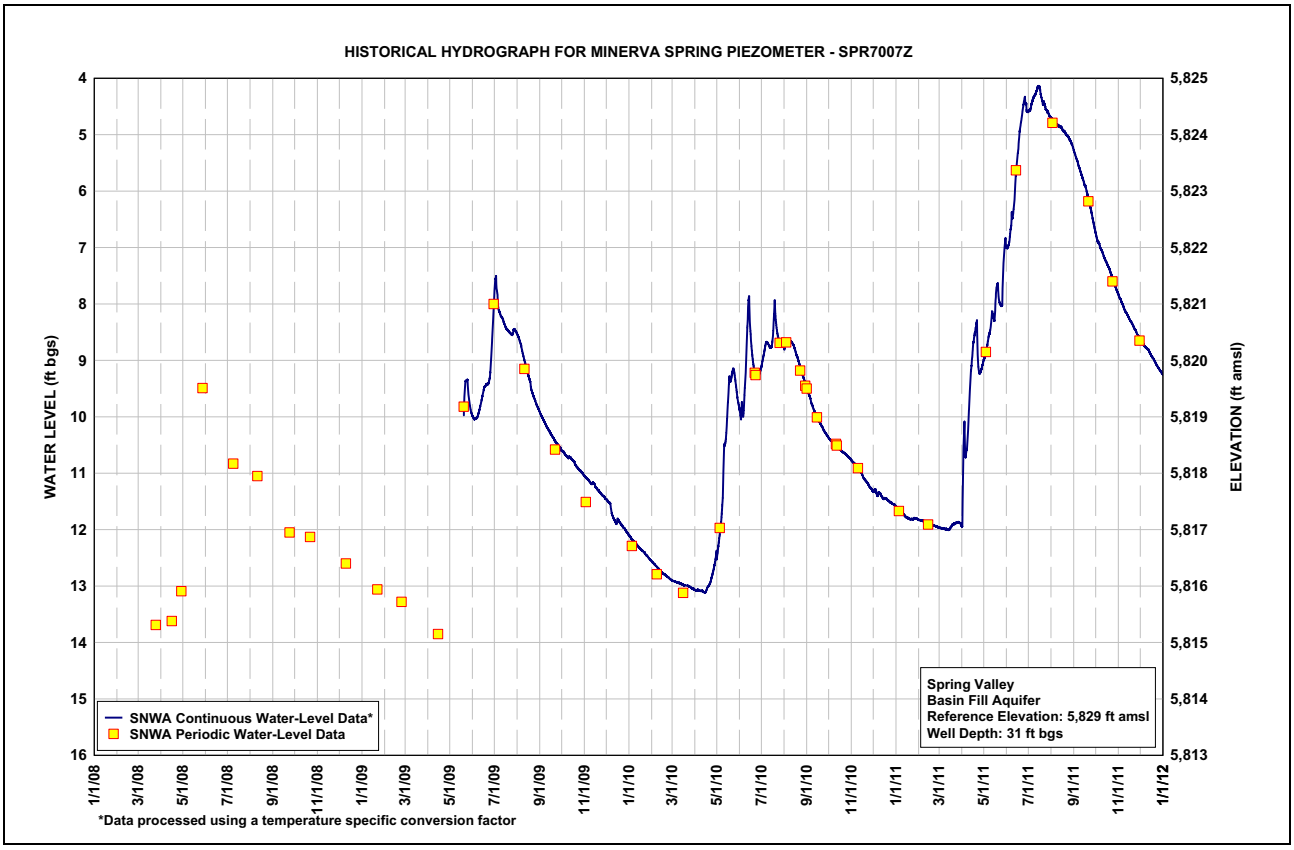
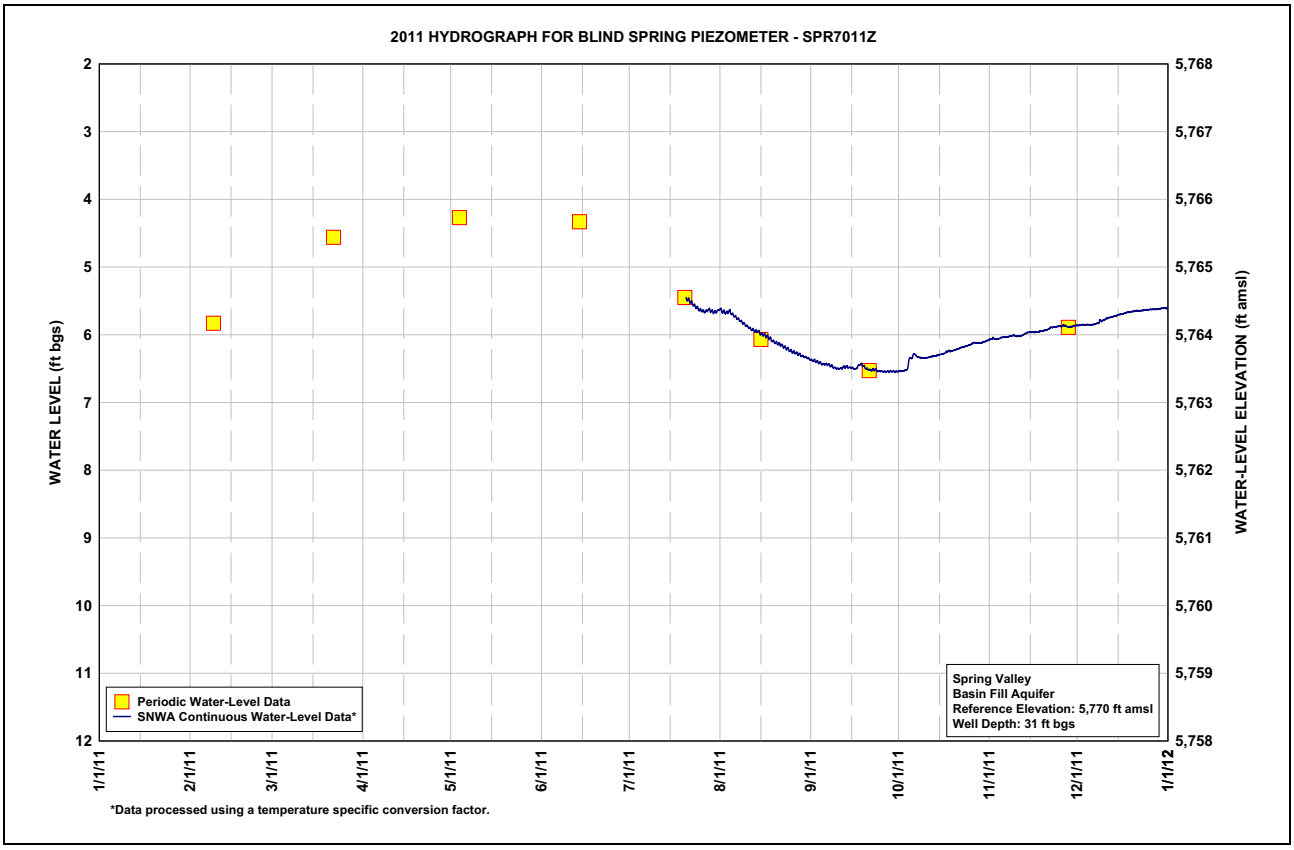

HISTORICAL HYDROGRAPH FOR MINERVA SPRING PIEZOMETER - SPR7007Z
WATER LEVEL (ft bgs)
ELEVATION (ft amsl)
4
5
6
7
8
9
10
11
12
13
14
15
16
5,825
5,824
5,823
5,822
5,821
5,820
5,819
5,818
5,817
5,816
5,815
5,814
5,813
1/1/08
3/1/08
5/1/08
7/1/08
9/1/08
11/1/08
1/1/09
3/1/09
5/1/09
7/1/09
9/1/09
11/1/09
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,829 ft amsl
Well Depth: 31 ft bgs
*Data processed using a temperature specific conversion factor

Table C-6
Spring Valley Well SPR7011Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	5.64	6.38	6.54	6.06	5.86
2	---	---	---	---	---	---	---	5.66	6.39	6.53	6.05	5.85
3	---	---	---	---	---	---	---	5.67	6.40	6.52	6.06	5.85
4	---	---	---	---	---	---	---	5.66	6.42	6.40	6.05	5.85
5	---	---	---	---	---	---	---	5.71	6.43	6.34	6.04	5.85
6	---	---	---	---	---	---	---	5.74	6.44	6.29	6.04	5.85
7	---	---	---	---	---	---	---	5.78	6.45	6.33	6.03	5.84
8	---	---	---	---	---	---	---	5.81	6.47	6.34	6.02	5.81
9	---	---	---	---	---	---	---	5.85	6.49	6.34	6.01	5.79
10	---	---	---	---	---	---	---	5.88	6.50	6.34	6.02	5.77
11	---	---	---	---	---	---	---	5.91	6.49	6.33	6.02	5.75
12	---	---	---	---	---	---	---	5.93	6.48	6.32	6.00	5.74
13	---	---	---	---	---	---	---	5.95	6.48	6.31	5.98	5.73
14	---	---	---	---	---	---	---	5.97	6.48	6.30	5.96	5.72
15	---	---	---	---	---	---	---	6.00	6.50	6.29	5.96	5.70
16	---	---	---	---	---	---	---	6.01	6.50	6.28	5.96	5.69
17	---	---	---	---	---	---	---	6.04	6.45	6.25	5.96	5.68
18	---	---	---	---	---	---	---	6.07	6.45	6.24	5.95	5.66
19	---	---	---	---	---	---	---	6.11	6.48	6.24	5.94	5.66
20	---	---	---	---	---	---	5.48	6.13	6.51	6.22	5.93	5.65
21	---	---	---	---	---	---	5.50	6.14	6.52	6.21	5.91	5.64
22	---	---	---	---	---	---	5.54	6.17	6.52	6.19	5.89	5.64
23	---	---	---	---	---	---	5.58	6.19	6.52	6.17	5.88	5.64
24	---	---	---	---	---	---	5.61	6.22	6.54	6.16	5.88	5.63
25	---	---	---	---	---	---	5.64	6.25	6.54	6.15	5.88	5.63
26	---	---	---	---	---	---	5.66	6.26	6.54	6.12	5.86	5.62
27	---	---	---	---	---	---	5.64	6.28	6.54	6.12	5.88	5.62
28	---	---	---	---	---	---	5.64	6.30	6.54	6.12	5.88	5.62
29	---	---	---	---	---	---	5.66	6.32	6.54	6.12	5.88	5.61
30	---	---	---	---	---	---	5.66	6.34	6.54	6.10	5.86	5.60
31	---	---	---	---	---	---	5.64	6.36	---	6.08	---	5.61
Max	---	---	---	---	---	---	5.66	6.36	6.54	6.54	6.06	5.86
Min	---	---	---	---	---	---	5.48	5.64	6.38	6.08	5.86	5.60

Year 2011 Statistics: **Year Max 6.54; Year Min 5.48**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR BLIND SPRING PIEZOMETER - SPR7011Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
2
3
4
5
6
7
8
9
10
11
12
5,768
5,767
5,766
5,765
5,764
5,763
5,762
5,761
5,760
5,759
5,758
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data*
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,770 ft amsl
Well Depth: 31 ft bgs
*Data processed using a temperature specific conversion factor.

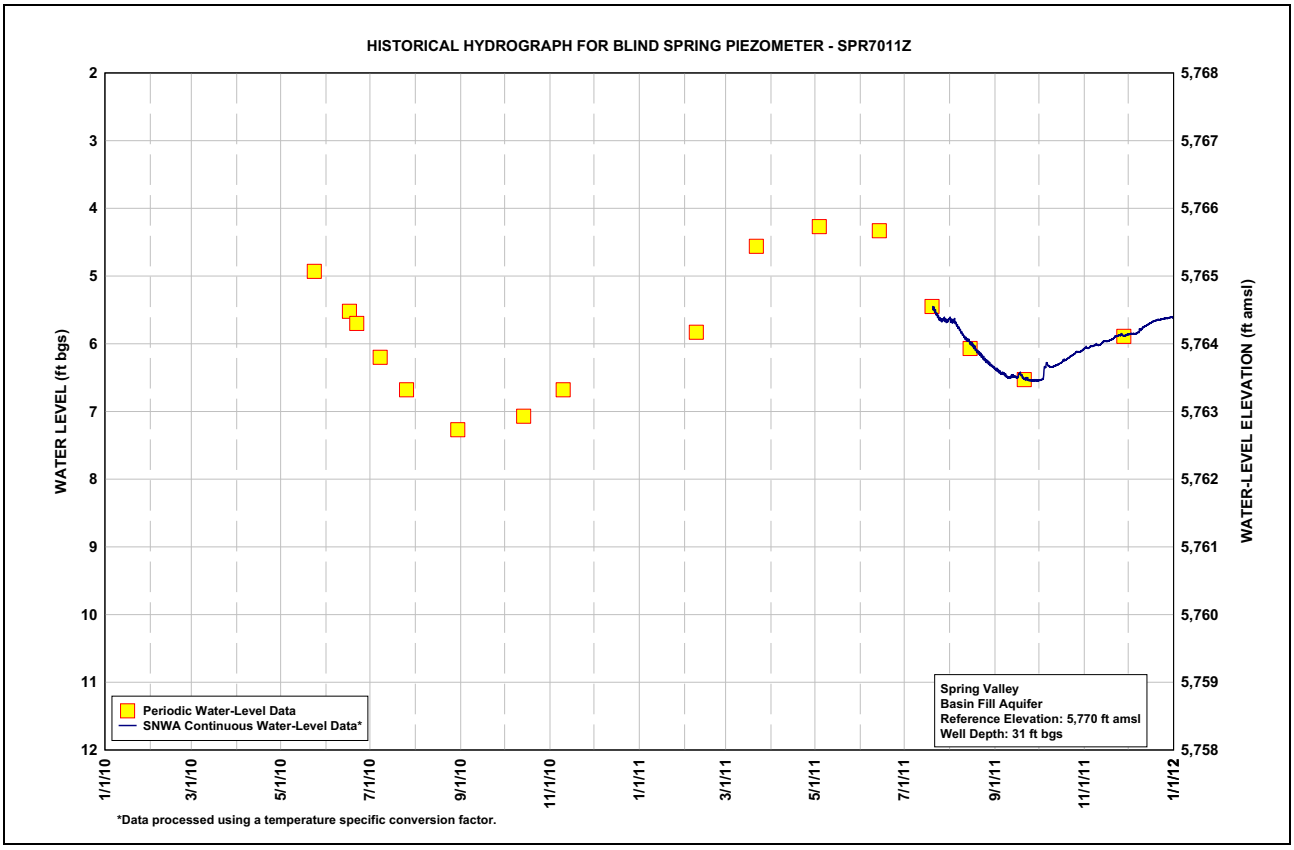
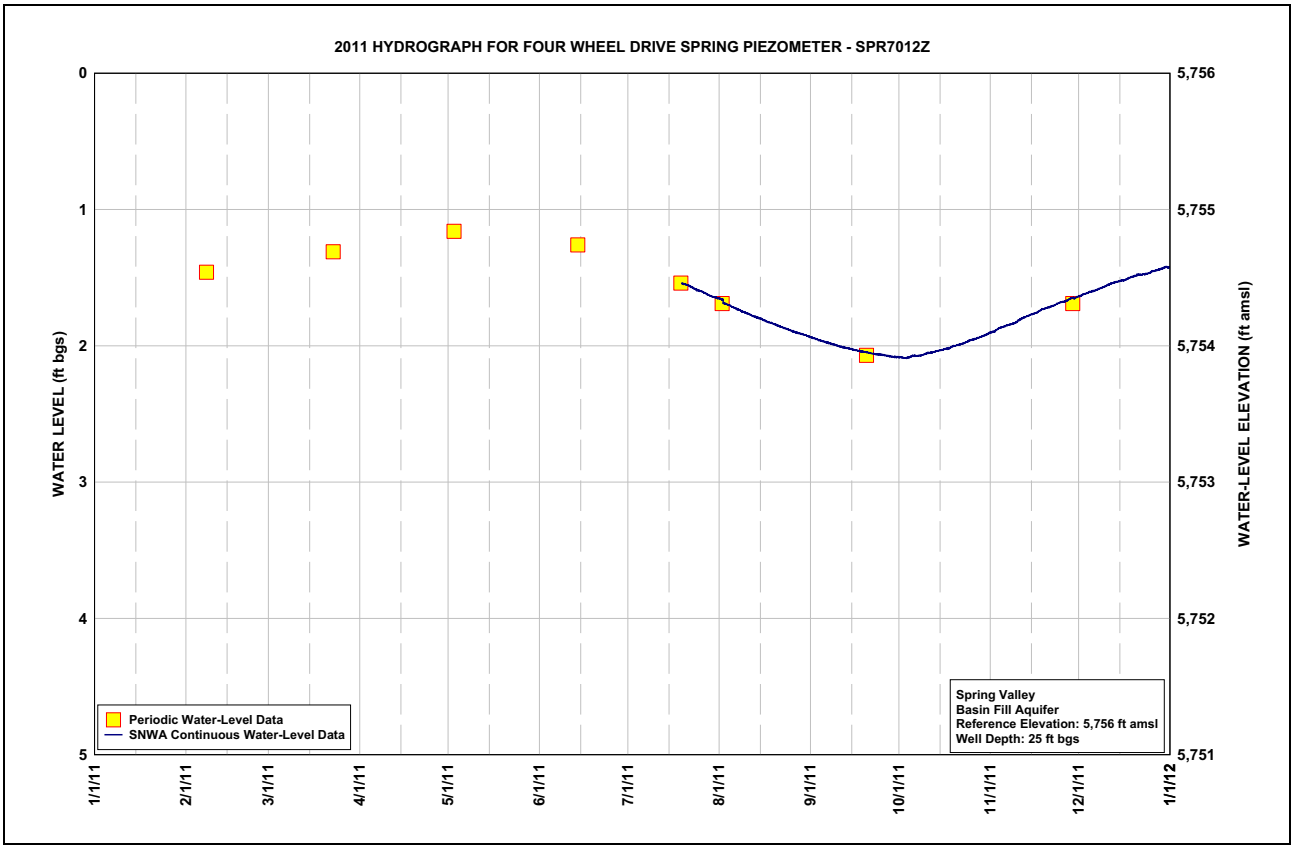

HISTORICAL HYDROGRAPH FOR BLIND SPRING PIEZOMETER - SPR7011Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
2
3
4
5
6
7
8
9
10
11
12
5,768
5,767
5,766
5,765
5,764
5,763
5,762
5,761
5,760
5,759
5,758
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data*
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,770 ft amsl
Well Depth: 31 ft bgs
*Data processed using a temperature specific conversion factor.

Table C-7
Spring Valley Well SPR7012Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	1.66	1.94	2.08	1.90	1.63
2	---	---	---	---	---	---	---	1.68	1.95	2.09	1.89	1.62
3	---	---	---	---	---	---	---	1.69	1.95	2.09	1.88	1.62
4	---	---	---	---	---	---	---	1.70	1.96	2.08	1.87	1.61
5	---	---	---	---	---	---	---	1.71	1.97	2.08	1.86	1.60
6	---	---	---	---	---	---	---	1.72	1.97	2.07	1.85	1.60
7	---	---	---	---	---	---	---	1.73	1.98	2.07	1.84	1.59
8	---	---	---	---	---	---	---	1.74	1.99	2.07	1.84	1.58
9	---	---	---	---	---	---	---	1.75	1.99	2.06	1.83	1.57
10	---	---	---	---	---	---	---	1.76	2.00	2.06	1.82	1.56
11	---	---	---	---	---	---	---	1.77	2.01	2.05	1.80	1.55
12	---	---	---	---	---	---	---	1.78	2.01	2.05	1.79	1.54
13	---	---	---	---	---	---	---	1.79	2.02	2.04	1.78	1.53
14	---	---	---	---	---	---	---	1.80	2.02	2.04	1.77	1.53
15	---	---	---	---	---	---	---	1.80	2.03	2.03	1.77	1.52
16	---	---	---	---	---	---	---	1.81	2.03	2.02	1.76	1.52
17	---	---	---	---	---	---	---	1.82	2.04	2.02	1.75	1.51
18	---	---	---	---	---	---	---	1.83	2.04	2.01	1.73	1.50
19	---	---	---	---	---	---	1.54	1.84	2.04	2.00	1.73	1.49
20	---	---	---	---	---	---	1.55	1.85	2.05	2.00	1.72	1.48
21	---	---	---	---	---	---	1.56	1.86	2.05	1.99	1.71	1.48
22	---	---	---	---	---	---	1.57	1.86	2.06	1.98	1.71	1.48
23	---	---	---	---	---	---	1.58	1.87	2.06	1.98	1.69	1.47
24	---	---	---	---	---	---	1.59	1.88	2.06	1.97	1.68	1.47
25	---	---	---	---	---	---	1.60	1.89	2.07	1.96	1.68	1.46
26	---	---	---	---	---	---	1.60	1.90	2.07	1.95	1.67	1.45
27	---	---	---	---	---	---	1.62	1.90	2.07	1.94	1.66	1.45
28	---	---	---	---	---	---	1.63	1.91	2.08	1.94	1.65	1.44
29	---	---	---	---	---	---	1.64	1.92	2.08	1.93	1.65	1.43
30	---	---	---	---	---	---	1.64	1.92	2.08	1.92	1.64	1.42
31	---	---	---	---	---	---	1.65	1.93	---	1.91	---	1.42
Max	---	---	---	---	---	---	1.65	1.93	2.08	2.09	1.90	1.63
Min	---	---	---	---	---	---	1.54	1.66	1.94	1.91	1.64	1.42

Year 2011 Statistics: **Year Max 2.09; Year Min 1.42**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR FOUR WHEEL DRIVE SPRING PIEZOMETER - SPR7012Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
5,756
5,755
5,754
5,753
5,752
5,751
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,756 ft amsl
Well Depth: 25 ft bgs

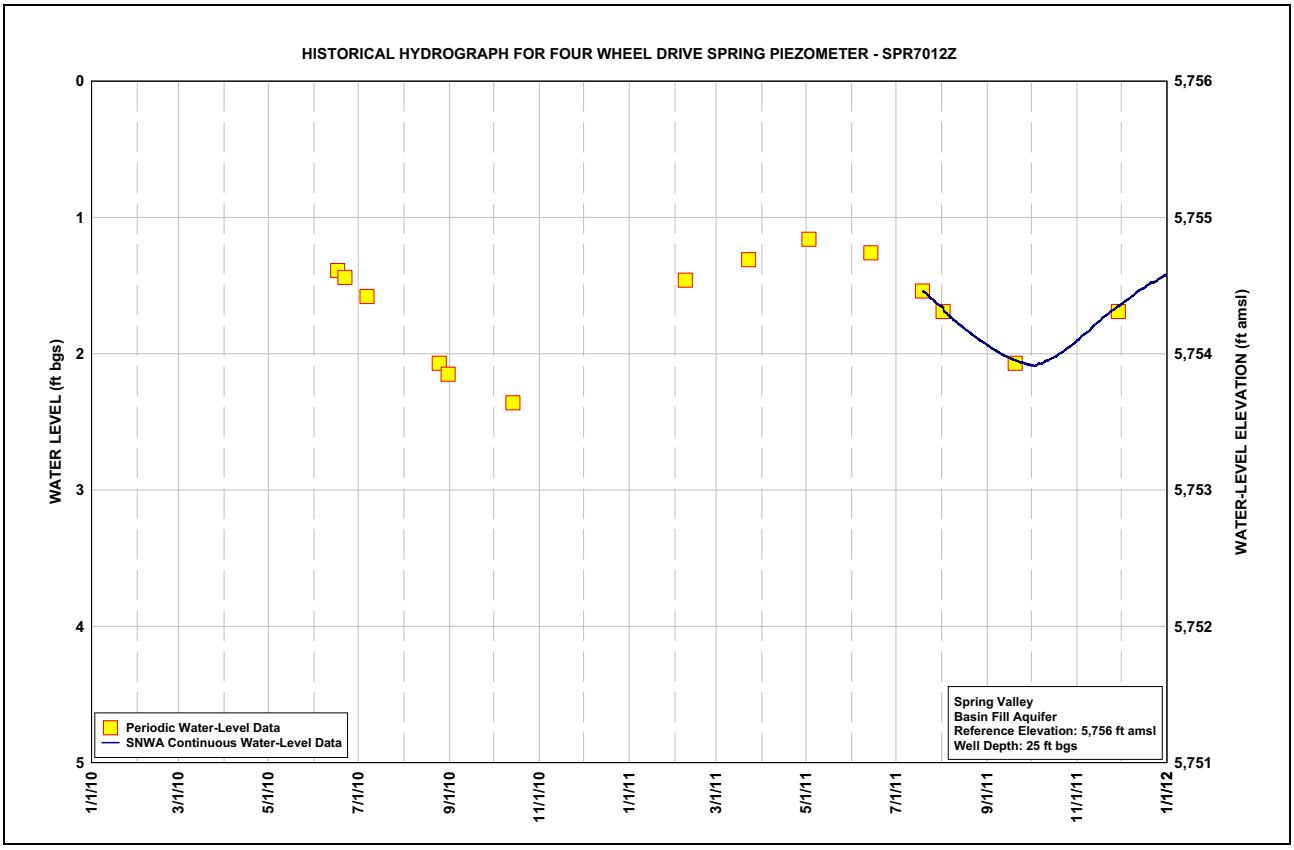

HISTORICAL HYDROGRAPH FOR FOUR WHEEL DRIVE SPRING PIEZOMETER - SPR7012Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
5,756
5,755
5,754
5,753
5,752
5,751
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,756 ft amsl
Well Depth: 25 ft bgs

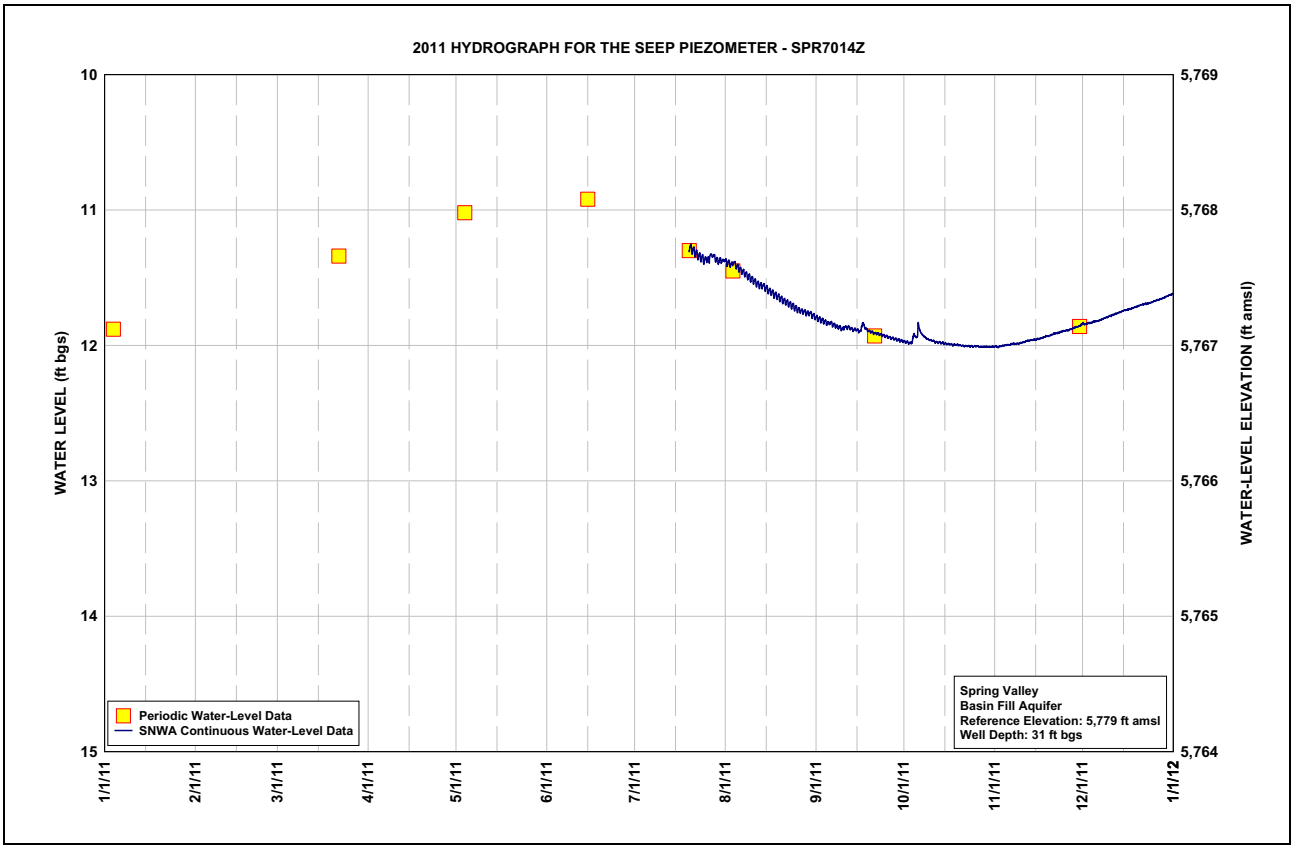
Table C-8
Spring Valley Well SPR7014Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	11.39	11.80	11.97	12.01	11.84
2	---	---	---	---	---	---	---	11.39	11.81	11.98	12.01	11.84
3	---	---	---	---	---	---	---	11.39	11.82	11.98	12.00	11.83
4	---	---	---	---	---	---	---	11.40	11.83	11.93	12.00	11.83
5	---	---	---	---	---	---	---	11.43	11.84	11.91	12.00	11.82
6	---	---	---	---	---	---	---	11.45	11.84	11.89	11.99	11.82
7	---	---	---	---	---	---	---	11.47	11.85	11.93	11.99	11.81
8	---	---	---	---	---	---	---	11.48	11.86	11.94	11.99	11.80
9	---	---	---	---	---	---	---	11.50	11.87	11.96	11.98	11.79
10	---	---	---	---	---	---	---	11.52	11.87	11.96	11.98	11.78
11	---	---	---	---	---	---	---	11.54	11.87	11.97	11.97	11.77
12	---	---	---	---	---	---	---	11.55	11.87	11.98	11.96	11.77
13	---	---	---	---	---	---	---	11.56	11.88	11.98	11.96	11.76
14	---	---	---	---	---	---	---	11.57	11.88	11.98	11.96	11.75
15	---	---	---	---	---	---	---	11.59	11.89	11.99	11.95	11.74
16	---	---	---	---	---	---	---	11.60	11.87	11.99	11.95	11.74
17	---	---	---	---	---	---	---	11.62	11.86	12.00	11.94	11.73
18	---	---	---	---	---	---	---	11.63	11.89	11.99	11.93	11.72
19	---	---	---	---	---	---	[a]---	11.65	11.90	12.00	11.93	11.71
20	---	---	---	---	---	---	11.29	11.66	11.91	12.00	11.92	11.70
21	---	---	---	---	---	---	11.31	11.68	11.91	12.00	11.91	11.70
22	---	---	---	---	---	---	11.33	11.69	11.92	12.00	11.91	11.69
23	---	---	---	---	---	---	11.35	11.70	11.92	12.01	11.90	11.69
24	---	---	---	---	---	---	11.36	11.72	11.93	12.01	11.89	11.68
25	---	---	---	---	---	---	11.36	11.73	11.94	12.01	11.89	11.67
26	---	---	---	---	---	---	11.35	11.74	11.95	12.01	11.88	11.67
27	---	---	---	---	---	---	11.34	11.75	11.95	12.01	11.88	11.66
28	---	---	---	---	---	---	11.35	11.76	11.96	12.01	11.87	11.65
29	---	---	---	---	---	---	11.37	11.76	11.96	12.01	11.86	11.64
30	---	---	---	---	---	---	11.37	11.77	11.97	12.01	11.85	11.63
31	---	---	---	---	---	---	11.37	11.79	---	12.01	---	11.62
Max	---	---	---	---	---	---	11.37	11.79	11.97	12.01	12.01	11.84
Min	---	---	---	---	---	---	11.29	11.39	11.80	11.89	11.85	11.62

Year 2011 Statistics: **Year Max 12.01; Year Min 11.29**

Note: Water level in ft bgs.

[a]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR THE SEEP PIEZOMETER - SPR7014Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
5,769
5,768
5,767
5,766
5,765
5,764
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,779 ft amsl
Well Depth: 31 ft bgs

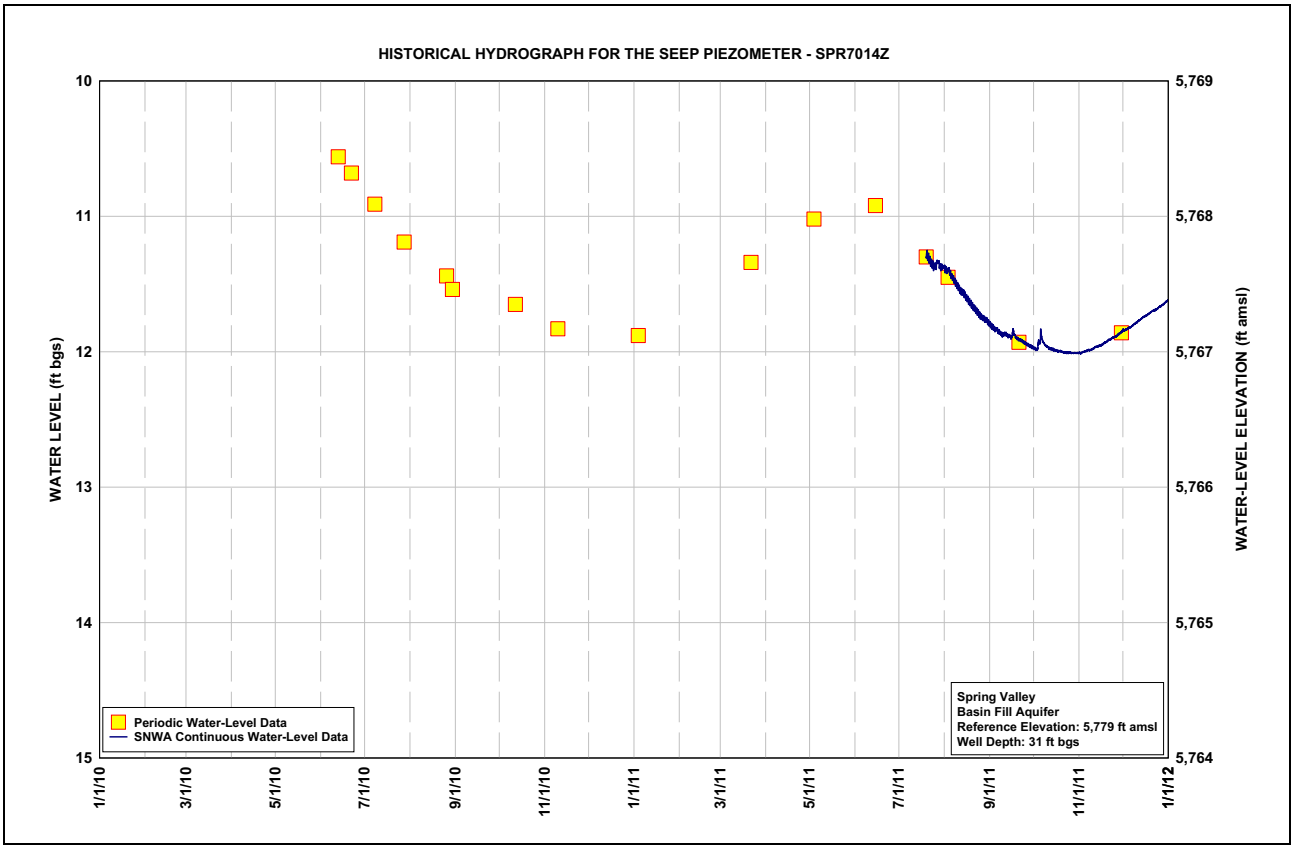

HISTORICAL HYDROGRAPH FOR THE SEEP PIEZOMETER - SPR7014Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
5,769
5,768
5,767
5,766
5,765
5,764
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,779 ft amsl
Well Depth: 31 ft bgs

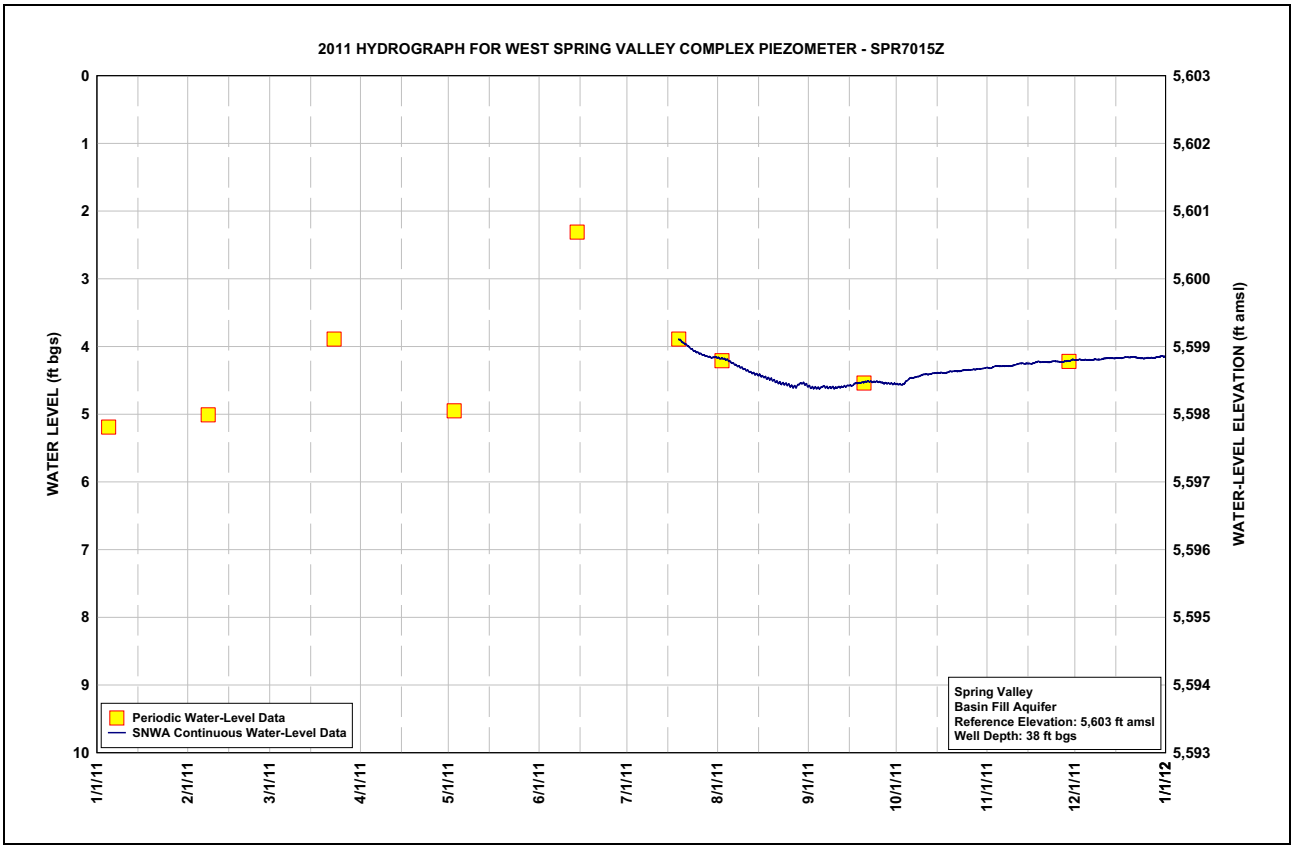
Table C-9
Spring Valley Well SPR7015Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	4.17	4.60	4.56	4.32	4.20
2	---	---	---	---	---	---	---	4.18	4.61	4.56	4.32	4.19
3	---	---	---	---	---	---	---	4.19	4.61	4.55	4.30	4.20
4	---	---	---	---	---	---	---	4.20	4.61	4.51	4.29	4.20
5	---	---	---	---	---	---	---	4.23	4.60	4.48	4.29	4.20
6	---	---	---	---	---	---	---	4.25	4.59	4.46	4.29	4.20
7	---	---	---	---	---	---	---	4.28	4.60	4.45	4.29	4.19
8	---	---	---	---	---	---	---	4.30	4.61	4.44	4.29	4.19
9	---	---	---	---	---	---	---	4.32	4.61	4.43	4.29	4.19
10	---	---	---	---	---	---	---	4.34	4.61	4.41	4.27	4.18
11	---	---	---	---	---	---	---	4.36	4.60	4.41	4.26	4.17
12	---	---	---	---	---	---	---	4.38	4.60	4.41	4.25	4.17
13	---	---	---	---	---	---	---	4.40	4.59	4.40	4.25	4.17
14	---	---	---	---	---	---	---	4.41	4.58	4.39	4.25	4.18
15	---	---	---	---	---	---	---	4.43	4.58	4.39	4.25	4.17
16	---	---	---	---	---	---	---	4.45	4.56	4.39	4.25	4.17
17	---	---	---	---	---	---	---	4.46	4.54	4.39	4.24	4.17
18	---	---	---	---	---	---	[a]---	4.48	4.54	4.38	4.22	4.16
19	---	---	---	---	---	---	3.92	4.49	4.53	4.37	4.23	4.16
20	---	---	---	---	---	---	3.95	4.51	4.52	4.37	4.23	4.16
21	---	---	---	---	---	---	3.98	4.53	4.52	4.37	4.23	4.16
22	---	---	---	---	---	---	4.02	4.54	4.52	4.36	4.23	4.17
23	---	---	---	---	---	---	4.05	4.55	4.52	4.36	4.22	4.17
24	---	---	---	---	---	---	4.08	4.56	4.52	4.35	4.22	4.18
25	---	---	---	---	---	---	4.09	4.57	4.53	4.35	4.22	4.17
26	---	---	---	---	---	---	4.11	4.59	4.54	4.35	4.23	4.17
27	---	---	---	---	---	---	4.13	4.59	4.54	4.34	4.22	4.17
28	---	---	---	---	---	---	4.15	4.57	4.55	4.33	4.21	4.16
29	---	---	---	---	---	---	4.16	4.55	4.55	4.33	4.21	4.15
30	---	---	---	---	---	---	4.16	4.55	4.55	4.33	4.19	4.14
31	---	---	---	---	---	---	4.16	4.57	---	4.32	---	4.15
Max	---	---	---	---	---	---	4.16	4.59	4.61	4.56	4.32	4.20
Min	---	---	---	---	---	---	3.92	4.17	4.52	4.32	4.19	4.14

Year 2011 Statistics: **Year Max 4.61; Year Min 3.92**

Note: Water level in ft bgs.

[a]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR WEST SPRING VALLEY COMPLEX PIEZOMETER - SPR7015Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
5,603
5,602
5,601
5,600
5,599
5,598
5,597
5,596
5,595
5,594
5,593
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,603 ft amsl
Well Depth: 38 ft bgs

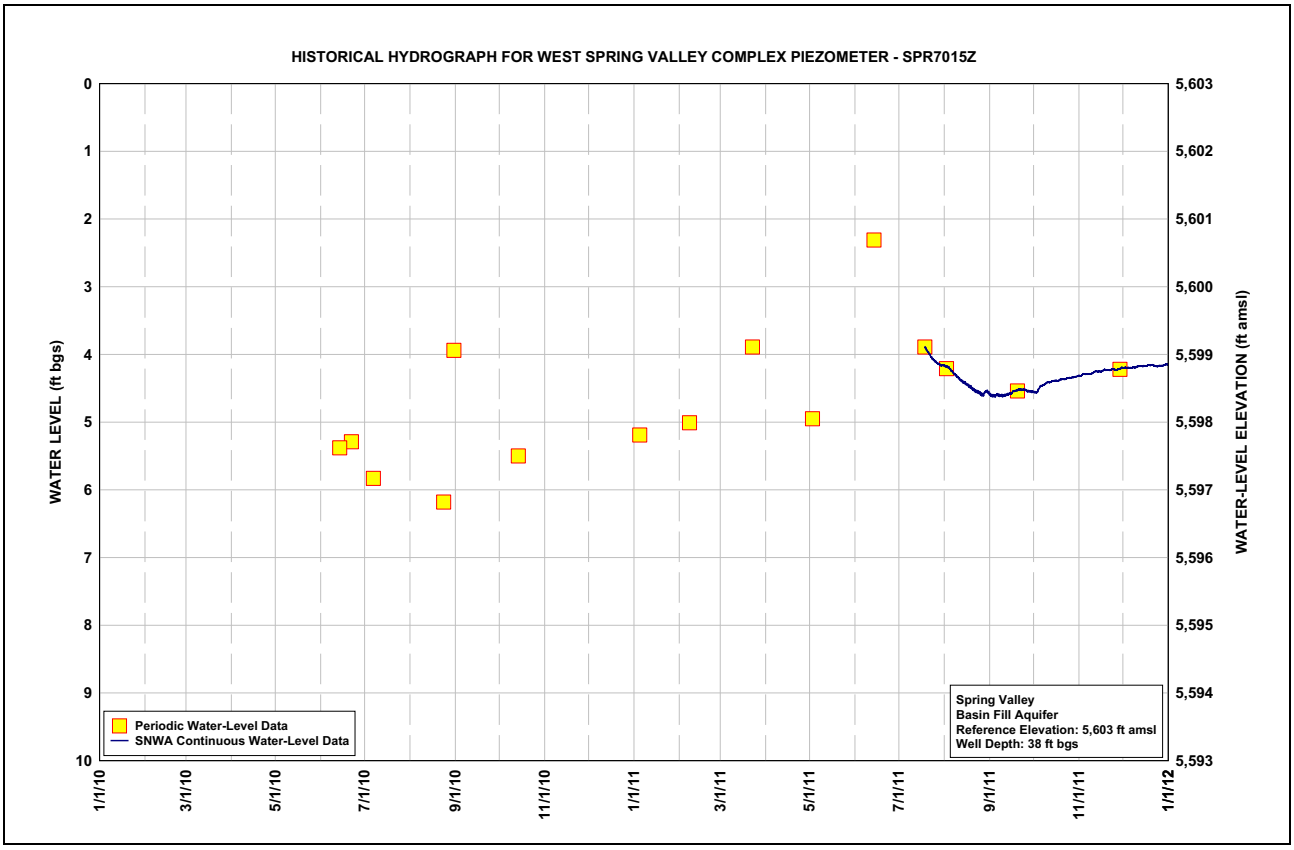
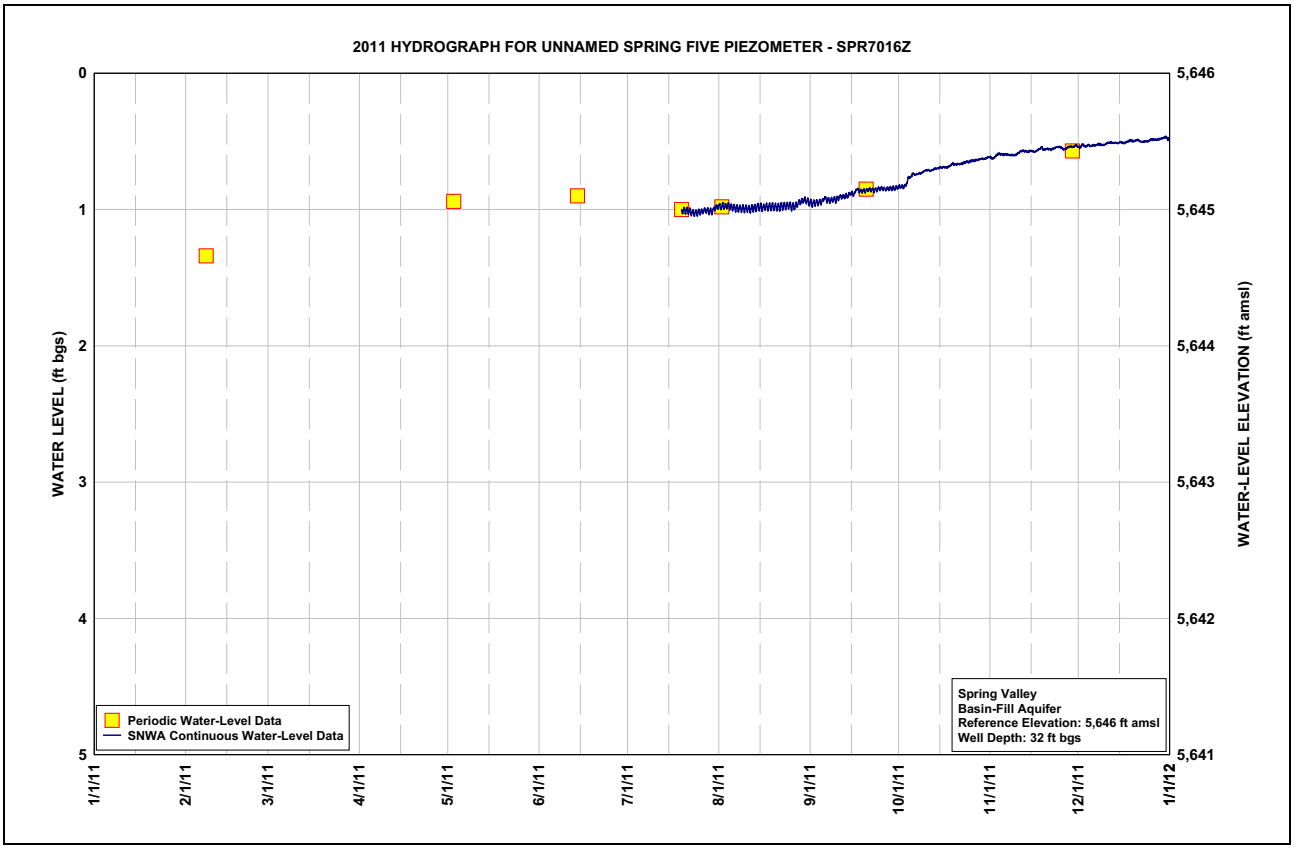

HISTORICAL HYDROGRAPH FOR WEST SPRING VALLEY COMPLEX PIEZOMETER - SPR7015Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
5,603
5,602
5,601
5,600
5,599
5,598
5,597
5,596
5,595
5,594
5,593
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,603 ft amsl
Well Depth: 38 ft bgs

Table C-10
Spring Valley Well SPR7016Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	0.98	0.95	0.83	0.62	0.54
2	---	---	---	---	---	---	---	0.98	0.95	0.83	0.62	0.53
3	---	---	---	---	---	---	---	0.97	0.95	0.81	0.60	0.53
4	---	---	---	---	---	---	---	0.98	0.95	0.77	0.59	0.53
5	---	---	---	---	---	---	---	0.99	0.93	0.75	0.60	0.53
6	---	---	---	---	---	---	---	0.99	0.93	0.74	0.59	0.53
7	---	---	---	---	---	---	---	0.99	0.93	0.74	0.60	0.52
8	---	---	---	---	---	---	---	0.99	0.93	0.73	0.60	0.52
9	---	---	---	---	---	---	---	0.99	0.93	0.72	0.60	0.53
10	---	---	---	---	---	---	---	0.99	0.92	0.71	0.59	0.52
11	---	---	---	---	---	---	---	1.00	0.91	0.71	0.57	0.51
12	---	---	---	---	---	---	---	0.99	0.90	0.71	0.57	0.51
13	---	---	---	---	---	---	---	0.99	0.90	0.70	0.57	0.51
14	---	---	---	---	---	---	---	0.98	0.88	0.70	0.57	0.51
15	---	---	---	---	---	---	---	0.98	0.88	0.69	0.57	0.51
16	---	---	---	---	---	---	---	0.98	0.86	0.69	0.57	0.51
17	---	---	---	---	---	---	---	0.98	0.86	0.69	0.56	0.50
18	---	---	---	---	---	---	---	0.98	0.86	0.68	0.55	0.50
19	---	---	---	---	---	---	1.02	0.98	0.86	0.67	0.56	0.50
20	---	---	---	---	---	---	1.01	0.98	0.86	0.67	0.55	0.49
21	---	---	---	---	---	---	1.01	0.98	0.85	0.67	0.56	0.49
22	---	---	---	---	---	---	1.02	0.98	0.86	0.66	0.55	0.50
23	---	---	---	---	---	---	1.02	0.97	0.85	0.65	0.54	0.50
24	---	---	---	---	---	---	1.02	0.97	0.85	0.65	0.54	0.50
25	---	---	---	---	---	---	1.02	0.98	0.85	0.64	0.55	0.49
26	---	---	---	---	---	---	1.01	0.98	0.85	0.64	0.56	0.49
27	---	---	---	---	---	---	1.01	0.96	0.85	0.64	0.54	0.49
28	---	---	---	---	---	---	1.01	0.94	0.85	0.63	0.54	0.48
29	---	---	---	---	---	---	1.01	0.93	0.84	0.63	0.54	0.48
30	---	---	---	---	---	---	0.99	0.93	0.84	0.63	0.53	0.47
31	---	---	---	---	---	---	0.98	0.94	---	0.62	---	0.48
Max	---	---	---	---	---	---	1.02	1.00	0.95	0.83	0.62	0.54
Min	---	---	---	---	---	---	0.98	0.93	0.84	0.62	0.53	0.47

Year 2011 Statistics: **Year Max 1.02; Year Min 0.47**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR UNNAMED SPRING FIVE PIEZOMETER - SPR7016Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
5,646
5,645
5,644
5,643
5,642
5,641
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,646 ft amsl
Well Depth: 32 ft bgs

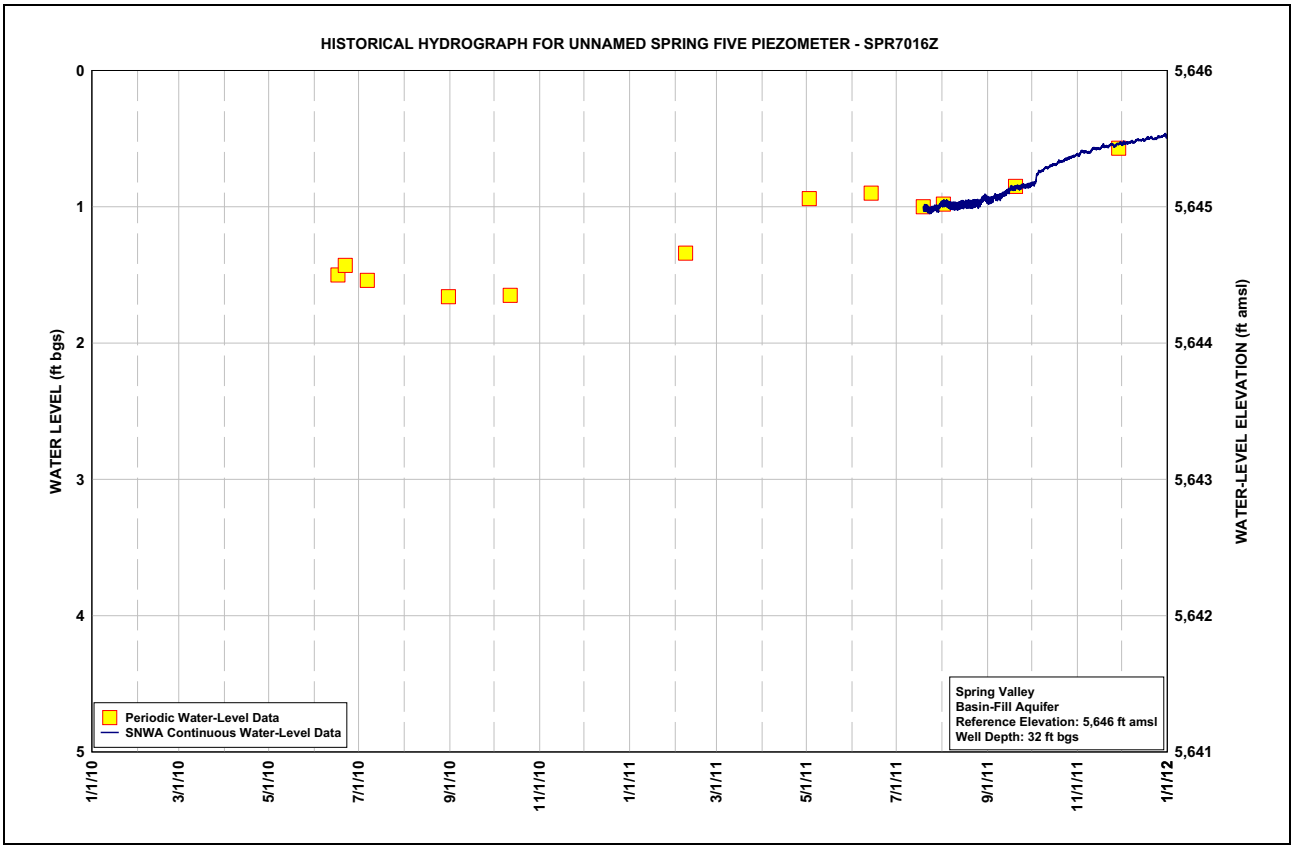
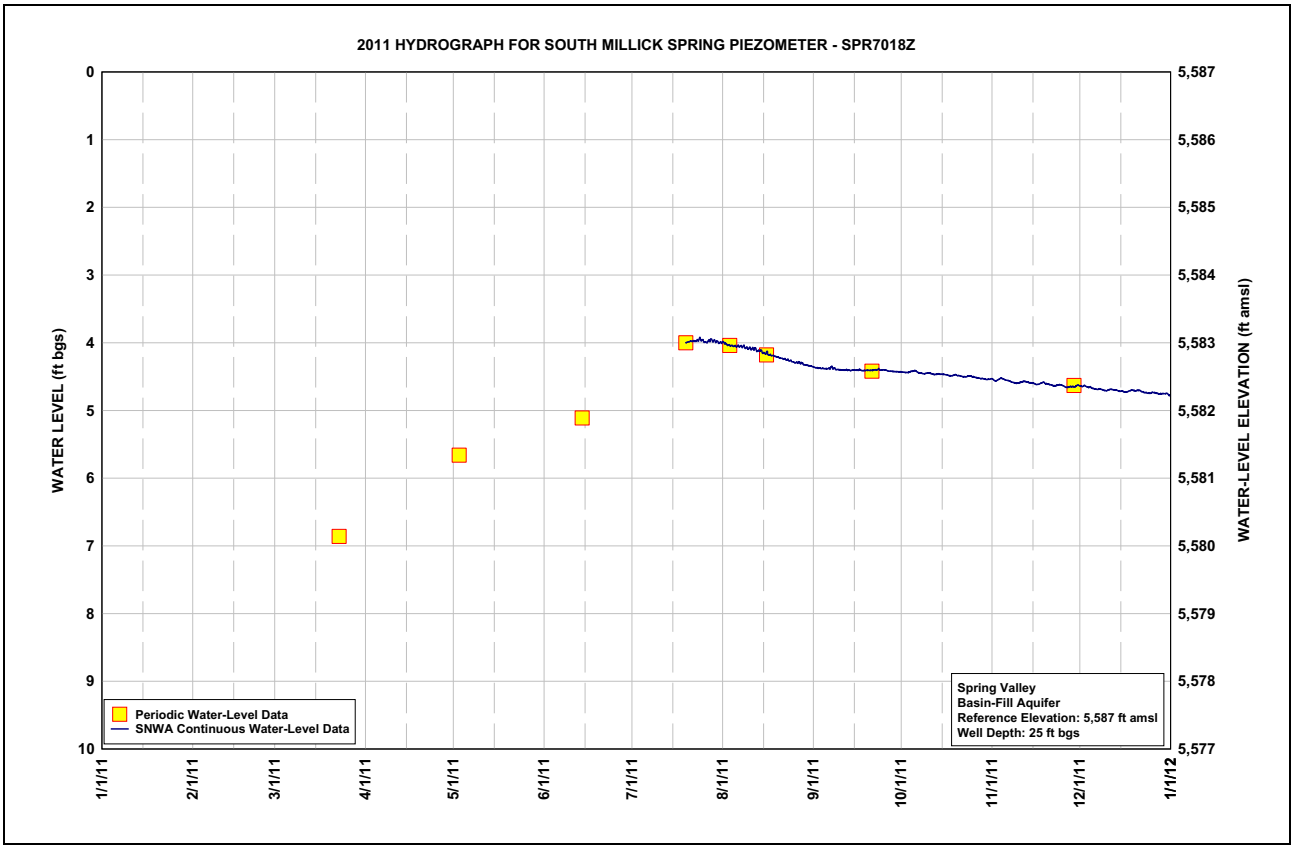

HISTORICAL HYDROGRAPH FOR UNNAMED SPRING FIVE PIEZOMETER - SPR7016Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
5,646
5,645
5,644
5,643
5,642
5,641
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,646 ft amsl
Well Depth: 32 ft bgs

Table C-11
Spring Valley Well SPR7018Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	4.00	4.36	4.43	4.55	4.64
2	---	---	---	---	---	---	---	4.03	4.37	4.44	4.56	4.64
3	---	---	---	---	---	---	---	4.04	4.38	4.44	4.54	4.65
4	---	---	---	---	---	---	---	4.05	4.38	4.42	4.53	4.66
5	---	---	---	---	---	---	---	4.05	4.38	4.41	4.55	4.67
6	---	---	---	---	---	---	---	4.05	4.38	4.43	4.56	4.68
7	---	---	---	---	---	---	---	4.05	4.37	4.45	4.57	4.68
8	---	---	---	---	---	---	---	4.06	4.39	4.46	4.59	4.69
9	---	---	---	---	---	---	---	4.08	4.40	4.45	4.60	4.70
10	---	---	---	---	---	---	---	4.09	4.40	4.45	4.59	4.70
11	---	---	---	---	---	---	---	4.09	4.40	4.46	4.57	4.69
12	---	---	---	---	---	---	---	4.10	4.40	4.47	4.57	4.69
13	---	---	---	---	---	---	---	4.12	4.41	4.46	4.59	4.70
14	---	---	---	---	---	---	---	4.13	4.40	4.46	4.59	4.71
15	---	---	---	---	---	---	---	4.16	4.41	4.47	4.60	4.71
16	---	---	---	---	---	---	---	4.16	4.40	4.47	4.61	4.73
17	---	---	---	---	---	---	---	4.18	4.41	4.49	4.60	4.72
18	---	---	---	---	---	---	---	4.19	4.41	4.48	4.59	4.70
19	---	---	---	---	---	---	4.00	4.21	4.41	4.47	4.60	4.71
20	---	---	---	---	---	---	3.99	4.22	4.41	4.48	4.61	4.71
21	---	---	---	---	---	---	3.98	4.24	4.40	4.50	4.63	4.71
22	---	---	---	---	---	---	3.97	4.24	4.40	4.50	4.63	4.73
23	---	---	---	---	---	---	3.97	4.26	4.40	4.50	4.62	4.74
24	---	---	---	---	---	---	3.95	4.27	4.40	4.49	4.62	4.75
25	---	---	---	---	---	---	3.98	4.29	4.40	4.50	4.64	4.74
26	---	---	---	---	---	---	3.99	4.29	4.42	4.51	4.66	4.74
27	---	---	---	---	---	---	3.97	4.30	4.42	4.52	4.65	4.75
28	---	---	---	---	---	---	3.97	4.31	4.42	4.53	4.65	4.75
29	---	---	---	---	---	---	3.98	4.33	4.43	4.54	4.65	4.75
30	---	---	---	---	---	---	3.99	4.34	4.43	4.54	4.63	4.75
31	---	---	---	---	---	---	4.00	4.35	---	4.53	---	4.77
Max	---	---	---	---	---	---	4.00	4.35	4.43	4.54	4.66	4.77
Min	---	---	---	---	---	---	3.95	4.00	4.36	4.41	4.53	4.64

Year 2011 Statistics: **Year Max 4.77; Year Min 3.95**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR SOUTH MILLICK SPRING PIEZOMETER - SPR7018Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
5,587
5,586
5,585
5,584
5,583
5,582
5,581
5,580
5,579
5,578
5,577
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,587 ft amsl
Well Depth: 25 ft bgs

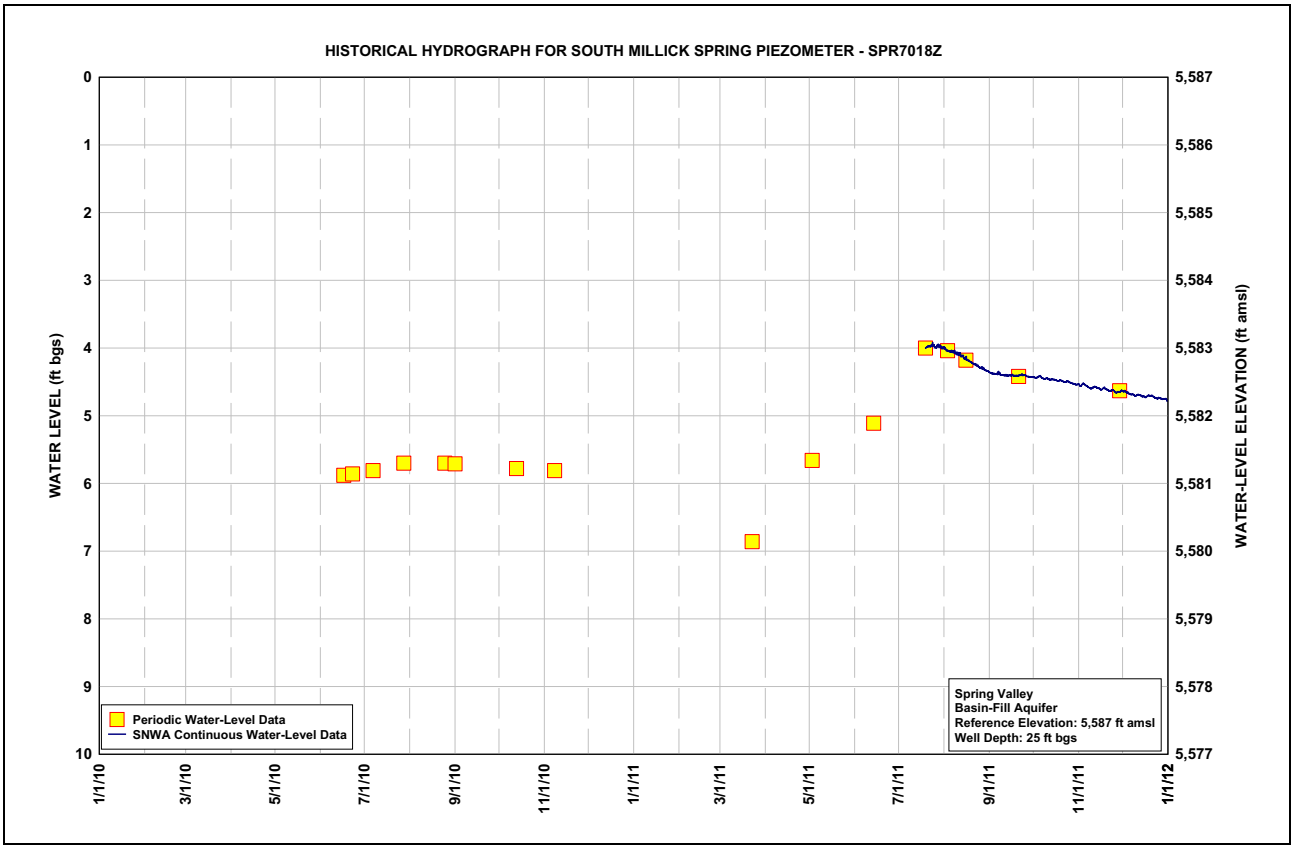
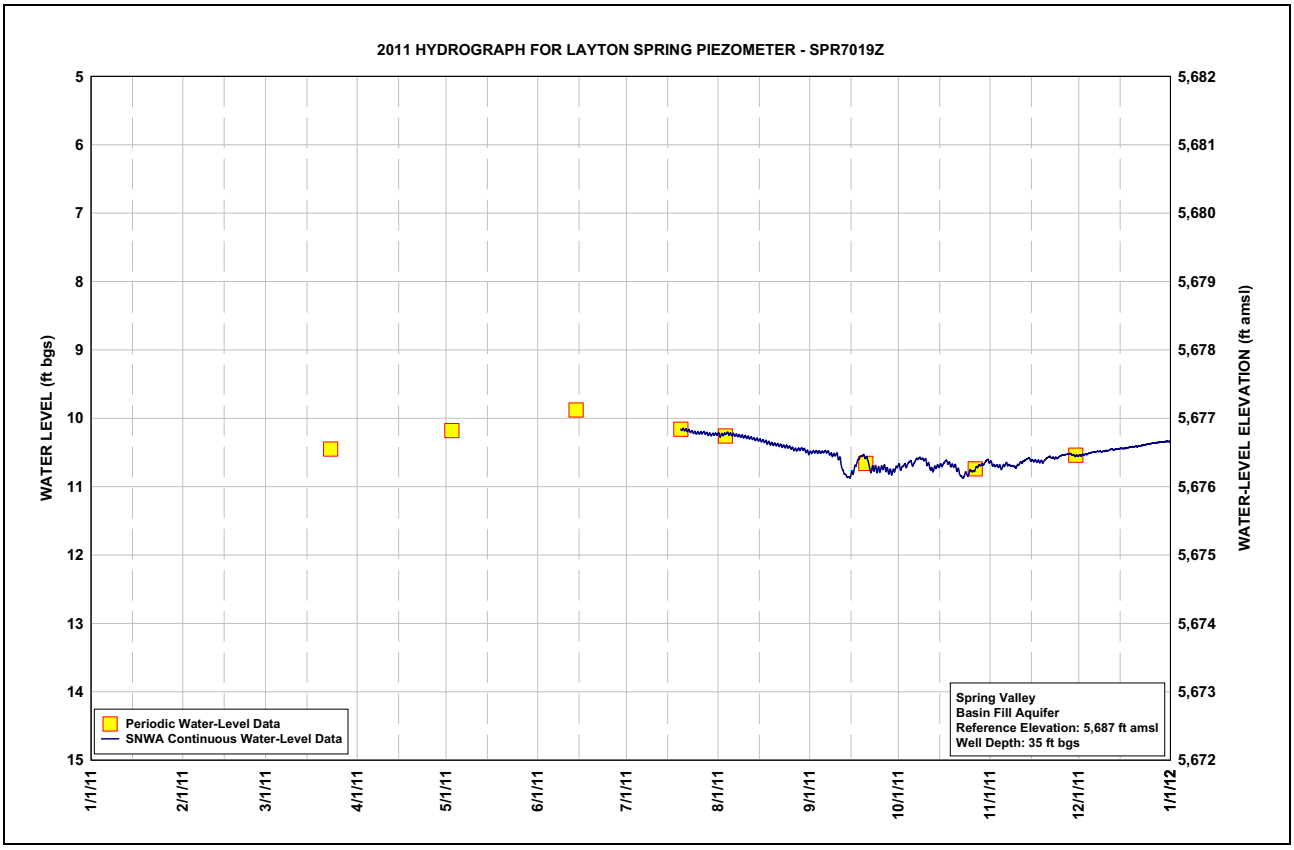

HISTORICAL HYDROGRAPH FOR SOUTH MILLICK SPRING PIEZOMETER - SPR7018Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
5,587
5,586
5,585
5,584
5,583
5,582
5,581
5,580
5,579
5,578
5,577
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,587 ft amsl
Well Depth: 25 ft bgs

Table C-12
Spring Valley Well SPR7019Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	10.24	10.50	10.71	10.66	10.54
2	---	---	---	---	---	---	---	10.24	10.49	10.70	10.69	10.53
3	---	---	---	---	---	---	---	10.23	10.49	10.69	10.70	10.53
4	---	---	---	---	---	---	---	10.22	10.50	10.65	10.71	10.51
5	---	---	---	---	---	---	---	10.24	10.49	10.66	10.70	10.50
6	---	---	---	---	---	---	---	10.24	10.49	10.64	10.67	10.49
7	---	---	---	---	---	---	---	10.25	10.51	10.59	10.69	10.49
8	---	---	---	---	---	---	---	10.26	10.53	10.59	10.70	10.49
9	---	---	---	---	---	---	---	10.27	10.53	10.60	10.72	10.48
10	---	---	---	---	---	---	---	10.27	10.56	10.64	10.68	10.48
11	---	---	---	---	---	---	---	10.28	10.64	10.70	10.65	10.46
12	---	---	---	---	---	---	---	10.29	10.79	10.75	10.62	10.46
13	---	---	---	---	---	---	---	10.31	10.85	10.72	10.59	10.45
14	---	---	---	---	---	---	---	10.31	10.86	10.70	10.60	10.45
15	---	---	---	---	---	---	---	10.32	10.79	10.69	10.62	10.44
16	---	---	---	---	---	---	---	10.34	10.70	10.65	10.62	10.44
17	---	---	---	---	---	---	---	10.35	10.60	10.64	10.63	10.43
18	---	---	---	---	---	---	---	10.37	10.55	10.68	10.63	10.42
19	---	---	---	---	---	---	10.17	10.38	10.56	10.69	10.61	10.42
20	---	---	---	---	---	---	10.17	10.38	10.60	10.72	10.57	10.41
21	---	---	---	---	---	---	10.18	10.39	10.75	10.78	10.57	10.41
22	---	---	---	---	---	---	10.19	10.40	10.73	10.86	10.58	10.40
23	---	---	---	---	---	---	10.20	10.41	10.74	10.82	10.58	10.39
24	---	---	---	---	---	---	10.21	10.42	10.75	10.83	10.56	10.38
25	---	---	---	---	---	---	10.21	10.43	10.73	10.77	10.54	10.37
26	---	---	---	---	---	---	10.21	10.45	10.73	10.77	10.53	10.36
27	---	---	---	---	---	---	10.21	10.46	10.77	10.72	10.52	10.36
28	---	---	---	---	---	---	10.23	10.45	10.78	10.69	10.53	10.35
29	---	---	---	---	---	---	10.24	10.45	10.76	10.68	10.55	10.35
30	---	---	---	---	---	---	10.23	10.47	10.71	10.64	10.55	10.34
31	---	---	---	---	---	---	10.23	10.50	---	10.63	---	10.34
Max	---	---	---	---	---	---	10.24	10.50	10.86	10.86	10.72	10.54
Min	---	---	---	---	---	---	10.17	10.22	10.49	10.59	10.52	10.34

Year 2011 Statistics: **Year Max 10.86; Year Min 10.17**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR LAYTON SPRING PIEZOMETER - SPR7019Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
5
6
7
8
9
10
11
12
13
14
15
5,682
5,681
5,680
5,679
5,678
5,677
5,676
5,675
5,674
5,673
5,672
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,687 ft amsl
Well Depth: 35 ft bgs

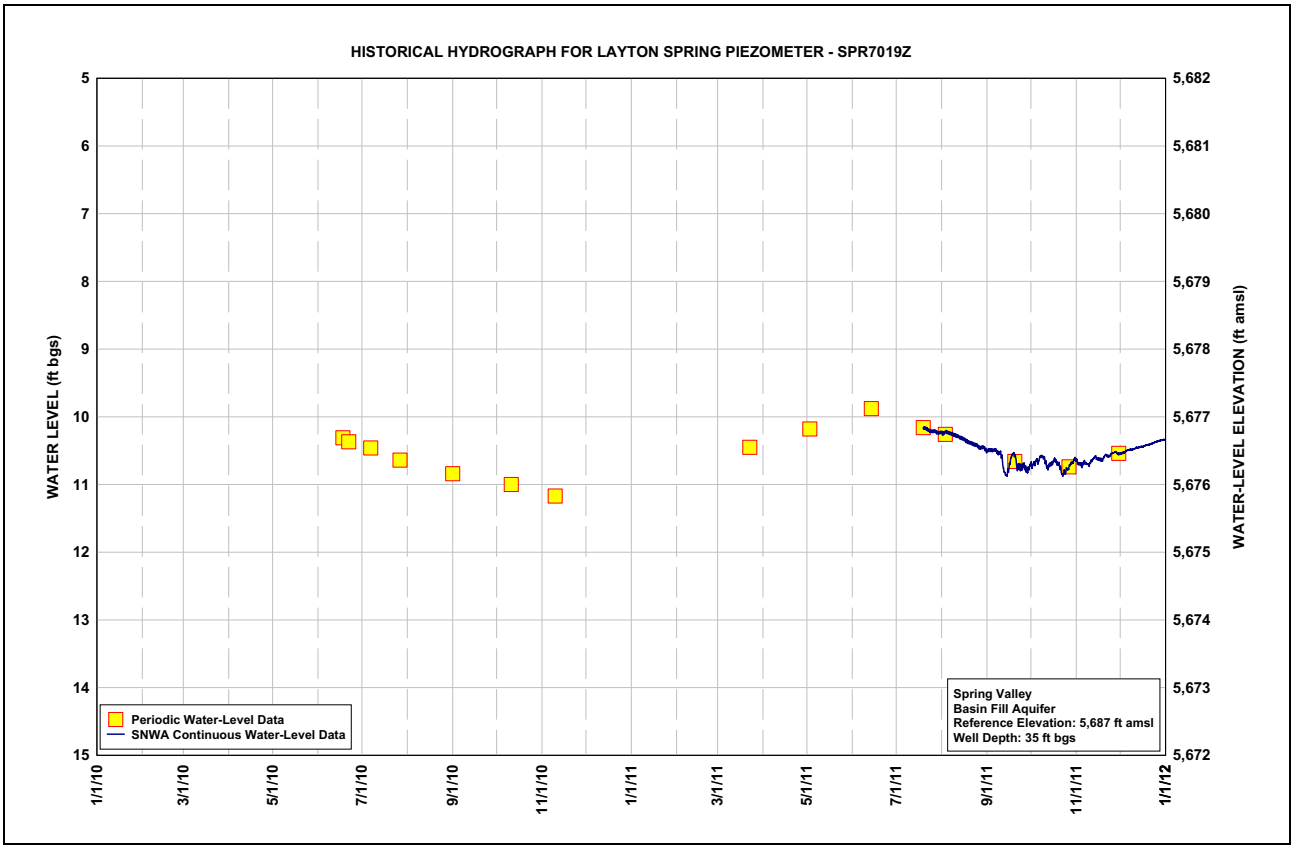

HISTORICAL HYDROGRAPH FOR LAYTON SPRING PIEZOMETER - SPR7019Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
5
6
7
8
9
10
11
12
13
14
15
5,682
5,681
5,680
5,679
5,678
5,677
5,676
5,675
5,674
5,673
5,672
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,687 ft amsl
Well Depth: 35 ft bgs

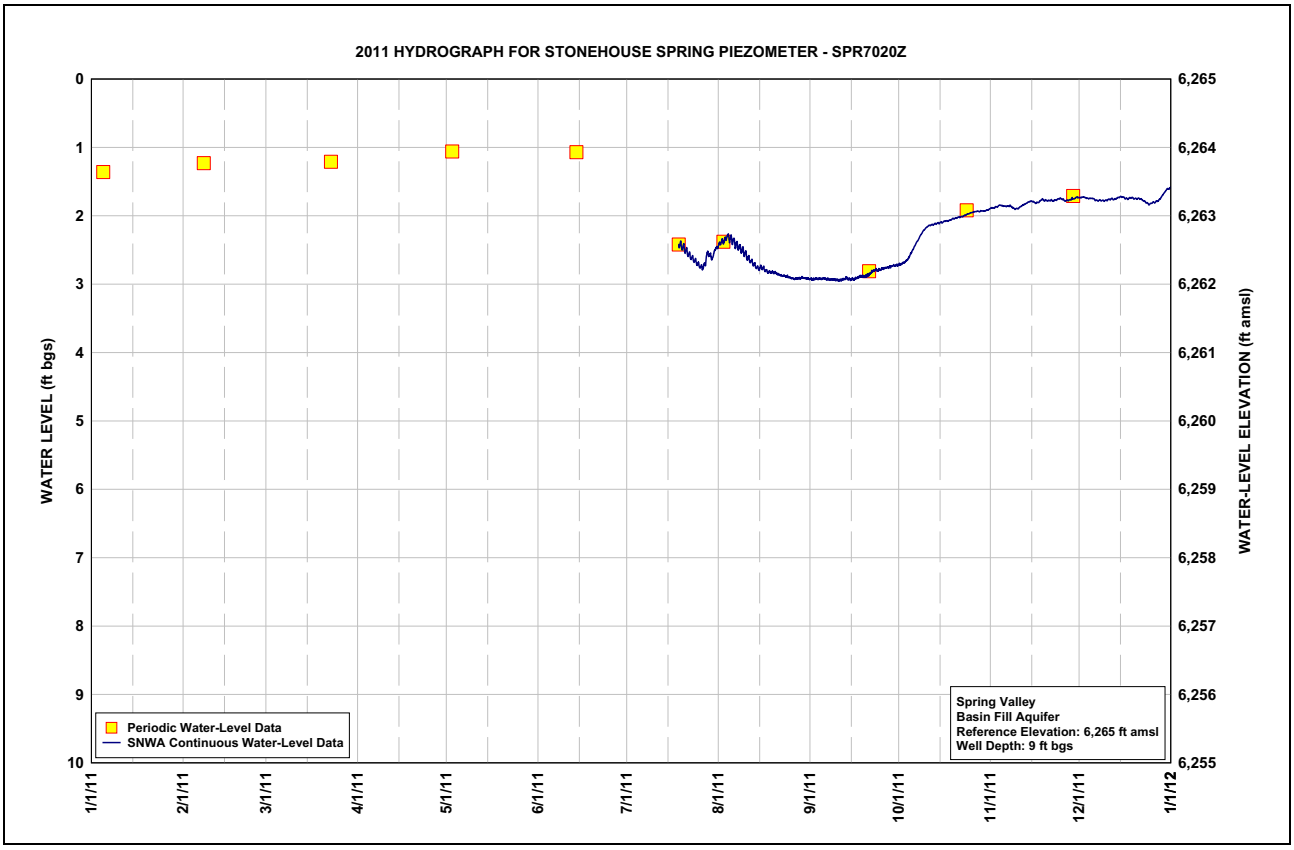
Table C-13
Spring Valley Well SPR7020Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	2.41	2.93	2.71	1.88	1.73
2	---	---	---	---	---	---	---	2.37	2.93	2.69	1.88	1.73
3	---	---	---	---	---	---	---	2.33	2.92	2.66	1.86	1.74
4	---	---	---	---	---	---	---	2.32	2.92	2.60	1.85	1.75
5	---	---	---	---	---	---	---	2.35	2.92	2.52	1.86	1.75
6	---	---	---	---	---	---	---	2.39	2.93	2.44	1.86	1.77
7	---	---	---	---	---	---	---	2.44	2.93	2.36	1.86	1.78
8	---	---	---	---	---	---	---	2.48	2.93	2.28	1.88	1.78
9	---	---	---	---	---	---	---	2.52	2.94	2.21	1.90	1.78
10	---	---	---	---	---	---	---	2.58	2.94	2.17	1.89	1.77
11	---	---	---	---	---	---	---	2.64	2.93	2.14	1.86	1.76
12	---	---	---	---	---	---	---	2.68	2.93	2.13	1.83	1.76
13	---	---	---	---	---	---	---	2.73	2.91	2.12	1.81	1.75
14	---	---	---	---	---	---	---	2.77	2.93	2.11	1.79	1.73
15	---	---	---	---	---	---	---	2.76	2.93	2.10	1.79	1.72
16	---	---	---	---	---	---	---	2.78	2.91	2.08	1.81	1.74
17	---	---	---	---	---	---	---	2.81	2.90	2.07	1.79	1.75
18	---	---	---	---	---	---	[a]---	2.82	2.89	2.06	1.77	1.74
19	---	---	---	---	---	---	2.44	2.83	2.88	2.04	1.77	1.75
20	---	---	---	---	---	---	2.48	2.84	2.87	2.03	1.78	1.75
21	---	---	---	---	---	---	2.53	2.86	2.83	2.02	1.78	1.75
22	---	---	---	---	---	---	2.59	2.87	2.80	2.01	1.78	1.77
23	---	---	---	---	---	---	2.63	2.88	2.79	1.99	1.76	1.80
24	---	---	---	---	---	---	2.68	2.89	2.79	1.97	1.75	1.83
25	---	---	---	---	---	---	2.72	2.91	2.77	1.96	1.76	1.82
26	---	---	---	---	---	---	2.75	2.92	2.76	1.94	1.78	1.80
27	---	---	---	---	---	---	2.69	2.92	2.75	1.93	1.77	1.78
28	---	---	---	---	---	---	2.56	2.91	2.74	1.93	1.76	1.74
29	---	---	---	---	---	---	2.60	2.91	2.73	1.93	1.75	1.68
30	---	---	---	---	---	---	2.55	2.91	2.72	1.92	1.73	1.62
31	---	---	---	---	---	---	2.47	2.92	---	1.91	---	1.60
Max	---	---	---	---	---	---	2.75	2.92	2.94	2.71	1.90	1.83
Min	---	---	---	---	---	---	2.44	2.32	2.72	1.91	1.73	1.60

Year 2011 Statistics: **Year Max 2.94; Year Min 1.60**

Note: Water level in ft bgs.

[a]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR STONEHOUSE SPRING PIEZOMETER - SPR7020Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
6,265
6,264
6,263
6,262
6,261
6,260
6,259
6,258
6,257
6,256
6,255
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 6,265 ft amsl
Well Depth: 9 ft bgs

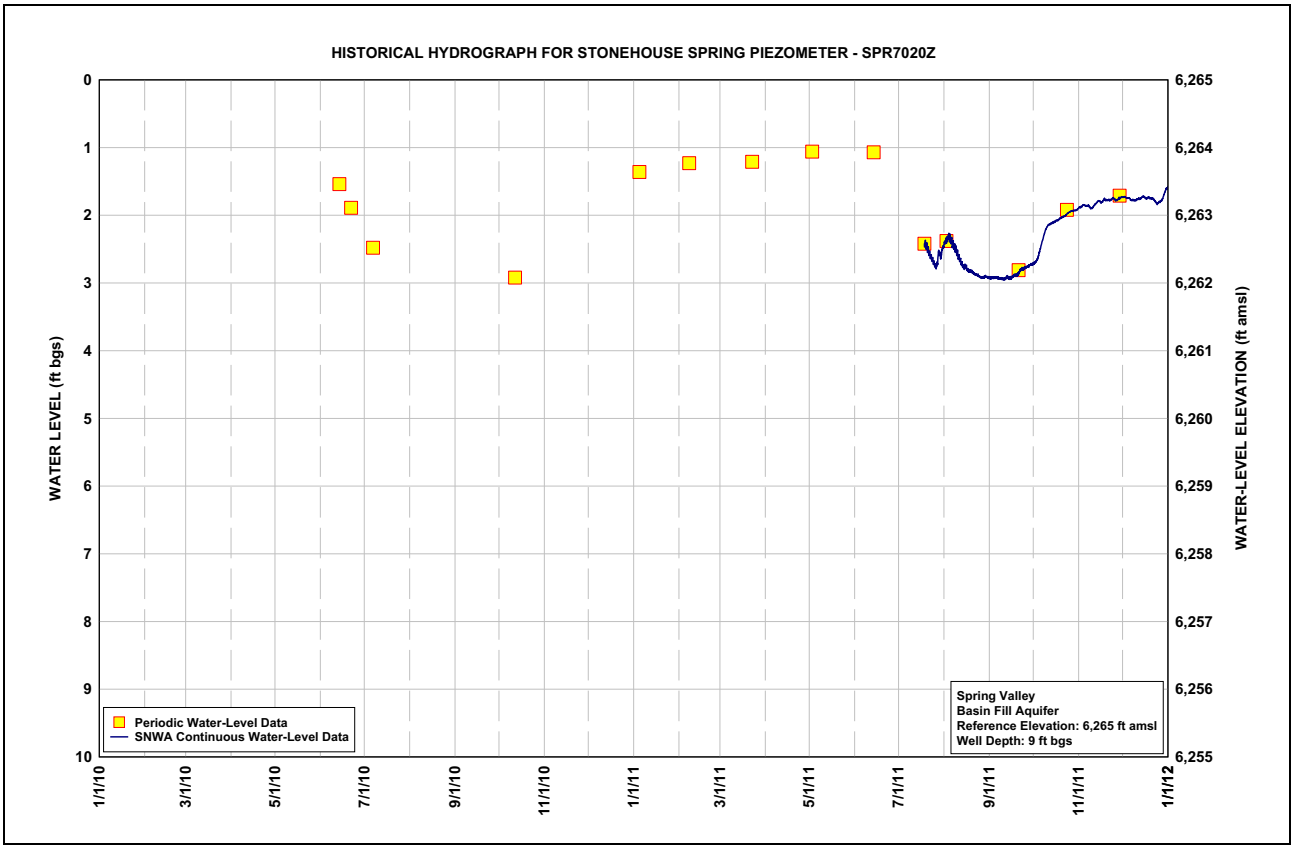
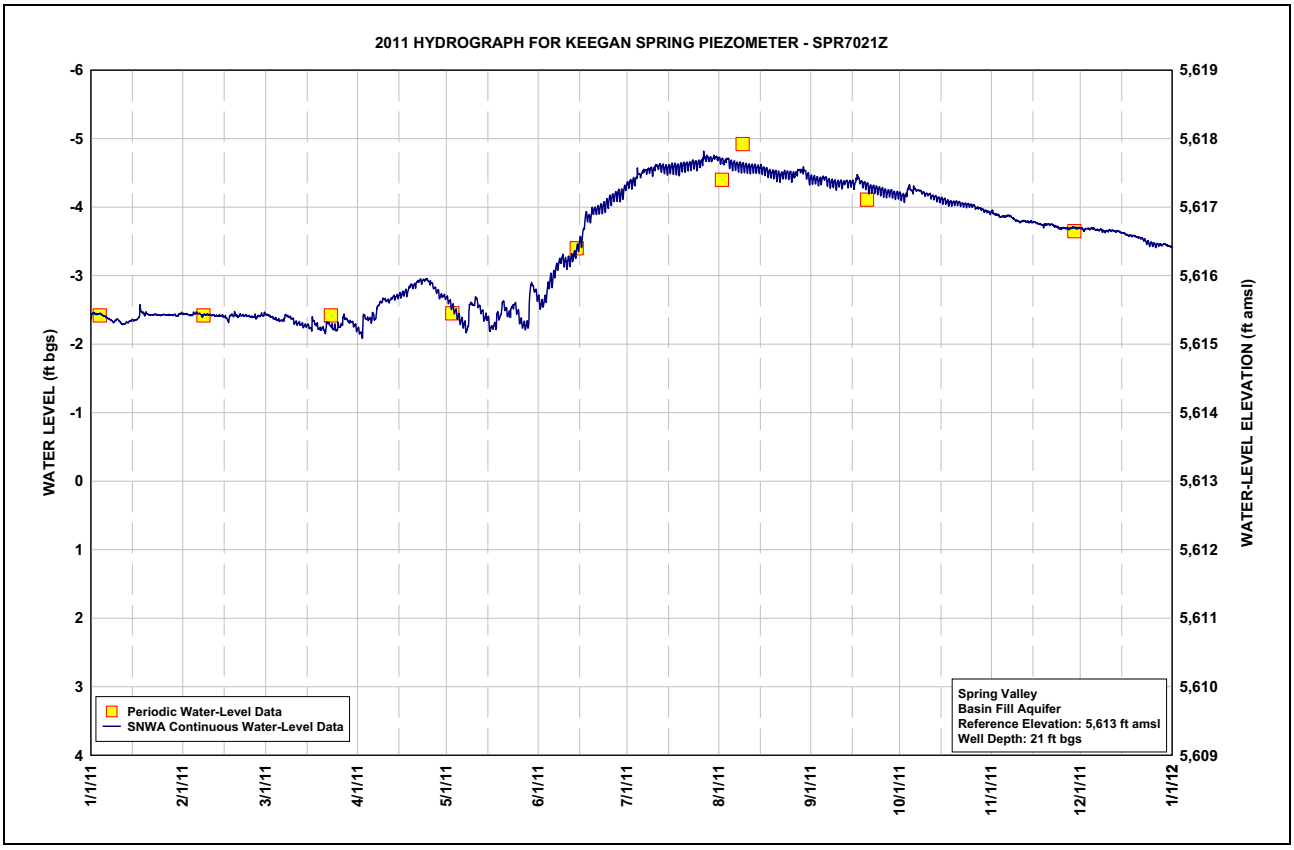

HISTORICAL HYDROGRAPH FOR STONEHOUSE SPRING PIEZOMETER - SPR7020Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
0
1
2
3
4
5
6
7
8
9
10
6,265
6,264
6,263
6,262
6,261
6,260
6,259
6,258
6,257
6,256
6,255
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 6,265 ft amsl
Well Depth: 9 ft bgs

Table C-14
Spring Valley Well SPR7021Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-2.43	-2.44	-2.43	-2.20	-2.65	-2.61	-4.34	-4.69	-4.41	-4.16	-3.93	-3.69
2	-2.44	-2.44	-2.41	-2.19	-2.58	-2.59	-4.35	-4.67	-4.41	-4.15	-3.89	-3.67
3	-2.44	-2.42	-2.39	-2.40	-2.51	-2.67	-4.38	-4.69	-4.39	-4.22	-3.88	-3.69
4	-2.44	-2.44	-2.36	-2.36	-2.44	-2.85	-4.47	-4.65	-4.40	-4.28	-3.86	-3.68
5	-2.41	-2.45	-2.35	-2.36	-2.37	-2.94	-4.47	-4.62	-4.43	-4.25	-3.86	-3.69
6	-2.38	-2.45	-2.35	-2.41	-2.32	-3.04	-4.52	-4.62	-4.39	-4.25	-3.87	-3.67
7	-2.36	-2.42	-2.39	-2.48	-2.25	-3.14	-4.53	-4.60	-4.36	-4.24	-3.86	-3.67
8	-2.33	-2.43	-2.41	-2.60	-2.38	-3.22	-4.54	-4.60	-4.35	-4.22	-3.83	-3.66
9	-2.35	-2.43	-2.38	-2.64	-2.59	-3.23	-4.53	-4.59	-4.33	-4.19	-3.80	-3.65
10	-2.34	-2.43	-2.33	-2.64	-2.61	-3.19	-4.59	-4.58	-4.35	-4.19	-3.79	-3.66
11	-2.30	-2.42	-2.31	-2.63	-2.61	-3.22	-4.59	-4.58	-4.34	-4.17	-3.80	-3.66
12	-2.30	-2.41	-2.30	-2.67	-2.51	-3.26	-4.58	-4.57	-4.37	-4.15	-3.79	-3.65
13	-2.32	-2.42	-2.27	-2.69	-2.42	-3.32	-4.57	-4.57	-4.35	-4.13	-3.79	-3.65
14	-2.34	-2.41	-2.27	-2.70	-2.40	-3.42	-4.56	-4.57	-4.35	-4.12	-3.78	-3.64
15	-2.35	-2.39	-2.26	-2.71	-2.29	-3.51	-4.57	-4.56	-4.34	-4.10	-3.78	-3.62
16	-2.36	-2.36	-2.28	-2.74	-2.25	-3.72	-4.57	-4.54	-4.41	-4.09	-3.76	-3.60
17	-2.46	-2.42	-2.31	-2.75	-2.28	-3.86	-4.57	-4.52	-4.39	-4.07	-3.75	-3.59
18	-2.46	-2.43	-2.26	-2.82	-2.42	-3.84	-4.56	-4.49	-4.34	-4.06	-3.73	-3.58
19	-2.45	-2.41	-2.22	-2.85	-2.47	-3.95	-4.59	-4.49	-4.33	-4.07	-3.75	-3.58
20	-2.43	-2.42	-2.22	-2.87	-2.57	-3.95	-4.60	-4.46	-4.29	-4.07	-3.75	-3.56
21	-2.43	-2.42	-2.25	-2.92	-2.47	-3.97	-4.61	-4.46	-4.28	-4.05	-3.75	-3.55
22	-2.43	-2.42	-2.29	-2.92	-2.46	-3.99	-4.62	-4.47	-4.27	-4.04	-3.72	-3.53
23	-2.43	-2.41	-2.25	-2.94	-2.55	-4.02	-4.63	-4.49	-4.26	-4.03	-3.70	-3.49
24	-2.42	-2.40	-2.23	-2.94	-2.53	-4.07	-4.62	-4.48	-4.25	-4.03	-3.69	-3.46
25	-2.43	-2.39	-2.25	-2.90	-2.41	-4.12	-4.64	-4.46	-4.23	-4.02	-3.70	-3.46
26	-2.43	-2.41	-2.27	-2.85	-2.31	-4.15	-4.69	-4.48	-4.21	-4.00	-3.69	-3.45
27	-2.43	-2.42	-2.39	-2.79	-2.28	-4.18	-4.72	-4.52	-4.21	-3.99	-3.69	-3.45
28	-2.43	-2.43	-2.36	-2.73	-2.31	-4.18	-4.71	-4.54	-4.20	-3.97	-3.70	-3.45
29	-2.42	---	-2.32	-2.71	-2.82	-4.21	-4.70	-4.53	-4.19	-3.95	-3.70	-3.46
30	-2.43	---	-2.30	-2.69	-2.81	-4.29	-4.73	-4.48	-4.19	-3.94	-3.70	-3.44
31	-2.45	---	-2.24	---	-2.72	---	-4.71	-4.42	---	-3.92	---	-3.42
Max	-2.30	-2.36	-2.22	-2.19	-2.25	-2.59	-4.34	-4.42	-4.19	-3.92	-3.69	-3.42
Min	-2.46	-2.45	-2.43	-2.94	-2.82	-4.29	-4.73	-4.69	-4.43	-4.28	-3.93	-3.69

Year 2011 Statistics: **Year Max -2.19; Year Min -4.73**

Note: Water level in ft bgs.


2011 HYDROGRAPH FOR KEEGAN SPRING PIEZOMETER - SPR7021Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5,619
5,618
5,617
5,616
5,615
5,614
5,613
5,612
5,611
5,610
5,609
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,613 ft amsl
Well Depth: 21 ft bgs

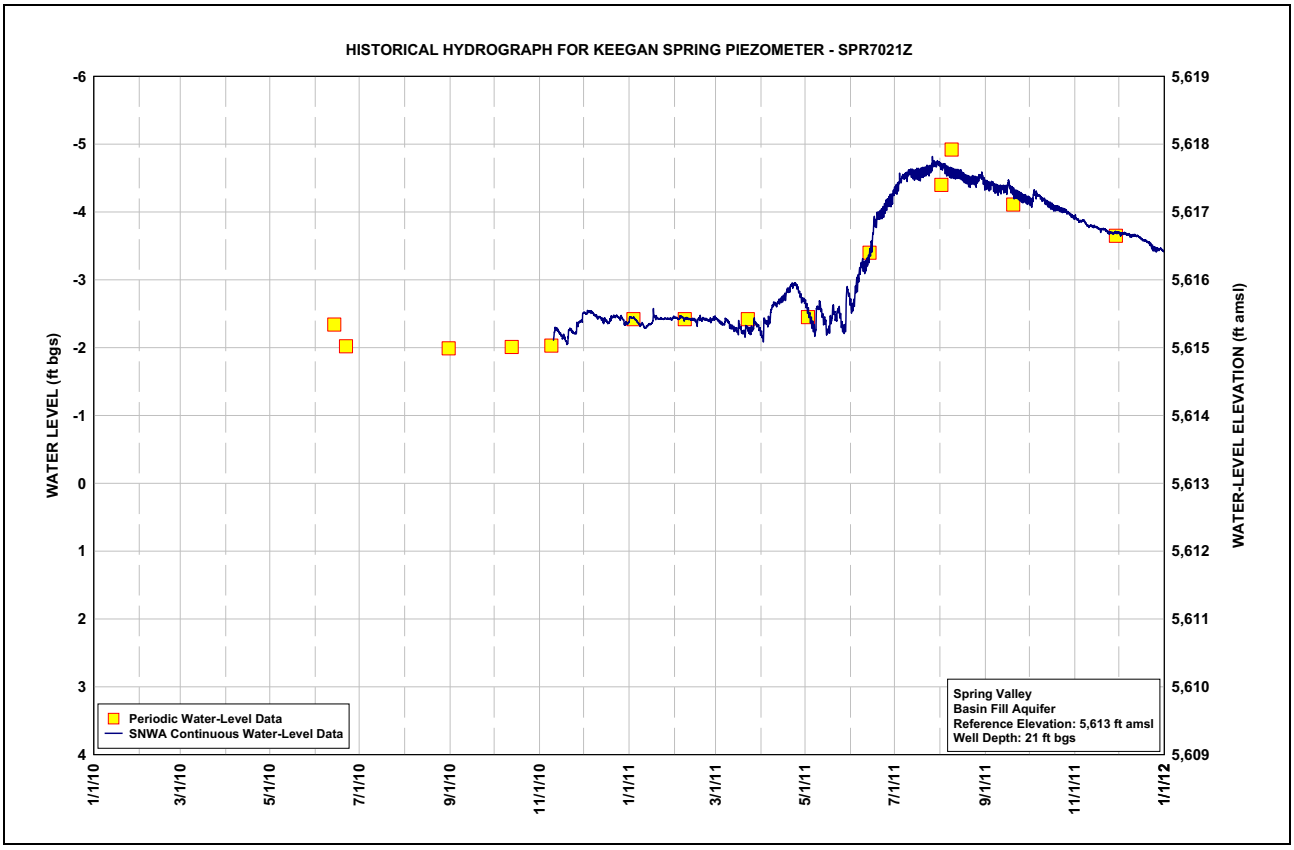

HISTORICAL HYDROGRAPH FOR KEEGAN SPRING PIEZOMETER - SPR7021Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5,619
5,618
5,617
5,616
5,615
5,614
5,613
5,612
5,611
5,610
5,609
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,613 ft amsl
Well Depth: 21 ft bgs

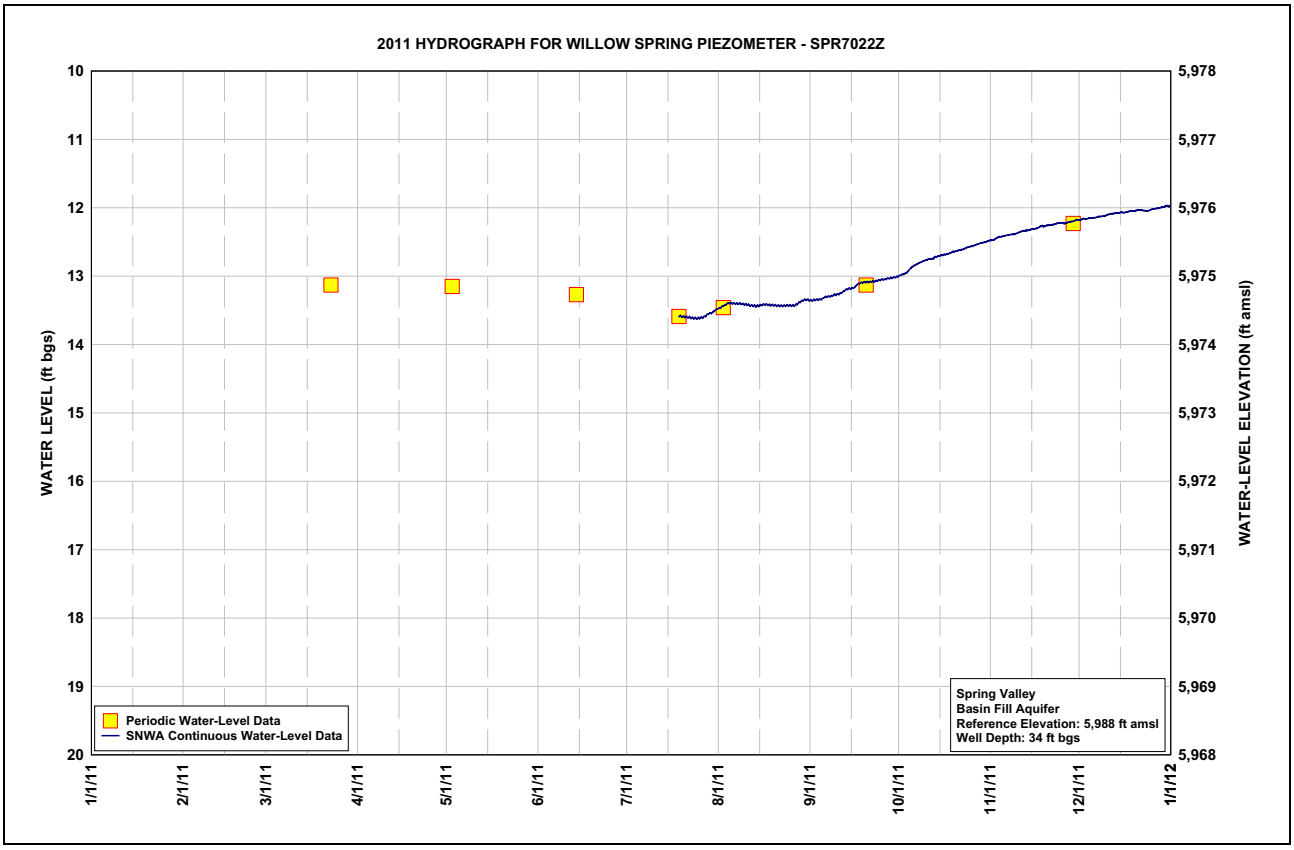
Table C-15
Spring Valley Well SPR7022Z, Calendar Year 2011
Water-Level Data, Daily Mean Values

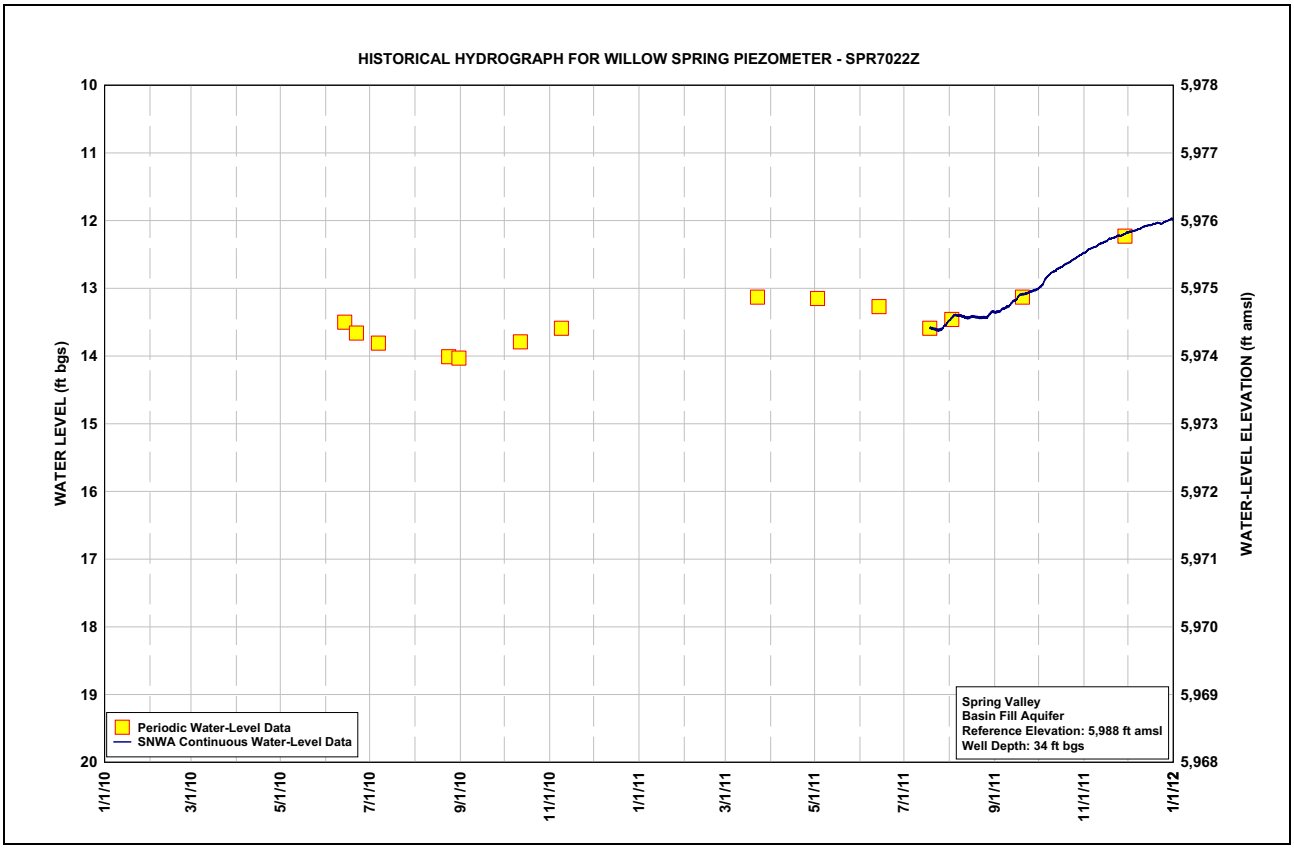
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	13.46	13.35	12.99	12.47	12.17
2	---	---	---	---	---	---	---	13.44	13.35	12.97	12.46	12.16
3	---	---	---	---	---	---	---	13.42	13.34	12.95	12.44	12.16
4	---	---	---	---	---	---	---	13.40	13.34	12.91	12.42	12.15
5	---	---	---	---	---	---	---	13.40	13.32	12.87	12.41	12.15
6	---	---	---	---	---	---	---	13.40	13.30	12.84	12.40	12.14
7	---	---	---	---	---	---	---	13.40	13.30	12.82	12.40	12.13
8	---	---	---	---	---	---	---	13.40	13.29	12.80	12.39	12.13
9	---	---	---	---	---	---	---	13.41	13.27	12.78	12.38	12.12
10	---	---	---	---	---	---	---	13.42	13.26	12.76	12.36	12.10
11	---	---	---	---	---	---	---	13.42	13.24	12.75	12.35	12.09
12	---	---	---	---	---	---	---	13.43	13.22	12.74	12.34	12.08
13	---	---	---	---	---	---	---	13.44	13.19	12.72	12.33	12.08
14	---	---	---	---	---	---	---	13.43	13.18	12.71	12.32	12.07
15	---	---	---	---	---	---	---	13.42	13.17	12.70	12.31	12.07
16	---	---	---	---	---	---	---	13.42	13.14	12.68	12.30	12.07
17	---	---	---	---	---	---	---	13.42	13.11	12.68	12.28	12.06
18	---	---	---	---	---	---	[a]---	13.42	13.10	12.66	12.27	12.05
19	---	---	---	---	---	---	13.59	13.42	13.09	12.64	12.27	12.05
20	---	---	---	---	---	---	13.59	13.43	13.09	12.63	12.26	12.04
21	---	---	---	---	---	---	13.60	13.43	13.08	12.62	12.25	12.03
22	---	---	---	---	---	---	13.61	13.43	13.08	12.61	12.24	12.04
23	---	---	---	---	---	---	13.61	13.43	13.07	12.59	12.23	12.04
24	---	---	---	---	---	---	13.62	13.43	13.06	12.58	12.22	12.04
25	---	---	---	---	---	---	13.61	13.43	13.05	12.56	12.22	12.02
26	---	---	---	---	---	---	13.60	13.43	13.04	12.55	12.22	12.01
27	---	---	---	---	---	---	13.59	13.41	13.03	12.54	12.21	12.01
28	---	---	---	---	---	---	13.56	13.38	13.03	12.52	12.20	12.00
29	---	---	---	---	---	---	13.54	13.36	13.02	12.51	12.19	11.99
30	---	---	---	---	---	---	13.51	13.35	13.01	12.50	12.18	11.97
31	---	---	---	---	---	---	13.48	13.35	---	12.48	---	11.98
Max	---	---	---	---	---	---	13.62	13.46	13.35	12.99	12.47	12.17
Min	---	---	---	---	---	---	13.48	13.35	13.01	12.48	12.18	11.97

Year 2011 Statistics: **Year Max 13.62; Year Min 11.97**

Note: Water level in ft bgs.

[a]Insufficient data points to report a daily average.


2011 HYDROGRAPH FOR WILLOW SPRING PIEZOMETER - SPR7022Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,978
5,977
5,976
5,975
5,974
5,973
5,972
5,971
5,970
5,969
5,968
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,988 ft amsl
Well Depth: 34 ft bgs


HISTORICAL HYDROGRAPH FOR WILLOW SPRING PIEZOMETER - SPR7022Z
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,978
5,977
5,976
5,975
5,974
5,973
5,972
5,971
5,970
5,969
5,968
1/1/10
3/1/10
5/1/10
7/1/10
9/1/10
11/1/10
1/1/11
3/1/11
5/1/11
7/1/11
9/1/11
11/1/11
1/1/12
Periodic Water-Level Data
SNWA Continuous Water-Level Data
Spring Valley
Basin Fill Aquifer
Reference Elevation: 5,988 ft amsl
Well Depth: 34 ft bgs

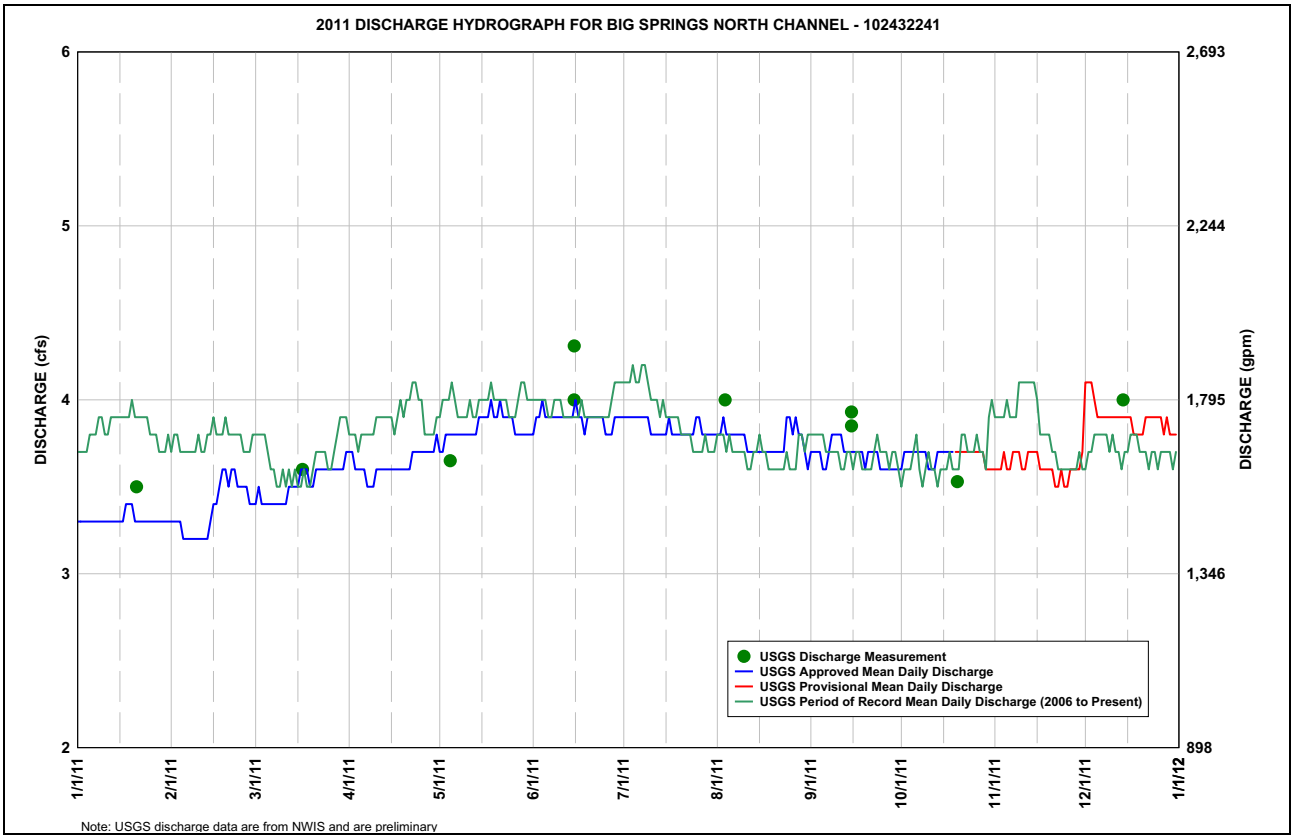
Appendix D

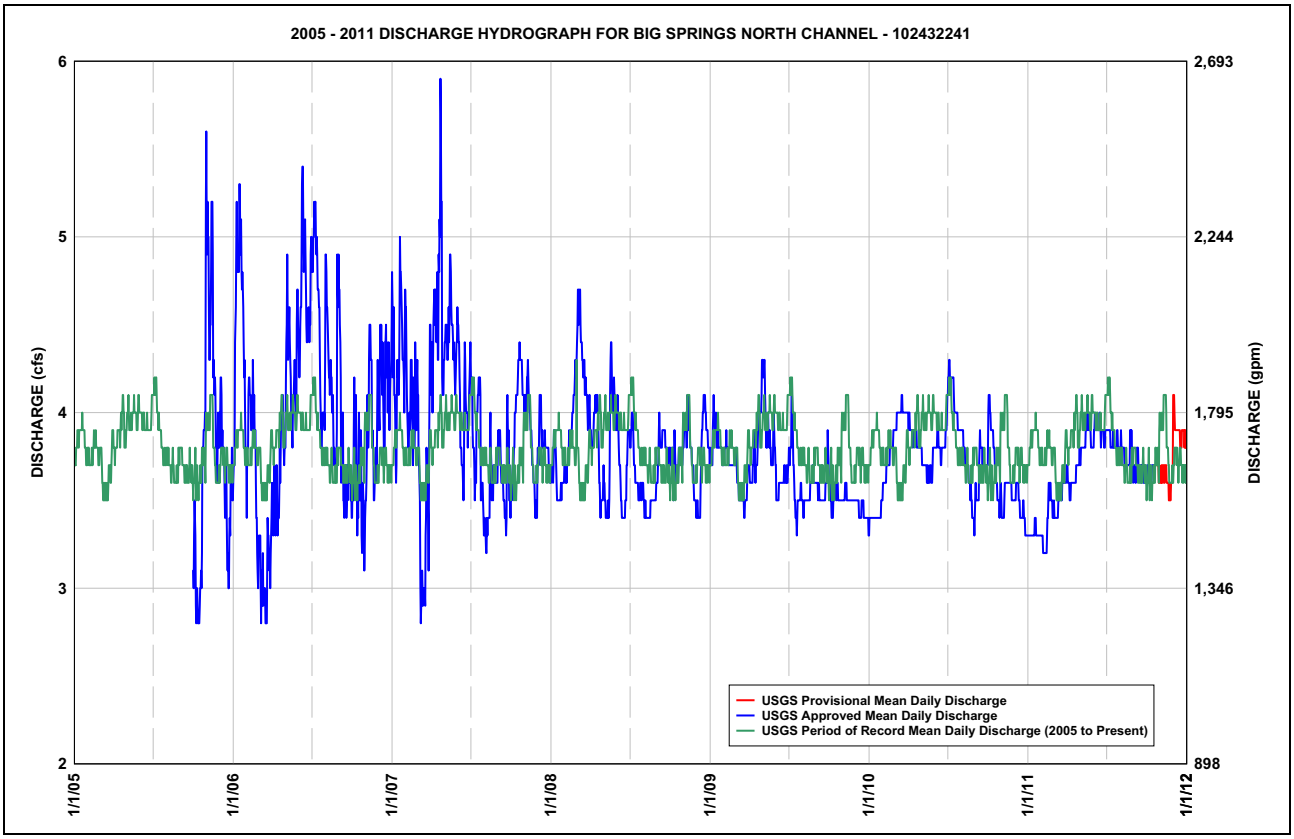
SNWA and USGS Discharge Measurements and Hydrographs for Cleve Creek and Big Springs Creek

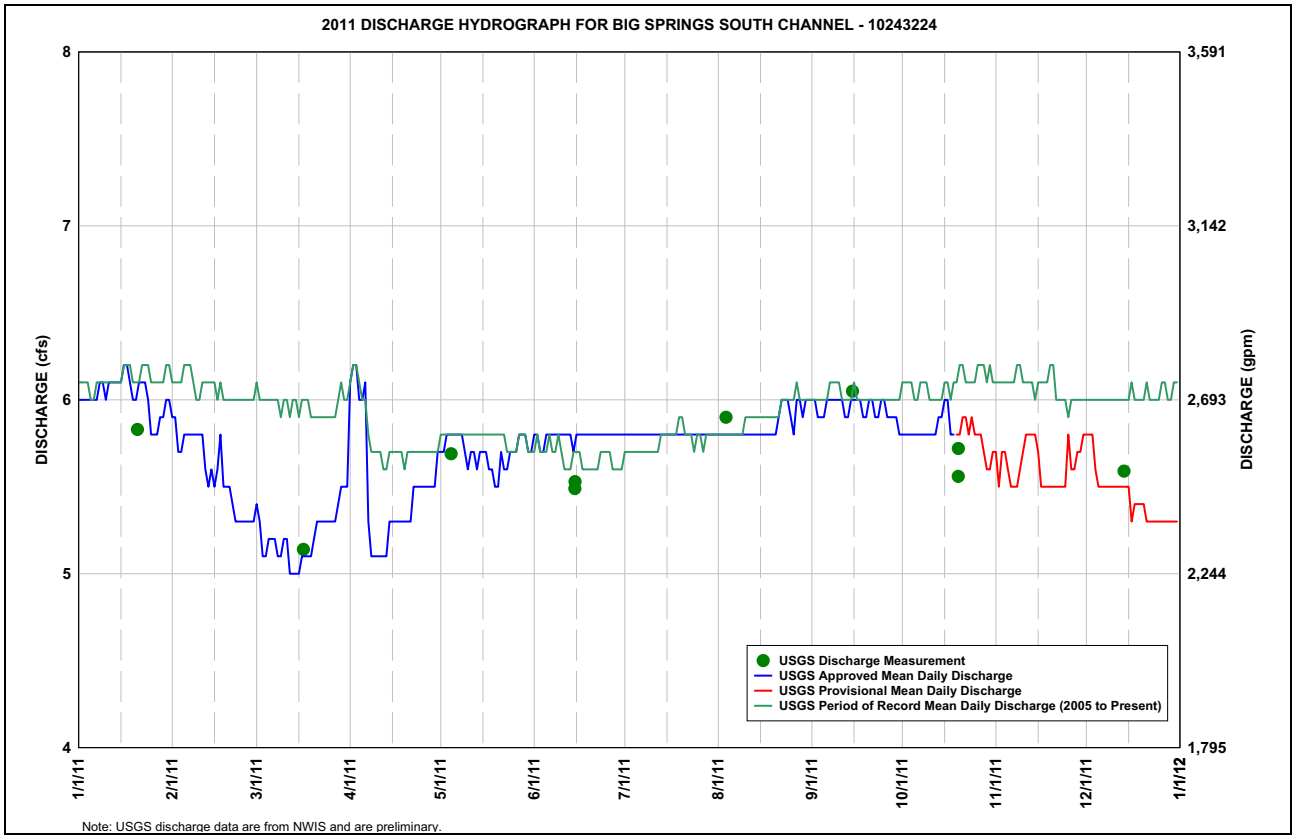
Table D-1
Big Springs Creek near Baker, Nevada (Combined Discharge)

SNWA Station Number	USGS Station Number	Station Name	Date	Time	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Data Source[c]
USGS Discharge Measurements at Big Springs Creek North Channel								
1951904	102432241	Big Springs Creek North Channel	1/20/2011	11:52	3.50	F	R	USGS-NWIS
			3/16/2011	12:13	3.60	F	R	USGS-NWIS
			5/4/2011	10:55	3.65	F	R	USGS-NWIS
			6/14/2011	12:30	4.00	F	R	USGS-NWIS
			6/14/2011	13:13	4.31	F	R	USGS-NWIS
			8/3/2011	13:28	4.00	P	R	USGS-NWIS
			9/14/2011	11:20	3.93	F	R	USGS-NWIS
			9/14/2011	11:20	3.85	G	R	USGS-NWIS
			10/19/2011	13:20	3.53	F	R	USGS-NWIS
			12/13/2011	11:25	4.00	F	R	USGS-NWIS
USGS Discharge Measurements at Big Springs Creek South Channel								
1951903	10243224	Big Springs Creek South Channel	1/20/2011	10:57	5.83	G	R	USGS-NWIS
			3/16/2011	11:19	5.14	P	R	USGS-NWIS
			5/4/2011	10:00	5.69	G	R	USGS-NWIS
			6/14/2011	10:14	5.49	G	R	USGS-NWIS
			6/14/2011	12:18	5.53	G	R	USGS-NWIS
			8/3/2011	12:39	5.90	G	R	USGS-NWIS
			9/14/2011	11:25	6.05	G	R	USGS-NWIS
			10/19/2011	12:15	5.56	F	R	USGS-NWIS
			10/19/2011	12:45	5.72	G	R	USGS-NWIS
			12/13/2011	10:41	5.59	F	R	USGS-NWIS

[a]Measurement Rating: E = Excellent; G = Good; F = Fair; P = Poor
[b]Measurement Method: R = Reported; C = Current meter
[c]USGS-NWIS data are provisional


2011 DISCHARGE HYDROGRAPH FOR BIG SPRINGS NORTH CHANNEL - 102432241
DISCHARGE (cfs)
DISCHARGE (gpm)
6
5
4
3
2
2,693
2,244
1,795
1,346
898
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
USGS Discharge Measurement
USGS Approved Mean Daily Discharge
USGS Provisional Mean Daily Discharge
USGS Period of Record Mean Daily Discharge (2006 to Present)
Note: USGS discharge data are from NWIS and are preliminary


2005 - 2011 DISCHARGE HYDROGRAPH FOR BIG SPRINGS NORTH CHANNEL - 102432241
DISCHARGE (cfs)
DISCHARGE (gpm)
6
5
4
3
2
2,693
2,244
1,795
1,346
898
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
USGS Provisional Mean Daily Discharge
USGS Approved Mean Daily Discharge
USGS Period of Record Mean Daily Discharge (2005 to Present)


2011 DISCHARGE HYDROGRAPH FOR BIG SPRINGS SOUTH CHANNEL - 10243224
DISCHARGE (cfs)
DISCHARGE (gpm)
8
7
6
5
4
3,591
3,142
2,693
2,244
1,795
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
USGS Discharge Measurement
USGS Approved Mean Daily Discharge
USGS Provisional Mean Daily Discharge
USGS Period of Record Mean Daily Discharge (2005 to Present)
Note: USGS discharge data are from NWIS and are preliminary.

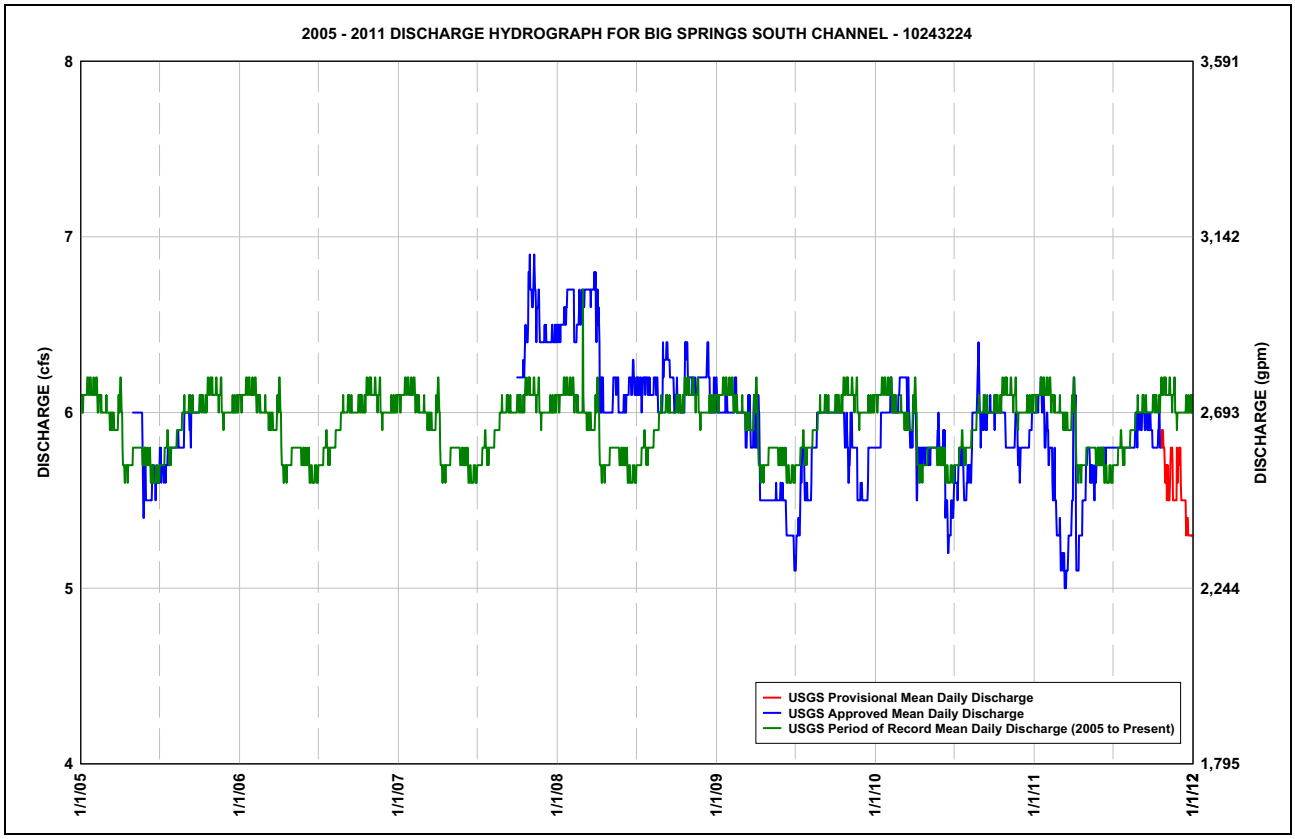
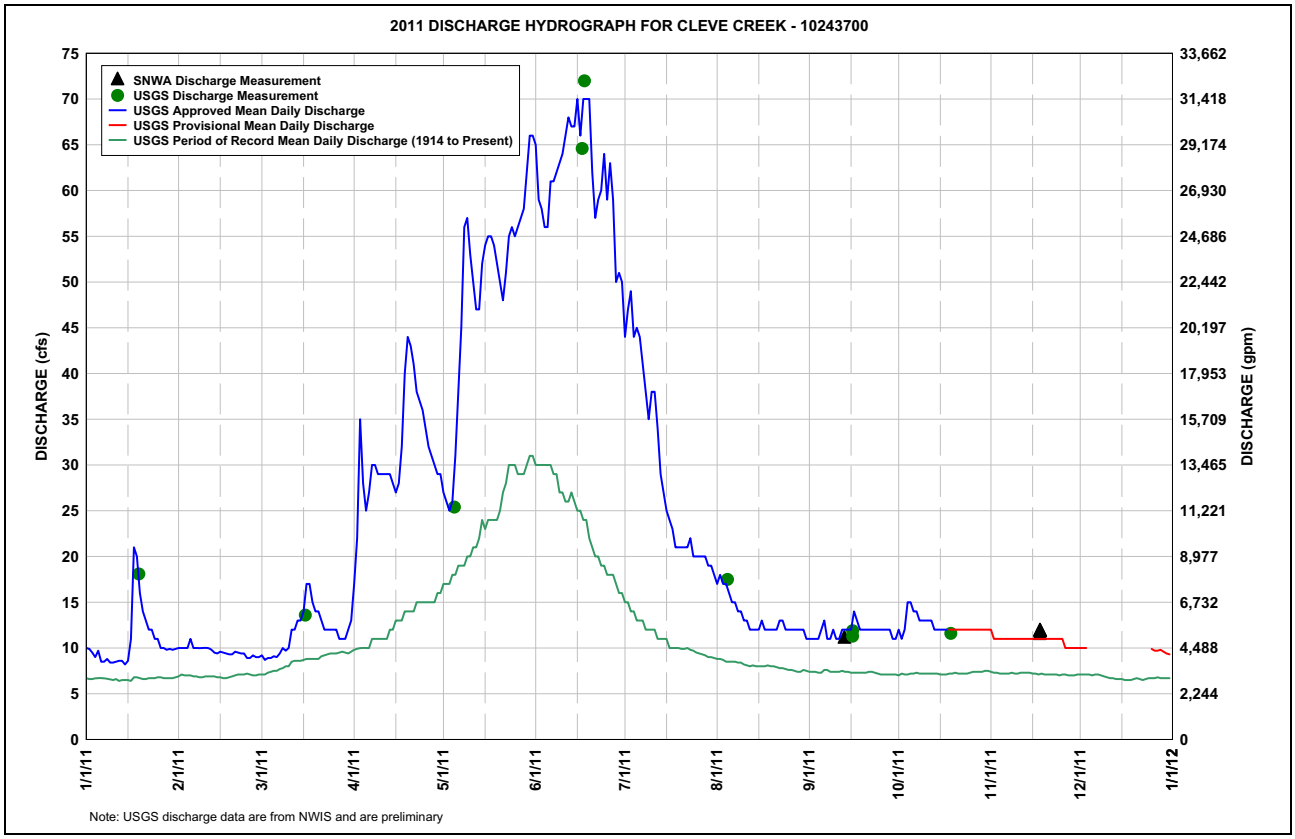

2005 - 2011 DISCHARGE HYDROGRAPH FOR BIG SPRINGS SOUTH CHANNEL - 10243224
DISCHARGE (cfs)
DISCHARGE (gpm)
8
7
6
5
4
3,591
3,142
2,693
2,244
1,795
1/1/05
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
USGS Provisional Mean Daily Discharge
USGS Approved Mean Daily Discharge
USGS Period of Record Mean Daily Discharge (2005 to Present)

Table D-2
10243700 - Cleve Creek near Ely, Nevada (Discharge Measurements)

SNWA Station Number	USGS Station Number	Station Name	Date	Time	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Data Source[c]
1841611	10243700	Cleve Creek near Ely, NV	1/18/2011	15:15	18.1	G	R	USGS-NWIS
			3/15/2011	14:02	13.6	F	R	USGS-NWIS
			5/4/2011	16:02	25.4	F	R	USGS-NWIS
			6/16/2011	14:58	64.6	P	R	USGS-NWIS
			6/17/2011	8:59	72	F	R	USGS-NWIS
			8/4/2011	11:14	17.5	G	R	USGS-NWIS
			9/12/2011	17:49	11	P	C	SNWA
			9/15/2011	11:50	11.9	F	R	USGS-NWIS
			9/15/2011	11:50	11.3	F	R	USGS-NWIS
			10/18/2011	11:59	11.6	G	R	USGS-NWIS
			11/17/2011	11:12	11.8	P	C	SNWA
			11/17/2011	10:07	11.4	P	C	SNWA
			11/17/2011	12:25	11.7	P	C	SNWA
			11/17/2011	13:36	11.7	P	C	SNWA
			12/14/2011	8:44	10.8	FAIR	R	USGS-NWIS

[a]Measurement Rating: E = Excellent; G = Good; F = Fair; P = Poor
[b]Measurement Method: C = Current meter; R = Reported
[c]USGS-NWIS data are provisional (USGS, 2011)


2011 DISCHARGE HYDROGRAPH FOR CLEVE CREEK - 10243700
SNWA Discharge Measurement
USGS Discharge Measurement
USGS Approved Mean Daily Discharge
USGS Provisional Mean Daily Discharge
USGS Period of Record Mean Daily Discharge (1914 to Present)
DISCHARGE (cfs)
DISCHARGE (gpm)
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
33,662
31,418
29,174
26,930
24,686
22,442
20,197
17,953
15,709
13,465
11,221
8,977
6,732
4,488
2,244
0
1/1/11
2/1/11
3/1/11
4/1/11
5/1/11
6/1/11
7/1/11
8/1/11
9/1/11
10/1/11
11/1/11
12/1/11
1/1/12
Note: USGS discharge data are from NWIS and are preliminary

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Appendix E

Regional and High-Altitude Precipitation Data

Table E-1
2011 Regional Precipitation Data

Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Ely WBO, NV													
2011 Data	0.27	1.13	1.0	2.07	2.67	0.20	1.50	0.07	1.33	1.16	0.36	0.22	12.00
Period of Record Statistics (1893 to Present)													
Mean	0.77	0.77	1.01	1.03	1.11	0.65	0.63	0.79	0.75	0.82	0.68	0.68	9.60
S.D.	0.55	0.64	0.74	0.82	0.91	0.74	0.55	0.73	0.82	0.66	0.54	0.62	2.84
Skew	0.99	1.76	1.40	2.22	0.98	1.74	0.97	1.11	2.33	1.44	0.91	1.89	0.29
Max	2.50	3.75	4.30	5.52	3.55	3.53	2.30	3.00	4.99	3.67	2.40	3.33	16.16
Min	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.22
No. Yrs	90	89	89	89	89	87	88	90	89	88	87	87	80
McGill, NV													
2011 Data	0.32	1.48	0.57	1.42	2.98	0.17[a]	0.48	0.22	1.27	1.19	0.38	0.15	10.63
Period of Record Statistics (1892 to Present)													
Mean	0.63	0.65	0.75	0.95	1.04	0.77	0.69	0.76	0.67	0.80	0.56	0.59	8.88
S.D.	0.62	0.50	0.54	0.64	0.85	0.88	0.62	0.66	0.78	0.64	0.47	0.55	2.53
Skew	3.10	1.17	1.19	0.76	1.01	1.73	1.18	1.26	2.85	0.93	1.10	1.59	0.49
Max	4.58	2.38	2.54	3.19	3.33	4.30	3.03	3.25	5.57	3.38	1.90	3.05	16.21
Min	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76
No. Yrs	103	103	104	105	103	103	103	102	102	100	103	104	90
Great Basin National Park, NV													
2011 Data	0.44[a]	2.10	1.16	2.00[a]	2.97[b]	0.31[d]	1.02[b]	0.44	0.78[a]	1.48[a]	0.19[b]	0.45[c]	13.34
Period of Record Statistics (1948 to Present)													
Mean	1.05	1.17	1.38	1.22	1.26	0.89	0.95	1.17	1.07	1.25	0.97	0.96	13.33
S.D.	0.90	0.83	0.98	0.87	0.99	0.88	0.76	0.91	1.01	0.97	0.86	0.90	3.16
Skew	1.17	0.78	1.21	0.56	1.13	1.45	1.17	1.58	2.24	1.40	0.86	1.67	0.11
Max	3.78	3.59	4.96	3.02	4.74	3.73	3.90	5.10	6.02	5.22	3.40	4.23	21.20
Min	0.03	0.09	0.00	0.03	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	7.37
No. Yrs	61	60	60	62	62	60	62	62	63	63	62	61	55
Eskdale, UT													
2011 Data	0.35	0.19	0.38	0.96	2.90	0.12[c]	1.57	0.50	0.58	0.68	0.14	0.00[z]	8.37
Period of Record Statistics (1966 to Present)													
Mean	0.27	0.41	0.62	0.67	0.69	0.62	0.55	0.54	0.63	0.66	0.38	0.33	6.34
S.D.	0.31	0.46	0.52	0.59	0.76	0.66	0.64	0.52	0.64	0.60	0.34	0.48	2.32
Skew	2.92	2.34	0.92	0.98	1.95	1.10	2.06	1.80	2.34	1.01	0.94	3.16	0.62
Max	1.77	2.38	2.03	2.21	3.35	2.32	3.26	2.40	3.57	2.24	1.40	2.57	12.57
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18
No. Yrs	43	43	41	45	45	46	45	45	44	45	43	41	29
Berry Creek, NV													
2011 Data	1.10	2.90	4.30	4.50	7.90	0.70	2.30	0.60	3.40	4.40	0.90	0.80	34.00
Period of Record Statistics (1981 to Present)													
Mean	2.61	3.02	3.37	3.57	2.90	1.49	1.34	1.27	1.25	2.30	2.16	2.54	27.76
S.D.	1.38	1.45	1.42	2.33	1.97	1.37	1.18	1.22	0.96	1.73	1.67	1.54	5.85
Max	5.20	7.60	5.90	11.40	8.00	4.90	3.60	5.60	3.40	7.20	7.00	7.10	40.00
Min	0.60	1.10	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.20	17.20
No.Yrs	31	31	31	31	31	31	31	30	30	36	35	34	29

Precipitation data in inches.
Notes: Provisional Data: [a] = 1 day missing, [b] = 2 days missing, [c] = 3 days missing, etc.,[z] = 26 or more days missing.
Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

Table E-2
Recent (2005-2010) High-Altitude Precipitation Data

Station Name	USGS Site ID	Date	Precipitation (in.)	Comments
Mt. Washington	385409114185401	7/12/2005	46.00	Took samples from gage and bucket.
		11/2/2005	6.00	Replaced isotope collection bucket.
		7/5/2006	17.50	---
		7/6/2006	0.00	Sampled tube, added 2 gal antifreeze to precip., drained and filled bucket & tube.
		10/19/2006	7.00	Drained and added 1 gal of antifreeze.
		6/5/2007	9.75	Drained, no antifreeze added.
		10/24/2007	2.75	Added 1 gal of antifreeze & 3/4 gal oil.
		6/5/2008	12.50	Drained and added 1 gal of antifreeze
		10/15/2008	0.00	2 samples taken.
		5/27/2009	18.75	---
		10/23/2009	18.50	---
		6/23/2010	19.75	---
		10/13/2010	4.00	---
Cave Mountain	390946114364901	7/20/2005	15.25	---
		11/7/2005	3.25	Drained and added 1 gal of antifreeze.
		6/23/2006	18.75	---
		10/19/2006	4.25	Raised wind baffle to just above top of collector, tightened guide wires. Drained, added antifreeze.
		6/13/2007	12.00	Drained and added 1 gal of antifreeze.
		10/23/2007	3.75	Did not drain. Added 1 gal antifreeze.
		6/5/2008	8.50	Drained and added 1 gal of antifreeze.
		10/14/2008	4.25	Added 1 gal antifreeze.
		5/29/2009	17.25	---
		10/22/2009	7.75	---
		6/29/2010	17.00	---
		11/11/2010	6.50	---
Unnamed Peak Northwest of Mt. Moriah	391913114143101	7/20/2005	22.00	---
		11/7/2005	6.50	Drained and added 1 gal of antifreeze.
		6/23/2006	11.75	---
		10/19/2006	3.50	Drained added antifreeze.
		6/13/2007	10.75	Drained and added 1 gal of antifreeze.
		10/23/2007	1.25	Did not drain. Added 1 gal antifreeze.
		6/5/2008	9.50	Drained and added 1 gal of antifreeze.
		10/14/2008	3.50	Added 1 gal antifreeze.
		5/29/2009	15.25	---
		10/22/2009	13.50	---
		6/29/2010	15.00	---
		11/11/2010	5.00	---

Appendix F

Water Chemistry Results

Table F-1
Isotopic Data for Creeks, Wells, Springs, and Piezometers in the Spring Valley Monitoring Network
(Page 1 of 2)

Site Number	Site Name	Sample date	$\delta^{13}C$*	^{14}C PMC (%)	$\delta^{18}O$ (‰)	δD (‰)	E ^{3}H (T.U.)	± 1σ	$^{87}Sr/^{86}Sr$ (Ratio)	Sr (ppb)
1841611	Cleve Creek	10/25/2010	-13.8	84.2	-15.1	-111.5	8.5	0.8	0.716320	26
1845501	Willow Spring	10/26/2010	-10.5	70.6	-16.05	-123.1	<0.8	0.3	0.711000	236
		R10/26/2010	---	---	---	---	---	---	0.710999	---
1845702	South Millick Spring	10/25/2010	-8.7	53.9	-15.41	-116.8	2.3	0.4	0.711193	218
1846103[a]	Shoshone Well 1[a]	5/4/2011	-12.1	67.5	-14.89	-109.8	<0.8	0.3	0.712802	83.87
		R5/4/2011	---	---	---	---	---	---	---	104.32
1846201	Swallow Springs	10/24/2010	-8.9	81.8	-15.02	-111.3	6.8	0.6	0.711241	204
1847101	Keegan Spring	10/25/2010	-15	103.8	-16.23	-119.4	8	0.7	0.715881	50
1847201	Minerva Spring	10/24/2010	-9.2	76.9	-15.12	-109.8	8.8	0.8	0.711547	197
		R10/24/2010	---	---	---	---	---	---	---	198
1847301	Rock Spring	10/25/2010	-9.7	67.6	-14.73	-114.2	2.2	0.4	0.710961	211
1848501	Cleveland Ranch Spring South	10/25/2010	-8.2	47.5	-16.23	-120.3	2.2	0.4	0.712990	192
		R10/25/2010	---	---	---	---	---	---	---	190
		6/20/2011	---	---	---	---	---	---	0.712983	175.78
		R6/20/2011	---	---	---	---	---	---	---	184.08
1951901	Big Spring South Channel	11/2/2010	-8.0	31.0	-14.98	-111.9	2	0.4	0.711200	129
		R11/2/2010	---	---	---	---	---	---	0.711196	132
Stateline Springs	Stateline Springs	11/2/2010	-11.0	24.1	-14.59	-110.7	<0.8	0.3	0.709595	361
1953001	Clay Spring	11/2/2010	-7.0	5.0	-14.98	-112.8	<0.8	0.3	0.708328	1909
383023114115302	USGS MX (Hamlin Valley S.)	11/2/2010	-6.0	6.8	-14.96	-114.2	<0.8	0.3	0.713023	391
383704114225001	USGS MX Well (South Spring Valley)	5/11/2011	-11.1	31.5	-13.87	-106.6	<0.8	0.3	0.710686	297.99
		R5/11/2011	---	---	---	---	---	---	---	320.20
385622114250001	Shoshone Well #4	5/3/2011	-12.7	64.1	-14.85	-109.8	<0.8	0.3	0.715283	157.66
		R5/3/2011	---	---	---	---	---	---	---	157.73
1847701	Unnamed Spring #5	10/25/2010	-8.2	50.6	-16.17	-120.7	2.3	0.4	0.712895	193
393055114310001	Robison Irrigation	9/29/2010	-9.0	46.7	-16.22	-121.5	<0.8	0.3	0.715320	154
184W101	184W101	2/24/2011	-6.2	4.2	-15.15	-113.6	<0.8	0.4	0.710561	185.02
184W103	184W103	2/15/2011	-7.8	11.0	-14.9	-110.7	<0.8	0.3	0.709693	179.60
		R2/15/2011	---	---	---	---	---	---	---	173.54
184W105	184W105	2/10/2011	-7.5	6.0	-15.01	-113.7	<0.8	0.3	0.709286	174.05
184W508M	184W508M	2/16/2011	-10.8	60.4	-14.42	-109.2	<0.8	0.4	0.710905	129.86
		R2/16/2011	---	---	---	---	---	---	---	132.29

Table F-1
Isotopic Data for Creeks, Wells, Springs, and Piezometers in the Spring Valley Monitoring Network
(Page 2 of 2)

Site Number	Site Name	Sample date	$\delta^{13}C$*	^{14}C PMC (%)	$\delta^{18}O$ (‰)	δD (‰)	E ^{3}H (T.U.)	± 1σ	$^{87}Sr/^{86}Sr$ (Ratio)	Sr (ppb)
SPR7005X	SPR7005X	2/2/2011	-7.3	42.1	-16.31	-121.9	5.4	0.6	0.712851	159.09
SPR7006M	SPR7006M	3/1/2011	-8.2	42.8	-14.93	-109.9	<0.8	0.4	0.716859	154.95
SPR7007X	SPR7007X	2/8/2011	-9.7	67.0	-14.93	-109.4	8.2	0.8	0.712771	165.82
SPR7008X	SPR7008X	2/7/2011	-7.9	23.3	-15	-111.1	<0.8	0.3	0.713625	142.26
SPR7023I	SPR7023I	10/6/2010	-13.9	67.2	-14.82	-109	<0.8	0.3	0.716648	73
SPR7024M	Shoshone Pond South Well	5/4/2011	-11.2	56	-14.76	-109.2	<0.8	0.3	0.711353	79.76
SPR7024M2	Shoshone Pond North Well	5/3/2011	-7.6	23	-14.87	-108.6	<0.8	0.3	0.715132	119.22
SPR7029M2	Cleve North Well	5/25/2011	-11.7	37.6	-16.23	-122.6	2.3	0.4	0.71317	178.38
SPR7011Z	Blind Spring Piezometer	10/24/2010	-9.1	53.6	-14.52	-111.4	<0.8	0.3	0.710482	357
SPR7012Z	4WD Spring Piezometer	10/25/2010	-10.1	46.8	-16.15	-120.1	<0.8	0.3	0.711527	220
SPR7014Z	The Seep Piezometer	10/24/2010	-8.4	56.5	-15.25	-111.6	8.2	0.7	0.712706	214
SPR7015Z	West Spring Valley Complex 1 Piezometer	10/25/2010	-3.8	19.8	-16	-120.7	<0.8	0.4	0.721150	430
SPR7019Z	Layton Spring Piezometer	10/25/2010	-9.6	43.2	-15.02	-110.5	<0.8	0.3	0.712590	219
SPR7020Z	Stonehouse Spring Piezometrer	10/26/2010	---	---	---	---	---	---	0.711342	517
		R10/26/2010	---	---	---	---	---	---	0.711342	---
		11/1/2010	-11.3	72.9	-16.12	-125	<0.8	0.3	---	---

[a]Additional sampling collected at the southern Shoshone Pond referred to as the Well no. 1 or the Fish and Game Well. This well was not part of the monitoring program sampling site list.
R = Sample is split in the laboratory and analyzed as a duplicate.
Tritium is reported in Tritium Units
1 TU = 3.221 Picocurries/L per IAEA, 2000 Report
1 TU = 0.11919 Becquerels/L per IAEA, 2000 Report
SPR7029M - Laboratory report for Isotopic data for this site was not received by the time this report was published.

Table F-2
Trace-Elements Data for Creeks, Wells, Springs, and Piezometers in the Spring Valley Monitoring Network

Site Number	Site Name	Date Collected	Iron (µg/L)	Mercury (µg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Lead (µg/L)	Manganese (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
1841611	Cleve Creek	10/25/2010	130	<0.2	110	<0.6	<1	210	<0.4	<0.5	<5	<5	<1	5	<5	<5	<1	<5	<0.2	<5	<5
1845501	Willow Spring	10/26/2010	<100	<0.2	<5	<0.6	3.2	33	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1845702	South Millick Spring	10/25/2010	<100	<0.2	<5	<0.6	<1	110	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1846103	Shoshone Well 1	5/4/2011	<100	<0.2	<5	<0.6	1.3	27	<0.4	<0.5	<5	<5	<!	<5	<5	<5	<1	<5	<0.2	<5	<5
1846201	Swallow Springs	10/24/2010	<100	<0.2	<5	<0.6	<1	21	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1847101	Keegan Spring	10/25/2010	<100	<0.2	6.9	<0.6	<1	70	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
		D10/25/2010	<100	<0.2	5.5	<0.6	<1	70	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1847201	Minerva Spring	10/24/2010	<100	<0.2	<5	<0.6	<1	31	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1847301	Rock Spring	10/25/2010	<100	<0.2	<5	<0.6	2.2	97	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1848501	Cleveland Ranch Spring South	10/25/2010	<100	<0.2	<5	<0.6	<1	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
		6/20/2011	<100	<0.2	<5	<0.6	<1	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1951901	Big Spring South Channel	11/2/2010	<100	<0.2	<5	<0.6	2.6	110	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
		D11/2/2010	<100	<0.2	<5	<0.6	2.6	110	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
Stateline Springs	Stateline Springs	11/2/2010	<100	<0.2	<5	<0.6	4.8	10	<0.4	<0.5	<5	<5	<1	<5	<5	<5	1.2	<5	<0.2	6.4	<5
1953001	Clay Spring	11/2/2010	<100	<0.2	<5	<0.6	<1	20	<0.4	<0.5	<5	<5	<1	<5	5	<5	2.2	<5	<0.2	<5	<5
383023114115302	USGS MX (Hamlin Valley S.)	11/2/2010	<100	<0.2	<5	<0.6	8	92	<0.4	<0.5	<5	<5	<1	18	<5	<5	<1	<5	<0.2	6.1	25
383704114225001	USGS MX Well (South Spring Valley)	5/11/2011	<100	<0.2	<5	<0.6	4.6	36	<0.4	<0.5	<5	<5	<1	33	<5	<5	<1	<5	<0.2	11	21
385622114250001	Shoshone Well #4	5/3/2011	<100	<0.2	<5	<0.6	2.6	29	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
1847701	Unnamed Spring #5	10/25/2010	<100	<0.2	<5	<0.6	1.4	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
393211114320701	Robison Irrigation	9/29/2010	<100	<0.2	<5	<0.6	1.2	77	<0.4	<0.5	<5	<5	1.6	<5	<5	<5	<1	<5	<0.2	<5	8.6
184W101	184W101	2/24/2011	<100	<0.2	<5	<0.6	3.7	190	<0.4	<0.5	<5	<5	<1	13	5.2	<5	<1	<5	0.34	<5	78
184W103	184W103	2/15/2011	<100	<0.2	<5	<0.6	4.6	59	<0.4	<0.5	<5	<5	<1	33	<5	<5	<1	<5	<0.2	6	86
184W105	184W105	2/10/2011	<100	<0.2	<5	<0.6	1.9	47	<0.4	<0.5	<5	<5	<1	<5	<5	<5	1.8	<5	<0.2	<5	18
184W508M	184W508M	2/16/2011	<100	<0.2	<5	<0.6	2.9	46	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	11
SPR7024M	Shoshone Pond South Well	5/4/2011	<100	<0.2	9.3	<0.6	<1	37	<0.4	<0.5	<5	<5	<1	17	<5	<5	<1	<5	<0.2	<5	13
SPR7024M2	Shoshone Pond North Well	5/3/2011	<100	<0.2	<5	<0.6	1.3	57	<0.4	<0.5	<5	<5	<1	34	<5	<5	<1	<5	<0.2	<5	23
SPR7005X	SPR7005X	2/2/2011	<100	<0.2	<5	<0.6	1.2	120	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	150
SPR7006M	SPR7006M	3/1/2011	<100	<0.2	<5	<0.6	4.4	230	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	140
SPR7007X	SPR7007X	2/8/2011	<100	<0.2	<5	<0.6	<1	31	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	29
SPR7008X	SPR7008X	2/7/2011	<100	<0.2	<5	<0.6	5.7	270	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	41
SPR7011Z	Blind Spring Piezometer	10/24/2010	<100	<0.2	12	<0.6	4.7	150	<0.4	<0.5	<5	<5	<1	44	8.3	<5	<1	<5	<0.2	<5	13
SPR7012Z	4WD Spring Piezometer	10/25/2010	<100	<0.2	<5	<0.6	1.5	65	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
SPR7014Z	The Seep Piezometer	10/24/2010	<100	<0.2	5.7	<0.6	1.2	70	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
SPR7015Z	W Spring Valley Complex 1 Piezometer	10/25/2010	<100	<0.2	13	<0.6	<1	110	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
SPR7019Z	Layton Spring Piezometer	10/25/2010	<100	<0.2	5.1	<0.6	5.1	140	<0.4	<0.5	<5	<5	<1	98	<5	<5	<1	<5	<0.2	<5	<5
SPR7020Z	Stonehouse Spring Piezometer	11/1/2010	<100	<0.2	<5	<0.6	5.4	160	<0.4	<0.5	<5	<5	<1	98	<5	<5	<1	<5	<0.2	<5	10
SPR7023I	SPR7023I	10/6/2010	<100	<0.2	<5	<0.6	<1	62	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
SPR7029M	Cleve South Well	5/10/2011	<100	<0.2	12	<0.6	<1	140	<0.4	<0.5	<5	<5	<1	5.8	<5	<5	<1	<5	<0.2	<5	90
SPR7029M2	Cleve North Well	5/22/2011[a]	<100	<0.2	<5	<0.6	<1	170	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
		5/25/2011[a]	<100	<0.2	<5	<0.6	<1	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	<5
SPR7030M	Cleveland Ranch South Spring North Well	6/20/2011	<100	<0.2	<5	<0.6	<1	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	6.1
		D6/20/2011	<100	<0.2	<5	<0.6	<1	160	<0.4	<0.5	<5	<5	<1	<5	<5	<5	<1	<5	<0.2	<5	12

[a]SPR7029M2 sampled before aquifer test on 5/22/11 and after aquifer test on 5/25/11.

Table F-3
Major-and Minor-Solute Data for Wells, Springs, and Piezometers in the Spring Valley Monitoring Network

Site Number	Site Name	Date Collected	Water Temp (°C)	Conductivity (µS/cm)	pH	Dissolved Oxygen (mg/L)	Alkalinity, Total (mg/L)	TDS (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica, Reactive (mg/L)	Sulfate (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)	o-Phosphate as P (mg/L)	T-Phosphate as P (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
1841611	Cleve Creek	10/25/2010	7	43	7.07	9.67	18.3	44.6	<0.o2	1.2	<0.1	8.8	2.6	0.2	<0.02	0.028	0.05	7.4	1.3	0.76	1.2
1845501	Willow Spring	10/26/2010	10.6	443	7.4	5.4	181	264	0.114	18	0.15	31	22	<0.02	<0.02	0.004	0.054	56	14	3.2	19
1845702	South Millick Spring	10/25/2010	11.7	471	7.51	6.61	212	257	0.0518	8.5	<0.1	13	17	0.42	<0.02	0.0025	0.013	56	25	1.4	8.7
1846103	Shoshone Well 1	5/4/2011	18.9	126.2	7.97	7.26	62.6	96	0.0144	2.4	0.22	20	4.1	0.13	<0.02	0.0089	0.021	21	1.8	0.72	5.4
1846201	Swallow Springs	10/24/2010	9.8	345	7.63	8.57	172	190	<0.02	0.87	<0.15	6.3	6.4	0.26	<0.02	0.0048	0.0078	55	11	0.58	1.3
1847101	Keegan Spring	10/25/2010	10.8	61	6.73	5.78	25.5	52.4	<0.02	1.9	<0.1	13	6.1	0.27	<0.02	0.03	0.086	8.2	2.1	0.84	3.4
		D10/25/2010	10.8	61	6.73	5.78	31.7	55.6	<0.02	1.9	<0.1	13	6.1	0.27	<0.02	0.03	0.1	8.1	2.1	0.77	3.3
1847201	Minerva Spring	10/24/2010	11.4	626	7.23	6.16	175	195	<0.02	1.2	<0.14	7.8	5.6	0.1	<0.02	0.0015	0.027	58	10	0.58	3.2
1847301	Rock Spring	10/25/2010	12.2	645	7.23	6.98	281	365	0.158	23	<0.1	17	27	1.5	<0.02	0.0021	0.0097	69	35	1.7	19
1848501	Cleveland Ranch Spring South	10/25/2010	12	258	7.46	7.31	153	173	<0.02	1.7	<0.1	11	6.8	0.25	<0.02	0.0068	0.012	44	15	0.97	2.7
		6/20/2011	13.3	237	7.85	6.31	156	172	0.0239	1.8	<0.1	11	7	0.22	<0.02	0.0063	0.011	45	15	1.1	3.2
1951903	Big Spring South Channel	11/2/2010	17.4	373	7.13	5.31	188	212	0.0256	5	0.15	13	8.3	0.49	<0.02	0.0038	0.0096	51	21	1.5	4.8
		D11/2/2010	17.4	373	7.13	5.31	190	215	0.0265	4.9	0.15	13	8.3	0.49	<0.02	0.0036	0.0091	51	21	1.6	4.9
Stateline Springs	Stateline Springs	11/2/2010	13.8	366	7.3	5.23	122	226	0.0842	23	0.49	39	27	1.6	<0.02	0.0065	0.023	34	18	3.5	17
1953001	Clay Spring	11/2/2010	13.7	642	7.2	1.97	172	408	0.0527	13	1.8	15	150	0.19	<0.02	0.0017	0.0092	74	39	2.1	11
383023114115302	USGS-MX (Hamlin Valley S.)	11/2/2010	19.2	404	7.25	3.6	157	253	0.0779	17	0.77	28	31	0.62	<0.02	0.0086	0.033	37	19	5.2	24
383704114225001	USGS-MX (Spring Valley South)	5/11/2011	15.6	294	8.05	4.8	108	185	0.0197	11	0.34	49	8.1	0.33	<0.02	0.01	0.036	29	12	4	8.7
385622114250001	Shoshone Well # 4	5/3/2011	19.9	129	7.89	6.52	63.5	93.4	0.0122	1.9	0.16	20	3.8	0.11	<0.02	0.0068	0.019	20	1.4	0.74	5.9
1847701	Unnamed Spring # 5	10/25/2010	12.4	389	7.13	6.78	151	166	<0.02	2.3	<0.1	12	7.1	0.26	<0.02	0.007	0.013	43	15	0.95	3
393055114310001	Robison Irrigation	9/29/2010	18	270	8.03	0.92	113	138	0.0356	5.8	<0.1	20	12	0.26	<0.02	0.006	0.016	33	12	1.3	7.2
184W101	184W101	2/24/2011	25.8	369	7.52	3.41	163	215	0.0338	5.3	0.32	25	17	0.13	<0.02	0.0033	0.013	45	17	2.5	7
184W103	184W103	2/15/2011	11.7	256	7.82	6.52	155	198	0.0589	5.4	0.19	29	9.4	1.1	<0.02	0.0041	0.016	38	21	2.5	7
184W105	184W105	2/10/2011	13.3	427	7.9	4.42	164	204	0.0703	7.5	0.2	18	14	0.86	<0.02	0.0029	0.009	39	23	1.7	7.4
		D2/10/2011	13.3	427	7.9	4.42	---	200	---	---	0.2	---	---	---	---	---	---	---	---	---	---
184W508M	184W508M	2/16/2011	18	262	7.7	5.44	124	218	0.0674	9.4	0.29	63	8.6	0.4	<0.02	0.021	0.046	30	5.4	6.3	25
SPR7024M	Shoshone Ponds South	5/4/2011	17.1	148	7.88	6.31	75.9	112	0.0194	2.9	0.23	15	6	0.13	<0.02	0.0055	0.024	28	2	0.74	5.3
SPR7024M2	Shoshone Ponds North	5/3/2011	26.8	185	7.87	5.58	76	116	0.0116	1.9	0.26	15	6.7	0.21	<0.02	0.0034	0.022	25	2.2	1.2	6.8
SPR7005X	SPR7005X	2/2/2011	22	464	7.89	4.04	158	176	0.0172	2	<0.1	11	10	0.31	<0.02	0.0037	0.0072	46	18	1	3.5
SPR7006M	SPR7006M	3/1/2011	23.7	288	7.85	4.98	121	193	0.0577	7.9	0.39	21	12	0.37	<0.02	0.0081	0.022	39	7.7	3.2	11
SPR7007X	SPR7007X	2/8/2011	12.4	356	7.55	7.44	153	176	0.0388	2	<0.1	8.8	6.6	0.47	<0.02	0.0045	0.0075	51	12	0.65	2.3
		D2/8/2011	12.4	356	7.55	7.44	---	210	---	---	<0.1	---	---	---	---	---	---	---	---	---	---
SPR7008X	SPR7008X	2/7/2011	20.6	392	6.93	4.42	115	161	0.111	9.3	0.27	18	11	0.44	<0.02	0.0051	0.011	37	8.9	2	8.8
SPR7011Z	Blind Spring	10/24/2010	12.1	673	7.34	11.72	264	379	0.316	43	0.42	31	21	0.027	<0.02	0.019	0.07	75	37	6	13
SPR7012Z	Four Wheel Drive Spring Piezometer	10/25/2010	12.2	301	7.7	6.3	156	176	<0.02	2	<0.1	21	5.3	0.27	<0.02	0.012	0.13	44	12	1.2	4.7
SPR7014Z	The Seep Piezometer	10/24/2010	11.3	313	7.23	6.28	154	189	<0.02	1.9	0.13	20	5.8	0.054	<0.02	0.005	0.042	45	11	0.73	3.1
SPR7015Z	W Spring Valley Complex Piezometer	10/25/2010	12.8	406	7.38	6.33	166	264	0.0437	6.3	0.34	21	35	0.11	<0.02	0.028	0.051	60	8.3	4.6	16
SPR7019Z	Layton Spring Piezometer	10/25/2010	10.8	306	7.15	4.41	152	211	0.0475	6.9	0.32	30	10	0.07	<0.02	0.014	0.12	42	9	2.3	10
SPR7020Z	Stonehouse Spring Piezometer	11/1/2010	13.8	691	7.03	3.98	296	492	0.225	42	0.76	52	54	<0.02	<0.02	0.069	0.27	91	24	11	46
SPR7023I	Harbecke Irrigation Well	10/6/2010	16.8	132.1	6.67	4.43	53.5	98.4	<0.02	4.1	0.12	23	4.2	0.26	<0.02	0.025	0.027	16	4.5	1	6.5
SPR7029M	Cleve South Well	5/10/2011	16.6	268	7.65	6.52	149	192	0.0841	2.7	<0.1	11	15	1	<0.02	0.013	0.026	41	12	0.93	14
SPR7029M2	Cleve North Well	5/22/2011	17.6	353	7.72	7.26	151	170	0.0198	2	<0.1	10	7.6	0.27	<0.02	0.01	0.015	44	14	0.95	3
		5/25/2011[a]	17.2	302	7.7	7.39	151	167	0.0164	1.9	<0.1	11	7.6	0.27	<0.02	0.0097	0.017	41	13	0.86	2.9
SPR7030M	Cleveland Ranch South Spring North Well	6/20/2011	13	230	8.22	6.74	151	166	0.0177	1.6	<0.1	11	6.9	0.23	<0.02	0.008	0.014	43	15	1	2.9
		D6/20/2011	13	230	8.22	6.74	149	166	0.0209	1.6	<0.1	11	6.9	0.23	<0.02	0.0075	0.014	43	15	1.1	3

[a]SPR7029M2 sampled before aquifer test on 5/22/11 and after aquifer test on 5/25/11.

Appendix G

Historic Water Chemistry Data

Table G-1
Isotopic Data for Wells, Springs, and Piezometers in the Spring Valley Monitoring Network
(Page 1 of 2)

Site Number	Site Name	Sample Date	$\delta^{13}C$ DIC (per mil)	^{14}C DIC (pmc, %)	$\delta^{18}O$ (per mil)	δD (per mil)	Tritium (TU)	$^{87}Sr/^{88}Sr$ (ratio)
393055114310001	Robison Irrigation	8/15/2006	---	---	-16.22	-119.45	---	---
		R 8/15/2006	---	---	---	-119.04	---	---
1841611	Cleve Creek	7/24/2006	---	---	-15.22	-113.43	---	---
		R 7/24/2006	---	---	---	-113.08	---	---
1845501	Willow Spring	7/14/2004	-10.22	74.59	-16.02	-125.36	---	---
		R 7/14/2004	---	---	---	-125.58	---	---
		10/20/2005[a]	-9.6	69.9	-16.17	-122.7	---	---
1845702	South Millck Spring	9/17/2006[b]	---	---	-15.54	-115.7	---	---
		6/18/1992[c]	-7.7	56.8	-15.2	-116	---	---
		7/15/2004	-10.67	64.59	-15.42	-119.13	---	---
		R 7/15/2004	---	---	-15.34	-118.64	---	---
		7/27/2005	---	---	---	---	7.7	0.711301
1845901	Layton Spring	8/3/2006[d]	-11.16	98.94	-15.26	-109.9	0.2	---
		8/16/2006	-10.8	83.2	-14.66	-109.22	---	0.712898
		R 8/16/2006	---	---	---	-109.67	---	---
1846201	Swallow Springs	7/28/2004	-8.82	84.83	-15.16	-112.45	---	---
		R 7/28/2004	---	---	---	-112.27	---	---
1846401	Blind Spring	8/16/2006	---	---	-5.9	-71.55	---	---
		R 8/16/2006	---	---	-5.75	-72.18	---	---
1847301	Rock Spring	12/12/2005[a]	---	---	-14.7	-114	2.3	---
		7/31/2006[b]	---	---	-14.81	-113.7	---	---
184W101	184W101	4/12/2007	-5.8	4.93	-14.98	-113.05	<0.8	0.710542
		R 4/12/2007	---	---	---	---	---	0.710535
184W103	184W103	3/26/2007	-6.7	10.37	-14.77	-110.69	<0.8	0.70902
		R 3/26/2007	---	---	-14.76	-110.36	---	---
184W105	184W105	3/8/2007	-5.8	6.09	-14.84	-112.18	<0.8	0.709282
		R 3/8/2007	---	---	---	-112.82	---	---
SPR7005X	SPR7005X	7/10/2008	-7.5	43.45	-16.15	-121.33	4.5	---
		R 7/10/2008	---	---	---	-121.29	---	---
SPR7006M	SPR7006M	10/18/2007	---	---	-15.03	-111.44	---	---
		R 10/18/2007	---	---	---	-111.26	---	---
SPR7007X	SPR7007X	2/14/2008	-7.6	57.01	-15.25	-109.49	9.4	---
		R 2/14/2008	---	---	---	-109.86	9.3	---

Table G-1
Isotopic Data for Wells, Springs, and Piezometers in the Spring Valley Monitoring Network
(Page 2 of 2)

Site Number	Site Name	Sample Date	$\delta^{13}C$ DIC (per mil)	^{14}C DIC (pmc, %)	$\delta^{18}O$ (per mil)	δD (per mil)	Tritium (TU)	$^{87}Sr/^{88}Sr$ (ratio)
SPR7008X	SPR7008X	1/31/2008	-7.2	21.6	-15.2	-110.77	<0.8	---
		R 1/31/2008	---	---	---	-110.62	---	---
SPR7023I	Harbecke Irrigation Well	2/4/2009	---	---	-15.25	-108.89	---	---
		R 2/4/2009	---	---	---	-108.92	---	---

[a]Hershey et al. (2007)
[b]DRI Data
[c]Hershey and Mizell (1995)
[d]Gillespie (2008)
R =Sample is split in the laboratory and analyzed as a duplicate.
<Less Than

Table G-2
Historic Data for Major- and Minor-Solutes for Wells, Springs, and Piezometers in the Spring Valley Monitoring Network

Site Number	Site Name	Sample Date	pH	Water Temp (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Alkalinity (Total) (mg/L as $CaCO_3$)	Alkalinity (mg/L as HCO_3)	Alkalinity (mg/L as CO_3)	TDS (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (Total) (mg/L)	Silica, (Dissolved) (mg/L)	Sulfate (mg/L)	Nitrite (mg/L as N)	Nitrate (mg/L as N)	O-Phosphate (mg/L as P)	T-Phosphate (mg/L as P)	Calcium (Total) (mg/L)	Calcium (Dissolved) (mg/L)	Magnesium (Total) (mg/L)	Magnesium (Dissolved) (mg/L)	Potassium (Total) (mg/L)	Potassium (Dissolved) (mg/L)	Sodium (Total) (mg/L)	Sodium (Dissolved) (mg/L)
393055114310001	Robison Irrigation	8/15/2006	---	---	---	---	110	140	<2	170	37	6.4	<0.1	17	---	11	---	H0.86	---	---	30	---	11	---	1.2	---	6.4	---
1841611	Cleve Creek	7/24/2006	8.31	16.6	53.6	---	31	38	<2	40	<10	0.73	<0.1	8.3	---	2	---	H<0.5	---	---	9.7	---	1.5	---	0.6	---	1.3	---
1845501	Willow Spring	10/23/1991[a]	7.76	11.8	434	---	---	E194	---	---	---	---	---	---	---	---	---	---	---	---	54.3	---	13.3	---	---	---	---	---
		7/14/2004	8.2	22.9	383	---	193	230.391	2.292	270	0.12	18	0.17	---	29	20	H<0.05	H0.085	H0.014	---	---	51	---	14	---	<1	---	20
		8/17/2006	7.8	14.9	356	3.46	180	220	<2	260	110	19	0.14	30	---	22	---	H<0.5	---	---	58	---	14	---	3.1	---	23	---
		10/20/2005[b]	7.2	12.7	473	1.3	---	211	---	---	0.11	18	0.13	---	29.9	21.8	---	---	---	<0.01	---	62.9	---	16.5	---	3.43	---	25.8
		S 10/20/2005[b]	---	---	---	---	---	---	---	---	---	---	---	---	---	25	---	---	---	---	---	---	---	---	---	---	---	---
1845702	South Millck Spring	9/17/2006[c]	7.51	13.1	442	7.04	---	252	0.00	---	0.06	9.86	0.08	---	12.90	17.7	---	0.63	---	---	---	54.9	---	23.00	---	1.19	---	8.54
		10/24/1991[a]	7.65	13.5	431	---	---	E219	---	---	---	---	---	---	---	---	---	---	---	---	49.3	---	24.4	---	---	---	---	---
		6/18/1992[d]	7.65	12.7	432	---	---	266	ND	---	---	8.5	0.09	---	10.5	14.6	---	0.39	---	---	---	52.4	---	22.6	---	1.35	---	8.64
		7/15/2004	7.2	13.4	309	---	218	265.742	ND	244	0.08	8.9	0.1	---	12	15	H<0.05	H0.58	H<0.01	---	---	39	---	19	---	<1	---	7.2
		8/16/2006	7.4	13.3	338	3.19	210	260	<2	260	55	9.1	<0.1	13	---	16	---	H2.2	---	---	57	---	24	---	1.4	---	9.4	---
1845901	Layton Spring	10/24/1991[a]	9.92	10	228	---	---	E28	E60	---	---	---	---	---	---	---	---	---	---	---	20.8	---	8.35	---	---	---	---	---
		8/3/2006[e]	7.25	18.5	315	---	---	189.30	---	274.15	---	8.36	0.21	---	---	10.57	---	---	---	---	---	42.16	---	9.45	---	2.9	---	11.2
		8/16/2006	7.4	21.9	404	---	150	180	<2	210	55	7.8	0.22	26	---	11	---	H<0.5	---	---	40	---	9.1	---	2.3	---	14	---
1846201	Swallow Springs	6/1/1980[f]	8	9	---	---	---	---	---	137	---	1.1	0.1	---	5	4	---	0	---	---	---	48	---	8.8	---	0.4	---	1.4
		7/28/2004	L,H8.01	10	L335	---	184	224.296	ND	H289	0.071	<5	<0.05	---	5.5	5.4	H<0.05	H0.23	H<0.01	---	---	46	---	9	---	<1	---	<5
1846401	Blind Spring	8/16/2006	7.2	18.3	525	3.76	340	420	<2	400	36	3.8	0.52	42	---	11	---	H<0.5	---	---	65	---	48	---	3.1	---	11	---
1847301	Rock Spring	12/12/2005[b]	---	12.2	720.4	6.45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		7/31/2006[c]	7.73	12.3	660	6.53	---	338	0.00	---	0.2	30.3	0.07	---	16.30	33.6	---	1.67	---	---	---	71.3	---	34.90	---	1.52	---	23.7
1847401	Stonehouse Spring	10/23/1991[a]	8.2	6.8	1655	---	---	E584	---	---	---	---	---	---	---	---	---	---	---	---	102	---	61.1	---	---	---	---	---
184W101	184W101	4/12/2007	7.7	24.1	359	2.29	190	230	<2	180	42	4.6	0.27	25	---	18	<100	<0.1	<2	<10	43	---	16	---	2.7	---	9.1	---
184W103	184W103	3/26/2007	7.9	12	263	6.34	160	190	<2	190	51	5.2	0.18	27	---	17	<100	4.4	4.4	<10	35	---	19	---	2.4	---	9.6	---
184W105	184W105	3/8/2007	7.8	13	282	5.08	170	200	<2	200	66	7.5	0.16	17	---	16	<100	0.7	<2	<10	35	---	20	---	1.8	---	9.3	---
SPR7005X	SPR7005X	7/10/2008	7.4	24.3	327	3.53	160	200	<2	170	13	1.8	<0.1	10	---	11	<100	0.30	9.1	<10	40	40	16	16	1.1	1.2	4.9	5
SPR7006M	SPR7006M	10/18/2007	8.2	22.3	298	---	110	130	<2	150	55	7.1	0.36	20	---	12	---	H1.6	---	---	34	---	6.8	---	3.2	---	11	---
SPR7007X	SPR7007X	2/14/2008	7.58	9.1	305	7.43	150	180	<2	210	15	1.6	<0.1	9.1	---	6.6	<100	0.39	3.4	<10	42	42	11	11	<1	0.65	2.8	2.8
SPR7008X	SPR7008X	1/31/2008	7.93	18.1	250	---	120	150	<2	160	53	8.6	0.25	17	---	11	<100	2.1	7.4	<10	35	34	8.1	7.9	2.1	1.9	9.1	8.9
SPR7023I	Harbecke Irrigation Well	2/4/2009	7.52	16.1	127.3	8.6	58	70	<2	62	39	4.1	0.13	21	21	3.9	<100	0.95	H26	26	13	13	3.9	3.9	0.97	0.98	6.8	6.7

[a]Brothers et al. (1994)
[b]Hershey et al. (2007)
[c]DRI Data
[d]Hershey and Mizell (1995)
[e]Gillespie (2008)
[f]Bunch and Harrill (1984)
E = Parameter analyzed in the field.
L = Parameter analyzed in the laboratory.
R = Sample is split in the laboratory and analyzed as a duplicate.
H = Analysis holding time was exceeded.
< Less Than
ND=Non Detect

SOUTHERN NEVADA WATER AUTHORITY
100 City Parkway, Suite 700 • Las Vegas, NV 89106
MAILING ADDRESS: P.O. Box 99956 • Las Vegas, NV 89193-9956
(702) 862-3400 • snwa.com

March 29, 2012

Jason King, P.E., State Engineer
Nevada Division of Water Resources
901 S. Stewart Street, Suite 2002
Carson City, NV 89701

Richard B. Holmes,
Deputy General Manager
Engineering/Operations
Southern Nevada Water Authority
P.O. Box 99956
Las Vegas, NV 89193-9956

Bill Hansen, Chief Water Rights Branch
National Park Service, WRD
1201 Oak Ridge Drive, Suite 250
Ft. Collins, CO 80525

Rosemary Thomas, Ely District Manager
Bureau of Land Management
702 N. Industrial Way
HC 33 Box 3350
Ely, NV 89301

Cathy Wilson, Area Director
Bureau of Indian Affairs, Western Region
2600 N. Central Ave., MS#460
Phoenix, AZ 85004

Jill Ralston, Deputy State Supervisor
U.S. Fish and Wildlife Service
1340 Financial Blvd., Suite 234
Reno, NV 89502

Mr. King and Stipulation Executive Committee Members:

SUBJECT: SUBMITTAL OF THE 2011 DDC AND SPRING VALLEY HYDROLOGIC MONITORING, MANAGEMENT AND MITIGATION PLAN STATUS AND DATA REPORTS

The Southern Nevada Water Authority (SNWA) hereby submits the subject reports to the Nevada State Engineer (NSE) and Stipulation Executive Committee (EC). These reports are submitted in satisfaction of reporting requirements set forth in hydrologic monitoring plans approved by the NSE associated with Rulings 6164 through 6167, and Exhibit A of the Spring Valley and Dry Lake, Delamar, and Cave (DDC) Stipulations for Withdrawal of Protests. The hydrologic monitoring plans approved by the NSE were submitted as exhibits SNWA_Exh_0148 and SNWA _Exh_0149 during the 2011 administrative hearings regarding SNWA applications in the subject basins.

These reports provide the NSE, EC, and TRP with 2011 hydrologic data and a status update of monitoring activities performed by SNWA. Copies of the reports have also been submitted to the Stipulation Technical Review Panel (TRP) representatives.

An electronic copy of the data has been submitted to the NSE in the required format. Copies of the reports and NSE electronic data submittal will also be posted on the DDC and Spring Valley data-exchange web site.

If you have any questions regarding these reports, please contact James Prieur at (702) 862-7437.

Sincerely,

Kenneth A. Albright, P.E.
Director, Groundwater Resources

KAA:clw

cc: Rick Felling, Nevada Division of Water Resources
Mark D'Aversa, Bureau of Land Management
Ray Roessel, Bureau of Indian Affairs, Western Region
William Van Liew, National Park Service, WRD
Sue Braumiller, U.S. Fish and Wildlife Service
John Guillory, Nevada Division of Water Resources
Amy Lueders, Bureau of Land Management
Andrew Burns, Southern Nevada Water Authority
James Prieur, Southern Nevada Water Authority