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Water Resources Division

2008 Spring Valley Hydrologic Monitoring and Mitigation Plan Status and Data Report

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

CONTENTS

List of Figures iii
List of Tables v
List of Acronyms and Abbreviations vii

1.0 Introduction 1-1

1.1 Background 1-1
1.2 Major Activities Performed in 2008 1-3
1.3 Report Scope 1-4

2.0 SVMM Plan Status and Data 2-1

2.1 Exploratory and Production Well Monitoring 2-1
2.1.1 Exploratory Program Wells 2-1
2.1.2 Well Performance and Aquifer Testing 2-1
2.1.3 Water Chemistry 2-4
2.1.4 Hydrologic Monitoring Data 2-6
2.2 Existing Well Monitoring Network 2-6
2.3 New Monitor Wells 2-9
2.3.1 Interbasin Monitoring Zone Network 2-9
2.3.2 Two Monitor Wells between the Zone and Closest Production Well 2-11
2.3.3 Two Monitor Wells between Shoshone Ponds and Closest Production Well 2-11
2.3.4 NSE Additional Monitoring Requirements 2-13
2.3.5 Spring Monitoring Network 2-13
2.4 Constant-Rate Tests 2-16
2.5 Water-Chemistry-Sampling Program 2-16
2.6 Stream Discharge Measurements 2-18
2.6.1 Discharge Sites at Big Springs Creek and Cleve Creek 2-18
2.6.1.1 Cleve Creek 2-19
2.6.1.2 Big Springs Creek 2-19
2.6.2 Synoptic-Discharge Study of Big Springs and Lake Creeks 2-21
2.6.3 Relationship Between Big Springs and Basin-Fill and Carbonate-Rock Aquifers 2-21
2.7 Precipitation Station Network 2-21
2.8 Elevation Control 2-21
2.9 Reporting 2-23
2.10 Proposed Schedule of Groundwater Withdrawals 2-23

3.0 Anticipated SNWA-Monitoring-Plan-Related Activities in 2009 3-1

4.0 References 4-1

CONTENTS (CONTINUED)

Appendix A - 2008 Water-Chemistry Data

Appendix B - Discrete Water-Level Measurements and Hydrographs for Exploratory and Test Wells Not Included in the Monitoring Network Data in Appendixes C and D

Appendix C - Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network

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

Appendix E - Spring Monitoring Program Hydrologic and Field-Chemistry Data

Appendix F - USGS Discharge Measurements and Hydrographs for Cleve Creek and Big Springs Creek

Appendix G - 2008 Regional and High-Altitude Precipitation Data

FIGURES

NUMBER	TITLE	PAGE
1-1	Spring Valley Hydrographic Area 184	1-2
2-1	SNWA Exploratory and Test Wells in Spring Valley (as of March 2009)	2-2
2-2	Spring Valley Existing Well Monitoring Network	2-7
2-3	SNWA Interbasin Monitoring Zone Well Locations	2-10
2-4	Location of Monitor Wells Near Shoshone Ponds	2-12
2-5	Location Map of Cleveland Ranch and Turnley Spring	2-14
2-6	Monitoring Locations Associated with Cleveland Ranch	2-15
2-7	Spring Monitoring Locations	2-17
2-8	Cleve and Big Springs Creek Gaging Stations	2-20
2-9	Big Springs Synoptic-Discharge Measurement Study Area, Snake Valley	2-22
2-10	Precipitation Station Locations	2-24

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TABLES

NUMBER	TITLE	PAGE
2-1	SNWA Exploratory and Test Wells in Spring Valley, Nevada (as of March 2009)	2-3
2-2	Aquifer-Test Summary Data for SNWA Spring Valley Test Wells (Tested in 2008)	2-5
2-3	Spring Valley Existing Well Monitoring Network	2-8
2-4	SNWA Interbasin Monitoring Zone Well Locations	2-11
2-5	Spring Monitoring Locations	2-18
2-6	Cleve Creek and Big Springs Monitoring Locations	2-19
2-7	Precipitation Station Locations	2-23
A-1	2008 Water-Chemistry Data	A-1
B-1	Water-Level Measurements Collected at SNWA Exploratory and Test Wells not included in Appendixes C and D	B-1
C-1	Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network	C-1
D-1	Well 384039114232701, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-2
D-2	Well 384745114224401, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-4
D-3	Well 383023114115302, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-6
D-4	Well 184W504M, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-8
D-5	Well 184W506M, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-10
D-6	Well 184W508M, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-12
D-7	Well SPR7005M, Calendar Year 2008 Water-Level Data, Daily Mean Values	D-14
E-1	Spring Valley Miscellaneous Data	E-1
F-1	10243700-Cleve Creek near Ely, Nevada (Discharge Measurements)	F-1

TABLES (CONTINUED)

NUMBER	TITLE	PAGE
F-2	Big Springs Creek near Baker, Nevada (Combined Discharge)	F-2
G-1	2008 Regional Precipitation Data	G-1
G-2	2008 High-Altitude Precipitation Data	G-2

ACRONYMS

BLM	Bureau of Land Management
BWG	Biological Working Group
DOI	U.S. Department of the Interior
EC	Executive Committee
EPA	U.S. Environmental Protection Agency
HA	hydrographic area
MOU	Memorandum of Understanding
NDWR	Nevada Division of Water Resources
NSE	Nevada State Engineer
SNPLMA	Southern Nevada Public Lands Management Act
SNWA	Southern Nevada Water Authority
TRP	Technical Review Panel
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator

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
L	liter
m	meter
mi	mile
mi^2	square mile
mg	milligram
mS	millisiemens
µg	microgram
µm	micrometer
µS	microsiemen
pmc	percent modern carbon

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1.0 INTRODUCTION

The Southern Nevada Water Authority (SNWA) prepared this report to satisfy the requirements of the Spring Valley Monitoring and Mitigation Plan (SVMM Plan) (SNWA, 2009) as approved by the Nevada State Engineer (NSE) on February 9, 2009, as required by NSE Ruling 5726. The location of Spring Valley is presented in Figure 1-1. The hydrologic data contained in this report were also submitted to the NSE to meet the specified electronic format requirement.

This report also satisfies the hydrologic data reporting requirements of the Hydrologic Monitoring, Management, and Mitigation Plan (SV3M Plan) associated with the U.S. Department of the Interior (DOI) and SNWA Stipulation Agreement. The SVMM Plan contains all the elements of the SV3M Plan as well as monitoring related to existing non-federal water-right holders.

This report provides the NSE and Stipulation Technical Review Panel (TRP) with data collected in 2008 from hydrologic monitoring locations related to the current SV3M and SVMM Plans. Included are a summary of the results of hydraulic testing and water-chemistry sampling conducted in 2008 from monitor and test wells installed as part of the SNWA exploratory well-drilling and hydraulic-testing program. This is the second annual status and data report. The first data report contained hydrologic data collected in 2007 and historically from the monitoring network (SNWA, 2008).

1.1 Background

SNWA holds 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. These permits were granted by NSE in Ruling 5726 issued April 16, 2007, and total 60,000 afy following a staged development (NSE, 2007). The staged-development guidelines call for a minimum 10-year period during which a maximum of 40,000 afy can be pumped in any one year with a 10-consecutive-year average of at least 35,000 afy. At the end of the 10-year period and after a review of the findings of the staged-development period, SNWA may have the opportunity to develop the full 60,000 afy. Ruling 5726 required the development of hydrologic and biologic monitoring and mitigation plans, which were approved in February 2009.

On September 8, 2006, prior to the water-right application hearing, a Stipulation for Withdrawal of Protests (Stipulation) 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 (collectively known as the DOI Bureaus). This Stipulation requires that SNWA develop comprehensive hydrologic (SV3M Plan) and biologic monitoring plans, which are presented in Exhibits A and B of the Stipulation. As part of the Stipulation, an Executive Committee (EC) was established to oversee the implementation of the Agreement. A TRP and Biological Working Group

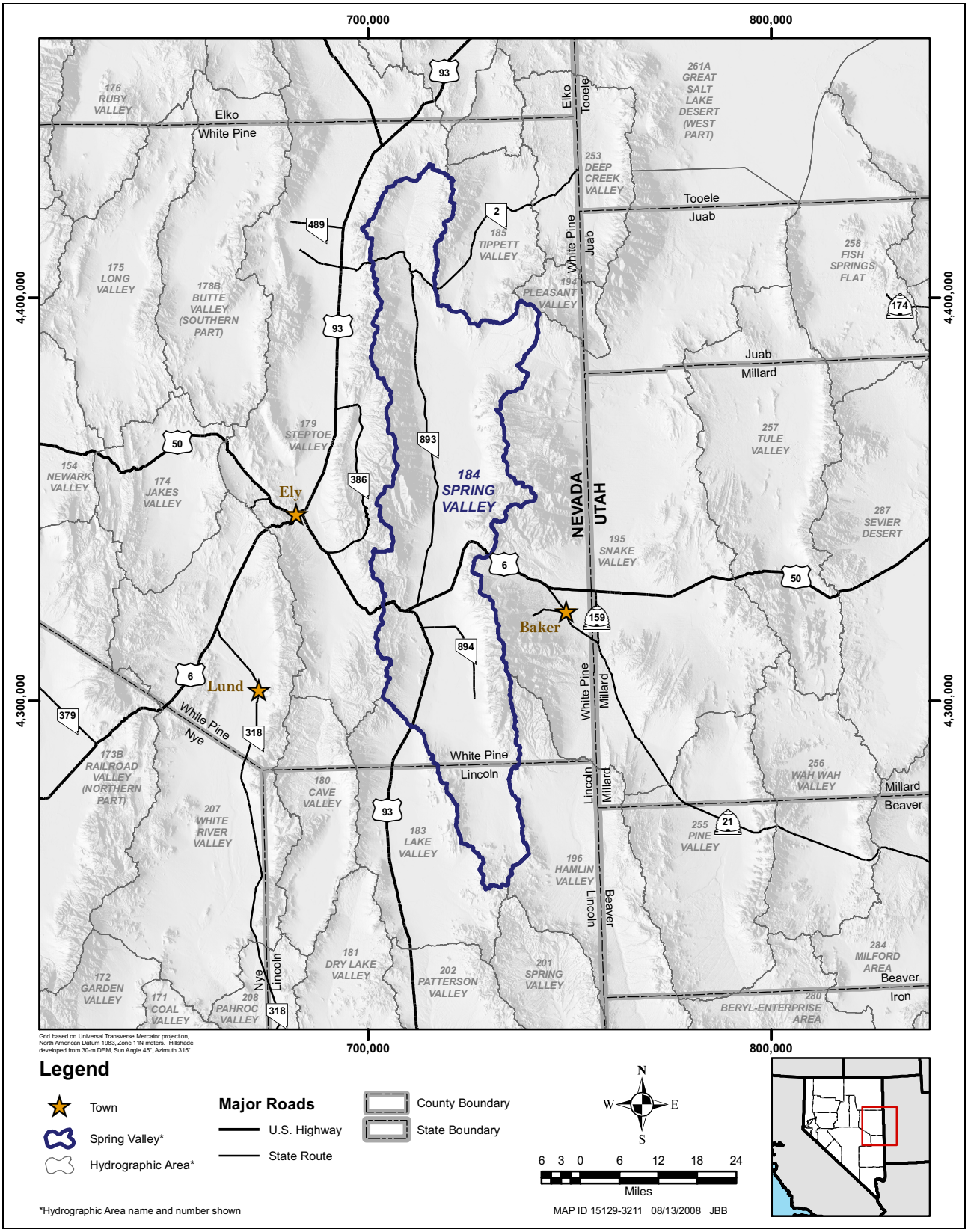

Figure 1-1
Spring Valley Hydrographic Area 184

(BWG), composed of representatives of parties to the agreement, were also established to develop and oversee implementation of monitoring and mitigation plans, review program data, and modify the monitoring plans, if necessary.

1.2 Major Activities Performed in 2008

Major activities associated with the SVMM Plan performed in 2008 were as follows:

- Submitted the SVMM Plan to the NSE (December 2008). The SVMM Plan was approved on February 9, 2009. The SVMM Plan contains all the elements of the SV3M Plan as well as additional monitoring at the Cleveland Ranch, Turnley Spring, and a future monitor well 1 mi north of the northernmost future production well on the east side of the valley.

- Pursued property access for Turnley Spring and Cleveland Ranch monitoring.

- Initiated discharge monitoring at Turnley Spring as required in the SVMM Plan.

- Continued to pursue BLM right-of-way access for five Interbasin Zone monitor wells, two monitor wells near Shoshone Ponds, and seven piezometer locations near spring monitoring network locations on BLM land.

- Selected locations for Shoshone Ponds monitor wells SPR7024M and SPR7024M2 in consensus with the TRP and NSE.

- Completed a Memorandum of Understanding (MOU) with the U.S. Geological Survey (USGS) to equip seven MX wells in the existing well monitoring network with datalogger and pressure transducer instrumentation, including installation of instrumentation housings. Instrumentation housings with continuous data collection instrumentation have been deployed at four of the seven wells.

- Installed continuous-monitoring instrumentation at selected SNWA wells.

- Completed a professional survey of elevation and coordinates for wells within the monitoring network. All future wells will be professionally surveyed after completion.

- Performed routine physical water-level measurements on monitoring network wells.

- Installed one piezometer near Minerva Spring.

- Continued to participate in the Cooperative Funding Agreement with USGS and the Nevada Division of Water Resources (NDWR) to support the operation and maintenance of three high-altitude precipitation stations near Spring Valley and discharge gaging stations on Cleve and Big Springs creeks.

- Established an 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 finalize the Southern Nevada Public Lands Management Act (SNPLMA) Round 8 hydrologic monitoring program, which includes well installations at the Great Basin National Park and near Big Springs.

- Worked with BWG to develop and finalize the Biological Monitoring Plan. This plan was completed and approved in February 2009.

- Pursued property access for the Big Springs Creek surface-water system synoptic-discharge study.

- Completed well development and performed a 72-hour constant-rate test on SPR7008X at a location north of Oceola (January 2008).

- Completed well development and performed a 120-hour constant-rate test on SPR7007X near Swallow Springs (February 2008).

- Completed well development and performed a 120-hour constant-rate test on SPR7005X at Cooper Canyon (July 2008).

1.3 Report Scope

Section 2.0 presents the status and data collected for each major element of the SVMM Plan. In addition, this report presents 2008 data related to the exploratory well-drilling and hydraulic-testing activities and hydraulic-testing and water-chemistry-sampling results performed in Spring Valley. More detailed documentation of the well construction and aquifer-testing programs have been provided to the TRP in preliminary data reports. SNWA is currently preparing detailed geologic analysis reports and hydrologic analysis reports for each test well location. Section 3.0 discusses the planned activities for 2009, and Section 4.0 provides a list of references. Lastly, Appendix A through Appendix G presents tables and graphs of the various data discussed in the report.

2.0 SVMM PLAN STATUS AND DATA

The current status of each major element of the SVMM Plan is provided in this section. The hydrologic data collected in 2008 and the current status of each element of the SVMM Plan is presented. Additionally, nonstipulation-related aquifer-testing and water-chemistry data collected in 2008 from SNWA exploratory monitor and test wells are included.

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. Water-level measurements are required in all SNWA exploratory wells at least quarterly. After the beginning of groundwater withdrawal, the TRP will identify a representative number of exploratory wells for continuous measurement.

2.1.1 Exploratory Program Wells

Eight 8-in.-diameter monitor wells and six 20-in.-diameter test wells have been completed by SNWA in Spring Valley as part of SNWA's exploratory well-drilling and hydraulic-testing program. The locations of the monitor and test wells are presented in Figure 2-1. Well construction and completion data for the wells are presented in Table 2-1.

Two test wells, SPR7007X and SPR7005X, were completed in 2008. Test well SPR7007X is located on the alluvial fan on the east side of the valley near Swallow Springs. Test well SPR7005X is completed in carbonate rock and is located on the west side of the valley near Cooper Canyon. A professional survey of location coordinates, ground surface, and top-of-casing measuring-point elevation was also performed for each well.

2.1.2 Well Performance and Aquifer Testing

Well performance step-drawdown testing, constant-rate aquifer testing, and water-chemistry sampling of each test well were performed as part of the exploratory program. Well performance and aquifer testing along with water-chemistry sampling were conducted on three test wells in 2008. Hydrologic testing and water-chemistry sampling were not required by the monitoring plans.

The three test wells and dates of testing are SPR7008X (January), SPR7007X (February) and SPR7005X (July). After well installation, each test well was developed using airlifting and swabbing methods. Additional development was performed as part of the well performance and aquifer-testing

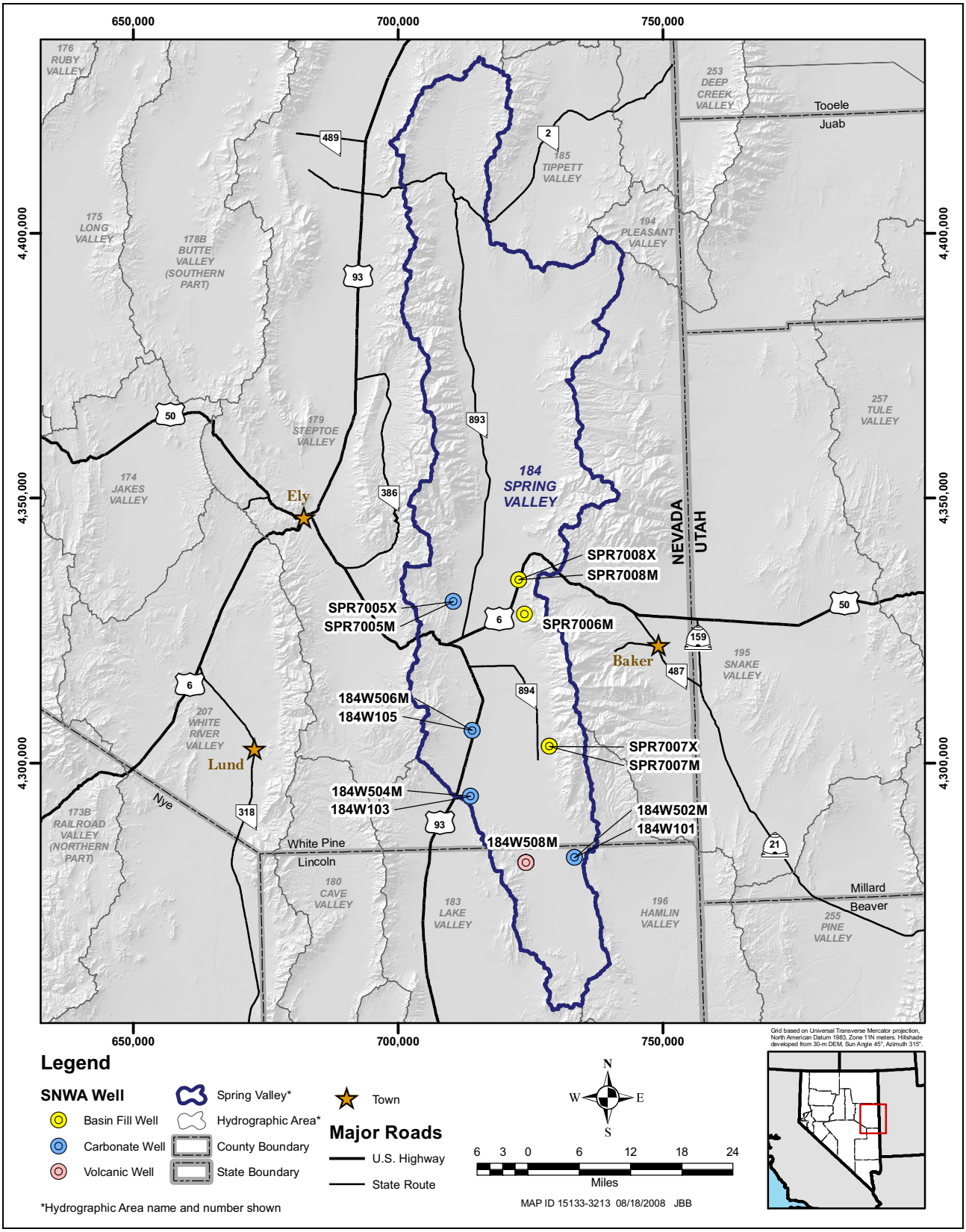

Figure 2-1
SNWA Exploratory and Test Wells in Spring Valley (as of March 2009)

Table 2-1
SNWA Exploratory and Test Wells in Spring Valley, Nevada (as of March 2009)

Site Number	Location		Surface Elevation	Completion Date	Drill Depth	Well Depth	Well Casing Diameter	Screened Interval	Open Interval	Aquifer	Specific Capacity
	UTM[a] Northing	UTM[a] Easting									
	(m)		(ft amsl)		(ft bgs)		(in.)	(ft bgs)			(gpm/ft)
184W508M	4,281,308.680	724,070.886	6,056.190	12/15/2006	1,180	1,160	8	376 to 1,140	241 to 1,180	Volcanic	---
184W101	4,282,062.024	733,297.647	6,190.900	2/24/2007	1,760	1,749	20	796 to 1,728	135 to 1,760	Carbonate	11.13
184W502M	4,282,116.345	733,294.422	6,189.718	1/25/2007	1,828	1,799	8	495 to 1,779	58 to 1,828	Carbonate	---
184W103	4,293,693.030	713,697.740	5,899.059	12/6/2006	1,046	1,017	20	296 to 996	60 to 1,046	Carbonate	4.18
184W504M	4,293,712.493	713,647.123	5,900.111	11/17/2006	1,040	1,020	8	309 to 999	61 to 1,040	Carbonate	---
184W506M	4,306,214.211	713,939.814	6,014.037	10/19/2006	1,160	1,140	8	430 to 1,120	80 to 1,160	Carbonate	---
184W105	4,306,176.069	713,991.226	6,007.303	11/7/2006	1,160	1,135	20	418 to 1,114	60 to 1,160	Carbonate	54.89
SPR7005M	4,330,471.509	710,372.442	6,395.679	7/10/2007	1,412	1,404	8	663 to 1,383	439 to 1,412	Carbonate	---
SPR7005X	4,330,506.859	710,356.778	6,397.558	4/11/2008	1,395	1,350	20	669 to 1,330	511 to 1,395	Carbonate	75.21
SPR7006M	4,328,163.493	723,872.608	6,525.181	9/20/2007	1,720	1,701	8	980 to 1,680	167 to 1,720	Carbonate	---
SPR7007M	4,303,146.594	727,976.027	6,017.727	8/17/2007	1,040	1,020	8	300 to 1,000	101 to 1,040	Basin-Fill	---
SPR7007X	4,303,152.003	727,946.174	6,017.528	1/24/2008	1,040	1,020	20	299 to 1,000	155 to 1,040	Basin-Fill	95.54
SPR7008X	4,334,727.657	722,847.717	5,703.980	11/27/2007	970	960	20	240 to 940	102 to 970	Basin-Fill	11.78
SPR7008M	4,334,702.607	722,865.266	5,704.857	7/25/2007	960	946	8	226 to 926	54 to 960	Basin-Fill	---

[a]Universal Transverse Mercator, North American Datum, 1983, Zone 11.

program using a pump-and-surge method until specific capacity and field chemistry stabilized. Prior to performing the step-drawdown test, each test well was allowed to recover for a minimum of 24 hours after development. The step-drawdown test consisted of four to five steps of different production rates. After a minimum of 24 hours of recovery, a 72-hour constant-rate test was performed on well SPR7008X and a 120-hour constant-rate test was performed on wells SPR7007X and SPR7005X. Recovery data were collected for several days after completion of the pumping phase of the test. A summary of data associated with the 2008 well performance and aquifer testing is presented in Table 2-2.

Comprehensive geologic analysis and hydrologic analysis reports including aquifer parameter evaluation are being prepared for each test well and will be distributed to the TRP and NSE upon completion. The reports include drilling data, geophysical logs, lithologic logs and descriptions, well construction attributes, aquifer-test description and data, aquifer-test analysis, and water-chemistry data. The reports will also be posted on the SNWA.com\exchange web site.

2.1.3 Water Chemistry

Groundwater samples were collected for a comprehensive suite of chemical constituents at each test well near the completion of the constant-rate test. An additional water-chemistry sample was collected for analysis at Turnley Spring. The water-chemistry results for the three test wells sampled in 2008 and Turnley Spring are presented in Appendix A. The water-chemistry data for previously tested SNWA exploratory and test wells were presented in SNWA (2008). The following summarizes the analysis.

Although most analyses were performed on unfiltered samples, filtered (0.45 µm) samples were also analyzed to provide dissolved metal concentrations. In addition, samples were analyzed for field water-quality parameters, major solutes, trace elements, and stable isotopes of hydrogen and oxygen. Sampling and field measurement of the water-quality parameters were performed using the *National Field Manual for the Collection of Water-Quality Data* (USGS, 2007). All measurement equipment was calibrated according to the manufacturers' calibration procedures. Samples were sent to Weck Laboratories, Inc., (Weck), for analysis of major solutes, minor and trace constituents, radiological parameters, and organic compounds. Weck is certified by the State of Nevada and performs all analyses according to the U.S. Environmental Protection Agency (EPA) methods or methods published in *Standard Methods for the Examination of Water and Wastewater* (Eaton et al., 2005). Weck provided all sample containers and preservatives. Radiation Safety Engineering, Inc., and Frontier Analytical Laboratory were contracted by Weck for the analysis of radiological parameters and dioxin, respectively. The University of Waterloo's Environmental Isotope Laboratory performed the analysis of oxygen and hydrogen isotopes; the University of Arizona's NSF-Arizona Accelerator Mass Spectrometry Laboratory performed the analysis of carbon isotopes; and Purdue University's Purdue Rare Isotope Measurement (PRIME) Laboratory performed the analysis of chlorine-36.

The water quality for all sampling locations was of high quality and did not exceed any of the national maximum contaminant levels (primary or secondary) for drinking water established by the EPA and authorized by the Safe Drinking Water Act. An evaluation of the water-chemistry data for the test wells will be included in a Hydrologic Analysis Report.

Table 2-2
Aquifer-Test Summary Data for SNWA Spring Valley Test Wells (Tested in 2008)

Test Well Number	Associated Observation Well/Spring	Distance from Test Well (ft)	Specific Capacity (gpm/ft)	Constant-Rate Test Duration (hours)	Constant-Rate Test Flow Rate (gpm)	Step-Test Range (gpm)	Drill Depth (ft bgs)	Well Depth (ft bgs)	Well Casing Diameter (in.)	Screened Interval (ft bgs)	Open Interval (ft bgs)	Drawdown at end of Constant-Rate Test (ft)
SPR7005X	SPR7005X	---	75.92	120	3,000	2,000 to 3,800	1,395	1,350	20	669 to 1,330	511 to 1,395	39.82
	SPR7005M	127	---				1,412	1,404	8	663 to 1,383	439 to 1,412	2.88
	184 N14 E66 14CA1[a]	2.4 miles	---				372	372	8	167 to 372	50 to 372	0
	390352114305401[a]	3.5 miles	---				---	160	2	---	---	0
	184W506M[a]	15 miles	---				1,160	1,140	8	430 to 1,120	79.5 to 1,160	0
SPR7007X	SPR7007X	---	95.54	120	3,000	2,000 to 4,000	1,040	1,020	20	299 to 1,000	155 to 1,040	31.40
	SPR7007M	99	---				1,040	1,020	8	300 to 1,000	101 to 1,040	13.50
	390352114305401[a]	17 miles	---				---	160	2	---	---	0
	Swallow Springs	2,300	---				N/A	N/A	N/A	N/A	N/A	(Spring discharge constant)
	Minerva Spring Piezometer	1.7 miles	---				35	31	4	16 to 31	12 to 35	0
SPR7008X	SPR7008X	---	11.78	72	2,000	1,500 to 3,300	970	960	20	240 to 940	102 to 970	169.71
	SPR7008M	100	---				960	946	8	226 to 926	54 to 960	42.74
	390803114251001	376	---				---	200	2	---	---	0.38
	390352114305401[a]	7 miles	---				---	160	2	---	---	0
	Layton Spring	2.5 miles	---				N/A	N/A	N/A	N/A	N/A	(Spring discharge constant)
	MX Flowing Well	3,900	---				---	---	2	---	---	(Well discharge constant)

N/A = Not applicable
[a]Background well.

2.1.4 Hydrologic Monitoring Data

Water-level data were collected from all SNWA exploratory and test wells. Water-level measurements were regularly collected from the wells using an electronic probe (E-tape) or steel tape in accordance with SNWA field operating procedures. The physical water-level data and hydrographs for all test wells and monitor well SPR7006M are presented in Appendix B. The other seven SNWA exploratory monitor wells are included in the existing well monitoring network and are discussed in the next section.

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 as approved by the TRP and NSE.

In 2007, the TRP 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 2-3. A professional-grade survey of location coordinates and ground-surface and top-of-casing measuring-point elevations was performed for each well in 2008. A field report documenting attributes of each well included in the network, including well photos and map locations has been posted on the SNWA.com\exchange web site.

The network includes wells owned by SNWA, USGS, and BLM and two wells owned by the Eldridge Ranch. All continuously monitored wells are owned by SNWA or USGS. SNWA and USGS developed an 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 is anticipated to be completed in 2009.

The Cleve Creek Well (site number 391224114293601) will be dropped from the network and replaced with new paired shallow and deeper monitor wells located approximately 1 mi to the north of the existing Cleve Creek Well. These wells will be associated with additional required spring and groundwater monitoring in the vicinity of the Cleveland Ranch as described in Section 2.3.4. The construction details of the existing Cleve Creek well are not documented. A new monitor well will provide higher-quality data as well as more information on the lithologic and hydrogeologic characteristics of the surficial aquifer.

The discrete water-level data collected in 2008 for each monitoring network well are presented in Appendix C. Appendix D presents the discrete physical measurements, daily mean values derived from continuous data collection, and hydrographs from monitoring network wells where continuous

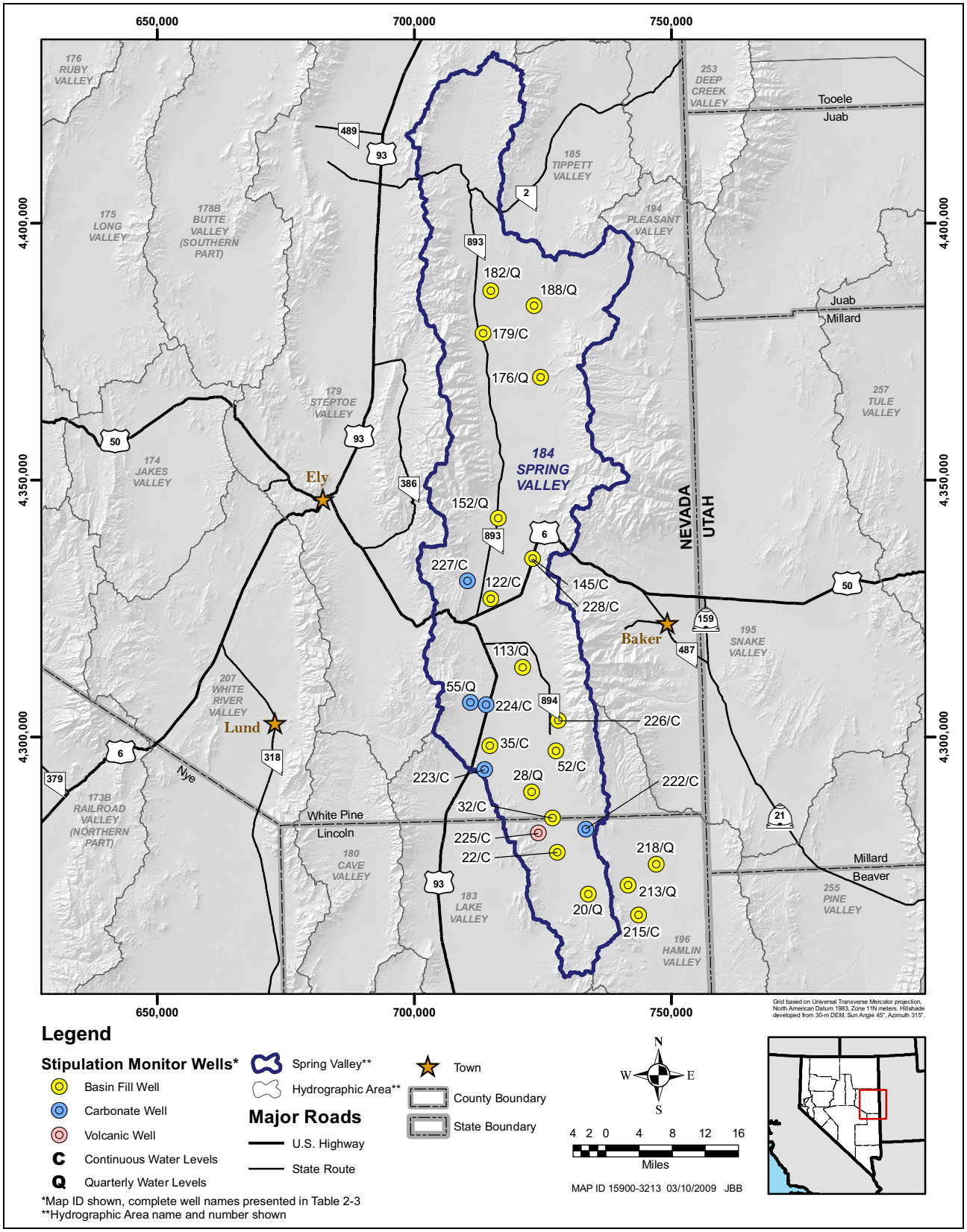

Figure 2-2
Spring Valley Existing Well Monitoring Network

Table 2-3
Spring Valley Existing Well Monitoring Network

Map ID	Site Number	Station Local Number	Location		Surface 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[a] Northing (m)	UTM[a] Easting (m)									
22	383704114225001	184 N09 E68 30AAAB 1 USGS-MX (Spring Valley S.)	4,277,594.567	727,759.993	6,002.521	8/7/1980	700	679	11	559 to 679	50 to 700	Basin Fill	Continuous
32	384039114232701	184 N10 E68 31CD 1 USGS-MX	4,284,275.684	726,871.514	5,896.489	---	---	150	2	---	50 to 150	Basin Fill	Continuous
35	384831114314301	184 N11 E66 23AB 1 USGS-MX	4,298,411.134	714,633.007	5,842.940	---	102	102	2	---	50 to 102	Basin Fill	Continuous
52	384745114224401	184 N11 E68 19DCDC 1 USGS-MX (Spring Valley)	4,297,304.220	727,554.190	5,900.177	---	200	200	2	---	50 to 200	Basin Fill	Continuous
122	390352114305401	184 N14 E66 24BDDD 1 USGS-MX (Spring Valley N.)	4,326,894.186	714,873.837	5,846.037	1980	---	160	2	---	50 to 160	Basin Fill	Continuous
145	390803114251001	184 N15 E67 26CA 1 USGS-MX	4,334,740.471	722,963.015	5,727.211	---	---	200	2	---	50 to 200	Basin Fill	Continuous
179	393211114320701	184 N19 E66 11B 1	4,378,627.027	713,381.692	5,698.428	4/22/1960	---	400	---	---	50 to 400	Basin Fill	Continuous
215	383023114115302	196 N08 E69 35DC 2 USGS-MX (Hamlin Valley S.)	4,265,403.025	743,597.362	5,837.669	8/7/1980	520	435	2	320 to 420	35 to 520	Basin Fill	Continuous
222	184W502M	184 N09 E68 11 BD 2	4,282,116.345	733,294.422	6,189.718	1/25/2007	1,828	1,799	8	495 to 1,779	58 to 1,828	Carbonate	Continuous
223	184W504M	184 N11 E66 34 DD 2	4,293,712.493	713,647.123	5,900.111	11/17/2006	1,040	1,020	8	309 to 999	61 to 1,040	Carbonate	Continuous
224	184W506M	184 N12 E66 26 BA 2	4,306,214.211	713,939.814	6,014.037	10/19/2006	1,160	1,140	8	430 to 1,120	80 to 1,160	Carbonate	Continuous
225	184W508M	184 N09 E67 11 DB 1	4,281,308.680	724,070.886	6,056.190	12/15/2006	1,180	1,160	8	376 to 1,140	241 to 1,180	Volcanic	Continuous
226	SPR7007M	184 N11 E68 05 BC 2	4,303,146.594	727,976.027	6,017.727	8/17/2007	1,040	1,020	8	300 to 1,000	101 to 1,040	Basin Fill	Continuous
227	SPR7005M	184 N14 E66 09 AB 2	4,330,471.509	710,372.442	6,395.679	7/10/2007	1,412	1,404	8	663 to 1,383	439 to 1,412	Carbonate	Continuous
228	SPR7008M	184 N15 E67 26 CD 2	4,334,702.607	722,865.266	5,704.857	7/25/2007	960	946	8	226 to 926	54 to 960	Basin Fill	Continuous
20	383351114180201	184 N08 E68 14A 1 USBLM	4,269,504.757	733,845.432	6,184.219	---	---	495	6	50 to 495	50 to 495	Basin Fill	Quarterly
28	384310114261401	184 N10 E67 22AA 1 USGS-MX (Spring V Central)	4,289,331.338	722,826.334	5,853.539	---	---	100	2	---	50 to 100	Basin Fill	Quarterly
55	184 N12 E66 21CD 1	184 N12 E66 21CD 1	4,306,700.529	710,871.148	6,370.311	9/13/1966	631	633	6	3 to 631	3 to 631	Carbonate	Quarterly
113	385636114265501	184 N13 E67 33DDA 1	4,313,590.543	721,086.816	5,769.729	---	---	--	36	---	---	Basin Fill	Quarterly
152[b]	391224114293601	184 N16 E66 36DBAD 1 USBLM - Cleve Creek Well	4,342,683.253	716,362.897	5,870.253	---	---	--	---	---	---	Basin Fill	Quarterly
176	392703114230501	184 N18 E67 01CCAA 1	4,369,956.557	724,523.818	5,587.780	---	---	42	38	---	---	Basin Fill	Quarterly
182	184 N20 E66 13AB 1	184 N20 E66 13AB 1	4,386,884.192	714,871.840	5,774.927	6/26/1966	907	296	16	135 to 296	---	Basin Fill	Quarterly
188	393442114231801	184 N20 E67 26ABBD 1 USBLM	4,383,955.154	723,240.352	5,708.768	---	130	130	6	---	50 to 130	Basin Fill	Quarterly
213	383325114134901	196 N08 E69 15B 1	4,271,103.407	741,539.275	5,729.977	---	---	110	6	---	50 to 110	Basin Fill	Quarterly
218	383533114102901	196 N08 E70 06B 1 USBLM - Monument Well	4,275,166.905	747,014.359	5,676.755	7/22/1947	---	164	6	111 to 115/ 152 to 164	---	Basin Fill	Quarterly

[a]Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[b]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.

groundwater-level data collection is required. Hydrographs at wells where continuous instrumentation has not yet been deployed present only discrete measurement data, which is provided in Appendix C. Some of the early historical data collected at certain well locations are approximate or are omitted because of uncertainty associated with collection methods and procedures or variations in reference point used for the measurement.

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. SNWA has submitted right-of-way applications for planned wells located on BLM land. This section presents a description and current status of the new wells.

2.3.1 Interbasin Monitoring Zone Network

The DOI and Stipulation Agreement established an Interbasin Monitoring Zone (Zone) and requires data collection 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 new well locations. The new locations include three carbonate and two basin-fill wells. The locations of the sites and the Zone boundary are presented in Figure 2-3, and the location coordinates for the wells are presented in Table 2-4.

Right-of-way applications for the SNWA well sites were submitted in 2007 and are currently being reviewed by BLM. The new 8-in.-diameter wells will be installed after BLM approval is obtained; therefore, the current target date for completion is dependent upon that approval. 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 new SNWA monitor wells, four existing basin-fill wells, which are included in the existing well monitoring network, are located within the Zone. One of the existing wells, site number 383023114115302 USGS-MX well, was equipped in November 2008 with instrumentation to collect continuous water-level data. Furthermore, three additional new wells, one carbonate and two basin-fill, are anticipated to be constructed within the Zone in late 2009 as part of the Round 8 SNPLMA Program. The SNPLMA program is not part of the SVMM Plan and is led by the DOI. Two of the SNPLMA wells are located near Big Spring, and a third well is located near the southern boundary of the Zone at the southern end of the Limestone Hills. After completion of the SNWA and SNPLMA drilling programs and establishment of the existing well monitoring network, a total of 13 wells will be included in monitoring programs within the Zone.

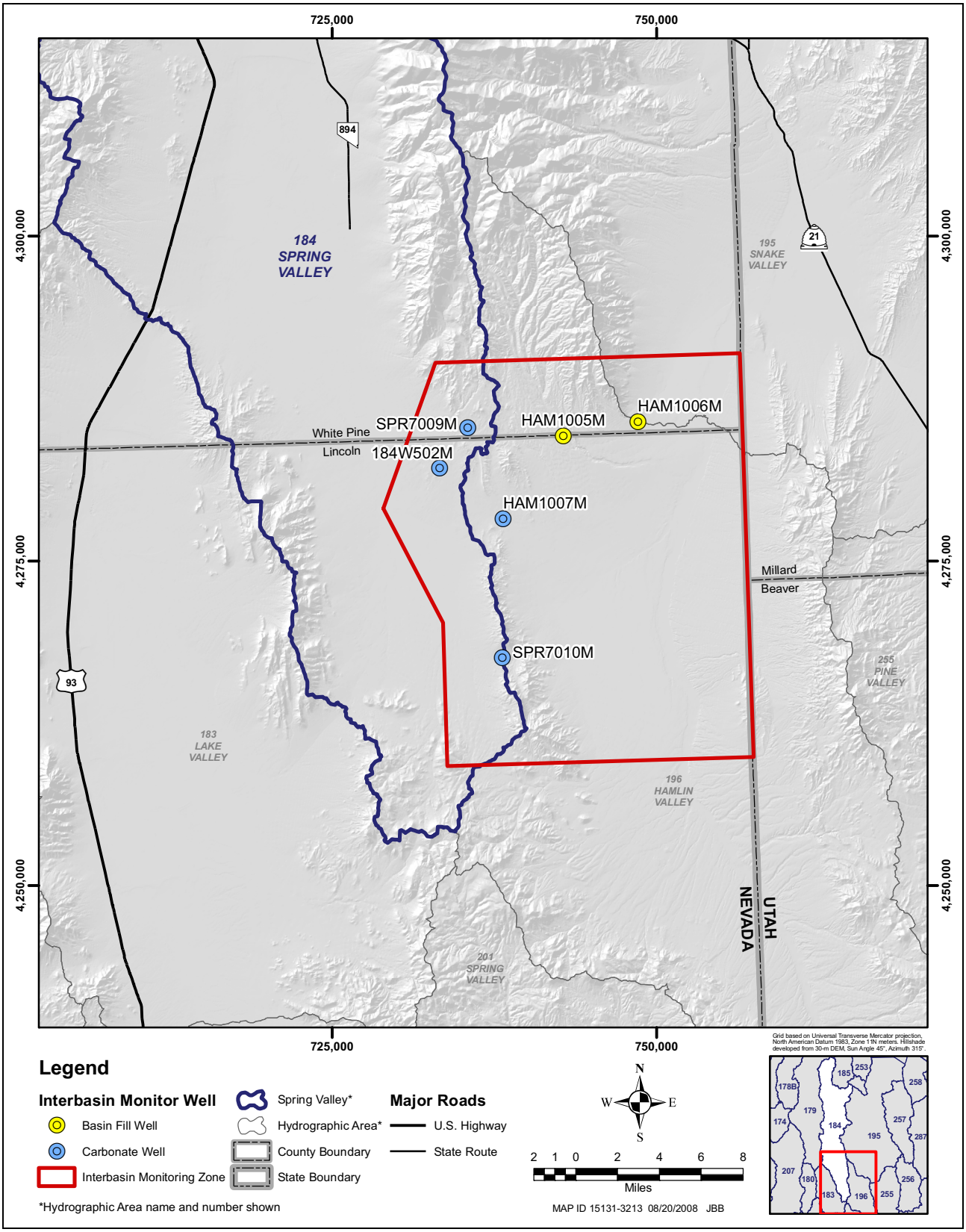

Figure 2-3
SNWA Interbasin Monitoring Zone Well Locations

Table 2-4
SNWA Interbasin Monitoring Zone 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	4,282,116.345	733,294.422	6,189.718

[a]Coordinates and elevations are approximate and will be updated based upon a professional survey of the well location.
[b]Existing well, professional survey complete, Universal Transverse Mercator, North American Datum, 1983, Zone 11.

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 wells are identified as SPR7024M and SPR7024M2 and were located with consensus of the TRP and NSE. The well locations are presented in Figure 2-4. The 4-in.-diameter wells will be completed in the basin-fill aquifer at approximate depths of 300 and 700 ft bgs. The final completion depths will be dependent upon hydrogeologic conditions.

The right-of-way applications for the well sites were submitted in 2008 and are currently being reviewed. The new wells will be installed after BLM approval is obtained; therefore, the current target date for completion is dependent upon that approval. After well installation, 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 be performed.

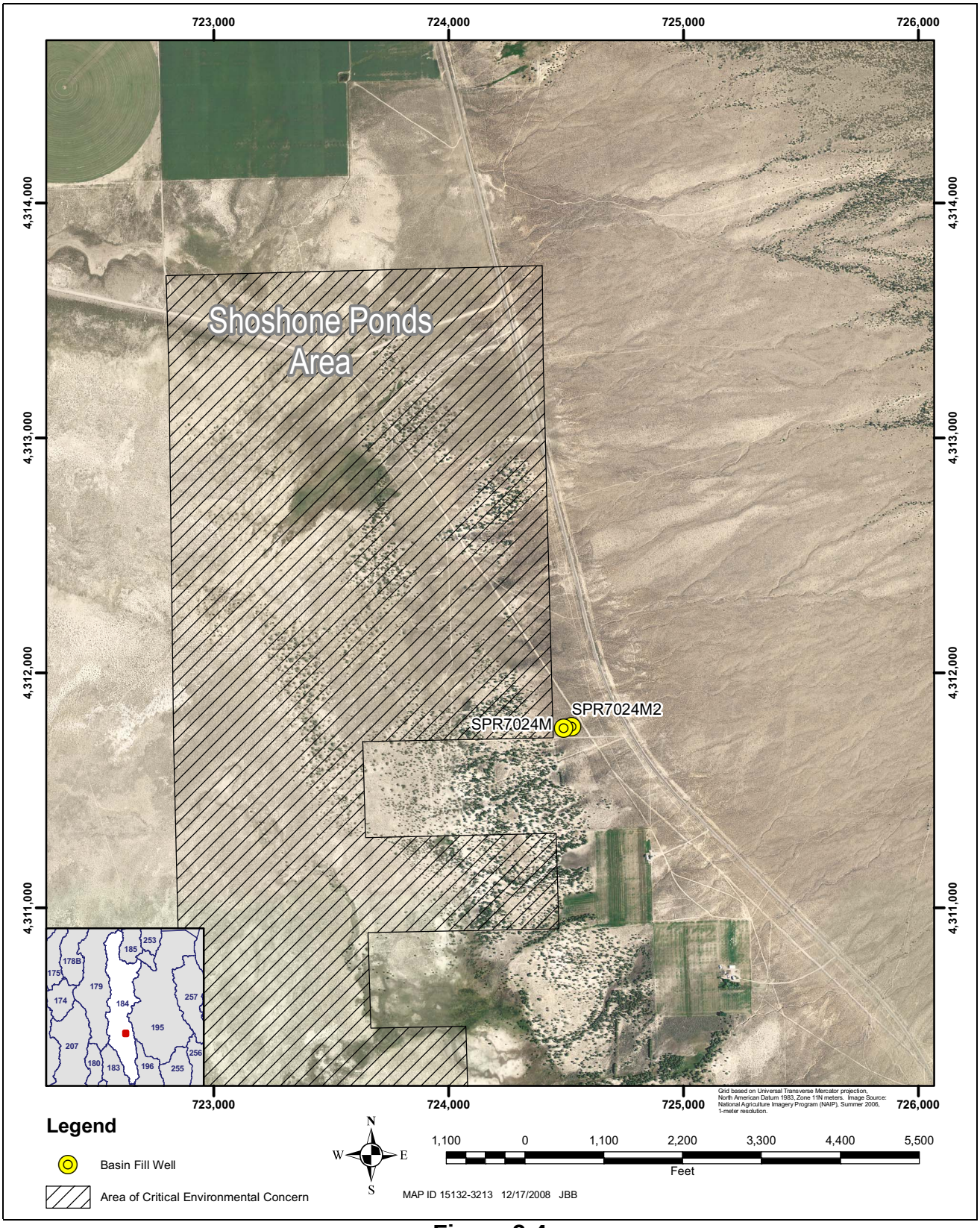

Figure 2-4
Location of Monitor Wells Near Shoshone Ponds

2.3.4 NSE Additional Monitoring Requirements

The SVMM Plan includes three additional requirements to document baseline hydrologic conditions. These requirements include (1) groundwater and spring discharge monitoring in the vicinity of the Cleveland Ranch owned by The Church of Jesus Christ of Latter-Day Saints, (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 will consist of the following elements:

- Eliminate the Cleve Creek well (site number 391224114293601) from the current SV3M Plan. Approximately 1 mi north of the Cleve Creek well, on an SNWA-approved BLM right-of-way, advance a borehole and install one monitor well to a depth that intersects the surficial water table. Install a separate monitor well approximately 200 ft deeper than the adjacent shallow well. The goal of nesting the wells is to determine and monitor changes to the vertical hydraulic gradient. The replacement of the Cleve Creek well will provide improved well integrity and documentation of site lithology and hydrogeologic conditions.

- Drill two boreholes and complete nested shallow and deep monitor wells near the springs in the southeast part of Section 29, T16N, R67E. The shallow well will intersect the surficial water table. The deeper well will be screened in a permeable horizon approximately 100 to 200 ft below the shallow well open interval. A device to gage the discharge of the main spring in this area will be installed, if practical. The actual gage and well locations will be determined in consultation with the NSE and a representative from The Church of Jesus Christ of Latter-Day Saints.

- Install a piezometer and a device to gage spring discharge at a significant spring located in the southwest part of Section 20, T16, R67E.

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 to be added to the network for discharge monitoring, as previously mentioned. Currently, a total of 14 springs are in the monitoring network with the potential for two additional springs associated with Cleveland Ranch to be added to the network as described in Section 2.3.4.

The spring monitoring network is spatially distributed across Spring Valley and includes locations on the Spring valley floor, mountain-block, and range-front areas. Shallow piezometers are planned at up to 12 of the locations, depending on hydrogeologic conditions encountered. Two mountain-block

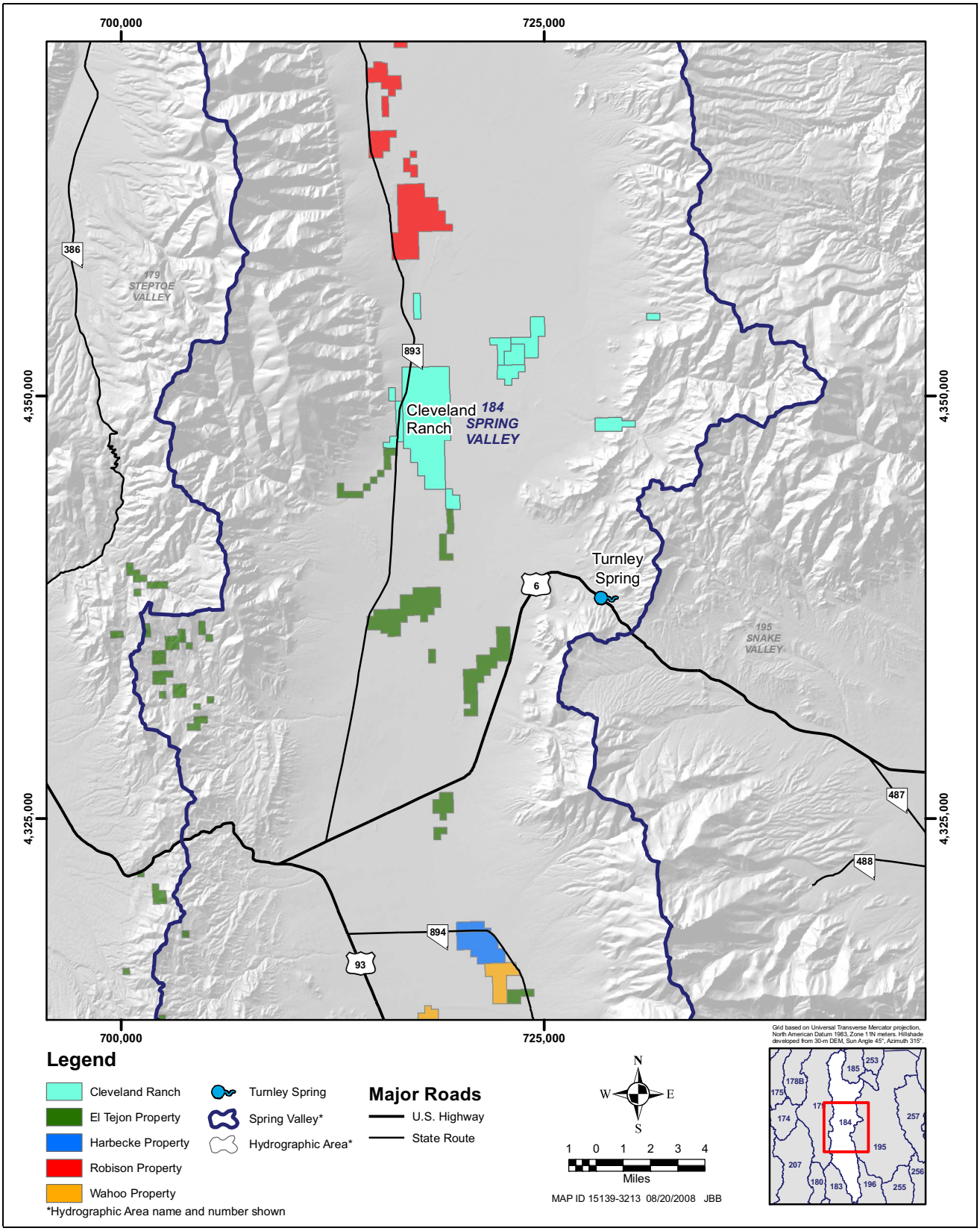

Figure 2-5
Location Map of Cleveland Ranch and Turnley Spring

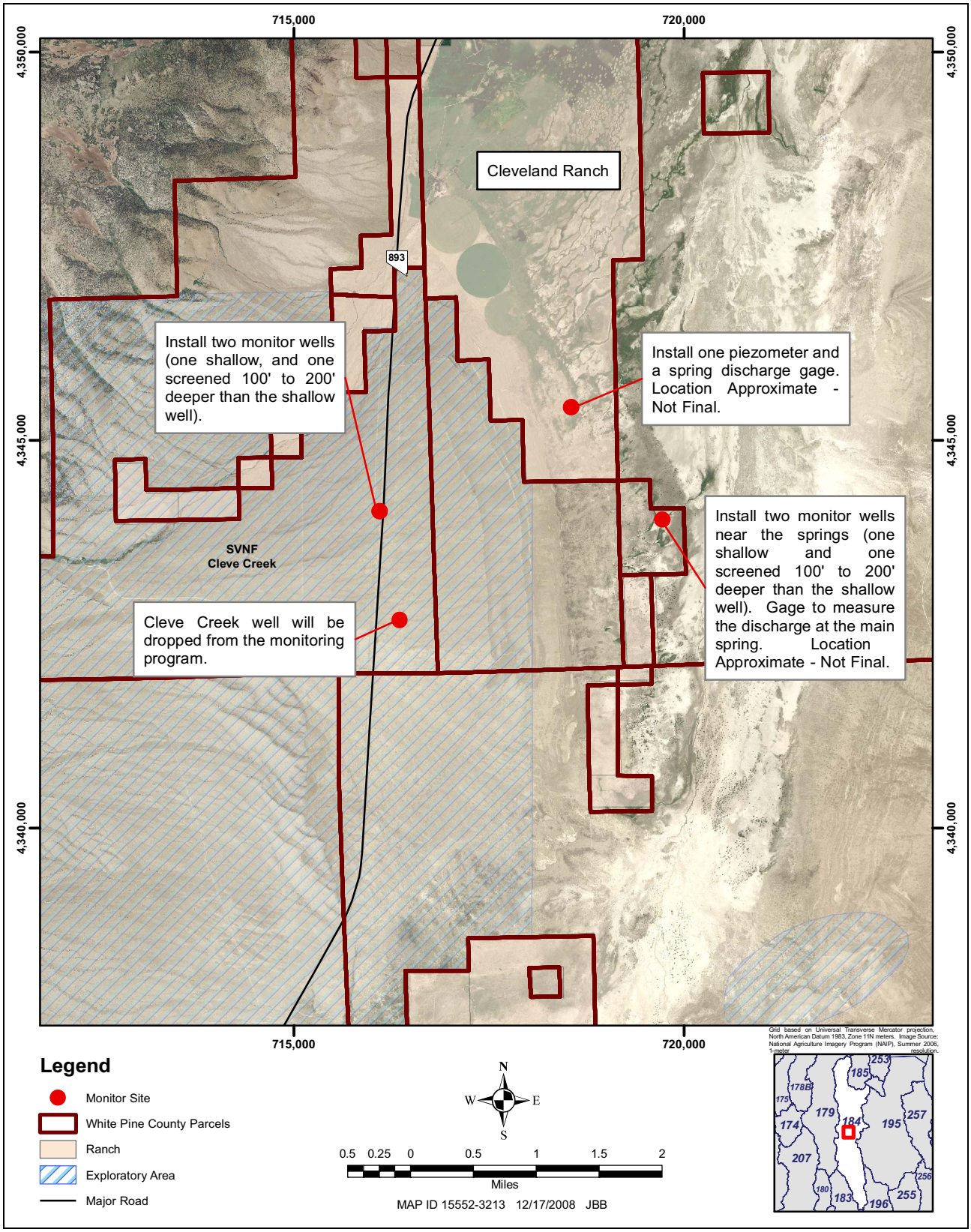

Figure 2-6
Monitoring Locations Associated with Cleveland Ranch

springs, Turnley and Rock springs, will only be monitored for discharge. Discharge measurements will also be obtained at six spring locations where measuring is technically feasible. These springs are Swallow, Minerva, Layton, South Millick, Keegan, and Willow. Spring monitoring locations are presented on Figure 2-7. Spring location coordinates and surface-elevation data are presented in Table 2-5. A field report documenting the attributes of these springs, including photos and maps, has been posted on the SNWA.com\exchange web site.

The 12 spring locations where piezometers are planned were finalized in Summer 2007 and right-of-way applications were prepared and submitted for approval for the seven spring sites located on BLM land in 2007. One piezometer (SPR7007Z) located at Minerva Spring was installed as a prototype. The piezometer-installation program for the remaining sites will be initiated after BLM approval is received. A professional survey of location coordinates, ground-surface, and top-of-casing measuring-point elevation will be performed for each piezometer after completion. The piezometers will also be equipped with datalogger and pressure transducer instrumentation to collect continuous water-level data.

Hydrologic and field-chemistry data collected at Swallow, Minerva, Layton, South Millick, Keegan, Willow, and Rock springs are presented in Appendix E. Hydrologic data from Turnley Spring are not included in this report because of the recent addition of Turnley Spring into the program. Turnley Spring's data will be included in future quarterly data submittals and in the next annual data report. Data collected at Minerva in June 2008 reflect discharge from the storage reservoir.

2.4 Constant-Rate Tests

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, six nonrequired 72- to 120-hour constant-rate tests have been performed on SNWA test wells in Spring Valley. Aquifer tests are planned for future carbonate and basin-fill production wells closest to the Zone once they are completed.

2.5 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. Three rounds of samples will be collected at 6-month intervals for chemical analysis. The TRP and NSE will determine the sample locations after the monitoring networks are established. Current schedule estimates anticipate location-selection field sampling in 2010. Independent, nonrequired water-chemistry analysis results from exploratory and test wells were presented in the 2007 data report (SNWA, 2008) and are described in Section 2.1.3.

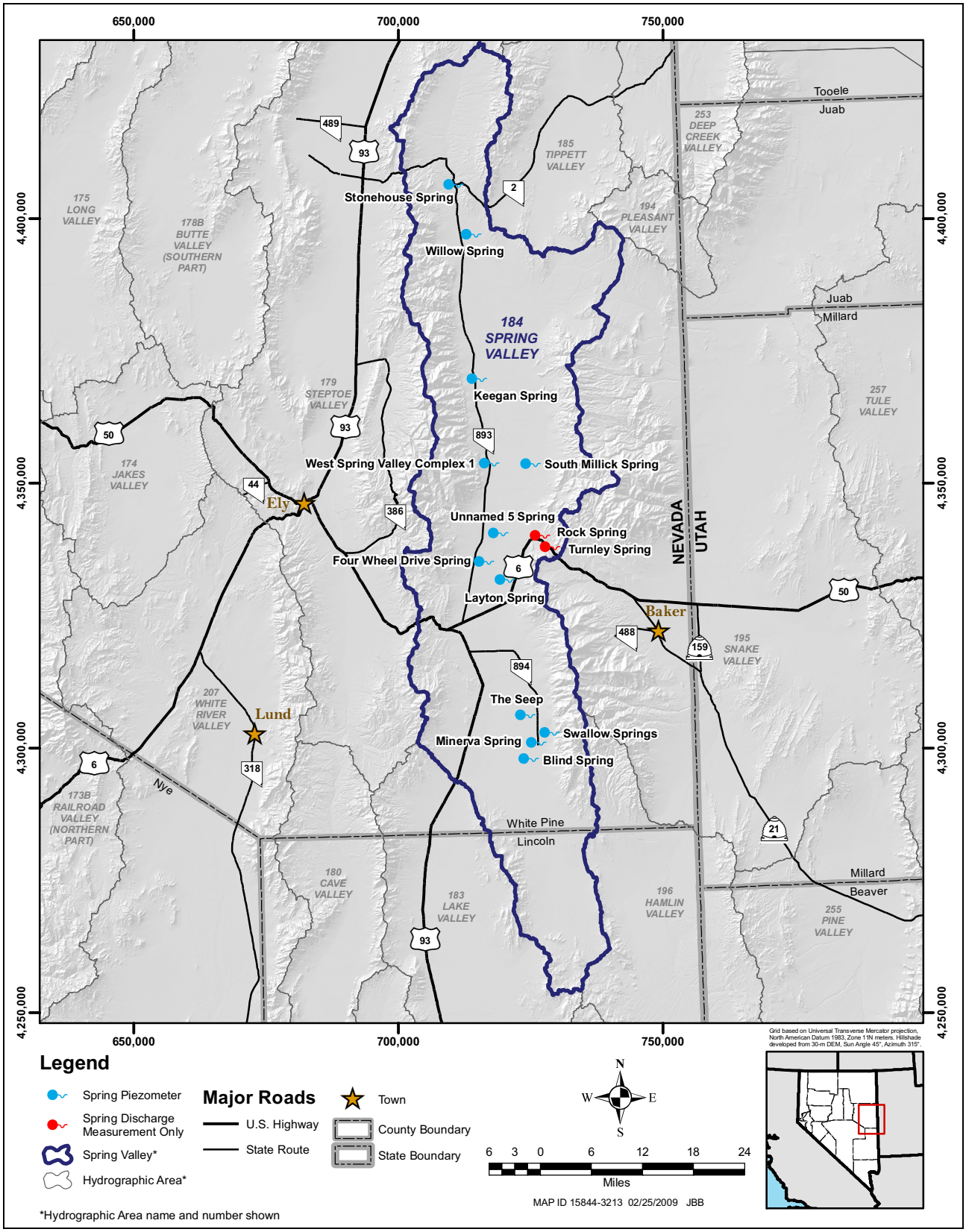

Figure 2-7
Spring Monitoring Locations

Table 2-5
Spring Monitoring Locations

Spring Name (Site Number)	Location[a]		Geology
	UTM Northing (m)	UTM Easting (m)	
4WD Spring	4,335,263	716,235	Alluvium/Fan Margin
Blind Spring	4,298,008	724,733	Alluvium/Valley Floor
Keegan Spring	4,369,762	714,908	Alluvium/Fan Margin
Layton Spring	4,331,746	720,069	Alluvium/Valley Floor
Minerva Spring[b] (SPR7007Z)	4,301,057.496	726,134.407	Alluvium/Fan Margin
Rock Spring (discharge only)	4,340,195	726,796	Carbonate/Mountain Block
South Millick Spring	4,353,608	725,148	Alluvium/Valley Floor
Stonehouse Spring	4,406,492	710,547	Alluvium/Valley Floor
Turnley Spring (discharge only)[c]	4,338,050	728,695	Carbonate/Mountain Block
Swallow Springs	4,302,902	728,648	Alluvium/Range Front
The Seep	4,306,264	724,091	Alluvium/Valley Floor
West Spring Valley Complex 1	4,353,816	717,270	Alluvium/Fan Margin
Willow Spring	4,397,093	713,757	Alluvium/Valley Floor
Unnamed 5 Spring	4,340,632	718,890	Alluvium/Valley Floor

[a]Coordinates are approximate and will be updated based upon a professional survey of the piezometer location.
[b]Existing piezometer, professional survey complete, Universal Transverse Mercator, North American Datum, 1983, Zone 11.
[c]Turnley Spring was added as part of the SVMM Plan.

2.6 Stream Discharge Measurements

2.6.1 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. Continuous stream-flow-monitoring 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 and the north and south channels of Big Springs Creek near Baker in Snake Valley. The gaging-station locations are presented in Table 2-6 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 of two gaging stations. Data collected in 2008 from these locations are presented in Appendix F.

Miscellaneous discharge measurements performed by SNWA and USGS are presented in Appendix F, Tables F-1 and F-2. All USGS data presented are considered preliminary. The continuous stream flow data for 2008 are presented in hydrographs along 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, 2009).

Table 2-6
Cleve Creek and Big Springs Monitoring Locations

Station Number	Station Name	Basin Number	Stream Number	Location		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

N/A = Not applicable

2.6.1.1 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, 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 (2008). 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 10.4 cfs, and the minimum and maximum mean annual discharges were 5.15 cfs in 1960 and 22.2 cfs in 1984. In 2007, the mean annual discharge was 8.26 cfs. The preliminary 2008 mean annual discharge was 6.66 cfs. Site data are presented on the National Water Information System (NWIS) web site (USGS, 2009). In 2008, the preliminary data demonstrate well-below-average stream flow at the Cleve Creek gaging station as a result of several years of below-normal precipitation.

2.6.1.2 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. Although Meinzer (1911) describes the springs, a discharge estimate is not provided. In early 1972, Walker (1972) installed a series of graphic recorders and flumes to determine the discharge of these springs. These data collected by Walker also include the large spring located at Burbank, Utah.

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 Springs Creek North Channel near Baker, Nevada. The USGS has maintained these gaging stations since 2005. The complete period of record of Big Spring Creek, both north and south channels, is April 2005 to present. The mean annual discharge over the period of record for Big Springs Creek South Channel is 6.12 cfs, and the minimum and maximum mean annual discharges, respectively, were 6.02 cfs in 2007 and 6.27 cfs in 2006. For Big Springs Creek North Channel, the mean annual discharge over the period of record is 3.99 cfs, and the minimum and maximum mean annual

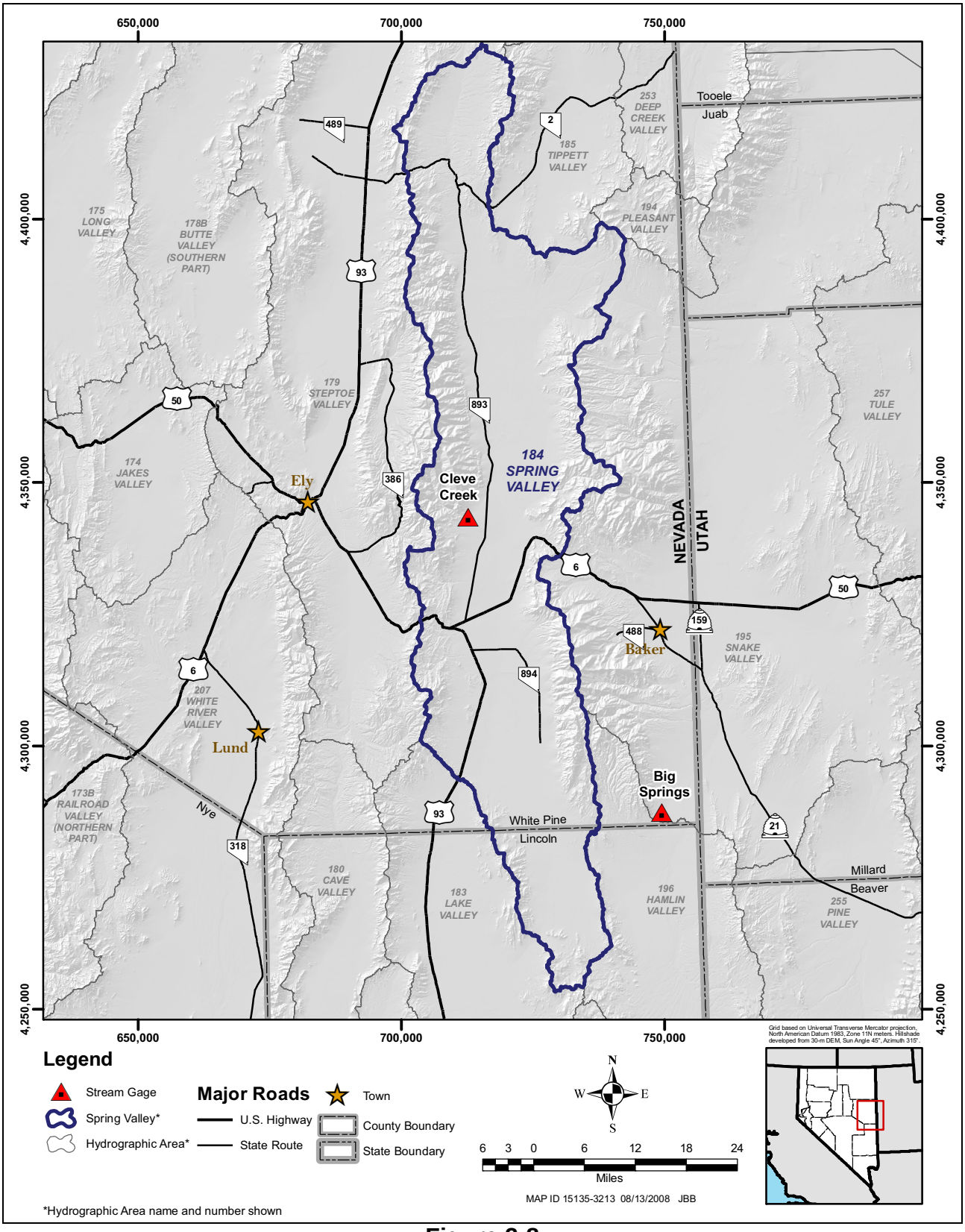

Figure 2-8
Cleve and Big Springs Creek Gaging Stations

discharges, respectively, were 3.97 cfs in 2007 and 4.00 cfs in 2006 (USGS, 2009). The USGS had not determined the 2008 mean annual discharge for each channel as of the date of this report.

2.6.2 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 springs' orifice to Preuss Lake. The study area is presented in Figure 2-9. Data would be collected during irrigation and nonirrigation seasons at least one year prior to groundwater withdrawals by SNWA. The collection would be repeated every five years after withdrawals begin. SNWA is currently preparing a preliminary work plan for the study, including technical approach, methodology, access, and logistics.

2.6.3 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, new SNWA monitor wells, and SNPLMA-funded wells.

2.7 Precipitation Station Network

The precipitation network includes three high-altitude precipitation stations located in the Snake and Schell Creek ranges; these stations are maintained and measured by USGS through a cooperative funding agreement with SNWA. Four established precipitation stations located in Ely and McGill, Nevada, the Great Basin National Park, and Eskdale, Utah, provide regional data. SNWA is also working with the National Weather Service to establish 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. The network stations are listed in Table 2-7 and presented on Figure 2-10.

Historical data from the high-altitude stations, including provisional 2008 data, are presented in Appendix G. The appendix also contains precipitation data collected in 2008 from the four regional stations. SNWA is collecting additional data from temporary bulk gages and tipping buckets at locations within Spring Valley and adjacent valleys.

2.8 Elevation Control

A survey of location coordinates, ground-surface elevation, and top-of-casing measuring-point elevations for the monitor and test wells was performed for each existing well used in the SVMM Plan in 2008. The survey was performed under the direction of a Nevada-licensed professional land surveyor. All future wells will be surveyed after installation.

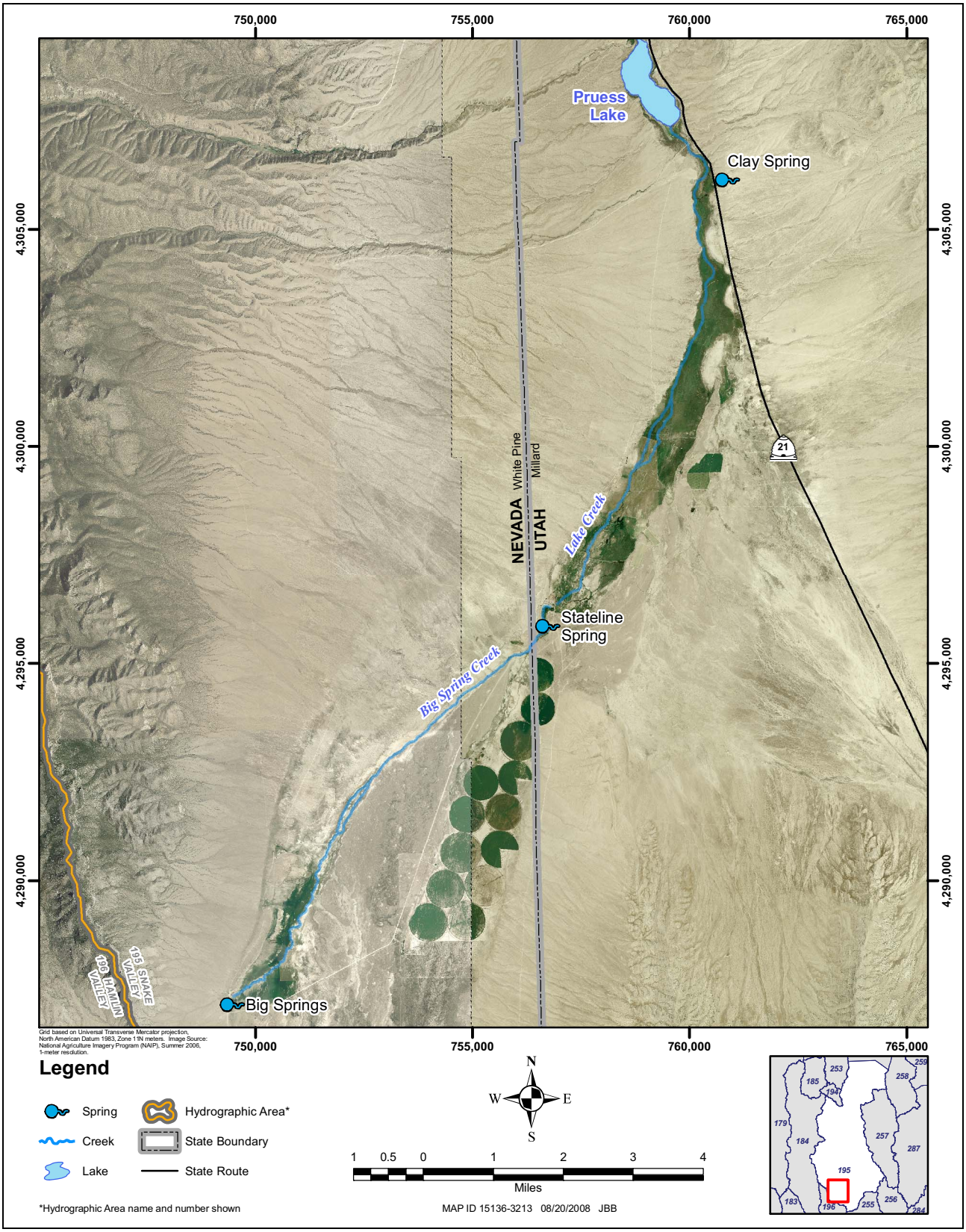

Figure 2-9
Big Springs Synoptic-Discharge Measurement Study Area, Snake Valley

Table 2-7
Precipitation Station Locations

USGS Site Number	Station Name	Altitude (ft amsl)	Location	
			UTM Northing (m)	UTM Easting (m)
391913114143101	Bulk Precipitation Station NW of Mt. Moriah	9,300	4,355,938	737,691
390946114364901	Bulk Precipitation Station on Cave Mountain	10,650	4,337,545	706,106
385409114185401	Mt. Washington Bulk Precipitation Station	10,440	4,309,376	732,764
---	Shoshone 5N	5,930	4,310,746	725,419
---	Robison Ranch	5,695	4,378,103	713,347
---	Great Basin National Park (GBNP)	6,830	4,320,462	741,031
---	McGill	6,300	4,363,546	692,301
---	Eskdale	4,980	4,334,157	763,696
---	Ely WBO	6,260	4,350,419	685,436

2.9 Reporting

A data-exchange web site accessible by the NSE, EC, TRP, and BWG members was implemented in April 2008. This site replaced the existing file transfer protocol (FTP) site and contains project reports, monitoring network data, and TRP logistical information. The data-exchange web site will be 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.

2.10 Proposed Schedule of Groundwater Withdrawals

No groundwater production is scheduled for the next two years with the exception of short-term development, well-performance testing, and aquifer testing of new test wells. The duration of well-performance tests is usually one day. The duration of constant-rate aquifer testing is usually under one week.

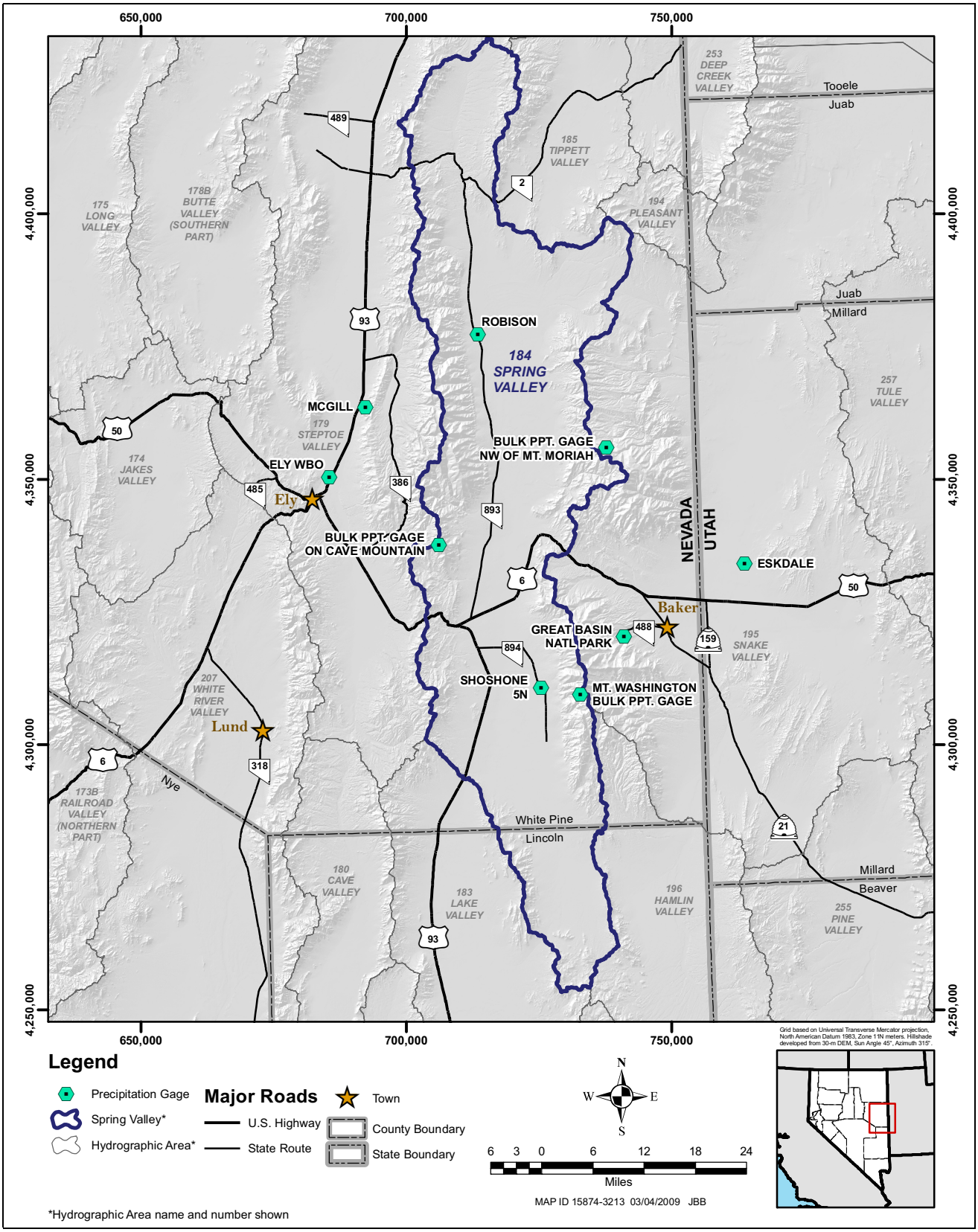

Figure 2-10
Precipitation Station Locations

3.0 ANTICIPATED SNWA-MONITORING-PLAN-RELATED ACTIVITIES IN 2009

SNWA-anticipated SVMM Plan activities in 2009 are summarized below. Some activities are contingent upon private or BLM access or NSE and TRP approval.

- Continue to equip required monitor wells with equipment housing, continuous water-level measurement, pressure transducer, and datalogger instrumentation.

- Install and test the five wells to be completed in the Zone after receiving BLM right-of way approval. Equip each well with continuous water-level measurement, pressure transducer, and datalogger instrumentation.

- Complete the installation of 12 piezometers at the spring monitoring network locations after receiving BLM right-of-way approval. Equip each piezometer with continuous water-level measurement, pressure transducer, and datalogger instrumentation.

- Meet with representatives of The Church of Jesus Christ of Latter-Day Saints to finalize and implement a monitoring program associated with the Cleveland Ranch

- Perform a professional survey of location coordinates, ground-surface elevations, and top-of-casing measuring-point elevations at new monitoring network wells and piezometers.

- Continue to collect required quarterly and continuous water-level measurements at appropriate locations. 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 2010.

- Prepare a preliminary work plan and pursue appropriate property-access agreements to perform the synoptic-discharge study at Big Springs and Lake Creeks.

- Work with The Church of Jesus Christ of Latter-Day Saints representatives to establish and operate the monitoring network at Cleveland Ranch.

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

- Prepare a work plan for the water-chemistry sampling program, including sample locations, methodology, and final parameter list after establishment of the monitoring network. The target date for implementation of the sampling program is 2010.

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

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

4.0 REFERENCES

Eaton, A.D., Clesceri, L.S., Rice, E.W., Greenberg, A.E., and Franson, M.H,. eds., 2005, Standard methods for the examination of water and wastewater: Twenty-first edition: Washington, D.C., American Public Health Association.

Meinzer, O.E., 1911, Ground water in Juab, Millard, and Iron counties Utah; U.S. Geological Survey Water-Supply Paper 277, p. 166.

Nevada State Engineer (The Office of the State Engineer of The State of Nevada), 2007, The ruling (#5726) in the matter of applications 54003 through 54021, inclusive, filed to appropriate the underground waters of the Spring Valley hydrographic basin (184), White Pine County, Nevada.

SNWA, see Southern Nevada Water Authority.

Southern Nevada Water Authority, 2006, Water resources assessment for Spring Valley—Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada, 167 p.

Southern Nevada Water Authority, 2008, Spring Valley stipulation agreement hydrologic monitoring plan status and data report: Doc. No. WRD-ED-0001, Las Vegas, Nevada, 76 p.

Southern Nevada Water Authority, 2009, Spring Valley hydrologic monitoring and mitigation plan (Hydrographic Area 184): Doc. No. WRD-ED-0003, Las Vegas, Nevada, 38 p.

U.S. Geological Survey, 2007, National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations, Book 9, chaps. A1-A9, [Internet], available from http://pubs.water.usgs.gov/twri9A.

U.S. Geological Survey, 2009, National Water Information System (NWIS-Web) [Internet], available from http://waterdata.usgs.gov/nwis/.

USGS, see U.S. Geological Survey.

Walker, R., 1972, Investigation of Big Springs: Letter report from Big Springs Irrigation Company to the Office of Sevier River Commissioner, 9 p.

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Appendix A

2008 Water-Chemistry Data

Table A-1
2008 Water-Chemistry Data
(Page 1 of 5)

Constituent	Unit	SPR7005X 7/10/2008 8:30 AM	SPR7007X 2/14/2008 10:00 AM	SPR7008X 1/31/2008 8:00 AM	Turnley Spring 10/3/2008 8:30 AM
Field-Measured Water-Quality Parameters					
Conductivity	µS/cm	327	305	250	554
Dissolved Oxygen	mg/L	3.53	7.43	---	---
pH	units	7.40	7.58	7.93	6.95
Temperature Water	°C	24.3	9.1	18.1	11.9
Turbidity	NTU	---	0.52	0.37	---
Major Constituents					
Alkalinity Bicarbonate LAB	mg/L as HCO_3	200	180	150	320
Alkalinity Carbonate LAB	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2
Alkalinity Total LAB	mg/L as $CaCO_3$	160	150	120	260
Alkalinity Hydroxide LAB	mg/L as $CaCO_3$	< 2	< 2	< 2	< 2
Chloride	mg/L	1.8	1.6	8.6	19
Nitrate	mg/L	1.3	1.7	2.1	3.7
Sulfate	mg/L	11	6.6	11	15
Calcium	mg/L	40 | 40[a]	42 | 42[a]	35 | 34[a]	75
Magnesium	mg/L	16 | 16[a]	11 | 11[a]	8.1 | 7.9[a]	15
Potassium	mg/L	1.1	< 1 | 0.65[a]	2.1 | 1.9[a]	1.2
Sodium	mg/L	4.9 | 5.0[a]	2.8 | 2.8[a]	9.1 | 8.9[a]	14
Silica	mg/L	10	9.1	17	14
Miscellaneous Constituents					
Total Dissolved Solids LAB	mg/L	170	210	160	350
Sodium Adsorption Ratio	N/A	0.234	0.141	0.51	0.546
Total Suspended Solids	mg/L	< 5	< 5	< 5	< 5
Hardness (calc)	mg/L as $CaCO_3$	---	150	120	---
Langelier Index at 20°C	N/A	---	---	---	0.627
Langelier Index at 60°C	N/A	0.345	0.501	0.695	1.14
Langelier Index	N/A	-0.116	-0.187	0.144	---
Ryznar Stability Index	N/A	7.64	7.96	7.64	6.53
Cation/Anion Balance	%	---	1.6	0.87	---
Trace and Minor Constituents					
Aluminum	µg/L	13 | < 5[a]	7.9 | < 5[a]	10 | < 5[a]	11
Antimony	µg/L	< 0.5 | < 0.5[a]	< 0.5 | < 0.5[a]	< 0.5 | < 0.5[a]	< 0.5
Arsenic	µg/L	1.3[a]	< 0.4 | < 0.4[a]	5.3 | 5.7[a]	1.1
Arsenic III	µg/L	1.6	< 2	< 2	---
Arsenic V	µg/L	< 0.4	< 2	4.9	---
Barium	µg/L	140 | 140[a]	32 | 32[a]	240 | 260[a]	98
Beryllium	µg/L	< 0.1 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.1
Boron	µg/L	18 | 16[a]	18 | < 10	14 | 31[a]	57
Bromide	µg/L	13	15	53	110
Cadmium	µg/L	< 0.1 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.1
Chromium	µg/L	0.33 | < 0.2[a]	0.33 | < 0.2[a]	0.28 | 0.25[a]	< 0.2
Chromium (III)	µg/L	0.33	< 0.2	0.28	---
Chromium (VI)	µg/L	< 0.3	< 0.3	< 0.3	---
Chlorate	µg/L	< 10	< 10	< 10	< 20
Copper	µg/L	0.71 | 0.63[a]	0.86 | 0.7[a]	7.6 | 2.3[a]	< 0.5
Fluoride	mg/L	< 0.1	< 0.1	0.25	< 0.1

Table A-1
2008 Water-Chemistry Data
(Page 2 of 5)

Constituent	Unit	SPR7005X 7/10/2008 8:30 AM	SPR7007X 2/14/2008 10:00 AM	SPR7008X 1/31/2008 8:00 AM	Turnley Spring 10/3/2008 8:30 AM
Iron	µg/L	25 | < 20[a]	< 20 | < 20[a]	< 20 | < 20[a]	11
Lead	µg/L	< 0.2 | < 0.2[a]	< 0.2 | < 0.2[a]	1.9 | < 0.2[a]	< 0.2
Lithium	µg/L	< 10 | < 10[a]	< 10 | < 10[a]	12 | 11[a]	< 10
Manganese	µg/L	18 | 18[a]	1.1 | 0.97[a]	1.6 | 1.3[a]	0.68
Mercury	µg/L	< 0.05 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.1 | < 0.1[a]	< 0.05
Molybdenum	µg/L	0.51 | 0.59[a]	0.17 | 0.16[a]	1.2 | 1.2[a]	0.37
Nickel	µg/L	1.0 | 1.1[a]	< 0.8 | < 0.8[a]	< 0.8 | < 0.8[a]	< 0.8
Nitrite	µg/L as N	< 100	< 100	< 100	< 100
Phosphate	µg/L as P	9.1	3.4	7.4	< 9.8
Phosphorus	µg/L as P	< 10	< 10	< 10	10
Selenium	µg/L	< 0.4 | < 0.4[a]	< 0.4 | < 0.4[a]	< 0.4 | < 0.4[a]	0.47
Silver	µg/L	< 0.2 | < 0.2[a]	< 0.2 | < 0.2[a]	< 0.2 | < 0.2[a]	< 0.2
Strontium	µg/L	160 | 160[a]	180 | 180[a]	140 | 140[a]	220
Thallium	µg/L	< 0.2 | < 0.2[a]	< 0.2 | < 0.2[a]	< 0.2 | < 0.2[a]	< 0.2
Vanadium	µg/L	< 0.5 | < 0.5[a]	0.60 | 0.57[a]	1.0 | 0.94[a]	0.88
Zinc	µg/L	9.2 | 8.7[a]	< 5 | 5.3[a]	32 | 20[a]	< 5
Radionuclides					
Gross Alpha	pCi/L	2.4	2	7.1	---
Gross Beta	pCi/L	6.2	4.8	4.9	---
Radium Total	pCi/L	< 0.4	< 0.3	< 0.4	---
Radium-226	pCi/L	< 0.2	< 0.3	< 0.4	---
Radium-228	pCi/L	< 0.4	< 0.3	< 0.3	---
Radon-222	pCi/L	75	245	345	---
Strontium-90	pCi/L	< 0.6	< 0.6	< 0.6	---
Tritium	pCi/L	< 323	< 312	< 315	---
Tritium	TU	4.5	9.3	< 0.8	---
Uranium	pCi/L	0.84	0.5	0.85	---
Environmental Isotopes					
Carbon-13/12	per mil	-7.5	-7.6	-7.2	---
Carbon-14	pmc	43.45	57.01	21.60	---
Chlorine-36/Chloride	ratio	3.14E-12	5.67E-12	3.93E-13	---
Hydrogen-2/1	per mil	-121.29	-109.49	-110.62	-111.67
Hydrogen-2/1 (Duplicate)	per mil	-121.33	-109.86	-110.77	-112.33
Oxygen-18/16	per mil	-16.15	-15.25	-15.20	-15.38
Organics					
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/L	< 5	< 5	< 5	---
1,2,4-Trimethylbenzene	µg/L	< 0.5	< 0.5	< 0.5	---
1,2-Dibromo-3-chloropropane	µg/L	< 0.01	< 0.01	< 0.01	---
Acifluorfen	µg/L	< 0.4	< 0.4	< 0.4	---
Alachlor	µg/L	< 0.1	< 0.1	< 0.1	---
Aldicarb	µg/L	< 2	< 2	< 2	---
Aldicarb Sulfone	µg/L	< 2	< 2	< 2	---
Aldicarb Sulfoxide	µg/L	< 2	< 2	< 2	---
Aldrin	µg/L	< 0.05	< 0.05	< 0.05	---
Atrazine	µg/L	< 0.1	< 0.1	< 0.1	---
Baygon	µg/L	< 5	< 5	< 5	---

Table A-1
2008 Water-Chemistry Data
(Page 3 of 5)

Constituent	Unit	SPR7005X 7/10/2008 8:30 AM	SPR7007X 2/14/2008 10:00 AM	SPR7008X 1/31/2008 8:00 AM	Turnley Spring 10/3/2008 8:30 AM
Bentazon	µg/L	< 2	< 2	< 2	---
Benzene	µg/L	< 0.5	< 0.5	< 0.5	---
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	---
BHC (Alpha)	µg/L	< 0.01	< 0.01	< 0.01	---
BHC (Beta)	µg/L	< 0.05	< 0.05	< 0.05	---
BHC (Delta)	µg/L	< 0.05	< 0.05	< 0.05	---
BHC (Gamma) [Lindane]	µg/L	<0.05	< 0.05	< 0.05	---
bis (2-Ethylhexyl)adipate	µg/L	< 5	< 5	< 5	---
bis (2-Ethylhexyl)phthalate	µg/L	< 3	< 3	< 3	---
Bromacil	µg/L	< 1	< 1	< 1	---
Bromobenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Bromochloromethane	µg/L	< 0.5	< 0.5	< 0.5	---
Bromodichloromethane	µg/L	< 0.5	< 0.5	< 0.5	---
Bromoform	µg/L	< 0.5	< 0.5	< 0.5	---
Butachlor	µg/L	< 0.2	< 0.2	< 0.2	---
Butanone (2)	µg/L	< 5	< 5	< 5	---
Butylbenzene (n)	µg/L	< 0.5	< 0.5	< 0.5	---
Butylbenzene (sec)	µg/L	< 0.5	< 0.5	< 0.5	---
Captan	µg/L	< 1	---	---	---
Carbaryl	µg/L	< 2	< 2	< 2	---
Carbofuran	µg/L	< 5	< 5	< 5	---
Carbon Tetrachloride	µg/L	< 0.5	< 0.5	< 0.5	---
Chlordane (tech)	µg/L	< 0.1	< 0.1	< 0.1	---
Chlorobenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Chloroethane	µg/L	< 0.5	< 0.5	< 0.5	---
Chloroethylvinyl ether (2)	µg/L	< 1	< 1	< 1	---
Chloroform	µg/L	< 0.5	< 0.5	< 0.5	---
Chloropropham	µg/L	< 0.1	---	---	---
Chlorothalonil	µg/L	< 0.05	< 0.05	< 0.05	---
Chlorotoluene (2)	µg/L	< 0.5	< 0.5	< 0.5	---
Chlorotoluene (4)	µg/L	< 0.5	< 0.5	< 0.5	---
Cyanazine	µg/L	< 0.1	---	---	---
Cyanide	µg/L	< 5	< 5	< 5	---
D (2,4)	µg/L	< 0.4	< 0.4	< 0.4	---
Dalapon	µg/L	< 0.4	< 0.4	< 0.4	---
DB (2,4)	µg/L	< 2	< 2	< 2	---
DCPA	µg/L	< 0.1	< 0.1	< 0.1	---
DDD (4,4')	µg/L	< 0.02	< 0.02	< 0.02	---
DDE (4,4')	µg/L	< 0.01	< 0.01	< 0.01	---
DDT (4,4')	µg/L	< 0.02	< 0.02	< 0.02	---
Diazinon	µg/L	< 0.1	< 0.1	< 0.1	---
Dibromochloromethane	µg/L	< 0.5	< 0.5	< 0.5	---
Dibromomethane	µg/L	< 0.5	< 0.5	< 0.5	---
Dicamba	µg/L	< 0.6	< 0.6	< 0.6	---
Dichlorobenzene (1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichlorobenzene (1,3)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichlorobenzene (1,4) (p)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichlorobenzoic acid (3,5)	µg/L	< 1	< 1	< 1	---
Dichlorodifluoromethane	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloroethane (1,1)	µg/L	< 0.5	< 0.5	< 0.5	---

Table A-1
2008 Water-Chemistry Data
(Page 4 of 5)

Constituent	Unit	SPR7005X 7/10/2008 8:30 AM	SPR7007X 2/14/2008 10:00 AM	SPR7008X 1/31/2008 8:00 AM	Turnley Spring 10/3/2008 8:30 AM
Dichloroethane (1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloroethene (cis 1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloroethene (1,1)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloroethene (trans 1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloroprop	µg/L	< 0.3	< 0.3	< 0.3	---
Dichloropropane (1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloropropane (1,3)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloropropane (2,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloropropene (1,1)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloropropene (cis 1,3)	µg/L	< 0.5	< 0.5	< 0.5	---
Dichloropropene (trans 1,3)	µg/L	< 0.5	< 0.5	< 0.5	---
Dieldrin	µg/L	< 0.02	< 0.02	< 0.02	---
Di-isopropyl ether	µg/L	< 3	< 3	< 3	---
Dimethoate	µg/L	< 0.2	< 0.2	< 0.2	---
Dinoseb	µg/L	< 0.4	< 0.4	< 0.4	---
Diphenamid	µg/L	< 0.1	---	---	---
Diquat	µg/L	< 4	< 4	< 4	---
Disulfoton	µg/L	< 0.1	---	---	---
Endosulfan I	µg/L	< 0.02	< 0.02	< 0.02	---
Endosulfan II	µg/L	< 0.01	< 0.01	< 0.01	---
Endosulfan Sulfate	µg/L	< 0.05	< 0.05	< 0.05	---
Endothall	µg/L	< 45	< 45	< 45	---
Endrin	µg/L	< 0.05	< 0.05	< 0.05	---
Endrin aldehyde	µg/L	< 0.05	< 0.05	< 0.05	---
Ethylbenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Ethylene dibromide [EDB]	µg/L	< 0.02	< 0.02	< 0.02	---
Glyphosate	µg/L	< 25	< 5	< 5	---
Heptachlor	µg/L	< 0.01	< 0.01	< 0.01	---
Heptachlor Epoxide	µg/L	< 0.01	< 0.01	< 0.01	---
Hexachlorobenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Hexachlorobutadiene	µg/L	< 0.5	< 0.5	< 0.5	---
Hexachlorocyclopentadiene	µg/L	< 0.05	< 0.05	< 0.05	---
Hexanone (2)	µg/L	< 5	< 5	< 5	---
Hydroxycarbofuran (3)	µg/L	< 2	< 2	< 2	---
Isopropylbenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Isopropyltoluene (p)	µg/L	< 0.5	< 0.5	< 0.5	---
Methylene Blue Active substances (MBAS)	mg/L	< 0.05	< 0.05	< 0.05	---
Methiocarb	µg/L	< 3	< 3	< 3	---
Methomyl	µg/L	< 2	< 2	< 2	---
Methoxychlor	µg/L	< 0.05	< 0.05	< 0.05	---
Methyl Bromide	µg/L	< 0.5	< 0.5	< 0.5	---
Methyl Chloride	µg/L	< 0.5	< 0.5	< 0.5	---
Methyl-2-pentanone (4)	µg/L	< 5	< 5	< 5	---
Methylene Chloride	µg/L	< 0.5	< 0.5	< 0.5	---
Metolachlor	µg/L	< 0.1	< 0.1	< 0.1	---
Metribuzin	µg/L	< 0.1	< 0.1	< 0.1	---
Molinate	µg/L	< 0.1	< 0.1	< 0.1	---
Methyl tertiary butyl ether (MTBE)	µg/L	< 3	< 3	< 3	---
Naphthalene	µg/L	< 0.5	< 0.5	< 0.5	---
Oxamyl [vydate]	µg/L	< 2	< 2	< 2	---

Table A-1
2008 Water-Chemistry Data
(Page 5 of 5)

Constituent	Unit	SPR7005X 7/10/2008 8:30 AM	SPR7007X 2/14/2008 10:00 AM	SPR7008X 1/31/2008 8:00 AM	Turnley Spring 10/3/2008 8:30 AM
PCB 1016 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1221 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1232 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1242 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1248 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1254 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
PCB 1260 Aroclor	µg/L	< 0.1	< 0.1	< 0.1	---
Polychlorinated biphenyls (PCBs) Total	µg/L	< 0.5	< 0.5	< 0.5	---
Pentachlorophenol	µg/L	< 0.2	< 0.2	< 0.2	---
Picloram	µg/L	< 0.6	< 0.6	< 0.6	---
Prometon	µg/L	< 0.2	< 0.2	< 0.2	---
Prometryn	µg/L	< 0.1	< 0.1	< 0.1	---
Propachlor	µg/L	< 0.5	< 0.5	< 0.5	---
Propylbenzene (n)	µg/L	< 0.5	< 0.5	< 0.5	---
S- Ethyl Dipropylthiocarbamate (EPTC)	µg/L	< 1	---	---	---
Silvex	µg/L	< 0.2	< 0.2	< 0.2	---
Simazine	µg/L	< 0.1	< 0.1	< 0.1	---
Styrene	µg/L	< 0.5	< 0.5	< 0.5	---
T (2,4,5)	µg/L	< 0.2	< 0.2	< 0.2	---
TCDD (2,3,7,8) [dioxin]	pg/L	< 5	< 5	< 5	---
Terbacil	µg/L	< 2	---	---	---
tert-amyl Methyl Ether	µg/L	< 3	< 3	< 3	---
tert-Butyl Ethyl Ether	µg/L	< 3	< 3	< 3	---
tert-Butylbenzene	µg/L	< 0.5	< 0.5	< 0.5	---
Tetrachloroethane (1,1,1,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Tetrachloroethane (1,1,2,2)	µg/L	< 0.5	< 0.5	< 0.5	---
Tetrachloroethene	µg/L	< 0.5	< 0.5	< 0.5	---
Thiobencarb	µg/L	< 0.2	< 0.2	< 0.2	---
Toluene	µg/L	< 0.5	< 0.5	< 0.5	---
Total Organic Carbon (TOC)	mg/L	< 0.3	< 0.3	< 0.3	---
Toxaphene	µg/L	< 1	< 1	< 1	---
Trichlorobenzene (1,2,3) [TCB]	µg/L	< 0.5	< 0.5	< 0.5	---
Trichlorobenzene (1,2,4) [TCB]	µg/L	< 0.5	< 0.5	< 0.5	---
Trichloroethane (1,1,1) [TCE]	µg/L	< 0.5	< 0.5	< 0.5	---
Trichloroethane (1,1,2) [TCE]	µg/L	< 0.5	< 0.5	< 0.5	---
Trichloroethene	µg/L	< 0.5	< 0.5	< 0.5	---
Trichlorofluoromethane	µg/L	< 5	< 5	< 5	---
Trichloropropane (1,2,3)	µg/L	< 0.5	< 0.5	< 0.5	---
Trifluralin	µg/L	< 0.01	< 0.01	< 0.01	---
Trimethylbenzene (1,3,5)	µg/L	< 0.5	< 0.5	< 0.5	---
Trithion	µg/L	< 0.1	---	---	---
Vinyl Chloride	µg/L	< 0.5	< 0.5	< 0.5	---
Xylene (m,p) isometric pair	µg/L	< 1.0	< 1.0	< 1.0	---
Xylene (o)	µg/L	< 0.5	< 0.5	< 0.5	---
Xylenes Total	µg/L	< 0.5	< 0.5	< 0.5	---

[a] Sample was filtered (0.45 µm filter) prior to analysis; thus concentrations reflect the dissolved constituent. Filtered and unfiltered samples were analyzed for most metals.

--- = Not Analyzed
NA = Not Applicable

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Appendix B

Discrete Water-Level Measurements and Hydrographs for Exploratory and Test Wells Not Included in the Monitoring Network Data in Appendixes C and D

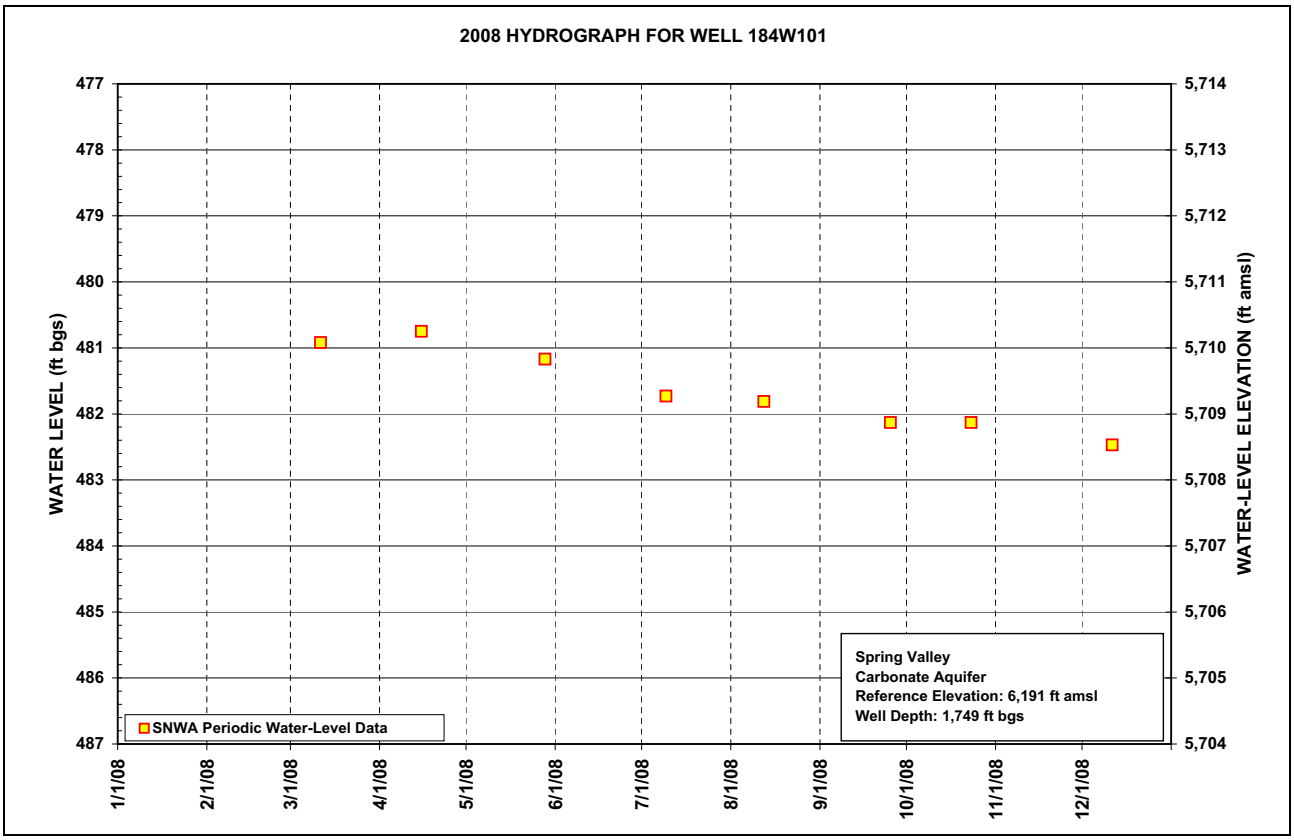
Table B-1
Water-Level Measurements Collected at SNWA Exploratory and Test Wells not included in Appendixes C and D
(Page 1 of 2)

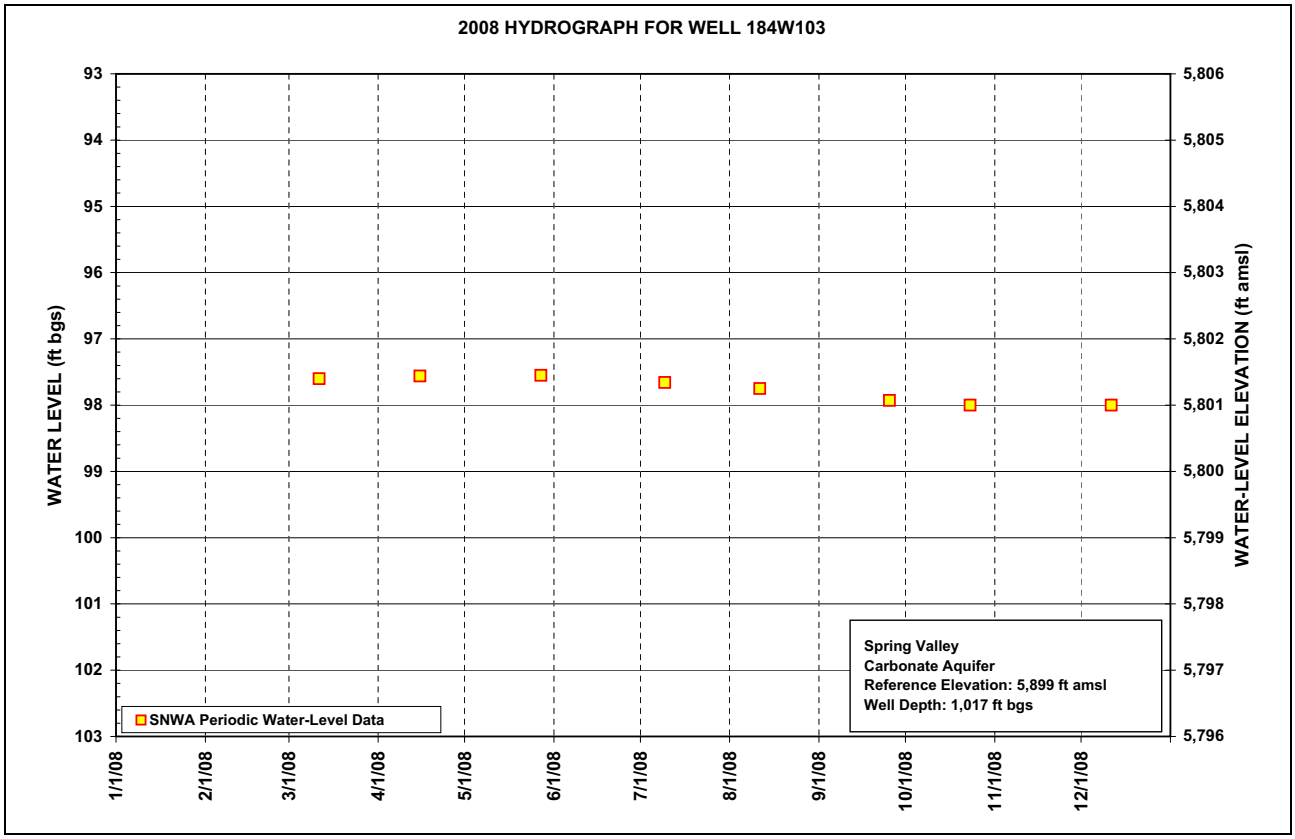
Well Number	Owner	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
				Date	Depth (ft bgs)	Site Status[a]	Measurement Method[b]
184W101	SNWA	1,748.76	6,190.900	3/11/2008	480.92	S	T
				4/15/2008	480.75	S	T
				5/28/2008	481.17	S	T
				7/9/2008	481.73	S	T
				8/12/2008	481.81	S	T
				9/25/2008	482.13	S	T
				10/23/2008	482.13	S	T
				12/11/2008	482.47	S	T
184W103	SNWA	1,016.67	5,899.059	3/11/2008	97.60	S	T
				4/15/2008	97.56	S	T
				5/27/2008	97.55	S	T
				7/9/2008	97.66	S	T
				8/11/2008	97.75	S	T
				9/25/2008	97.93	S	T
				10/23/2008	98.00	S	S
				12/11/2008	98.00	S	T
184W105	SNWA	1,135.13	6,007.303	3/11/2008	208.37	S	T
				4/17/2008	208.48	S	T
				5/29/2008	208.38	S	T
				7/9/2008	208.56	S	T
				8/13/2008	208.59	S	T
				9/23/2008	208.69	S	T
				10/23/2008	208.81	S	S
				12/11/2008	208.82	S	T
SPR7006M	SNWA	1,700.5	6,525.181	1/16/2008	768.44	S	T
				1/25/2008	768.45	S	T
				2/5/2008	768.81	S	T
				3/13/2008	768.50	S	T
				4/16/2008	768.86	S	T
				5/28/2008	768.53	S	T
				7/8/2008	768.88	S	T
				8/11/2008	769.06	S	T
				9/24/2008	769.65	S	T
				10/22/2008	769.92	S	T
				12/10/2008	770.24	S	T
SPR7008X	SNWA	960.1	5,703.980	3/13/2008	13.64	S	T
				4/16/2008	13.68	S	T
				5/28/2008	13.60	S	T
				7/8/2008	13.79	S	T
				8/12/2008	13.74	S	T
				9/24/2008	13.86	S	T
				10/22/2008	13.95	S	S
				12/10/2008	13.99	S	T

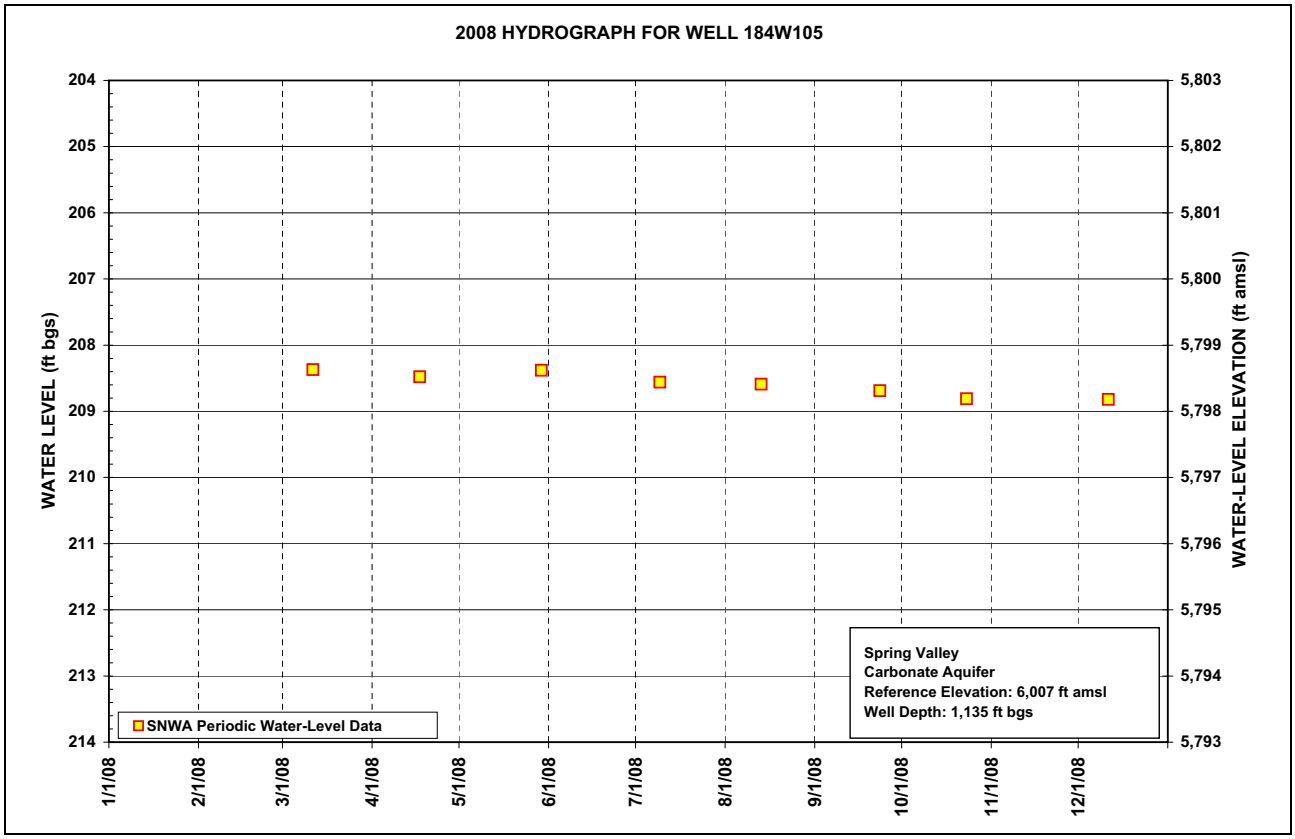
Table B-1
Water-Level Measurements Collected at SNWA Exploratory and Test Wells not included in Appendixes C and D
(Page 2 of 2)

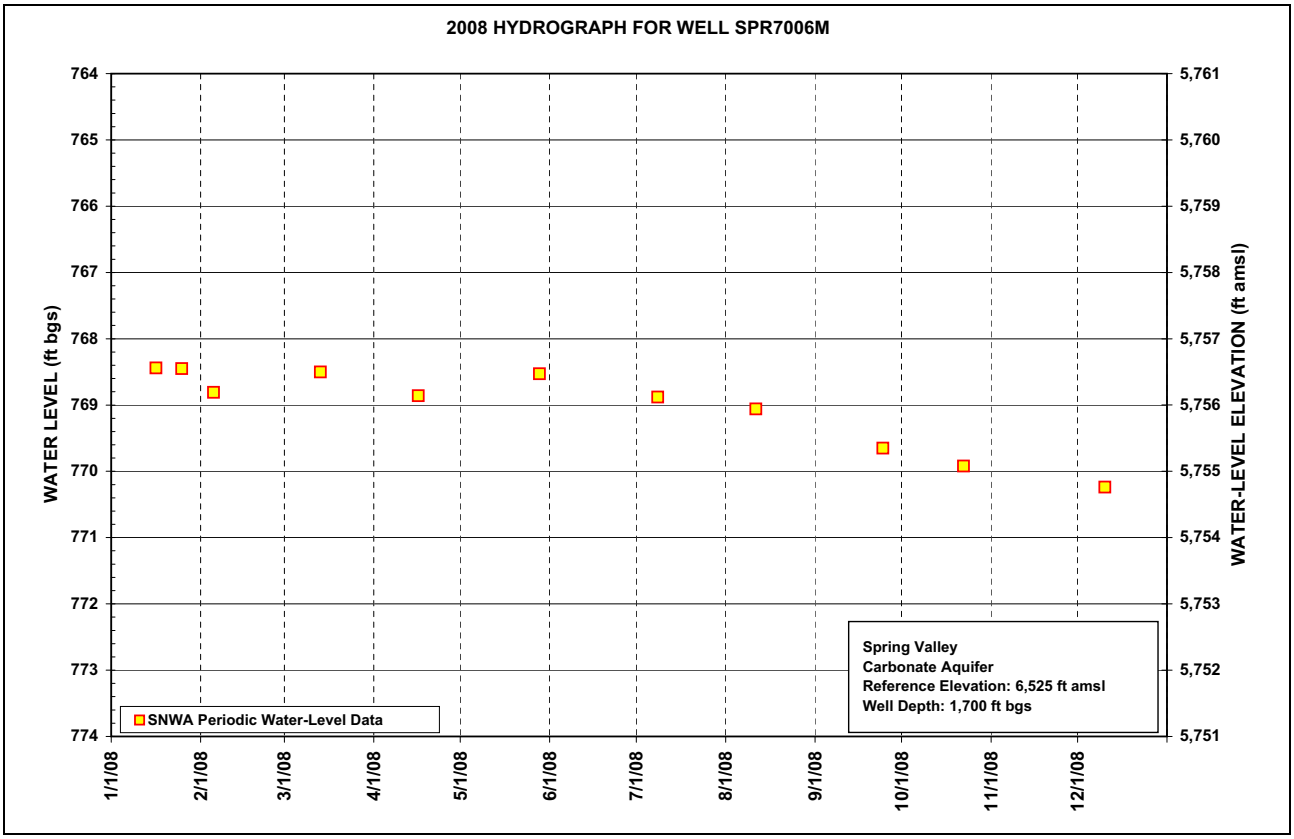
Well Number	Owner	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
				Date	Depth (ft bgs)	Site Status[a]	Measurement Method[b]
SPR7005X	SNWA	1,350.47	6,397.558	4/16/2008	494.22	S	T
				5/29/2008	494.14	S	T
				8/11/2008	495.42	S	T
				8/28/2008	495.45	S	T
				9/24/2008	495.51	S	T
				10/22/2008	495.69	S	T
				12/10/2008	495.92	S	T
SPR7007X	SNWA	1,020.46	6,017.528	3/12/2008	157.73	S	T
				4/16/2008	157.49	S	T
				5/28/2008	155.68	S	T
				7/8/2008	152.19	S	T
				8/11/2008	151.22	S	T
				9/24/2008	151.77	S	T
				10/22/2008	152.73	S	S
				12/10/2008	154.58	S	T

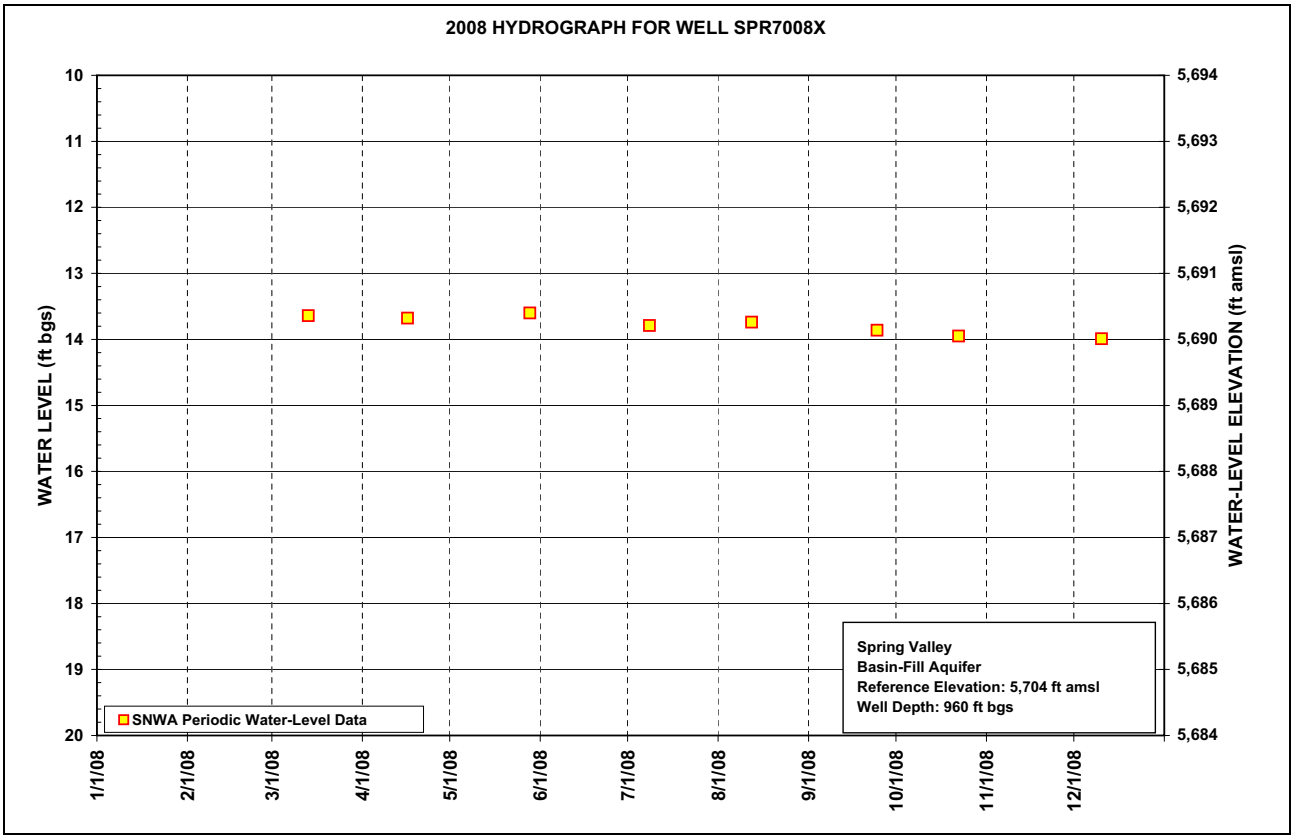
[a] S = Static conditions
[b] T = Electric tape measurement, S = Steel tape measurement
Note: SNWA Tape calibration program started in August of 2008.

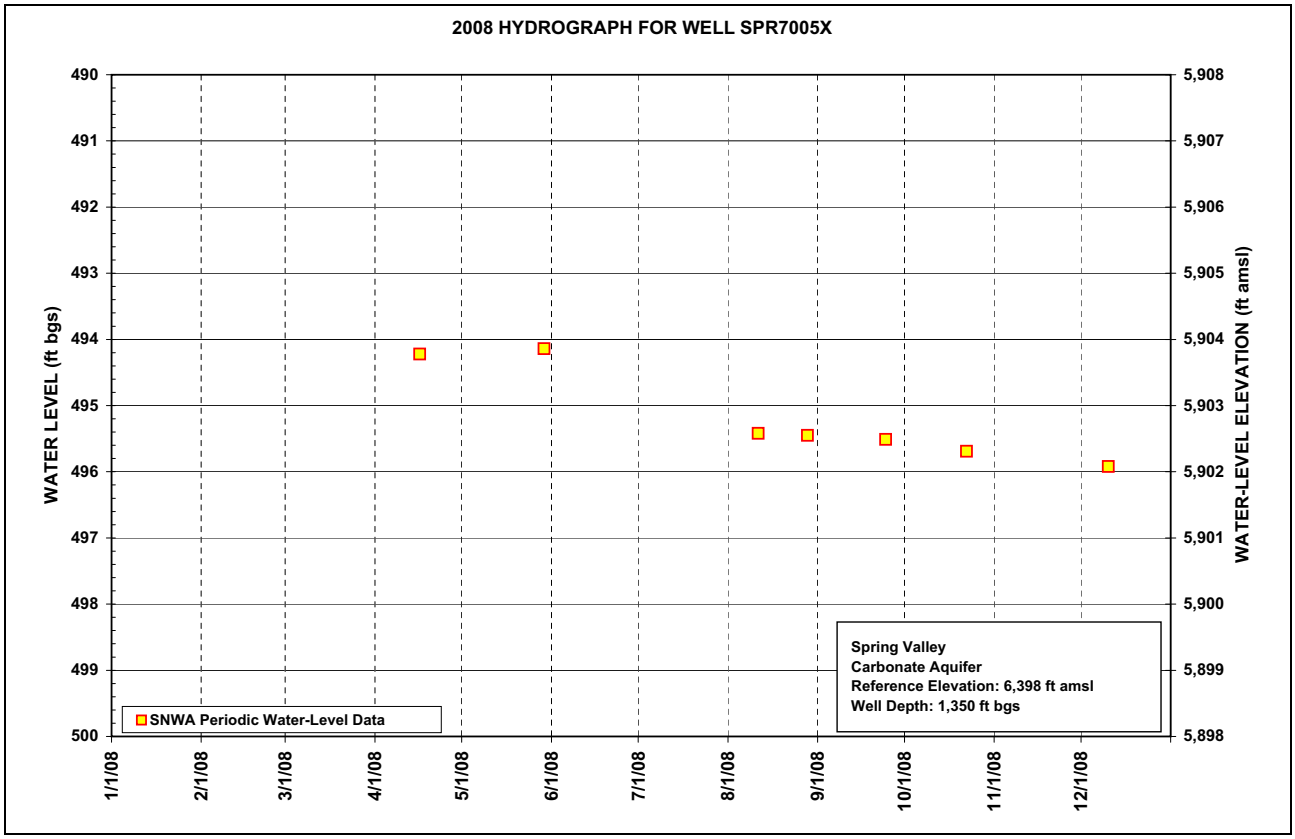


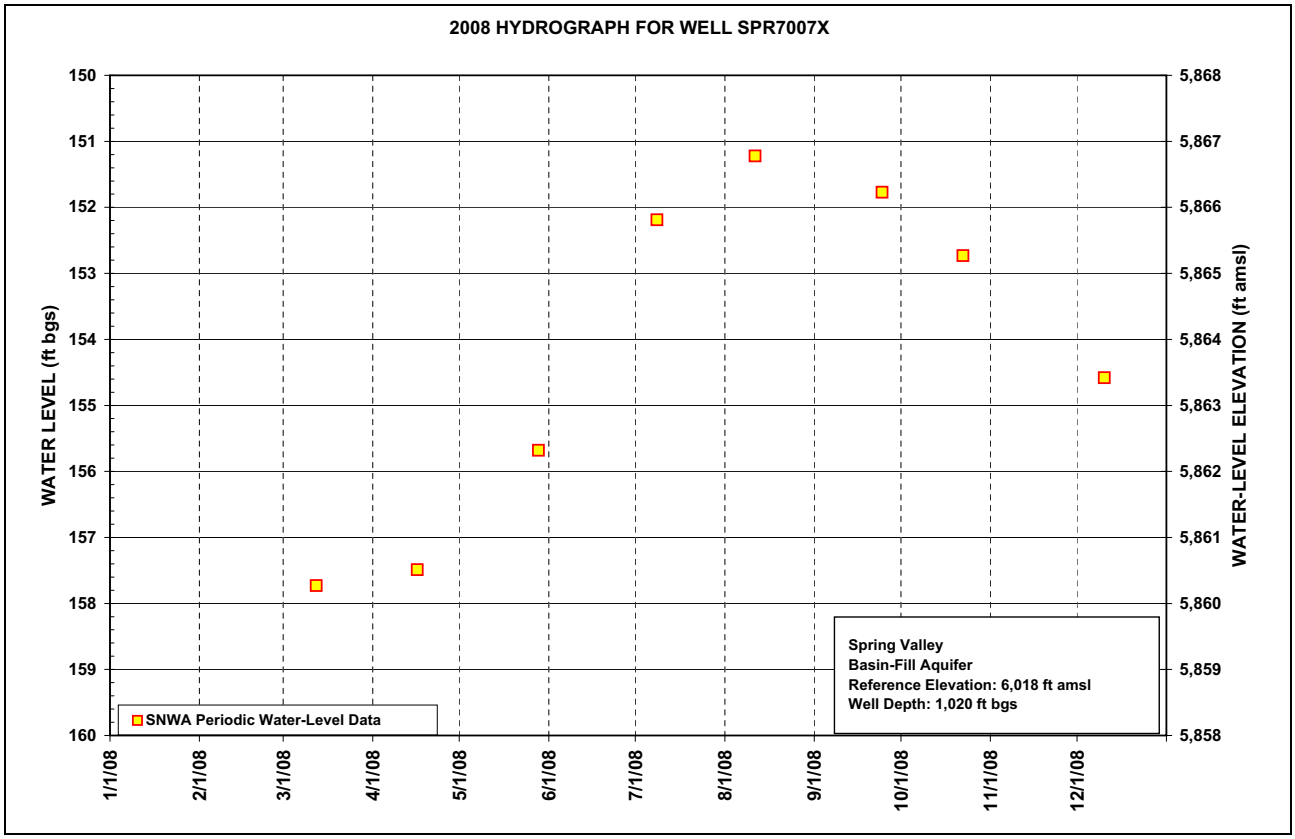

2008 HYDROGRAPH FOR WELL 184W103
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
93
94
95
96
97
98
99
100
101
102
103
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,899 ft amsl
Well Depth: 1,017 ft bgs


2008 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
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,007 ft amsl
Well Depth: 1,135 ft bgs


2008 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
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,525 ft amsl
Well Depth: 1,700 ft bgs


2008 HYDROGRAPH FOR WELL SPR7008X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,694
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
5,684
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,704 ft amsl
Well Depth: 960 ft bgs


2008 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
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,398 ft amsl
Well Depth: 1,350 ft bgs


2008 HYDROGRAPH FOR WELL SPR7007X
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
150
151
152
153
154
155
156
157
158
159
160
5,868
5,867
5,866
5,865
5,864
5,863
5,862
5,861
5,860
5,859
5,858
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs

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Appendix C

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

Table C-1
Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network
(Page 1 of 5)

Map ID	Site Number	Station Local Number	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth-to-Water (ft bgs)	Well Status[a]	Measurement Method[b]
22	383704114225001	184 N09 E68 30AAAB 1 USGS-MX (Spring Valley S.)	679	6,002.521	1/17/2008	225.04	S	T
					3/11/2008	224.95	S	T
					4/15/2008	224.99	S	T
					5/27/2008	224.88	S	T
					7/9/2008	225.01	S	T
					8/12/2008	224.91	S	T
					9/25/2008	225.07	S	T
					10/23/2008	224.96	S	S
					12/11/2008	224.99	S	T
32	384039114232701	184 N10 E68 31CD 1 USGS-MX	150	5,896.489	1/17/2008	118.60	S	T
					3/11/2008	118.48	S	T
					3/13/2008	118.68	S	T
					4/15/2008	118.66	S	T
					5/27/2008	118.68	S	T
					7/9/2008	118.75	S	T
					8/12/2008	118.75	S	T
					9/25/2008	118.76	S	T
					10/23/2008	118.79	S	S
					11/12/2008	118.34	S	T
					12/11/2008	118.42	S	T
35	384831114314301	184 N11 E66 23AB 1 USGS-MX	102	5,842.94	1/18/2008	46.93	S	T
					3/26/2008	46.84	S	T
					4/17/2008	46.89	S	T
					5/28/2008	46.85	S	T
					7/9/2008	46.93	S	T
					8/13/2008	47.00	S	T
					9/23/2008	47.06	S	S
					10/23/2008	47.10	S	T
					12/11/2008	47.13	S	T
52	384745114224401	184 N11 E68 19DCDC 1 USGS-MX (Spring Valley)	200	5,900.177	1/17/2008	97.37	S	T
					3/11/2008	97.55	S	T
					4/17/2008	97.70	S	T
					5/28/2008	97.83	S	T
					7/9/2008	98.09	S	T
					8/12/2008	98.21	S	T
					9/24/2008	98.38	S	T
					10/22/2008	98.53	S	S
					11/12/2008	98.10	S	T
					12/11/2008	98.48	S	T
122	390352114305401	184 N14 E66 24BDDD 1 USGS-MX (Spring Valley N.)	160	5,846.037	1/16/2008	38.86	S	T
					1/24/2008	38.51	S	T
					2/11/2008	38.50	S	S
					2/17/2008	38.55	S	T
					3/12/2008	38.92	S	T
					4/16/2008	38.82	S	T
					5/29/2008	38.79	S	T
					8/11/2008	38.95	S	T
					9/24/2008	38.89	S	S
					10/22/2008	38.86	S	T
					12/10/2008	38.83	S	T

Table C-1
Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network
(Page 2 of 5)

Map ID	Site Number	Station Local Number	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth-to-Water (ft bgs)	Well Status[a]	Measurement Method[b]
145	390803114251001	184 N15 E67 26CA 1 USGS-MX	200	5,718.7	1/16/2008	40.94	S	T
					3/13/2008	41.69	S	T
					4/16/2008	41.26	S	T
					5/28/2008	40.73	S	T
					7/8/2008	40.53	S	T
					8/12/2008	40.40	S	T
					9/24/2008	40.29	S	T
					10/22/2008	40.27	S	S
					12/10/2008	40.21	S	T
179	393211114320701	184 N19 E66 11B 1	400	5,698.428	1/17/2008	40.68	S	T
					3/13/2008	40.55	S	T
					4/16/2008	40.88	S	T
					5/28/2008	41.33	S	T
					7/8/2008	41.50	S	T
					8/12/2008	41.93	S	T
					9/24/2008	42.53	S	T
					10/22/2008	42.91	S	T
					12/10/2008	43.43	S	S
215	383023114115302	196 N08 E69 35DC 2 USGS-MX (Hamlin Valley S.)	435	5,837.669	1/17/2008	172.62	S	T
					3/11/2008	173.17	S	T
					4/15/2008	173.35	S	T
					5/29/2008	173.36	S	T
					7/9/2008	173.43	S	T
					8/12/2008	173.29	S	T
					9/25/2008	173.50	S	T
					10/23/2008	173.59	S	S
					11/12/2008	173.74	S	T
					12/9/2008	173.89	S	T
222	184W502M	184 N09 E68 11 BD 2	1,798.52	6,189.718	1/17/2008	479.56	S	T
					3/11/2008	479.86	S	T
					4/15/2008	479.89	S	T
					5/28/2008	480.13	S	T
					7/9/2008	480.69	S	T
					8/12/2008	480.76	S	T
					8/29/2008	481.00	S	T
					9/12/2008	481.04	S	T
					9/25/2008	481.12	S	T
					10/23/2008	481.14	S	T
					12/11/2008	481.48	S	T
223	184W504M	184 N11 E66 34 DD 2	1,019.98	5,900.111	1/18/2008	98.62	S	T
					3/11/2008	99.58	S	T
					4/15/2008	99.52	S	T
					5/27/2008	99.45	S	T
					7/9/2008	99.55	S	T
					8/11/2008	99.67	S	T
					9/25/2008	99.77	S	T
					10/23/2008	99.84	S	S
					12/11/2008	99.86	S	T

Table C-1
Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network
(Page 3 of 5)

Map ID	Site Number	Station Local Number	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth-to-Water (ft bgs)	Well Status[a]	Measurement Method[b]
224	184W506M	184 N12 E66 26 BA 2	1,140.33	6,014.037	1/18/2008	215.07	S	T
					3/11/2008	215.10	S	T
					4/17/2008	215.56[c]	S	T
					5/29/2008	215.03	S	T
					7/9/2008	215.14	S	T
					8/13/2008	215.24	S	T
					9/23/2008	215.35	S	T
					10/23/2008	215.48	S	S
					12/11/2008	215.56	S	T
225	184W508M	184 N09 E67 11 DB 1	1,160	6,056.190	1/17/2008	276.48	S	T
					3/11/2008	276.45	S	T
					4/15/2008	276.33	S	T
					5/27/2008	276.43	S	T
					7/9/2008	276.62	S	T
					8/12/2008	276.54	S	T
					9/25/2008	276.69	S	T
					10/23/2008	276.71	S	S
					12/11/2008	276.66	S	T
226	SPR7007M	184 N11 E68 05 BC 2	1,020	6,017.727	1/17/2008	155.84	S	T
					3/12/2008	157.28	S	T
					4/16/2008	157.68	S	T
					5/28/2008	155.84	S	T
					7/8/2008	152.35	S	T
					8/11/2008	151.28	S	T
					9/24/2008	151.85	S	T
					10/22/2008	152.94	S	S
					12/10/2008	154.71	S	T
227	SPR7005M	184 N14 E66 09 AB 2	1,403.8	6,395.679	1/17/2008	491.86	S	T
					5/30/2008	491.94	S	T
					8/11/2008	493.51	S	T
					8/28/2008	493.56	S	T
					9/24/2008	493.61	S	T
					10/22/2008	493.85	S	T
					12/10/2008	494.03	S	T
228	SPR7008M	184 N15 E67 26 CD 2	946.29	5,704.857	1/16/2008	13.05	S	T
					3/13/2008	13.88	S	T
					4/16/2008	13.96	S	T
					5/28/2008	13.91	S	T
					7/8/2008	14.04	S	T
					8/12/2008	14.07	S	T
					9/24/2008	14.15	S	T
					10/22/2008	14.25	S	S
					12/10/2008	14.28	S	T
20	383351114180201	184 N08 E68 14A 1 USBLM	495	6,184.219	1/17/2008	406.59	S	T
					3/11/2008	405.90	S	S
					5/27/2008	406.38	S	T
					7/9/2008	406.58	S	T
					8/12/2008	406.53	S	T
					9/25/2008	406.65	S	T
					10/21/2008	406.73	S	T
					12/9/2008	406.93	S	S

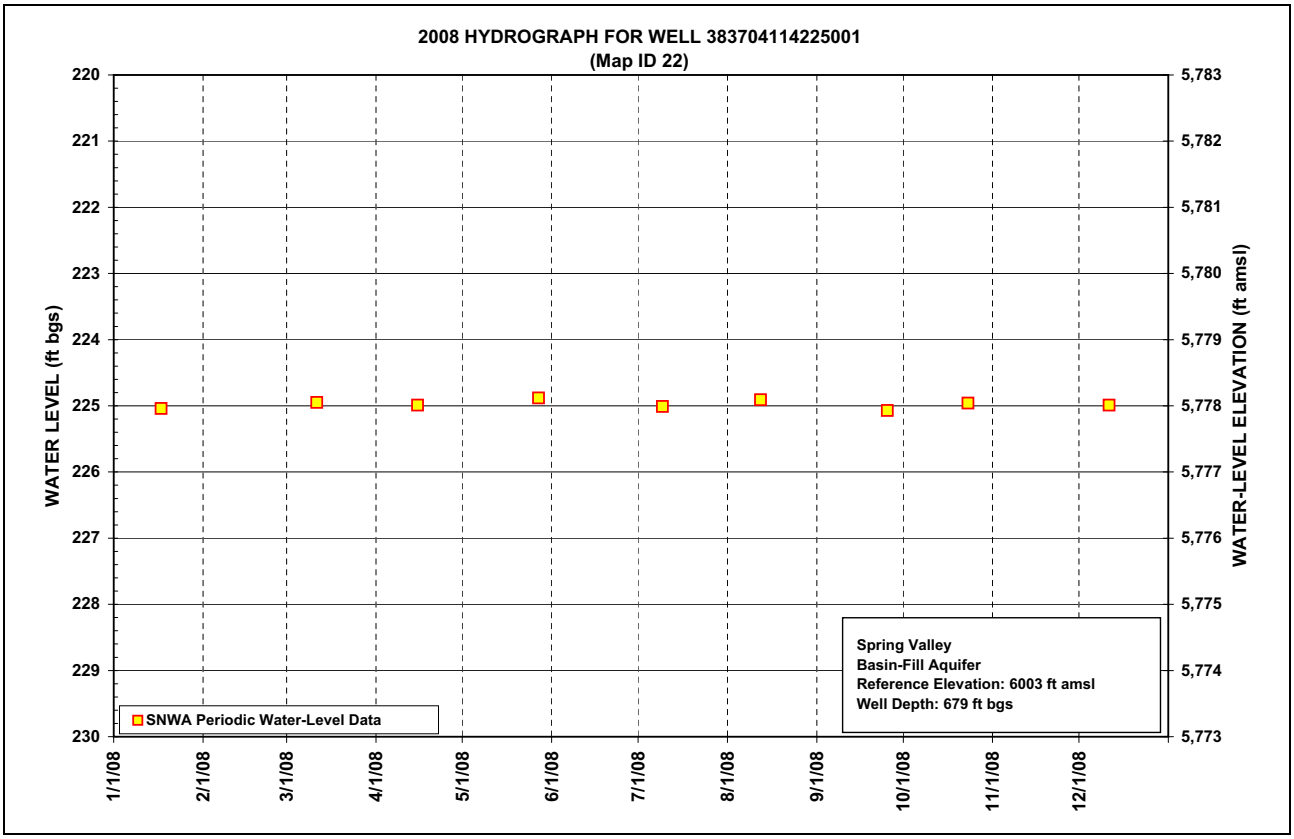
Table C-1
Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network
(Page 4 of 5)

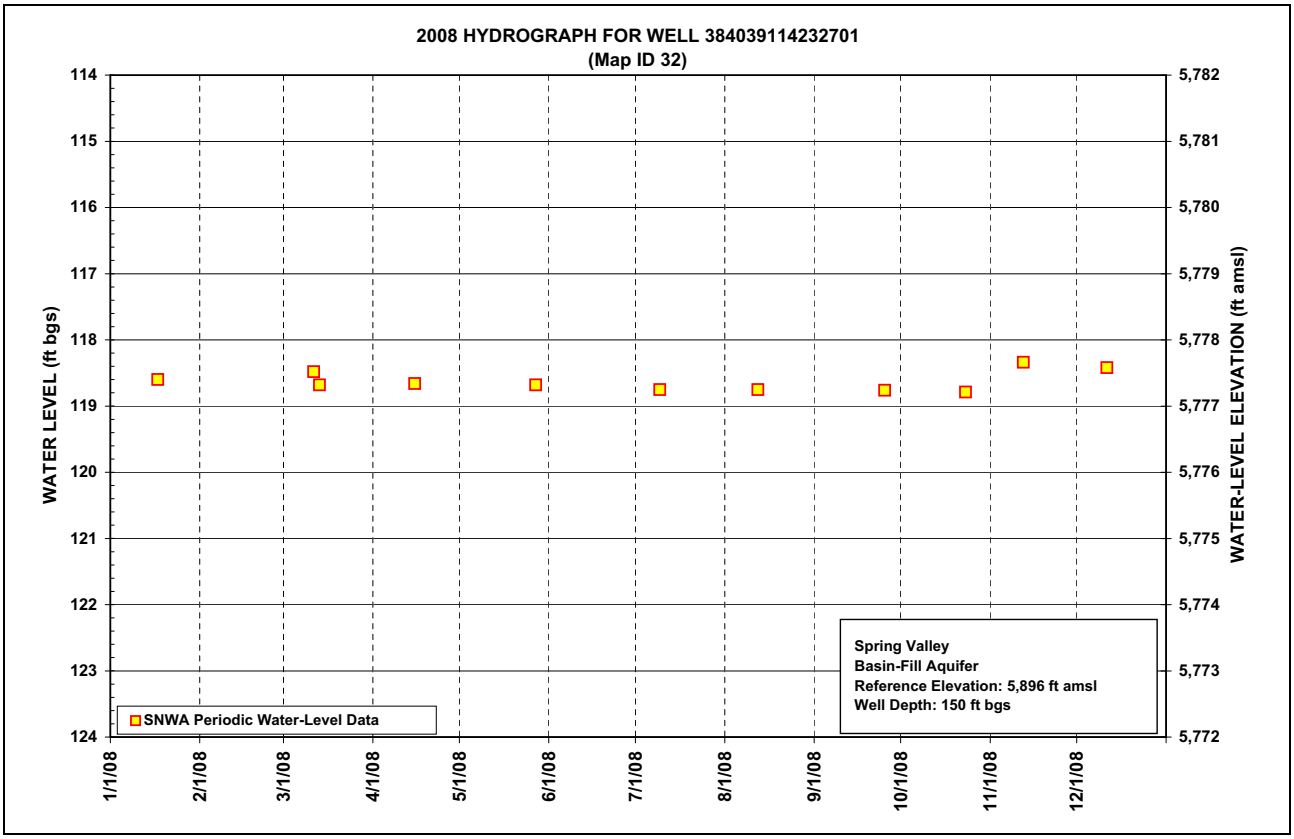
Map ID	Site Number	Station Local Number	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth-to-Water (ft bgs)	Well Status[a]	Measurement Method[b]
28	384310114261401	184 N10 E67 22AA 1 USGS-MX (Spring V Central)	100	5,853.539	1/17/2008	64.65	S	T
					3/11/2008	64.66	S	T
					4/15/2008	64.73	S	T
					5/28/2008	64.73	S	T
					7/9/2008	64.82	S	T
					8/12/2008	64.83	S	T
					9/24/2008	64.91	S	T
					10/21/2008	64.96	S	T
					12/11/2008	65.02	S	S
55	184 N12 E66 21CD 1	184 N12 E66 21CD 1	633	6,370.311	1/18/2008	568.51	S	T
					3/11/2008	568.50	S	T
					4/17/2008	568.58	S	T
					5/29/2008	568.55	S	T
					7/9/2008	568.76	S	T
					8/13/2008	568.93	S	T
					9/23/2008	569.20	S	T
					10/23/2008	569.35	S	T
					12/11/2008	569.45	S	T
113	385636114265501	184 N13 E67 33DDA 1	--	5,769.729	1/17/2008	7.48	S	T
					3/11/2008	6.91	S	T
					4/16/2008	6.85	S	T
					5/28/2008	6.95	S	T
					7/8/2008	7.70	S	T
					8/11/2008	7.76	S	T
					9/24/2008	8.10	S	T
					10/22/2008	8.19	S	T
					12/10/2008	8.26	S	T
152[d]	391224114293601	184 N16 E66 36DBAD 1 USBLM - Cleve Creek Well	--	5,870.253	1/17/2008	207.62	S	S
					3/13/2008	207.66	S	S
					5/29/2008	207.68	S	S
					8/11/2008	208.14	S	S
					9/24/2008	208.36	S	S
					10/22/2008	208.53	S	S
					12/10/2008	208.71	S	S
176	392703114230501	184 N18 E67 01CCAA 1	42	5,587.78	1/16/2008	34.97	S	T
					3/13/2008	34.75	S	T
					4/16/2008	34.67	S	T
					5/28/2008	34.58	S	T
					7/8/2008	34.90	S	T
					8/12/2008	35.21	S	T
					9/24/2008	35.46	S	T
					12/10/2008	35.24	S	S
182	184 N20 E66 13AB 1	184 N20 E66 13AB 1	296	5,774.927	2/17/2008	128.02	S	T
					3/13/2008	127.92	S	S
					4/16/2008	127.96	S	T
					5/28/2008	128.04	S	T
					7/8/2008	128.36	S	S
					8/12/2008	128.59	S	S
					9/24/2008	128.80	S	S
					10/21/2008	128.99	S	S
					12/10/2008	129.10	S	S

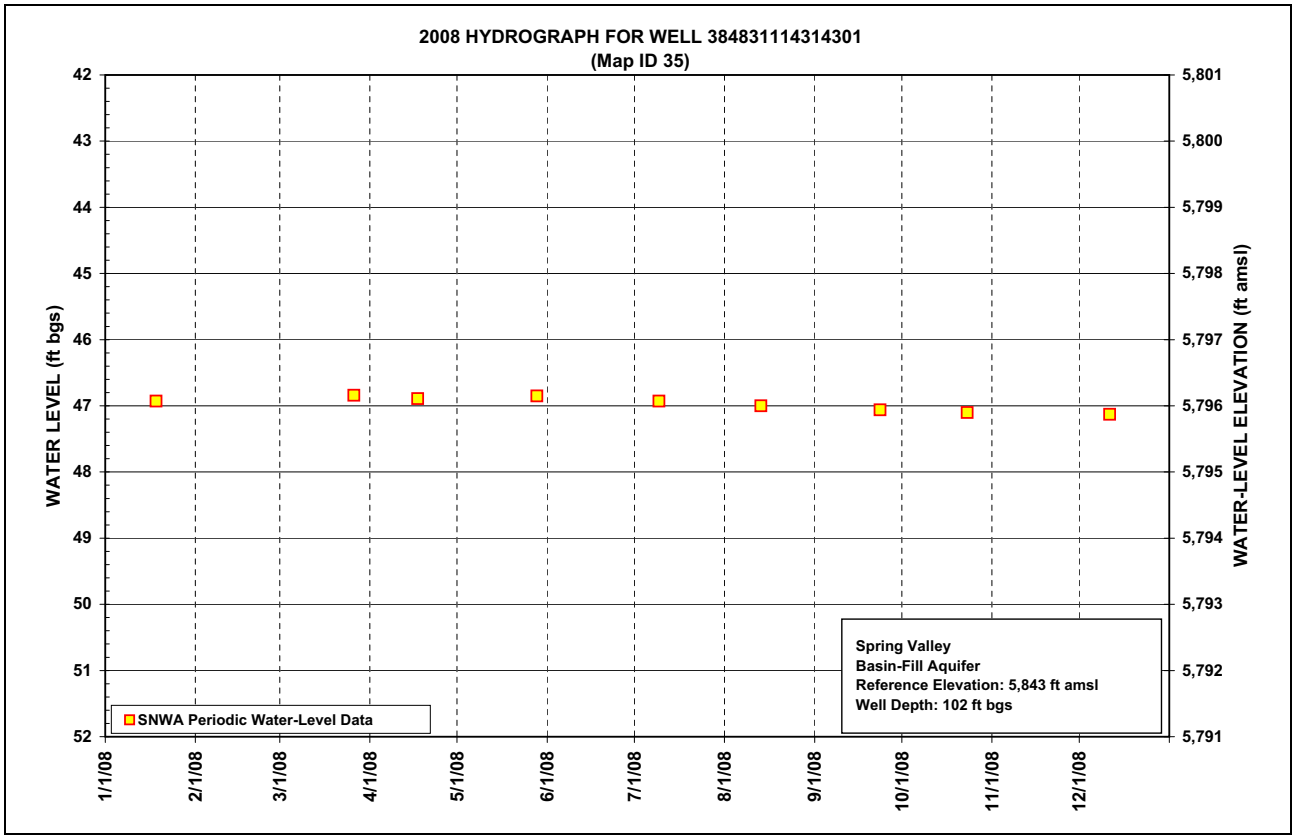
Table C-1
Discrete Water-Level Measurement Data from the Spring Valley Existing Well Monitoring Network
(Page 5 of 5)

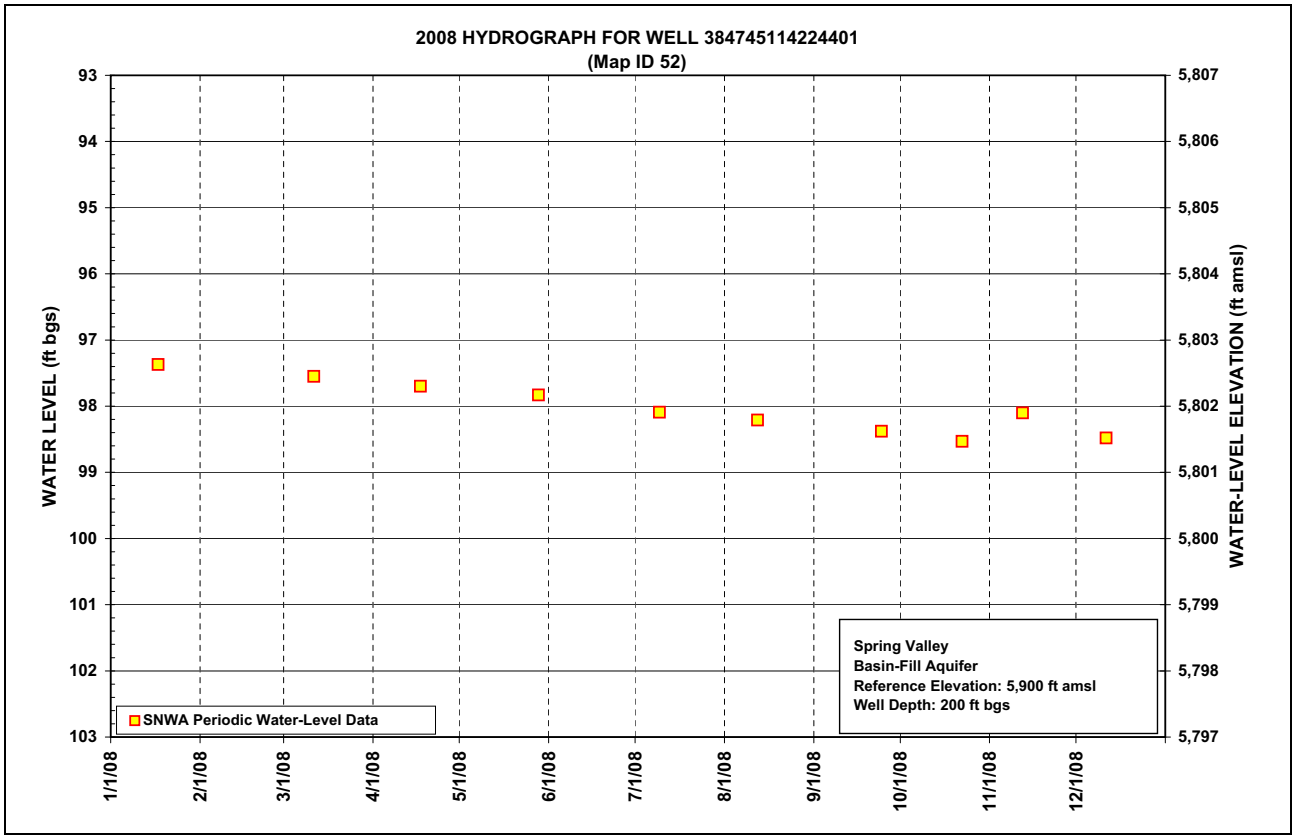
Map ID	Site Number	Station Local Number	Well Depth (ft bgs)	Surface Elevation (ft amsl)	Water Level			
					Date	Depth-to-Water (ft bgs)	Well Status[a]	Measurement Method[b]
188	393442114231801	184 N20 E67 26ABBD 1 USBLM	130	5,708.768	1/16/2008	117.96	S	T
					3/13/2008	117.86	S	T
					4/16/2008	117.99	S	S
					5/28/2008	117.94	S	T
					7/8/2008	117.98	S	T
					8/12/2008	118.04	S	T
					9/24/2008	118.04	S	T
					10/22/2008	118.06	S	T
					12/10/2008	118.12	S	S
213	383325114134901	196 N08 E69 15B 1	110	5,729.977	1/17/2008	69.66	S	T
					3/11/2008	69.74	S	T
					5/29/2008	69.96	S	T
					7/9/2008	70.34	S	T
					8/12/2008	70.52	S	T
					9/25/2008	70.55	S	T
					10/21/2008	70.43	S	T
					12/9/2008	70.43	S	S
218	383533114102901	196 N08 E70 06B 1 USBLM - Monument Well	164	5,676.755	1/17/2008	89.78	S	S
					3/11/2008	89.68	S	T
					5/29/2008	89.78	S	S
					7/9/2008	89.72	S	S
					8/12/2008	89.72	S	S
					9/25/2008	89.75	S	S
					10/21/2008	89.81	S	S
					12/9/2008	89.86	S	S

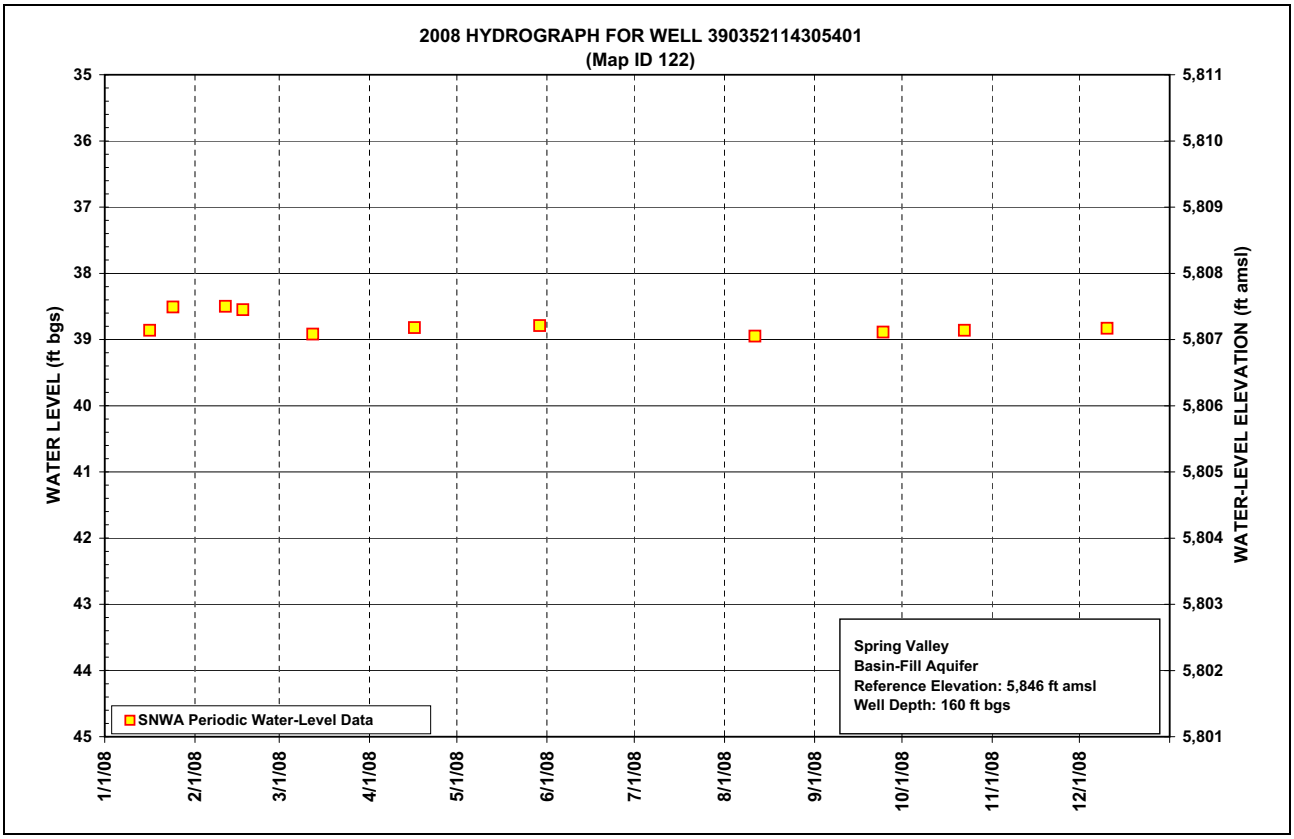
[a] S = Static conditions
[b] T = Electric tape measurement, S = Steel tape measurement
[c] Possible measurement error
[d] The Cleve Creek well will be replaced by a new monitor well approximately 1 mi to the north.
Note: SNWA Tape calibration program started in August of 2008.

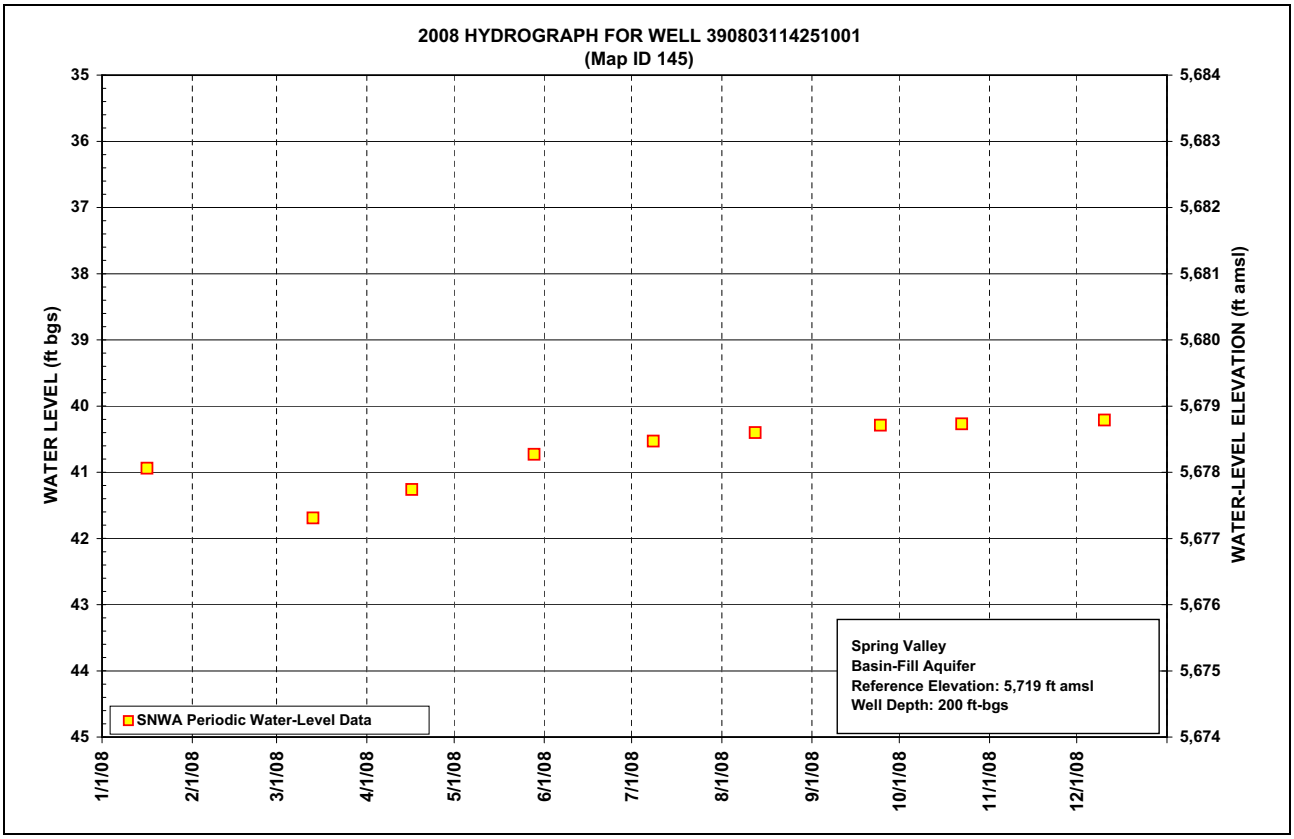

2008 HYDROGRAPH FOR WELL 383704114225001
(Map ID 22)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
220
221
222
223
224
225
226
227
228
229
230
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6003 ft amsl
Well Depth: 679 ft bgs

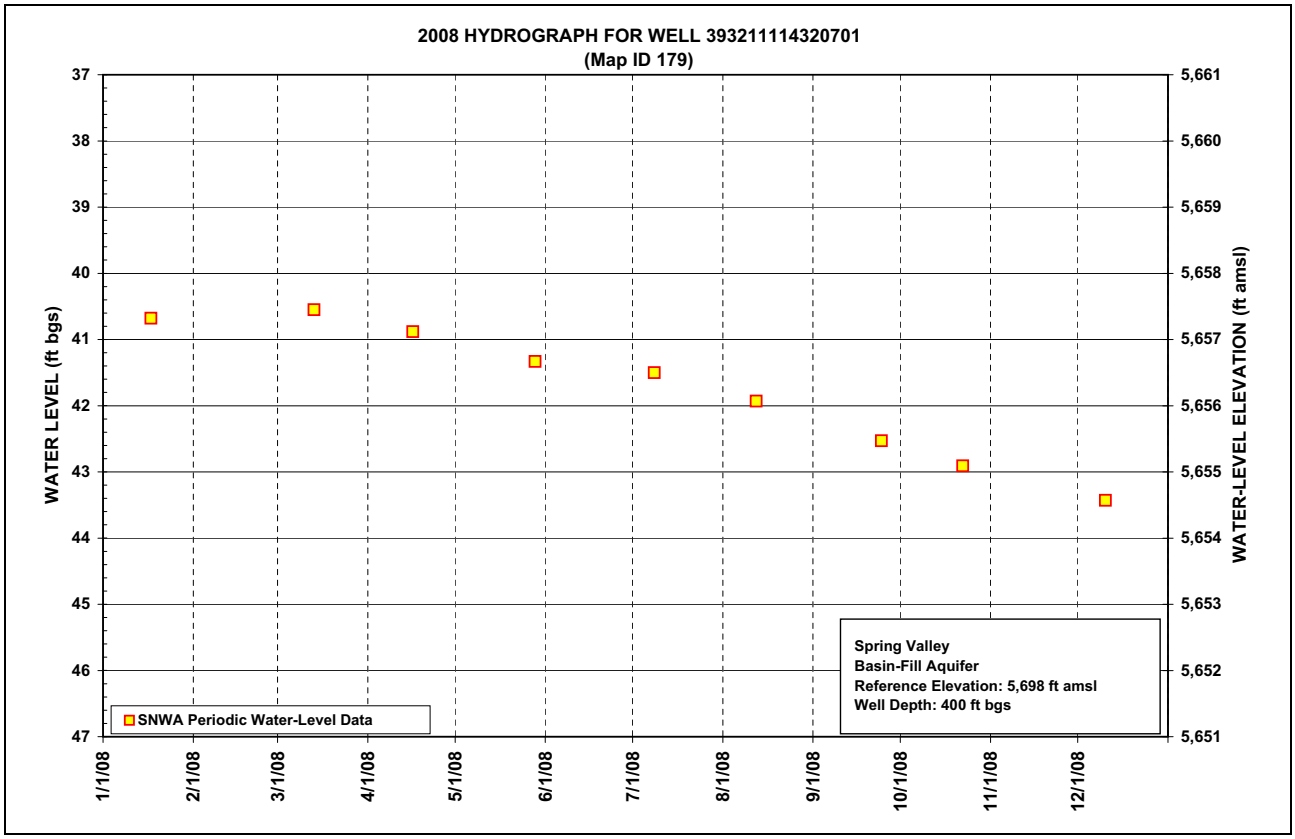

2008 HYDROGRAPH FOR WELL 384039114232701
(Map ID 32)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
114
115
116
117
118
119
120
121
122
123
124
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,896 ft amsl
Well Depth: 150 ft bgs

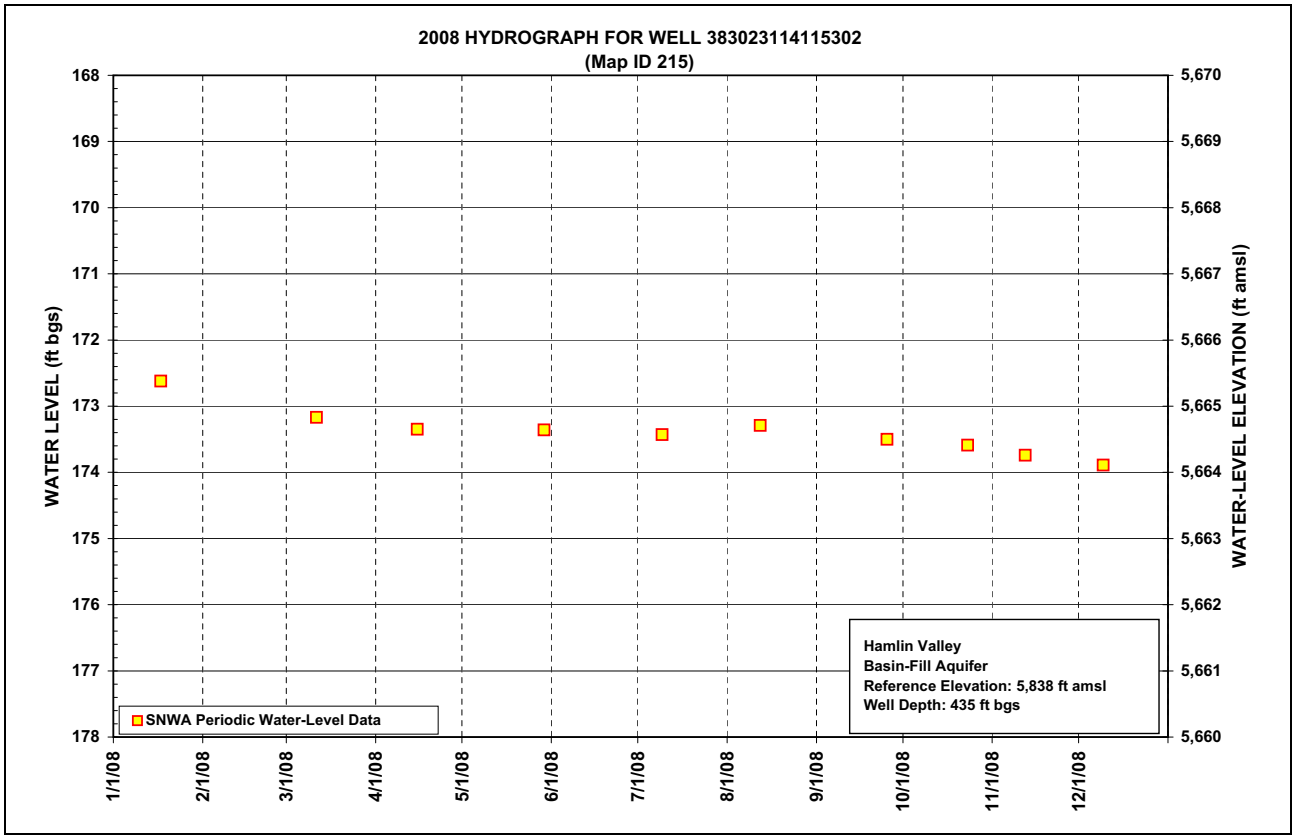

2008 HYDROGRAPH FOR WELL 384831114314301
(Map ID 35)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
42
43
44
45
46
47
48
49
50
51
52
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
5,793
5,792
5,791
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,843 ft amsl
Well Depth: 102 ft bgs

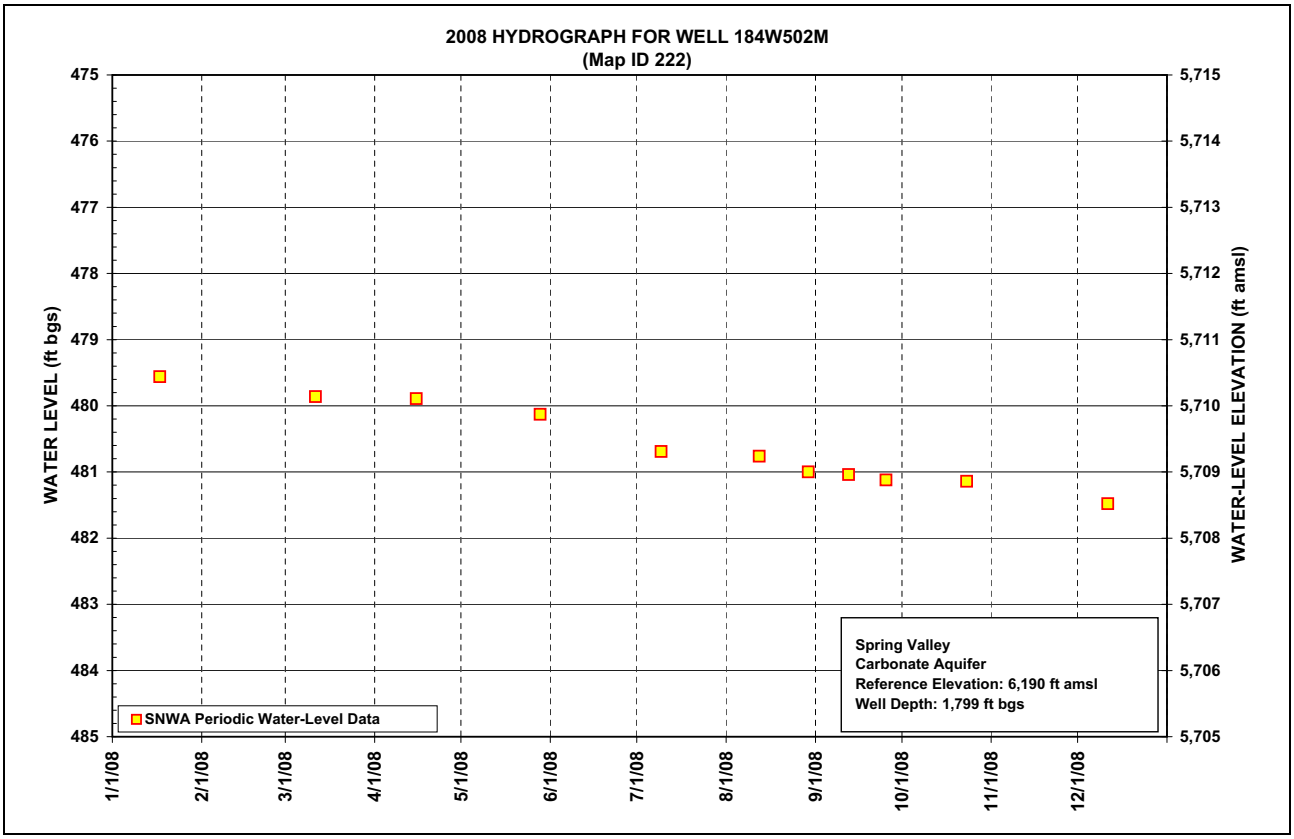

2008 HYDROGRAPH FOR WELL 384745114224401
(Map ID 52)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
93
94
95
96
97
98
99
100
101
102
103
5,807
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 200 ft bgs

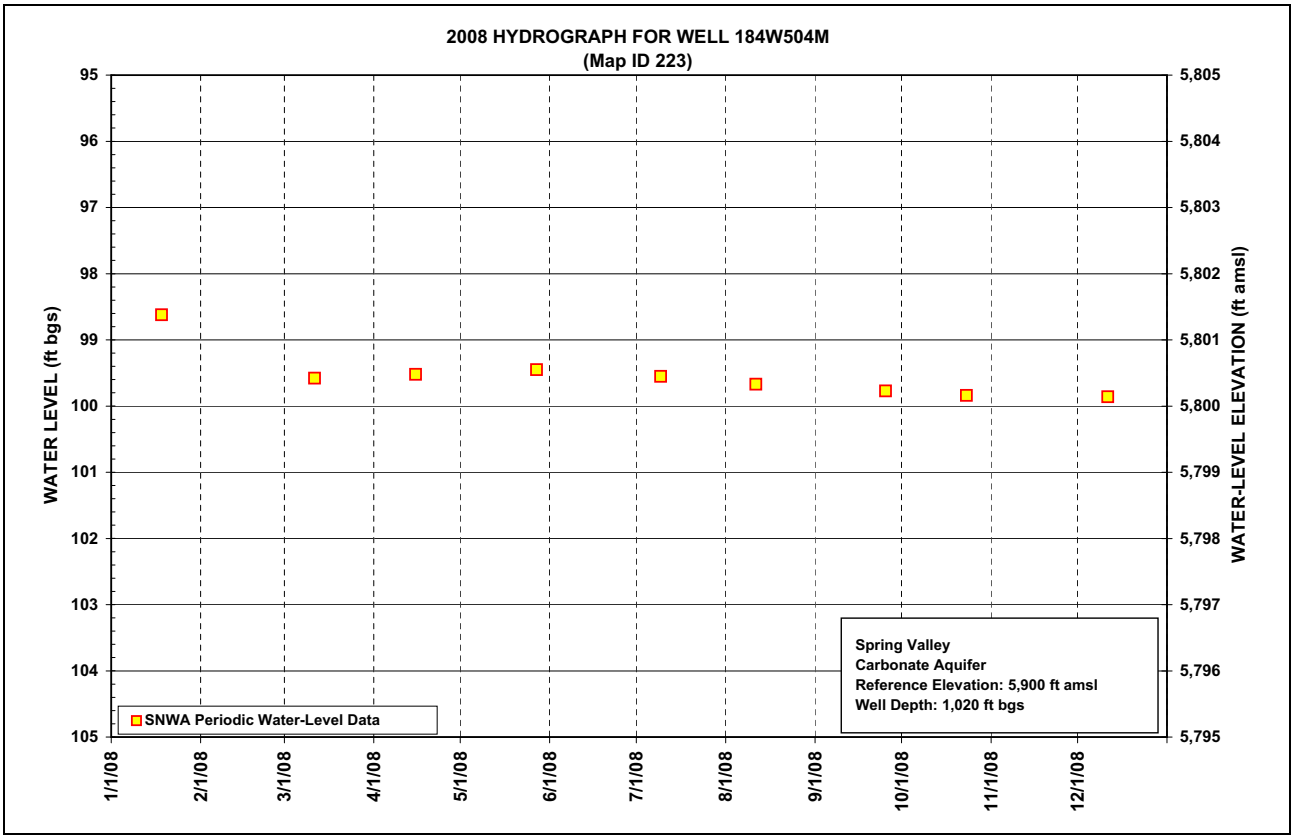

2008 HYDROGRAPH FOR WELL 390352114305401
(Map ID 122)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,811
5,810
5,809
5,808
5,807
5,806
5,805
5,804
5,803
5,802
5,801
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,846 ft amsl
Well Depth: 160 ft bgs

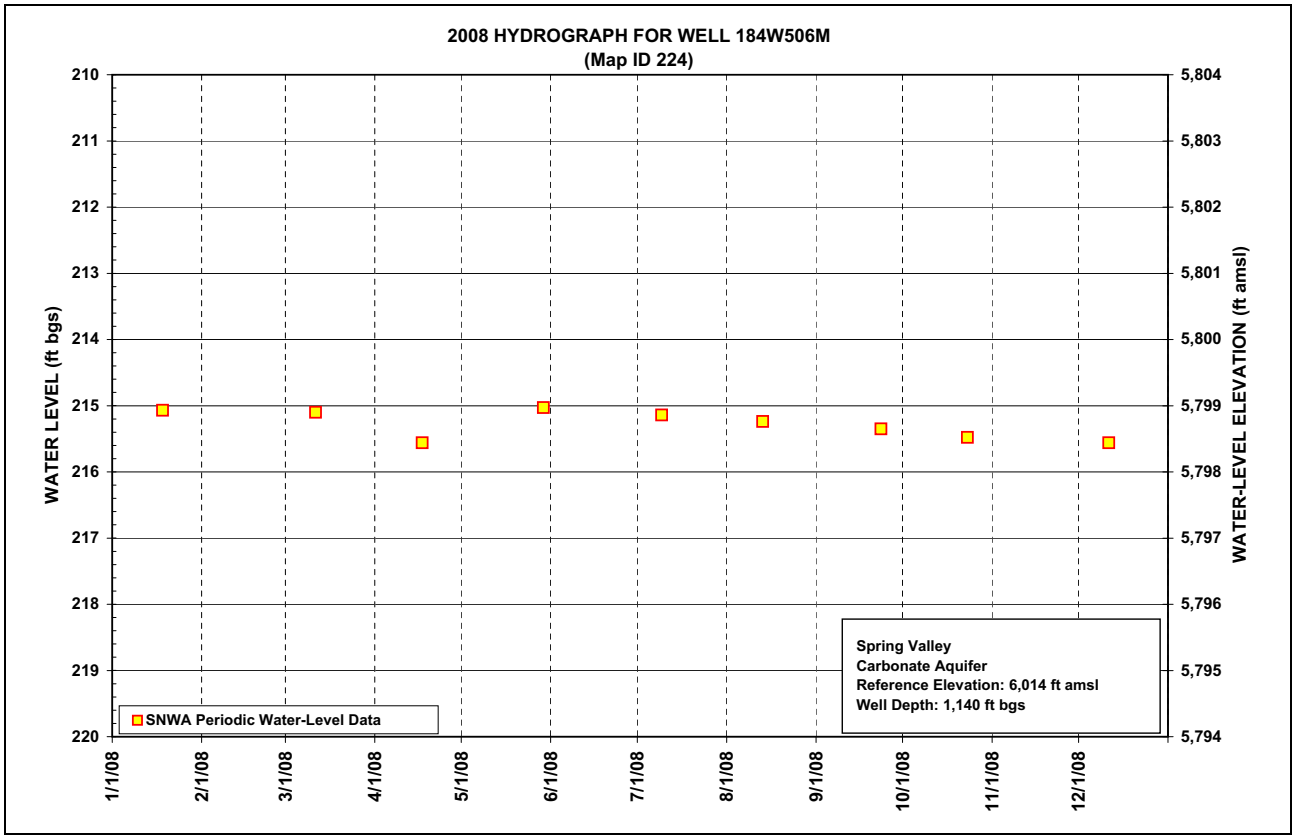

2008 HYDROGRAPH FOR WELL 390803114251001
(Map ID 145)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
35
36
37
38
39
40
41
42
43
44
45
5,684
5,683
5,682
5,681
5,680
5,679
5,678
5,677
5,676
5,675
5,674
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,719 ft amsl
Well Depth: 200 ft-bgs

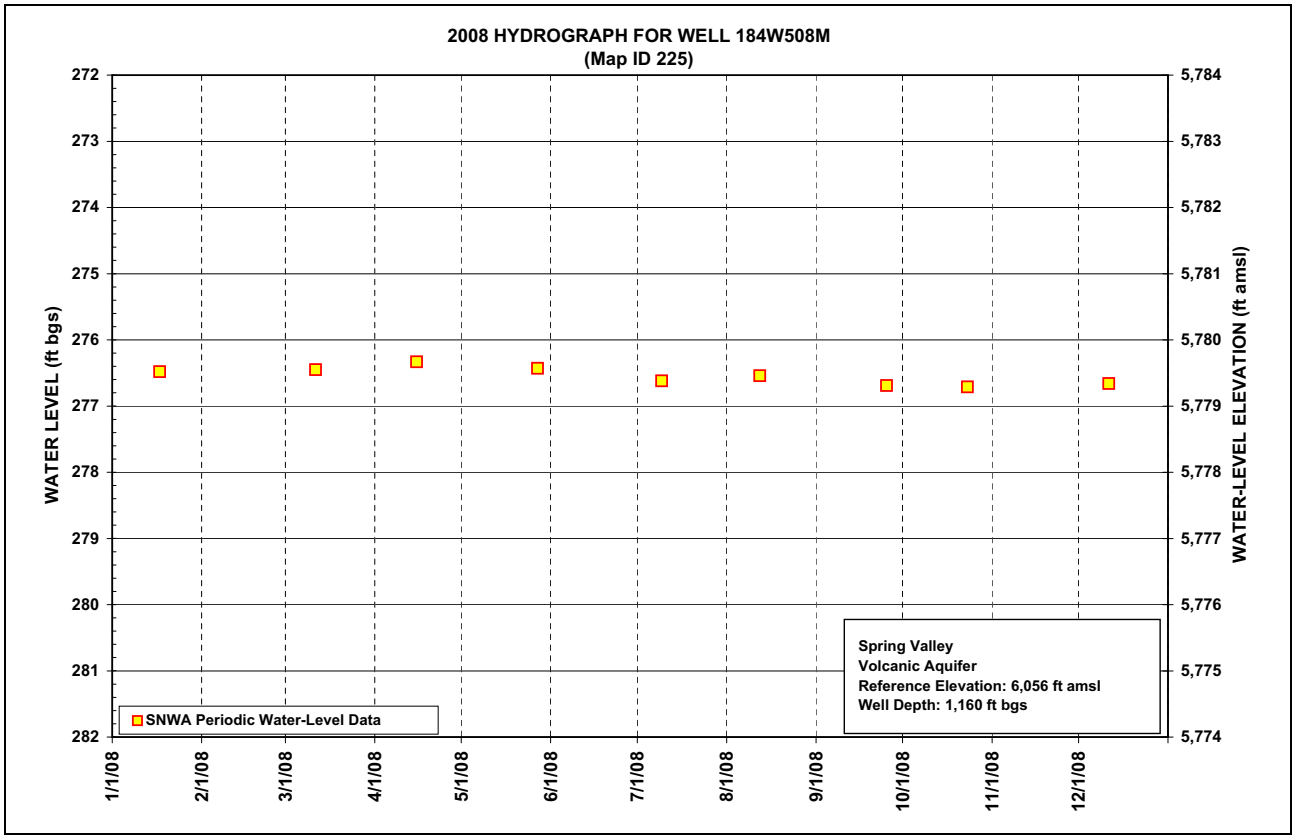

2008 HYDROGRAPH FOR WELL 393211114320701
(Map ID 179)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
37
38
39
40
41
42
43
44
45
46
47
5,661
5,660
5,659
5,658
5,657
5,656
5,655
5,654
5,653
5,652
5,651
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,698 ft amsl
Well Depth: 400 ft bgs

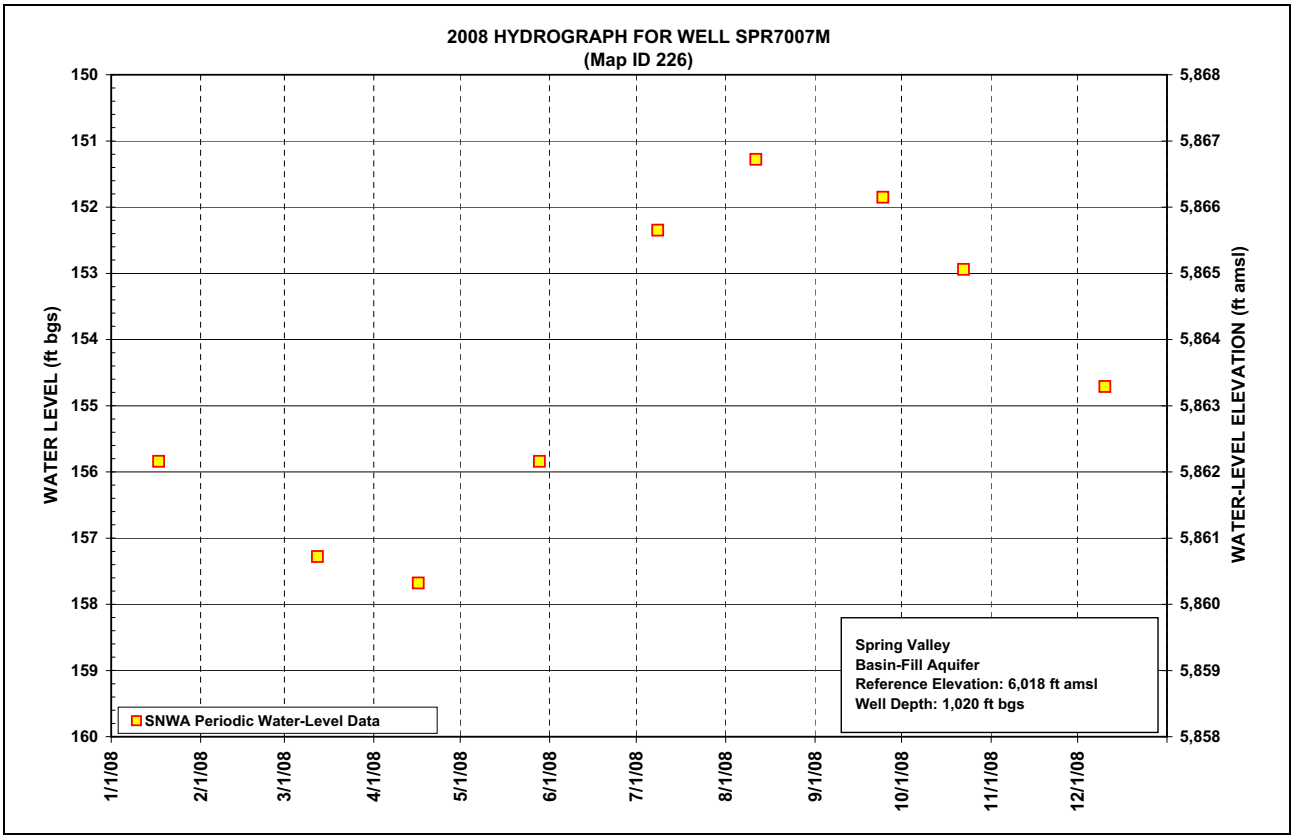

2008 HYDROGRAPH FOR WELL 383023114115302
(Map ID 215)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
168
169
170
171
172
173
174
175
176
177
178
5,670
5,669
5,668
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,838 ft amsl
Well Depth: 435 ft bgs

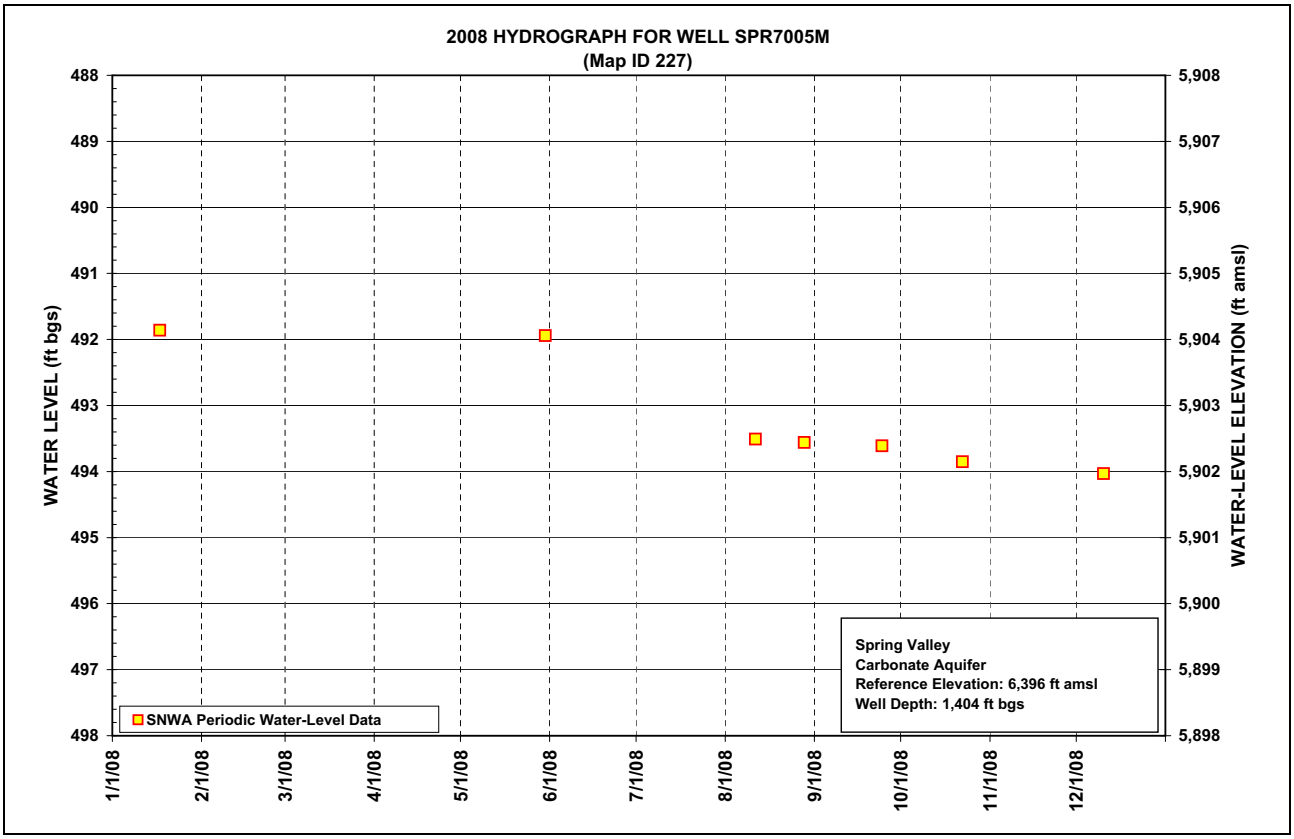

2008 HYDROGRAPH FOR WELL 184W502M
(Map ID 222)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
475
476
477
478
479
480
481
482
483
484
485
5,715
5,714
5,713
5,712
5,711
5,710
5,709
5,708
5,707
5,706
5,705
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,190 ft amsl
Well Depth: 1,799 ft bgs

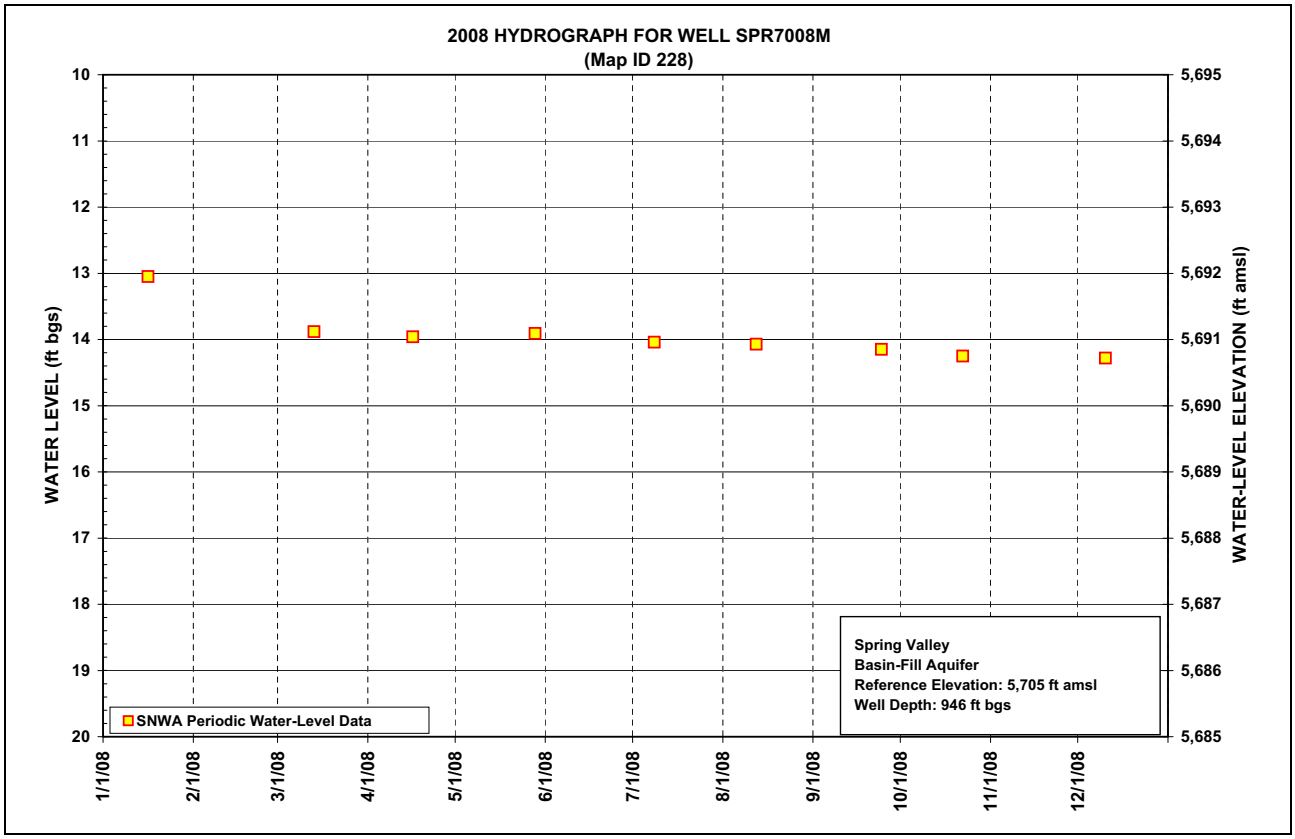

2008 HYDROGRAPH FOR WELL 184W504M
(Map ID 223)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5,900 ft amsl
Well Depth: 1,020 ft bgs

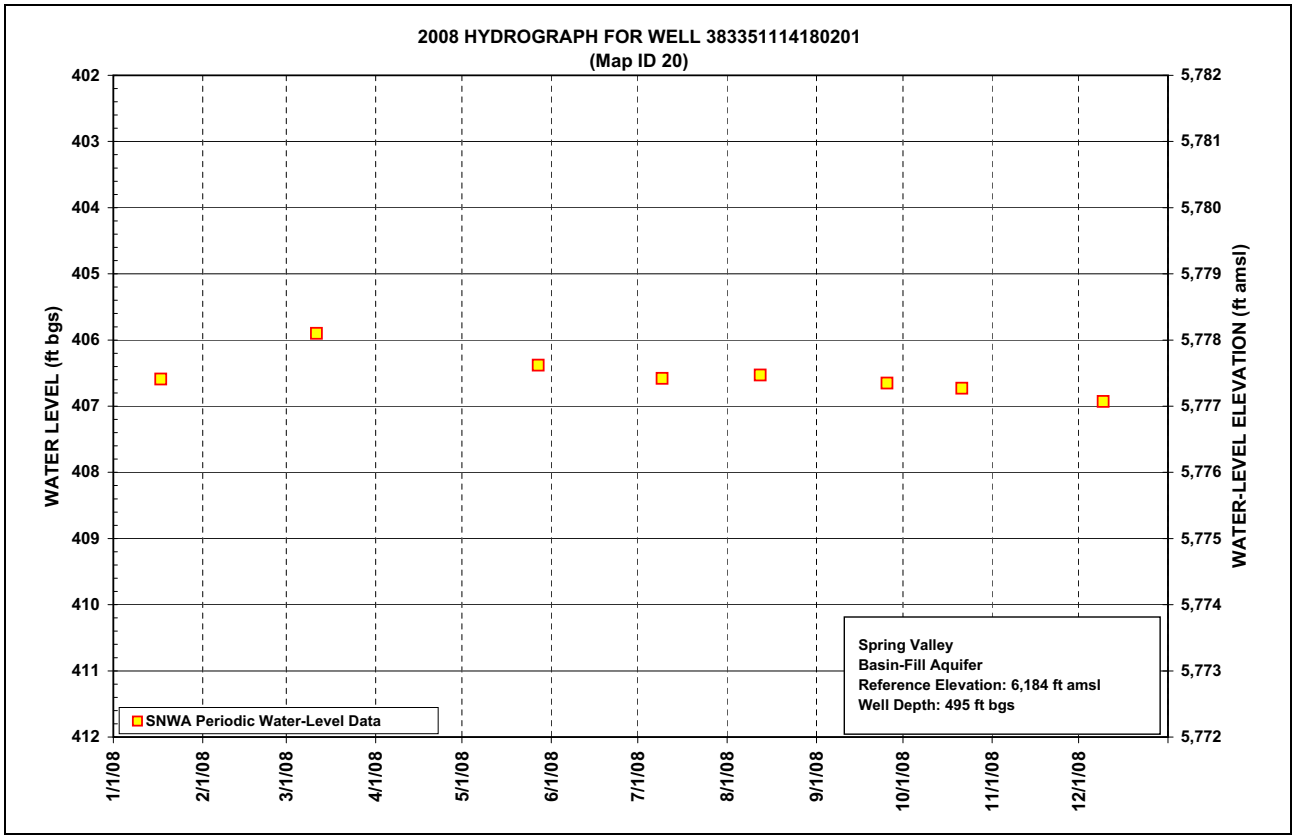

2008 HYDROGRAPH FOR WELL 184W506M
(Map ID 224)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,014 ft amsl
Well Depth: 1,140 ft bgs

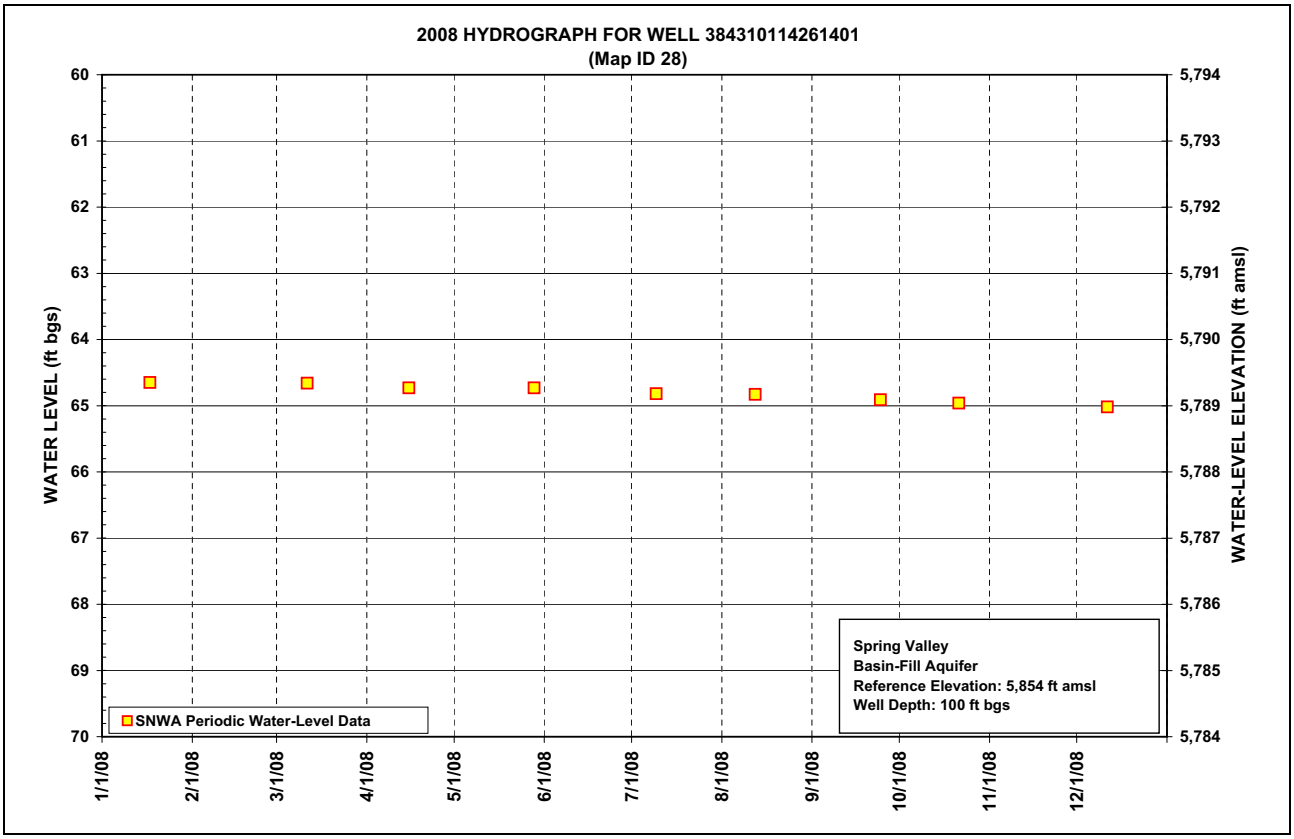

2008 HYDROGRAPH FOR WELL 184W508M
(Map ID 225)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
272
273
274
275
276
277
278
279
280
281
282
5,784
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Volcanic Aquifer
Reference Elevation: 6,056 ft amsl
Well Depth: 1,160 ft bgs

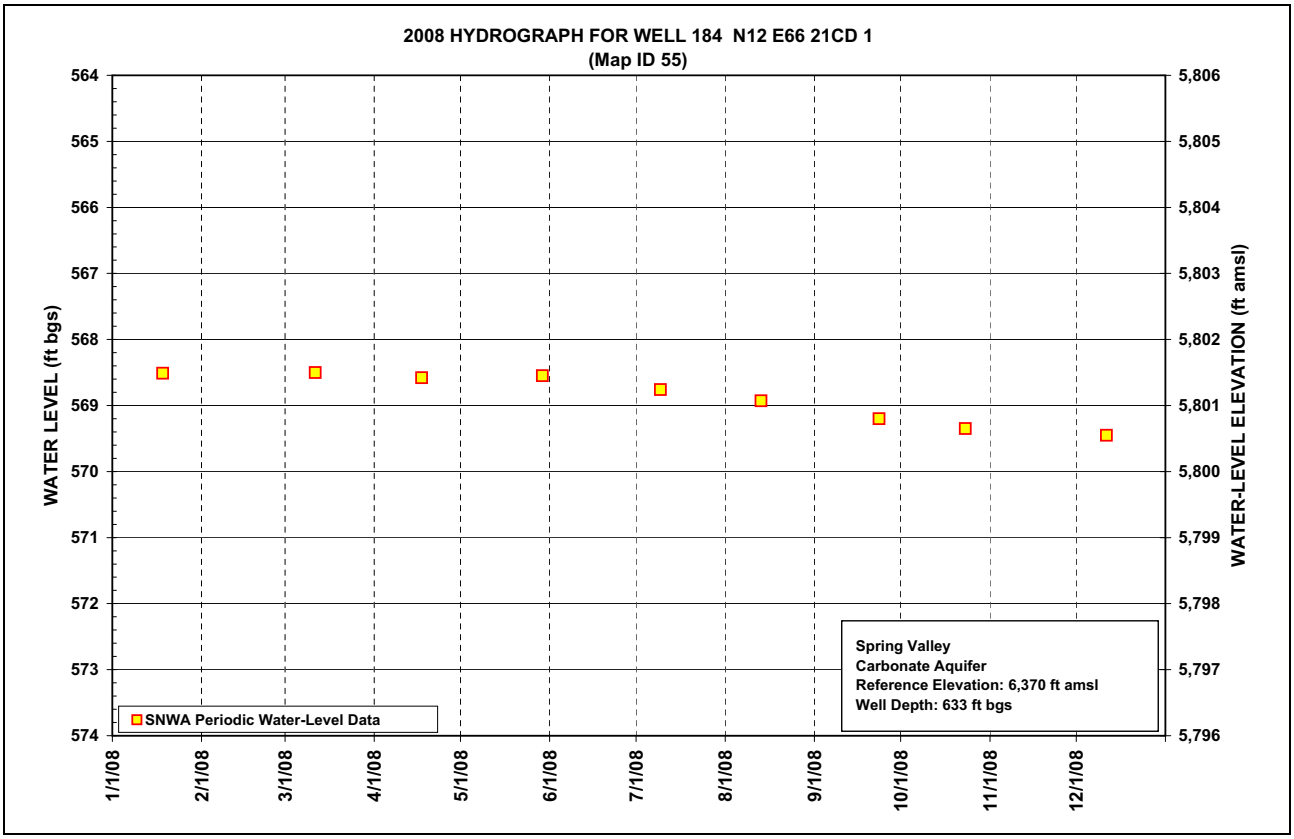

2008 HYDROGRAPH FOR WELL SPR7007M
(Map ID 226)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
150
151
152
153
154
155
156
157
158
159
160
5,868
5,867
5,866
5,865
5,864
5,863
5,862
5,861
5,860
5,859
5,858
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,018 ft amsl
Well Depth: 1,020 ft bgs

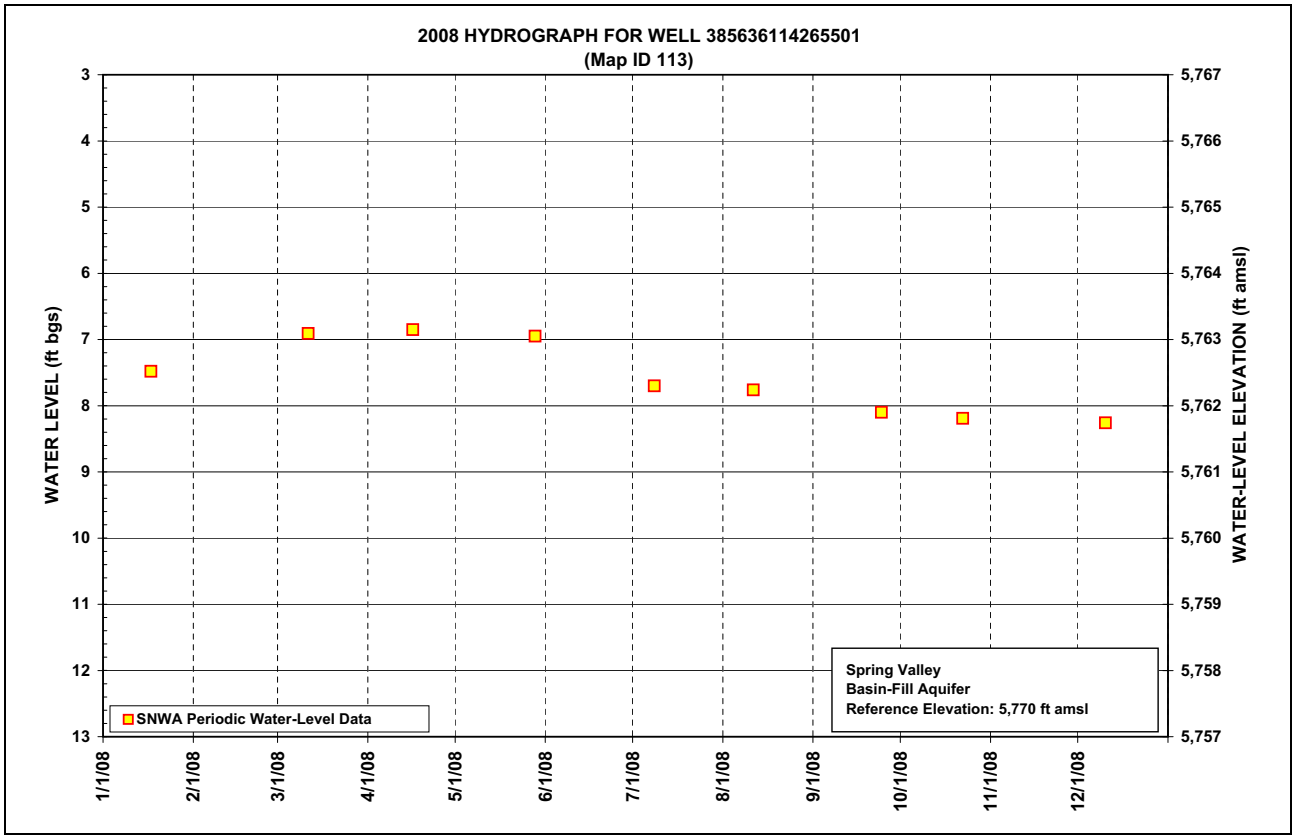

2008 HYDROGRAPH FOR WELL SPR7005M
(Map ID 227)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
488
489
490
491
492
493
494
495
496
497
498
5,908
5,907
5,906
5,905
5,904
5,903
5,902
5,901
5,900
5,899
5,898
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,396 ft amsl
Well Depth: 1,404 ft bgs

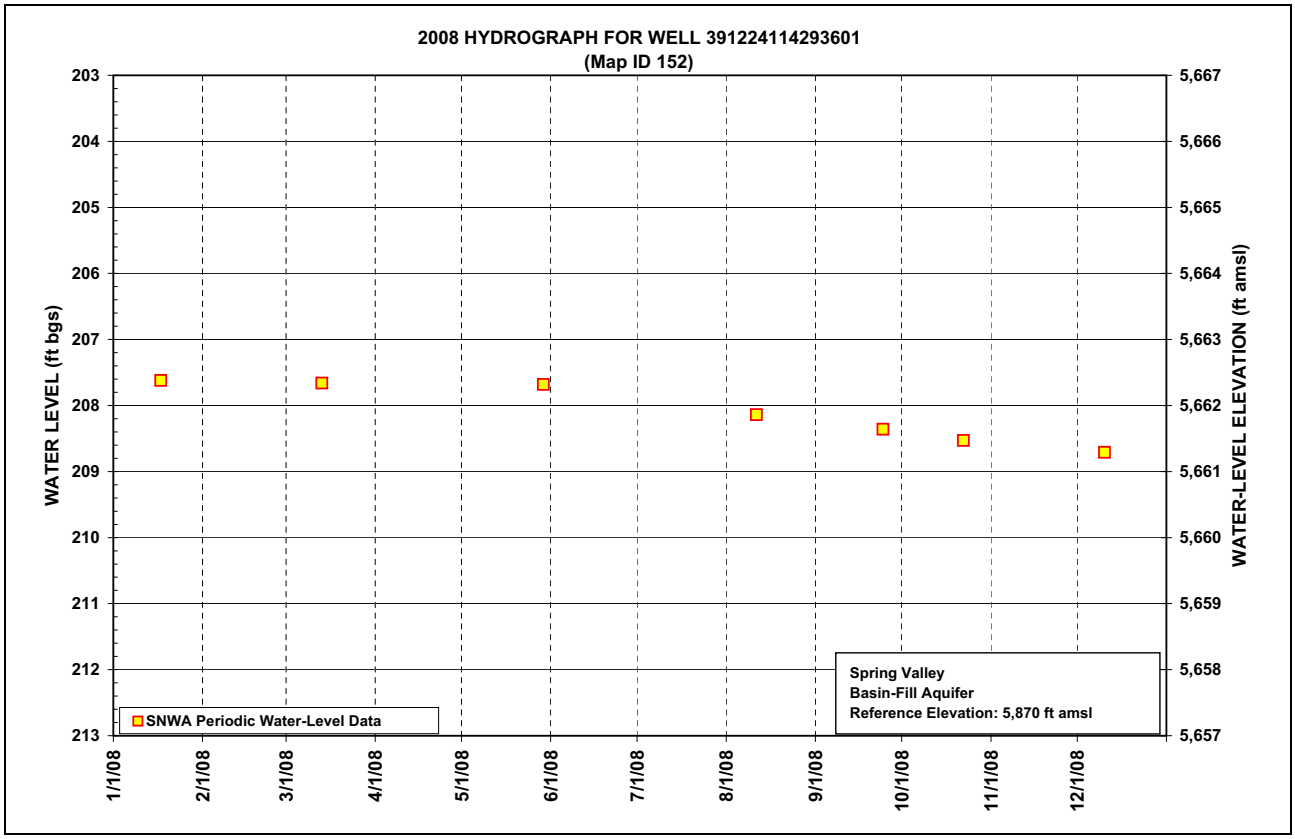

2008 HYDROGRAPH FOR WELL SPR7008M
(Map ID 228)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
10
11
12
13
14
15
16
17
18
19
20
5,695
5,694
5,693
5,692
5,691
5,690
5,689
5,688
5,687
5,686
5,685
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,705 ft amsl
Well Depth: 946 ft bgs

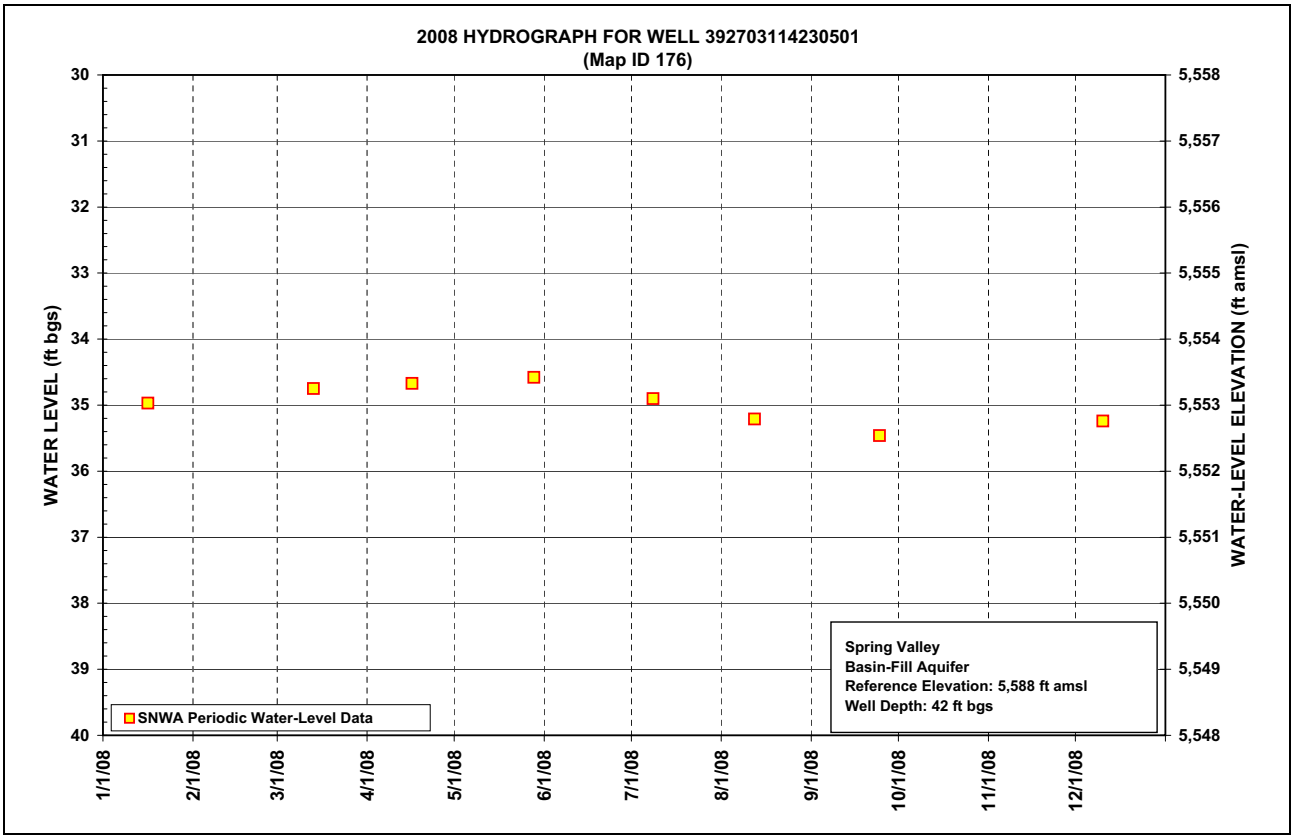

2008 HYDROGRAPH FOR WELL 383351114180201
(Map ID 20)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
402
403
404
405
406
407
408
409
410
411
412
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 6,184 ft amsl
Well Depth: 495 ft bgs

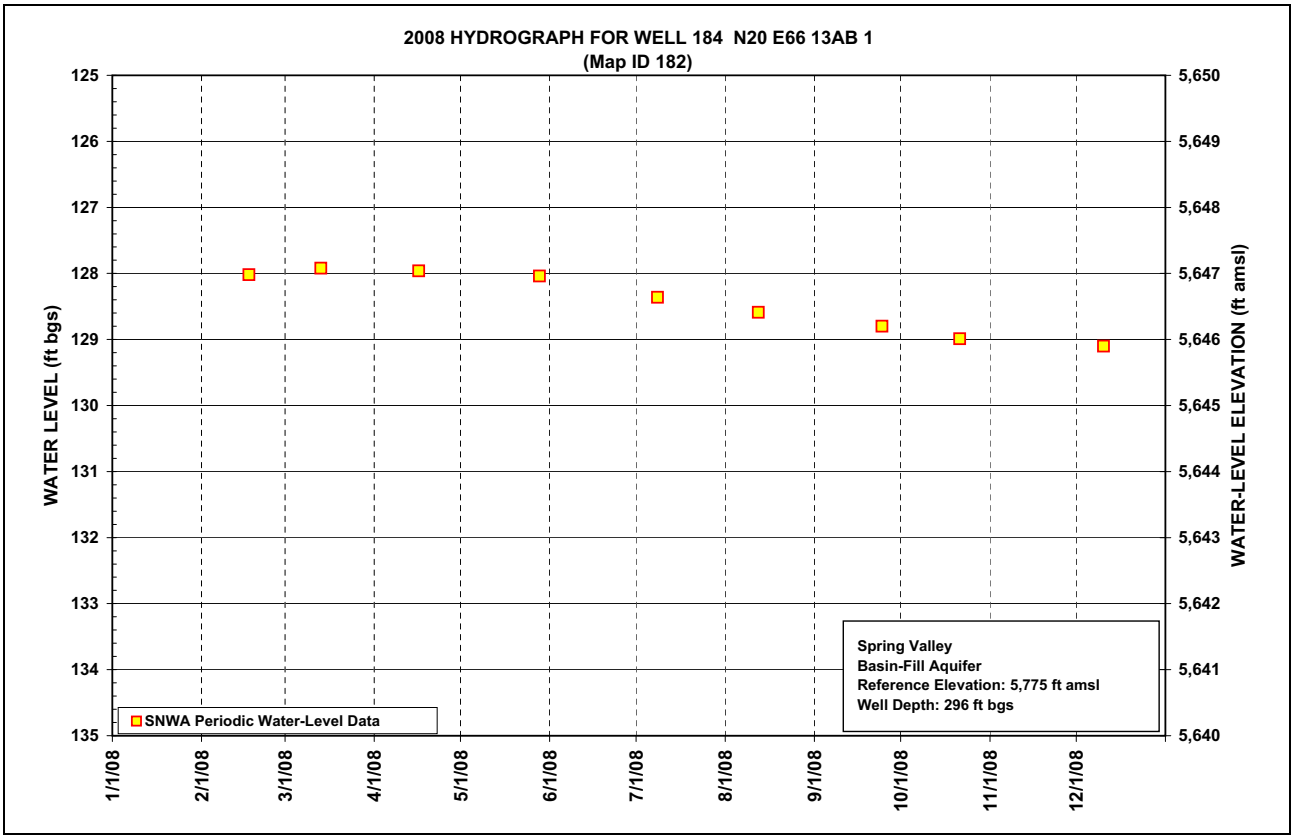

2008 HYDROGRAPH FOR WELL 384310114261401
(Map ID 28)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
60
61
62
63
64
65
66
67
68
69
70
5,794
5,793
5,792
5,791
5,790
5,789
5,788
5,787
5,786
5,785
5,784
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,854 ft amsl
Well Depth: 100 ft bgs

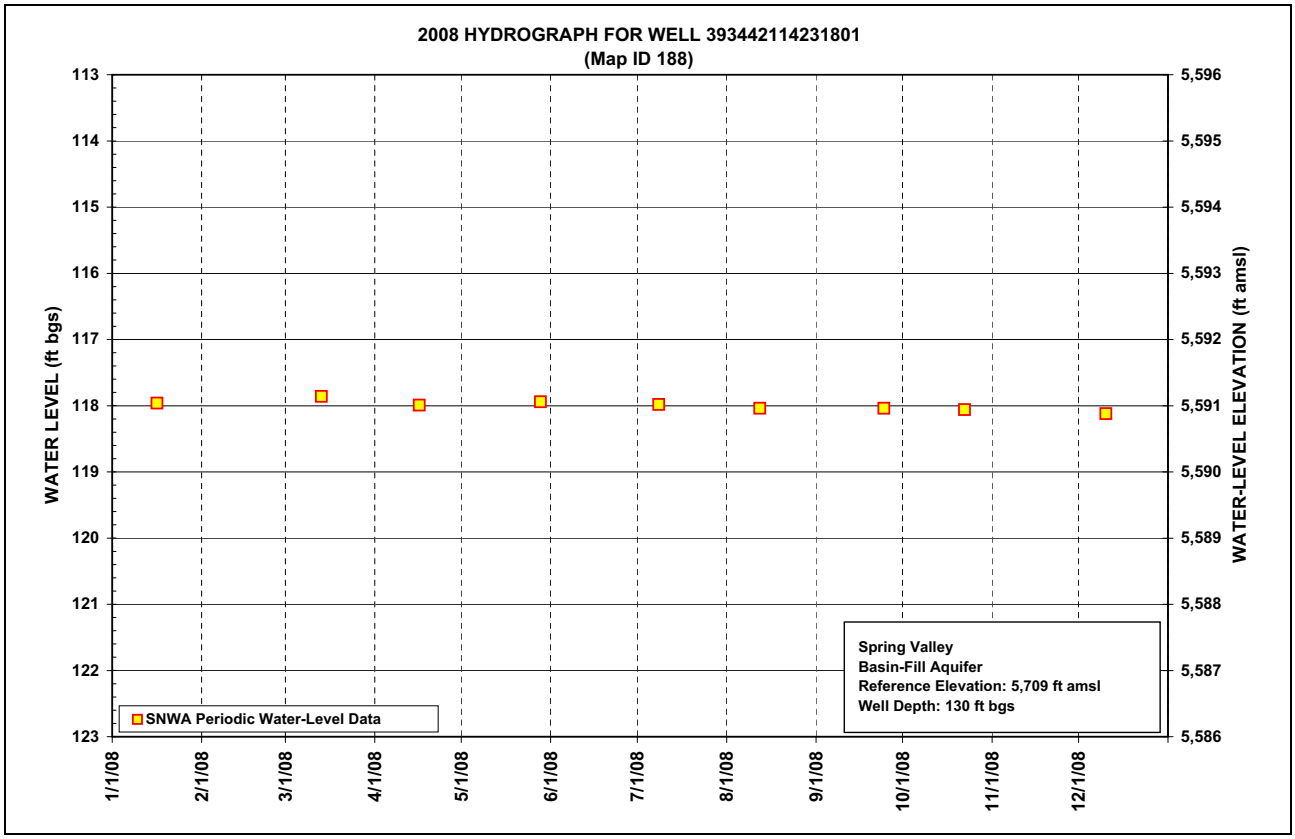

2008 HYDROGRAPH FOR WELL 184 N12 E66 21CD 1
(Map ID 55)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
564
565
566
567
568
569
570
571
572
573
574
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 6,370 ft amsl
Well Depth: 633 ft bgs

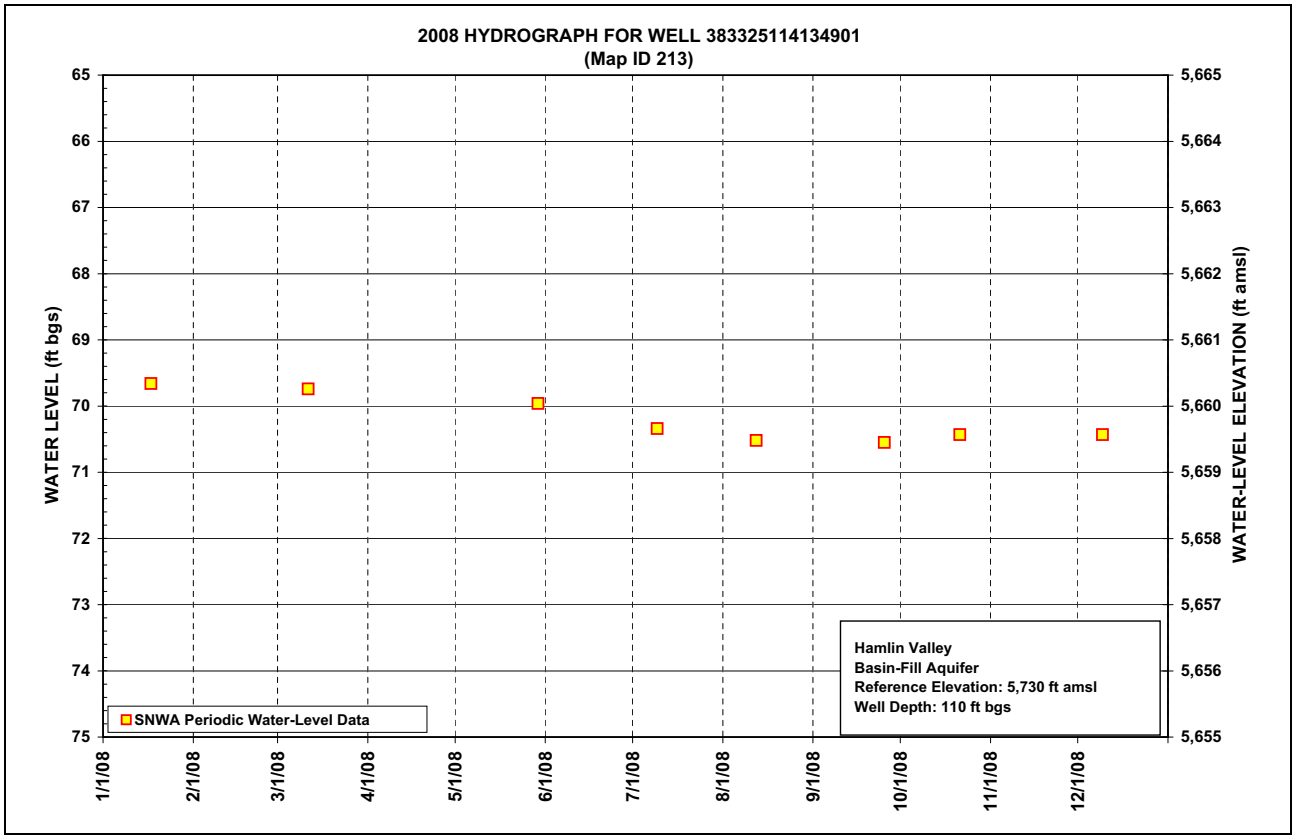

2008 HYDROGRAPH FOR WELL 385636114265501
(Map ID 113)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
3
4
5
6
7
8
9
10
11
12
13
5,767
5,766
5,765
5,764
5,763
5,762
5,761
5,760
5,759
5,758
5,757
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,770 ft amsl

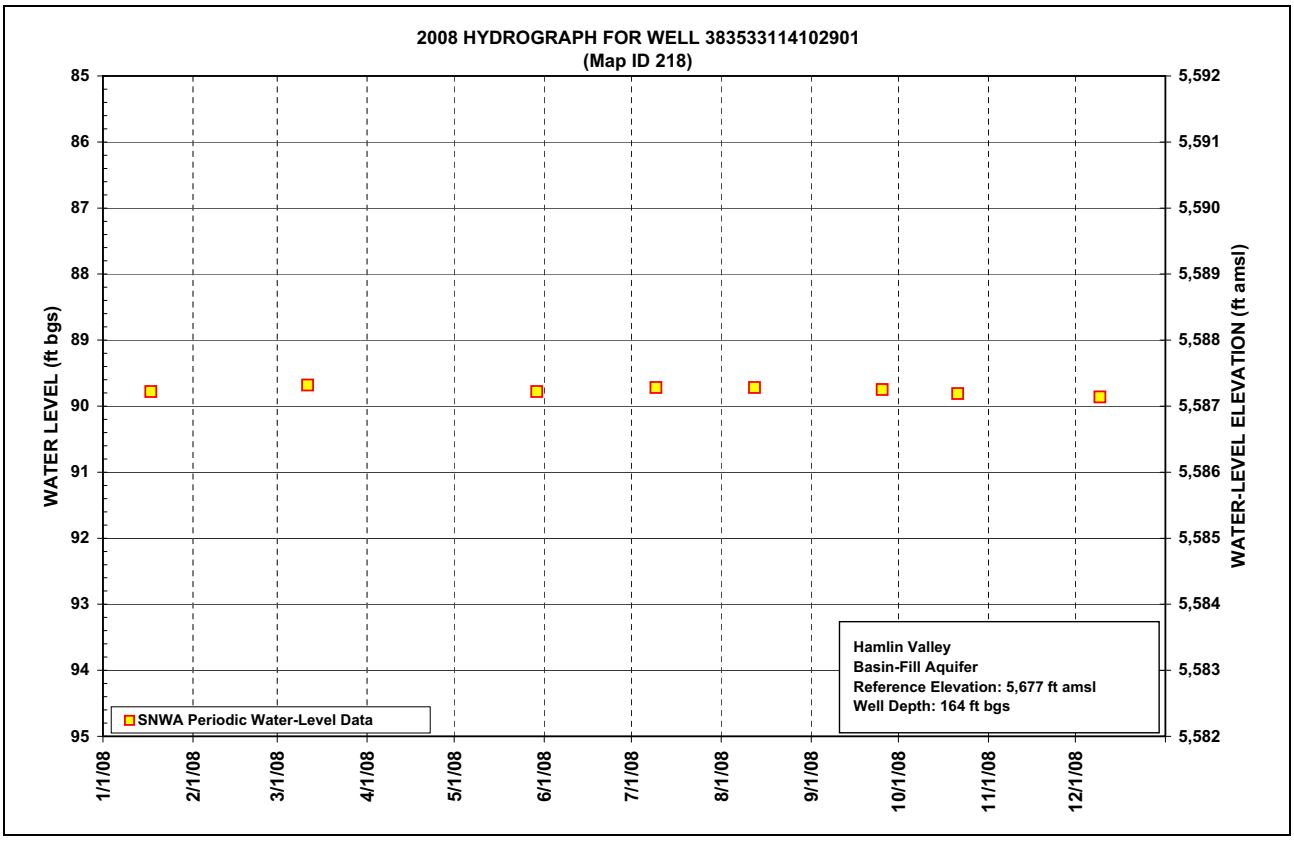

2008 HYDROGRAPH FOR WELL 391224114293601
(Map ID 152)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
203
204
205
206
207
208
209
210
211
212
213
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
5,659
5,658
5,657
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,870 ft amsl


2008 HYDROGRAPH FOR WELL 392703114230501
(Map ID 176)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
30
31
32
33
34
35
36
37
38
39
40
5,558
5,557
5,556
5,555
5,554
5,553
5,552
5,551
5,550
5,549
5,548
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,588 ft amsl
Well Depth: 42 ft bgs


2008 HYDROGRAPH FOR WELL 184 N20 E66 13AB 1
(Map ID 182)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
125
126
127
128
129
130
131
132
133
134
135
5,650
5,649
5,648
5,647
5,646
5,645
5,644
5,643
5,642
5,641
5,640
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,775 ft amsl
Well Depth: 296 ft bgs


2008 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
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Spring Valley
Basin-Fill Aquifer
Reference Elevation: 5,709 ft amsl
Well Depth: 130 ft bgs


2008 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
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,730 ft amsl
Well Depth: 110 ft bgs


2008 HYDROGRAPH FOR WELL 383533114102901
(Map ID 218)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
85
86
87
88
89
90
91
92
93
94
95
5,592
5,591
5,590
5,589
5,588
5,587
5,586
5,585
5,584
5,583
5,582
1/1/08
2/1/08
3/1/08
4/1/08
5/1/08
6/1/08
7/1/08
8/1/08
9/1/08
10/1/08
11/1/08
12/1/08
SNWA Periodic Water-Level Data
Hamlin Valley
Basin-Fill Aquifer
Reference Elevation: 5,677 ft amsl
Well Depth: 164 ft bgs

Appendix D

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

D.1.0 MONITORING PROGRAM WELLS WITH CONTINUOUS TRANSDUCER DATA

Continuous data collection was performed in 2008 for the following monitor wells:

- 384039114232701
- 384745114224401
- 383023114115302
- 184W504M
- 184W506M
- 184W508M
- SPR7005M

For these sites, the graphs are shown below and include historic data and data collected in 2008. Continuous data have been corrected for temperature. Additional data processing, including barometric pressure and line stretch correction, may be applied in the future.

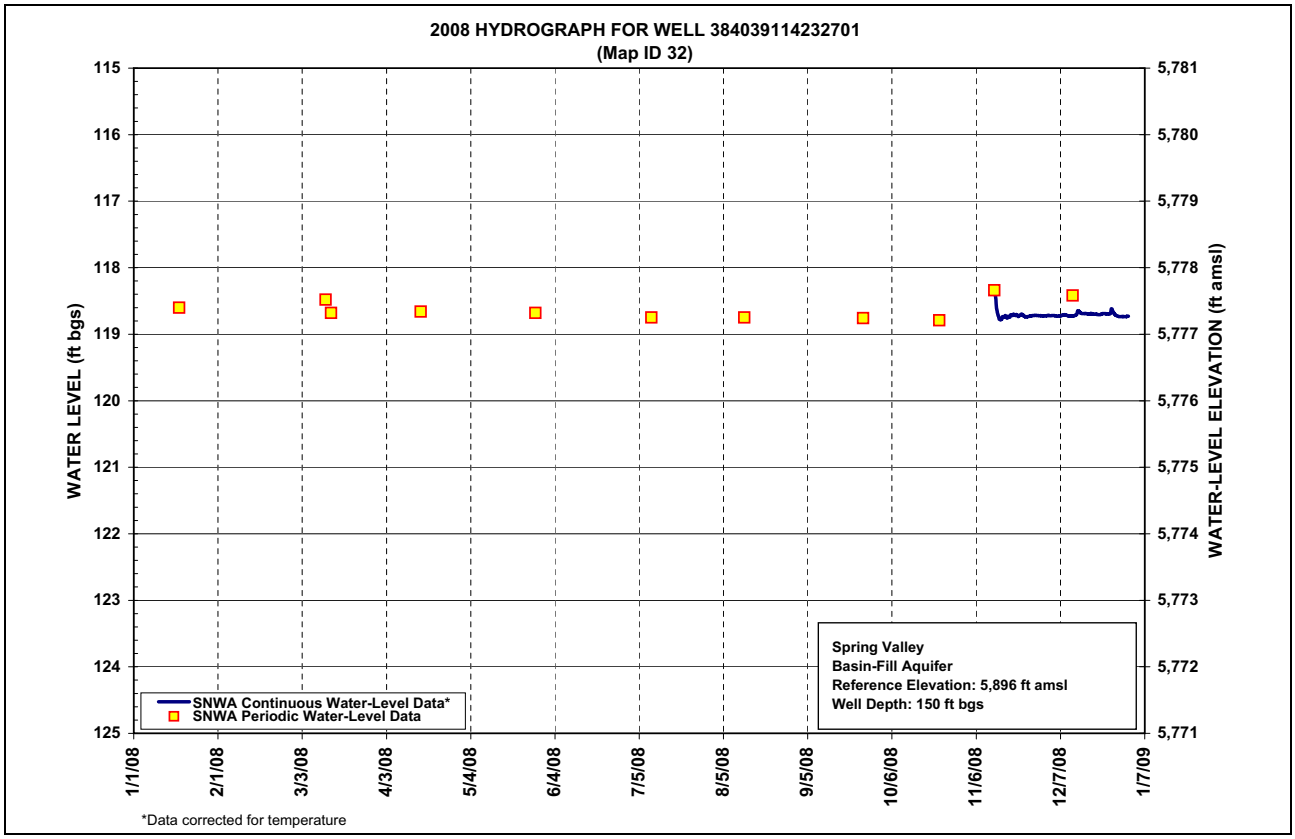
Continuous data collection was not performed in 2008 for the following monitor wells. However, continuous monitoring at these locations is anticipated to begin in 2009:

- 383704114225001
- 384831114314301
- 390352114305401
- 390803114251001
- 393211114320701
- 184W502M
- SPR7007M
- SPR7008M

Table D-1
Well 384039114232701, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	---	---	---	--	118.72
2	---	---	---	---	---	---	---	---	---	---	--	118.72
3	---	---	---	---	---	---	---	---	---	---	--	118.72
4	---	---	---	---	---	---	---	---	---	---	--	118.73
5	---	---	---	---	---	---	---	---	---	---	--	118.73
6	---	---	---	---	---	---	---	---	---	---	--	118.72
7	---	---	---	---	---	---	---	---	---	---	--	118.71
8	---	---	---	---	---	---	---	---	---	---	--	118.72
9	---	---	---	---	---	---	---	---	---	---	--	118.73
10	---	---	---	---	---	---	---	---	---	---	--	118.73
11	---	---	---	---	---	---	---	---	---	---	--	118.71
12	---	---	---	---	---	---	---	---	---	---	118.37	118.66
13	---	---	---	---	---	---	---	---	---	---	118.58	118.68
14	---	---	---	---	---	---	---	---	---	---	118.76	118.69
15	---	---	---	---	---	---	---	---	---	---	118.76	118.69
16	---	---	---	---	---	---	---	---	---	---	118.73	118.69
17	---	---	---	---	---	---	---	---	---	---	118.74	118.69
18	---	---	---	---	---	---	---	---	---	---	118.73	118.70
19	---	---	---	---	---	---	---	---	---	---	118.71	118.70
20	---	---	---	---	---	---	---	---	---	---	118.71	118.71
21	---	---	---	---	---	---	---	---	---	---	118.72	118.69
22	---	---	---	---	---	---	---	---	---	---	118.71	118.69
23	---	---	---	---	---	---	---	---	---	---	118.72	118.70
24	---	---	---	---	---	---	---	---	---	---	118.74	118.66
25	---	---	---	---	---	---	---	---	---	---	118.73	118.67
26	---	---	---	---	---	---	---	---	---	---	118.72	118.72
27	---	---	---	---	---	---	---	---	---	---	118.72	118.73
28	---	---	---	---	---	---	---	---	---	---	118.72	118.74
29	---	---	---	---	---	---	---	---	---	---	118.72	118.74
30	---	---	---	---	---	---	---	---	---	---	118.73	118.73
31	---	---	---	---	---	---	---	---	---	---	---	118.73
Max	---	---	---	---	---	---	---	---	---	---	118.76	118.74
Min	---	---	---	---	---	---	---	---	---	---	118.37	118.66

Year 2008 Year Totals **Year Max 118.76**
Year Min 118.37


2008 HYDROGRAPH FOR WELL 384039114232701
(Map ID 32)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
115
116
117
118
119
120
121
122
123
124
125
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
5,771
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
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 corrected for temperature

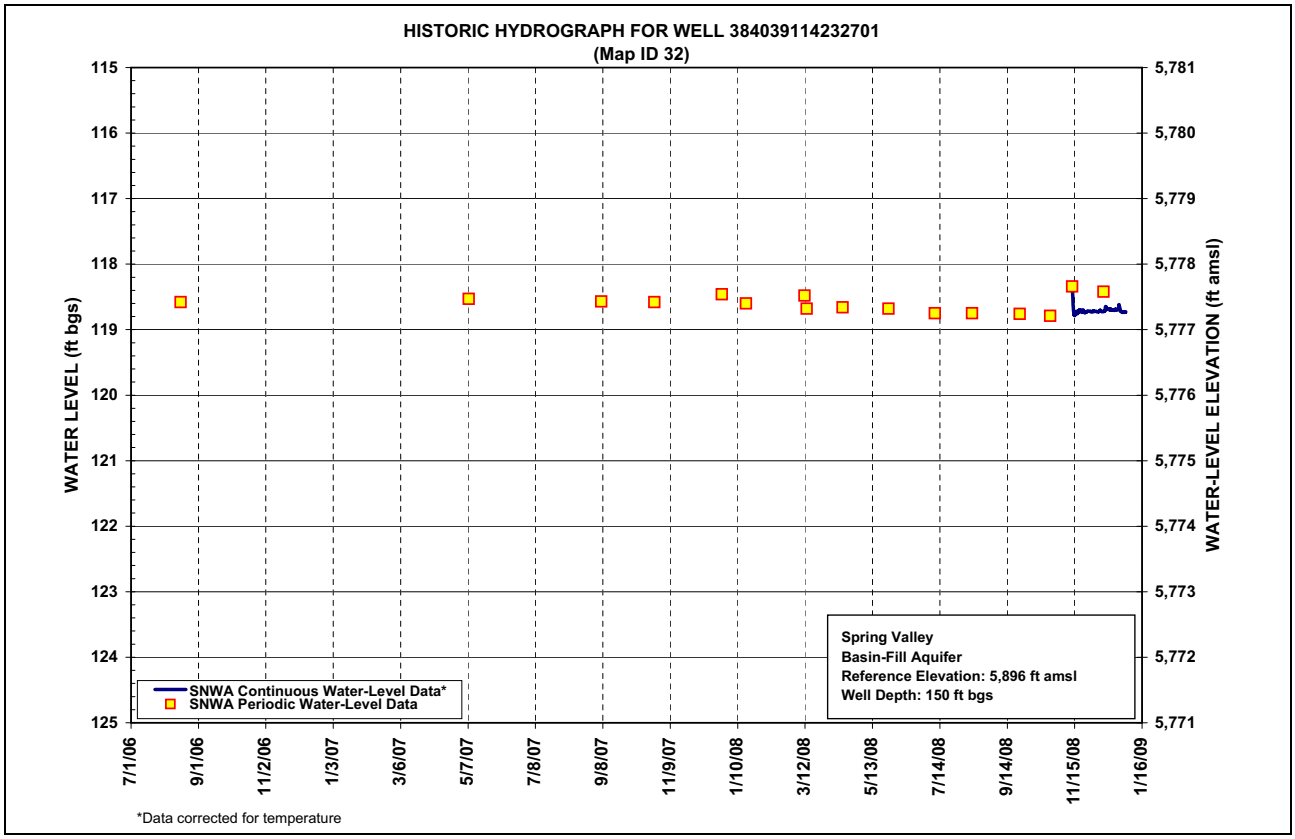
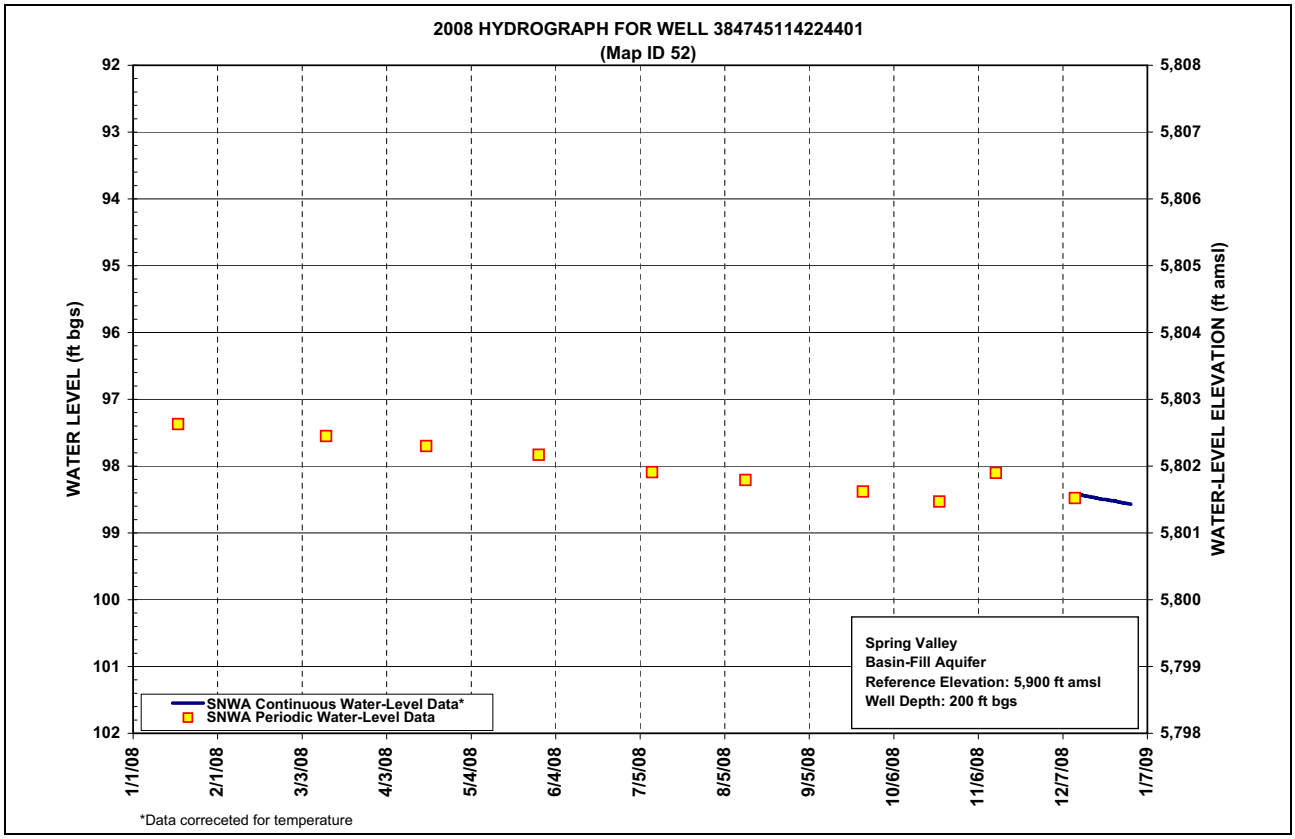

HISTORIC HYDROGRAPH FOR WELL 384039114232701
(Map ID 32)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
115
116
117
118
119
120
121
122
123
124
125
5,781
5,780
5,779
5,778
5,777
5,776
5,775
5,774
5,773
5,772
5,771
7/1/06
9/1/06
11/2/06
1/3/07
3/6/07
5/7/07
7/8/07
9/8/07
11/9/07
1/10/08
3/12/08
5/13/08
7/14/08
9/14/08
11/15/08
1/16/09
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 corrected for temperature

Table D-2
Well 384745114224401, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	--	--	--	--	--	--	--	--	--	--	--	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	98.43
12	---	---	---	---	---	---	---	---	---	---	---	98.43
13	---	---	---	---	---	---	---	---	---	---	---	98.43
14	---	---	---	---	---	---	---	---	---	---	---	98.44
15	---	---	---	---	---	---	---	---	---	---	---	98.45
16	---	---	---	---	---	---	---	---	---	---	---	98.45
17	---	---	---	---	---	---	---	---	---	---	---	98.46
18	---	---	---	---	---	---	---	---	---	---	---	98.47
19	---	---	---	---	---	---	---	---	---	---	---	98.48
20	---	---	---	---	---	---	---	---	---	---	---	98.49
21	---	---	---	---	---	---	---	---	---	---	---	98.50
22	---	---	---	---	---	---	---	---	---	---	---	98.50
23	---	---	---	---	---	---	---	---	---	---	---	98.51
24	---	---	---	---	---	---	---	---	---	---	---	98.51
25	---	---	---	---	---	---	---	---	---	---	---	98.52
26	---	---	---	---	---	---	---	---	---	---	---	98.53
27	---	---	---	---	---	---	---	---	---	---	---	98.54
28	---	---	---	---	---	---	---	---	---	---	---	98.55
29	---	---	---	---	---	---	---	---	---	---	---	98.55
30	---	---	---	---	---	---	---	---	---	---	---	98.56
31	---	---	---	---	---	---	---	---	---	---	---	98.57
Max		---	---	---	---	---	---	---	---	---	---	98.57
Min		---	---	---	---	---	---	---	---	---	---	98.43

Year 2008 Year Totals **Year Max 98.57**
Year Min 98.43


2008 HYDROGRAPH FOR WELL 384745114224401
(Map ID 52)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
92
93
94
95
96
97
98
99
100
101
102
5,808
5,807
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
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 correceted for temperature

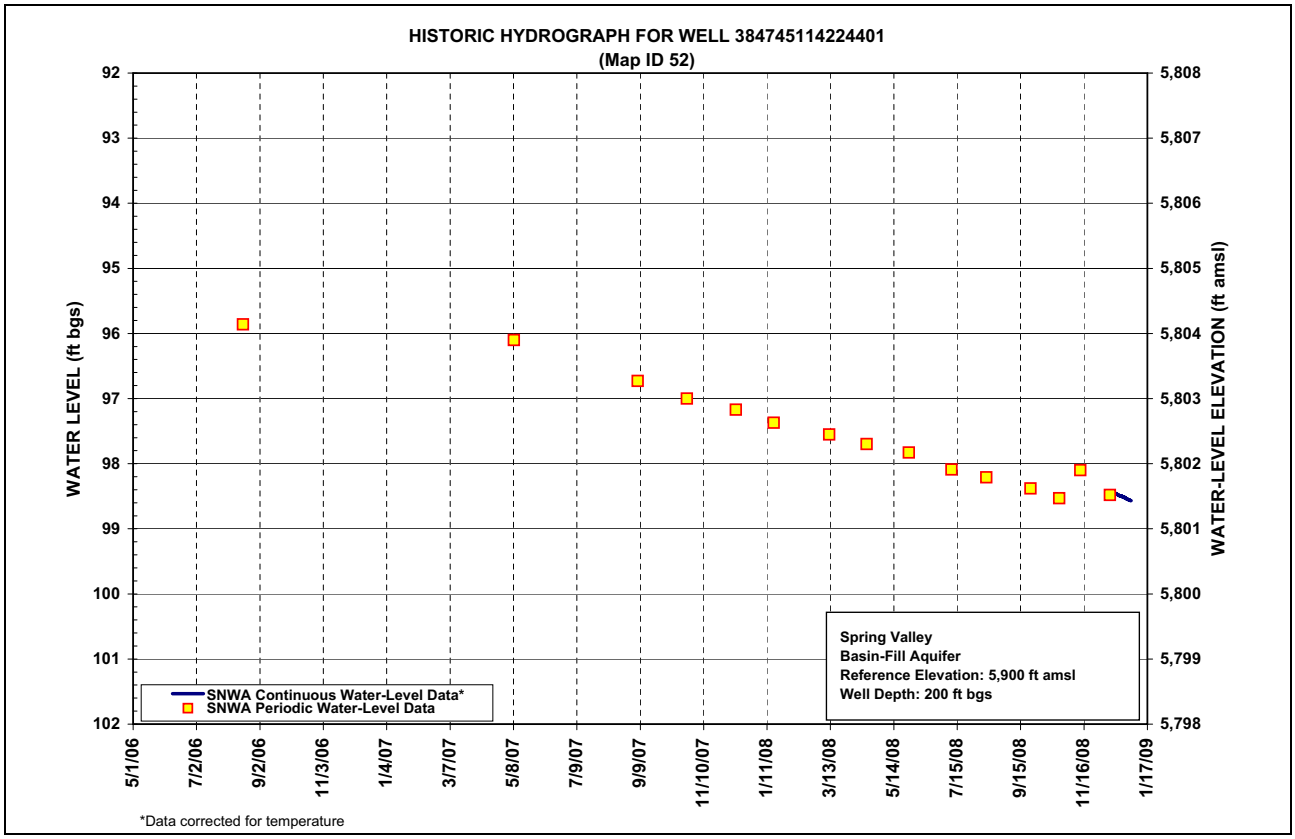
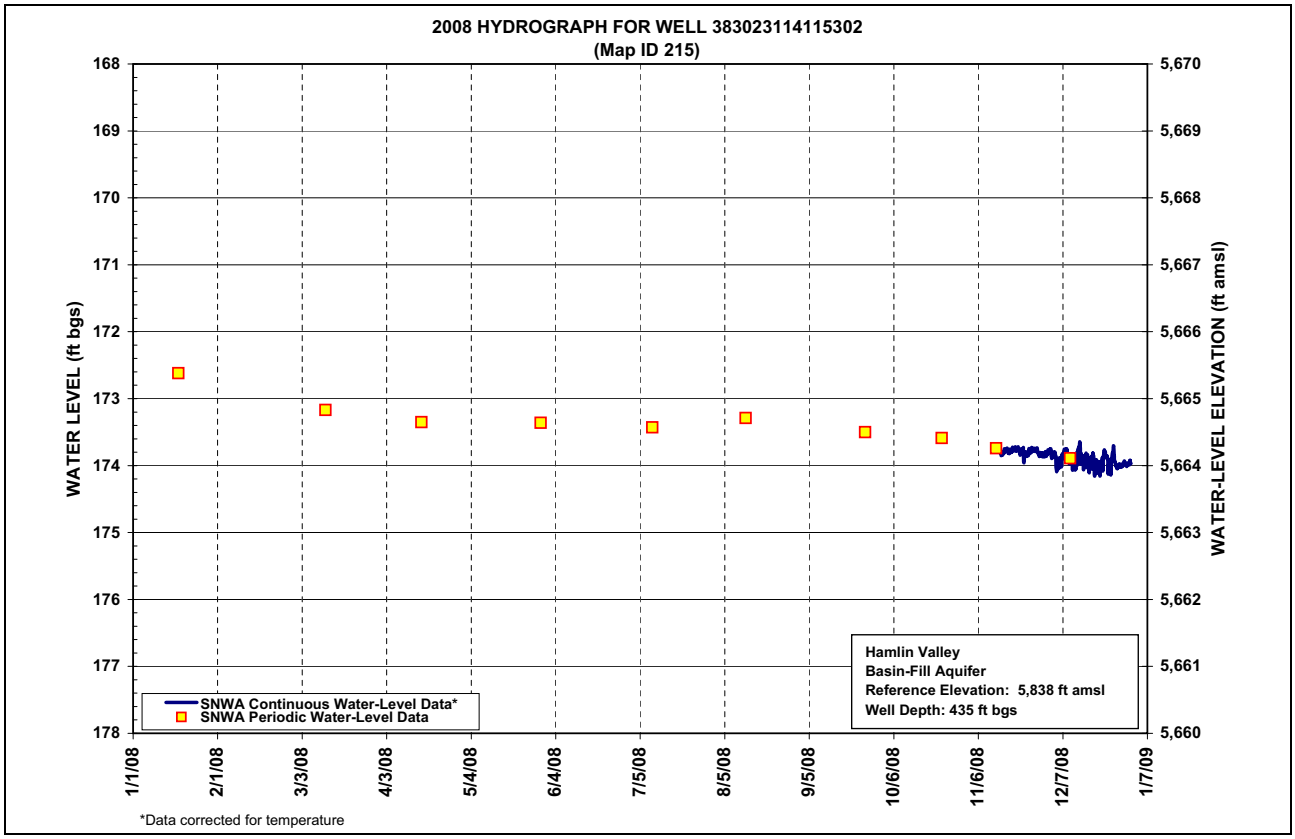

HISTORIC HYDROGRAPH FOR WELL 384745114224401
(Map ID 52)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
92
93
94
95
96
97
98
99
100
101
102
5,808
5,807
5,806
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5/1/06
7/2/06
9/2/06
11/3/06
1/4/07
3/7/07
5/8/07
7/9/07
9/9/07
11/10/07
1/11/08
3/13/08
5/14/08
7/15/08
9/15/08
11/16/08
1/17/09
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 corrected for temperature

Table D-3
Well 383023114115302, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	---	---	---	---	173.81
2	---	---	---	---	---	---	---	---	---	---	---	173.80
3	---	---	---	---	---	---	---	---	---	---	---	173.84
4	---	---	---	---	---	---	---	---	---	---	---	173.93
5	---	---	---	---	---	---	---	---	---	---	---	173.92
6	---	---	---	---	---	---	---	---	---	---	---	173.88
7	---	---	---	---	---	---	---	---	---	---	---	173.80
8	---	---	---	---	---	---	---	---	---	---	---	173.81
9	---	---	---	---	---	---	---	---	---	---	---	173.94
10	---	---	---	---	---	---	---	---	---	---	---	173.94
11	---	---	---	---	---	---	---	---	---	---	---	173.94
12	---	---	---	---	---	---	---	---	---	---	173.77	173.80
13	---	---	---	---	---	---	---	---	---	---	173.74	173.79
14	---	---	---	---	---	---	---	---	---	---	173.82	173.90
15	---	---	---	---	---	---	---	---	---	---	173.79	173.88
16	---	---	---	---	---	---	---	---	---	---	173.77	173.94
17	---	---	---	---	---	---	---	---	---	---	173.80	173.91
18	---	---	---	---	---	---	---	---	---	---	173.77	173.96
19	---	---	---	---	---	---	---	---	---	---	173.76	173.98
20	---	---	---	---	---	---	---	---	---	---	173.76	174.01
21	---	---	---	---	---	---	---	---	---	---	173.79	173.95
22	---	---	---	---	---	---	---	---	---	---	173.81	173.82
23	---	---	---	---	---	---	---	---	---	---	173.83	173.95
24	---	---	---	---	---	---	---	---	---	---	173.81	173.97
25	---	---	---	---	---	---	---	---	---	---	173.77	173.81
26	---	---	---	---	---	---	---	---	---	---	173.76	174.00
27	---	---	---	---	---	---	---	---	---	---	173.77	174.01
28	---	---	---	---	---	---	---	---	---	---	173.83	174.00
29	---	---	---	---	---	---	---	---	---	---	173.84	173.97
30	---	---	---	---	---	---	---	---	---	---	173.84	173.99
31	---	---	---	---	---	---	---	---	---	---	--	173.96
Max												174.01
Min												173.79

Year 2008 Year Totals **Year Max 174.01**
Year Min 173.79


2008 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
5,664
5,663
5,662
5,661
5,660
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
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 corrected for temperature

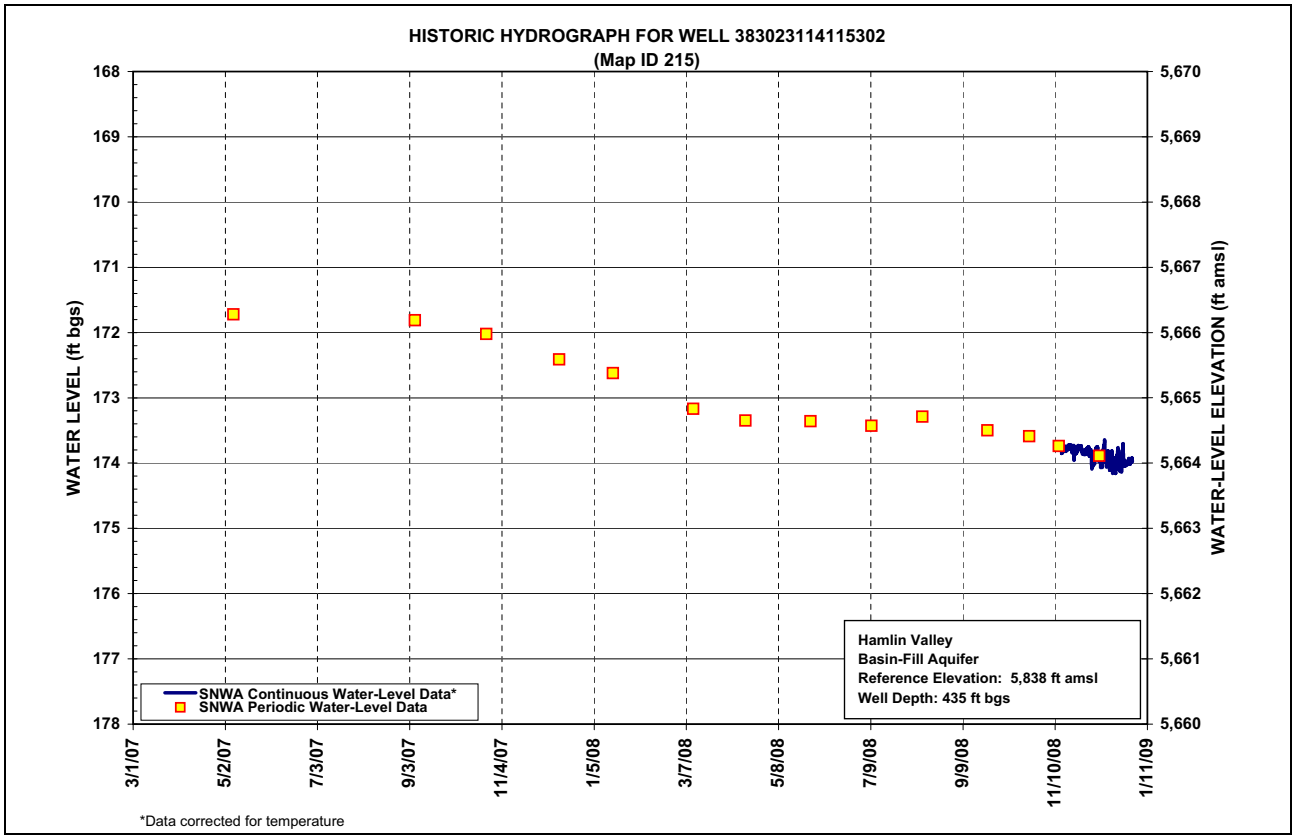
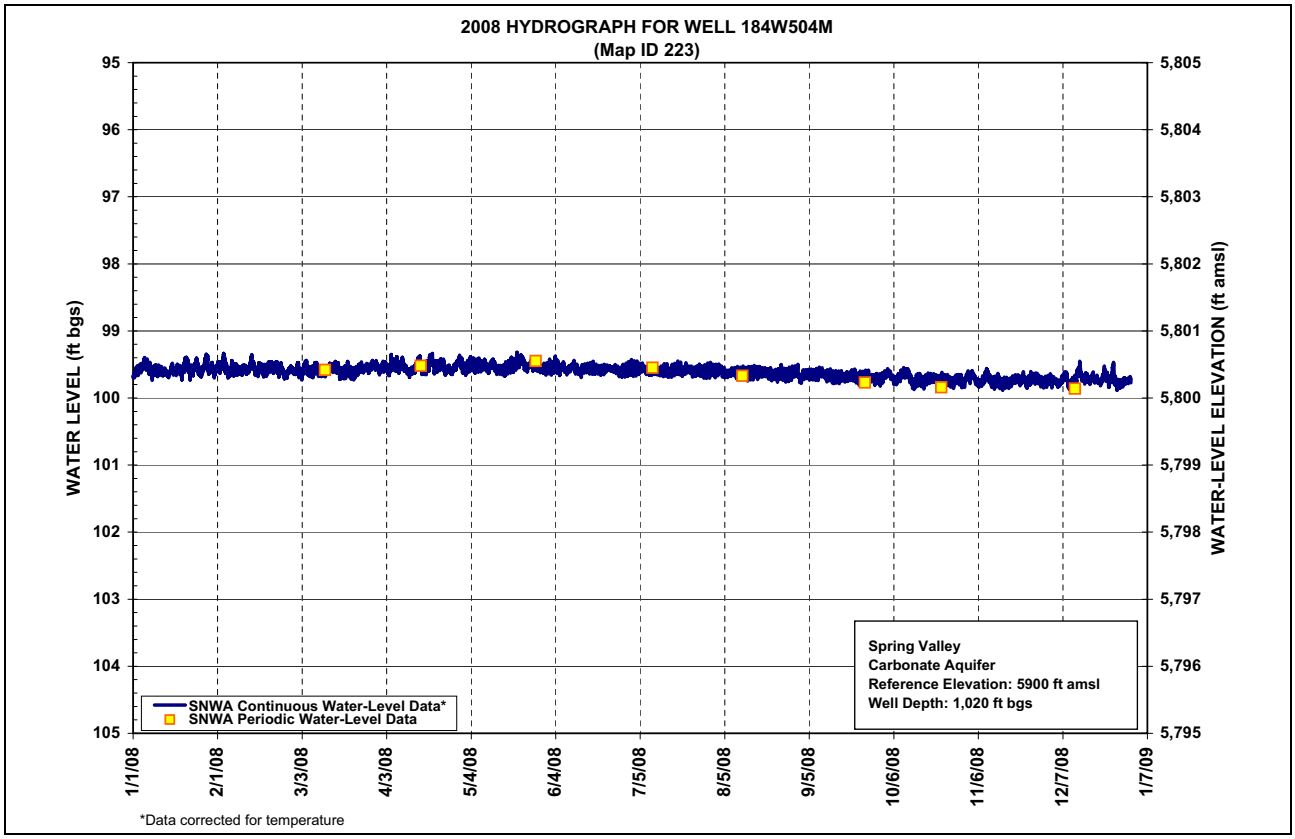

HISTORIC HYDROGRAPH FOR WELL 383023114115302
(Map ID 215)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
168
169
170
171
172
173
174
175
176
177
178
5,670
5,669
5,668
5,667
5,666
5,665
5,664
5,663
5,662
5,661
5,660
3/1/07
5/2/07
7/3/07
9/3/07
11/4/07
1/5/08
3/7/08
5/8/08
7/9/08
9/9/08
11/10/08
1/11/09
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 corrected for temperature

Table D-4
Well 184W504M, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	99.66	99.54	99.55	99.54	99.56	99.55	99.56	99.59	99.69	99.70	99.70	99.72
2	99.57	99.51	99.63	99.53	99.55	99.56	99.57	99.58	99.67	99.66	99.68	99.73
3	99.55	99.45	99.59	99.58	99.52	99.51	99.57	99.59	99.65	99.63	99.66	99.74
4	99.52	99.58	99.53	99.51	99.51	99.50	99.57	99.63	99.63	99.64	99.68	99.76
5	99.50	99.61	99.60	99.51	99.54	99.57	99.55	99.63	99.66	99.71	99.76	99.79
6	99.53	99.56	99.61	99.51	99.51	99.53	99.57	99.63	99.65	99.75	99.78	99.75
7	99.58	99.55	99.58	99.55	99.52	99.57	99.58	99.61	99.65	99.73	99.76	99.68
8	99.59	99.59	99.55	99.49	99.52	99.59	99.59	99.61	99.65	99.68	99.67	99.69
9	99.58	99.60	99.62	99.54	99.53	99.55	99.57	99.63	99.64	99.63	99.64	99.81
10	99.58	99.56	99.61	99.59	99.57	99.51	99.56	99.63	99.65	99.64	99.74	99.78
11	99.59	99.58	99.60	99.62	99.49	99.58	99.59	99.64	99.67	99.66	99.75	99.73
12	99.59	99.57	99.57	99.60	99.53	99.59	99.60	99.62	99.66	99.75	99.74	99.62
13	99.64	99.45	99.54	99.56	99.57	99.59	99.59	99.64	99.69	99.78	99.72	99.60
14	99.61	99.55	99.56	99.48	99.58	99.56	99.58	99.65	99.70	99.72	99.79	99.70
15	99.55	99.60	99.52	99.52	99.59	99.55	99.61	99.64	99.70	99.71	99.76	99.67
16	99.59	99.55	99.58	99.57	99.58	99.56	99.60	99.62	99.68	99.73	99.76	99.72
17	99.57	99.59	99.61	99.56	99.56	99.56	99.57	99.63	99.68	99.73	99.77	99.70
18	99.61	99.58	99.62	99.50	99.52	99.58	99.56	99.62	99.67	99.70	99.74	99.71
19	99.56	99.55	99.56	99.44	99.52	99.58	99.56	99.62	99.67	99.71	99.72	99.73
20	99.46	99.52	99.60	99.52	99.47	99.59	99.61	99.62	99.64	99.71	99.72	99.76
21	99.56	99.55	99.63	99.54	99.46	99.58	99.58	99.62	99.66	99.74	99.75	99.70
22	99.59	99.52	99.63	99.52	99.43	99.57	99.57	99.67	99.71	99.76	99.71	99.63
23	99.54	99.60	99.59	99.49	99.51	99.56	99.59	99.65	99.71	99.70	99.75	99.72
24	99.51	99.56	99.56	99.60	99.56	99.57	99.60	99.65	99.70	99.73	99.75	99.71
25	99.61	99.64	99.56	99.56	99.51	99.57	99.60	99.61	99.67	99.73	99.70	99.59
26	99.58	99.64	99.54	99.59	99.53	99.58	99.60	99.64	99.69	99.76	99.70	99.77
27	99.45	99.57	99.58	99.56	99.54	99.60	99.60	99.66	99.70	99.77	99.69	99.78
28	99.52	99.58	99.51	99.52	99.55	99.59	99.61	99.66	99.71	99.74	99.74	99.77
29	99.55	99.60	99.52	99.44	99.56	99.59	99.59	99.64	99.71	99.71	99.76	99.74
30	99.59	---	99.52	99.51	99.57	99.57	99.58	99.61	99.72	99.74	99.75	99.75
31	99.56	---	99.59	---	99.57	---	99.60	99.57	---	99.77	---	99.72
Max	99.66	99.64	99.63	99.62	99.59	99.60	99.61	99.67	99.72	99.78	99.79	99.81
Min	99.45	99.45	99.51	99.44	99.43	99.50	99.55	99.57	99.63	99.63	99.64	99.59

Year 2008 Year Totals **Year Max 99.81**
Year Min 99.43


2008 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
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5900 ft amsl
Well Depth: 1,020 ft bgs
*Data corrected for temperature

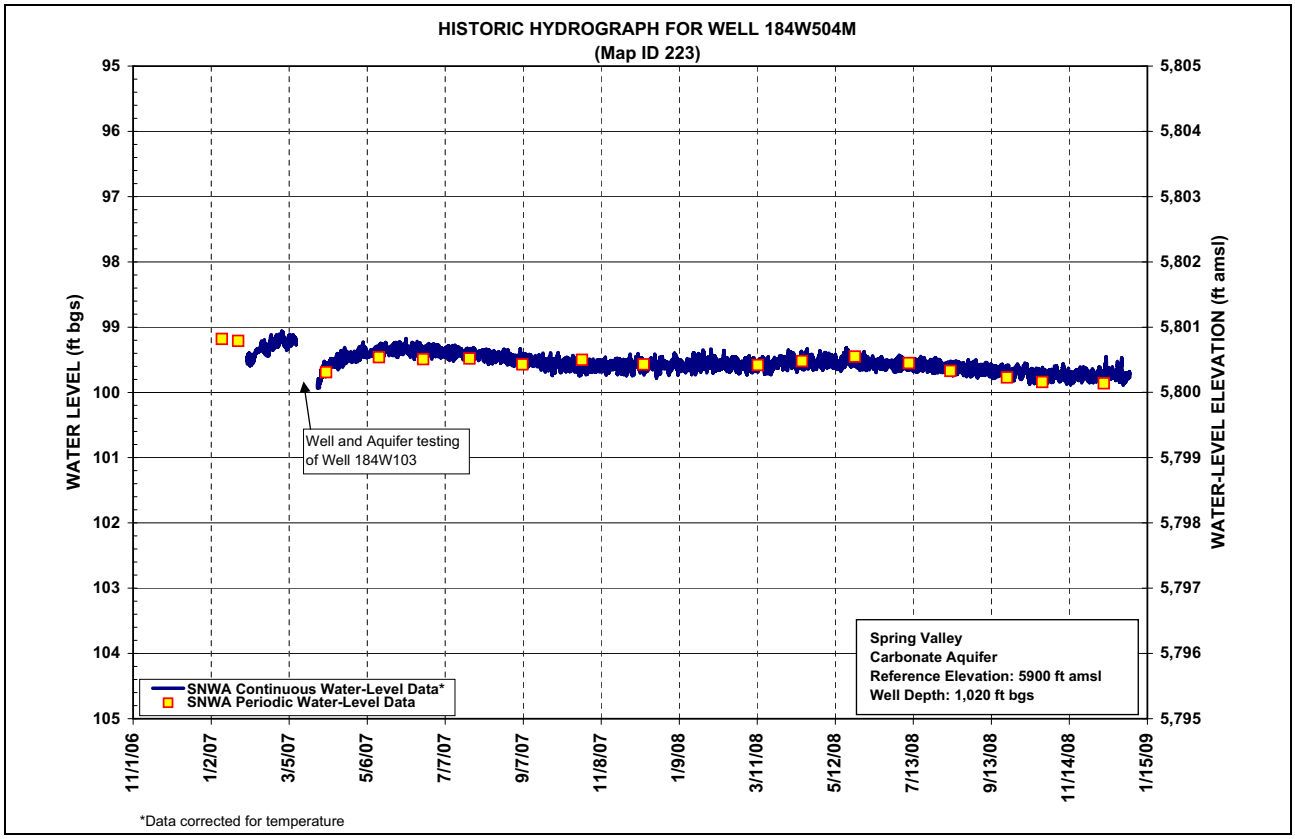
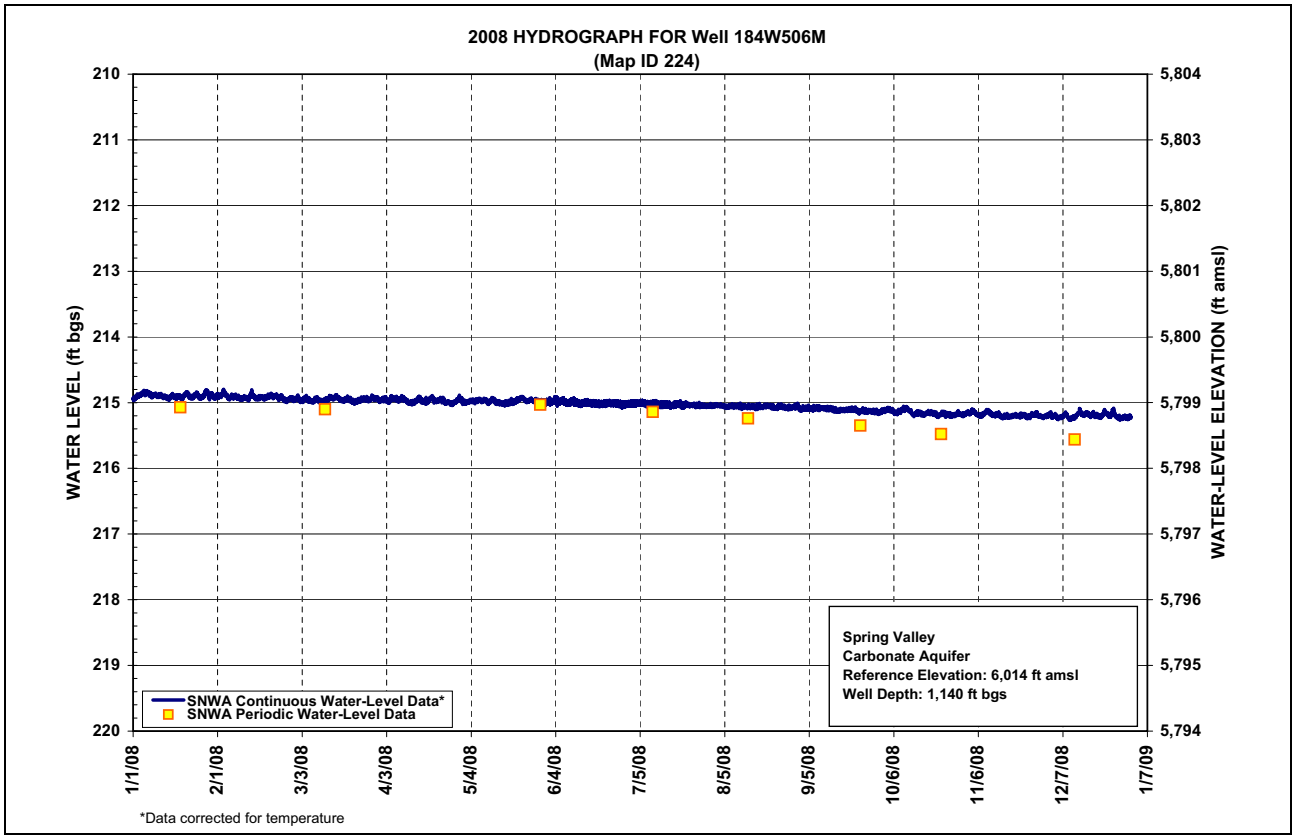

HISTORIC HYDROGRAPH FOR WELL 184W504M
(Map ID 223)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
95
96
97
98
99
100
101
102
103
104
105
5,805
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
11/1/06
1/2/07
3/5/07
5/6/07
7/7/07
9/7/07
11/8/07
1/9/08
3/11/08
5/12/08
7/13/08
9/13/08
11/14/08
1/15/09
Well and Aquifer testing
of Well 184W103
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Carbonate Aquifer
Reference Elevation: 5900 ft amsl
Well Depth: 1,020 ft bgs
*Data corrected for temperature

Table D-5
Well 184W506M, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	214.94	214.89	214.93	214.96	214.99	214.99	215.02	215.04	215.09	215.14	215.17	215.20
2	214.90	214.88	214.97	214.95	215.00	214.99	215.02	215.04	215.09	215.13	215.15	215.19
3	214.88	214.85	214.96	214.98	214.98	214.97	215.02	215.05	215.09	215.11	215.14	215.21
4	214.85	214.90	214.93	214.94	214.98	214.96	215.02	215.06	215.08	215.11	215.14	215.22
5	214.85	214.93	214.96	214.94	214.98	214.99	215.01	215.06	215.10	215.13	215.19	215.23
6	214.86	214.91	214.98	214.94	214.97	214.97	215.02	215.06	215.09	215.16	215.20	215.22
7	214.88	214.91	214.97	214.96	214.97	215.00	215.02	215.06	215.09	215.15	215.19	215.19
8	214.89	214.93	214.95	214.93	214.97	215.01	215.03	215.06	215.09	215.13	215.15	215.20
9	214.89	214.94	214.98	214.95	214.97	214.99	215.03	215.05	215.08	215.10	215.13	215.25
10	214.90	214.93	214.98	214.98	215.00	214.98	215.02	215.06	215.09	215.10	215.17	215.24
11	214.90	214.93	214.96	215.00	214.96	215.00	215.03	215.07	215.10	215.11	215.19	215.22
12	214.92	214.93	214.94	215.00	214.98	215.02	215.04	215.06	215.09	215.16	215.19	215.17
13	214.93	214.87	214.92	214.97	215.00	215.02	215.04	215.06	215.11	215.18	215.18	215.15
14	214.93	214.92	214.94	214.94	215.00	215.01	215.04	215.07	215.12	215.17	215.22	215.18
15	214.90	214.93	214.91	214.95	215.01	215.00	215.04	215.07	215.13	215.16	215.22	215.17
16	214.92	214.92	214.94	214.98	215.02	215.01	215.05	215.07	215.12	215.18	215.21	215.18
17	214.90	214.92	214.96	214.99	215.01	215.01	215.04	215.07	215.12	215.18	215.22	215.19
18	214.93	214.92	214.96	214.96	214.99	215.02	215.03	215.07	215.12	215.16	215.21	215.19
19	214.90	214.91	214.94	214.92	214.99	215.02	215.03	215.05	215.11	215.16	215.20	215.19
20	214.86	214.89	214.96	214.96	214.97	215.02	215.05	215.05	215.10	215.16	215.20	215.21
21	214.89	214.90	214.99	214.98	214.96	215.02	215.04	215.06	215.10	215.18	215.20	215.20
22	214.92	214.90	214.99	214.96	214.93	215.02	215.04	215.07	215.12	215.20	215.19	215.15
23	214.89	214.93	214.97	214.95	214.96	215.01	215.04	215.08	215.14	215.17	215.21	215.19
24	214.88	214.91	214.96	215.00	214.98	215.02	215.04	215.08	215.13	215.17	215.21	215.20
25	214.92	214.96	214.95	215.00	214.96	215.02	215.04	215.06	215.13	215.18	215.19	215.14
26	214.91	214.97	214.94	215.01	214.97	215.02	215.05	215.07	215.13	215.19	215.18	215.21
27	214.84	214.94	214.97	215.01	214.97	215.03	215.05	215.08	215.14	215.20	215.18	215.23
28	214.88	214.95	214.93	214.98	214.98	215.03	215.05	215.08	215.14	215.19	215.21	215.24
29	214.88	214.95	214.93	214.94	214.99	215.03	215.05	215.08	215.15	215.17	215.22	215.22
30	214.90	---	214.94	214.97	215.00	215.03	215.05	215.06	215.15	215.18	215.22	215.23
31	214.90	---	214.97	---	214.99	---	215.05	215.05	---	215.19	---	215.22
Max	214.94	214.97	214.99	215.01	215.02	215.03	215.05	215.08	215.15	215.20	215.22	215.25
Min	214.84	214.85	214.91	214.92	214.93	214.96	215.01	215.04	215.08	215.10	215.13	215.14

Year 2008 Year Totals **Year Max 215.25** **Year Min 214.84**


2008 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
5,795
5,794
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
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 corrected for temperature

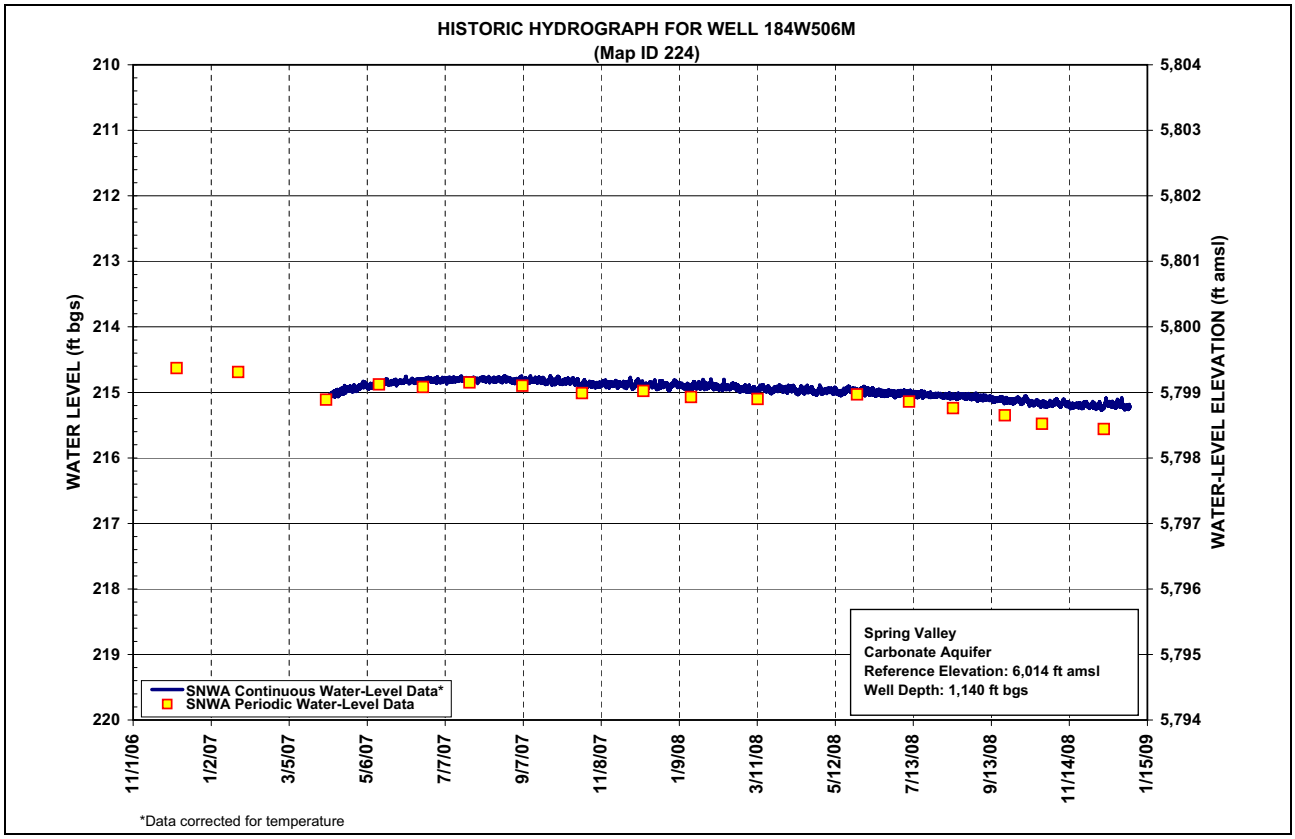
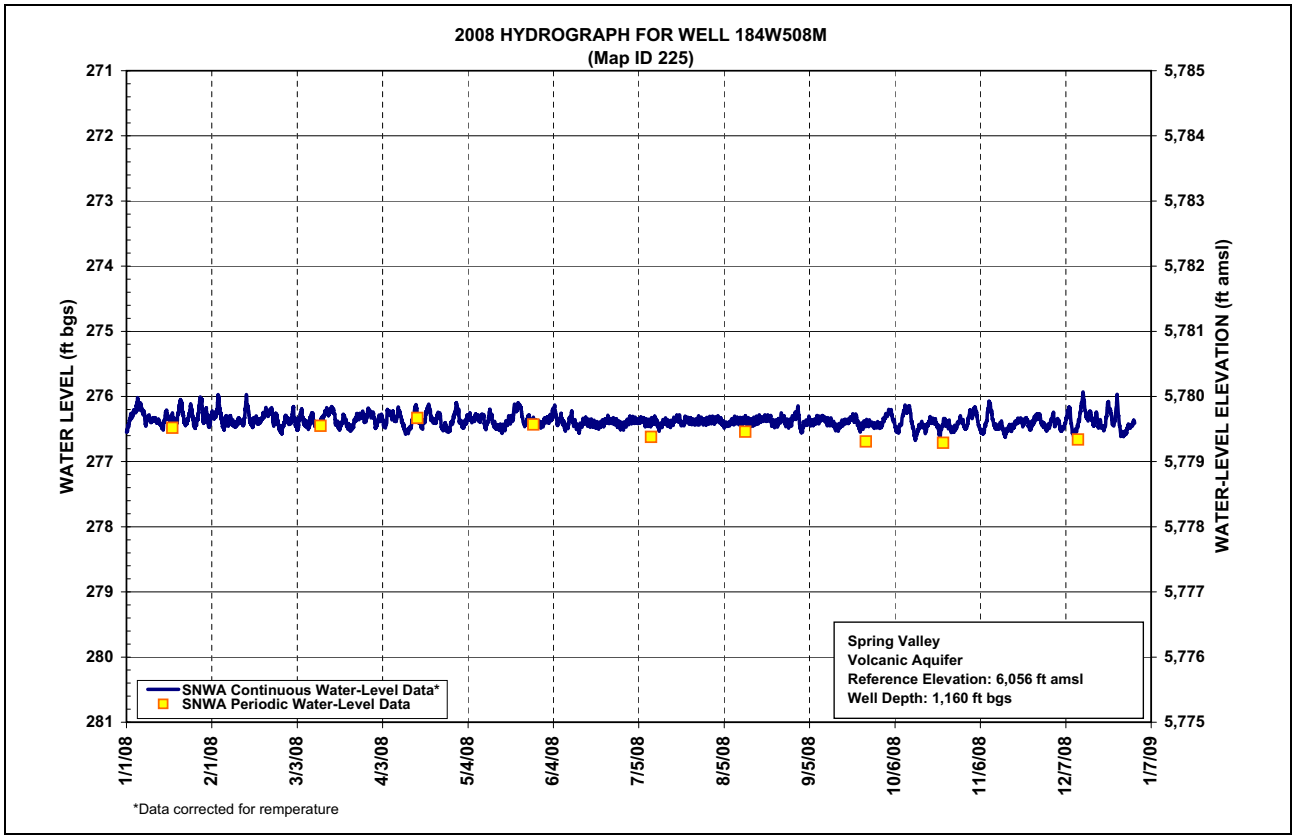

HISTORIC HYDROGRAPH FOR WELL 184W506M
(Map ID 224)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
210
211
212
213
214
215
216
217
218
219
220
5,804
5,803
5,802
5,801
5,800
5,799
5,798
5,797
5,796
5,795
5,794
11/1/06
1/2/07
3/5/07
5/6/07
7/7/07
9/7/07
11/8/07
1/9/08
3/11/08
5/12/08
7/13/08
9/13/08
11/14/08
1/15/09
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 corrected for temperature

Table D-6
Well 184W508M, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	276.49	276.29	276.27	276.36	276.41	276.36	276.37	276.37	276.42	276.41	276.39	276.40
2	276.33	276.25	276.42	276.33	276.44	276.36	276.37	276.35	276.48	276.32	276.27	276.33
3	276.26	276.10	276.42	276.42	276.36	276.30	276.37	276.37	276.42	276.26	276.25	276.41
4	276.17	276.35	276.27	276.33	276.32	276.23	276.38	276.42	276.38	276.24	276.25	276.41
5	276.13	276.45	276.39	276.26	276.36	276.38	276.37	276.43	276.40	276.37	276.45	276.51
6	276.18	276.38	276.43	276.29	276.32	276.33	276.36	276.43	276.40	276.50	276.54	276.45
7	276.30	276.36	276.41	276.36	276.32	276.40	276.41	276.39	276.36	276.49	276.50	276.28
8	276.36	276.41	276.31	276.25	276.34	276.48	276.42	276.36	276.37	276.37	276.30	276.24
9	276.34	276.43	276.43	276.30	276.32	276.41	276.40	276.37	276.34	276.21	276.14	276.54
10	276.35	276.38	276.45	276.44	276.46	276.30	276.37	276.38	276.35	276.21	276.35	276.55
11	276.36	276.39	276.40	276.54	276.31	276.41	276.40	276.40	276.40	276.24	276.46	276.42
12	276.38	276.38	276.31	276.52	276.32	276.47	276.47	276.36	276.40	276.47	276.48	276.18
13	276.44	276.12	276.22	276.42	276.44	276.48	276.42	276.38	276.42	276.61	276.43	276.04
14	276.43	276.28	276.25	276.25	276.46	276.41	276.39	276.40	276.48	276.50	276.54	276.29
15	276.27	276.42	276.20	276.25	276.48	276.38	276.42	276.39	276.48	276.44	276.54	276.29
16	276.34	276.36	276.30	276.40	276.50	276.39	276.43	276.39	276.43	276.47	276.48	276.35
17	276.33	276.38	276.42	276.43	276.45	276.42	276.39	276.37	276.40	276.48	276.49	276.38
18	276.38	276.37	276.46	276.32	276.38	276.43	276.34	276.36	276.39	276.38	276.43	276.36
19	276.33	276.31	276.34	276.18	276.35	276.44	276.34	276.34	276.37	276.37	276.38	276.42
20	276.12	276.24	276.38	276.29	276.25	276.45	276.41	276.35	276.33	276.39	276.37	276.48
21	276.26	276.26	276.46	276.38	276.19	276.43	276.39	276.34	276.33	276.46	276.41	276.39
22	276.39	276.22	276.49	276.35	276.13	276.41	276.36	276.41	276.40	276.55	276.35	276.15
23	276.32	276.37	276.42	276.29	276.26	276.36	276.38	276.42	276.48	276.41	276.43	276.30
24	276.21	276.31	276.32	276.47	276.42	276.38	276.39	276.41	276.45	276.41	276.45	276.40
25	276.41	276.48	276.31	276.46	276.35	276.38	276.40	276.34	276.41	276.44	276.37	276.14
26	276.39	276.51	276.29	276.51	276.36	276.38	276.39	276.35	276.41	276.50	276.31	276.42
27	276.14	276.36	276.35	276.47	276.40	276.42	276.38	276.41	276.42	276.50	276.31	276.57
28	276.19	276.36	276.25	276.36	276.38	276.45	276.39	276.42	276.44	276.45	276.42	276.57
29	276.31	276.39	276.26	276.19	276.41	276.45	276.39	276.39	276.44	276.37	276.46	276.49
30	276.36	---	276.28	276.27	276.44	276.42	276.37	276.32	276.45	276.39	276.47	276.46
31	276.37	---	276.43	---	276.40	---	276.37	276.25	---	276.47	---	276.41
Max	276.49	276.51	276.49	276.54	276.50	276.48	276.47	276.43	276.48	276.61	276.54	276.57
Min	276.12	276.10	276.20	276.18	276.13	276.23	276.34	276.25	276.33	276.21	276.14	276.04

Year 2008 Year Totals **Year Max 276.61**
Year Min 276.04


2008 HYDROGRAPH FOR WELL 184W508M
(Map ID 225)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
271
272
273
274
275
276
277
278
279
280
281
5,785
5,784
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Volcanic Aquifer
Reference Elevation: 6,056 ft amsl
Well Depth: 1,160 ft bgs
*Data corrected for remperature

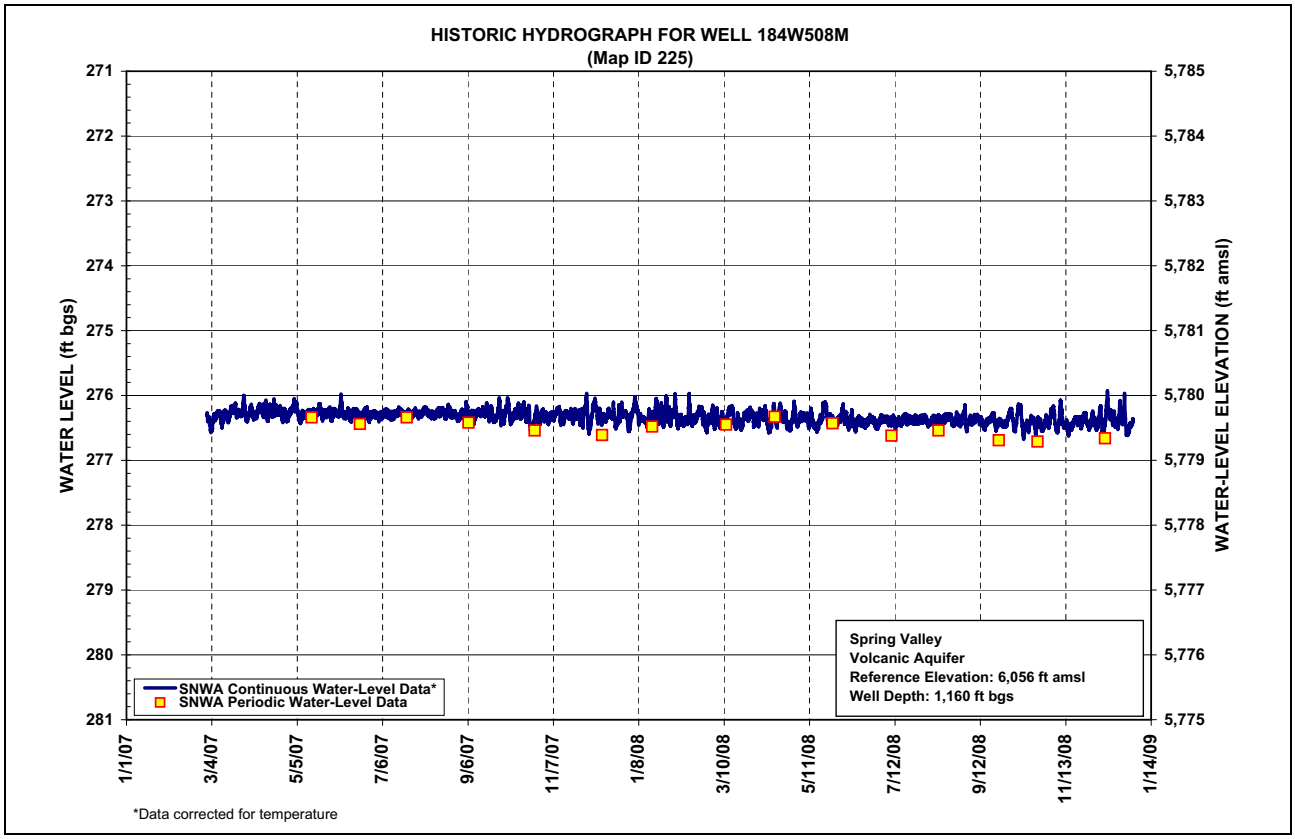
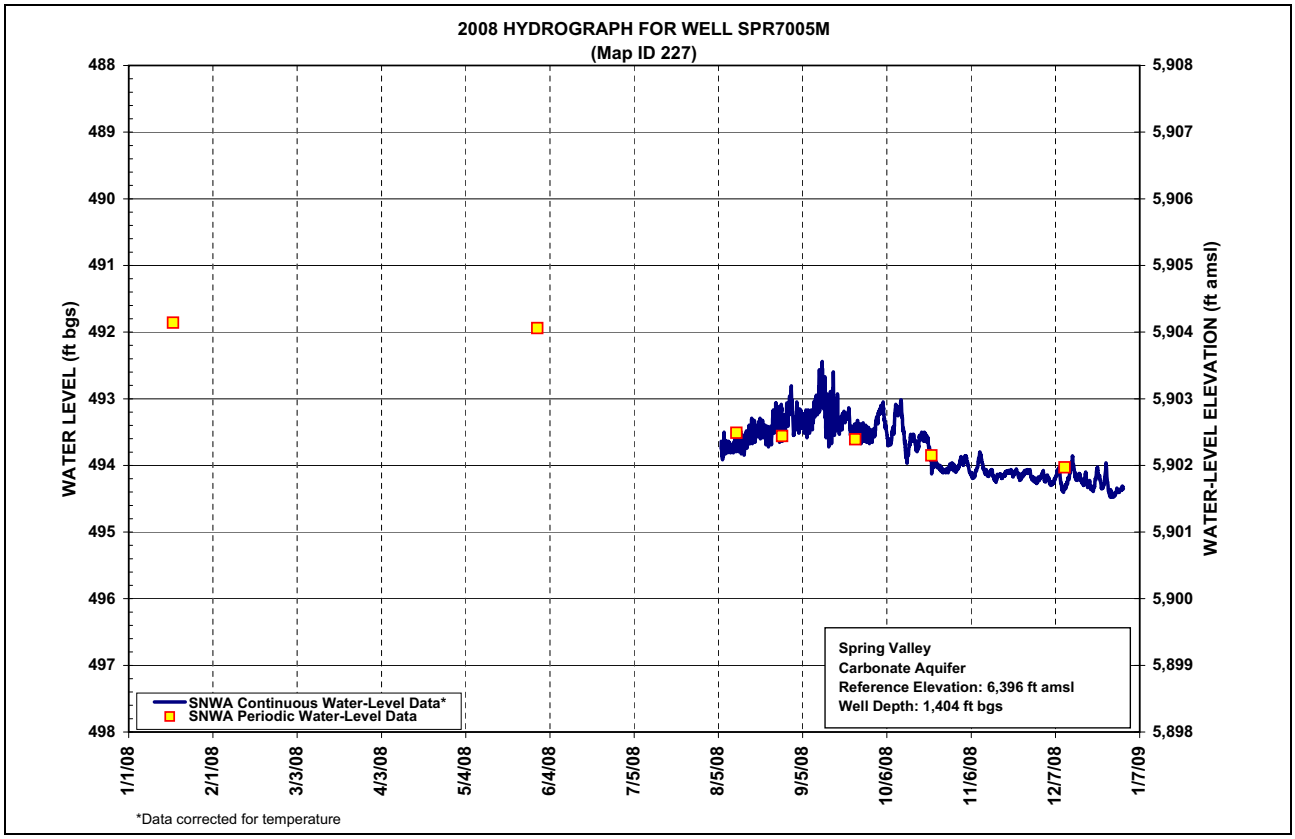
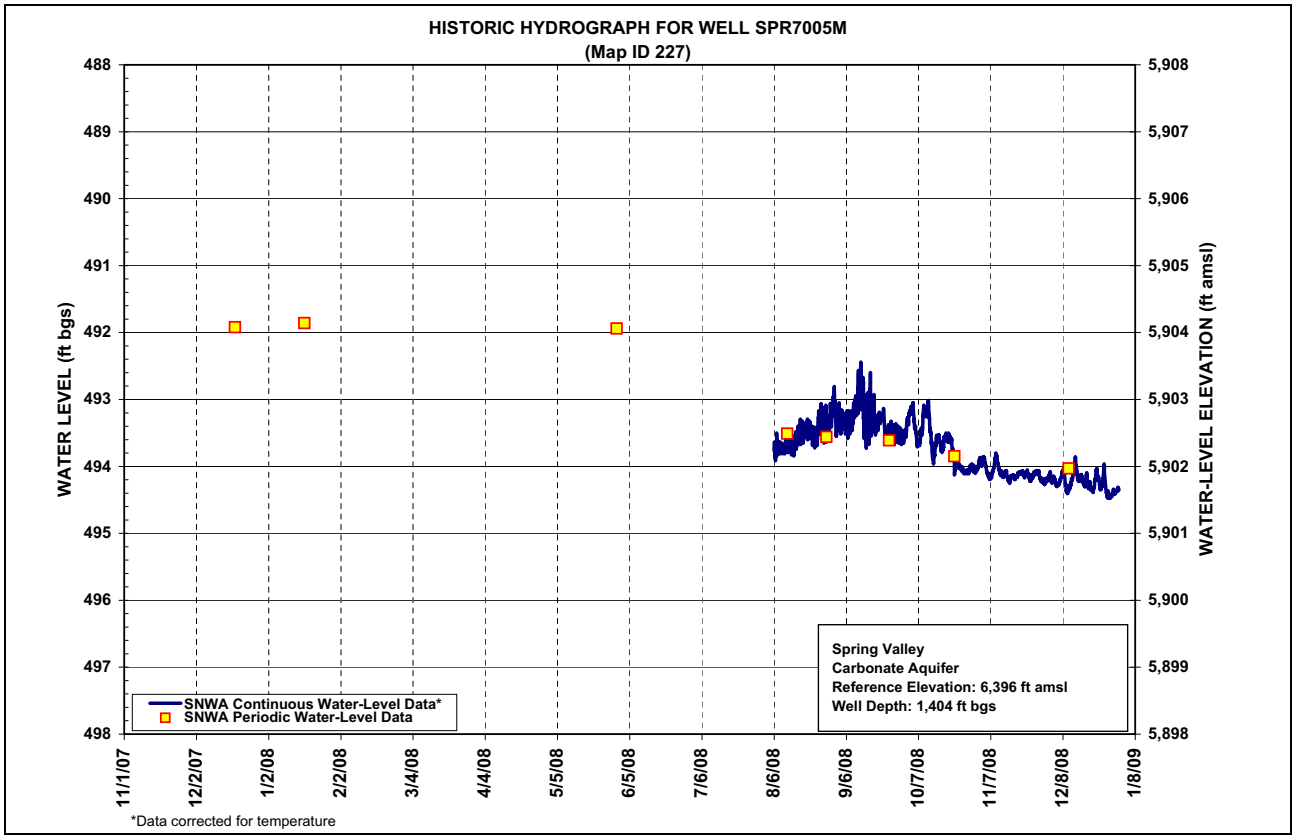

HISTORIC HYDROGRAPH FOR WELL 184W508M
(Map ID 225)
WATER LEVEL (ft bgs)
WATER-LEVEL ELEVATION (ft amsl)
271
272
273
274
275
276
277
278
279
280
281
5,785
5,784
5,783
5,782
5,781
5,780
5,779
5,778
5,777
5,776
5,775
1/1/07
3/4/07
5/5/07
7/6/07
9/6/07
11/7/07
1/8/08
3/10/08
5/11/08
7/12/08
9/12/08
11/13/08
1/14/09
SNWA Continuous Water-Level Data*
SNWA Periodic Water-Level Data
Spring Valley
Volcanic Aquifer
Reference Elevation: 6,056 ft amsl
Well Depth: 1,160 ft bgs
*Data corrected for temperature

Table D-7
Well SPR7005M, Calendar Year 2008
Water-Level Data, Daily Mean Values

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	493.44	492.81	492.95	493.49	493.66
2	---	---	---	---	---	---	---	493.38	492.84	492.78	493.42	493.63
3	---	---	---	---	---	---	---	493.36	492.79	492.66	493.41	493.69
4	---	---	---	---	---	---	---	493.36	492.80	492.62	493.42	493.69
5	---	---	---	---	---	---	---	493.23	492.83	492.90	493.58	493.76
6	---	---	---	---	---	---	---	493.29	492.83	493.12	493.64	493.72
7	---	---	---	---	---	---	---	493.20	492.82	493.12	493.61	493.61
8	---	---	---	---	---	---	---	493.20	492.76	492.90	493.46	493.60
9	---	---	---	---	---	---	---	493.22	492.60	492.62	493.34	493.83
10	---	---	---	---	---	---	---	493.21	492.52	492.66	493.52	493.82
11	---	---	---	---	---	---	---	493.15	492.45	492.70	493.60	493.73
12	---	---	---	---	---	---	---	493.12	492.41	493.12	493.61	493.56
13	---	---	---	---	---	---	---	493.15	492.57	493.35	493.58	493.45
14	---	---	---	---	---	---	---	493.18	492.76	493.13	493.68	493.66
15	---	---	---	---	---	---	---	493.11	492.82	493.07	493.67	493.65
16	---	---	---	---	---	---	---	493.05	492.70	493.17	493.63	493.71
17	---	---	---	---	---	---	---	492.99	492.68	493.20	493.66	493.72
18	---	---	---	---	---	---	---	493.01	492.86	493.05	493.61	493.71
19	---	---	---	---	---	---	---	492.97	492.80	493.05	493.59	493.77
20	---	---	---	---	---	---	---	492.95	492.74	493.08	493.58	493.83
21	---	---	---	---	---	---	---	492.94	492.73	493.21	493.62	493.75
22	---	---	---	---	---	---	---	493.05	492.87	493.48	493.58	493.58
23	---	---	---	---	---	---	493.93	493.05	492.98	493.45	493.65	493.72
24	---	---	---	---	---	---	493.90	492.99	492.96	493.48	493.66	493.79
25	---	---	---	---	---	---	493.84	492.80	492.95	493.52	493.60	493.59
26	---	---	---	---	---	---	493.79	492.79	493.00	493.57	493.57	493.83
27	---	---	---	---	---	---	493.69	492.84	492.99	493.58	493.58	493.92
28	---	---	---	---	---	---	493.64	492.89	493.01	493.55	493.67	493.93
29	---	---	---	---	---	---	493.59	492.87	493.02	493.49	493.71	493.87
30	---	---	---	---	---	---	493.54	492.72	493.03	493.50	493.72	493.87
31	---	---	---	---	---	---	493.50	492.47	---	493.55	---	493.83
Max	---	---	---	---	---	---	493.93	493.44	493.03	493.58	493.72	493.93
Min	---	---	---	---	---	---	493.50	492.47	492.41	492.62	493.34	493.45

Year 2008 Year Totals **Year Max 493.93**
Year Min 492.41


2008 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
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
1/7/09
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 corrected for temperature


HISTORIC 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
11/1/07
12/2/07
1/2/08
2/2/08
3/4/08
4/4/08
5/5/08
6/5/08
7/6/08
8/6/08
9/6/08
10/7/08
11/7/08
12/8/08
1/8/09
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 corrected for temperature

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Appendix E

Spring Monitoring Program Hydrologic and Field-Chemistry Data

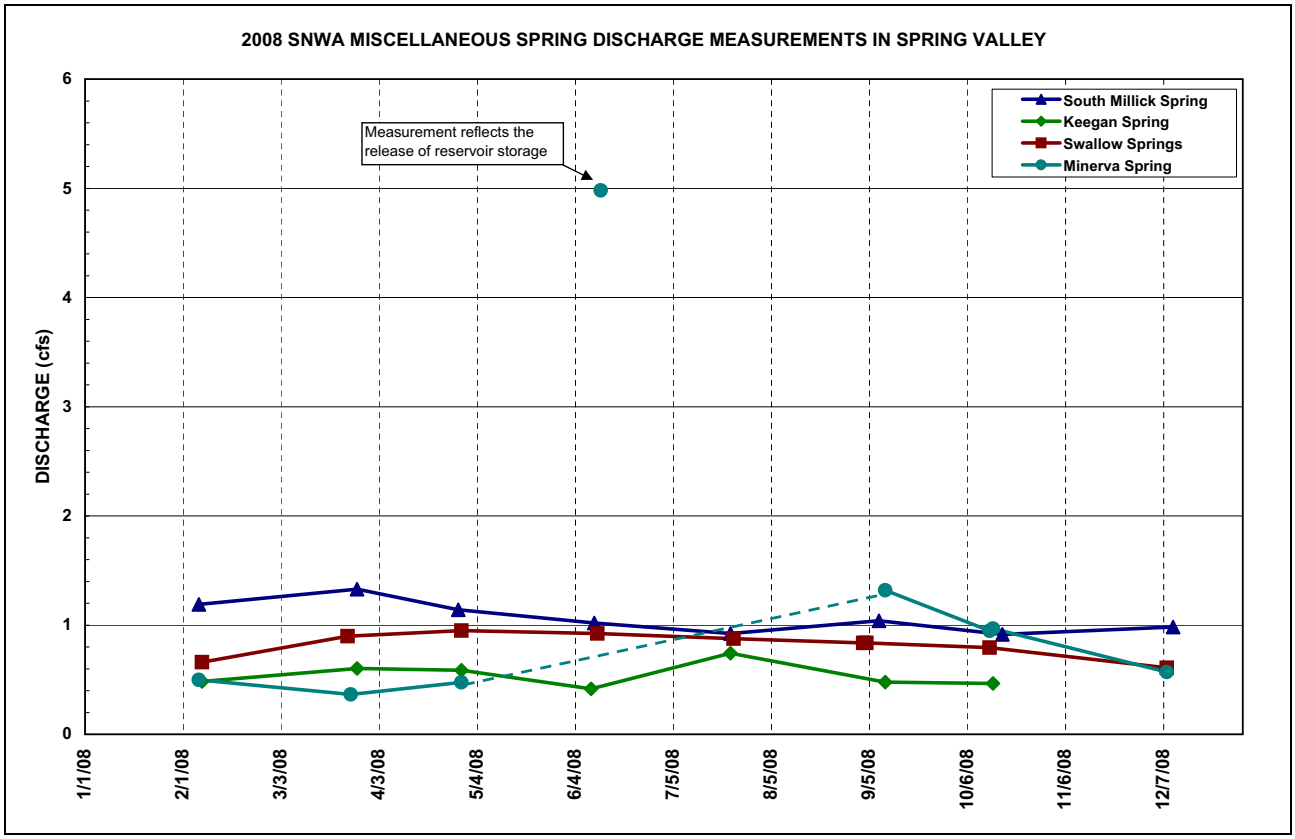
Table E-1
Spring Valley Miscellaneous Data
(Page 1 of 2)

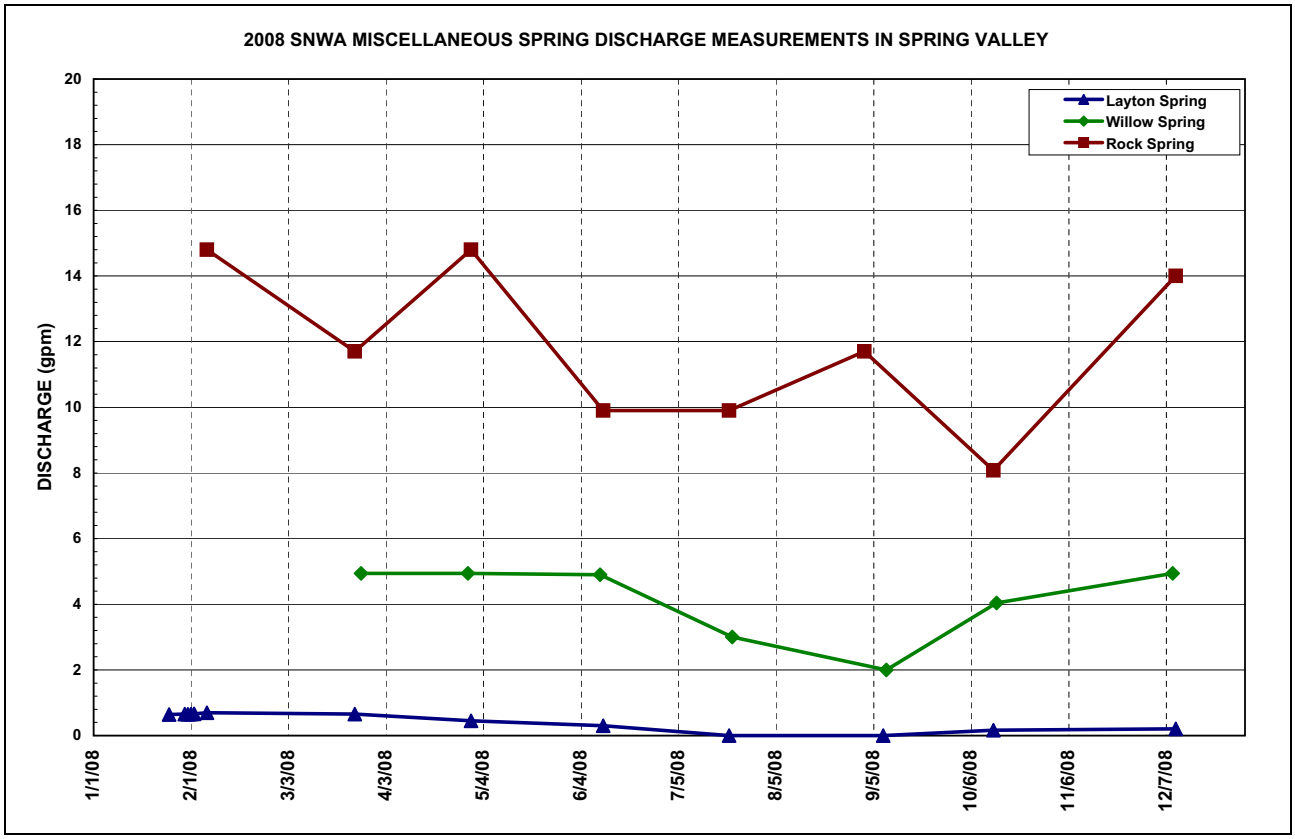
Spring Number	Spring Name	Date	Time	Discharge (gpm)	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Water Temp. (°C)	Electrical Conductivity	pH	Remarks	Data Source
1846201	Swallow Springs	2/7/2008	11:50	296.2	0.66	F	---	11.6	353	8.14	Sum of all channels	SNWA
		3/24/2008	14:30	403.5	0.899	P	---	11.5	341	8	Sum of all channels	SNWA
		4/29/2008	13:00	426	0.949	F	---	11.4	390	8.1	Sum of all channels	SNWA
		6/11/2008	17:20	414	0.923	G	---	8.9	359	7.91	Sum of all channels	SNWA
		7/24/2008	9:15	393	0.875	P	---	11.5	300	7.88	Sum of all channels	SNWA
		9/3/2008	13:10	375	0.836	F	---	10.4	381	7.92	Sum of all channels	SNWA
		9/4/2008	12:53	376	0.837	F	---	10.4	381	7.92	Sum of all channels	SNWA
		10/13/2008	15:12	356	0.793	F	---	12.8	318	7.79	Sum of all channels	SNWA
		12/8/2008	15:23	273	0.609	P	---	---	---	---	Sum of all channels	SNWA
1847201	Minerva Spring	2/6/2008	9:00	223.3	0.498	G	---	9.8	345	7.7	Sum of all channels	SNWA
		3/25/2008	9:12	163.8	0.365	F	---	---	---	---	Sum of all channels	SNWA
		4/29/2008	9:22	213	0.475	F	---	11.6	288	7.32	Sum of all channels	SNWA
		6/12/2008	8:59	2,230	4.98	P	C	13.6	328	8.06	Sum of all channels	SNWA
		9/10/2008	14:46	592	1.32	P	O	19	323	8.82	Sum of all channels	SNWA
		10/13/2008	14:22	425	0.947	P	---	13.2	270	7.35	Sum of all channels	SNWA
		10/14/2008	14:25	434	0.968	P	C	6.2	332	7.48	Sum of all channels	SNWA
		12/8/2008	13:40	256	0.57	P	---	8.7	303	8.31	Sum of all channels	SNWA
1845901	Layton Spring	1/25/2008	8:12	0.639	0.001	E	V	---	---	---	---	SNWA
		1/30/2008	12:21	0.658	0.002	E	V	---	---	---	---	SNWA
		1/31/2008	11:49	0.648	0.001	E	V	---	---	---	---	SNWA
		2/1/2008	11:53	0.653	0.002	E	V	---	---	---	---	SNWA
		2/6/2008	8:40	0.693	0.002	E	V	---	---	---	---	SNWA
		3/24/2008	14:40	0.652	0.002	E	V	9.3	321	8.09	---	SNWA
		4/30/2008	13:27	0.449	0.001	E	V	13.2	328	8.81	---	SNWA
		6/11/2008	17:16	0.3	0.001	E	V	15.2	310	---	---	SNWA
		7/21/2008	14:54	0	0	E	---	---	---	---	Dry	SNWA
		9/8/2008	16:55	0	0	E	---	---	---	---	Dry	SNWA
		10/13/2008	16:18	0.162	0.001	G	V	11.1	304	8.24	---	SNWA
		12/10/2008	8:50	0.203	0.001	G	V	---	---	---	---	SNWA

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

Spring Number	Spring Name	Date	Time	Discharge (gpm)	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Water Temp. (°C)	Electrical Conductivity	pH	Remarks	Data Source
1845702	South Millick Spring	2/6/2008	11:15	534.1	1.19	P	C	12.3	412	7.44	---	SNWA
		3/27/2008	11:16	596.9	1.33	P	C	13.4	448	7.77	---	SNWA
		4/28/2008	15:42	511.7	1.14	F	C	15.8	455	---	---	SNWA
		6/10/2008	12:20	458	1.02	F	C	16.6	463	7.72	---	SNWA
		7/23/2008	9:40	415	0.924	P	C	15	429	7.7	---	SNWA
		9/8/2008	15:00	467	1.04	P	C	17.6	309	8.44	---	SNWA
		10/17/2008	10:08	411	0.915	P	C	11.6	496	7.75	---	SNWA
		12/10/2008	15:18	441	0.983	P	C	11	373	8.39	---	SNWA
1847101	Keegan Spring	2/7/2008	9:35	217.7	0.485	P	C	8.4	93.5	7.5	---	SNWA
		3/27/2008	14:45	270.6	0.603	P	C	---	77	7.2	---	SNWA
		4/29/2008	16:45	263	0.586	P	C	15.1	75.5	8.1	---	SNWA
		6/9/2008	17:10	187	0.416	P	C	---	---	---	---	SNWA
		7/23/2008	8:48	333	0.742	P	C	17	117.1	7.7	---	SNWA
		9/10/2008	10:51	214	0.478	P	C	12.5	116.1	7.38	---	SNWA
		10/14/2008	15:15	209	0.465	P	C	13.7	---	7.29	---	SNWA
1845501	Willow Spring	3/26/2008	9:33	4.94	0.011	E	F	10	416	7.91	---	SNWA
		4/29/2008	10:10	4.94	0.011	E	F	15.2	440	7.71	---	SNWA
		6/10/2008	11:12	4.9	0.011	E	F	15.5	440	8.04	---	SNWA
		7/22/2008	9:13	3	0.006	E	F	15.6	414	7.91	---	SNWA
		9/9/2008	12:00	2	0.004	E	F	14.7	438	7.33	---	SNWA
		10/14/2008	9:34	4.04	0.009	G	F	11	481	7.16	---	SNWA
		12/9/2008	9:21	4.94	0.011	E	F	8.6	458	---	---	SNWA
1847301	Rock Spring	2/6/2008	15:47	14.8	0.033	E	F	9.2	646	8.14	---	SNWA
		3/24/2008	17:30	11.7	0.026	E	F	11.7	681	8.19	---	SNWA
		4/30/2008	13:47	14.8	0.033	G	---	15.4	537	8.13	---	SNWA
		6/11/2008	17:38	9.9	0.022	E	F	15.2	654	8.11	---	SNWA
		7/21/2008	15:15	9.9	0.022	E	F	17.8	559	8.15	---	SNWA
		9/2/2008	16:35	11.7	0.026	E	F	15.5	669	7.89	---	SNWA
		10/13/2008	16:55	8.08	0.018	E	F	10.9	---	7.39	---	SNWA
		12/10/2008	9:13	14	0.031	G	F	---	---	---	---	SNWA

[a] Measurement Rating: E = Excellent; G= Good; F = Fair; P = Poor
[b] Measurement Method: C = Current meter; O = Other; V = Volumetric; F = Flume


2008 SNWA MISCELLANEOUS SPRING DISCHARGE MEASUREMENTS IN SPRING VALLEY
DISCHARGE (cfs)
0
1
2
3
4
5
6
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
Measurement reflects the release of reservoir storage
South Millick Spring
Keegan Spring
Swallow Springs
Minerva Spring


2008 SNWA MISCELLANEOUS SPRING DISCHARGE MEASUREMENTS IN SPRING VALLEY
DISCHARGE (gpm)
0
2
4
6
8
10
12
14
16
18
20
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
Layton Spring
Willow Spring
Rock Spring

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Appendix F

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

Table F-1
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]	Remarks	Data Source[c]
1841611	10243700	Cleve Creek near Ely, NV	1/23/2008	9:45	9.31	P	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	2/5/2008	12:45	6.62	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	2/25/2008	15:23	6.57	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	2/25/2008	16:15	6.55	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	3/24/2008	15:50	7.46	G	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	3/26/2008	15:38	8.08	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	4/15/2008	14:43	7.46	F	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	4/28/2008	14:30	8.38	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	5/15/2008	11:22	9.75	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	5/15/2008	12:00	9.92	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	5/23/2008	8:45	13.6	F	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	5/23/2008	9:08	13.3	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	6/11/2008	16:00	8.58	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	7/9/2008	10:57	5.88	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	7/9/2008	11:58	5.66	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	7/23/2008	14:00	5.03	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	8/26/2008	15:20	3.98	F	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	9/8/2008	11:20	4.45	F	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	10/9/2008	8:46	5.43	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	10/16/2008	16:26	5.17	P	C	---	SNWA
1841611	10243700	Cleve Creek near Ely, NV	12/10/2008	13:45	4.9	F	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	12/10/2008	14:20	4.89	G	R	---	USGS-NWIS
1841611	10243700	Cleve Creek near Ely, NV	12/11/2008	9:00	4.41	F	C	---	SNWA

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

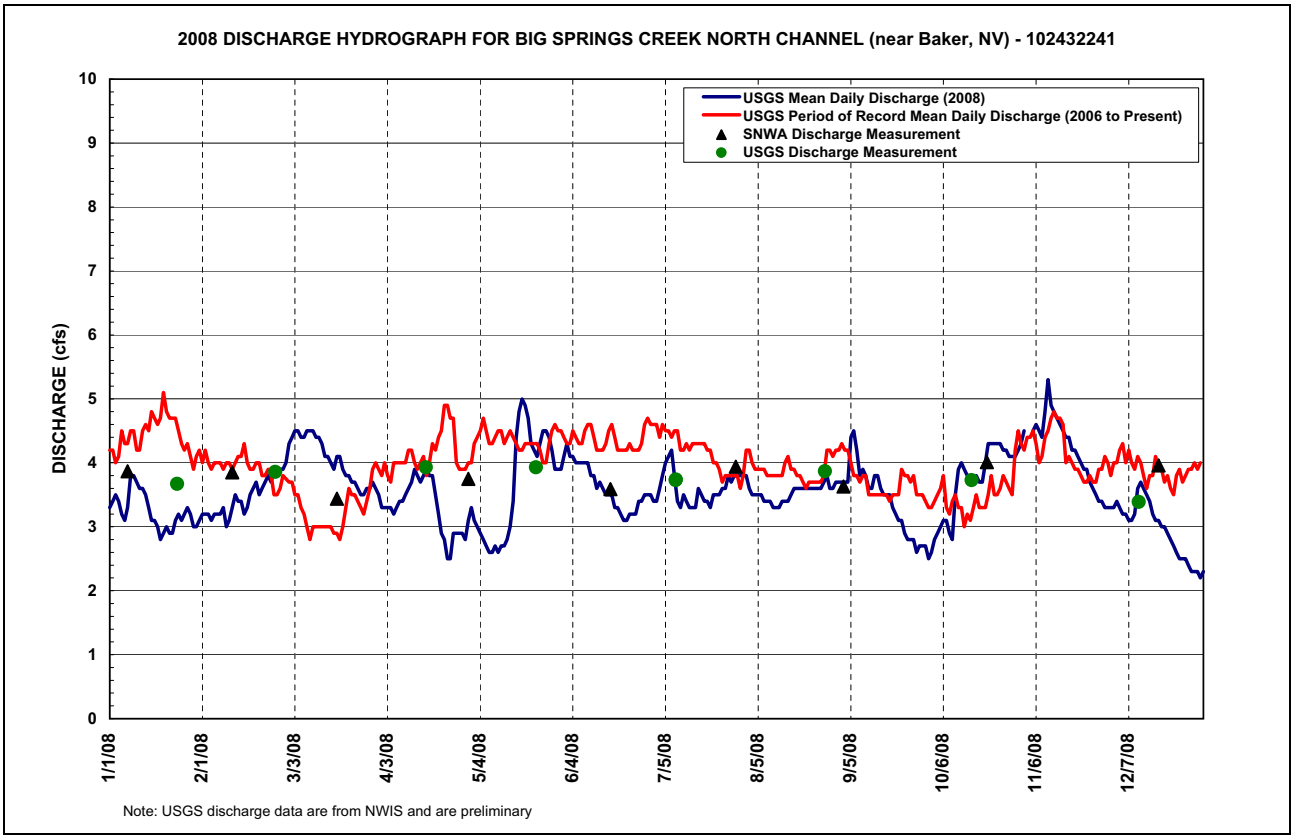
Table F-2
Big Springs Creek near Baker, Nevada (Combined Discharge)
(Page 1 of 2)

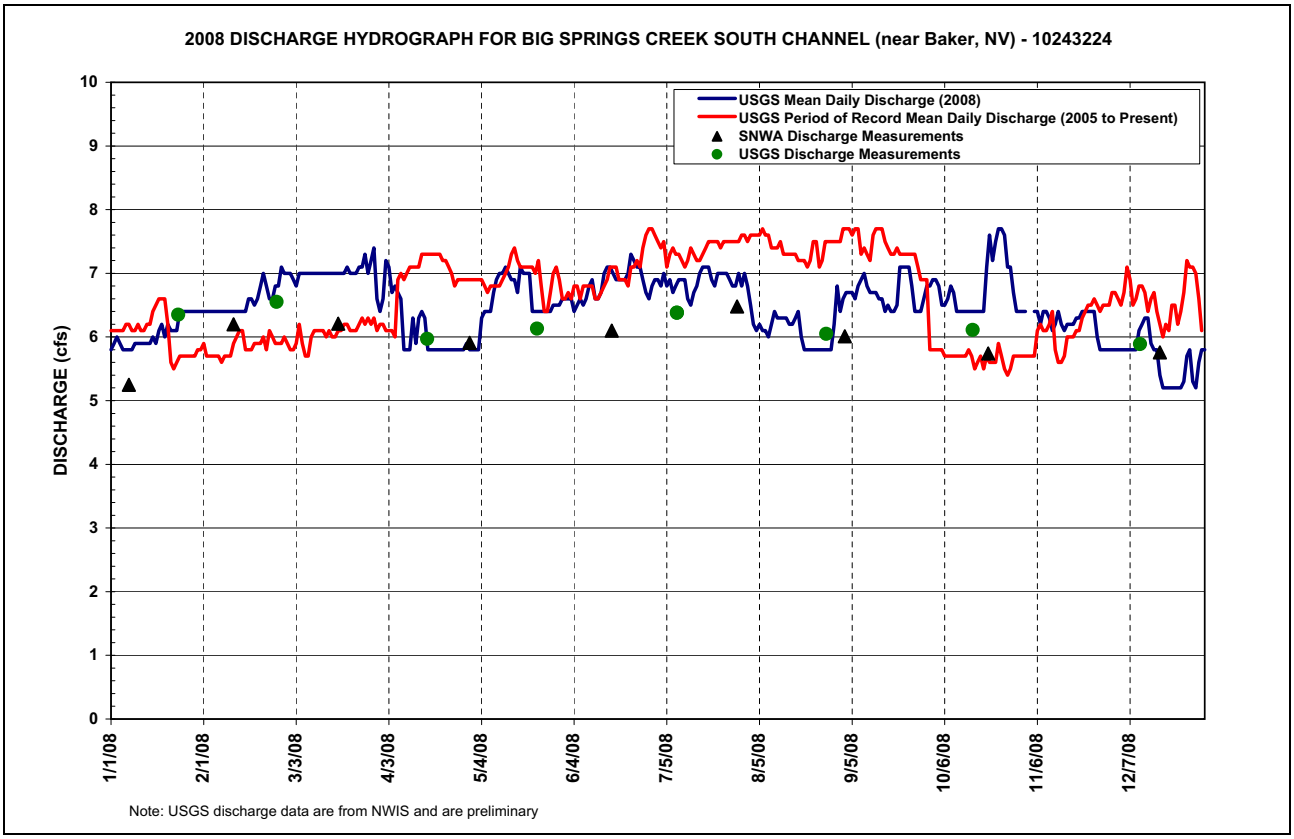
SNWA Station Number	USGS Station Number	Station Name	Date	Time	Discharge (gpm)	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Remarks	Data Source
SNWA Discharge Measurements at Big Springs Creek (Combined Discharge of North and South Channels)										
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	1/7/2008	13:30	4,090	9.12	F	C	South channel Q = 5.25 cfs, North channel Q = 3.87 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	2/11/2008	13:06	4,490	10.0	P	C	South channel Q = 6.20 cfs, North channel Q = 3.85 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	3/17/2008	13:20	4,330	9.65	F	C	South channel Q = 6.21 cfs, North channel Q = 3.44 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	4/30/2008	11:21	4,340	9.66	P	C	South channel Q = 5.91 cfs, North channel Q = 3.75 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	6/16/2008	14:14	4,350	9.69	F	C	South channel Q = 6.10 cfs, North channel Q = 3.59 cfs.	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	7/28/2008	12:25	4,670	10.4	F	C	South channel Q = 6.48 cfs, North channel Q = 3.94cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	9/2/2008	12:33	4,330	9.64	P	C	South channel Q = 6.01 cfs, North channel Q = 3.63 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	10/20/2008	13:15	4,380	9.75	P	C	South channel Q = 5.74 cfs, North channel Q = 4.01 cfs	SNWA
1951901	---	Big Springs Creek near Baker, NV (Combined Discharge)	12/17/2008	14:00	4,360	9.72	P	C	South channel Q = 5.76 cfs, North channel Q = 3.96 cfs	SNWA
USGS Discharge Measurements at Big Springs Creek South Channel										
1951903	10243224	Big Springs Creek South Channel	1/23/2008	12:34	2,850	6.35	F	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	2/25/2008	9:16	2,940	6.55	G	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	4/15/2008	18:47	2,680	5.97	G	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	5/22/2008	14:30	2,750	6.13	G	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	7/8/2008	9:10	2,860	6.38	F	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	7/8/2008	10:04	2,860	6.38	F	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	8/27/2008	9:25	2,720	6.05	F	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	10/15/2008	9:30	2,740	6.11	G	R	---	USGS-NWIS
1951903	10243224	Big Springs Creek South Channel	12/10/2008	9:15	2,640	5.89	F	R	---	USGS-NWIS
USGS Discharge Measurements at Big Springs Creek North Channel										
1951904	102432241	Big Springs Creek North Channel	1/23/2008	13:10	1,650	3.67	F	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	2/25/2008	10:07	1,730	3.86	G	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	4/15/2008	19:21	1,760	3.93	F	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	5/22/2008	15:30	1,760	3.93	F	R	---	USGS-NWIS

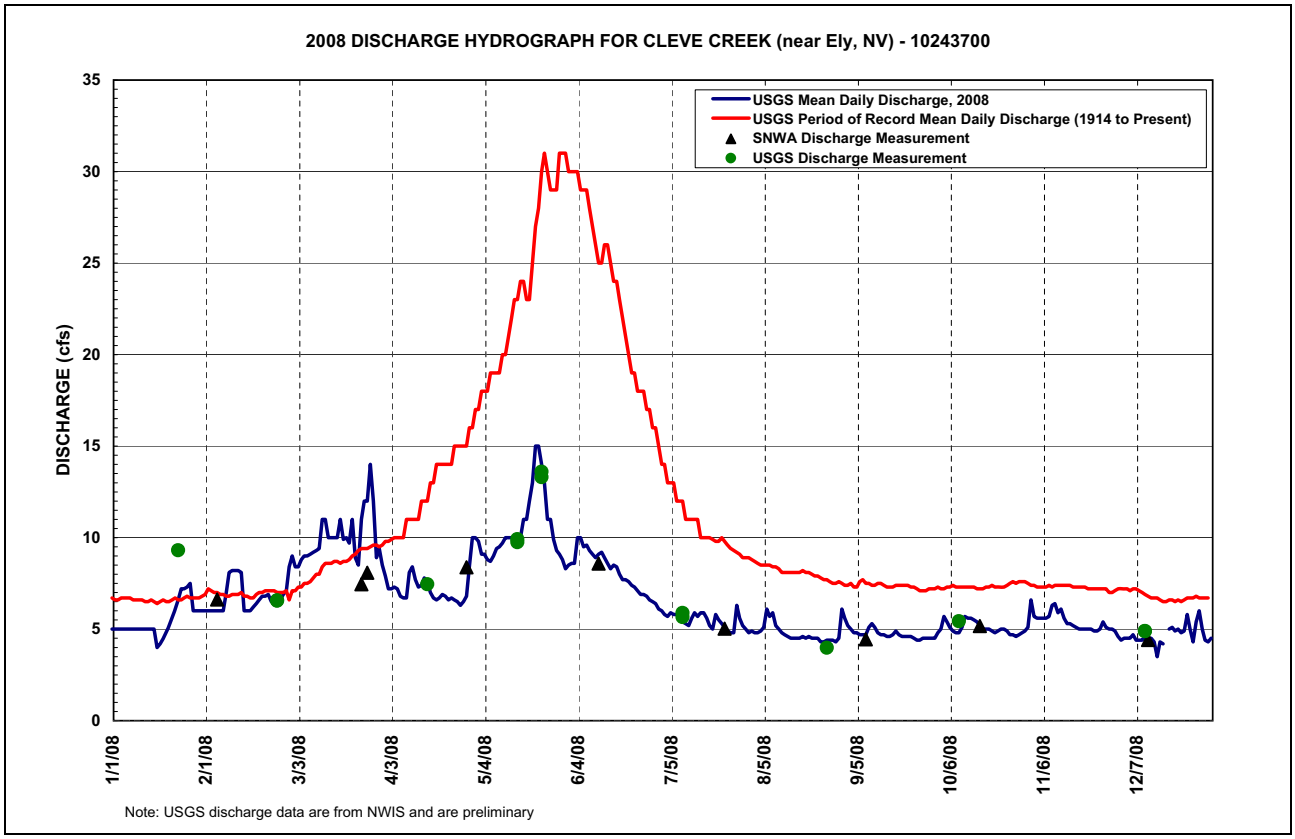
Table F-2
Big Springs Creek near Baker, Nevada (Combined Discharge)
(Page 2 of 2)

SNWA Station Number	USGS Station Number	Station Name	Date	Time	Discharge (gpm)	Discharge (cfs)	Measurement Rated as: (E, G, F, P)[a]	Method[b]	Remarks	Data Source
1951904	102432241	Big Springs Creek North Channel	7/8/2008	9:11	1,670	3.73	G	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	7/8/2008	11:30	1,680	3.74	F	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	8/27/2008	09:30	1,740	3.87	P	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	10/15/2008	10:22	1,670	3.73	P	R	---	USGS-NWIS
1951904	102432241	Big Springs Creek North Channel	12/10/2008	9:22	1,520	3.39	F	R	---	USGS-NWIS

[a]E = Excellent; G = Good; F = Fair; P = Poor
[b]Measurement Method: R=Reported; C = Current meter


2008 DISCHARGE HYDROGRAPH FOR BIG SPRINGS CREEK NORTH CHANNEL (near Baker, NV) - 102432241
USGS Mean Daily Discharge (2008)
USGS Period of Record Mean Daily Discharge (2006 to Present)
SNWA Discharge Measurement
USGS Discharge Measurement
DISCHARGE (cfs)
0
1
2
3
4
5
6
7
8
9
10
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
Note: USGS discharge data are from NWIS and are preliminary


2008 DISCHARGE HYDROGRAPH FOR BIG SPRINGS CREEK SOUTH CHANNEL (near Baker, NV) - 10243224
USGS Mean Daily Discharge (2008)
USGS Period of Record Mean Daily Discharge (2005 to Present)
SNWA Discharge Measurements
USGS Discharge Measurements
DISCHARGE (cfs)
0
1
2
3
4
5
6
7
8
9
10
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
Note: USGS discharge data are from NWIS and are preliminary


2008 DISCHARGE HYDROGRAPH FOR CLEVE CREEK (near Ely, NV) - 10243700
USGS Mean Daily Discharge, 2008
USGS Period of Record Mean Daily Discharge (1914 to Present)
SNWA Discharge Measurement
USGS Discharge Measurement
DISCHARGE (cfs)
35
30
25
20
15
10
5
0
1/1/08
2/1/08
3/3/08
4/3/08
5/4/08
6/4/08
7/5/08
8/5/08
9/5/08
10/6/08
11/6/08
12/7/08
Note: USGS discharge data are from NWIS and are preliminary

References

U.S. Geological Survey, 2008, National Water Information System (NWIS-Web) [Internet]: [accessed March 11, 2008], available at http://waterdata.usgs.gov/nwis/.

Appendix G

2008 Regional and High-Altitude Precipitation Data

Table G-1
2008 Regional Precipitation Data

Station Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Period of Record Statistics (1893 to Present)													
Ely WBO	0.68	0.60	0.14	0.01	0.44	0.33	0.94	0.38	0.47	0.19	1.11a	0.00z	5.29
Mean	0.75	0.79	1.02	1.02	1.11	0.65	0.63	0.78	0.75	0.80	0.68	0.66	9.58
S.D.	0.54	0.65	0.75	0.82	0.91	0.74	0.54	0.69	0.83	0.66	0.53	0.56	2.94
Skew	1.02	1.74	1.33	2.28	0.96	1.78	1.02	0.98	2.36	1.52	0.94	1.57	0.43
Max	2.50	3.75	4.30	5.52	3.55	3.53	2.30	2.85	4.99	3.67	2.40	3.15	17.20
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	85	84	85	86	85	84	85	86	85	85	84	83	74
Period of Record Statistics (1892 to Present)													
McGill	0.84	0.47	0.12	0.01	0.14	0.37	0.17	0.14	0.30	0.26	0.80b	0.00z	3.62
Mean	0.59	0.63	0.75	0.94	1.02	0.76	0.67	0.78	0.66	0.79	0.56	0.57	8.73
S.D.	0.47	0.50	0.54	0.64	0.85	0.87	0.62	0.68	0.79	0.64	0.46	0.50	2.46
Skew	1.42	1.26	1.19	0.80	1.04	1.78	1.24	1.19	2.91	0.99	1.08	1.15	0.72
Max	2.21	2.38	2.54	3.19	3.33	4.30	3.03	3.25	5.57	3.38	1.90	2.10	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	97	98	101	100	99	101	98	99	98	97	99	97	80
Period of Record Statistics (1948 to Present)													
GBNP	2.06a	1.45	0.91c	0.03b	0.78b	0.68	0.41a	2.06a	0.85j	0.22e	0.62f	0.00z	8.60
Mean	1.03	1.12	1.40	1.16	1.24	0.90	0.95	1.19	1.09	1.22	0.99	0.90	13.24
S.D.	0.90	0.81	1.00	0.85	0.99	0.90	0.78	0.92	1.04	0.99	0.86	0.81	3.12
Skew	1.24	0.89	1.14	0.66	1.18	1.44	1.15	1.54	2.15	1.47	0.86	1.47	0.05
Max	3.78	3.59	4.96	3.02	4.74	3.73	3.90	5.10	6.02	5.22	3.40	3.45	21.2
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	57	57	57	59	59	57	60	59	59	60	58	57	52
Period of Record Statistics (1966 to Present)													
Eskdale	0.27	0.33	0.50	0.00	0.13	0.35	0.00	0.35	0.00z	0.00z	0.00z	0.00z	1.93
Mean	0.27	0.41	0.64	0.64	0.65	0.61	0.53	0.55	0.65	0.66	0.37	0.30	6.44
S.D.	0.32	0.47	0.53	0.59	0.70	0.66	0.64	0.53	0.66	0.61	0.35	0.43	2.30
Skew	2.94	2.34	0.85	1.08	2.07	1.14	2.21	1.74	2.27	1.01	0.99	3.84	0.60
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	40	41	39	42	42	43	42	43	40	42	40	39	28

Notes: Provisional Data: A = 1 day missing, b = 2 days missing, c = 3 days, etc; z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.
Maximum Allowable Number of Missing Days: 5
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 G-2
2008 High-Altitude Precipitation Data
(Page 1 of 3)

Station Name	USGS Site ID	Date	Precipitation (in.)	Comments
Mt. Washington	385409114185401	9/29/1983	---	Installed gage
		5/31/1984	21.84	---
		10/11/1984	11.16	---
		6/4/1985	21.6	---
		10/1/1985	4.08	---
		5/22/1986	24	---
		11/4/1986	7.32	---
		5/29/1987	14.28	---
		10/5/1987	3.12	---
		6/29/1988	30.48	---
		10/21/1988	0.24	---
		6/29/1989	15.7	---
		11/2/1989	6.68	---
		7/3/1990	18.7	---
		12/11/1990	9.69	---
		7/11/1991	18.38	---
		10/23/1991	6	---
		5/20/1992	18.32	---
		10/15/1992	5.5	---
		5/26/1993	24.94	---
		10/27/1993	7.06	---
		6/15/1994	17.57	---
		10/24/1994	7.87	---
		7/19/1995	30.08	---
		11/7/1995	2.64	---
		6/28/1996	14.8	---
		10/4/1996	1.12	---
		6/6/1997	19.32	---
		10/7/1997	5.37	---
		6/4/1998	---	Could not reach due to snow
		7/21/1999	62	Precipitation reflects time since Oct-97
		9/15/1999	0	---
		6/29/2000	26.5	---
		10/18/2000	3	---
		7/25/2001	12	---
		10/16/2001	0	---
		6/12/2002	16.25	---
		11/4/2002	5	---
		6/11/2003	16.5	---
		10/16/2003	2.25	---
		6/9/2004	14.5	Main drain a little loose, may have lost some data, bucket isotope sampler found overflowing
		7/12/2005	46	---
		11/2/2005	6	---
		7/5/2006	17.5	---
		7/6/2006	0	---
		10/19/2006	7	---
		6/5/2007	9.75	---
		10/24/2007	2.75	---
		6/5/2008	12.5	Provisional data
		10/15/2008	0	Provisional data

Table G-2
2008 High-Altitude Precipitation Data
(Page 2 of 3)

Station Name	USGS Site ID	Date	Precipitation (in.)	Comments
Cave Mountain	390946114364901	9/20/1983	---	Installed gage
		5/23/1984	21.96	---
		10/3/1984	10.2	---
		6/4/1985	22.32	---
		10/1/1985	0.48	---
		5/28/1986	10.32	Fill plug out, spilled
		10/22/1986	7.92	---
		5/28/1987	11.88	---
		10/4/1987	5.4	---
		6/17/1988	20.7	---
		10/7/1988	3.72	---
		6/6/1989	12.6	---
		10/30/1989	3.7	---
		7/16/1990	14.88	---
		11/28/1990	4.19	---
		5/28/1991	11.31	---
		10/17/1991	9.37	---
		5/19/1992	12.44	---
		10/22/1992	3.98	---
		5/24/1993	18.87	---
		10/22/1993	4.94	---
		6/1/1994	13.62	---
		10/22/1994	4.13	---
		7/26/1995	28.12	---
		10/19/1995	1.12	---
		6/6/1996	14.88	---
		10/8/1996	2.63	---
		6/6/1997	13.81	---
		10/10/1997	14.5	---
		6/3/1998	16.25	---
		10/13/1998	10.75	---
		6/16/1999	17.75	---
		11/9/1999	0	---
		6/26/2000	19	---
		10/16/2000	0	---
		6/19/2001	12	---
		10/2/2001	---	Evaporated??
		6/11/2002	9.25	---
		10/31/2002	7.5	---
		6/12/2003	14	---
		10/18/2003	1.5	---
		7/9/2004	13.25	---
		10/13/2004	5.25	---
		7/20/2005	15.25	---
		11/7/2005	3.25	---
		6/23/2006	18.75	---
		10/19/2006	4.25	---
		6/13/2007	12	---
		10/23/2007	3.75	---
		6/5/2008	8.5	Provisional data
		10/14/2008	4.25	Provisional data

Table G-2
2008 High-Altitude Precipitation Data
(Page 3 of 3)

Station Name	USGS Site ID	Date	Precipitation (in.)	Comments
Unnamed peak NW of Mt. Moriah	391913114143101	9/21/1983	---	Installed gage
		5/24/1984	16.32	---
		10/3/1984	8.04	---
		6/4/1985	14.88	---
		10/1/1985	5.52	---
		5/28/1986	18.36	---
		11/4/1986	6.48	---
		5/28/1987	11.04	---
		10/5/1987	5.28	---
		6/17/1988	14.04	---
		10/7/1988	3.06	---
		6/5/1989	9.54	---
		10/30/1989	3.96	---
		7/16/1990	15.36	---
		11/28/1990	4.5	Broken tube at 57.5
		5/28/1991	8.44	---
		10/17/1991	8.37	---
		5/19/1992	9.81	---
		10/22/1992	2.62	---
		5/24/1993	15.29	---
		10/22/1993	5.69	---
		6/1/1994	11.06	---
		10/19/1994	3.13	---
		7/26/1995	20.63	---
		10/19/1995	0.93	---
		6/6/1996	11.26	---
		10/8/1996	2.49	---
		6/6/1997	15	---
		10/10/1997	6.25	---
		6/3/1998	15.75	---
		10/13/1998	6.75	---
		6/16/1999	17.25	---
		6/26/2000	8.5	Reflects precipitation since June 1999
		10/16/2000	0	---
		6/19/2001	6	---
		10/2/2001	---	Evaporated??
		6/26/2002	---	Could not find gage
		10/31/2002	---	Evaporation, reflects two years
		6/12/2003	5.75	---
		10/17/2003	4.25	---
		7/9/2004	14	---
		10/12/2004	3.75	---
		7/20/2005	22	---
		11/7/2005	6.5	---
		6/23/2006	11.75	---
		10/19/2006	3.5	---
		6/13/2007	10.75	---
		10/23/2007	1.25	---
		6/5/2008	9.5	Provisional data
		10/14/2008	3.5	Provisional data