Letter Report

Stable Isotope Evaluation of Water Budgets for the White River and Meadow Valley Wash Regional Groundwater Flow Systems in East-Central and Southeastern Nevada

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November 2007

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EXECUTIVE SUMMARY

- Stable isotope mass-balance models were developed to evaluate water budgets and interbasin flow for the White River and Meadow Valley Wash regional groundwater flow systems (WRFS and MVWFS, respectively). Water budgets for the regional flow systems are a compilation of recharge and predevelopment evapotranspiration (ET) estimates developed for each valley. Interbasin flow out of a valley is the amount of recharge to a valley plus any groundwater inflow to a valley that exceeds groundwater removed by ET. Three water budgets were evaluated using two different models. The three water budgets that were evaluated are the SNWA (2007), SNWA/BARCAS (SNWA, 2007; Welch and Bright, 2007), and Reconnaissance Report Series water budgets. Interbasin flow routing is based on geologic and hydrologic information (SNWA, 2007) for the SNWA (2007) and SNWA/BARCAS water budget evaluations and is from Eakin (1966) for the WRFS for the Reconnaissance Report Series water budget evaluations.

- Two isotope mass-balance models were used to evaluate the three water budgets. In the first model, groundwater ET is satisfied by a mixture of local recharge with interbasin flow entering a valley (if there is any interbasin flow entering the valley). In the second model, groundwater ET is initially satisfied by local recharge and if ET in a valley exceeds local recharge, the remainder of the ET is satisfied by interbasin flow. The isotopic mass-balance models use average deuterium and oxygen-18 values for recharge and discharge areas to evaluate how closely recharge and ET estimates in the WRFS and MVWFS match measured isotopic values for regional warm (>20 ^{o}C) spring discharge areas, small (< 50 afy) warm springs, and consolidated rock and alluvial wells with warm water.

- Both isotope mass-balance models using the SNWA (2007) water budget and interbasin flow routing have calculated deuterium and oxygen-18 values for all regional warm (>20 ^{o}C) spring areas that are excellent to acceptable matches with measured values, except for oxygen-18 for one model that was 0.01 permil outside the acceptable range. Furthermore, the mass-balance models have excellent to acceptable matches for calculated values as compared to measured values for all small warm springs and most wells with warm water. Thus, the SNWA (2007) water budget and interbasin flow routing for the WRFS and the MVWFS produce the best isotope mass-balance model results of the three water budgets evaluated and the model results show the water budget is reasonable for these flow systems. The mass-balance models using the SNWA/BARCAS water budget gave similar, but not quite as good, results as the SNWA water budget (two calculated deuterium values, not in the acceptable range for matching measured values of regional warm springs).

- Neither of the stable isotope mass-balance models using the Reconnaissance Report Series water budget for the WRFS and the MVWFS and Eakin (1966) interbasin flow routing for the WRFS produced realistic results. Thus, the Reconnaissance Report Series recharge and ET estimates are not in balance for the WRFS and MWVFS.

- Isotopic variability for six recharge area monitoring springs within the study area was relatively small with standard deviations of deuterium and oxygen-18 data ranging from 0.7 to 1.6 permil and 0.06 to 0.33 permil, respectively. This range in standard deviation for these six sites is for samples taken quarterly throughout all four seasons with four of the six sites having more than three years of data. The isotopic composition of these springs varied little from season to season as spring flow varied a lot, ranging from about 100 to 2,500 gallons per minute during sample collection, and exceeding 5,000 gallons per minute at peak flow, at the largest discharging monitoring spring. This small amount of isotopic variability of recharge area springs is important for isotopic mass-balance models because this information indicates that the isotopic composition of recharge area groundwater varies little over time.

- Isotopic variability of 12 regional warm springs in the study area was relatively small with the standard deviation of deuterium and oxygen-18 data ranging from 0.5 to 1.9 permil for deuterium and 0.05 to 0.22 (except for one site with a standard deviation of 0.67) permil for oxygen-18. This range in values is for samples taken throughout all four seasons, with some regional warm spring data spanning almost 40 years and a significant number of springs having data that span 20 to 25 years. This lack of isotopic variability of regional warm springs is important for isotopic mass-balance models because this information indicates that the isotopic composition of regional groundwater varies little over time.
- Five recharge areas throughout the study area with 14, or more, springs showed that there was no relationship between stable isotope values and increasing altitude. This is important because the average isotopic composition of all sites in a recharge area could be used to assign average isotopic values to recharge areas, rather than having to use an altitude-precipitation weighting approach.
- Sensitivity analysis was performed on the SNWA (2007) water budget and flow routing mass-balance models by independently increasing or decreasing recharge and ET. The sensitivity analysis showed that when either recharge or ET were increased or decreased by 20 percent, most of the mass-balance model-calculated deuterium and oxygen-18 values were outside the range of acceptable matches for measured values of the Muddy River Springs discharge area. Thus, the SNWA (2007) water budget recharge and ET values balance such that a 20 percent change in either produces unacceptable isotopic mass-balance model results.

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2. Detailed isotope mass-balance models showing: (1) estimates of recharge amounts and their average deuterium and oxygen-18 values; (2) estimates of predevelopment ET amounts and their average deuterium and oxygen-18 values; and (3) all the sites that were used to calculate average deuterium and oxygen-18 values for recharge areas and regional warm spring areas.
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INTRODUCTION

A stable isotope mass-balance model was developed in 2001 to evaluate new groundwater recharge and discharge (predevelopment evapotranspiration [ET])estimates for the White River and Meadow Valley Wash regional groundwater flow systems that drain to the Colorado River (Thomas *et al*., 2001). This report is an update of the Thomas *et al*. (2001) study to evaluate water budgets and regional groundwater flow in eastern and southeastern Nevada. This study includes a significant amount of new data (about 450 new analyses) to help define the isotopic content of groundwater recharge areas both spatially and temporally, new recharge and discharge estimates (SNWA, 2007; Welch and Bright; 2007), and new geologic and hydrologic information (SNWA, 2007) that helps define interbasin groundwater flow routing. The 2001 study only presented one model for new recharge and discharge estimates. The 2001 model assumed that groundwater discharge in a valley was a mixture of local recharge and interbasin flow(s) entering a valley (if there was interbasin flow to the valley). This study presents two models. The first model is like the 2001 model, where ET is satisfied by a mixture of local recharge and interbasin flow. The second model assumes that ET is first satisfied by local recharge and if ET in a valley is greater than the local recharge, the remainder of the ET is satisfied by interbasin flow. This study also evaluated the reconnaissance report series recharge and ET estimates using the Eakin (1966) interbasin groundwater flow directions for the White River flow system (WRFS) for both models.

This study evaluates the same regional groundwater flow systems as the 2001 study, the WRFS and the Meadow Valley Wash flow system (MVWFS) that end at the Colorado River. In this study, the Lake Mead flow system of the 2001 study is included as part of the WRFS. The flow directions for the Lake Mead flow system, that is now part of the WRFS, are the same as for the 2001 study.

Stable isotopes of water, deuterium ($^{2}H/^{1}H$), and oxygen-18 ($^{18}O/^{16}O$) are ideal natural tracers to evaluate water budgets and interbasin flow. They are ideal natural tracers because they are part of the water molecule, rather than being dissolved in the water like most tracers, so they can be used to identify sources and flow paths of groundwater from recharge areas to discharge areas. Furthermore, deuterium and oxygen-18 concentrations are only affected by physical processes, such as evaporation, and are unchanged by chemical reactions. The ratio of the mass difference of ^{2}H as compared to ^{1}H (2/1) is significantly greater than that of ^{18}O to ^{16}O (18/16), so the fractionation of deuterium is greater than the fractionation of oxygen-18 during physical processes and water that has undergone any significant evaporation is easily identified. Isotopic fractionation is the change in concentration of deuterium and oxygen-18 that results from the mass differences during physical processes. This fractionation is known and can be easily calculated for physical processes.

Study Area Description

The area covered by this project is the White River and Meadow Valley Wash regional groundwater flow systems in east-central and southeastern Nevada (Figure 1). The WRFS extends from Long Valley in the north to Lake Mead in the south (Figure 2). A groundwater hydraulic gradient extends from Long Valley all the way to Lake Mead. In the

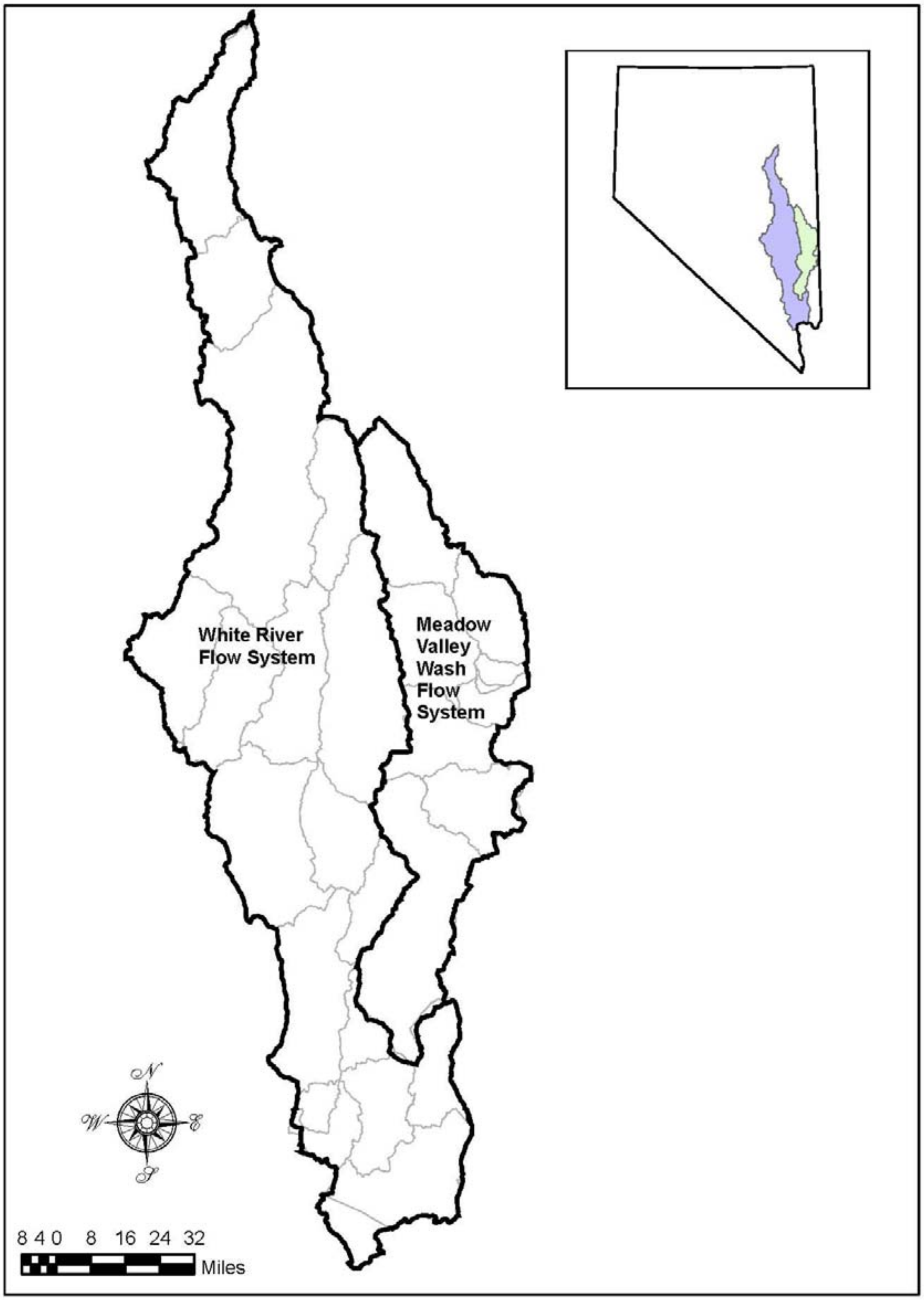

Figure 1. Study area location showing the White River and Meadow Valley Wash regional groundwater flow systems.

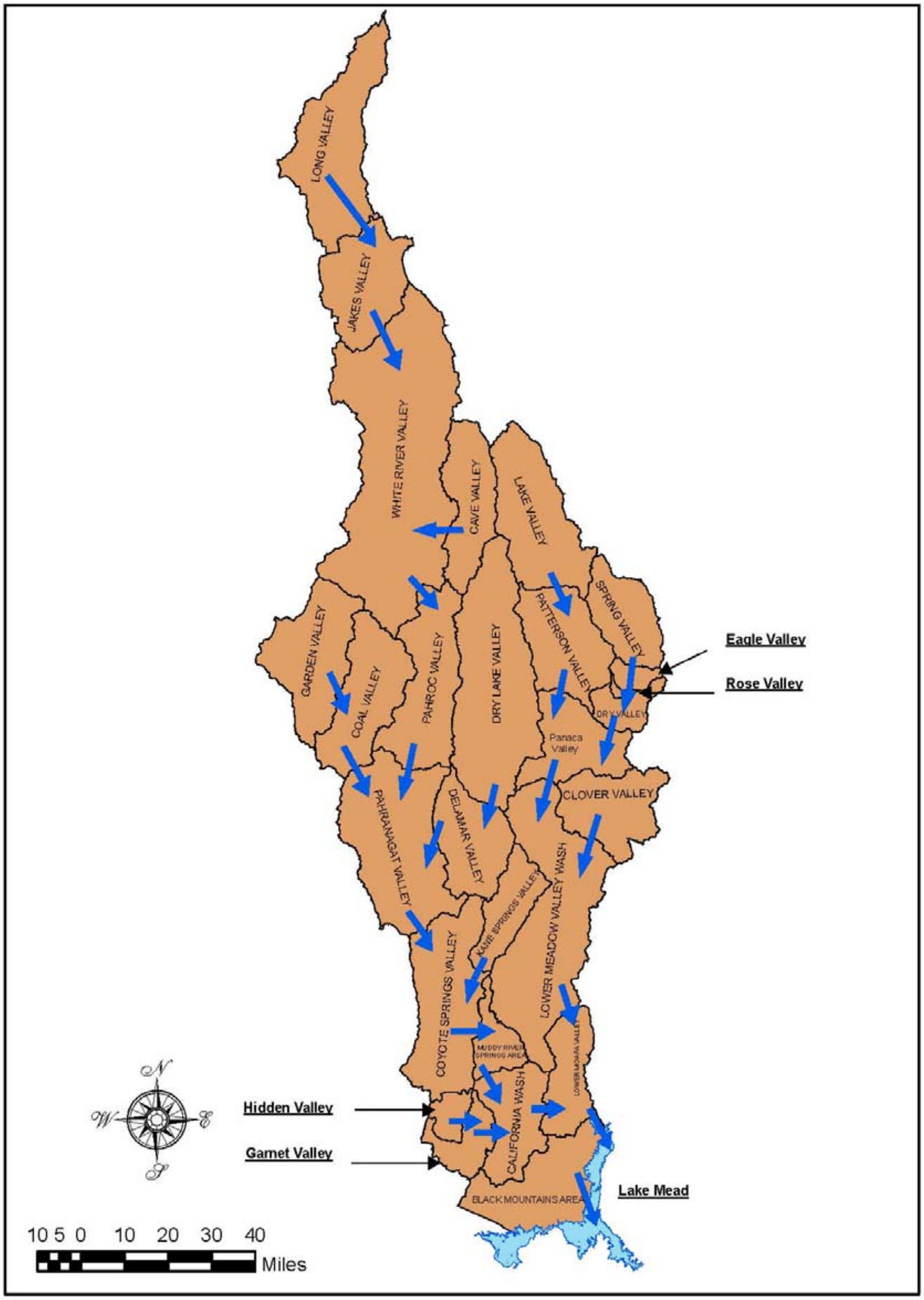

Figure 2. Groundwater flow directions as delineated by SNWA (2007) in the White River and Meadow Valley Wash regional groundwater flow systems.

Thomas *et al*. (2001) report, the Lake Mead part of the regional flow system was treated as a connected but separate flow system, but in this report, it is treated as part of the WRFS. The MVWFS extends from Lake Valley in the north and Spring Valley in the northeast (this Spring Valley is a small valley southeast of Lake Valley and not the large Spring Valley to the north of Lake Valley) to Lower Meadow Valley Wash. Groundwater in Lower Meadow Valley Wash flows to Upper Moapa Valley (Muddy River Springs area) and California Wash of the WRFS. Hydraulic gradients extend from Lake Valley and Spring Valley to Panaca Valley, from Panaca Valley to Lower Meadow Valley Wash, and from Lower Meadow Valley Wash to Upper and Lower Moapa valleys and California Wash (Thomas *et al*., 1986; LVVWD, 2001; SNWA, 2007).

Isotope Data

Most of the data used in the stable isotope mass-balance models were collected by Desert Research Institute (DRI) personnel and analyzed at the University of Nevada, Reno, Isotope Laboratory. Some additional samples were collected by SNWA personnel and these samples were also analyzed at the University of Nevada, Reno, Isotope Laboratory. Historical data used in this project were collected and analyzed by DRI at the DRI Isotope Laboratory in Las Vegas, Nevada, or the U.S. Geological Survey (USGS) at USGS isotope laboratories in Reston, Virginia, and Menlo Park, California.

Stable Isotope Mass-balance Models

The stable isotope mass-balance models developed for this study use the stable isotopes of water (deuterium and oxygen-18) to evaluate water budgets (groundwater recharge and discharge) and interbasin flow. As noted in the Introduction section, these stable isotopes are only subject to physical processes, they are not involved in chemical reactions. The main physical process that can change deuterium and oxygen-18 values in the study area is evaporation. Any groundwater that has undergone significant evaporation is not included in the isotope mass-balance models. A groundwater sample is assumed to have undergone significant evaporation if the deuterium value calculated from the oxygen-18 value of the sample is 10 permil (‰), or more, positive than the measured deuterium value. These samples are easily identified on deuterium versus oxygen-18 plots because they plot below (to the right of) the line “deuterium = 8 x oxygen-18.”

Groundwater budgets are evaluated by determining the average deuterium and oxygen-18 values of mountain block recharge areas in a valley. Valleys in east-central and southeastern Nevada generally have two main recharge areas, a mountain block on the east side and a mountain block on the west side of the valley. However, no matter if there are two, or more then two, recharge areas within a topographic basin (valley) they are treated separately and assigned their own average deuterium and oxygen-18 values. Deuterium and oxygen-18 values are assigned to recharge areas by taking the average stable isotope values of all the springs sampled in a recharge area. If a spring site contains more than one sample, then the average deuterium and oxygen-18 values for the site are used in determining the average stable isotope values of the recharge area.

These recharge area springs are used to represent the isotopic composition of groundwater recharge to a mountain block because they represent an integration of many recharge events and they often integrate recharge over large areas. These springs are great integrators of recharge that is derived from precipitation in mountainous recharge areas because they: (1) average out the variability of individual precipitation events that become groundwater recharge; (2) account for the loss of most of the precipitation that does not become groundwater recharge (such as summer precipitation that seldom reaches the saturated zone and sublimation of the snow pack); (3) average out the seasonality of recharge (see Data Variability section for more details); and (4) represent a larger area than a single measurement point such as a precipitation station.

The stable isotopic composition of groundwater discharging from springs, or in wells on valley floors, can be used to validate the isotope mass-balance models and how well recharge and discharge estimates and volumes of interbasin flow represent water budgets of regional groundwater flow systems. In particular, the isotopic composition of large regional warm (>20^{o}C, which represents an average flow depth of several thousand feet) springs can be used to evaluate water budgets and interbasin flows. These warm springs represent flow from an upgradient basin(s) that flows at depth into the valley containing the warm spring(s). Other data that offer evaluation points for water budgets and interbasin flow are wells completed in consolidated rock that contain warm (>20^{o}C) water from regional groundwater flow. Additional information that can be used to evaluate water budgets in regional flow systems includes springs on valley floors along range front faults that are generally cool (<20^{o}C). This information is used to evaluate mountain block recharge. If the average isotopic composition of springs in a mountainous recharge area represents the isotopic composition of recharge from that mountain block then springs along range-bounding faults should have similar isotopic compositions as the average recharge values determined from springs in the recharge area.

As presented in the Introduction, two isotope mass-balance models were used to evaluate water budgets and interbasin flow in the study area. The first model assumes that all groundwater discharge in a basin (ET; in valleys with spring discharge the spring discharge is included in the ET estimate, except for Upper Moapa Valley, where regional spring discharge leaves the valley as surface-water flow) is a complete mixture of local recharge to the valley and interbasin flow entering the valley. The second model assumes that all ET is first satisfied with local recharge and then any ET greater than local recharge is satisfied with interbasin flow. Finally, in both models, the isotopic composition of groundwater discharging from regional warm springs and wells completed in consolidated rock with warm groundwater is assumed to be interbasin flow into the valley. If a valley receives interbasin flow from more than one upgradient valley, then the calculated isotopic value of the warm spring or well water is the volume-weighted average of the interbasin flows.

DEUTERIUM AND OXYGEN-18 VARIABILITY

An important consideration in using deuterium and oxygen-18 to evaluate water budgets is their natural variability. This variability includes the spatial distribution of stable isotope values of springs in mountain block recharge areas, potential variability with altitude in recharge areas, and variability of recharge area spring isotopic values over time and with varying spring flows. Additionally, the isotopic variability of regional warm springs over time also needs to be considered. Ideally, isotopic variability will be small so that isotope mass-balance model solutions do not have a large uncertainty associated with them. Since the Thomas *et al*. (2001) study, about 450 samples have been collected and analyzed for stable isotopes and major-ion chemistry to evaluate the isotopic variability of recharge area groundwaters and regional warm springs.

Recharge Area Isotopic Variability

A large amount of isotopic data has been collected in recharge areas during this study (Appendix 3). Three springs in major recharge areas of the WRFS and MVWFS (Monitoring Spring WR1 in the White Pine Range, Upper Terrace Spring WR2 in the Egan Range, and Patterson Pass Spring WR3 in the Schell Creek Range) have been continuously monitored for flow, water temperature, and electrical conductance and sampled quarterly for deuterium, oxygen-18, pH, and major-ion chemistry from October 2003 to the present. In addition, one recharge area spring (Headwaters Spring WR5 in the Wilson Creek Range) has been monitored and sampled from May 2004 to the present, one recharge area spring (Upper Riggs Spring WR4 in the Delamar Mountains) was monitored and sampled from April 2004 to February 2005 until the monitoring site was destroyed by a flood, and the Upper Riggs Spring monitoring site was moved to Grapevine Spring KSV-2 in the adjacent Meadow Valley Mountains, and this spring was monitored from April 2005 to May 2007. Numerous recharge area springs were also sampled for stable isotopes and major-ion chemistry to provide information for recharge areas that had little or no isotopic data in the Thomas *et al*. (2001) study and to provide more data for all mountainous recharge areas throughout the study area.

Continuous flow and quarterly deuterium data for recharge area monitoring springs are shown in Figures 3 through 6 (oxygen-18 is not shown on the plots because it is strongly correlated with deuterium and follows the same trend as deuterium). As is observed in all plots, the deuterium composition of the springs varies little with change in flow or season. For example, deuterium in Monitoring Spring WR1 in the White Pine Range only varies between -115.7 and -111.2‰ for a range in flow of about 100 to 2,500 gallons per minute and for the time period October 2003 to May 2007 (Figure 3 and Table 1). Oxygen-18 for these same samples varies between -15.69 and -15.32‰. During this period 14 samples were collected with an average deuterium value of -113.7‰ and a standard deviation of 1.3‰ and an average oxygen-18 value of -15.58‰ with a standard deviation of 0.11‰ (Table 1). A similar pattern is observed for the other five recharge area monitoring springs in the study area (Figures 4 through 6 and Table 1). Table 1 presents a summary of the data in Figures 3 through 6 and data for the shorter records at Upper Riggs Spring WR4 in the Delamar Range and Grapevine Spring (KSV-2) in the Meadow Valley Mountains, with minimum, maximum, median, mean, and standard deviation values for the isotopic data for all six recharge area monitoring sites. The greatest range in deuterium values for all six sites is 5.4‰ for the Headwaters Spring site in the Wilson Creek Range for 17 samples from May 2004 to May 2007, and the smallest range is 1.8‰ for 5 samples from January 2004 to February 2005 for the Upper Riggs site (Table 1). The standard deviation of the spring deuterium data is about 1‰, with the highest standard deviation being 1.6 for Headwaters Spring and the lowest being 0.7 for Upper Riggs Spring. Oxygen-18 follows a similar pattern, with the standard deviation ranging from 0.06 to 0.33‰ for the six recharge area monitoring sites (Table 1).

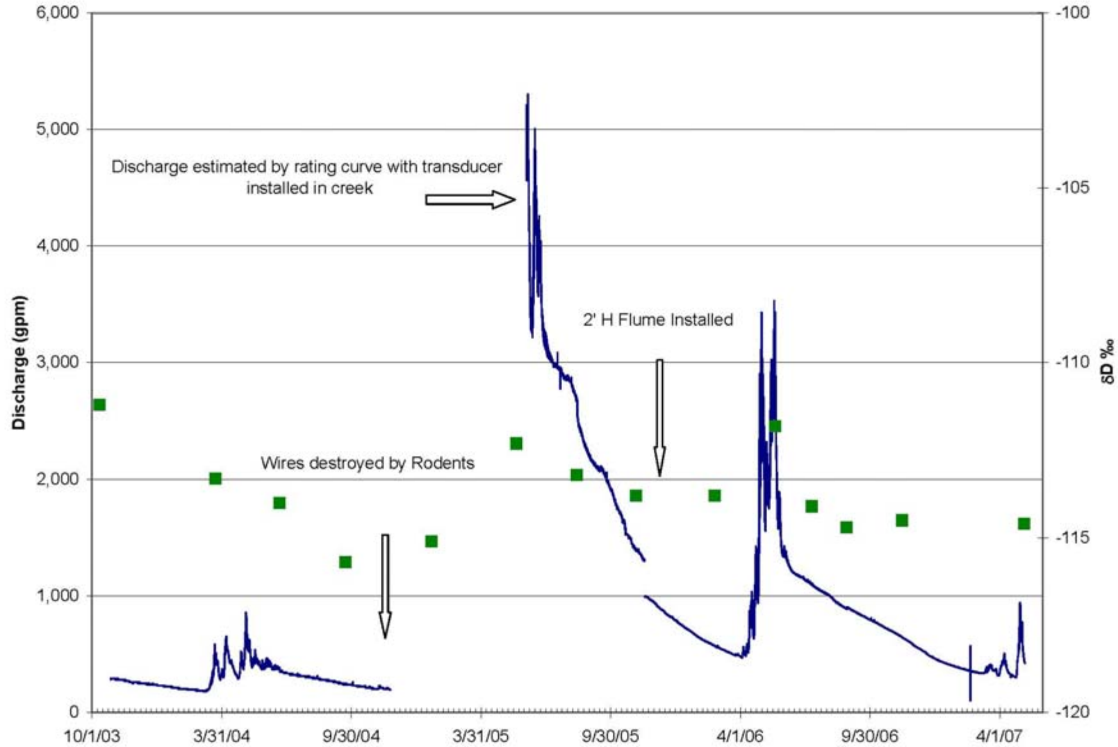

Figure 3. Deuterium and flow data for Monitoring Spring WR1 in the White Pine Range in northwestern White River Valley.

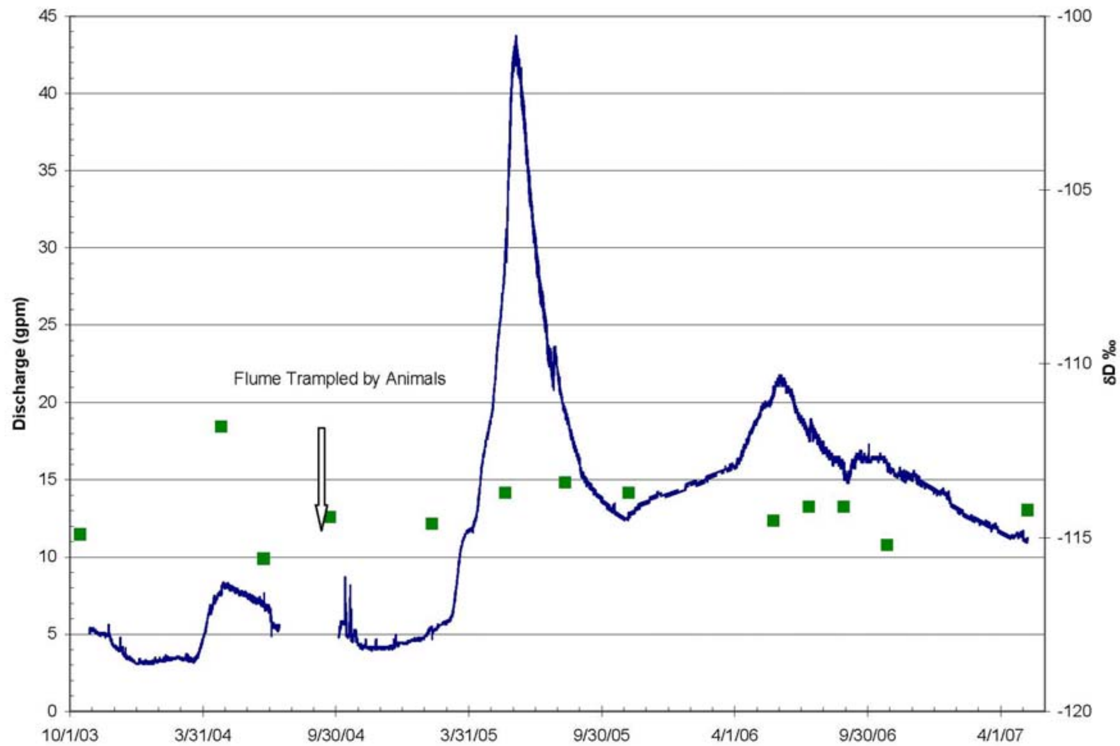

Figure 4. Deuterium and flow data for Upper Terrace Spring WR2 in the Egan Range in northeastern White River Valley.

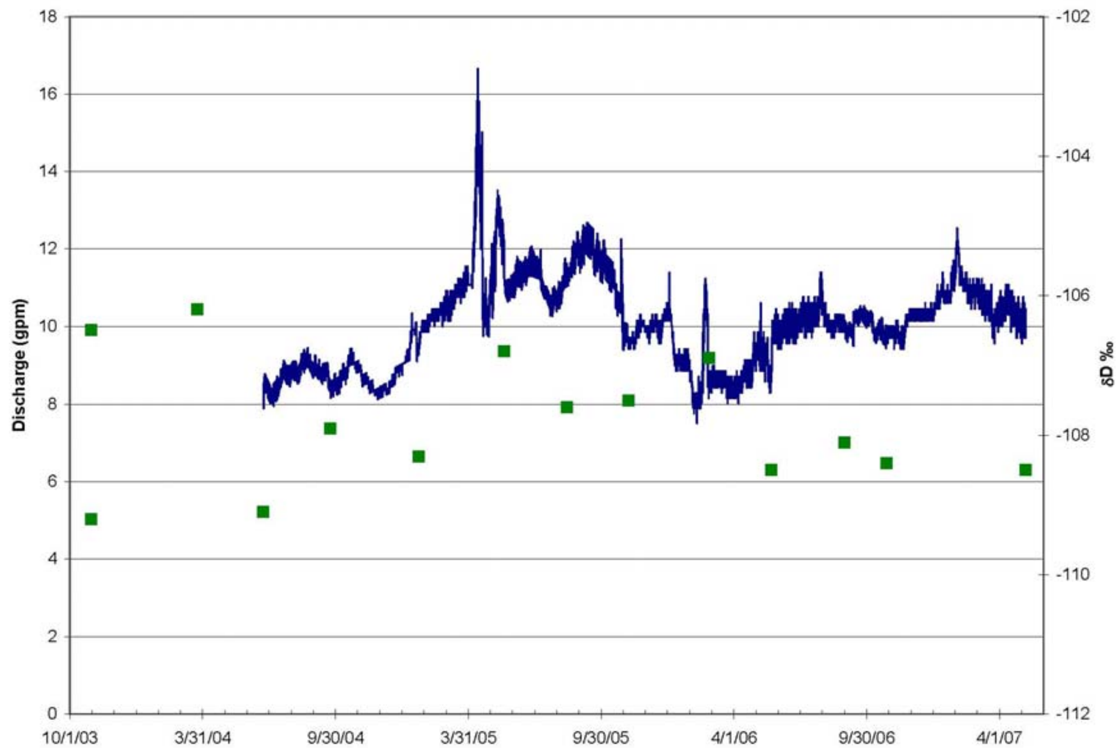

Figure 5. Deuterium and flow data for Patterson Pass Spring WR3 in the Schell Creek Range in western Lake Valley.

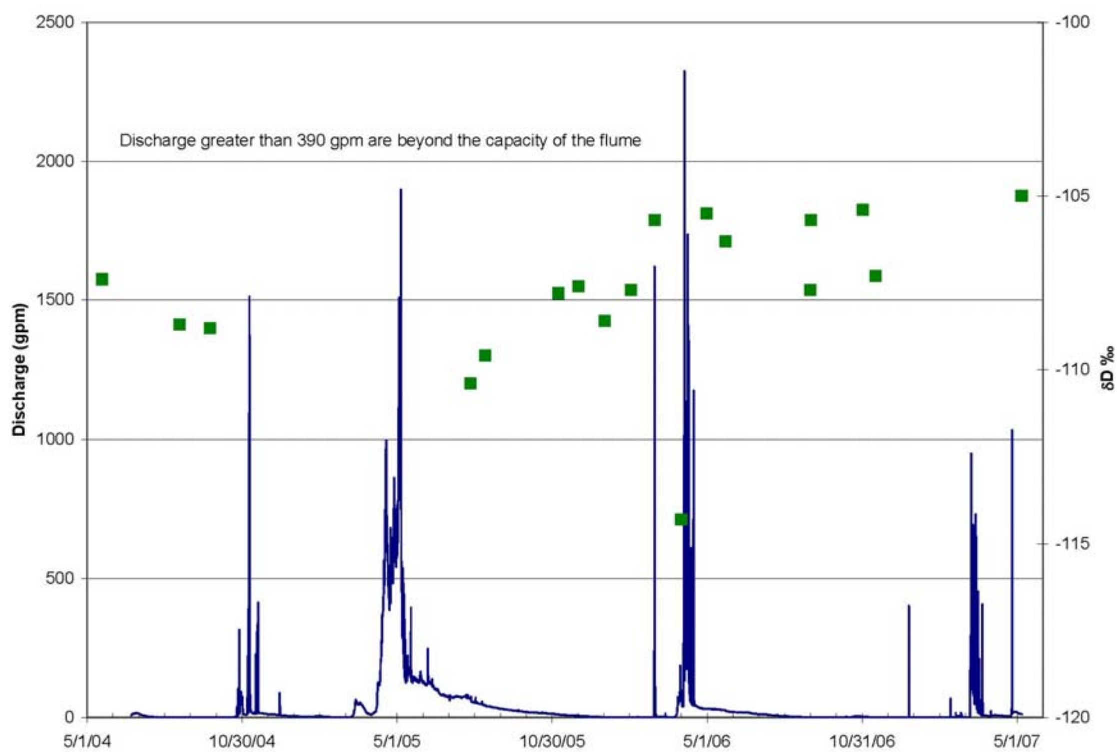

Figure 6 Deuterium and flow data for HeadwatersSpring WR5 in the Wilson Creek Range in southeastern Lake Valley.

Table 1. Variability of deuterium and oxygen-18 in recharge area springs.

Site Name		Number of Samples	Minimum	Maximum	Median	Mean	Standard Deviation
			White Pine Range				
Monitoring Spring WR1	δ^2H	14	-115.7	-111.2	-113.9	-113.7	1.3
Monitoring Spring WR1	$\delta^{18}O$	14	-15.69	-15.32	-15.62	-15.58	0.11
			Egan Range				
Upper Terrace Spring WR2	δ^2H	14	-115.6	-111.3	-114.2	-114.0	1.2
Upper Terrace Spring WR2	$\delta^{18}O$	14	-15.50	-15.24	-15.43	-15.42	0.06
			Schell Creek Range				
Patterson Pass Spring WR3	δ^2H	14	-109.2	-106.2	-108.0	-107.8	0.9
Patterson Pass Spring WR3	$\delta^{18}O$	14	-14.96	-14.71	-14.87	-14.85	0.07
			Wilson Creek Range				
Headwaters Spring WR5	δ^2H	17	-110.4	-105.0	-107.6	-107.4	1.6
Headwaters Spring WR5	$\delta^{18}O$	17	-15.01	-14.10	-14.59	-14.57	0.23
			Delamar Mountains				
Upper Riggs Spring WR4	δ^2H	5	-88.0	-86.2	-87.0	-87.1	0.6
Upper Riggs Spring WR4	$\delta^{18}O$	5	-12.46	-11.55	-11.90	-11.95	0.33
			Meadow Valley Mountains				
Grapevine Spring (KSV-2)	δ^2H	10	-88.6	-85.2	-87.5	-87.4	0.9
Grapevine Spring (KSV-2)	$\delta^{18}O$	10	-12.03	-11.60	-11.94	-11.92	0.12

The potential for variability of stable isotope values with altitude also needs to be considered, because if stable isotope values become more depleted (more negative) with altitude in the recharge areas, this would need to be accounted for in assigning average stable isotope values to recharge areas (an altitude-weighted approach would need to be taken instead of using an average value because the amount of precipitation and the percent of precipitation that becomes recharge increase with altitude). The relationship between deuterium and altitude was evaluated for five major recharge areas in the study area that contained 14, or more, springs. In the northern part of the study area, the White Pine Range and Central Egan Range deuterium data were plotted as a function of altitude (Figures 7 and 8). There is no apparent relationship of deuterium with altitude in these plots. In the central and southern part of the study area, White Rock Mountain, Delamar Mountain, and Fairview and Bristol ranges deuterium data were plotted as a function of altitude (Figures 9, 10, and 11). Again there is no relationship of deuterium with altitude, with the exception of the samples in the Delamar Range, where there is a small apparent relationship of heavier (less negative) deuterium values with lower altitude. The lack of a deuterium-with-altitude relationship, which does occur on the western side of the Sierra Nevada as storms track from the Pacific Ocean to the Sierra crest (Smith *et al*., 1979), is consistent with the results of Thomas *et al*. (1996) for the Spring Mountains in southern Nevada. Thomas *et al*. (1996; Figure 21) found no deuterium-altitude relationship for samples ranging in altitude from about 4,400 to 10,300 feet. The importance of a lack of deuterium-altitude relationship is that isotopic values in recharge areas do not have to be altitude weighted, and thus recharge volume weighted, to determine the average isotopic composition of recharge areas in the regional flow systems in east-central and southeastern Nevada.

Valley Cold Springs, Consolidated Rock Wells with Cold Water, and Local Recharge

White River Valley offers a relatively unique opportunity to evaluate the average isotopic composition of recharge area springs as being representative of mountain block recharge because of the presence of cold (<20 ^{o}C) valley springs along the range-bounding fault on the east side of the valley. In northern White River Valley, Lund Spring is located near the range-bounding fault on the east side of the valley. In addition to being cold, Lund Spring also has a variable flow rate, ranging from about 4,000 to 8,000 afy, even in the winter months (U.S. Geological Survey data). This large variability in flow is characteristic of locally recharged springs as compared to regional warm springs, which exhibit little variability in flow under natural conditions. The deuterium value of this spring is -113.0‰ and the oxygen-18 value is -15.40‰ (Appendix 3). These values are similar to the average deuterium and oxygen-18 values of -112.3 and -15.15‰, respectively, of northern Egan Range recharge, which is the local recharge source of this spring. In southern White River Valley, three springs—Emigrant, Butterfield, and Flag #3—are located near the range-bounding fault on the east side of the valley. Flag #3 Spring has a water temperature of 22.8 ^{o}C, but because of its location and similar isotopic and water chemistry content to that of Emigrant and Butterfield springs (Appendix 3), it is included as a cold range-bounding fault spring. These three springs have isotopic values that range from -107.8 to -105.0‰ for deuterium and -14.50 to -14.20‰ for oxygen-18 (Appendix 3). These values are similar to the average isotopic composition of recharge, - 106.9 and -14.15‰, to the southern Egan Range in southern White River Valley, which would be the local recharge source of these springs. The isotopic content of valley springs near the range-bounding fault on the east side of White River Valley that are supplied by local recharge to the valley shows that average spring isotopic values provide a good representation of mountain block recharge to a valley.

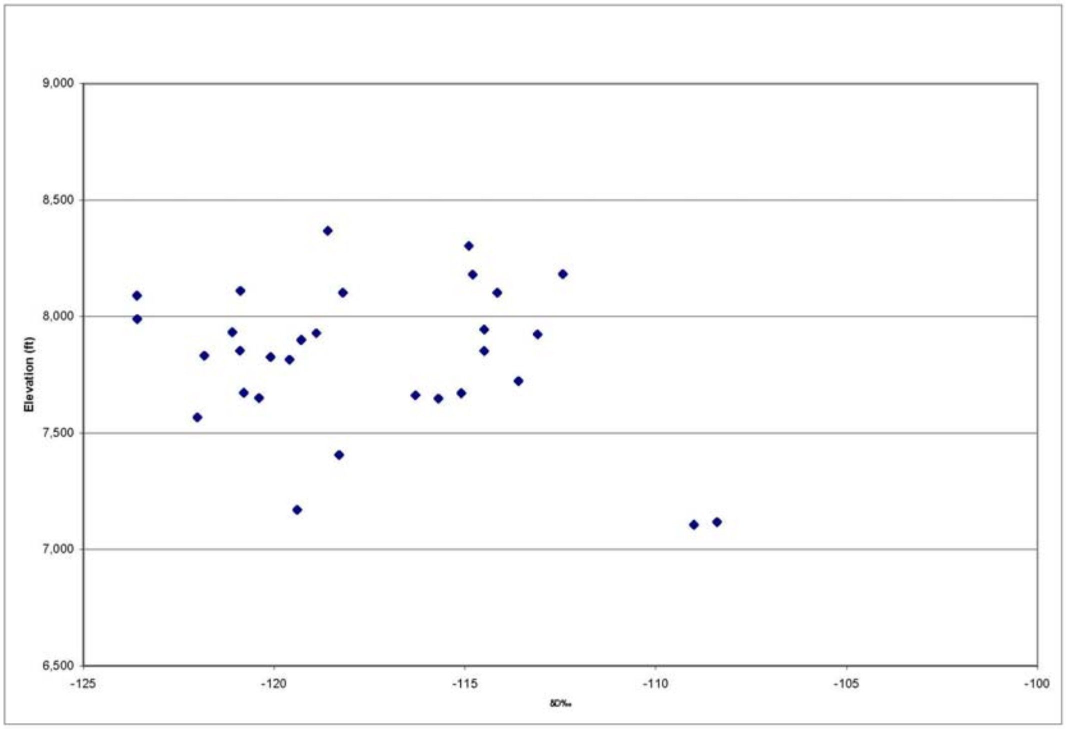

Figure 7. Deuterium as a function of altitude in the White Pine Range.

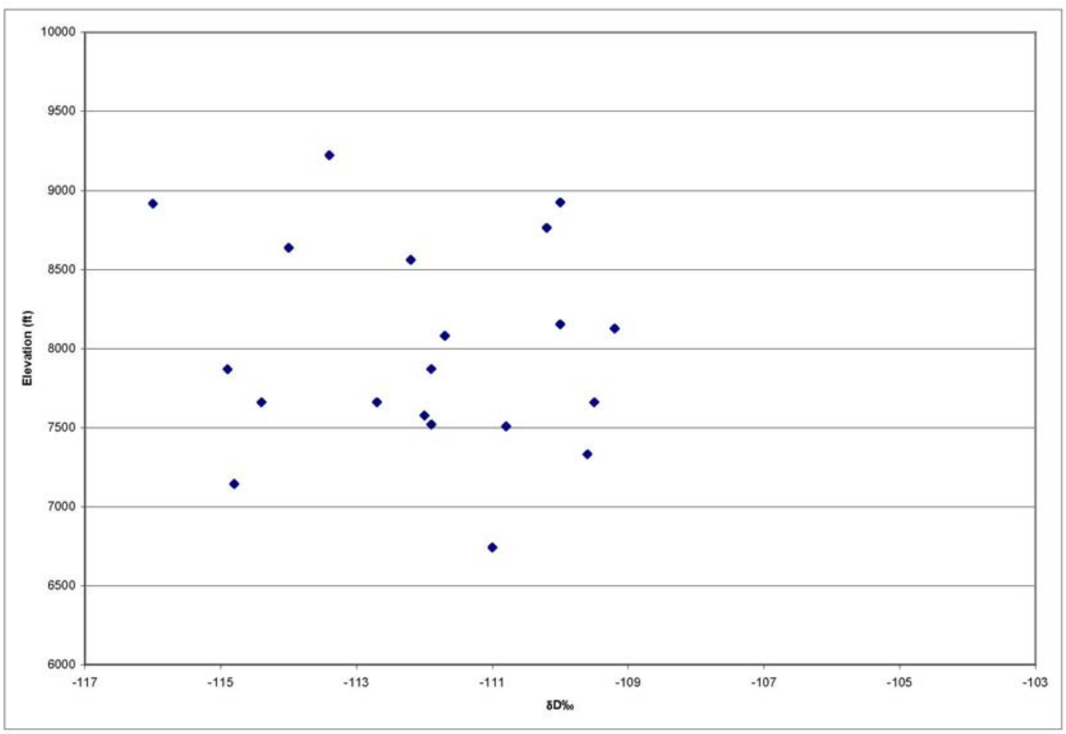

Figure 8. Deuterium as a function of altitude in the Central Egan Range.

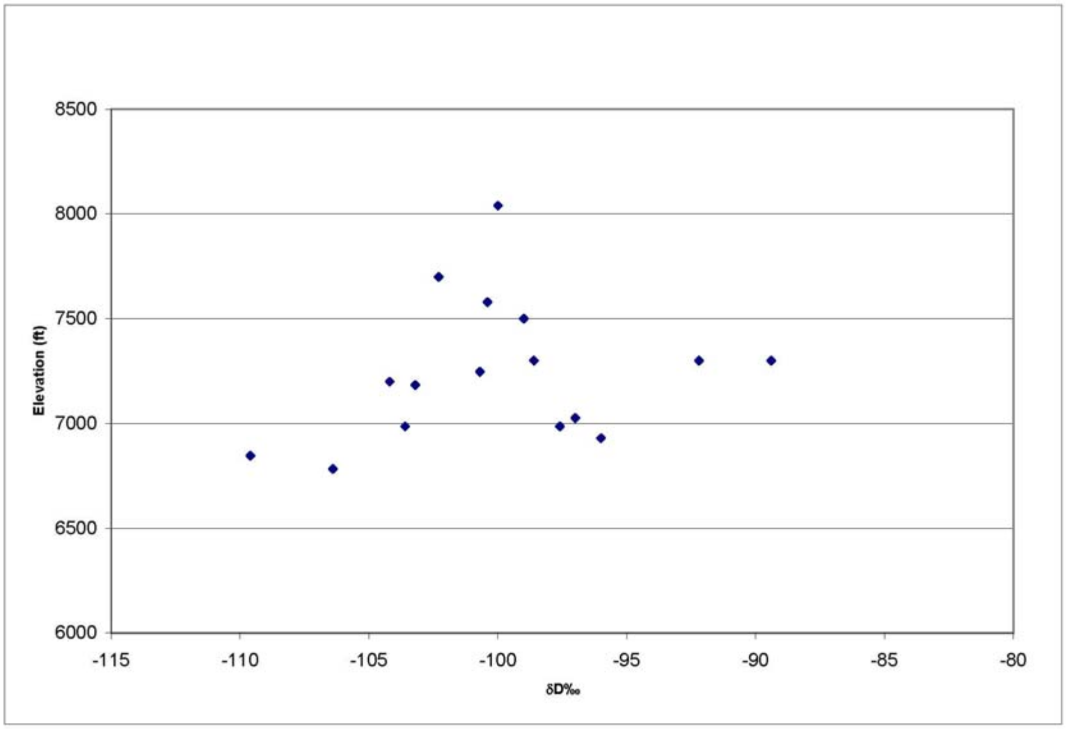

Figure 9. Deuterium as a function of altitude in the White Rock Mountains.

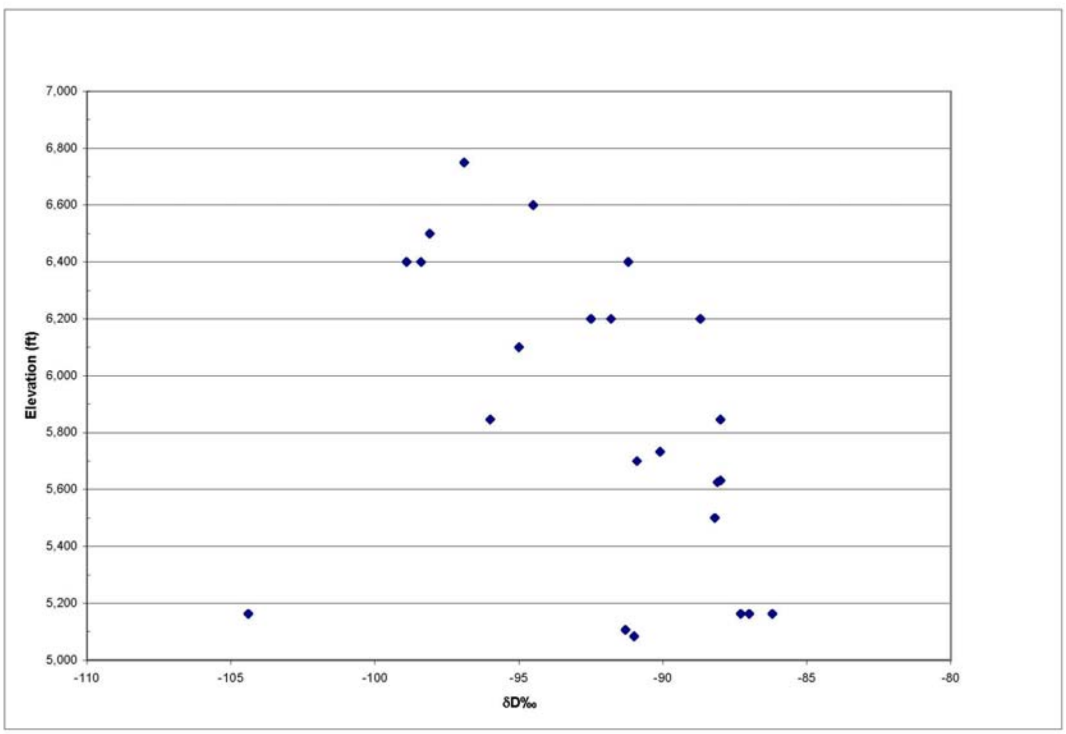

Figure 10. Deuterium as a function of altitude in the Delamar Mountains.

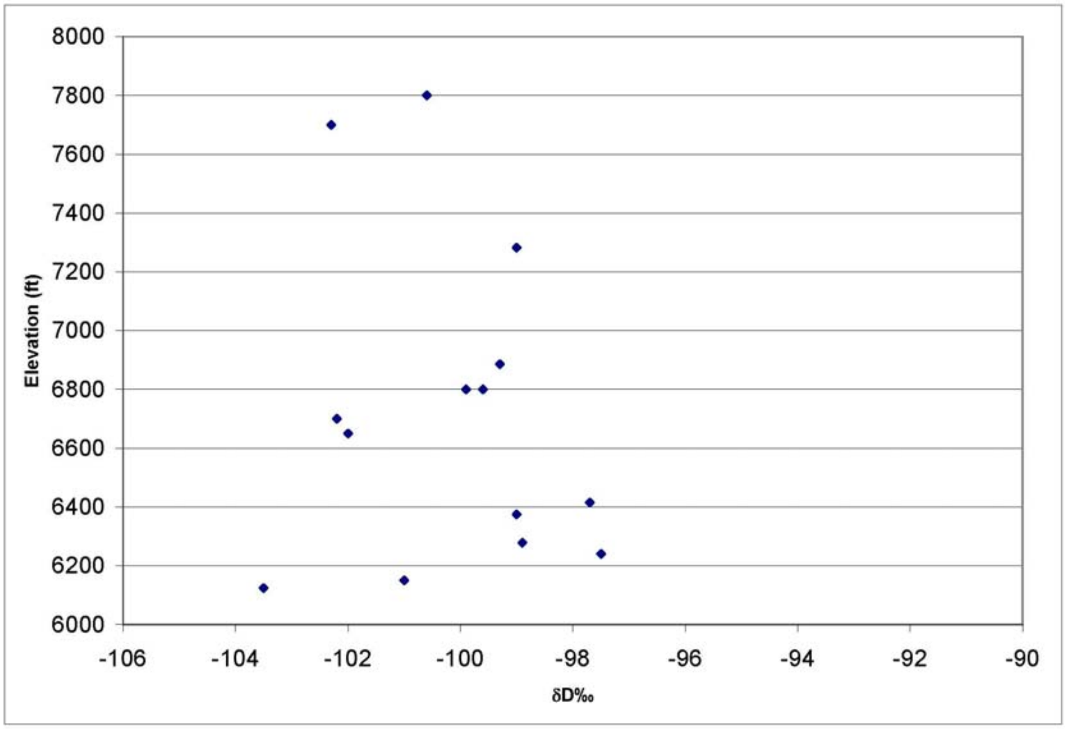

Figure 11. Deuterium as a function of altitude in the Highland and Fairview ranges.

In Cave Valley, east of White River Valley, two wells (180W501 and 180W902) completed in consolidated rock with cold temperatures (<20 ^{o}C) provide another relatively unique opportunity to evaluate average spring isotopic compositions as being representative of mountain block recharge. Cave Valley has no inflow, so the water in these wells should have an isotopic composition similar to recharge to the valley. The isotopic content of water in these two wells is -105.6 and -104.7‰ for deuterium and -14.12‰ for oxygen-18 for both wells. These values are similar to the isotopic content of water recharging Cave Valley, -106.5 and -14.28‰, so like the cool springs along the eastern range-bounding fault in White River Valley the groundwater in these wells has an isotopic composition very similar to local recharge to Cave Valley providing more evidence that springs in recharge areas can be used to represent recharge from mountainous areas.

Isotopic Variability of Regional Warm Springs

Regional warm springs in the WRFS and MVWFS are the integrators of interbasin groundwater flow in these systems and as such they provide the information needed to evaluate stable isotope mass-balance models of regional groundwater flow. Thus, it is important that isotopic variability of these springs is known and if this variability is large, then transient, rather than the current steady-state, isotope mass-balance models would be needed to evaluate water budgets and regional groundwater flow. To evaluate the isotopic variability of regional warm springs in the study area, new data were collected and combined with historical data to determine isotopic variability of the warm springs. Table 2 presents minimum, maximum, median, mean, and standard deviation values for deuterium and oxygen-18 for the warm springs in the study area. Data are presented for individual springs in

Table 2. Variability of deuterium and oxygen-18 in regional warm springs.

Site Name		**Number of Samples**	**Minimum**	**Maximum**	**Median**	**Mean**	**Standard Deviation**
			North White River Valley				
Preston Big Spring	$\delta^{2}H$	11	-126.0	-120.0	-121.7	-122.0	1.6
Preston Big Spring	$\delta^{18}O$	11	-15.98	-15.60	-15.88	-15.88	0.10
North White River Valley	$\delta^{2}H$	-124.0	-122.0	-123.5	-123.2	1.1	-124.0
North White River Valley	$\delta^{18}O$	3	-15.80	-15.80	-15.88	-15.93	0.16
			South White River Valley				
Hot Creek Springs	$\delta^{2}H$	10	-120.5	-117.4	-119.0	-118.9	0.9
Hot Creek Springs	$\delta^{18}O$	10	-15.77	-15.50	-15.71	-15.69	0.08
South White River Valley	$\delta^{2}H$	4	-120.0	-118.0	-119.0	-119.0	0.8
South White River Valley	$\delta^{18}O$	4	-15.80	-15.30	-15.70	-15.62	0.22
			Panaca Valley				
Caliente Hot Springs (Hotel)	$\delta^{2}H$	8	-109.3	-106.4	-107.5	-107.9	1.1
Caliente Hot Springs (Hotel)	$\delta^{18}O$	8	-14.52	-14.29	-14.45	-14.44	0.07
Panaca Spring	$\delta^{2}H$	13	-108.0	-105.8	-107.0	-106.9	0.6
Panaca Spring	$\delta^{18}O$	12	-14.25	-13.90	-14.17	-14.14	0.10
			Pahranagat Valley				
Crystal Springs	$\delta^{2}H$	17	-110.1	-106.9	-109.0	-108.8	0.8
Crystal Springs	$\delta^{18}O$	14	-14.53	-14.30	-14.42	-14.41	0.07
Hiko Spring	$\delta^{2}H$	7	-110.5	-105.0	-109.5	-108.7	1.9
Hiko Spring	$\delta^{18}O$	4	-15.30	-13.80	-14.23	-14.39	0.67
Ash Springs	$\delta^{2}H$	6	-112.0	-107.0	-108.7	-109.1	1.8
Ash Springs	$\delta^{18}O$	3	-14.20	-14.03	-14.10	-14.11	0.09
Pahranagat Valley	$\delta^{2}H$	4	-109.1	-107.2	-108.8	-108.5	0.9
Pahranagat Valley	$\delta^{18}O$	4	-14.41	-14.11	-14.29	-14.28	0.15

Table 2. Variability of deuterium and oxygen-18 in regional warm springs (continued).

Site Name		Number of Samples	Minimum	Maximum	Median	Mean	Standard Deviation
			Upper Moapa (Muddy) Valley				
Baldwin Spring	$\delta^{2}H$	9	-98.6	-96.3	-97.9	-97.6	0.8
Baldwin Spring	$\delta^{18}O$	9	-13.05	-12.91	-12.95	-12.97	0.05
Big Muddy Spring	$\delta^{2}H$	6	-99.0	-96.5	-98.0	-97.9	0.8
Big Muddy Spring	$\delta^{18}O$	5	-13.05	-12.75	-12.89	-12.89	0.11
Jones Spring Pumphouse	$\delta^{2}H$	6	-98.9	-97.3	-97.9	-97.9	0.5
Jones Spring Pumphouse	$\delta^{18}O$	6	-13.10	-12.99	-13.07	-13.05	0.05
Pederson's East	$\delta^{2}H$	9	-98.7	-97.0	-97.7	-97.8	0.6
Pederson's East	$\delta^{18}O$	9	-13.06	-12.89	-12.98	-12.98	0.06
Pederson's Warm Spring (M-13)	$\delta^{2}H$	15	-99.0	-96.5	-97.4	-97.5	0.6
Pederson's Warm Spring (M-13)	$\delta^{18}O$	13	-13.05	-12.75	-12.91	-12.93	0.09
Upper Moapa (Muddy) Valley	$\delta^{2}H$	9	-99.0	-96.5	-97.8	-97.7	0.7
Upper Moapa (Muddy) Valley	$\delta^{18}O$	8	-13.05	-12.45	-12.94	-12.87	0.19

a valley with three of more analyses and for the average of all warm springs in a valley. For example, in northern White River Valley, Preston Big Spring is a warm spring in the Preston warm spring area that has 11 samples. There are also two other warm springs in the area, Nicholas and Cold springs (actually a warm spring). Table 2 presents the values and standard deviation for Preston Big Spring data and also the values and standard deviation for the average values of the three springs in the area. Deuterium ranged from -126.0 to -120.0‰, with a mean value of -122.0‰ and a standard deviation of 1.6 for Preston Big Spring. For the three springs in the warm spring discharge area, the average deuterium values ranged from -124.0 to -122.0‰, with a standard deviation of 1.1. In general, the standard deviations for the individual spring deuterium data and the valley data for the average of the spring values are around 1‰ (Table 2). Oxygen-18 data follow a similar pattern, with standard deviations ranging from 0.05 to 0.22‰ (except for one site with a standard deviation of 0.67‰). This low variability of the stable isotopic data shows that the stable isotopic composition of regional warm springs provides good isotope mass-balance calibration points and a steady-state model is a valid approach.

Another indication of the stability and little variation in warm spring isotopic values is that some regional warm springs have samples covering a 20- to 40-year period with little change in isotopic composition. For example, isotopic data were first collected for Big Muddy Spring in Upper Moapa Valley in March 1970 and six samples from 1970 to 2004 have a range of only -99.0 to -96.5‰. Similarly, Hiko, Crystal, and Ash springs in Pahranagat Valley have isotopic data that were first collected in 1968. For all three springs during this time period of 1968 to 2006, deuterium only varied by 5.5‰. Preston Big Spring in northern White River Valley, Hot Creek Spring in southern White River Valley, and Panaca and Caliente hot springs in Panaca Valley all have samples that span a 22- to 26-year period with an average range in deuterium values of only 3.6‰ (Table 2).

An important question that needs to be answered if regional warm springs are going to be used to evaluate water budgets and interbasin flow is “are the regional warm springs discharging last glacial period water that was recharged during a cooler and wetter climate?” If they are, then regional warm spring discharge and groundwater ET throughout the WRFS and MWVFS would not be in balance with present-day recharge rates; present-day recharge rates would be less because some of the groundwater discharge would be from past wetter climates. Regional warm spring discharge is not glacial period water because: (1) regional warm spring discharge that greatly exceeds local recharge amounts in valleys in the southern part of the WRFS, the Muddy River and Pahranagat Valley warm spring areas, would even exceed local recharge during a much wetter climate because these spring flows are supported by interbasin flow; (2) additional evidence that regional warm springs are supported by interbasin flow is that they have isotopic values that are more negative than local recharge isotopic values because upgradient basins that supply interbasin flow are north of the regional spring discharge areas in both the WRFS and MVWFS, so this interbasin flow is isotopically more negative than local recharge; and (3) although regional warm springs have more negative isotopic values than local recharge, if these springs were discharging glacial period water these values would be even more negative even if they were only local recharge, but assuming that there would be interbasin flow during glacial periods as there is today, they would be even lighter. If regional spring discharge was from the last glacial period, then the isotopic composition of the springs would be at least 10 and 1.2‰ more negative for deuterium and oxygen-18, respectively, than present-day recharge (Winograd *et al*., 2006), and could be as much as 16 and 2.0‰ more negative for deuterium and oxygen-18, respectively, than present-day recharge (Benson and Klieforth, 1989) because of cooler air temperatures. Thus, if any significant portion of local recharge or interbasin flow was recharged during the last glacial period, regional warm springs would be as much as 10 to 20‰ less negative in deuterium and 1.0 to 2.0 more negative in oxygen-18 than present-day spring discharge.

Additional information on the timing of recharge to the regional warm springs is provided by carbon-14 data for dissolved inorganic and dissolved organic carbon. Low carbon-14 (less than 10 percent modern carbon [pmc]) in some of these regional warm spring waters (Thomas *et al*., 1996) indicates that these waters could be as old as 20,000 years. However, regional warm springs in similar carbonate-rock aquifers that discharge in Ash Meadows and groundwater in nearby Devils Hole with only 2 to 3 pmc carbon-14 (with one spring having 11 pmc) are at most several thousand years old and could be less than 1,000 years old (Winograd *et al*., 1992, 2006; Thomas *et al*., 1996). To obtain realistic groundwater ages the dissolution of calcite and dolomite that comprise the carbonate-rock aquifer and adsorption and diffusion processes have to be accounted for in correcting the carbon-14 ages. The dissolution of calcite and dolomite add carbon-14 to the water with 0 pmc and adsorption and diffusion remove carbon-14 from the groundwater (Hershey and Howcroft, 1998; Hershey *et al*., 2003, 2007), so once these processes are accounted for the corrected groundwater ages of these low carbon-14 groundwaters are only a few thousand to less than a thousand years old. Dissolved organic carbon isotopic data also support regional warm springs in the WRFS being younger than the last glacial period (Thomas, 1996). Regional springs integrate flow all along the regional flow systems from many different recharge areas and basins, so the age of the water discharging from warm springs is an average age and a very small percent of the water could be Pleistocene-age water that is isotopically light. However, the isotopic, recharge, and discharge data do not support any significant amount of Pleistocene-age water being discharged at regional warm springs in these systems.

Summary of Isotopic Variability

The small range in isotopic values and standard deviations of the recharge area and regional warm spring monitoring stable isotope data shows that deuterium and oxygen-18 are good tracers of groundwater in the regional flow systems. Using the average isotopic composition of springs in recharge areas as representative of recharge from a mountain block recharge area is further supported by cold springs near the range-bounding fault in eastern White River Valley and two wells completed in consolidated rock in Cave Valley with cold water. If temporal variability of deuterium and oxygen-18 of recharge area monitoring springs and regional warm springs had been high, then the uncertainty associated with using them to evaluate water budgets in regional flow systems would have been high.

ISOTOPIC EVALUATION OF THE WHITE RIVER AND MEADOW VALLEY WASH REGIONAL GROUNDWATER FLOW SYSTEMS

The WRFS and MVWFS water budgets, including interbasin flows, were evaluated using stable isotope data for recharge area groundwaters and regional warm springs for two versions of the isotope mass-balance model. Additionally, wells completed in consolidated rock that are not in warm spring discharge areas and intercept groundwater flowing through these regional flow systems were also used to evaluate water budgets and interbasin flow. Wells are point measurements in the flow system and provide good information on regional groundwater flow and water budgets but they are a secondary evaluation method as compared to regional warm springs, which integrate flow over large areas. For this report, two mass-balance models were developed to evaluate water budgets that handle ground discharge from these regional flow systems in two different ways (see Stable Isotope Mass-Balance Models section for a description of the two models). These two models were used to evaluate water budgets developed using: (1) SNWA recharge and discharge estimates (SNWA, 2007); (2) SNWA/BARCAS discharge estimates (SNWA, 2007; Welch and Bright, 2007; valleys with BARCAS study ET values were used in place of SNWA ET values in these valleys to determine recharge and discharge amounts for the different valleys); and (3) Water Resources Bulletin No. 8 (Maxey and Eakin, 1949), and the Reconnaissance Report series recharge and ET estimates (Maxey and Eakin, 1949; Eakin, 1962, 1963a, b, c, 1964, 1966, 1968; Rush, 1964; Rush and Eakin, 1963) and the Eakin (1966) interbasin groundwater flow directions for the WRFS. The evaluation of three water budgets using the two end-member models resulted in six isotope mass-balance models being developed for this study.

White River Regional Groundwater Flow System

The WRFS (Figure 1) was originally described by Eakin (1966), who postulated that some of the water discharging from the Muddy River Springs area in Upper Moapa Valley originated more than 200 miles north of the spring area and that this regional interbasin flow system included 13 valleys. Eakin reached these conclusions on the basis of "preliminary appraisals of the distribution and quantities of the estimated groundwater recharge and discharge within the region, the uniformity of discharge of the principal springs, the compatibility of the potential hydraulic gradient with regional groundwater movement, the relative hydrologic properties of the major rock groups in the region, and to a limited extent, the chemical character of water issuing from the principal springs." The main conclusions of his study were: (1) Paleozoic carbonate rocks form the regional aquifer, (2) recharge and discharge estimates balance within the flow system, and (3) the principal discharging springs have a uniform discharge rate, indicating a regional rather than local water source.

As noted in the Study Area Description section of this report, for this study the WRFS includes California Wash, Lower Moapa, Hidden, and Garnet valleys and the Black Mountains area in addition to the original 13 valleys described by Eakin (1966). These valleys are included because some groundwater in the WRFS continues flowing through these valleys on its way to Lake Mead on the Colorado River as indicated by hydraulic gradients (Thomas *et al.*, 1986, 1996; LVVWD 2001, 2007). The lower part of the WRFS also receives groundwater inflow from the MVWFS. The MVWFS, to the east of the WRFS, has groundwater that flows into Upper Moapa and California Wash valleys. This MVWFS groundwater mixes with the WRFS groundwater and flows into Lower Moapa Valley from which groundwater discharges into Lake Mead. The MVWFS will be described in more detail later in this report.

White River Flow System Isotope Mass-Balance Models

Background

Kirk and Campana (1990) constructed a deuterium-calibrated mixing cell (water budget) model of the WRFS as delineated by Eakin (1966). Their mixing cell model was calibrated using average deuterium values for the model cells. The mixing cell model was a two-layer model with an upper layer representing basin-fill aquifers and a second layer representing the carbonate-rock aquifer. The cells were defined as the 13 individual topographic valleys within the WRFS, although not all valleys had a sufficient alluvial aquifer to warrant an upper layer cell in the model. The mixing model used the spring flow and ET estimates from Eakin (1966) and initially set recharge to Maxey-Eakin values but then let the model calculate new recharge values. The model-calculated recharge values were similar to initial Maxey-Eakin recharge estimates. Three different models were developed for the WRFS. The results of the Kirk and Campana (1990) study are: (1) recharge from the Sheep Range to Coyote Springs Valley is 5,000 to 6,000 acre feet per year (afy) as compared to the Maxey-Eakin estimate of 2,000 afy; (2) the Lower Meadow Valley Wash-Kane Springs Valley area contributes 5,500 to 9,000 afy to the Muddy River Springs discharge area, as compared to the Maxey-Eakin Kane Springs Valley recharge estimate of about 1,000 afy; and (3) 4,000 afy of groundwater is routed out of the WRFS in the Pahranagat Valley area to the west (similar to the 6,000 afy proposed by Winograd and Friedman [1972] and 7,000 afy proposed by Thomas *et al*. [1996]).

Thomas *et al*. (1996) used the average deuterium composition of water discharging from Big Muddy Spring in Upper Moapa Valley, the largest discharging spring in the Muddy River springs area, to calculate a deuterium mass-balance water budget for the lower part of the WRFS. This deuterium mass-balance water budget model simply used the estimated total spring discharge of the Muddy Springs area (after removing surface water flows due to storm events) and the average deuterium composition of the springs in the Muddy River Springs area. For a Muddy River Springs area discharge rate of 36,000 afy (Eakin and Moore, 1964), this calculation resulted in an input of 14,000 afy of recharge from the Sheep Range, 14,000 afy of inflow from Pahranagat Valley, and 8,000 afy of inflow from the Lower Meadow Valley Wash-Kane Springs Valley area.

Thomas *et al*. (2001) used new estimates of recharge and predevelopment ET derived by the Las Vegas Valley Water District (LVVWD, 2001) for the WRFS and MVWFS and deuterium and oxygen-18 values in recharge areas and for regional warm springs to develop a stable isotope mass-balance model. This effort was different from that of Kirk and Campana (1990) in that it assigned recharge and average isotopic values to individual recharge and discharge areas, rather than to a cell that represents an entire valley. The Kirk and Campana (1990) model also used spring flow and ET estimates from Eakin (1966) to represent ET for the model area. They initially set recharge to estimates from Maxey-Eakin (1949) but then let the model calculate new recharge values. The Thomas *et al*. (2001) study was different from the Thomas *et al*. (1996) study in that the 1996 study used the estimated spring discharge in the Muddy River Springs area to represent all groundwater discharge from the Muddy River Springs area. Then, Thomas *et al*. (1996) used this value in conjunction with the average deuterium composition of the Muddy River springs, the regional warm springs in Pahranagat Valley, and springs in recharge areas to develop a deuterium mass-balance model that only accounted for regional warm spring discharge.

Additionally, the Kirk and Campana study only modeled the WRFS and the Thomas *et al*. (1996) study only modeled the southern part of the WRFS from Pahranagat Valley to Upper Moapa Valley, whereas the Thomas *et al*. (2001) study included the MVWFS and the valleys between the Muddy River Springs area (Upper Moapa Valley) and Lake Mead on the Colorado River (the lowest point in the system).

The stable isotope mass-balance models developed for this study include the same area as the Thomas *et al*. (2001) study, but this study includes a significant amount of new data (about 450 new analyses) to help define the isotopic content of groundwater recharge areas both spatially and temporally, new recharge and discharge estimates (SNWA, 2007; Welch and Bright; 2007), and new interbasin flow directions and rates based on new geologic and hydrologic information (SNWA, 2007).

Model Development and Results

Stable isotopes of water were used to evaluate water budgets and interbasin flows for the WRFS by determining average deuterium and oxygen-18 values for all recharge and groundwater discharge (ET) areas in the study area and tracking the volumes of recharge added to and ET removed from the WRFS throughout the study area. For a water budget to be a reasonable estimate of recharge and predevelopment ET, calculated isotopic values for regional spring discharge areas have to be similar to measured values. Wells completed in consolidated rock with warm (>20 ^{o}C) water from the regional flow system that are not in warm spring discharge areas were also used to evaluate water budgets and interbasin flow by comparing measured isotopic values with calculated values.

To use a stable isotope mass-balance model for evaluating water budgets in regional flow systems, there needs to be an easily identifiable range in isotopic values throughout a flow system. A range in isotopic values is needed to identify inputs from different recharge areas and interbasin flow in a regional flow system. Fortunately, in the WRFS, deuterium and oxygen-18 vary greatly from the Lake Mead area in the south to Long Valley in the north (Figure 2). A plot of deuterium versus oxygn-18 (Figure 12) shows that isotopic compositions increase (become less negative) from north to south. This 50‰ increase in recharge area deuterium values, from -129.5‰ in Long Valley in the northern WRFS to -79‰ in the Black Mountain area in the southern WRFS and the 6.54‰ increase in recharge area oxygen-18 values, from -17.04‰ in Long Valley in the north to -10.50‰ in the Black Mountain area in the south (Figure 12 and Plate 2), makes deuterium and oxygen-18 excellent tracers for water budget evaluations in the WRFS. These differences in isotopic values from north to south in the WRFS are very significant because the analytical precision for deuterium is plus or minus 1.0‰ and for oxygen-18 is plus or minus 0.10‰ (analytical precision values represent one standard deviation; Simon Poulson, University of Nevada, Reno Isotope Laboratory, oral commun., 2007).

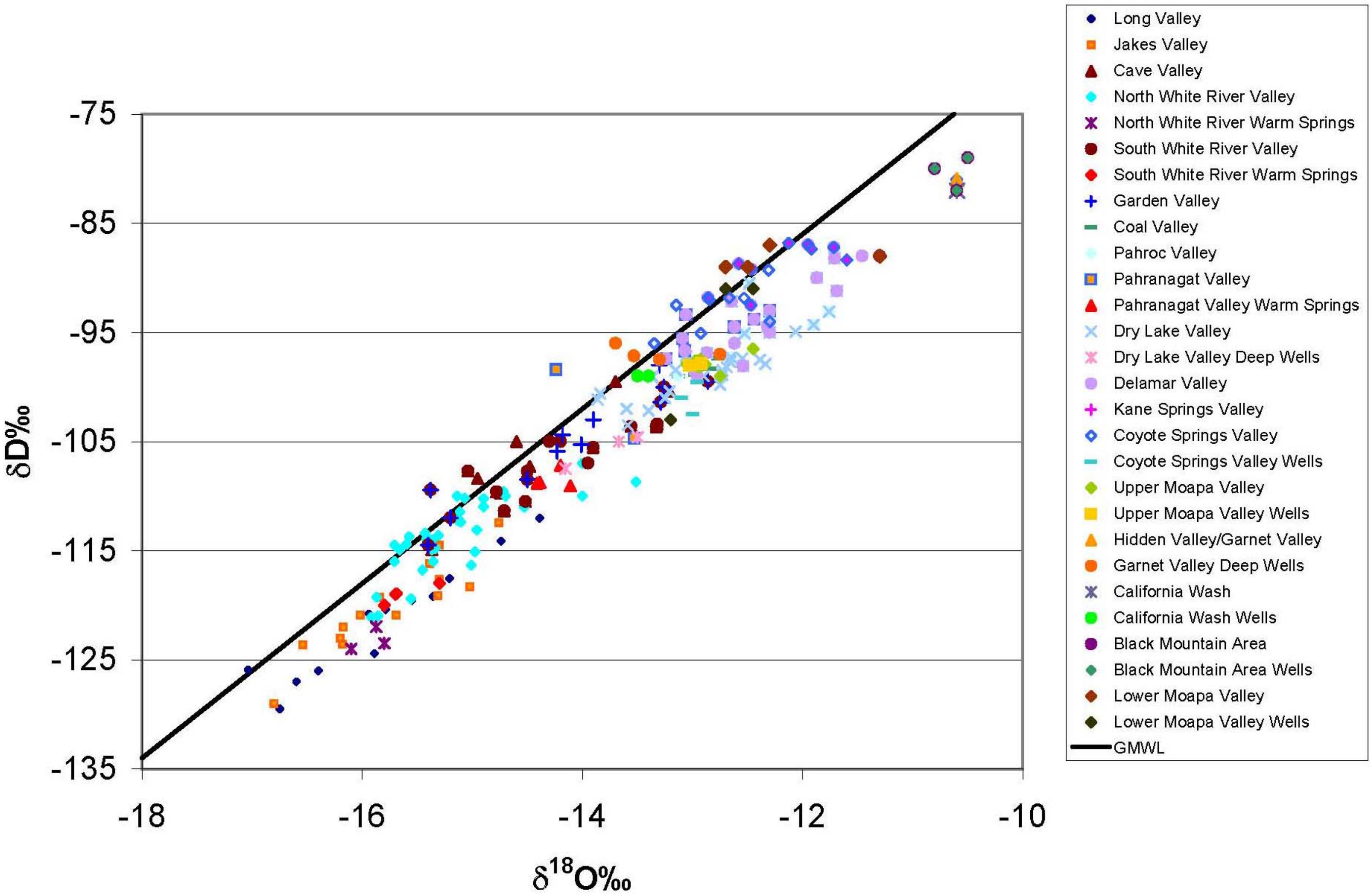

Figure 12. Plot of deuterium versus oxygen-18 for samples in the White River flow system. GMWL is the Global Meteoric Water Line from Craig (1961).

The water budgets evaluated in this report are based on estimates of recharge for the different mountainous recharge areas in a valley, predevelopment ET, and groundwater interbasin flow directions provided by SNWA (Figure 13), with the exception of the interbasin flow rates for the reconnaissance series reports, which are based on Eakin (1966) interbasin flow directions (Figure 14) and differences in reconnaissance report recharge and ET. As noted earlier in this report, three different sets of recharge and ET values (water budgets) were evaluated in this study: (1) new SNWA recharge and predevelopment ET rates (SNWA, 2007); (2) new SNWA recharge and ET rates combined with BARCAS study ET rates (BARCAS ET rates were used in place of new SNWA ET rates for those valleys in the WRFS with BARCAS ET estimates); and (3) reconnaissance report recharge and ET rates were used with Eakin (1966) groundwater interbasin flow routing. The ET values are for predevelopment conditions and do not include ET from fields irrigated by groundwater, but they do include spring discharge.

Interbasin groundwater flow results in the models when valley recharge plus groundwater inflow to a valley (when there is inflow) is greater than groundwater consumed by ET in the valley. This surplus groundwater is assumed to flow to the next downgradient valley(s). Interbasin groundwater flow is assigned deuterium and oxygen-18 values differently for the two models used in this study to evaluate water budgets. In one model, the isotopic composition of interbasin flow was calculated by using the volume-weighted isotopic compositions of recharge from different recharge areas within a valley and of groundwater inflow(s) to the valley from upgradient valleys. Thus, the isotopic value of groundwater outflow from valleys in this model is the volume weighted average of recharge to the valley plus any groundwater inflow from upgradient valleys. In the second mass-balance, the isotopic composition of groundwater outflow was calculated by assuming that all ET in a valley was first satisfied by local recharge and then if local recharge was not sufficient to meet ET demands, groundwater inflow from upgradient valleys was used to satisfy ET. Thus, the isotopic composition of groundwater outflow from a valley in this model is that of the groundwater inflow to a basin if ET exceeds local recharge, or is a volume weighted average of the amount of local recharge in excess of ET plus inflow(s) to the valley.

The isotope mass-balance models are used to evaluate WRFS water budgets by determining if estimated recharge and ET rates and interbasin flows within the WRFS are consistent with the deuterium and oxygen-18 data (Appendix 1). If mass-balance model-calculated deuterium and oxygen-18 values are similar to measured values for regional warm springs, then the proposed water budgets are reasonable. In contrast, if mass-balance model-calculated deuterium and oxygen-18 values are significantly different than measured values for regional warm springs, then the proposed water budgets are not reasonable, or interbasin flow routing may be incorrect. Wells completed in consolidated rock with warm water from the regional flow systems offer additional evaluation points in the system. Similar to the regional warm springs, the isotopic content of groundwater in a well needs to be similar to the calculated value for the proposed interbasin flows and water budgets to be reasonable. The isotopic mass-balance models are not used for determining how much recharge should be assigned to each recharge area or how much ET should be assigned to each valley; rather, the models evaluate whether the assigned recharge and ET values and interbasin flows are consistent with the stable isotope data of the WRFS. The isotopic mass-balance models are

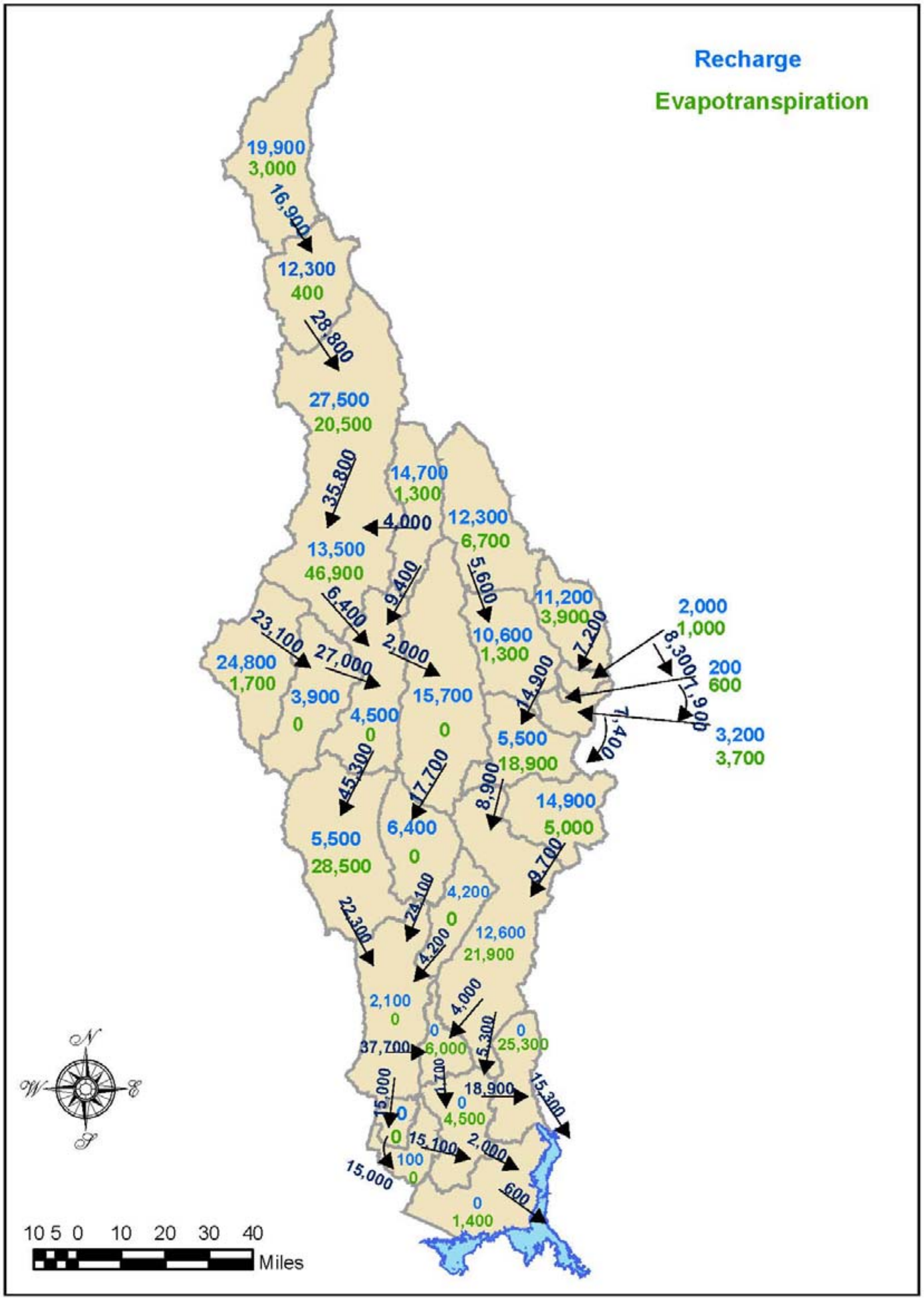

Figure 13. SNWA (2007) recharge values, predevelopment ET values, and interbasin flows. Interbasin flow directions and rates are shown as arrows with values. All values are in acre-feet per year.

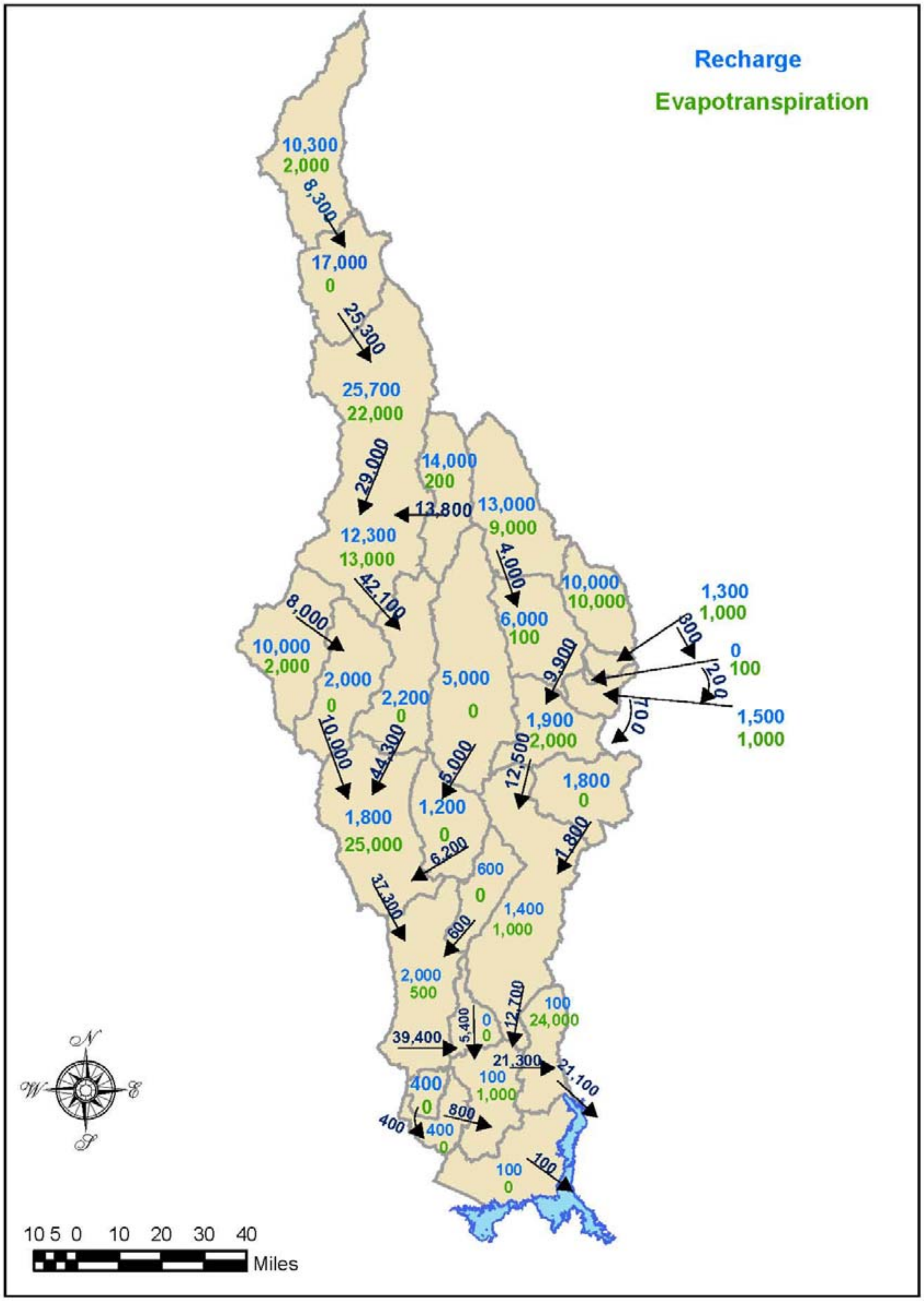

Figure 14. Reconnaissance Report Series recharge values, predevelopment ET values, and interbasin flows with Eakin (1966) interbasin flow routing for the White River Flow System. Interbasin flow directions and rates are shown as arrows with values. All values are in acre-feet per year.

nonunique; a reasonable result confirms the viability of a proposed water budget but it does not prove that the water budget is correct. An isotopic mass-balance model can be used to eliminate unrealistic water budget estimates, or interbasin flows, and to help identify areas where water budgets and/or interbasin flows need to be better understood.

Regional Warm Springs

A logical way to evaluate water budgets and interbasin flows for the WRFS with the isotope mass-balance model is to start at the upgradient part of the flow system in the north and move from north to south down the hydraulic gradient of the WRFS. In the WRFS, going from north to south there are four major regional warm spring areas that can be used to evaluate the isotopic mass-balance models; the Preston area in northern White River Valley; the Hot Creek area in southern White River Valley; the Alamo area in Pahranagat Valley; and the Muddy River Springs area in Upper Moapa Valley. Wells completed in consolidated rock that contain warm (>20 ^{o}C) water can also be used to evaluate water budgets and associated interbasin groundwater flow in the WRFS. Wells completed in consolidated rock with warm water in areas not in regional warm spring areas are present in Coal, Dry Lake, Delamar, Coyote Springs, Upper Moapa, Garnet, California Wash, and Lower Moapa valleys of the WRFS.

Using the approach of evaluating the isotopic mass-balance models following groundwater flow down the WRFS, the first regional warm spring discharge area where recharge and ET estimates and interbasin groundwater flow can be evaluated is in the Preston area in northern White River Valley. In the Preston area, three warm springs (Preston Big, Nicholson, and Preston Cold [Preston Cold is inappropriately named because it is 21.8 ^{o}C and it is in the regional warm spring province with Preston Big and Nicholson springs]) have significantly lighter (more negative) discharge-weighted average deuterium and oxygen-18 compositions of -122.6 and -15.92‰, respectively, than local recharge (Appendices 1 and 2; -112.3 and -15.15‰ for the northern Egan Range and -115.0 and -15.18‰ for the White Pine Range). The source of these warm springs is not local recharge from mountains surrounding northern White River Valley; rather, the source is interbasin flow from Jakes Valley. Jakes Valley groundwater flowing into northern White River Valley is recharge to Jakes Valley plus interbasin flow from Long Valley that is upgradient of Jakes Valley (Figure 13).

In the isotopic mass-balance models for the WRFS, the spring flow rates used to calculate flow-weighted deuterium and oxygen-18 values are for flows measured in the winter months (November to February) to avoid ET and groundwater pumping that might reduce spring flow. However, a comparison of average winter flow rates with the average yearly flow rates did not show a significant difference in spring flows for most regional warm springs (U.S. Geological Survey spring-flow data).

Six different models were developed to evaluate water budgets for the WRFS (Appendices 1 and 2). However, although results for all six isotope mass-balance models will be discussed, the interbasin flow volumes that are presented in detail in this report are for the SNWA 2007 water budget. An estimated 28,800 afy of groundwater flows into northern White River Valley from Jakes Valley. For both SNWA water budget models, the isotopic composition of this interbasin flow is -121.3 and -15.86‰ for deuterium and oxygen-18, respectively. The calculated values for both models are the same because of the very small amount of ET in Jakes Valley (400 afy) as compared to recharge (12,300 afy). This calculated inflow deuterium value is within 1.3‰ of the flow weighted average of the regional warm springs in the Preston area (Table 3). The calculated oxygen-18 value is within 0.06‰ of the flow-weighted average of the regional springs in the Preston area. In comparison, the SNWA/BARCAS water-budget-calculated isotopic values are almost identical, within 1.2 and 0.06‰, for deuterium and oxygen-18, respectively (Table 3). These very similar values reflect that the ET differences between the SNWA and SNWA/BARCAS water budgets are small and also that there is little ET in Jakes Valley that would make the interbasin flow isotopic values different. The Reconnaissance Report Series water budg*et al*so produce similar results (2.3 and 0.20‰ for deuterium and oxygen-18, respectively), again because of little ET in Long and Jakes valleys (Table 3).

Given the analytical precision of 1.0‰ for deuterium, calculated deuterium values that are within 2.0‰ of measured values indicate an excellent fit, those within 3.0‰ represent a good fit, and those within 4.0‰ represent an acceptable fit. Any calculated deuterium values that are greater than 4.0‰ different than measured values indicate that the water budgets are not correct, and for warm spring areas above the Muddy River Springs area (the most downgradient warm springs area in the WRFS) they may also indicate incorrect flow routing (if calculated isotopic values are within the acceptable range at the Muddy Springs area, the overall water budget is acceptable). Given the analytical precision of 0.1‰ for oxgen-18, calculated oxygen-18 values that are within 0.20‰ of measured values indicate an excellent fit, those within 0.30‰ represent a good fit, and those within 0.40‰ represent an acceptable fit. Any calculated oxygen-18 values that are greater than 0.40‰ different than measured values indicate that the water budgets are not correct.

Isotope mass-balance model-calculated deuterium and oxygen-18 values for the SNWA and SNWA/BARCAS water budgets indicate that the recharge and ET estimates above the Preston warm springs area in northern White River Valley and interbasin flows result in an excellent match to measured values (Table 3). Calculated deuterium values for the Reconnaissance Report Series water budget result in a good fit and the oxygen-18 values result in an excellent fit to measured values. Thus, the isotope mass-balance models show that the SNWA and SNWA/BARCAS water-budget-calculated isotopic values closely match measured isotope values and the Reconnaissance Report Series water-budget-calculated isotopic values also match measured values, but not quite as well as the other two water budgets.

The next regional warm spring area downgradient of the Preston warm springs area in northern White River Valley in the WRFS is the Hot Creek warm springs area in southern White River Valley. For the isotope mass-balance models, Moorman Hot Spring, a relatively low flow (400 afy) regional warm spring located several miles north of the Hot Creek area, is included in the Hot Creek regional warm spring province because of its similar isotopic composition to Hot Creek and Moon River regional warm springs (Appendices 1 and 2). In the Hot Creek area, the discharge-weighted average deuterium and oxygen-18 compositions of the three warm springs are -119.2 and -15.71‰, respectively. The local recharge to Southern White River valley has average isotopic values of -109.6 and -14.15‰ for the southern Egan Range and -106.5 and -14.23‰ for the Grant Range. As with the northern White River Valley, the source of these warm springs is not local recharge from mountains surrounding southern White River Valley; rather, the source is interbasin flow.

Table 3. A comparison of the difference between measured and calculated deuterium and oxygen-18 values for regional warm (>20 °C) springs for the WRFS and MVWFS and small (<50 afy) warm springs in the MVWFS. Models 1 and 2 are for the SNWA water budget; models 3 and 4 are for the SNWA/BARCAS water budgets; models 5 and 6 are for Reconnaissance Report water budgets. Models 1, 3, and 5 are for ET that is a mixture of local recharge and interbasin flow and models 2, 4, and 6 are for ET that uses local recharge first to satisfy ET demands. Positive values show that calculate values are less negative than measured values and negative values show that calculated values are more negative than measured values.

Warm Spring Discharge Area	Model 1 δD (‰)	Model 1 $\delta^{18}O$ (‰)	Model 2 δD (‰)	Model 2 $\delta^{18}O$ (‰)	Model 3 δD (‰)	Model 3 $\delta^{18}O$ (‰)	Model 4 δD (‰)	Model 4 $\delta^{18}O$ (‰)	Model 5 δD (‰)	Model 5 $\delta^{18}O$ (‰)	Model 6 δD (‰)	Model 6 $\delta^{18}O$ (‰)
White River Flow System Regional Warm Springs												
Preston Spring Area Northern White River Valley	+13	+0.06	+1.3	+0.06	+1.2	+0.06	+1.2	+0.06	+2.3	+0.20	+2.3	+0.20
Hot Creek Spring Area Southern White River Valley	+1.7	+0.19	-0.6	-0.01	+1.6	+0.18	-2.2	-0.15	+2.2	+0.27	-0.3	+0.06
Alamo Spring Area Pahranagat Valley	+3.9	+0.22	+3.3	+0.16	+4.9	+0.34	+4.6	+0.31	-2.4	-0.51	-5.5	-0.83
Muddy Springs Area Upper Moapa Valley	-0.9	-0.35	-1.7	-0.41	-0.3	-0.26	-1.0	-0.31	-9.4	-1.39	-12.0	-1.66
Meadow Valley Wash Flow System Regional Warm Springs												
Panaca Spring Area Panaca Valley	+1.4	+0.06	+1.4	+0.06	+1.2	+0.02	+1.2	+0.02	+0.7	-0.10	+0.7	-0.10
Caliente Hot Springs Area Panaca Valley	+2.4	+0.36	+2.4	+0.36	+2.2	+0.32	+2.2	+0.32	+1.7	+0.20	+1.7	+0.20
Meadow Valley Wash Flow System Small Warm Springs												
Flatnose Spring Dry Valley	+1.8	+0.16	+1.7	+0.15	+1.8	+0.16	+1.7	+0.15	+2.1	+0.20	+2.1	+0.20
Bennett Spring Panaca Valley	+2.2	+0.31	+2.0	+0.27	+2.0	+0.27	+1.7	+0.23	+1.6	+0.19	+1.5	+1.8
Kershaw-Ryan Spring #1 Lower Meadow Valley Wash	-0.4	+0.29	-1.0	+0.21	-0.6	+0.27	-1.2	+0.19	-4.3	-0.17	-4.9	-0.25

Calculated deuterium and oxygen-18 values for the SNWA and SNWA/BARCAS water budgets indicate that the recharge and ET estimates above the Hot Creek warm springs area in southern White River Valley and interbasin flows result in an excellent match to measured values, except for one model (Table 3). The model using the SNWA/BARCAS water budget with local recharge meeting ET demands before any regional interbasin flow is used to meet ET needs has a calculated deuterium value that is only a good fit to the average measured value of the warm springs. Calculated deuterium and oxygen-18 values for the Reconnaissance Report Series water budget result in a good fit for the model that mixes local recharge and ET to meet ET demands and is an excellent fit for the model that uses local recharge to meet ET demands before any regional interbasin flow groundwater is used to meet ET needs. Thus, the isotope mass-balance models show that the SNWA water-budget-calculated isotopic values most closely match measured isotope values for both northern and southern White River Valley warm spring areas.

The next regional warm springs area downgradient from the Hot Creek area in southern White River Valley is the Alamo warm springs area in Pahranagat Valley. Three large (Hiko, Crystal, and Ash springs) and one smaller (Little Ash Spring) regional warm springs discharge in this area. The springs have a discharge-weighted isotopic composition of -108.9 and -14.26‰. The local recharge to Pahranagat Valley has average isotopic values of -94.9 and -12.83‰ for the south Pahroc Range and -98.4 and -14.24‰ for the Mount Irish/Pahranagat Range (Appendices 1 and 2). As with the other warm spring areas of the WRFS, the source of these warm springs is not local recharge from mountains surrounding Pahranagat Valley; rather, the source is interbasin flow and for this area that inflow is from Pahroc Valley.

Calculated deuterium values for the SNWA water budget indicate that the recharge and ET estimates above the Alamo warm springs area in Pahranagat Valley and interbasin flows result in an acceptable match to measured values (Table 3). The model-calculated oxygen-18 values are an excellent match for one model and a good match for the other model. SNWA/BARCAS water-budget-calculated deuterium values are not acceptable for either model, but calculated oxygen-18 values are in the acceptable range for both models. The calculated deuterium value for the Reconnaissance Report Series water budget model that mixes local recharge and ET to meet ET demands is a good match with the measured value, but the calculated oxygen-18 value for this model is outside the acceptable range when compared to the measured value. Calculated deuterium and oxygen-18 values for the Reconnaissance Report Series water budget for the model that uses local recharge to meet ET demands before any regional interbasin flow groundwater is used to meet ET demands are both outside the range of an acceptable match with measured values. Thus, the isotope mass-balance models show that the SNWA water budget is the only water budget that produces acceptable deuterium and oxygen-18 values for the Alamo warm springs area in Pahranagat Valley.

The Muddy River Springs area in Upper Moapa Valley is the most downgradient warm springs discharge area of the WRFS, so it is the most important site for isotope mass-balance water budget and interbasin flow evaluations, because these regional warm springs integrate all recharge, discharge, and interbasin flows in the WRFS above this discharge area. Additionally, because the Muddy River Springs area is downgradient of and receives flow from the MVWFS, this warm spring discharge area also provides an evaluation point for the MVWFS, which will be discussed later in this report.

Coyote Springs Valley is the basin immediately upgradient of Upper Moapa Valley, from which the Muddy River Springs receive most of their flow (37,700 afy), with an additional 4,000 afy coming from Lower Meadow Valley Wash for the SNWA and SNWA/BARCAS water budgets and interbasin flow routing. Groundwater discharging from Muddy River Springs has flow-weighted average deuterium and oxygen-18 values of -97.8 and -12.90‰, respectively. The mass-balance model-calculated deuterium values for the SNWA and SNWA/BARCAS water budgets and interbasin flows are all excellent matches with the discharge-weighted average value (Table 3) and the oxygen-18 values are good to acceptable matches, except for model 2 which is 0.01‰ less than the acceptable range for oxygen-18 (Table 3). The mass-balance model-calculated deuterium and oxygen-18 values for the Reconnaissance Report Series water budget and interbasin flow were significantly less than the acceptable values for both models (Table 3). In summary, the SNWA and SNWA/BARCAS water budgets and interbasin flows produced isotope mass-balance model-calculated isotopic values that were acceptable for all four models, except for one oxygen-18 value that was 0.01‰ more negative than an acceptable match for the average measured value. The isotope mass-balance-calculated deuterium and oxygen-18 values for the Reconnaissance Report Series water budget were not even close to producing acceptable values.

In summary, the isotope mass-balance models that produced the most consistent and acceptable models for calculated deuterium and oxygen-18 values for all four of the hot spring areas in the WRFS used the SNWA (2007) water budget and interbasin flows. The isotope mass-balance models using the SNWA/BARCAS water budget and interbasin flows were also acceptable matches with measured values except for the Alamo hot springs area in Pahranagat Valley where the models did not produce calculated deuterium values that were acceptable matches with measured values. The isotope mass-balance models using the Reconnaissance Report Series water budget and Eakin (1966) interbasin flows only produced acceptable calculated isotopic values for the White River Valley hot spring areas, with the exception of one calculated deuterium value for the Alamo hot springs area in Pahranagat Valley. In conclusion, only the SNWA (2007) water budget and interbasin flows produced acceptable results for regional hot spring areas in the isotopic mass-balance model evaluations of the three different water budgets.

Consolidated Rock Wells with Warm Regional Groundwater

Wells completed in consolidated rock with warm regional groundwater that are not in regional warm spring discharge areas can be used to evaluate interbasin flow and water budgets. In the WRFS, starting with upgradient valleys in the north and moving downgradient to the south, the first consolidated rock wells encountered are south of White River Valley. As noted earlier in this report, warm water in wells completed in consolidated rock is assumed to represent interbasin flow from upgradient basins. The USGS-MX well (CV-DT-1) south of and downgradient from southern White River Valley is completed in the carbonate-rock aquifers and is located in northwest Coal Valley in a low-altitude pass between Coal and Garden valleys (Plate 1 and Appendix 3). The isotopic content of water in this well is -109.0 and -14.56‰ for deuterium and oxygen-18, respectively. The source of water for this well, in all six mass-balance models, is assumed to be interbasin flow from

Garden Valley. The model-calculated isotopic composition of Garden Valley inflow to Coal Valley is -104.7 and -14.08‰, except for the Reconnaissance Report Series water budget mass-balance models, which have calculated deuterium values of -104.2 and -104.5‰ and calculated oxygen-18 values of -14.00 and -14.06‰. The Reconnaissance Report Series water-budget-calculated isotopic values for Garden Valley interbasin flow to Coal valley are similar to the SNWA and SNWA/BARCAS water-budget-calculated values because this interbasin flow is only local recharge to Garden Valley, which has a similar isotopic composition in all six models. The mass-balance-calculated values for Garden Valley inflow to this well are significantly higher (more than 4 and 0.4‰ more positive in deuterium and oxygen-18, respectively) than the average measured values for water in the well (Table 4). This difference between calculated and measured values indicates that there is likely some interbasin flow from southern White River Valley to Coal Valley in the area of this well (Plates 1 and 2). Southern White River Valley groundwater outflow is isotopically lighter than Garden Valley recharge and the water in the Coal Valley well in all six isotope mass-balance models (appendix 2). Thus, mixing some outflow from southern White River Valley with some Garden Valley recharge could produce calculated isotopic values similar to measured values in this northern Coal Valley well. Having some interbasin flow from southern White River Valley to Coal Valley, instead of all interbasin flow going to Pahroc Valley, is possible given the geology along the boundary between southern White River Valley and Coal Valley (SNWA, 2007). Having some southern White River Valley groundwater flow into Coal Valley would have no effect on the water budget mass-balance calculations in the WRFS, because there is no groundwater ET in Coal Valley and all Coal Valley groundwater is assumed to flow into Pahroc Valley.

A second consolidated rock well with warm water (Fugro Dry Lake V Deep Well; Appendices 2 and 3) is located just south of White River and Cave valleys near the topographic divide between northern Dry Lake and northern Pahroc valleys (Plates 1 and 2). Water in this well has deuterium and oxygen-18 values of -107.5 and -14.16‰, respectively. Interbasin flow into northwestern Dry Lake Valley is most likely from southern Cave Valley because the geology and geologic structure along the southeastern part of Cave Valley and northwestern Dry Lake Valley are conducive to interbasin flow in this area (SNWA, 2007). In the mass-balance models, this interbasin flow is shown as entering northeastern Pahroc Valley, which it may do before flowing into northwestern Dry Lake Valley. Cave Valley outflow has a calculated isotopic content of -106.5 and -14.28‰ (1.0 and 0.12‰ different from measured values) for the mass-balance models using SNWA and SNWA/BARCAS water budgets, so the well water isotopic data support interbasin flow from Cave Valley as the source of this well water (Table 4). The Reconnaissance Report Series water budget was routed using Eakin’s 1966 interbasin flow routing, so no interbasin flow to Dry Lake Valley is included in these mass-balance models. The calculated deuterium and oxygen-18 values of local recharge for these mass-balance models was -98.9 and -13.10‰ (8.6 and 1.06‰ different than measured values) for the Reconnaissance Report series water budget. Clearly, given the local recharge isotopic values, local recharge is not the source of the warm water in the well.

Table 4. A comparison of the difference between measured and calculated deuterium and oxygen-18 values for wells completed in consolidated rock that contain warm (>20 ^{o}C) water for the WRFS that are outside of regional warm spring areas. Models 1 and 2 are for the SNWA water budget; models 3 and 4 are for the SNWA/BARCAS water budget; models 5 and 6 are for the Reconnaissance Report Series water budget. Models 1, 3, and 5 are for ET that is a mixture of local recharge and interbasin flow and models 2, 4, and 6 are for ET that uses local recharge first to satisfy ET demands. Positive values show that calculate values are less negative than measured values and negative values show that calculated values are more negative than measured values.

Warm Spring Discharge Area or Well	Model 1 δD (‰)	Model 1 $\delta^{18}O$ (‰)	Model 2 δD (‰)	Model 2 $\delta^{18}O$ (‰)	Model 3 δD (‰)	Model 3 $\delta^{18}O$ (‰)	Model 4 δD (‰)	Model 4 $\delta^{18}O$ (‰)	Model 5 δD (‰)	Model 5 $\delta^{18}O$ (‰)	Model 6 δD (‰)	Model 6 $\delta^{18}O$ (‰)
USGS-MX CV well (CV-DT-1) Coal Valley	+4.3	+0.48	+4.3	+0.48	+4.3	+0.48	+4.3	+0.48	+4.8	+0.56	+4.5	+0.50
Fugro Dry Lake V Deep Well North Dry Lake Valley	+1.0	-0.12	+1.0	-0.12	+1.0	-0.12	+1.0	-0.12	+8.6	+1.06	+8.6	+1.06
Well 181M1 Dry Lake Valley	-1.5	-0.61	-1.5	-0.61	-1.5	-0.61	-1.5	-0.61	+6.1	+0.57	+6.1	+0.57
Well 181W909M Dry Lake Valley	-1.9	-0.78	-1.9	-0.78	-1.9	-0.78	-1.9	-0.78	+5.7	+0.40	+5.7	+0.40
Well 182W906M Delamar Valley	+1.4	+0.21	+1.4	+0.21	+1.3	+0.21	+1.3	+0.21	+1.4	+0.23	+1.4	+0.23
Well 209M-1 Pahranagat Valley	-0.3	-0.51	-0.9	-0.57	+0.7	-0.39	+0.4	-0.42	-6.6	-1.24	-9.7	-1.56
Average of 11 wells Coyote Springs Valley	+1.1	-0.24	+0.4	-0.17	+1.8	-0.14	+1.3	-0.17	-7.2	-1.26	-9.8	-1.52
Wells in Upper Moapa Valley	-0.8	-0.28	-1.6	-0.34	-0.2	-0.19	-0.9	-0.24	-9.3	-1.32	-11.9	-1.59
Wells in Garnet Valley	-2.4	0.00	-3.0	-0.03	-1.7	+0.10	-2.1	+0.08	+15.9	+2.72	+15.9	+2.72
Wells in California Wash V.	+1.2	+0.33	+0.1	+0.23	+1.7	+0.39	+0.7	+0.30	-4.8	-0.37	-7.1	-0.60

Dry Lake Valley also contains two wells in addition to the USGS MX well completed in consolidated rock that were recently drilled by SNWA. These two wells (181M1 and 181W909M; appendices 2 and 3 and Plates 1 and 2) are located in west- central and southeastern Dry Lake Valley. They were developed before sampling by removing a volume of water approximately equal to the volume used in drilling the wells. Thus, the isotopic data should be representative of the regional groundwater in the area of the wells, but the samples may contain some drilling fluid mixed with the regional groundwater. The samples from the two Dry Lake Valley wells have measured deuterium and oxygen-18 values of -105.0 and -104.6 and -13.67 and -13.50‰, respectively. The source of this water is Cave Valley, the same as for the northern Dry Lake Valley well. The mass-balance model-calculated deuterium values for these two wells for both the SNWA and SNWA/BARCAS water budgets are an excellent match to measured values. However, neither well has an acceptable mass-balance model-calculated oxygen-18 value for the SNWA or SNWA/BARCAS water budgets. The mass-balance model-calculated deuterium and oxygen-18 values for these two wells for the Reconnaissance Report Series water budget and Eakin (1966) interbasin flow routing exceed the acceptable range, except for oxygen-18 for well 181W909M, which is right at the limit of the acceptable range (Table 4). Thus, the isotope mass-balance models show that the SNWA and SNWA/BARCAS water budgets and interbasin flows produce an excellent match to measured deuterium values, but none of the mass-balance models produce an acceptable calculated oxygen-18 value. The more negative calculated oxygen-18 than measured values, indicates that some local recharge, which has more positive oxygen-18 values then Cave Valley interbasin flow, may be mixing with the interbasin flow from Cave Valley as it flows south to these two wells.

Downgradient from Pahroc Valley a consolidated rock well with warm water (well 209M-1) is located in northeastern Pahranagat Valley near the topographic divide between Pahranagat and Delamar valleys (Plates 1 and 2). This well water has deuterium and oxygen-18 values of -104.7 and -13.53‰, respectively. The location of the well indicates that the source of this groundwater is inflow from Pahroc Valley, which is immediately upgradient from Pahranagat Valley. For the SNWA water budget, mass-balance-calculated deuterium values for the two models are -105.0 and -105.6‰ and for oxygen-18 are -14.04 and -14.10‰ and for the SNWA/BARCAS water budget they are -104.0 and -104.3‰ and -13.92 and -13.95‰, respectively. For deuterium, all four of these model-calculated values are excellent matches with measured values, however, for oxygen-18 only one of the SNWA/BARCAS calculated values is an acceptable match and all the others are outside the acceptable range (Table 4). The location of the well in the South Pahroc Range recharge area and very near the topographic divide with Delamar Valley, along with the less negative oxygen-18 value than interbasin flow from Pahroc Valley, indicates that this well may be mixing some local recharge and/or inflow from Dry Lake Valley (with less negative oxygen-18 water) with regional groundwater flow in this area. All calculated isotopic values for the mass-balance model using the Reconnaissance Report Series water budget are significantly less than acceptable values as compared to the measured values (Table 4).

Wells completed in consolidated rock with warm water that are present in the WRFS before the next downgradient warm spring area in Upper Moapa Valley (Big Muddy Springs area) are in Delamar and Coyote Springs valleys. Delamar Valley contains Well 182W906M. Before sampling, this well was developed by removing a volume of water approximately equal to the volume used in drilling the well. Thus, the isotopic data for this well should be representative of the regional groundwater in the area of the well, but the sample may contain some drilling fluid mixed with the regional groundwater. Water in this well should be regional groundwater inflow from upgradient Dry Lake Valley. Water from this well has a deuterium value of -100.3‰ and an oxygen-18 value of -13.33‰. All six mass-balance models produced calculated deuterium values that are excellent matches with the measured value and oxygen-18 values that are good matches with the measured value. Mass-balance model results show that SNWA, SNWA/BARCAS, and Reconnaissance Report Series water budgets and routing all indicate that water in this well is from interbasin flow from Dry Lake Valley (Table 4).

Downgradient of Pahranagat, Delamar, and Kane Springs valleys is Coyote Springs Valley. Numerous wells have recently been completed in the valley in consolidated rock, developed by aquifer testing, and sampled for chemical and isotopic analyses (Acheampong *et al*., 2007; and Stephen Acheampong, SNWA, written commun., 2007). The average isotopic content of water from 11 wells in Coyote Springs Valley with warm regional groundwater was used for evaluating water budgets and interbasin flow. Three of the 14 wells with isotopic data in the valley were not used in determining the average isotopic composition of interbasin flow because two of the wells are shallower than a nearby well and contain local recharge (wells CSVM-7 and VF-1) and one well is located on the Sheep Range alluvial fan (CSVM-5) and contains primarily recharge water from the Sheep Range. The average isotope values of the 11 well waters are -100.7‰ for deuterium and -13.11‰ for oxygen-18. The calculated deuterium and oxygen-18 values for interbasin flow into Coyote Springs Valley for the SNWA water budget and interbasin flows is -99.6 and -100.3‰ for deuterium and -13.35 and -13.38‰ for oxygen-18. The calculated deuterium values are excellent matches for the average measured value and one of the calculated oxygen-18 values is an excellent match and the other is a good match with the average measured value. For the SNWA/BARCAS water budget, mass-balance model-calculated deuterium and oxygen-18 values are excellent matches for the average measured values (Table 4). All calculated isotopic values for the mass-balance model using the Reconnaissance Report Series water budget are significantly less than acceptable values when compared to the measured values (Table 4).

Upper Moapa, Garnet, and California Wash valleys are all downgradient of Coyote Springs Valley and they contain wells completed in consolidated rock with warm water. The source of almost all of this groundwater is water in the carbonate-rock aquifers flowing out of the Coyote Springs Valley area. This interbasin flow has a deuterium composition of -99.9 to -99.3‰ and an oxygen-18 composition of -13.35 to -13.32‰ for the SNWA water budget. A comparison of the average isotopic values of these well waters with mass-balance-calculated values shows that deuterium values are good to excellent matches and oxygen-18 values range from excellent to acceptable matches with measured values (Table 4). The calculated isotope values for the SNWA/BARCAS water budget are all excellent to good matches with measured values, except for one oxygen-18 value, which was an acceptable match with measured values (Table 4). For Upper Moapa, Garnet, and California Wash valleys, all calculated isotopic values for the mass-balance model using the Reconnaissance Report Series water budget are significantly less than acceptable values when compared to the measured values, except for one acceptable oxygen-18 value for California Wash Valley (Table 4).

Lower Moapa Valley has two wells in the Weiser Wash area with isotopic data (EH-3, EH-7) that may be completed in consolidated rock. These wells have deuterium and oxygen-18 values of -91.0 (both wells) and -12.70 and -12.45‰, respectively. These wells do not reflect regional groundwater from the WRFS in this area (California Wash interbasin flow), rather they are most similar to the calculated isotope values of groundwater in Lower Meadow Valley Wash (-93.5 and -12.59‰; appendix 2). Thus, the source of these well waters, which are located north of California Wash and east of Lower Meadow Valley Wash (Plates 1 and 2), is interbasin flow from Lower Meadow Valley Wash near the area where interbasin flow enters California Wash.

The Black Mountains area basin contains several small springs that discharge both local recharge and regional groundwater (Pohlman *et al*., 1998). Three springs located in the southern part of the basin—Bitter, Cottonwood, and Sandstone springs—are cold (<20 ^{o}C) alluvial springs that discharge local recharge. There is no recharge to this area in the SNWA water budget, so either this small amount of discharge is overlooked as low-altitude recharge in the water budget or there is some low-altitude recharge from other nearby basins that discharge from these springs. In the Black Mountains area, there is a second group of springs in the eastern part of the basin. The two largest of these springs, Rogers and Blue Point springs, discharge directly out of carbonate rock and they are warm (>20 ^{o}C). Their deuterium and oxygen-18 compositions are -91.7 and -92.6‰ and -12.33 and -12.40‰, respectively. The proposed source of this water is inflow from California Wash. However, the calculated isotopic composition of inflow for the SNWA and SNWA/BARCAS water budgets ranges from -98.9 to -97.3‰ for deuterium and -13.22 to -13.06‰ for oxygen-18 (Appendix 2), which are outside the acceptable range for this to be the source of water for these springs. Possible sources of this water are: (1) interbasin flow directly from southern Lower Meadow Valley Wash to the springs (-96.3 to -93.5‰ for deuterium and -12.92 to -12.59‰ for oxygen-18 for SNWA and SNWA/BARCAS water budgets [Appendix 2]); or (2) regional flow from either California Wash or Lower Meadow Valley Wash that has mixed with local recharge, which is isotopically heavier (more positive) than the spring discharge in this area (Appendix 2).

In summary, the isotope mass-balance models produced similar and acceptable results for calculated deuterium and oxygen-18 values for wells completed in consolidated rock with warm water using the SNWA (2007) or the SNWA/BARCAS water budgets and interbasin flows. The isotope mass-balance models using the Reconnaissance Report Series water budget and Eakin (1966) interbasin flow routing only produced acceptable calculated isotopic values for wells in Dry Lake Valley, Well 182-906M in Delamar Valley, and wells in California Wash Valley.

<u>White River Flow System Water Chemistry</u>

An overview evaluation of water chemistry data for groundwater in the WRFS was performed by plotting water chemistry data on a trilinear diagram. Plotting water chemistry data for cold (<20^{o}C) and warm (>20^{o}C) springs discharging from and wells completed in the carbonate-rock aquifers of the WRFS on a trilinear diagram (Figure 15) shows that the water chemistry is generally similar from north to south down the flow system until Coyote Springs Valley. Groundwater flowing down the WRFS is generally a Ca-Mg-HCO_3-type water until the groundwater encounters evaporative salts, likely gypsum or anhydrite and halite, in the southern part of the flow system. As groundwater flows through Coyote Springs Valley and into Upper Moapa Valley, evaporative salts are added to the water before it discharges in the Muddy River Springs area. This is observed on the trilinear plot as the concentrations of sodium (Na), sulfate (SO_4), and chloride (Cl) increase from the warm springs in Pahranagat Valley to the carbonate wells in Coyote Springs Valley to the warm springs and wells completed in the carbonate-rock aquifer in the Muddy River springs area.

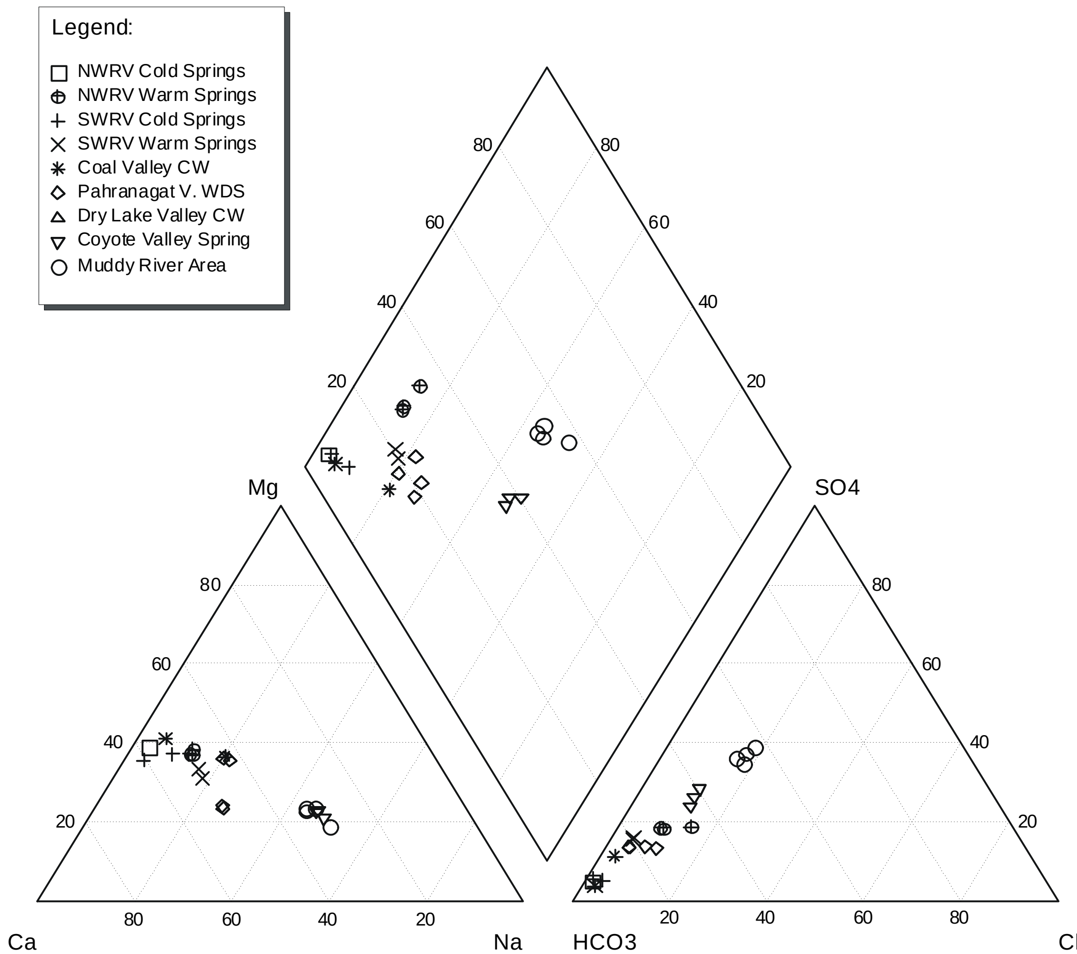

Figure 15. Trilinear plot of White River flow system water chemistry (from Thomas *et al*., 2001, Figure 6).

Meadow Valley Wash Regional Groundwater Flow System

Mifflin (1968) and Emme (1986) described regional groundwater flow in the MVWFS. The original flow delineations by Mifflin (1968) and Emme (1986) for parts of the MVWFS were further developed by the LVVWD (2001) and Thomas *et al*. (2001). Groundwater levels in the MVWFS show that groundwater recharged as far north as Lake Valley flows through Patterson Valley to Panaca Valley and as far to the northeast as Spring Valley (the Spring Valley southeast of Lake Valley and south of Spring Valley that has U.S. Highway 50 going through it and Snake Valley) flows through Eagle, Rose, and Dry valleys into Panaca Valley (Figures 2 and 14; Thomas *et al*., 2001). Panaca Valley groundwater flows into Meadow Valley Wash as does groundwater flowing out of Clover Valley. As described for the White River regional flow system, groundwater in Meadow Valley Wash flows south into Upper Moapa and California Wash valleys.

In the MVWFS, regional warm springs that can be used to evaluate the isotope mass-balance models are present only in Panaca Valley. Panaca Warm Spring is a large spring discharging from the carbonate-rock aquifers in northern Panaca Valley and Caliente Hot Springs discharge from the carbonate rock aquifers in the southern part of Panaca Valley. The regional warm springs in the Muddy River springs area of the WRFS provide an additional evaluation point for calculated isotopic values for the MVWFS water budgets, because groundwater in the MVWFS flows into the WRFS in the area of the Muddy River Springs. In addition, there are small warm springs (flow < 50 afy) in the MVWFS that may represent interbasin flow or interbasin flow mixed with local recharge that can also be used to evaluate the mass-balance models. These smaller warm springs are Flat Nose Spring in Dry Valley, Bennett Spring in the west-central part of Panaca Valley, and Kershaw-Ryan Spring #1 in the northeastern part of Lower Meadow Valley Wash (Plates 1 and 2). Although the MVWFS does not contain consolidated rock wells with warm water that can be used to evaluate interbasin flow and water budgets for the MVWFS, as were present in the WRFS, the MVWFS does have alluvial wells with warm (>20 ^{o}C) water. These alluvial wells with warm water include Panaca Town, Lester Mathews, and North Lee wells in the Panaca Warm Spring area and the Railroad well (Farrier), EH-6 well, and EH-8 well in the southernmost part of Lower Meadow Valley Wash.

Meadow Valley Wash Flow System Isotope Mass-balance Models

The stable isotope mass-balance models developed for the MVWFS for this study include the same area as the Thomas *et al*. (2001) study. However, this study includes a significant amount of new data (about 450 new analyses) to help define the isotopic content of groundwater recharge areas both spatially and temporally and new recharge and groundwater ET estimates (SNWA, 2007; Welch and Bright; 2007).

Model Development and Results

Stable isotopes of water were used to evaluate water budgets and interbasin flows for the MVWFS by determining average deuterium and oxygen-18 values for all recharge and groundwater ET areas in the study area and tracking the volumes of recharge added to and ET removed from the MVWFS throughout the study area. For a water budget to be a reasonable estimate of recharge and ET, calculated isotopic values for regional spring discharge areas and small warm springs have to be similar to measured values. No wells completed in consolidated rock with warm (>20 ^{o}C) water from the regional flow system were identified in the MVWFS that could be used to help evaluate water budgets and interbasin flow, but some wells completed in alluvium contained warm water and they were used to help evaluate interbasin flows and water budget estimates.

To use a stable isotope mass-balance model for evaluating water budgets in regional flow systems, there needs to be an easily identifiable range in isotopic values throughout a flow system. A range in isotopic values is needed to identify inputs from different recharge areas and interbasin flow in a regional flow system. Fortunately, in the MVWFS deuterium and oxygen-18 vary greatly from Lower Meadow Valley Wash in the south to Lake Valley in the north. A plot of deuterium versus oxygen-18 (Figure 16) shows that isotopic values increase (become less negative) from north to south. This 25.5‰ increase in recharge area deuterium values, from -112.0‰ in Lake Valley in the northern MVWFS to -86.5‰ in Lower Meadow Valley Wash in the southern MVWFS and the 3.64‰ increase in recharge area oxygen-18 values, from -15.10‰ in Lake Valley in the north to -11.46‰ in Lower Meadow Valley Wash in the south (Appendices 1 and 2 and plate 2), makes deuterium and oxygen-18 excellent tracers for water budget evaluations in the MVWFS.

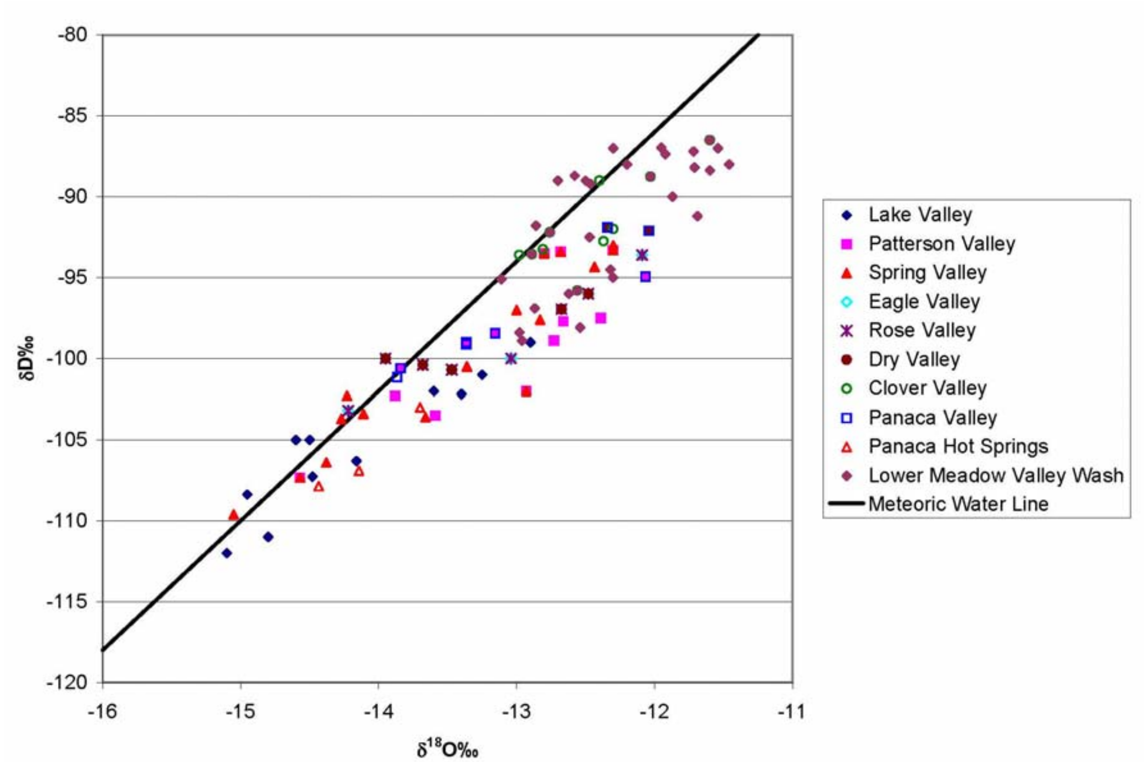

Figure 16. Plot of deuterium versus oxygen-18 for samples in the Meadow Valley Wash flow system. Meteoric Water Line from Craig (1961).

The water budgets evaluated in this report are based on estimates of recharge for the different mountainous recharge areas in a valley and predevelopment ET. Groundwater interbasin flow directions for the SNWA, SNWA/BARCAS, and Reconnaissance Report series water budgets are the same with groundwater flowing downgradient from northern valleys (Lake and Spring valleys) to Lower Meadow Valley Wash in the south and the amount of interbasin flow is recharge plus interbasin flow that is in excess of ET in a valley. As noted earlier in this report, three different water budgets were evaluated in this study: (1) new SNWA recharge and predevelopment ET rates (SNWA, 2007); (2) new SNWA recharge and ET rates combined with BARCAS study ET rates (SNWA, 2007; Welch and Bright, 2007; BARCAS ET rates were used in place of new SNWA recharge rates for Lake Valley in the MVWFS); and (3) Reconnaissance Report series recharge and ET rates. The ET values are for predevelopment conditions and do not include ET from fields irrigated by groundwater, but they do include spring discharge.

The isotope mass-balance models are used to evaluate MVWFS water budgets by determining if estimated recharge and ET rates and interbasin flows within the MVWFS are consistent with the deuterium and oxygen-18 data (Table 3 and Appendix 3). If mass-balance model-calculated deuterium and oxygen-18 values are similar to measured values for regional warm springs, then the proposed water budgets are reasonable. In contrast, if mass-balance model-calculated deuterium and oxygen-18 values are significantly different than measured values for regional warm springs, then the proposed water budgets are not reasonable, or interbasin flow routing may be incorrect. In addition to regional warm springs, small warm springs and alluvial wells containing warm water are used as additional evaluation points in the MVWFS. Similar to the regional warm springs, the isotopic content of groundwater in small springs and warm water wells needs to be similar to the calculated value for the proposed interbasin flows and water budgets to be reasonable. The isotopic mass-balance models are not used for determining how much recharge should be assigned to each recharge area or how much ET should be assigned to each valley; rather, the models evaluate whether the assigned recharge and ET values and interbasin flows are consistent with the stable isotope data of the MVWFS. The isotopic mass-balance models are nonunique; a reasonable result confirms the viability of a proposed water budget but it does not prove that the water budget is correct. An isotopic mass-balance model can be used to eliminate unrealistic water budget estimates, or interbasin flows, and to help identify areas where water budgets and/or interbasin flows need to be better understood.

Regional Warm Springs

The same approach that was used for evaluating water budgets and interbasin flows for the WRFS with the isotope mass-balance model was used for the MVWFS. In the MVWFS, the only valley with large regional warm springs is Panaca Valley. Panaca warm spring in northern Panaca Valley has average measured deuterium and oxygen-18 values of -106.9 and -14.14‰, respectively, for 13 samples (Table 2). Interbasin flows from Patterson and Dry valleys into Panaca Valley are about 6 to 8‰ more positive for deuterium and 0.7 to 1.0‰ more positive for oxygen-18 than isotope mass-balance-calculated interbasin flows for the SNWA and SNWA/BARCAS water budgets. The only groundwater in carbonate-rock aquifers of the MWVFS with similar isotopic values to that of Panaca Spring is groundwater in Lake Valley. Panaca Spring discharges out the southern part of the highly faulted carbonate rocks of the Pioche Hills. Thus, the source of this carbonate aquifer water is likely interbasin flow from Lake Valley that flows under Patterson Valley alluvial and volcanic rock aquifers in carbonate-rock aquifers to Panaca Spring. Some of this flow passes through volcanic rock aquifers before discharging from carbonate-rock aquifers as indicated by the presence of elevated sodium and potassium concentrations as compared to other carbonate-rock aquifer groundwaters in the MVWFS (see Meadow Valley Wash Flow System Water Chemistry section in report). Isotope mass-balance model-calculated deuterium and oxygen-18 values for the SNWA, SNWA/BARCAS, and Reconnaissance Report series water budgets are an excellent match to measured values at Panaca Spring if the source of the spring is Lake Valley interbasin flow (Table 3). The lack of isotopic data for groundwater in Patterson Valley, only one site (Dodge Well) in the northern part of the valley with deuterium and oxygen-18 values -107.0 and -14.20‰, respectively, prohibits the determination of isotopic values for groundwater in the carbonate-rock aquifers in the valley. Although the cold (< 20 ^{o}C) water in this alluvial well has deuterium and oxygen-18 values that are very similar to Panaca Spring (Appendix 3), so this northern Patterson Valley groundwater may be representative of interbasin flow out of Lake Valley in the carbonate-rock aquifer. In summary, recharge to Lake Valley is the most likely source of water discharging from Panaca Spring.

The Caliente Hot Springs in southern Panaca Valley also have measured deuterium and oxygen-18 values similar to Lake Valley recharge (-107.9 and -14.44‰ for the average of 8 samples). Isotope mass-balance model-calculated deuterium values are a good match and calculated oxygen-18 values are an acceptable match for measured values for the SNWA and SNWA/BARCAS water budgets and interbasin flows (Table 3). Isotope mass-balance model-calculated deuterium and oxygen-18 values for the Reconnaissance Report series water budget and interbasin flows are an excellent match to measured values for the Caliente Hot Springs (Table 3). Thus, recharge to Lake Valley appears to be the source of water discharging from the Caliente Hot Springs.

The Muddy River springs area in Upper Moapa Valley receives interbasin flow from Lower Meadow Valley Wash at the terminus of the MVWFS, thus these regional warm springs also provide information that can be used to evaluate water budgets and interbasin flow for the MVWFS. As described above for the WRFS, the mass-balance model-calculated deuterium values for the SNWA and SNWA/BARCAS water budgets and interbasin flows are all excellent matches with the discharge-weighted average value (Table 3) and the oxygen-18 values are good to acceptable matches, except for model 2, which is 0.01‰ less than the acceptable range for oxygen-18 (Table 3). The mass-balance model-calculated deuterium and oxygen-18 values for the Reconnaissance Report series water budget and interbasin flow were significantly less than the acceptable values for both models (Table 3). In summary, the mass-balance-calculated isotopic values for springs in the Muddy River Springs area show that the SNWA and SNWA/BARCAS water budgets for the MVWFS is supported by the mass-balance models. However, interbasin flow to the Muddy River Springs area from the MVWFS is only about 10 percent of the interbasin flow to this area, so although isotope mass-balance models for the Muddy Springs area support the SNWA and SNWA/BARCAS MVWFS water budgets, a strong statement cannot be made about water budgets and interbasin flows of the MVWFS using mass-balance model results for the Muddy River Springs area data.

In summary, the isotope mass-balance models produced excellent matches for calculated deuterium and oxygen-18 values with measured values for Panaca Spring for all six water budgets. The isotope mass-balance models produced good matches for calculated deuterium values and acceptable values for calculated oxygen-18 values with measured values for Caliente Hot Spring for the SNWA and SNWA/BARCAS water budgets. The isotope mass-balance models produced excellent matches for calculated deuterium and good matches for calculated oxygen-18 values for Caliente Hot Spring for the Reconnaissance Report series water budget. Some interbasin flow moves from the MVWFS to the WRFS in the Muddy River Springs area, so this also provides information that can be used to evaluate water budgets for the MVWFS. The SNWA and SNWA/BARCAS water budgets produce excellent to acceptable matches for calculated and measured values for the Muddy River Springs and the Reconnaissance Report series water budget does not.

Small Warm Springs and Alluvial Wells with Warm Water

In addition to regional warm spring areas in the MVWFS, small warm springs and alluvial wells with warm water, which are likely fed by regional groundwater flow, are also present. These small warm springs and alluvial wells with warm water provide additional data that can be used to evaluate water budgets and interbasin flow. In the MVWFS, going from north to south down the hydraulic gradient the valleys with small warm springs and alluvial wells with warm water are Dry, Panaca, and Lower Meadow Valley Wash valleys. Flat Nose Spring in Dry Valley has measured deuterium and oxygen-18 values of -101.0 and -13.40‰, respectively. The SNWA and SNWA/BARCAS water budget mass-balance models have calculated deuterium values of -99.3 and -99.2‰ and oxygen-18 values of -13.25 and -13.24‰, respectively, for interbasin flow into Dry Valley from Rose Valley. These calculated values are excellent matches with measured values for both deuterium and oxygen-18 (Table 3). The Reconnaissance Report Series water budget mass-balance models produced calculated deuterium and oxygen-18 values that were good matches with measured values for both deuterium and oxygen-18 (Table 3). Thus, the isotope mass-balance model-calculated deuterium and oxygen-18 values support the proposed water budgets and interbasin flows above Dry Valley in the MVWFS.

The next downgradient valley with a small warm spring is Panaca Valley. Bennett Spring is located in the west-central part of Panaca Valley. The measured isotopic content of this spring is -103.0 and -13.70‰, for deuterium and oxygen-18, respectively. The source of this spring water could be deep interbasin flow from Lake Valley, inflow from Patterson Valley, or a mixture of regional flow with local recharge. The mass-balance-calculated deuterium values are an excellent match with measured values for 3 of the 4 models and a good match for the other model and calculated oxygen-18 values are a good match with measured values for 3 of the 4 models and an acceptable match for the other model for Patterson Valley interbasin flow being the source of this spring for the SNWA and SNWA/BARCAS water budgets. If the source of Bennett Spring was interbasin flow from Lake Valley rather than Patterson Valley, the mass-balance calculated deuterium values are a good match with measured values for 4 models and calculated oxygen-18 values are an acceptable match with measured values for the SNWA water budget but they not an acceptable match for the SNWA/BARCAS water budget. The mass-balance models using the Reconnaissance Report series water budget produce similar results (Table 3). Thus, the most likely source of Bennett Spring is interbasin flow from Patterson Valley because all three water budgets produce excellent to good matches for calculated isotopic values with measured values, with the exception of one model-calculated oxgygen-18 value, which produced an acceptable match.

Three alluvial wells with warm water are located in the Panaca Warm Spring area—Panaca Town, Lester Mathews, and North Lee wells. The Panaca Town well water has similar deuterium and oxygen-18 values as Panaca Spring and thus likely has the same source water. The other two wells contain water with deuterium and oxygen-18 values that are more positive than Panaca Spring and more negative than local recharge, so the water in these wells is likely a mixture of regional groundwater in the Panaca Spring area with local recharge and/or inflow to the valley from Patterson and Dry valleys. This mixture is needed to produce calculated oxygen-18 values that are an acceptable, or better, match with measured values.

Downgradient of Panaca Valley is Meadow Valley Wash. Kershaw-Ryan Spring #1 is located in the northeastern part of Lower Meadow Valley Wash. The spring has measured deuterium and oxygen-18 values of -95.1 and -13.11‰, respectively. These values are more negative than recharge from the adjacent Clover Mountains (-90.4 and -12.25‰), so this small warm spring likely is interbasin flow rather than local recharge. Both Panaca and Clover valleys flow into northern Meadow Valley Wash. The inflow weighted-average deuterium and oxygen-18 values for the SNWA and SNWA/BARCAS water budget models range from -100.1 to -95.5‰ and -13.36 to -12.82‰, respectively. All mass-balance model-calculated deuterium values for the SNWA and SNWA/BARCAS water budgets were excellent matches with measured values and were good matches for calculated oxygen-18 values with one calculated value being an excellent match to measured values (Table 3). The mass-balance model-calculated deuterium values for the Reconnaissance Report series water budget were outside of the acceptable level as compared to measured values, but the oxygen-18 values were an excellent and good match with measured values (Table 3). The isotope mass-balance models support the SNWA and SNWA/BARCAS water budgets and interbasin flow into northern Lower Meadow Valley Wash from Panaca and Clover valleys.

Alluvial wells with warm water in Lower Meadow Valley Wash are located in the southernmost part of the valley. These wells include the Railroad Well (Farrier), EH-6, and EH-8 in the Weiser Wash area (Plates 1 and 2 and appendix 3). These three wells have deuterium values ranging from -99.5 to -96.5‰ and oxygen-18 values ranging from -13.90 to -12.50‰. These wells appear to contain well-mixed carbonate aquifer water that is observed in the Muddy River Springs area in Upper Moapa Valley and at well CSV-2 in the northern part of Upper Moapa Valley about halfway between the Muddy River Springs area and the Railroad Well (Farrier). Regional groundwater in the Muddy River Springs area has deuterium values that range from -99.0 to -96.5‰ and oxygen-18 values that range from -13.05 to -12.45‰. The isotopic values of the alluvial wells with warm water fall within the range of Upper Moapa Valley regional groundwaters, except for two of the oxygen-18 values that are more negative than the Muddy River Springs area groundwater.

In summary, the isotope mass-balance models produced similar and excellent to good matches for model-calculated deuterium and oxygen-18 values for small flowing warm springs for the SNWA (2007) and SNWA/BARCAS water budgets and interbasin flows. The isotope mass-balance models using the Reconnaissance Report series water budget produced excellent to good matches for calculated isotopic values for two of the three springs and for oxygen-18 for the third spring, but the calculated deuterium values were outside the acceptable range for the third spring. Alluvial wells with warm water in the MVWFS were only in the Panaca Spring area and in the southernmost part of Lower Meadow Valley Wash. These well waters had isotopic values that were generally in the range of model-calculated isotopic values for those areas.

Meadow Valley Wash Flow System Water Chemistry

An overview evaluation of water chemistry data for groundwater in the MVWFS was performed by plotting water chemistry data on a trilinear diagram. In contrast to groundwater chemistry in the WRFS, groundwater in the MVWFS shows marked differences because of the movement of groundwater through volcanic rock and alluvial aquifers that contain volcanic rock (Figure 17). Groundwater in Lake Valley and the mountains along the western boundary of the MVWFS, which are predominately carbonate rock, is a Ca-Mg-HCO_3 water type, with the exception of one sample. Groundwater in the volcanic rocks of the MVWFS range from a Ca-Mg-HCO_3-type water to a more Na- and K-rich groundwater. Groundwater from alluvial wells has a chemical composition that overlaps that of the volcanic rock aquifer groundwaters, but most samples contain more sulfate and chloride than either the volcanic rock or carbonate-rock groundwaters. Panaca Spring contains a mixed water chemistry with more Na and K and generally more SO_4 than the carbonate-aquifer groundwaters (Figure 17 and Appendix 3). The increase in Na and K in Panaca Spring, as compared to other carbonate-rock aquifer groundwater, indicates that these waters have flowed through volcanic rock or alluvial aquifers containing volcanic rock minerals and dissolved Na- and K-rich minerals.

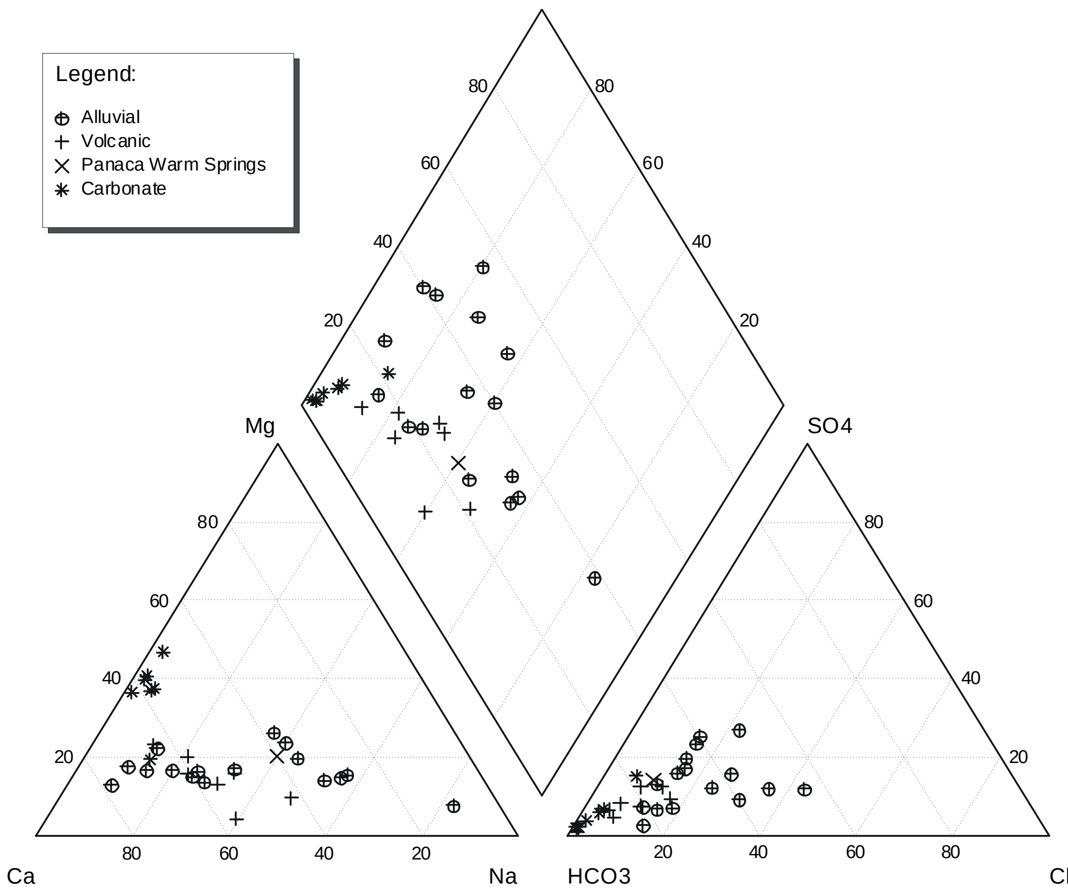

Figure 17. Trilinear plot of Meadow Valley Wash flow system water chemistry (from Thomas *et al.*, 2001, Figure 8).

Isotopic Mass-balance Model Sensitivity

Sensitivity analysis of the isotope mass-balance models to changes in recharge and ET values was performed. The Muddy River Springs discharge area is the most downgradient regional warm spring area in the WRFS, so this spring area integrates all recharge and ET and interbasin flows above this spring discharge area. Additionally, there is some flow from the MVWFS that is also discharged in the Muddy River Springs area. Thus, Muddy River Springs is the best regional spring area in the study area to evaluate sensitivity of the isotope mass-balance models. Sensitivity analysis was performed for the two models that evaluated the SNWA (2007) water budget because: (1) this water budget had the best model results in terms of calculated isotopic values that most closely matched measured values throughout the study area, (2) the model results for the SNWA/BARCAS water budget were very similar to the SNWA water budget, so sensitivity analysis would produce similar results for both water budgets, and (3) the Reconnaissance Report series water budget did not produce acceptable isotope mass-balance model results for the Muddy River Springs area.

The sensitivity analysis was performed in several steps. First, all recharge and ET values were increased and decreased by 20 percent because changing recharge and ET together by the same percent in the isotope mass-balance models should produce similar results as the original water budget. For increasing both recharge and ET by 20 percent, model 1 calculated deuterium increased by 0.1‰ and calculated oxygen-18 increased by 0.01‰, and for model 2 the calculated values increase by 0.0 and 0.01‰. For decreasing both recharge and ET by 20 percent, model 1 calculated deuterium decreased by 0.1‰ and calculated oxygen-18 decreased by 0.02‰, and for model 2 the calculated values decrease by 0.0 and 0.01‰. Thus, the concept of increasing or decreasing the current water budget recharge and ET estimates by the same amount will produce the very similar model results was proven to be valid. Next, only the recharge was increased by 10 percent while holding the ET the same. The calculated isotopic values increased by 1.4 and 1.7‰ and were 2.4 and 3.4‰ more positive than measured values for deuterium and increased by 0.18 and 0.21‰ and were 0.52 and 0.61‰ more positive than measured values for oxygen-18. This shows that calculated deuterium values changed from excellent matches to good and acceptable matches wtih measured values and calculated oxygen-18 values changed from acceptable to unacceptable matches with measured values by simply increasing recharge rates by 10 percent while maintaining the original ET rates. Decreasing ET by 10 percent while keeping recharge the same produced a similar range in calculated deuterium and oxygen-18 values as was observed for increasing recharge by 10 percent. Calculated deuterium and oxygen-18 values were 2.4 and 3.5‰ and 0.53 and 0.62‰ greater than measured values, respectively, and calculated values were a good to acceptable match for deuterium and an unacceptable match for oxygen-18 as compared with measured values in both models.

Next, recharge rates were increased and ET rates were decreased individually in the models by 20 percent. Increasing recharge by 20 percent while holding ET the same resulted in calculated isotopic values increasing by 2.4 and 2.9‰ to 3.4 and 4.6‰ more positive than measured values for deuterium and by 0.31 and 0.36‰ to 0.65 and 0.76‰ more positive than measured values for oxygen-18. A similar change in model-calculated deuterium and oxygen-18 values was observed for a 20-percent decrease in ET rates as for a 20-percent increase in recharge rates. Calculated deuterium values were 3.7 and 5.0‰ and calculated oxygen-18 values were 0.69 and 0.81‰ more positive than measured values. Thus, by either increasing recharge or decreasing ET by 20 percent the isotope mass-balance model-calculated values were unacceptable matches with measured values, except for calculated deuterium in model 1.

In summary, increasing or decreasing recharge and discharge rates of the SNWA (2007) water budget together will produce very similar model results to the original mass-balance model results. Increasing or decreasing recharge and discharge rates separately by 20 percent while keeping the other rate the same, produces model results that are generally unacceptable. Thus, an isotopic mass-balance model evaluation of the SNWA (2007) water budget shows that the recharge and ET rates and interbasin flows produce calculated deuterium and oxygen-18 values that match well with measured values, but increasing or decreasing the recharge or ET rates of the water budget by 20 percent results in mostly unacceptable calculated deuterium and oxygen-18 values as compared to measured values for regional groundwater discharge at the Muddy River Springs area, the most downgradient regional spring area in the WRFS and MWVFS.

Comparison of this Study's Isotope Mass-balance Models with the 2001 and Other Studies

The new SNWA (2007) water budget and interbasin flows evaluated in this study, as compared to the Thomas *et al*. (2001) study, have overall decreased recharge and ET rates and some different interbasin flow routing. For the WRFS, the SNWA (2007) water budget had total recharge of 155,000 afy as compared to the LVVWD (2001) recharge of 210,000 afy, a 26-percent decrease in total recharge, and a total ET of 140,000 afy, as compared to the LVVWD (2001) ET of 178,000 afy, a 21-percent decrease. For the MVWFS, the SNWA (2007) water budget had total recharge of 73,000 afy as compared to the LVVWD (2001) recharge of 122,000 afy, a 40-percent decrease in total recharge, and a total ET of 63,000 afy, as compared to the LVVWD (2001) ET of 91,000 afy, a 31-percent decrease. Combining the WRFS and MVWFS recharge values for the entire study area shows a decrease from the LVVWD (2001) value of 332,000 afy to 228,000 afy for this study, a decrease of 31 percent. The ET rates for the WRFS and the MVWFS for the entire study area show a decrease from the LVVWD (2001) study of 269,000 to 203,000 afy for this study, an overall decrease in ET of 25 percent. The SNWA/BARCAS recharge and ET rates are very similar to the SNWA (2007) values, so a comparison of the LVVWD (2001) recharge and ET values with the SNWA/BARCAS values is not presented.

Differences in interbasin flows between the Thomas *et al*. (2001) and this study are based on new geologic and hydrologic information (SNWA, 2007). The differences in interbasin flow between this study (flow rates are for the SNWA [2007] water budget) and the Thomas *et al*. (2001) study are: (1) there is no interbasin flow from Long Valley to Newark Valley (Thomas *et al*. [2001] had 8,000 afy of water flowing from Long Valley to Newark Valley); (2) Cave Valley has interbasin flow going to both Southern White River Valley (4,000 afy) and northern Pahroc Valley (9,400 afy), whereas in the Thomas *et al*. (2001) study, all Cave Valley groundwater interbasin flow went to northern Pahroc Valley; (3) all Coal Valley interbasin flow goes into Pahroc Valley, whereas in the Thomas *et al*. (2001) study it all went to Pahranagat Valley; and (4) Lower Meadow Valley Wash interbasin flow goes to both Upper Moapa Valley (Muddy River Springs area; 4,000 afy) and California Wash (5,300 afy), whereas in Thomas *et al*. (2001) all Lower Meadow Valley Wash interbasin flow went to Lower Moapa Valley.

Reconnaissance Report series water budgets used by Eakin (1966) for the part of the WRFS that starts in Long Valley in the north and ends at Muddy River Springs in Upper Moapa Valley in the south did not produce mass-balance model-calculated deuterium and oxygen-18 values that were an acceptable match with measured values at Muddy River Springs. The Reconnaissance Report series recharge and ET values for the 13 valleys of the Eakin WRFS were 104,000 afy, as compared to the SNWA (2007) recharge and ET values of 155,000 and 144,000 afy (including Muddy River spring discharge), respectively. The interbasin flow routing of Eakin (1966) and this study is similar, with differences being in this study: (1) some minor interbasin flow (2,000 afy) from northern Pahroc Valley goes to Dry Lake Valley, (2) Coal Valley interbasin flow goes to Pahroc Valley rather than directly to Pahranagat Valley, and (3) Delamar Valley interbasin flow enters northern Coyote Springs Valley rather than southern Pahranagat Valley.

The Kirk and Campana (1990) study included the same 13 valleys of the WRFS as the Eakin (1966) study and used Eakin's (1966) interbasin flow routing. They initially set recharge to Maxey-Eakin values but then let the model calculate new recharge values. The model-calculated recharge values were similar to initial Maxey-Eakin recharge estimates. The differences between the Kirk and Campana study and this study are the same as those for the Eakin (1966) study except for: (1) recharge from the Sheep Range to Coyote Springs Valley is 5,000 to 6,000 afy) as compared to the Maxey-Eakin estimate of 2,000 afy and 1,100 afy in this study; (2) the Lower Meadow Valley Wash-Kane Springs Valley area contributed 5,500 to 9,000 afy to the Muddy River Springs discharge area and this study has a total of 8,200 afy going to Muddy River Springs, as compared to the Maxey-Eakin Kane Springs Valley recharge estimate of about 1,000 afy; and (3) 4,000 afy of groundwater is routed out of the WRFS in the Pahranagat Valley area to the west and no interbasin flow leaves Pahranagat Valley to the west in this study or the Eakin (1966) study.

The Thomas *et al*. (1996) study was for the lower part of the WRFS from the Big Muddy Springs area in Upper Moapa Valley to the Alamo Springs area in Pahranagat Valley. The differences between this study and the Thomas *et al*. (1996) study arise primarily from the different approaches the studies used. This study applied average stable isotope values to recharge and discharge areas and used an isotope mass-balance model to evaluate these recharge and discharge estimates. Thomas *et al*. (1996) used average stable isotope values of regional springs and recharge areas and measured flows of regional springs as the total discharge from the lower WRFS. They calculated the amount of water needed from recharge areas and regional flows to obtained measured isotopic values at Muddy River Springs. The main differences between this study and the Thomas *et al*. (1996) study are: (1) the Thomas *et al*. (1996) study estimated that 14,000 afy of the spring discharge from the Muddy River springs area was recharge from the Sheep Range as compared to a Sheep Range recharge estimate of 1,100 afy used for this study, and (2) the Thomas *et al*. (1996) study had 6,000 afy of interbasin flow leaving Pahranagat Valley to the west, whereas this study has no flow leaving Pahranagat Valley to the west. A point of agreement between the two studies is the approximately 8,000 afy of inflow from the Lower Meadow Valley Wash-Kane Springs Valley area into the WRFS.

SUMMARY AND CONCLUSIONS

Isotope mass-balance models were used to evaluate three different water budgets for the regional White River and Meadow Valley Wash groundwater flow systems. The isotopic mass-balance models use average deuterium and oxygen-18 values for recharge and discharge areas to evaluate how closely calculated isotopic values match measured values for regional warm (>20 ^{o}C) spring discharge areas, small (<50 afy) warm springs, and consolidated rock and alluvial wells with warm water. The three water budgets that were evaluated include the SNWA (2007), SNWA/BARCAS (SNWA, 2007; Welch and Bright, 2007), and Reconnaissance Report series water budgets. Two different isotope mass-balance models were used to evaluate the water budgets. In the first model, groundwater ET is satisfied by a mixture of local recharge with interbasin flow entering a valley (if there is any interbasin flow entering the valley). In the second model, groundwater ET is initially satisfied by local recharge and if ET in a valley exceeds local recharge the remainder of the ET is satisfied by interbasin flow.

Deuterium and oxygen-18 data for regional warm springs, small warm springs, groundwater from wells completed in consolidated rock with warm water, and alluvial wells containing warm water clearly show that there is interbasin groundwater flow in the WRFS and MVWFS. The isotopic data for groundwater at these sites shows that these groundwaters are not from local recharge, but rather they are primarily water that has flowed into a valley from an upgradient valley(s).

The isotopic mass-balance models show that the SNWA (2007) water budget and interbasin flows for the WRFS and the MVWFS produce excellent to acceptable matches of calculated deuterium and oxygen-18 values with measured values for regional warm spring areas, except for one calculated oxygen-18 value, which was only 0.01‰ outside the acceptable range. The models also produce excellent to acceptable matches for calculated values as compared to measured values for all small warm springs and most wells with warm water. An isotopic mass-balance model evaluation of the SNWA/BARCAS water budget and interbasin flows for the WRFS and the MVWFS gave similar but not quite as good results as the SNWA water budget. Two calculated deuterium values were not in the acceptable range for matching measured values of regional warm springs. Isotopic mass-balance model results using the Reconnaissance Report series recharge and ET estimates and Eakin (1966) interbasin flow routing were unacceptable for both the Alamo Warm Springs area in Pahranagat Valley and the Muddy River Springs area in Upper Moapa Valley, except for one of the calculated deuterium values for the Pahranagat Valley warm springs.

Isotopic variability for six recharge area monitoring springs within the study area was relatively small with standard deviations of deuterium and oxygen-18 data ranging from 0.7 to 1.6‰ and 0.06 to 0.33‰, respectively. This range in standard deviation for these six sites is for samples taken quarterly throughout all four seasons with four of the six sites having more than three years of data. The isotopic composition of these springs varied little from season to season as spring flow varied a lot, ranging from about 100 to 2,500 gallons per minute during sample collection, and exceeding 5,000 gallons per minute at peak flow, at the largest discharging monitoring spring. This lack of isotopic variability of recharge area springs is important for isotopic mass-balance models because the isotopic composition of recharge area groundwater varies little over time.

Isotopic variability of 12 regional warm springs in the study area was relatively small, with the standard deviation of deuterium and oxygen-18 data ranging from 0.5 to 1.9‰ for deuterium and 0.05 to 0.22‰ (except for one site with a standard deviation of 0.67‰) for oxygen-18. This range in values is for samples taken throughout all four seasons, with some regional warm spring data spanning almost 40 years and a significant number of springs having data that span 20 to 25 years. This lack of isotopic variability of regional warm springs is important for isotopic mass-balance models because this information indicates that the isotopic composition of regional groundwater varies little over time.

Sensitivity analysis was performed on the SNWA (2007) water budget and flow routing mass-balance models by independently increasing or decreasing recharge and ET. The sensitivity analysis showed that when either recharge or ET were increased or decreased by 20 percent most of the mass-balance model-calculated deuterium and oxygen-18 values were outside the range of acceptable matches for measured values of the Muddy River Springs discharge area. Thus, the SNWA (2007) water budget recharge and ET values balance such that a 20-percent change in either produces unacceptable isotopic mass-balance model results.

Finally, the relationship of stable isotopes with altitude was evaluated for five major recharge areas in the study area with 14, or more, springs. These five recharge areas include the White Pine and Central Egan ranges in the northern part of the study area and the White Rock Mountains, Delamar Mountains, and Fairview and Bristol ranges in the central and southern part of the study area. There is no apparent relationship of deuterium with altitude in these five recharge areas, except for a slight trend of more negative values with increasing altitude in the Delamar Range. Because of the lack of a relationship of deuterium values with increasing altitude, all recharge area samples regardless of altitude can be used to determine the average isotopic composition of a mountain block recharge area. If a stable isotope-altitude relationship had been observed, then a model that weighted high recharge areas (higher altitude zones) would need to be developed to accurately assign isotopic values to mountain block recharge areas.

REFERENCES

Acheampong, S.Y., H.S. Eastman, and M.G. Cansdale, 2007. Chemical and radiochemical constituents of selected wells and springs in parts of Clark, Lincoln, and White Pine Counties, Nevada. Southern Nevada Water Authority, HAS-ID-0001, 36 p.

Benson, L.V. and H. Klieforth, 1989. Stable isotopes in precipitation and ground water in the Yucca Mountain region, southern Nevada—Paleoclimatic implications, *in* Peterson, D.H., *ed.*, Aspects of climate variability in the Pacific and the western Americas: Geophysical Monograph 55, p. 41-59.

Craig, H., 1961. Isotopic variations in meteoric waters. *Science*, 133: 1702-1703.

Eakin, T.E., 1962. Ground-water Appraisal of Cave Valley in Lincoln and White Pine Counties, Nevada. Ground-Water Resources Reconnaissance Series Report 13. State of Nevada Department of Conservation and Natural Resources.

Eakin, T.E., 1963a. Ground-water Appraisal of Dry Lake and Delamar Valleys, Lincoln County, Nevada. Ground-Water Resources Reconnaissance Series Report 16. State of Nevada Department of Conservation and Natural Resources.

Eakin, T.E., 1963b. Ground-water Appraisal of Garden and Coal Valleys, Lincoln and Nye Counties, Nevada. Ground-Water Resources Reconnaissance Series Report 18. State of Nevada Department of Conservation and Natural Resources.

Eakin, T.E., 1963c. Ground-water Appraisal of Pahranagat and Pahroc Valleys, Lincoln and Nye Counties, Nevada. Ground-Water Resources Reconnaissance Series Report 21. State of Nevada Department of Conservation and Natural Resources.

Eakin, T.E., 1964. Ground-water Appraisal of coyote Spring and kane Spring Valleys and Muddy River Springs Area, Lincoln and Clark Counties, Nevada. Ground-Water Resources Reconnaissance Series Report 25. State of Nevada Department of Conservation and Natural Resources.

Eakin, T.E., 1966. A regional interbasin ground-water system in the White River area, southeastern Nevada. *Water Resources Research*, 2: 251-271.

Eakin, T.E. and D.O. Moore, 1964. Uniformity of discharge of Muddy River Springs, southeastern Nevada, and relation to interbasin movement of ground water. U.S. Geological Survey Professional Paper 501-D: 171-176.

Emme, D.H., 1986. Delineation of subsurface flow in the upper Meadow Valley Wash Area, southeastern Nevada. University of Nevada-Reno, unpublished masters thesis: 90 p.

Hershey, R.L., and W.D. Howcroft, 1998. Laboratory experiments evaluating carbon-14 retardation in a carbonate aquifer. Geological Society of America, Abstracts with Programs, Vol. 30, No. 7, p. A-278.

Hershey, R.L., W. Howcroft, and P.W. Reimus, March 2003. Laboratory Experiments to Evaluate Diffusion of ^{14}C into Nevada Test Site Carbonate Aquifer Matrix. Desert Research Institute Publication No. 45180.

Hershey, R.L., D.L. Decker, S. Earman, J. Ryu, P. Reimus, and E.S. Garcia, Jr., 2007. Laboratory experiments of carbon-14 uptake on calcite and dolomite. The 233rd American Chemical Society National Meeting, March 25-29, 2007, Chicago, IL, Abstract # NUCL 135 (http://oasys2.confex.com/acs/233nm/techprogram/).

Kirk, S.T. and M.E. Campana, 1990. A deuterium-calibrated groundwater flow model of a regional carbonate-alluvial system. *Journal of Hydrology*, 119: 357-388.

Las Vegas Valley Water District (LVVWD), 2001. Water resources and ground-water modeling in the White River and Meadow Valley Flow Systems—White Pine, Lincoln, Nye, and Clark counties, Nevada, 285 p.

Maxey, G.B. and T.E. Eakin, 1949. Ground water in White River Valley, White Pine, Nye, and Lincoln Counties, Nevada. Nevada State Engineer Water Resources Bulletin 8: 59 p.

Mifflin, M.D., 1968. Delineation of ground-water flow systems in Nevada. Desert Research Institute, Technical Report Series H-W, Publication #4: 100 p.

Pohlmann, K.F., D.J. Campana, J.B. Chapman, and S. Earman, 1998. Investigation of the origin of springs in the Lake Mead National Recreation Area. Desert Research Institute Publication #41161: 92 p.

Rush, F.E., 1964. Ground-water appraisal of the Meadow Valley area, Lincoln and Clark Counties, Nevada. Nevada Department of Conservation and Natural Resources, Water Resources Reconnaissance Report 27: 43 p.

Rush, F.E. and T.E. Eakin, 1963. Ground-water appraisal of Lake Valley in Lincoln and White Pine Counties, Nevada. Nevada Department of Conservation and Natural Resources, Water Resources Reconnaissance Report 24: 29 p.

Smith, G.I., I. Friedman, H. Klieforth, and K. Hardcastle, 1979. Areal distribution of deuterium in eastern California precipitation, 1968-1969. *Applied Meteorology*, 18: 172-188.

Southern Nevada Water Authority (SNWA), 2007. Water-resources assessment and hydrogeologic report for Cave, Dry Lake, and Delamar Valleys. Southern Nevada Water Authority Report, Las Vegas, Nevada.

Thomas, J.M., J.L. Mason, and J.D. Crabtree, 1986. Ground-water levels in the Great Basin Region of Nevada, Utah, and adjacent states. U.S. Geological Survey Hydrologic Investigations Atlas HA-694-B: 2 plates.

Thomas, J.M., 1996. Geochemical and isotopic interpretation of groundwater flow, geochemical processes, and age dating of groundwater in the carbonate-rock aquifers of the southern Basin and Range: University of Nevada, Reno, Ph.D. dissertation, 135 p.

Thomas, J.M., A.H. Welch, and M.D. Dettinger, 1996. Geochemistry and isotope hydrology of representative aquifers in the Great Basin Region of Nevada, Utah, and adjacent states. U.S. Geological Survey Professional Paper 1409-C: 100 p.

Thomas, J.M., S.C. Calhoun, and W.B. Apambire, 2001. A deuterium mass-balance interpretation of groundwater sources and flows in southeastern Nevada. Desert Research Institute Publication #41169: 46 p.

Welch, A.H. and D.J. Bright, (in press). Water resources of the Basin and Range Carbonte-Rock Aquifer System (BARCAS), eastern Nevada and western Utah. U.S. Geological Survey Investigations Report.

Winograd, I.J. and I. Friedman, 1972. Deuterium as a tracer of regional ground-water flow, southern Great Basin, Nevada and California. *Bulletin of the Geological Society of America*, 83: 3691-3708.

Winograd, I.J., T.B. Coplen, J.M. Landwehr, A.C. Riggs, K.R. Ludwig, BJ. Szabo, P.T. Kolesar, and KM. Revesz, 1992. Continuous 500,000-year climate record from vein calcite in Devils Hole, Nevada. *Science,* 258: 255-260.

Winograd, I.J., J.M. Landwehr, T.B. Coplen, W.D. Sharp, A.C. Riggs, K.R. Ludwig and P.T. Kolesar, 2006. Devils Hole, Nevada, $\delta^{18}O$ record extended to the mid-Holocene. *Quaternary Research,* 66: 202-212.

APPENDIX 1. Isotope mass-balance model summaries for the six mass-balance models

		SNWA (2007 Water Budget)								
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	Long Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	19,900				-122.4	-15.96			
ET	ET	3,000						-122.4	-15.96	
154	GW Outflow (Newark)	0						-122.4	-15.96	
174	GW Outflow (Jakes)	16,900						-122.4	-15.96	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	Jakes Valley									
175	Inflow (Long)	16,900				-122.4	-15.96			
TR	Total Recharge	12,300				-119.9	-15.71			
ET	ET	400						-121.3	-15.86	
207N	GW Outflow (NWRV)	28,800						-121.3	-15.86	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
180	Cave Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	14,700				-106.5	-14.28			
ET	ET	1,300						-106.5	-14.28	
Well	180W902		1	601	Deep Well	-104.7	-14.12	*-106.5*	*-14.28*	*Local recharge*
Well	180W501		1	600	Deep Well	-105.6	-14.12	*-106.5*	*-14.28*	*Local recharge*
208	GW Outflow (Pahroc)	9,400						-106.5	-14.28	
207S	GW Outflow (SWRV)	4,000						-106.5	-14.28	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207N	North White River Valley									
174	Inflow (Jakes)	28,800				-121.3	-15.86			
TR	Total Recharge	27,500				-113.4	-15.16			
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-121.3*	*-15.86*	*Inter-basin flow from Jakes Valley*
ET	ET	20,500						-117.5	-15.52	
207S	GW Outflow (SWRV)	35,800						-117.5	-15.52	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207S	South White River Valley	WRV Tot Recharge								
		41,000								
207N	Inflow (N White River)	35,800				-117.5	-15.52			
180	Inflow (Cave)	4,000				-106.5	-14.28			
TR	Total Recharge	13,500				-106.7	-14.18			
Warm	Discharge Warm Sprs (Avg)	13,200	13			-119.2	-15.71	*-117.5*	*-15.52*	*Inter-basin flow from Northern White River Valley*
ET	ET	46,900						-113.9	-15.09	
208	GW Outflow (Pahroc)	6,400						-113.9	-15.09	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX
172	Garden Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	24,800				-104.7	-14.08			
ET	ET	1,700						-104.7	-14.08	
171	GW Outflow (Coal)	23,100						-104.7	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	23,100				-104.7	-14.08			

172	Inflow (SWRV)	0				-113.9	-15.09			
TR	Total Recharge	3,900				-98.4	-12.95			
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.7*	*-14.08*	*Underflow from Garden Valley*
ET	ET	0						-103.8	-13.91	
208	GW Outflow (Pahroc)	27,000						-103.8	-13.91	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
207S	Inflow (S. White River)	6,400				-113.9	-15.09			
170	Inflow (Cave)	9,400				-106.5	-14.28			
171	Inflow (Coal)	27,000				-103.8	-13.91			
TR	Total Recharge	4,500				-96.4	-12.75			
ET	ET	0						-105.0	-14.04	
209	GW Outflow (Pahranagat)	45,300						-105.0	-14.04	
181	GW Outflow (Dry Lake)	2,000						-106.5	-14.28	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	45,300				-105.0	-14.04			
181	Inflow (Dry Lake)	0				-98.9	-13.12			
209	Inflow (Delamar)	0				-97.3	-12.92			
TR	Total Recharge	5,500				-97.6	-13.91			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-105.0*	*-14.04*	*Inter-basin flow from Pahroc Valley*
ET	ET	28,500						-104.2	-14.02	
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-105.0*	*-14.04*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	22,300						-104.2	-14.02	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
208	Inflow (Pahroc)	2,000				-106.5	-14.28			
TR	Total Recharge	15,700				-98.0	-12.97			
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
ET	ET	0						-98.9	-13.12	
209	GW Outflow (Pahranagat)	0						-98.9	-13.12	
182	GW Outflow (Delamar)	17,700						-98.9	-13.12	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	17,700				-98.9	-13.12			
TR	Total Recharge	6,400				-92.8	-12.39			
ET	ET	0						-97.3	-12.92	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-98.9*	*-13.12*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	0						-97.3	-12.92	
210	GW Outflow (Coyote Spr)	24,100						-97.3	-12.92	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
206	Kane Springs Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	4,200				-88.9	-12.20			
ET	ET	0						-88.9	-12.20	
210	GW Outflow (Coyote Spr)	4,200						-88.9	-12.20	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
210	Coyote Springs Valley									
209	Inflow (Pahranagat)	22,300				-104.2	-14.02			
182	Inflow (Delamar)	24,100				-97.3	-12.92			
206	Inflow (Kane Springs)	4,200				-88.9	-12.20			

TR	Total Recharge	2,100		-90.9	-12.53			
CARB	Carbonate Well (Avg)		6	-100.7	-13.11	*-99.6*	*-13.35*	*Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys*
ET	ET	0				-99.3	-13.32	
219	GW Outflow (Muddy)	37,700				-99.3	-13.32	
217	GW Outflow (Hidden)	15,000				-99.3	-13.32	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
219	**Upper Moapa (Muddy) Valley**							
205	Inflow (LMVW)	4,000		-93.5	-12.59			
210	Inflow (Coyote)	37,700		-99.3	-13.32			
TR	Total Recharge	0		-87.4	-11.92			
Warm	Dicharge Warm Sprs (Avg)	8,300	49	-97.8	-12.90	*-98.7*	*-13.25*	*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)		4	-97.9	-12.97	*-98.7*	*-13.25*	*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	6,000				-98.73	-13.25	
Gage	Moapa Gage	34,000						
218	SW Outflow (California)	34,000						
218	GW Outflow (California)	1,700				-98.7	-13.25	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
217	**Hidden Valley**							
210	Inflow (Coyote)	15,000		-99.3	-13.32			
TR	Total Recharge	0		-81.0	-10.60			
ET	ET	0				-99.3	-13.32	
216	GW Outflow (Garnet)	15,000				-99.3	-13.32	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
216	**Garnet Valley**							
217	Inflow (Hidden)	15,000		-99.3	-13.32			
TR	Total Recharge	100		-81.0	-10.60			
CARB	Wells (Avg)		6	-96.9	-13.32	*-99.3*	*-13.32*	*Inter-basin flow from Hidden Valley*
ET	ET	0				-99.2	-13.30	
218	GW Outflow (California)	15,100				-99.2	-13.30	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
218	**California Wash**							
219	SW Inflow (Muddy)	34,000						
205	SW Inflow (LMVW)	0						
219	Inflow (Muddy)	1,700		-98.7	-13.25			
205	Inflow (Lower Meadow VW)	5,300		-93.5	-12.59			
216	Inflow (Garnet)	15,100		-99.2	-13.30			
TR	Total Recharge	0		0.0	0.00			
CARB	Carbonate Well (Avg)			-99.0	-13.45	*-97.8*	*-13.12*	*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	4,500				-97.8	-13.12	
220	GW Outflow (Lower Moapa)	18,900				-97.8	-13.12	
215	GW Outflow (Black Mtn Area)	2,000				-97.8	-13.12	
220	SW Outflow (Lower Moapa)	30,700						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
215	**Black Mountains Area**							
218	Inflow (California Wash)	2,000		-97.8	-13.12			
TR	Total Recharge	0		0.0	0.00			
CARB	Carbonate Spr (Avg)	1,663	13	-91.3	-12.01	*-97.8*	*-13.12*	*Weighted Average of Inflow from Califronia Wash*
ET	ET	1,400				-97.8	-13.12	
999	GW Outflow (Colorado River)	600				-97.8	-13.12	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
220	**Lower Moapa Valley**							
218	GW Inflow (California Wash)	18,900		-97.8	-13.12			
218	SW Inflow (California Wash)	30,700						

TR	Total Recharge	0		-88.3	-12.50			
CARB	Carbonate Well (Avg)		2	-91.0	-12.58	*-93.5*	*-12.59*	***Inter-basin flow from Lower Meadow Valley Wash***
ET	ET	25,300				-97.8	-13.12	
999	GW Outflow (Colorado River)	15,300				-97.8	-13.12	
999	SW Outflow (Colorado River)	9,000						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
Colorado R	**Lake Mead (Colorado River)**							
210	GW Inflow (Black Mountains Area)	600		-97.8	-13.12			
205	GW Inflow (Lower Moapa)	15,300		-97.8	-13.12			
999	Groundwater Total	15,900				-97.8	-13.12	
205	SW Inflow (Lower Moapa)	9,000						
999	Surface water Total	9,000						
999	Inflow Total	24,900						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
183	**Lake Valley**							
0	Inflow (None)	0		0.0	0.00			
TR	Total Recharge	12,300		-105.5	-14.08			
ET	ET	6,700				-105.5	-14.08	
202	GW Outflow (Patterson)	5,600				-105.5	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
202	**Patterson Valley**							
183	Inflow (Lake)	5,600		-105.5	-14.08			
TR	Total Recharge	10,600		-98.3	-13.03			
ET	ET	1,300				-100.8	-13.39	
203	GW Outflow (Panaca)	14,900				-100.8	-13.39	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	**Spring Valley**							
0	Inflow (None)	0		0.0	0.00			
TR	Total Recharge	11,200		-99.4	-13.28			
ET	ET	3,900				-99.4	-13.28	
200	GW Outflow (Eagle)	7,300				-99.4	-13.28	
200	SW Outflow (Eagle)	0				-97.5	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**							
201	Inflow (Spring)	7,300		-99.4	-13.28			
201	SW Inflow (Spring)	0		-97.5	-13.00			
TR	Total Recharge	2,000		-98.7	-13.15			
ET	ET	1,000				-99.3	-13.25	
199	GW Outflow (Rose)	8,300				-99.3	-13.25	
198	SW Outflow (Rose)	0				-99.3	-13.25	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	**Rose Valley**							
200	Inflow (Eagle)	8,300		-99.3	-13.25			
200	SW Inflow (Eagle)	0		-99.3	-13.25			
TR	Total Recharge	200		-98.4	-13.08			
ET	ET	600				-99.2	-13.24	
198	GW Outflow (Dry)	7,900				-99.2	-13.24	
198	SW Outflow (Dry)	0				-99.3	-13.25	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXX(XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

198	**Dry Valley**									
199	**Inflow (Rose)**	**7,900**				**-99.2**	**-13.24**			
199	**SW Inflow (Rose)**	**0**				**-99.3**	**-13.25**			
TR	**Total Recharge**	**3,200**				**-96.9**	**-12.96**			
ET	**ET**	**3,700**						**-98.6**	**-13.16**	
203	**GW Outflow (Panaca)**	**7,400**						**-98.6**	**-13.16**	
203	**SW Outflow (Panaca)**	**0**						**-99.2**	**-13.24**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
204	**Clover Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
TR	**Total Recharge**	**14,900**				**-92.1**	**-12.46**			
ET	**ET**	**5,200**						**-92.1**	**-12.46**	
205	**GW Outflow (LMVW)**	**9,700**						**-92.1**	**-12.46**	
205	**SW Outflow (LMVW)**	**0**						**-92.1**	**-12.46**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
203	**Panaca Valley**									
202	**Inflow (Patterson)**	**14,900**				**-100.8**	**-13.39**			
198	**Inflow (Dry)**	**7,400**				**-98.6**	**-13.16**			
198	**SW Inflow (Dry)**	**0**				**-99.2**	**-13.24**			
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**			
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	***-100.8***	***-13.39***	***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	***-105.5***	***-14.08***	***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	***-105.5***	***-14.08***	***Inter-basin flow from Lake Valley***
ET	**ET**	**18,900**						**-99.2**	**-13.21**	
205	**GW Outflow (LMVW)**	**8,900**						**-99.2**	**-13.21**	
205	**SW Outflow (LMVW)**	**0**						**-97.0**	**-13.10**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
205	**Lower Meadow Valley Wash**									
203	**Inflow (Panaca)**	**8,900**				**-99.2**	**-13.21**			
204	**Inflow (Clover)**	**9,700**				**-92.1**	**-12.46**			
203	**SW Inflow (Panaca)**	**0**				**-97.0**	**-13.10**			
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**			
TR	**Total Recharge**	**12,600**				**-90.4**	**-12.24**			
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	***-95.5***	***-12.82***	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90			
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70			
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50			
ET	**ET**	**21,900**						**-93.5**	**-12.59**	
206	**GW Outflow (Upper Moapa)**	**4,000**						**-93.5**	**-12.59**	
218	**GW Outflow (California Wash)**	**5,300**						**-93.5**	**-12.59**	
218	**GW Outflow (Lower Moapa)**	**0**						**-93.5**	**-12.59**	
218	**SW Outflow (California Wash)**	**0**						**-93.5**	**-12.59**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

SNWA (2007 Water Budget)

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	Long Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	19,900				-122.4	-15.96			
ET	ET	3,000						-122.4	-15.96	
154	GW Outflow (Newark)	0						-122.4	-15.96	
174	GW Outflow (Jakes)	16,900						-122.4	-15.96	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	Jakes Valley									
175	Inflow (Long)	16,900				-122.4	-15.96			
TR	Total Recharge	12,300				-119.9	-15.71			
ET	ET	400						-119.9	-15.71	
207N	GW Outflow (NWRV)	28,800						-121.3	-15.86	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX
180	Cave Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	14,700				-106.5	-14.28			
ET	ET	1,300						-106.5	-14.28	
Well	180W902		1	601	Deep Well	-104.7	-14.12	*-106.5*	*-14.28*	*Local recharge*
Well	180W501		1	600	Deep Well	-105.6	-14.12	*-106.5*	*-14.28*	*Local recharge*
208	GW Outflow (Pahroc)	9,400						-106.5	-14.28	
207S	GW Outflow (SWRV)	4,000						-106.5	-14.28	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207N	North White River Valley									
174	Inflow (Jakes)	28,800				-121.3	-15.86			
TR	Total Recharge	27,500				-113.4	-15.16			
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-121.3*	*-15.86*	*Inter-basin flow from Jakes Valley*
ET	ET	20,500						-113.4	-15.16	
207S	GW Outflow (SWRV)	35,800						-119.8	-15.7	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207S	South White River Valley	WRV Tot Recharge 41,000								
207N	Inflow (N White River)	35,800				-119.8	-15.72			
180	Inflow (Cave)	4,000				-106.5	-14.28			
TR	Total Recharge	13,500				-106.7	-14.18			
Warm	Discharge Warm Sprs (Avg)	13,200	13			-119.2	-15.71	*-119.8*	*-15.72*	*Inter-basin flow from Northern White River Valley*
ET	ET	46,900						-115.1	-15.18	
208	GW Outflow (Pahroc)	6,400						-118.5	-15.58	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX
172	Garden Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	24,800				-104.7	-14.08			
ET	ET	1,700						-104.7	-14.08	
171	GW Outflow (Coal)	23,100						-104.7	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	23,100				-104.7	-14.08			

172	Inflow (SWRV)	0				-118.5	-15.58			
TR	Total Recharge	3,900				-98.4	-12.95			
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.7*	*-14.08*	*Underflow from Garden Valley*
ET	ET	0						-98.4	-12.95	
208	GW Outflow (Pahroc)	27,000						-103.8	-13.91	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
207S	Inflow (S. White River)	6,400				-118.5	-15.58			
170	Inflow (Cave)	9,400				-106.5	-14.28			
171	Inflow (Coal)	27,000				-103.8	-13.91			
TR	Total Recharge	4,500				-96.4	-12.75			
ET	ET	0						-96.4	-12.75	
209	GW Outflow (Pahranagat)	45,300						-105.6	-14.10	
181	GW Outflow (Dry Lake)	2,000						-106.5	-14.28	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	45,300				-105.6	-14.10			
181	Inflow (Dry Lake)	0				-98.9	-13.12			
209	Inflow (Delamar)	0				-97.3	-12.92			
TR	Total Recharge	5,500				-97.6	-13.91			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-105.6*	*-14.10*	*Inter-basin flow from Pahroc Valley*
ET	ET	28,500						-104.1	-14.07	
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-105.6*	*-14.10*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	22,300						-105.6	-14.10	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
208	Inflow (Pahroc)	2,000				-106.5	-14.28			
TR	Total Recharge	15,700				-98.0	-12.97			
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
ET	ET	0						-98.0	-12.97	
209	GW Outflow (Pahranagat)	0						-98.9	-13.12	
182	GW Outflow (Delamar)	17,700						-98.9	-13.12	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	17,700				-98.9	-13.12			
TR	Total Recharge	6,400				-92.8	-12.39			
ET	ET	0						-92.8	-12.39	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-98.9*	*-13.12*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	0						-97.3	-12.92	
210	GW Outflow (Coyote Spr)	24,100						-97.3	-12.92	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
206	Kane Springs Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	4,200				-88.9	-12.20			
ET	ET	0						-88.9	-12.20	
210	GW Outflow (Coyote Spr)	4,200						-88.9	-12.20	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
210	Coyote Springs Valley									
209	Inflow (Pahranagat)	22,300				-105.6	-14.10			
182	Inflow (Delamar)	24,100				-97.3	-12.92			
206	Inflow (Kane Springs)	4,200				-88.9	-12.20			

TR	Total Recharge	2,100		-90.9	-12.53			
CARB	Carbonate Well (Avg)		6	-100.7	-13.11	*-100.3*	*-13.38*	*Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys*
ET	ET	0				-90.9	-12.53	
219	GW Outflow (Muddy)	37,700				-99.9	-13.35	
217	GW Outflow (Hidden)	15,000				-99.9	-13.35	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
219	**Upper Moapa (Muddy) Valley**							
205	Inflow (LMVW)	4,000		-96.1	-12.90			
210	Inflow (Coyote)	37,700		-99.9	-13.35			
TR	Total Recharge	0		-87.4	-11.92			
Warm	Dicharge Warm Sprs (Avg)	8,300	49	-97.8	-12.90	*-99.5*	*-13.31*	*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)	Input into M	4	-97.9	-12.97	*-99.5*	*-13.31*	*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	6,000				-99.5	-13.31	
Gage	Moapa Gage	34,000						
218	SW Outflow (California)	34,000						
218	GW Outflow (California)	1,700				-99.5	-13.31	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
217	**Hidden Valley**							
210	Inflow (Coyote)	15,000		-99.9	-13.35			
TR	Total Recharge	0		-81.0	-10.60			
ET	ET	0				-81.0	-10.60	
216	GW Outflow (Garnet)	15,000				-99.9	-13.35	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
216	**Garnet Valley**							
217	Inflow (Hidden)	15,000		-99.9	-13.35			
TR	Total Recharge	100		-81.0	-10.60			
CARB	Wells (Avg)		6	-96.9	-13.32	*-99.9*	*-13.35*	*Inter-basin flow from Hidden Valley*
ET	ET	0				-81.0	-10.60	
218	GW Outflow (California)	15,100				-99.8	-13.33	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
218	**California Wash**							
219	SW Inflow (Muddy)	34,000						
205	SW Inflow (LMVW)	0						
219	Inflow (Muddy)	1,700		-99.5	-13.31			
205	Inflow (Lower Meadow VW)	5,300		-96.1	-12.90			
216	Inflow (Garnet)	15,100		-99.8	-13.33			
TR	Total Recharge	0		-82.0	-10.6			
CARB	Carbonate Well (Avg)			-99.0	-13.45	*-98.9*	*-13.22*	*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	4,500				-82.0	-10.60	
220	GW Outflow (Lower Moapa)	18,900				-98.9	-13.22	
215	GW Outflow (Black Mtn Area)	2,000				-98.9	-13.22	
220	SW Outflow (Lower Moapa)	30,700						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
215	**Black Mountains Area**							
218	Inflow (California Wash)	2,000		-98.9	-13.22			
TR	Total Recharge	0		-81.3	-10.75			
CARB	Carbonate Spr (Avg)	1,700	13	-91.3	-12.01	*-98.9*	*-13.22*	*Weighted Average of Inflow from Califronia Wash*
ET	ET	1,400				-81.3	-10.75	
999	GW Outflow (Colorado River)	600				-98.9	-13.22	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
220	**Lower Moapa Valley**							
218	GW Inflow (California Wash)	18,900		-98.9	-13.22			
218	SW Inflow (California Wash)	30,700						

TR	Total Recharge	0		-88.3	-12.50			
CARB	Carbonate Well (Avg)		2	-91.0	-12.58	*-96.1*	*-12.90*	*Inter-basin flow from Lower Meadow Valley Wash*
ET	ET	25,300				-88.3	-12.50	
999	GW Outflow (Colorado River)	15,300				-98.9	-13.22	
999	SW Outflow (Colorado River)	9,000						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
Colorado R	Lake Mead (Colorado River)							
210	GW Inflow (Black Mountains Area)	600		-98.9	-13.22			
205	GW Inflow (Lower Moapa)	15,300		-98.9	-13.22			
999	Groundwater Total	15,900				-98.9	-13.22	
205	SW Inflow (Lower Moapa)	9,000						
999	Surfacewater Total	9,000						
999	Inflow Total	24,900						
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
183	Lake Valley							
0	Inflow (None)	0		0.0	0.00			
TR	Total Recharge	12,300		-105.5	-14.08			
ET	ET	6,700				-105.5	-14.08	
202	GW Outflow (Patterson)	5,600				-105.5	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
202	Patterson Valley							
183	Inflow (Lake)	5,600		-105.5	-14.08			
TR	Total Recharge	10,600		-98.3	-13.03			
ET	ET	1,300				-98.3	-13.03	
203	GW Outflow (Panaca)	14,900				-101.0	-13.43	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley							
0	Inflow (None)	0		0.0	0.00			
TR	Total Recharge	11,200		-99.4	-13.28			
ET	ET	3,900				-99.4	-13.28	
200	GW Outflow (Eagle)	7,300				-99.4	-13.28	
200	SW Outflow (Eagle)	0				-97.5	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	Eagle Valley							
201	Inflow (Spring)	7,300		-99.4	-13.28			
201	SW Inflow (Spring)	0		-97.5	-13.00			
TR	Total Recharge	2,000		-98.7	-13.15			
ET	ET	1,000				-98.7	-13.15	
199	GW Outflow (Rose)	8,300				-99.3	-13.26	
198	SW Outflow (Rose)	0				-98.7	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	Rose Valley							
200	Inflow (Eagle)	8,300		-99.3	-13.26			
200	SW Inflow (Eagle)	0		-98.7	-13.00			
TR	Total Recharge	200		-98.4	-13.08			
ET	ET	600				-98.4	-13.08	
198	GW Outflow (Dry)	7,900				-99.3	-13.25	
198	SW Outflow (Dry)	0				-98.4	-13.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

198	**Dry Valley**									
199	Inflow (Rose)	7,900				-99.3	-13.25			
199	SW Inflow (Rose)	0				-98.4	-13.08			
TR	Total Recharge	3,200				-96.9	-12.96			
ET	ET	3,700						-97.2	-13.00	
203	GW Outflow (Panaca)	7,400						-99.3	-13.25	
203	SW Outflow (Panaca)	0						-97.2	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
204	**Clover Valley**									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	14,900				-92.1	-12.46			
ET	ET	5,200						-92.1	-12.46	
205	GW Outflow (LMVW)	9,700						-92.1	-12.46	
205	SW Outflow (LMVW)	0						-92.1	-12.46	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
203	**Panaca Valley**									
202	Inflow (Patterson)	14,900				-101.0	-13.43			
198	Inflow (Dry)	7,400				-99.3	-13.25			
198	SW Inflow (Dry)	0				-97.2	-13.00			
TR	Total Recharge	5,500				-95.8	-12.78			
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.0*	*-13.43*	*Inter-basin flow from Patterson Valley*
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-105.5*	*-14.08*	*Inter-basin flow from Lake Valley*
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-105.5*	*-14.08*	*Inter-basin flow from Lake Valley*
ET	ET	18,900						-99.1	-13.20	
205	GW Outflow (LMVW)	8,900						-100.4	-13.37	
205	SW Outflow (LMVW)	0						-99.1	-13.20	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
205	**Lower Meadow Valley Wash**									
203	Inflow (Panaca)	8,900				-100.4	-13.37			
204	Inflow (Clover)	9,700				-92.1	-12.46			
203	SW Inflow (Panaca)	0				-99.1	-13.20			
204	SW Inflow (Clover)	0				-92.1	-12.46			
TR	Total Recharge	12,600				-90.6	-12.25			
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-96.1*	*-12.90*	*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90			
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70			
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50			
ET	ET	21,900						-92.9	-12.53	
206	GW Outflow (Upper Moapa)	4,000						-96.1	-12.90	
218	GW Outflow (California Wash)	5,300						-96.1	-12.90	
218	SW Outflow (California Wash)	0						-90.6	-12.25	
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX

		SNWA/BARCASS (SNWA, 2007; Welch and Bright, 2007)									
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	Long Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	21,000				-122.4	-15.96				
ET	ET	1,200						-122.4	-15.96		
154	GW Outflow (Newark)	0						-122.4	-15.96		
174	GW Outflow (Jakes)	19,800						-122.4	-15.96		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	Jakes Valley										
175	Inflow (Long)	19,800				-122.4	-15.96				
TR	Total Recharge	13,000				-119.9	-15.71				
ET	ET	900						-121.4	-15.86		
207N	GW Outflow (NWRV)	31,900						-121.4	-15.86		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
180	Cave Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	15,400				-106.5	-14.28				
ET	ET	1,600						-106.5	-14.28		
Well	180W902		1	601	Deep Well	-104.7	-14.12				
Well	180W501		1	600	Deep Well	-105.6	-14.12				
208	GW Outflow (Pahroc)	9,800						-106.5	-14.28		
207S	GW Outflow (SWRV)	4,000						-106.5	-14.28		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	North White River Valley										
174	Inflow (Jakes)	31,900				-121.4	-15.86				
TR	Total Recharge	28,600				-113.5	-15.16				
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-121.4*	*-15.86*	*Inter-basin flow from Jakes Valley*	
ET	ET	29,500						-117.6	-15.53		
207S	GW Outflow (SWRV)	31,000						-117.6	-15.53		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	South White River Valley	WRV Tot Recharge 42,900									
207N	Inflow (N White River)	31,000				-117.6	-15.53				
180	Inflow (Cave)	4,000				-106.5	-14.28				
TR	Total Recharge	14,300				-106.7	-14.18				
Warm	Discharge Warm Sprs (Avg)	13,200	13			-119.2	-15.71	*-117.6*	*-15.53*	*Inter-basin flow from Northern White River Valley*	
ET	ET	47,200						-113.6	-15.04		
208	GW Outflow (Pahroc)	2,100						-113.6	-15.04		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	Garden Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	25,700				-104.7	-14.08				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta 18O$	Calc. δD	Calc. $\delta 18O$	IC
ET	ET	1,700						-104.7	-14.08	
171	GW Outflow (Coal)	24,000						-104.7	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	24,000				-104.7	-14.08			
172	Inflow (SWRV)	0				-113.6	-15.04			
TR	Total Recharge	4,200				-98.4	-12.95			
ET	ET	0						-103.7	-13.91	
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.7*	*-14.08*	*Underflow from Garden Valley*
208	GW Outflow (Pahroc)	28,200						-103.7	-13.91	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
207S	Inflow (S. White River)	2,100				-113.6	-15.04			
180	Inflow (Cave)	9,800				-106.5	-14.28			
171	Inflow (Coal)	28,200				-103.7	-13.91			
TR	Total Recharge	4,900				-96.4	-12.75			
ET	ET	0						-104.0	-13.92	
209	GW Outflow (Pahranagat)	43,000						-104.0	-13.92	
181	GW Outflow (Dry Lake)	2,000						-106.5	-14.28	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	43,000				-104.0	-13.92			
181	Inflow (Dry Lake)	0				-99.0	-13.12			
209	Inflow (Delamar)	0				-97.3	-12.93			
TR	Total Recharge	5,900				-97.0	-13.67			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-104.0*	*-13.92*	*Inter-basin flow from Pahroc Valley*
ET	ET	28,500						-103.2	-13.89	
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-104.0*	*-13.92*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	20,400						-103.2	-13.89	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
180	Inflow (Pahroc)	2,000				-106.5	-14.28			
TR	Total Recharge	16,700				-98.1	-12.98			
ET	ET	0						-99.0	-13.12	
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
209	GW Outflow (Pahranagat)	0						-99.0	-13.12	
182	GW Outflow (Delamar)	18,700						-99.0	-13.12	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	18,700				-99.0	-13.12			
TR	Total Recharge	6,800				-92.8	-12.39			
ET	ET	0						-97.3	-12.93	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-99.0*	*-13.12*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	0						-97.3	-12.93	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
210	GW Outflow (Coyote Spr)	25,500						-97.3	-12.93		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
206	Kane Springs Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	4,500				-88.9	-12.20				
ET	ET	0						-88.9	-12.20		
210	GW Outflow (Coyote Spr)	4,500						-88.9	-12.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
210	Coyote Springs Valley										
209	Inflow (Pahranagat)	20,400				-103.2	-13.89				
182	Inflow (Delamar)	25,500				-97.3	-12.93				
206	Inflow (Kane Springs)	4,500				-88.9	-12.20				
TR	Total Recharge	2,300				-90.8	-12.53				
CARB	Carbonate Well (Avg)		14			-100.7	-13.11	*-98.9*	*-13.25*		*Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys*
ET	ET	0						-98.6	-13.22		
219	GW Outflow (Muddy)	37,700						-98.6	-13.22		
217	GW Outflow (Hidden)	15,000						-98.6	-13.22		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	Upper Moapa (Muddy) Valley										
205	Inflow (LMVW)	4,000				-93.6	-12.60				
210	Inflow (Coyote)	37,700				-98.6	-13.22				
TR	Total Recharge	0				-87.4	-11.92				
Warm	Dicharge Warm Sprs (Avg)	8,300	49			-97.8	-12.90	*-98.1*	*-13.16*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)		4			-97.9	-12.97	*-98.1*	*-13.16*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	6,000						-98.1	-13.16		
Gage	Moapa Gage	34,000									
218	SW Outflow (California)	34,000									
218	GW Outflow (California)	1,700						-98.1	-13.16		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	Hidden Valley										
210	Inflow (Coyote)	15,000				-98.6	-13.22				
TR	Total Recharge	0				-81.0	-10.60				
ET	ET	0						-98.6	-13.22		
216	GW Outflow (Garnet)	15,000						-98.6	-13.22		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	Garnet Valley										
217	Inflow (Hidden)	15,000				-98.6	-13.22				
TR	Total Recharge	100				-81.0	-10.60				
CARB	Wells (Avg)		6			-96.9	-13.32	*-98.6*	*-13.22*		*Inter-basin flow from Hidden Valley*
ET	ET	0						-98.5	-13.20		
218	GW Outflow (California)	15,100						-98.5	-13.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-98.1	-13.16				
205	Inflow (Lower Meadow VW)	5,200				-93.6	-12.60				
216	Inflow (Garnet)	15,100				-98.5	-13.20				
TR	Total Recharge	0				0.0	0.00				
ET	ET	4,500						-97.3	-13.06		
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-97.3*	*-13.06*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
220	GW Outflow (Lower Moapa)	18,800						-97.3	-13.06		
215	GW Outflow (Black Mtn Area)	2,000						-97.3	-13.06		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	2,000				-97.3	-13.06				
TR	Total Recharge	0				0.0	0.00				
ET	ET	1,400						-97.3	-13.06		
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-97.3*	*-13.06*		*Weighted Average of Inflow from Califronia Wash*
999	GW Outflow (Colorado River)	600						-97.3	-13.06		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
218	GW Inflow (California Wash)	18,800				-97.3	-13.06				
218	SW Inflow (California Wash)	30,700									
TR	Total Recharge	0				-88.3	-12.50				
ET	ET	25,300						-97.3	-13.06		
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-93.6*	*-12.60*		*Inter-basin flow from Lower Meadow Valley Wash*
999	GW Outflow (Colorado River)	17,200						-97.3	-13.06		
999	SW Outflow (Colorado River)	7,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	Lake Mead (Colorado River)										
210	GW Inflow (Black Mountains Area)	600				-97.3	-13.06				
205	GW Inflow (Lower Moapa)	17,200				-97.3	-13.06				
999	Groundwater Total	17,800						-97.3	-13.06		
205	SW Inflow (Lower Moapa)	7,000									
999	Surface water Total	7,000									
999	Inflow Total	24,800									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	Lake Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	12,200				-105.7	-14.12				
ET	ET	6,100						-105.7	-14.12		
202	GW Outflow (Patterson)	6,100						-105.7	-14.12		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	Patterson Valley										
183	Inflow (Lake)	6,100				-105.7	-14.12				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
TR	Total Recharge	10,500				-98.3	-13.03			
ET	ET	1,300						-101.0	-13.43	
203	GW Outflow (Panaca)	15,300						-101.0	-13.43	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	11,100				-99.4	-13.28			
ET	ET	3,900						-99.4	-13.28	
200	GW Outflow (Eagle)	7,200						-99.4	-13.28	
200	SW Outflow (Eagle)	0						-97.5	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	Eagle Valley									
201	Inflow (Spring)	7,200				-99.4	-13.28			
201	SW Inflow (Spring)	0				-97.5	-13.00			
TR	Total Recharge	2,000				-98.7	-13.15			
ET	ET	1,000						-99.3	-13.25	
199	GW Outflow (Rose)	8,200						-99.3	-13.25	
198	SW Outflow (Rose)	0						-99.3	-13.25	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	Rose Valley									
200	Inflow (Eagle)	8,200				-99.3	-13.25			
200	SW Inflow (Eagle)	0				-99.3	-13.25			
TR	Total Recharge	200				-98.4	-13.08			
ET	ET	600						-99.2	-13.24	
198	GW Outflow (Dry)	7,800						-99.2	-13.24	
198	SW Outflow (Dry)	0						-99.3	-13.25	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
198	Dry Valley									
199	Inflow (Rose)	7,800				-99.2	-13.24			
199	SW Inflow (Rose)	0				-99.3	-13.25			
TR	Total Recharge	3,200				-96.9	-12.96			
ET	ET	3,700						-98.5	-13.16	
203	GW Outflow (Panaca)	7,300						-98.5	-13.16	
203	SW Outflow (Panaca)	0						-99.2	-13.24	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
204	Clover Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	14,700				-92.1	-12.46			
ET	ET	5,200						-92.1	-12.46	
205	GW Outflow (LMVW)	9,500						-92.1	-12.46	
205	SW Outflow (LMVW)	0						-92.1	-12.46	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
203	Panaca Valley									

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC
202	**Inflow (Patterson)**	**15,300**				**-101.0**	**-13.43**			
198	**Inflow (Dry)**	**7,300**				**-98.5**	**-13.16**			
198	**SW Inflow (Dry)**	**0**				**-99.2**	**-13.24**			
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**			
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	***-101.0***	***-13.43***	***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	***-105.7***	***-14.12***	***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	***-105.7***	***-14.12***	***Inter-basin flow from Lake Valley***
ET	**ET**	**18,900**						**-99.3**	**-13.24**	
205	**GW Outflow (LMVW)**	**9,200**						**-99.3**	**-13.24**	
205	**SW Outflow (LMVW)**	**0**						**-97.0**	**-13.10**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
205	**Lower Meadow Valley Wash**									
203	**Inflow (Panaca)**	**9,200**				**-99.3**	**-13.24**			
204	**Inflow (Clover)**	**9,500**				**-92.1**	**-12.46**			
203	**SW Inflow (Panaca)**	**0**				**-97.0**	**-13.10**			
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**			
TR	**Total Recharge**	**12,400**				**-90.4**	**-12.24**			
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	***-95.7***	***-12.84***	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90			
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70			
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50			
ET	**ET**	**21,900**						**-93.6**	**-12.60**	
206	**GW Outflow (Upper Moapa)**	**4,000**						**-93.6**	**-12.60**	
218	**GW Outflow (California Wash)**	**5,200**						**-93.6**	**-12.60**	
218	**GW Outflow (Lower Moapa)**	**0**						**-93.6**	**-12.60**	
218	**SW Outflow (California Wash)**	**0**						**-93.6**	**-12.60**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
		SNWA/BARCASS (SNWA, 2007; Welch and Bright, 2007)									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	**Long Valley**										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	21,000				-122.4	-15.96				
ET	ET	1,200						-122.4	-15.96		
154	GW Outflow (Newark)	0						-122.4	-15.96		
174	GW Outflow (Jakes)	19,800						-122.4	-15.96		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	**Jakes Valley**										
175	Inflow (Long)	19,800				-122.4	-15.96				
TR	Total Recharge	13,000				-119.9	-15.71				
ET	ET	900						-119.9	-15.71		
207N	GW Outflow (NWRV)	31,900						-121.4	-15.86		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
180	**Cave Valley**										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	15,400				-106.5	-14.28				
ET	ET	1,600						-106.5	-14.28		
Well	180W902		1	601	Deep Well	-104.7	-14.12				
Well	180W501		1	600	Deep Well	-105.6	-14.12				
208	GW Outflow (Pahroc)	9,800						-106.5	-14.28		
207S	GW Outflow (SWRV)	4,000						-106.5	-14.28		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	**North White River Valley**										
174	Inflow (Jakes)	31,900				-121.4	-15.86				
TR	Total Recharge	28,600				-113.5	-15.16				
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-121.4*	*-15.86*	*Inter-basin flow from Jakes Valley*	
ET	ET	29,500						-113.7	-15.19		
207S	GW Outflow (SWRV)	31,000						-121.4	-15.86		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	**South White River Valley**	WRV Tot Recharge									
		42,900									
207N	Inflow (N White River)	31,000				-121.4	-15.86				
180	Inflow (Cave)	4,000				-106.5	-14.28				
TR	Total Recharge	14,300				-106.7	-14.18				
Warm	Discharge Warm Sprs (Avg)	13,200	13			-119.2	-15.71	*-121.4*	*-15.86*	*Inter-basin flow from Northern White River Valley*	
ET	ET	47,200						-115.8	-15.23		
208	GW Outflow (Pahroc)	2,100						-119.7	-15.68		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	25,700				-104.7	-14.08				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
ET	ET	1,700						-104.7	-14.08	
171	GW Outflow (Coal)	24,000						-104.7	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	24,000				-104.7	-14.08			
172	Inflow (SWRV)	0				-119.7	-15.68			
TR	Total Recharge	4,200				-98.4	-12.95			
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.7*	*-14.08*	*Underflow from Garden Valley*
ET	ET	0						-98.4	-12.95	
208	GW Outflow (Pahroc)	28,200						-103.7	-13.91	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
180	Inflow (Cave)	9,800				-106.5	-14.28			
207S	Inflow (S. White River)	2,100				-119.7	-15.68			
171	Inflow (Coal)	28,200				-103.7	-13.91			
TR	Total Recharge	4,900				-96.4	-12.75			
ET	ET	0						-96.4	-12.75	
181	GW Outflow (Dry Lake)	2,000						-106.5	-14.28	
209	GW Outflow (Pahranagat)	43,000						-104.3	-13.95	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	43,000				-104.3	-13.95			
181	Inflow (Dry Lake)	0				-99.0	-13.12			
209	Inflow (Delamar)	0				-97.3	-12.93			
TR	Total Recharge	5,900				-97.0	-13.67			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-104.3*	*-13.95*	*Inter-basin flow from Pahroc Valley*
ET	ET	28,500						-102.8	-13.89	
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-104.3*	*-13.95*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	20,400						-104.3	-13.95	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
208	Inflow (Pahroc)	2,000				-106.5	-14.28			
TR	Total Recharge	16,700				-98.1	-12.98			
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-106.5*	*-14.28*	*Inter-basin flow from Cave Valley*
ET	ET	0						-98.1	-12.98	
209	GW Outflow (Pahranagat)	0						-99.0	-13.12	
182	GW Outflow (Delamar)	18,700						-99.0	-13.12	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	18,700				-99.0	-13.12			
TR	Total Recharge	6,800				-92.8	-12.39			
ET	ET	0						-92.8	-12.39	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-99.0*	*-13.12*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	0						-97.3	-12.93	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
210	GW Outflow (Coyote Spr)	25,500						-97.3	-12.93		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
206	Kane Springs Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	4,500				-88.9	-12.20				
ET	ET	0						-88.9	-12.20		
210	GW Outflow (Coyote Spr)	4,500						-88.9	-12.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
210	Coyote Springs Valley										
209	Inflow (Pahranagat)	20,400				-104.3	-13.95				
182	Inflow (Delamar)	25,500				-97.3	-12.93				
206	Inflow (Kane Springs)	4,500				-88.9	-12.20				
TR	Total Recharge	2,300				-90.8	-12.53				
ET	ET	0						-90.8	-12.53		
CARB	Carbonate Well (Avg)		6			-100.7	-13.11	*-99.4*	*-13.28*		*Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys*
219	GW Outflow (Muddy)	37,700						-99.0	-13.24		
217	GW Outflow (Hidden)	15,000						-99.0	-13.24		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	Upper Moapa (Muddy) Valley										
205	Inflow (LMVW)	4,000				-96.3	-12.92				
210	Inflow (Coyote)	37,700				-99.0	-13.24				
TR	Total Recharge	0				-87.4	-11.92				
Warm	Dicharge Warm Sprs (Avg)	8,300	49			-97.8	-12.90	*-98.8*	*-13.21*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)	Input into M	4			-97.9	-12.97	*-98.8*	*-13.21*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	6,000						-98.8	-13.21		
Gage	Moapa Gage	34,000									
218	SW Outflow (California)	34,000									
218	GW Outflow (California)	1,700						-98.8	-13.21		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	Hidden Valley										
210	Inflow (Coyote)	15,000				-99.0	-13.24				
TR	Total Recharge	0				-81.0	-10.60				
ET	ET	0						-81.0	-10.60		
216	GW Outflow (Garnet)	15,000						-99.0	-13.24		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	Garnet Valley										
217	Inflow (Hidden)	15,000				-99.0	-13.24				
TR	Total Recharge	100				-81.0	-10.60				
CARB	Wells (Avg)		6			-96.9	-13.32	*-99.0*	*-13.24*		*Inter-basin flow from Hidden Valley*
ET	ET	0						-81.0	-10.60		
218	GW Outflow (California)	15,100						-98.9	-13.23		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-98.8	-13.21				
205	Inflow (Lower Meadow VW)	5,200				-96.3	-12.92				
216	Inflow (Garnet)	15,100				-98.9	-13.23				
TR	Total Recharge	0				-82.0	-10.6				
ET	ET	4,500						-82.0	-10.60		
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-98.3*	*-13.15*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
220	GW Outflow (Lower Moapa)	18,800						-98.3	-13.15		
215	GW Outflow (Black Mtn Area)	2,000						-98.3	-13.15		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	2,000				-98.3	-13.15				
TR	Total Recharge	0				-81.3	-10.75				
ET	ET	1,400						-81.3	-10.75		
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-98.3*	*-13.15*		*Weighted Average of Inflow from Califronia Wash*
999	GW Outflow (Colorado River)	600						-98.3	-13.15		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
218	GW Inflow (California Wash)	18,800				-98.3	-13.15				
218	SW Inflow (California Wash)	30,700									
TR	Total Recharge	0				-88.3	-12.50				
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-96.3*	*-12.92*		*Inter-basin flow from Lower Meadow Valley Wash*
ET	ET	25,300						-88.3	-12.50		
999	GW Outflow (Colorado River)	17,200						-98.3	-13.15		
999	SW Outflow (Colorado River)	7,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	Lake Mead (Colorado River)										
210	GW Inflow (Black Mountains Area)	600				-98.3	-13.15				
205	GW Inflow (Lower Moapa)	17,200				-98.3	-13.15				
999	Groundwater Total	17,800						-98.3	-13.15		
205	SW Inflow (Lower Moapa)	7,000									
999	Surfacewater Total	7,000									
999	Inflow Total	24,800									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	Lake Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	12,200				-105.7	-14.12				
ET	ET	6,100						-105.7	-14.12		
202	GW Outflow (Patterson)	6,100						-105.7	-14.12		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	Patterson Valley										
183	Inflow (Lake)	6,100				-105.7	-14.12				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
TR	Total Recharge	10,500				-98.3	-13.03			
ET	ET	1,300						-98.3	-13.03	
203	GW Outflow (Panaca)	15,300						-101.3	-13.47	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	11,100				-99.4	-13.28			
ET	ET	3,900						-99.4	-13.28	
200	GW Outflow (Eagle)	7,200						-99.4	-13.28	
200	SW Outflow (Eagle)	0						-97.5	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	Eagle Valley									
201	Inflow (Spring)	7,200				-99.4	-13.28			
201	SW Inflow (Spring)	0				-97.5	-13.00			
TR	Total Recharge	2,000				-98.7	-13.15			
ET	ET	1,000						-98.7	-13.15	
199	GW Outflow (Rose)	8,200						-99.3	-13.26	
198	SW Outflow (Rose)	0						-98.7	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	Rose Valley									
200	Inflow (Eagle)	8,200				-99.3	-13.26			
200	SW Inflow (Eagle)	0				-98.7	-13.00			
TR	Total Recharge	200				-98.4	-13.08			
ET	ET	600						-98.4	-13.08	
198	GW Outflow (Dry)	7,800						-99.3	-13.25	
198	SW Outflow (Dry)	0						-98.4	-13.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
198	Dry Valley									
199	Inflow (Rose)	7,800				-99.3	-13.25			
199	SW Inflow (Rose)	0				-98.4	-13.08			
TR	Total Recharge	3,200				-96.9	-12.96			
ET	ET	3,700						-97.2	-13.00	
203	GW Outflow (Panaca)	7,300						-99.3	-13.25	
203	SW Outflow (Panaca)	0						-97.2	-13.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
204	Clover Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	14,700				-92.1	-12.46			
ET	ET	5,200						-92.1	-12.46	
205	GW Outflow (LMVW)	9,500						-92.1	-12.46	
205	SW Outflow (LMVW)	0						-92.1	-12.46	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
203	Panaca Valley									
202	Inflow (Patterson)	15,300				-101.3	-13.47			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
198	**Inflow (Dry)**	**7,300**				**-99.3**	**-13.25**				
198	**SW Inflow (Dry)**	**0**				**-97.2**	**-13.00**				
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.3*	*-13.47*		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-105.7*	*-14.12*		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-105.7*	*-14.12*		***Inter-basin flow from Lake Valley***
ET	**ET**	**18,900**						**-99.2**	**-13.22**		
205	**GW Outflow (LMVW)**	**9,200**						**-100.6**	**-13.40**		
205	**SW Outflow (LMVW)**	**0**						**-99.2**	**-13.22**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**9,200**				**-100.6**	**-13.40**				
204	**Inflow (Clover)**	**9,500**				**-92.1**	**-12.46**				
203	**SW Inflow (Panaca)**	**0**				**-99.2**	**-13.22**				
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**				
TR	**Total Recharge**	**12,400**				**-90.4**	**-12.24**				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-96.3*	*-12.92*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**21,900**						**-93.0**	**-12.54**		
206	**GW Outflow (Upper Moapa)**	**4,000**						**-96.3**	**-12.92**		
218	**GW Outflow (California Wash)**	**5,200**						**-96.3**	**-12.92**		
218	**SW Outflow (California Wash)**	**0**						**-90.4**	**-12.24**		
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

		Reconnaissance Series Water Budget									
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	Long Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	10,300				-121.7	-15.85				
ET	ET	2,000						-121.7	-15.85		
174	GW Outflow (Jakes)	8,300						-121.7	-15.85		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	Jakes Valley										
175	Inflow (Long)	8,300				-121.7	-15.85				
TR	Total Recharge	17,000				-119.7	-15.66				
ET	ET	0						-120.3	-15.72		
207N	GW Outflow (NWRV)	25,300						-120.3	-15.72		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
180	Cave Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	14,000				-106.6	-14.28				
ET	ET	200						-106.6	-14.28		
Well	180W902		1	601	Deep Well	-104.7	-14.12				
Well	180W501		1	600	Deep Well	-105.6	-14.12				
181	GW Outflow (Dry Lake)	0						-106.6	-14.28		
207S	GW Outflow (SWRV)	13,800						-106.6	-14.28		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	North White River Valley										
174	Inflow (Jakes)	25,300				-120.3	-15.72				
TR	Total Recharge	25,700				-113.7	-15.16				
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-120.3*	*-15.72*	*Inter-basin flow from Jakes Valley*	
ET	ET	22,000						-117.0	-15.44		
207S	GW Outflow (SWRV)	29,000						-117.0	-15.44		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	South White River Valley	WRV Tot Recharge 38,000									
207N	Inflow (N White River)	29,000				-117.0	-15.44				
180	Inflow (Cave)	13,800				-106.6	-14.28				
TR	Total Recharge	12,300				-106.7	-14.18				
Warm	Discharge Warm Sprs (Avg)	13,200	13			-119.2	-15.71	*-117.0*	*-15.44*	*Inter-basin flow from Northern White River Valley*	
ET	ET	13,000						-112.1	-14.87		
208	GW Outflow (Pahroc)	42,100						-112.1	-14.87		
208	GW Outflow (Garden Valley)	0						-112.1	-14.87		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	Garden Valley										
172	Inflow (None)	0				-112.1	-14.87				
TR	Total Recharge	10,000				-104.2	-14.00				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
ET	ET	2,000						-104.2	-14.00	
171	GW Outflow (Coal)	8,000						-104.2	-14.00	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	8,000				-104.2	-14.00			
172	Inflow (SWRV)	0				-112.1	-14.87			
TR	Total Recharge	2,000				-98.7	-13.05			
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.2*	*-14.0*	*Underflow from Garden Valley*
ET	ET	0						-103.1	-13.81	
208	GW Outflow (Pahranagat)	10,000						-103.1	-13.81	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
207S	Inflow (S. White River)	42,100				-112.1	-14.87			
171	Inflow (Coal)	0				0.0	0.00			
TR	Total Recharge	2,200				-96.8	-12.80			
ET	ET	0						-111.3	-14.77	
209	GW Outflow (Pahranagat)	44,300						-111.3	-14.77	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	44,300				-111.3	-14.77			
171	Inflow (Coal)	10,000				-103.1	-13.81			
209	Inflow (Delamar)	6,200				-97.7	-12.96			
TR	Total Recharge	1,800				-97.4	-13.83			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-111.3*	*-14.77*	*Inter-basin flow from Pahroc Valley*
ET	ET	25,000						-108.3	-14.41	
Warm	209M-1		1	608	Deep Well	-104.7	-13.53	*-111.3*	*-14.77*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	37,300						-108.3	-14.41	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
180	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	5,000				-98.9	-13.10			
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-98.9*	*-13.10*	*Local Recharge*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-98.9*	*-13.10*	*Local Recharge*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-98.9*	*-13.10*	*Local Recharge*
ET	ET	0						-98.9	-13.10	
209	GW Outflow (Pahranagat)	0						-98.9	-13.10	
182	GW Outflow (Delamar)	5,000						-98.9	-13.10	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	5,000				-98.9	-13.10			
TR	Total Recharge	1,200				-92.7	-12.38			
ET	ET	0						-97.7	-12.96	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-98.9*	*-13.10*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	6,200						-97.7	-12.96	
210	GW Outflow (Coyote Spr)	0						-97.7	-12.96	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
206	**Kane Springs Valley**										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	600				-89.0	-12.22				
ET	ET	0						-89.0	-12.22		
210	GW Outflow (Coyote Spr)	600						-89.0	-12.22		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
210	**Coyote Springs Valley**										
209	Inflow (Pahranagat)	37,300				-108.3	-14.41				
182	Inflow (Delamar)	0				0.0	0.00				
206	Inflow (Kane Springs)	600				-89.0	-12.22				
TR	Total Recharge	2,000				-92.6	-12.81				
ET	ET	500						-107.2	-14.29		
219	GW Outflow (Muddy)	39,400						-107.2	-14.29		
217	GW Outflow (Hidden)	0						0.0	0.00		
216	GW Outflow (Garnet)	0						0.0	0.00		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	Inflow (LMVW)	0				0.0	0.00				
210	Inflow (Coyote)	39,400				-107.2	-14.29				
TR	Total Recharge	0				-87.3	-11.86				
Warm	Dicharge Warm Sprs (Avg)	8,300	49			-97.8	-12.90	*-107.2*	*-14.29*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)	Input into M	4			-97.9	-12.97	*-107.2*	*-14.29*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	0						-107.2	-14.29		
Gage	Moapa Gage	34,000									
218	SW Outflow (California)	34,000						-107.2	-14.29		
218	GW Outflow (California)	5,400						-107.2	-14.29		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	Inflow (Coyote)	0				0.0	0.00				
TR	Total Recharge	400				-81.0	-10.60				
ET	ET	0						-81.0	-10.60		
216	GW Outflow (Garnet)	400						-81.0	-10.60		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	Inflow (Hidden)	400				-81.0	-10.60				
TR	Total Recharge	400				-81.0	-10.60				
CARB	Wells (Avg)		6			-96.9	-13.32	*-81.0*	*-10.60*		*Inter-basin flow from Hidden Valley*
ET	ET	0						-81.0	-10.60		
218	GW Outflow (California)	800						-81.0	-10.60		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	**California Wash**										
219	Inflow (LMVW)	12,700				-98.7	-13.20				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
219	Inflow (Muddy)	5,400				-107.2	-14.29				
216	Inflow (Garnet)	800				-81.0	-10.60				
218	SW Inflow (Muddy)	34,000									
TR	Total Recharge	100				-82.0	-10.60				
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-103.8*	*-13.82*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	1,000						-100.3	-13.38		
220	GW Outflow (Lower Moapa)	21,300						-100.3	-13.38		
215	GW Outflow (Black Mtn Area)	0						-100.3	-13.38		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	0				-100.3	-13.38				
TR	Total Recharge	100				-85.0	-10.95				
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-85.0*	*-10.95*		*Weighted Average of Inflow from Califronia Wash plus recharge from Muddy Mountains*
ET	ET	0						-85.0	-10.95		
999	GW Outflow (Colorado River)	100						-85.0	-10.95		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
219	Inflow (Muddy)	21,300				-107.2	-14.29				
218	SW Inflow (Muddy)	30,700									
TR	Total Recharge	100				-88.3	-12.50				
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-107.2*	*-14.29*		*Inter-basin flow from Lower Meadow Valley Wash*
ET	ET	24,000						-107.1	-14.29		
999	GW Outflow (Colorado River)	21,100						-107.1	-14.29		
999	SW Outflow (Colorado River)	7,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	Lake Mead (Colorado River)										
210	GW Inflow (Black Mountains Area)	0				0.0	0.00				
205	GW Inflow (Lower Moapa)	21,100				-107.1	-14.29				
999	Groundwater Total	21,100						-107.1	-14.29		
205	SW Inflow (Lower Moapa)	7,000									
999	Surfacewater Total	7,000									
999	Inflow Total	28,100									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	Lake Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	13,000				-106.2	-14.24				
ET	ET	9,000						-106.2	-14.24		
202	GW Outflow (Patterson)	4,000						-106.2	-14.24		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	Patterson Valley										
183	Inflow (Lake)	4,000				-106.2	-14.24				
TR	Total Recharge	6,000				-98.2	-13.03				
ET	ET	100						-101.4	-13.51		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
203	GW Outflow (Panaca)	9,900						-101.4	-13.51	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	10,000				-99.4	-13.26			
ET	ET	10,000						-99.4	-13.26	
200	GW Outflow (Eagle)	0						-99.4	-13.26	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	Eagle Valley									
201	Inflow (Spring)	0				-99.4	-13.26			
TR	Total Recharge	1,300				-98.9	-13.20			
ET	ET	1,000						-98.9	-13.20	
199	GW Outflow (Rose)	300						-98.9	-13.20	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	Rose Valley									
200	Inflow (Eagle)	300				-98.9	-13.20			
TR	Total Recharge	0				-98.6	-13.14			
ET	ET	100						-98.9	-13.20	
198	GW Outflow (Dry)	200						-98.9	-13.20	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
198	Dry Valley									
199	Inflow (Rose)	200				-98.9	-13.20			
TR	Total Recharge	1,500				-96.9	-12.99			
ET	ET	1,000						-97.1	-13.02	
203	GW Outflow (Panaca)	700						-97.1	-13.02	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
204	Clover Valley									
0	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	1,800				-92.1	-12.47			
ET	ET	0						-92.1	-12.47	
205	GW Outflow (LMVW)	1,800						-92.1	-12.47	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
203	Panaca Valley									
202	Inflow (Patterson)	9,900				-101.4	-13.51			
198	Inflow (Dry)	700				-97.1	-13.02			
TR	Total Recharge	1,900				-96.8	-12.95			
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.4*	*-13.51*	*Inter-basin flow from Patterson Valley*
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-106.2*	*-14.24*	*Inter-basin flow from Lake Valley*
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-106.2*	*-14.24*	*Inter-basin flow from Lake Valley*
ET	ET	2,000						-100.5	-13.40	
205	GW Outflow (LMVW)	12,500						-100.5	-13.40	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**12,500**				**-100.5**	**-13.40**				
204	**Inflow (Clover)**	**1,800**				**-92.1**	**-12.47**				
TR	**Total Recharge**	**1,400**				**-91.1**	**-12.29**				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	***-99.4***	***-13.28***		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**1,000**						**-98.7**	**-13.20**		
206	**GW Outflow (Upper Moapa)**	**0**						**-98.7**	**-13.20**		
218	**GW Outflow (California Wash)**	**12,700**						**-98.7**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Reconnaissance Series Water Budget

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	Long Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	10,300				-121.7	-15.85				
ET	ET	2,000						-121.7	-15.85		
174	GW Outflow (Jakes)	8,300						-121.7	-15.85		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	Jakes Valley										
175	Inflow (Long)	8,300				-121.7	-15.85				
TR	Total Recharge	17,000				-119.7	-15.66				
ET	ET	0						-119.7	-15.66		
207N	GW Outflow (NWRV)	25,300						-120.3	-15.72		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
180	Cave Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	14,000				-106.6	-14.28				
ET	ET	200						-106.6	-14.28		
Well	180W902		1	601	Deep Well	-104.7	-14.12				
Well	180W501		1	600	Deep Well	-105.6	-14.12				
181	GW Outflow (Dry Lake)	0						-106.6	-14.28		
207S	GW Outflow (SWRV)	13,800						-106.6	-14.28		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	North White River Valley										
174	Inflow (Jakes)	25,300				-120.3	-15.72				
TR	Total Recharge	25,700	2			-113.7	-15.16				
Warm	Discharge Warm Sprs (Avg)	8,900	14			-122.6	-15.92	*-120.3*	*-15.72*		*Inter-basin flow from Jakes Valley*
ET	ET	22,000						-113.7	-15.16		
207S	GW Outflow (SWRV)	29,000						-119.5	-15.65		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	South White River Valley	WRV Tot Recharge									
		38,000									
207N	Inflow (N White River)	29,000				-119.5	-15.65				
180	Inflow (Cave)	13,800				-106.6	-14.28				
TR	Total Recharge	12,300				-106.7	-14.18				
Warm	Discharge Warm Sprs (Avg)	13,200				-119.2	-15.71	*-119.5*	*-15.65*		*Inter-basin flow from Northern White River Valley*
ET	ET	13,000						-107.2	-14.24		
208	GW Outflow (Pahroc)	42,100						-115.3	-15.21		
208	GW Outflow (Garden Valley)	0						-115.3	-15.21		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	Garden Valley										
172	Inflow (None)	0				-115.3	-15.21				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
TR	Total Recharge	10,000				-104.5	-14.06			
ET	ET	2,000						-104.5	-14.06	
171	GW Outflow (Coal)	8,000						-104.5	-14.06	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
171	Coal Valley									
172	Inflow (Garden)	8,000				-104.5	-14.06			
172	Inflow (SWRV)	0				-115.3	-15.21			
TR	Total Recharge	2,000				-98.7	-13.05			
Carb Well	USGS-MX C.V. Well (CV-DT-1)		2	176	Well	-109.0	-14.56	*-104.5*	*-14.06*	*Underflow from Garden Valley*
ET	ET	0						-98.7	-13.05	
208	GW Outflow (Pahranagat)	10,000						-103.4	-13.85	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	Pahroc Valley									
207S	Inflow (S. White River)	42,100				-115.3	-15.21			
TR	Total Recharge	2,200	2			-96.8	-12.80			
ET	ET	0						-96.8	-12.80	
209	GW Outflow (Pahranagat)	44,300						-114.4	-15.09	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	Pahranagat Valley									
208	Inflow (Pahroc)	44,300				-114.4	-15.09			
171	Inflow (Coal)	10,000				-103.4	-13.85			
209	Inflow (Delamar)	6,200				-97.7	-12.96			
TR	Total Recharge	1,800				-97.4	-13.83			
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-114.4*	*-15.09*	*Inter-basin flow from Pahroc Valley*
ET	ET	25,000						-109.9	-14.61	
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-114.4*	*-15.09*	*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	37,300						-110.9	-14.67	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	Dry Lake Valley									
180	Inflow (None)	0				0.0	0.00			
TR	Total Recharge	5,000				-98.9	-13.10			
Carb Well	Fugro Dry Lake V Deep Well		2	179	Well	-107.5	-14.16	*-98.9*	*-13.10*	*Local Recharge*
Carb Well	181M1		1	603	Deep Well	-105.0	-13.67	*-98.9*	*-13.10*	*Local Recharge*
Carb Well	181W909M		1	604	Deep Well	-104.6	-13.50	*-98.9*	*-13.10*	*Local Recharge*
ET	ET	0						-98.9	-13.10	
209	GW Outflow (Pahranagat)	0						-98.9	-13.10	
182	GW Outflow (Delamar)	5,000						-98.9	-13.10	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	Delamar Valley									
181	Inflow (Dry Lake)	5,000				-98.9	-13.10			
TR	Total Recharge	1,200				-92.7	-12.38			
ET	ET	0						-92.7	-12.38	
Well	182W906M		1	607	Deep Well	-100.3	-13.33	*-98.9*	*-13.10*	*Inter-basin flow from Dry Lake Valley*
209	GW Outflow (Pahranagat)	6,200						-97.7	-12.96	
210	GW Outflow (Coyote Spr)	0						-97.7	-12.96	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
206	Kane Springs Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	600				-89.0	-12.22				
ET	ET	0						-89.0	-12.22		
210	GW Outflow (Coyote Spr)	600						-89.0	-12.22		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
210	Coyote Springs Valley										
209	Inflow (Pahranagat)	37,300				-110.9	-14.67				
182	Inflow (Delamar)	0				0.0	0.00				
206	Inflow (Kane Springs)	600				-89.0	-12.22				
TR	Total Recharge	2,000				-92.6	-12.81				
ET	ET	500						-92.6	-12.81		
219	GW Outflow (Muddy)	39,400						-109.8	-14.56		
217	GW Outflow (Hidden)	0						-109.8	-14.56		
216	GW Outflow (Garnet)	0						-109.8	-14.56		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	Upper Moapa (Muddy) Valley										
205	Inflow (LMVW)	0				0.0	0.00				
210	Inflow (Coyote)	39,400				-109.8	-14.56				
TR	Total Recharge	0				-87.3	-11.86				
Warm	Dicharge Warm Sprs (Avg)	8,300	49			-97.8	-12.90	*-109.8*	*-14.56*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
CARB	Deep Carbonate Well (Avg)	Input into M	4			-97.9	-12.97	*-109.8*	*-14.56*		*Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys*
ET	ET	0						-87.3	-11.86		
Gage	Moapa Gage	34,000									
218	SW Outflow (California)	34,000						-109.8	-14.56		
218	GW Outflow (California)	5,400						-109.8	-14.56		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	Hidden Valley										
210	Inflow (Coyote)	0				-109.8	-14.56				
TR	Total Recharge	400				-81.0	-10.60				
ET	ET	0						-81.0	-10.60		
216	GW Outflow (Garnet)	400						-81.0	-10.60		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	Garnet Valley										
217	Inflow (Hidden)	400				-81.0	-10.60				
TR	Total Recharge	400				-81.0	-10.60				
CARB	Wells (Avg)		6			-96.9	-13.32	*-81.0*	*-10.60*		*Inter-basin flow from Hidden Valley*
ET	ET	0						-81.0	-10.60		
218	GW Outflow (California)	800						-81.0	-10.60		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										
219	Inflow (LMVW)	12,700				-99.8	-13.33				
219	Inflow (Muddy)	5,400				-109.8	-14.56				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
216	Inflow (Garnet)	800				-81.0	-10.60				
218	SW Inflow (Muddy)	34,000									
TR	Total Recharge	100				-82.0	-10.60				
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-106.1*	*-14.05*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	1,000						-99.9	-13.3		
220	GW Outflow (Lower Moapa)	21,300						-101.9	-13.57		
215	GW Outflow (Black Mtn Area)	0						-101.9	-13.57		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	0				-101.9	-13.57				
TR	Total Recharge	100				-85.0	-10.95				
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-85.0*	*-10.95*		*Weighted Average of Inflow from Califronia Wash plus recharge from Muddy Mountains*
ET	ET	0						-85.0	-10.95		
999	GW Outflow (Colorado River)	100						-85.0	-10.95		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
219	Inflow (Muddy)	21,300				-101.9	-13.57				
218	SW Inflow (California Wash)	30,700									
TR	Total Recharge	100				-88.3	-12.50				
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-101.9*	*-13.57*		*Inter-basin flow from Lower Meadow Valley Wash*
ET	ET	24,000						-101.8	-13.56		
999	GW Outflow (Colorado River)	19,100						-101.9	-13.57		
999	SW Outflow (Colorado River)	9,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	Lake Mead (Colorado River)										
210	GW Inflow (Black Mountains Area)	100				-85.0	-10.95				
205	GW Inflow (Lower Moapa)	19,100				-101.9	-13.57				
999	Groundwater Total	19,200						-101.8	-13.55		
205	SW Inflow (Lower Moapa)	9,000									
999	Surfacewater Total	9,000									
999	Inflow Total	28,200									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	Lake Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	13,000				-106.2	-14.24				
ET	ET	9,000						-106.2	-14.24		
202	GW Outflow (Patterson)	4,000						-106.2	-14.24		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	Patterson Valley										
183	Inflow (Lake)	4,000				-106.2	-14.24				
TR	Total Recharge	6,000				-98.2	-13.03				
ET	ET	100						-98.2	-13.03		
203	GW Outflow (Panaca)	9,900						-101.5	-13.52		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
201	Spring Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	10,000				-99.4	-13.26				
ET	ET	10,000						-99.4	-13.26		
200	GW Outflow (Eagle)	0						-99.4	-13.26		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
200	Eagle Valley										
201	Inflow (Spring)	0				-99.4	-13.26				
TR	Total Recharge	1,300				-98.9	-13.20				
ET	ET	1,000						-98.9	-13.20		
199	GW Outflow (Rose)	300						-98.9	-13.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
199	Rose Valley										
200	Inflow (Eagle)	300				-98.9	-13.20				
TR	Total Recharge	0				-98.6	-13.14				
ET	ET	100						-98.6	-13.14		
198	GW Outflow (Dry)	200						-98.9	-13.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
198	Dry Valley										
199	Inflow (Rose)	200				-98.9	-13.20				
TR	Total Recharge	1,500				-96.9	-12.99				
ET	ET	1,000						-96.9	-12.99		
203	GW Outflow (Panaca)	700						-97.4	-13.05		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	Clover Valley										
0	Inflow (None)	0				0.0	0.00				
TR	Total Recharge	1,800				-92.1	-12.47				
ET	ET	0						-92.1	-12.47		
205	GW Outflow (LMVW)	1,800						-92.1	-12.47		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	Panaca Valley										
202	Inflow (Patterson)	9,900				-101.5	-13.52				
198	Inflow (Dry)	700				-97.4	-13.05				
TR	Total Recharge	1,900				-96.8	-12.95				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.5*	*-13.52*		*Inter-basin flow from Patterson Valley*
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-106.2*	*-14.24*		*Inter-basin flow from Lake Valley*
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-106.2*	*-14.24*		*Inter-basin flow from Lake Valley*
ET	ET	2,000						-97.1	-12.98		
205	GW Outflow (LMVW)	12,500						-101.2	-13.49		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	Lower Meadow Valley Wash										

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
203	Inflow (Panaca)	12,500				-101.2	-13.49				
204	Inflow (Clover)	1,800				-92.1	-12.47				
TR	Total Recharge	1,400				-91.1	-12.29				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-100.0*	*-13.36*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	ET	1,000						-91.1	-12.29		
206	GW Outflow (Upper Moapa)	0						-99.8	-13.33		
218	GW Outflow (California Wash)	12,700						-99.8	-13.33		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

APPENDIX 2. Detailed isotope mass-balance models showing: (1) estimates of recharge amounts and their average deuterium and oxygen-18 values; (2) estimates of pre-development ET amounts and their average deuterium and oxygen-18 values; and (3) all the sites that were used to calculate average deuterium and oxygen-18 values for recharge areas and regional warm spring areas.

		SNWA (2007 Water Budget)									
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	**Long Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
175 SE	Butte Mtn. (S)	2,507				-119.6	-15.53			35	
175 SW	Alligator Rdg.	3,496				-122.4	-15.96			36	
175 NW	Maverick Springs	10,881				-123.9	-16.23			37	
175 NE	Butte Mtn. (N)	3,044				-119.2	-15.36			164	
TR	**Total Recharge**	**19,900**				**-122.4**	**-15.96**				
SE	Butte Spring		1	327	Spring	-120.4	-15.79				
SE	Cabin Spring		1	328	Spring	-124.4	-15.89				
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39				
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74				
SE	Summit Spring		1	348	Spring	-120.8	-15.94				
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40				
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21				
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75				
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04				
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60				
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55				
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36				
ET	**ET**	**3,000**						**-122.4**	**-15.96**		
154	**GW Outflow (Newark)**	**0**						**-122.4**	**-15.96**		
174	**GW Outflow (Jakes)**	**16,900**						**-122.4**	**-15.96**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	**Jakes Valley**										
175	**Inflow (Long)**	**16,900**				**-122.4**	**-15.96**				
174 E	Egan Range	2,722				-118.4	-15.31			33	
174 W	North White Pine	9,567				-120.3	-15.83			34	
TR	**Total Recharge**	**12,300**				**-119.9**	**-15.71**				
W	Tunnel Spring		1	366	Spring	-118.3	-15.02				
W	Aspen Springs North		1	349	Spring	-119.3	-15.84				
W	Aspen Springs South		1	324	Spring	-120.9	-16.02				
W	Chicken Spring		1	330	Spring	-122.0	-16.17				
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30				
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76				
W	Sand Spring		1	239	Spring	-123.0	-16.20				
W	Shellback Spring		1	344	Spring	-123.6	-16.54				
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69				
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18				
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80				
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39				
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31				
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30				
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Surface Water not included in recharge average			
ET	**ET**	**400**						**-121.3**	**-15.86**		
207N	**GW Outflow (NWRV)**	**28,800**						**-121.3**	**-15.86**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
180	**Cave Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
180 E	S. Schell Cr. Rng	7,132				-105.0	-14.28			43,44	
180 W	S. Egan Rng	7,527				-107.8	-14.28			45,46	
TR	**Total Recharge**	**14,700**				**-106.5**	**-14.28**				
E	North Creek Spring		1	214	Spring	-105.0	-14.60				
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70				
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75				
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				

W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90			
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52			
W	Granite Spring		1	440	Spring	-103.4	-13.32			
W	Haggerty Spring		1	387	Spring	-109.6	-14.78			
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37			
W	Silver Spring		2	385	Spring	-111.4	-14.71			
W	Shingle Spring		2	203	Spring	-103.7	-13.33			
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04			
W	Trough Spring		1	413	Spring	-103.6	-13.56			
ET	**ET**	**1,300**						**-106.5**	**-14.28**	
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**	***-106.5***	***-14.28***	***Local recharge***
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**	***-106.5***	***-14.28***	***Local recharge***
208	**GW Outflow (Pahroc)**	**9,400**						**-106.5**	**-14.28**	
207S	**GW Outflow (SWRV)**	**4,000**						**-106.5**	**-14.28**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207N	**North White River Valley**									
174	**Inflow (Jakes)**	**28,800**				**-121.3**	**-15.86**			
207 NE	Egan Rng North	16,085				-112.3	-15.15			38
207 NW	White Pine Rng.	11,430				-115.0	-15.18			39, 40
TR	**Total Recharge**	**27,500**				**-113.4**	**-15.16**			
NE	on Creek Spring (Unnamed Spring in Gubler Canyon)		1	235	Spring	-111.0	-14.90			
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37			
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90			
NE	High Springs		1	433	Spring	-113.4	-15.43			
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34			
NE	Mud Spring		1	446	Spring	-111.0	-14.53			
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71			
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14			
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14			
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07			
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37			
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72			
NE	North Spring		2	237	Spring	-112.4	-15.11			
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70			
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12			
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42			
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60			
NE	Lund Spring		1	221	Spring	-113.0	-15.40	Local Valley spring not included in recharge calculation		
NE	Water Canyon		2	233	Surface	-116.0	-15.25	Surface Water not included in recharge average		
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92			
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87			
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36			
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66			
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96			
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01			
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36			
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98			
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52			
NW	Easter Spring		1	365	Spring	-119.4	-15.56			
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86			
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58			
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45			
NW	Secret Spring		1	220	Spring	-110.0	-14.00			
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00			
NW	Stove Spring		1	347	Spring	-114.5	-15.71			
NW	ıed Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31			
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10	Surface Water not included in recharge average		
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00	Surface Water not included in recharge average		
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80			
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10			
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88			
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-121.3***	***-15.86***	***Inter-basin flow from Jakes Valley***
ET	**ET**	**20,500**						**-117.5**	**-15.52**	
207S	**GW Outflow (SWRV)**	**35,800**						**-117.5**	**-15.52**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207S	**South White River Valley**	WRV Tot Recharge								

		41,000									
207N	**Inflow (N White River)**	**35,800**				**-117.5**	**-15.52**				
180	**Inflow (Cave)**	**4,000**				**-106.5**	**-14.28**				
207 SE	Egan Rng South	7,423				-106.9	-14.15				41
207 SW	Grant Rng	6,117				-106.5	-14.23				42
TR	**Total Recharge**	**13,500**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20	Local Valley spring not included in recharge calculation			
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50	Local Valley spring not included in recharge calculation			
E	Flag Spring #3		1	201	Spring	-105.0	-14.30	Local Valley spring not included in recharge calculation			
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**	**13**			**-119.2**	**-15.71**	***-117.5***	***-15.52***	***Inter-basin flow from Northern White River Valley***	
ET	**ET**	**46,900**						**-113.9**	**-15.09**		
208	**GW Outflow (Pahroc)**	**6,400**						**-113.9**	**-15.09**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
SW	Quinn Canyon Range	15,120				-104.6	-14.08				171
172 NW	Grant Range	7,757				-106.5	-14.27				170
172 NE	Golden Gate Rng	980				-98.0	-13.30				55
172 SE	Worthington Mountains	962				-98.0	-13.30				56
TR	**Total Recharge**	**24,800**				**-104.7**	**-14.08**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85	Evaporated so not used in recharge calculation			
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**1,700**						**-104.7**	**-14.08**		
171	**GW Outflow (Coal)**	**23,100**						**-104.7**	**-14.08**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**23,100**				**-104.7**	**-14.08**				
172	**Inflow (SWRV)**	**0**				**-113.9**	**-15.09**				
171 E	Seaman Rng	1,182				-99.0	-13.13				75
171 W	Golden Gate Rng	2,675				-98.2	-12.87				76
TR	**Total Recharge**	**3,900**				**-98.4**	**-12.95**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				

W	Henry Spring		1	287	Spring	-97.4	-12.77			
W	Little Cut Spring		2	286	Spring	-98.3	-12.85			
E	Seaman Spring		1	306	Spring	-99.0	-13.13			
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.7***	***-14.08***	***Underflow from Garden Valley***
ET	**ET**	**0**						**-103.8**	**-13.91**	
208	**GW Outflow (Pahroc)**	**27,000**						**-103.8**	**-13.91**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	**Pahroc Valley**									
207S	**Inflow (S. White River)**	**6,400**				**-113.9**	**-15.09**			
170	**Inflow (Cave)**	**9,400**				**-106.5**	**-14.28**			
171	**Inflow (Coal)**	**27,000**				**-103.8**	**-13.91**			
208 E	N. Pahroc Rng.	2,390				-94.2	-12.42			73
208 W	Seaman Rng.	2,117				-99.0	-13.13			74
TR	**Total Recharge**	**4,500**				**-96.4**	**-12.75**			
E	Black Rock Spring		2	158	Spring	-93.8	-12.31			
E	Coyote Spring		2	169	Spring	-95.1	-12.53			
E	Hamilton Spring		1	298	Spring	-93.1	-11.76			
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06			
E	Mustang Spring		2	135	Spring	-90.5	-12.49			
E	Pahroc Spring		3	131	Spring	-92.2	-12.65			
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65			
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90			
W	Seaman Spring		1	306	Spring	-99.0	-13.13			
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10	Evaporated not used in recharge calculation		
ET	**ET**	**0**						**-105.0**	**-14.04**	
209	**GW Outflow (Pahranagat)**	**45,300**						**-105.0**	**-14.04**	
181	**GW Outflow (Dry Lake)**	**2,000**						**-106.5**	**-14.28**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	**Pahranagat Valley**									
208	**Inflow (Pahroc)**	**45,300**				**-105.0**	**-14.04**			
181	**Inflow (Dry Lake)**	**0**				**-98.9**	**-13.12**			
209	**Inflow (Delamar)**	**0**				**-97.3**	**-12.92**			
209 E	S. Pahroc Rng.	1,283				-94.9	-12.83			77, 78
209 W	Mt. Irish/Pahranagat Rng.	4,223				-98.4	-14.24			79, 80 (172, 173)
TR	**Total Recharge**	**5,500**				**-97.6**	**-13.91**			
E	Eightmile Spring		2	295	Spring	-95.6	-13.09			
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30			
E	Sixmile Spring		1	112	Spring	-93.4	-13.06			
E	Twin Spring		1	294	Spring	-97.4	-13.24			
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07			
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62			
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44			
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30	Local Valley spring not included in recharge calculation		
W	Reed Spring		1	289	Spring	-98.4	-14.24			
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11			
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20			
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41			
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39			
Warm	**Discharge Warm Springs (Avg)**	**25,400**	**31**			**-108.9**	**-14.26**	***-105.0***	***-14.04***	***Inter-basin flow from Pahroc Valley***
ET	**ET**	**28,500**						**-104.2**	**-14.02**	
Well	**209M-1**		**1**	**608**	**Deep Well**	**-104.7**	**-13.53**	***-105.0***	***-14.04***	***Inter-basin flow from Pahroc Valley***
210	**GW Outflow (Coyote Spr)**	**22,300**						**-104.2**	**-14.02**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	**Dry Lake Valley**									
208	**Inflow (Pahroc)**	**2,000**				**-106.5**	**-14.28**			
181 NW	S. Schell Ck Range	852				-100.4	-13.21			59
181 SW	N. Pahroc Rng.	2,289				-94.2	-12.42			57
181 NE	Fairview Rng.	3,490				-99.5	-12.89			58
181 E	Bristol/Highland Rng.	7,465				-98.9	-13.28			61
181 SE	Chief Rng.	1,571				-94.6	-12.36			62
TR	**Total Recharge**	**15,700**				**-98.0**	**-12.97**			
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			

E	Highland Spring		3	163	Spring	-99.1	-13.36				
E	Lime Spring		2	160	Spring	-98.5	-13.16				
E	Pine Spring		2	157	Spring	-99.0	-13.37				
E	Connor Spring		1	283	Spring	-100.6	-13.84				
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30				
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32				
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71				
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
SE	Oak Spring		1	269	Spring	-90.0	-11.87				
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69				
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73				
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
NE	Meloy Spring		1	276	Spring	-99.8	-12.75				
NE	Scotty Spring		1	272	Spring	-98.9	-12.73				
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
NE	Fence Spring		1	278	Spring	-97.4	-12.55				
NE	Fox Cabin		1	273	Spring	-103.5	-13.59				
NE	Lower Fairview		1	281	Spring	-97.5	-12.39				
NE	Robison Spring		1	279	Spring	-97.9	-12.34				
NE	Upper Fairview		1	280	Spring	-97.7	-12.66				
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31				
SW	Coyote Spring		2	169	Spring	-95.1	-12.53				
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76				
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
SW	Mustang Spring		2	135	Spring	-90.5	-12.49				
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65				
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
Evporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation			
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***	
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***	
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***	
ET	**ET**	**0**						**-98.9**	**-13.12**		
209	**GW Outflow (Pahranagat)**	**0**						**-98.9**	**-13.12**		
182	**GW Outflow (Delamar)**	**17,700**						**-98.9**	**-13.12**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
182	**Delamar Valley**										
181	**Inflow (Dry Lake)**	**17,700**				**-98.9**	**-13.12**				
182 E	Delamar Mtns.	5,415				-92.5	-12.32				81
182 W	S. Pahroc Rng.	986				-94.6	-12.81				82
TR	**Total Recharge**	**6,400**				**-92.8**	**-12.39**				
E	Abandoned Spring		1	266	Spring	-94.5	-12.32				
E	Red Rock Spring		1	256	Spring	-95.0	-12.30				
E	Oak Spring		1	269	Spring	-90.0	-11.87				
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
E	Bishop Spring		3	107	Spring	-87.2	-11.72				
E	Buckboard Spring		1	264	Spring	-88.2	-11.71				
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
W	Pahroc Spring		3	131	Spring	-92.2	-12.65				

W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	iamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
ET	**ET**	**0**						**-97.3**	**-12.92**		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-98.9***	***-13.12***		***Inter-basin flow from Dry Lake Valley***
209	**GW Outflow (Pahranagat)**	**0**						**-97.3**	**-12.92**		
210	**GW Outflow (Coyote Spr)**	**24,100**						**-97.3**	**-12.92**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
206	**Kane Springs Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
206 W	Delamar Mtns.	3,910				-89.0	-12.22			90	
206 E	Meadow Valley Mtns.	279				-87.4	-11.92			91	
TR	**Total Recharge**	**4,200**				**-88.9**	**-12.20**				
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
W	Bishop Spring		3	107	Spring	-87.2	-11.72				
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13				
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
ET	**ET**	**0**						**-88.9**	**-12.20**		
210	**GW Outflow (Coyote Spr)**	**4,200**						**-88.9**	**-12.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
210	**Coyote Springs Valley**										
209	**Inflow (Pahranagat)**	**22,300**				**-104.2**	**-14.02**				
182	**Inflow (Delamar)**	**24,100**				**-97.3**	**-12.92**				
206	**Inflow (Kane Springs)**	**4,200**				**-88.9**	**-12.20**				
210 NE	S. Delamar Mtns.	977				-89.0	-12.22			83	
210 E	S. Meadow Valley Mtns.	14				-87.4	-11.9			84	
210 NW	S. of Maynard Lake	0				-94.0	-12.30			87	
210 SE	Arrow Canyon Rng.	14				-81.0	-10.60			88	
210 W	Sheep Range	1,124				-92.7	-12.83			89	
TR	**Total Recharge**	**2,100**				**-90.9**	**-12.53**				
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53				
W	Lamb Spring		1	86	Spring	-92.5	-13.15				
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67				
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31				
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85				
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35				
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93				
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17				Evaporated not used in recharge calculation
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30				
SE	Wamp Spring		1	52	Spring	-81.0	-10.60				
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
NE	Bishop Spring		3	107	Spring	-87.2	-11.72				
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13				
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14				
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10				
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41				
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97				
Carb Well	CSI-1		1	609	Well	-102.6	-13.08				
Carb Well	CSI-2		1	610	Well	-100.2	-12.90				

Carb Well	CSI-3		1	611	Well	-99.6	-13.03				
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55				
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10				
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96				
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
CARB	**Carbonate Well (Avg)**		**6**			**-100.7**	**-13.11**	*-99.6*	*-13.35*		***Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys***
ET	**ET**	**0**						**-99.3**	**-13.32**		
219	**GW Outflow (Muddy)**	**37,700**						**-99.3**	**-13.32**		
217	**GW Outflow (Hidden)**	**15,000**						**-99.3**	**-13.32**		
XXXXXXXX	**XXXXXXXXXXXXXXXXXXXXXXXX**	**XXXXXXXX**	**XXXXXXX**	**XXXXX**	**XXXXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**4,000**				**-93.5**	**-12.59**				
210	**Inflow (Coyote)**	**37,700**				**-99.3**	**-13.32**				
219 S	E. Arrow Canyon?	2				-87.4	-11.92			85	
219 N	Wildcat Wash	36				-87.4	-11.92			86	
TR	**Total Recharge**	**0**				**-87.4**	**-11.92**				
N/S	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	*-98.7*	*-13.25*		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**		**4**			-97.9	-12.97	*-98.7*	*-13.25*		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**6,000**						**-98.73**	**-13.25**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**									
218	**GW Outflow (California)**	**1,700**						**-98.7**	**-13.25**		
XXXXXXXX	**XXXXXXXXXXXXXXXXXXXXXXXX**	**XXXXXXXX**	**XXXXXXX**	**XXXXX**	**XXXXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**15,000**				**-99.3**	**-13.32**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	42				-81.0	-10.60			100	
TR	**Total Recharge**	**0**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-99.3**	**-13.32**		
216	**GW Outflow (Garnet)**	**15,000**						**-99.3**	**-13.32**		
XXXXXXXX	**XXXXXXXXXXXXXXXXXXXXXXXX**	**XXXXXXXX**	**XXXXXXX**	**XXXXX**	**XXXXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**15,000**				**-99.3**	**-13.32**				
216 E	Apex	0				-81.0	-10.60			104	
216 W	Las Vegas Range	96				-81.0	-10.60			105	
TR	**Total Recharge**	**100**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		**6**			**-96.9**	**-13.32**	*-99.3*	*-13.32*		***Inter-basin flow from Hidden Valley***
ET	**ET**	**0**						**-99.2**	**-13.30**		
218	**GW Outflow (California)**	**15,100**						**-99.2**	**-13.30**		
XXXXXXXX	**XXXXXXXXXXXXXXXXXXXXXXXX**	**XXXXXXXX**	**XXXXXXX**	**XXXXX**	**XXXXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	**XXXXXX**	
218	**California Wash**										

219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-98.7	-13.25				
205	Inflow (Lower Meadow VW)	5,300				-93.5	-12.59				
216	Inflow (Garnet)	15,100				-99.2	-13.30				
218 E	Moapa Paiutes	0				-82.0	-10.60			110	
218 W	Muddy Mtns.	0				-82.0	-10.60			111	
TR	Total Recharge	0				0.0	0.00				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-97.8*	*-13.12*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
ET	ET	4,500						-97.8	-13.12		
220	GW Outflow (Lower Moapa)	18,900						-97.8	-13.12		
215	GW Outflow (Black Mtn Area)	2,000						-97.8	-13.12		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	**Black Mountains Area**										
218	Inflow (California Wash)	2,000				-97.8	-13.12				
215 NE	Muddy Mtns.	0				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	Total Recharge	0				0.0	0.00				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Sprii	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
CARB	Carbonate Spr (Avg)	1,663	13			-91.3	-12.01	*-97.8*	*-13.12*		***Weighted Average of Inflow from Califronia Wash***
ET	ET	1,400						-97.8	-13.12		
999	GW Outflow (Colorado River)	600						-97.8	-13.12		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	**Lower Moapa Valley**										
218	GW Inflow (California Wash)	18,900				-97.8	-13.12				
218	SW Inflow (California Wash)	30,700									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	33				-88.3	-12.50			102	
TR	Total Recharge	0				-88.3	-12.50				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-93.5*	*-12.59*		***Inter-basin flow from Lower Meadow Valley Wash***
ET	ET	25,300						-97.8	-13.12		
999	GW Outflow (Colorado River)	15,300						-97.8	-13.12		
999	SW Outflow (Colorado River)	9,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	**Lake Mead (Colorado River)**										
210	GW Inflow (Black Mountains Area)	600				-97.8	-13.12				
205	GW Inflow (Lower Moapa)	15,300				-97.8	-13.12				
999	Groundwater Total	15,900						-97.8	-13.12		
205	SW Inflow (Lower Moapa)	9,000									

999	Surface water Total	9,000								
999	Inflow Total	24,900								
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
183	Lake Valley									
0	Inflow (None)	0				0.0	0.00			
183 NE	Fortification Rng	1,517				-106.3	-14.16			49
183 NW	Cen. Schell Cr. Rng	4,239				-108.1	-14.74			51
183 SE	Wilson Cr. Rng. @ Atlanta	4,816				-104.7	-13.75			50
183 SW	Fairview Rng.	1,737				-101.1	-13.29			60
TR	Total Recharge	12,300				-105.5	-14.08			
NE	Indian Springs		1	375	Spring	-106.3	-14.16			
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10			
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80			
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50			
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60			
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95			
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48			
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
SE	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40			
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25			
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60			
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90			
ET	ET	6,700						-105.5	-14.08	
202	GW Outflow (Patterson)	5,600						-105.5	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
202	Patterson Valley									
183	Inflow (Lake)	5,600				-105.5	-14.08			
202 E	Wilson Cr. Rng. @ Mt. Wilson	6,542				-97.7	-12.99			47
202 W	Bristol Rng.	4,039				-99.2	-13.10			48
TR	Total Recharge	10,600				-98.3	-13.03			
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
E	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
E	Parsnip Spring		1	180	Spring	-93.5	-12.80			
E	Horsethief Spring		2	314	Spring	-97.0	-12.68			
E	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	ET	1,300						-100.8	-13.39	
203	GW Outflow (Panaca)	14,900						-100.8	-13.39	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley									
0	Inflow (None)	0				0.0	0.00			
201 E	White Rock Mtns.	5,975				-100.9	-13.52			52
201 W	Wilson Cr. Rng. @ Parsnip Pk.	5,223				-97.7	-12.99			53
TR	Total Recharge	11,200				-99.4	-13.28			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			

E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**3,900**						**-99.4**	**-13.28**	
200	**GW Outflow (Eagle)**	**7,300**						**-99.4**	**-13.28**	
200	**SW Outflow (Eagle)**	**0**						**-97.5**	**-13.00**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**7,300**				**-99.4**	**-13.28**			
201	**SW Inflow (Spring)**	**0**				**-97.5**	**-13.00**			
200 E	E. Eagle (Ursine) Valley	1,578				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	417				-97.0	-12.68			64
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.15**			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			
E	Newels Spring		1	423	Spring	-96.0	-12.48			
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95			
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47			
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
ET	**ET**	**1,000**						**-99.3**	**-13.25**	
199	**GW Outflow (Rose)**	**8,300**						**-99.3**	**-13.25**	
198	**SW Outflow (Rose)**	**0**						**-99.3**	**-13.25**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	**Rose Valley**									
200	**Inflow (Eagle)**	**8,300**				**-99.3**	**-13.25**			
200	**SW Inflow (Eagle)**	**0**				**-99.3**	**-13.25**			
199 E	E. Rose Valley	165				-99.1	-13.28			65
199 W	W. Rose Valley	79				-97.0	-12.68			66
TR	**Total Recharge**	**200**				**-98.4**	**-13.08**			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			
E	Newels Spring		1	423	Spring	-96.0	-12.48			
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95			
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47			
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
ET	**ET**	**600**						**-99.2**	**-13.24**	
198	**GW Outflow (Dry)**	**7,900**						**-99.2**	**-13.24**	
198	**SW Outflow (Dry)**	**0**						**-99.3**	**-13.25**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
198	**Dry Valley**									
199	**Inflow (Rose)**	**7,900**				**-99.2**	**-13.24**			

199	SW Inflow (Rose)	0				-99.3	-13.25				
198 E	E. Dry Valley	2,895				-96.9	-12.99				67
198 W	W. Dry Valley	324				-97.0	-12.68				68
TR	Total Recharge	3,200				-96.9	-12.96				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-99.2	-13.24	***Inter-basin flow from Dry Valley***	
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40			Local Valley spring not included in recharge calculation	
ET	ET	3,700						-98.6	-13.16		
203	GW Outflow (Panaca)	7,400						-98.6	-13.16		
203	SW Outflow (Panaca)	0						-99.2	-13.24		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX
204	**Clover Valley**										
0	Inflow (None)	0				0.0	0.00				
204 N	South of Beaver Dam	8,332				-92.2	-12.42				71
204 S	North of Jack's Mtn	6,529				-92.0	-12.52				72
TR	Total Recharge	14,900				-92.1	-12.46				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	ET	5,200						-92.1	-12.46		
205	GW Outflow (LMVW)	9,700						-92.1	-12.46		
205	SW Outflow (LMVW)	0						-92.1	-12.46		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX
203	**Panaca Valley**										
202	Inflow (Patterson)	14,900				-100.8	-13.39				
198	Inflow (Dry)	7,400				-98.6	-13.16				
198	SW Inflow (Dry)	0				-99.2	-13.24				
203 E	Condor Canyon	2,509				-92.0	-12.19				69
203 W	Cathedral Gorge	3,020				-98.9	-13.28				70
TR	Total Recharge	5,500				-95.8	-12.78				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-100.8*	*-13.39*	***Inter-basin flow from Patterson Valley***	
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-105.5*	*-14.08*	***Inter-basin flow from Lake Valley***	
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-105.5*	*-14.08*	***Inter-basin flow from Lake Valley***	
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	ET	18,900						-99.2	-13.21		
205	GW Outflow (LMVW)	8,900						-99.2	-13.21		
205	SW Outflow (LMVW)	0						-97.0	-13.10		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX

205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**8,900**				**-99.2**	**-13.21**				
204	**Inflow (Clover)**	**9,700**				**-92.1**	**-12.46**				
203	**SW Inflow (Panaca)**	**0**				**-97.0**	**-13.10**				
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**				
205 NW	Delamar Mtns.	3,114				-92.2	-12.28				92
205 NE	Clover Mountains	7,378				-90.4	-12.25				93
205 SW	Meadow Valley Mtns.	1,160				-87.4	-11.92				94
205 SE	Mormon Mtns.	906				-88.3	-12.50				95
TR	**Total Recharge**	**12,600**				**-90.4**	**-12.24**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NW	Oak Spring		1	269	Spring	-90.0	-11.87				
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30				
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
SE	Davies Spring		1	90	Spring	-89.0	-12.50				
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-95.5*	*-12.82*	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***	
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**21,900**						**-93.5**	**-12.59**		
206	**GW Outflow (Upper Moapa)**	**4,000**						**-93.5**	**-12.59**		
218	**GW Outflow (California Wash)**	**5,300**						**-93.5**	**-12.59**		
218	**GW Outflow (Lower Moapa)**	**0**						**-93.5**	**-12.59**		
218	**SW Outflow (California Wash)**	**0**						**-93.5**	**-12.59**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Region	Name	Volume	# of	Site#	Site	Obs.	Obs.	Calc.	Calc.	IC
		SNWA (2007 Water Budget)								
		Arce-ft/yr	Samples		Type	δD	δ18O	δD	δ18O	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	**Long Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
175 SE	Butte Mtn. (S)	2,507				-119.6	-15.53			35
175 SW	Alligator Rdg.	3,496				-122.4	-15.96			36
175 NW	Maverick Springs	10,881				-123.9	-16.23			37
175 NE	Butte Mtn. (N)	3,044				-119.2	-15.36			164
TR	**Total Recharge**	**19,900**				**-122.4**	**-15.96**			
SE	Butte Spring		1	327	Spring	-120.4	-15.79			
SE	Cabin Spring		1	328	Spring	-124.4	-15.89			
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39			
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74			
SE	Summit Spring		1	348	Spring	-120.8	-15.94			
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40			
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21			
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75			
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04			
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60			
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55			
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36			
ET	**ET**	**3,000**						**-122.4**	**-15.96**	
154	**GW Outflow (Newark)**	**0**						**-122.4**	**-15.96**	
174	**GW Outflow (Jakes)**	**16,900**						**-122.4**	**-15.96**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	**Jakes Valley**									
175	**Inflow (Long)**	**16,900**				**-122.4**	**-15.96**			
174 E	Egan Range	2,722				-118.4	-15.31			33
174 W	North White Pine	9,567				-120.3	-15.83			34
TR	**Total Recharge**	**12,300**				**-119.9**	**-15.71**			
NW	Tunnel Spring		1	366	Spring	-118.3	-15.02			
W	Aspen Springs North		1	349	Spring	-119.3	-15.84			
W	Aspen Springs South		1	324	Spring	-120.9	-16.02			
W	Chicken Spring		1	330	Spring	-122.0	-16.17			
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30			
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76			
W	Sand Spring		1	239	Spring	-123.0	-16.20			
W	Shellback Spring		1	344	Spring	-123.6	-16.54			
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69			
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18			
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80			
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39			
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31			
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30			
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Surface Water not included in recharge average		
ET	**ET**	**400**						**-119.9**	**-15.71**	
207N	**GW Outflow (NWRV)**	**28,800**						**-121.3**	**-15.86**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
180	**Cave Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
180 E	S. Schell Cr. Rng	7,132				-105.0	-14.28			43,44
180 W	S. Egan Rng	7,527				-107.8	-14.28			45,46
TR	**Total Recharge**	**14,700**				**-106.5**	**-14.28**			
E	North Creek Spring		1	214	Spring	-105.0	-14.60			
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95			
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48			
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70			
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75			
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21			

W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90			
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52			
W	Granite Spring		1	440	Spring	-103.4	-13.32			
W	Haggerty Spring		1	387	Spring	-109.6	-14.78			
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37			
W	Silver Spring		2	385	Spring	-111.4	-14.71			
W	Shingle Spring		2	203	Spring	-103.7	-13.33			
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04			
W	Trough Spring		1	413	Spring	-103.6	-13.56			
ET	**ET**	**1,300**						**-106.5**	**-14.28**	
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**	***-106.5***	***-14.28***	***Local recharge***
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**	***-106.5***	***-14.28***	***Local recharge***
208	**GW Outflow (Pahroc)**	**9,400**						**-106.5**	**-14.28**	
207S	**GW Outflow (SWRV)**	**4,000**						**-106.5**	**-14.28**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207N	**North White River Valley**									
174	**Inflow (Jakes)**	**28,800**				**-121.3**	**-15.86**			
207 NE	Egan Rng North	16,085				-112.3	-15.15			38
207 NW	White Pine Rng.	11,430				-115.0	-15.18			39, 40
TR	**Total Recharge**	**27,500**				**-113.4**	**-15.16**			
NE	on Creek Spring (Unnamed Spring in Gubler Canyon)		1	235	Spring	-111.0	-14.90			
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37			
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90			
NE	High Springs		1	433	Spring	-113.4	-15.43			
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34			
NE	Mud Spring		1	446	Spring	-111.0	-14.53			
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71			
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14			
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14			
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07			
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37			
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72			
NE	North Spring		2	237	Spring	-112.4	-15.11			
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70			
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12			
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42			
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60			
NE	Lund Spring		1	221	Spring	-113.0	-15.40	Local Valley spring not included in recharge calculation		
NE	Water Canyon		2	233	Surface	-116.0	-15.25	Surface Water not included in recharge average		
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92			
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87			
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36			
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66			
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96			
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01			
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36			
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98			
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52			
NW	Easter Spring		1	365	Spring	-119.4	-15.56			
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86			
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58			
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45			
NW	Secret Spring		1	220	Spring	-110.0	-14.00			
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00			
NW	Stove Spring		1	347	Spring	-114.5	-15.71			
NW	ned Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31			
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10	Surface Water not included in recharge average		
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00	Surface Water not included in recharge average		
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80			
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10			
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88			
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-121.3***	***-15.86***	***Inter-basin flow from Jakes Valley***
ET	**ET**	**20,500**						**-113.4**	**-15.16**	
207S	**GW Outflow (SWRV)**	**35,800**						**-119.8**	**-15.7**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
207S	**South White River Valley**	WRV Tot Recharge								

		41,000									
207N	**Inflow (N White River)**	**35,800**				**-119.8**	**-15.72**				
180	**Inflow (Cave)**	**4,000**				**-106.5**	**-14.28**				
207 SE	Egan Rng South	7,423				-106.9	-14.15				41
207 SW	Grant Rng	6,117				-106.5	-14.23				42
TR	**Total Recharge**	**13,500**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20	local Valley spring not included in recharge calculation			
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50	local Valley spring not included in recharge calculation			
E	Flag Spring #3		1	201	Spring	-105.0	-14.30	local Valley spring not included in recharge calculation			
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**	**13**			**-119.2**	**-15.71**	***-119.8***	***-15.72***	***Inter-basin flow from Northern White River Valley***	
ET	**ET**	**46,900**						**-115.1**	**-15.18**		
208	**GW Outflow (Pahroc)**	**6,400**						**-118.5**	**-15.58**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
172	**Garden Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
172 SW	Quinn Canyon Range	15,120				-104.6	-14.08				171
172 NW	Grant Range	7,757				-106.5	-14.27				170
172 NE	Golden Gate Rng	980				-98.0	-13.30				55
172 SE	Worthington Mountains	962				-98.0	-13.30				56
TR	**Total Recharge**	**24,800**				**-104.7**	**-14.08**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85	Evaporated so not used in recharge calculation			
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**1,700**						**-104.7**	**-14.08**		
171	**GW Outflow (Coal)**	**23,100**						**-104.7**	**-14.08**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**23,100**				**-104.7**	**-14.08**				
172	**Inflow (SWRV)**	**0**				**-118.5**	**-15.58**				
171 E	Seaman Rng	1,182				-99.0	-13.13				75
171 W	Golden Gate Rng	2,675				-98.2	-12.87				76
TR	**Total Recharge**	**3,900**				**-98.4**	**-12.95**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				

W	Henry Spring		1	287	Spring	-97.4	-12.77			
W	Little Cut Spring		2	286	Spring	-98.3	-12.85			
E	Seaman Spring		1	306	Spring	-99.0	-13.13			
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.7***	***-14.08***	***Underflow from Garden Valley***
ET	**ET**	**0**						**-98.4**	**-12.95**	
208	**GW Outflow (Pahroc)**	**27,000**						**-103.8**	**-13.91**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
208	**Pahroc Valley**									
207S	**Inflow (S. White River)**	**6,400**				**-118.5**	**-15.58**			
170	**Inflow (Cave)**	**9,400**				**-106.5**	**-14.28**			
171	**Inflow (Coal)**	**27,000**				**-103.8**	**-13.91**			
208 E	N. Pahroc Rng.	2,390				-94.2	-12.42			73
208 W	Seaman Rng.	2,117				-99.0	-13.13			74
TR	**Total Recharge**	**4,500**				**-96.4**	**-12.75**			
E	Black Rock Spring		2	158	Spring	-93.8	-12.31			
E	Coyote Spring		2	169	Spring	-95.1	-12.53			
E	Hamilton Spring		1	298	Spring	-93.1	-11.76			
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06			
E	Mustang Spring		2	135	Spring	-90.5	-12.49			
E	Pahroc Spring		3	131	Spring	-92.2	-12.65			
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65			
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90			
W	Seaman Spring		1	306	Spring	-99.0	-13.13			
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10	Evaporated not used in recharge calculation		
ET	**ET**	**0**						**-96.4**	**-12.75**	
209	**GW Outflow (Pahranagat)**	**45,300**						**-105.6**	**-14.10**	
181	**GW Outflow (Dry Lake)**	**2,000**						**-106.5**	**-14.28**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
209	**Pahranagat Valley**									
208	**Inflow (Pahroc)**	**45,300**				**-105.6**	**-14.10**			
181	**Inflow (Dry Lake)**	**0**				**-98.9**	**-13.12**			
209	**Inflow (Delamar)**	**0**				**-97.3**	**-12.92**			
209 E	S. Pahroc Rng.	1,283				-94.9	-12.83			77, 78
209 W	Mt. Irish/Pahranagat Rng.	4,223				-98.4	-14.24			79, 80 (172, 173)
TR	**Total Recharge**	**5,500**				**-97.6**	**-13.91**			
E	Eightmile Spring		2	295	Spring	-95.6	-13.09			
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30			
E	Sixmile Spring		1	112	Spring	-93.4	-13.06			
E	Twin Spring		1	294	Spring	-97.4	-13.24			
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07			
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62			
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44			
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30	Local Valley spring not included in recharge calculation		
W	Reed Spring		1	289	Spring	-98.4	-14.24			
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11			
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20			
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41			
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39			
Warm	**Discharge Warm Springs (Avg)**	**25,400**	**31**			**-108.9**	**-14.26**	***-105.6***	***-14.10***	***Inter-basin flow from Pahroc Valley***
ET	**ET**	**28,500**						**-104.1**	**-14.07**	
Well	**209M-1**		**1**	**608**	**Deep Well**	**-104.7**	**-13.53**	***-105.6***	***-14.10***	***Inter-basin flow from Pahroc Valley***
210	**GW Outflow (Coyote Spr)**	**22,300**						**-105.6**	**-14.10**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
181	**Dry Lake Valley**									
208	**Inflow (Pahroc)**	**2,000**				**-106.5**	**-14.28**			
181 NW	S. Schell Ck Range	852				-100.4	-13.21			59
181 SW	N. Pahroc Rng.	2,289				-94.2	-12.42			57
181 NE	Fairview Rng.	3,490				-99.5	-12.89			58
181 E	Bristol/Highland Rng.	7,465				-98.9	-13.28			61
181 SE	Chief Rng.	1,571				-94.6	-12.36			62
TR	**Total Recharge**	**15,700**				**-98.0**	**-12.97**			
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			

E	Highland Spring		3	163	Spring	-99.1	-13.36			
E	Lime Spring		2	160	Spring	-98.5	-13.16			
E	Pine Spring		2	157	Spring	-99.0	-13.37			
E	Connor Spring		1	283	Spring	-100.6	-13.84			
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87			
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30			
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32			
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71			
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87			
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98			
SE	Oak Spring		1	269	Spring	-90.0	-11.87			
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54			
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96			
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69			
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69			
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40			
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73			
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25			
NE	Meloy Spring		1	276	Spring	-99.8	-12.75			
NE	Scotty Spring		1	272	Spring	-98.9	-12.73			
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60			
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90			
NE	Fence Spring		1	278	Spring	-97.4	-12.55			
NE	Fox Cabin		1	273	Spring	-103.5	-13.59			
NE	Lower Fairview		1	281	Spring	-97.5	-12.39			
NE	Robison Spring		1	279	Spring	-97.9	-12.34			
NE	Upper Fairview		1	280	Spring	-97.7	-12.66			
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31			
SW	Coyote Spring		2	169	Spring	-95.1	-12.53			
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76			
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06			
SW	Mustang Spring		2	135	Spring	-90.5	-12.49			
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65			
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65			
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90			
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21			
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08			Evaporated so not used in recharge calculation
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70			Evaporated so not used in recharge calculation
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-106.5***	***-14.28***	***Inter-basin flow from Cave Valley***
ET	**ET**	**0**						**-98.0**	**-12.97**	
209	**GW Outflow (Pahranagat)**	**0**						**-98.9**	**-13.12**	
182	**GW Outflow (Delamar)**	**17,700**						**-98.9**	**-13.12**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
182	**Delamar Valley**									
181	**Inflow (Dry Lake)**	**17,700**				**-98.9**	**-13.12**			
182 E	Delamar Mtns.	5,415				-92.5	-12.32			81
182 W	S. Pahroc Rng.	986				-94.6	-12.81			82
TR	**Total Recharge**	**6,400**				**-92.8**	**-12.39**			
E	Abandoned Spring		1	266	Spring	-94.5	-12.32			
E	Red Rock Spring		1	256	Spring	-95.0	-12.30			
E	Oak Spring		1	269	Spring	-90.0	-11.87			
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96			
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46			
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62			
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
E	Bishop Spring		3	107	Spring	-87.2	-11.72			
E	Buckboard Spring		1	264	Spring	-88.2	-11.71			
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87			
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98			
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54			
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69			
W	Pahroc Spring		3	131	Spring	-92.2	-12.65			

W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	named Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
ET	**ET**	**0**						**-92.8**	**-12.39**		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-98.9***	***-13.12***	***Inter-basin flow from Dry Lake Valley***	
209	**GW Outflow (Pahranagat)**	**0**						**-97.3**	**-12.92**		
210	**GW Outflow (Coyote Spr)**	**24,100**						**-97.3**	**-12.92**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX
206	**Kane Springs Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
206 W	Delamar Mtns.	3,910				-89.0	-12.22				90
206 E	Meadow Valley Mtns.	279				-87.4	-11.92				91
TR	**Total Recharge**	**4,200**				**-88.9**	**-12.20**				
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
W	Bishop Spring		3	107	Spring	-87.2	-11.72				
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13				
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
ET	**ET**	**0**						**-88.9**	**-12.20**		
210	**GW Outflow (Coyote Spr)**	**4,200**						**-88.9**	**-12.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX		XXXXXX
210	**Coyote Springs Valley**										
209	**Inflow (Pahranagat)**	**22,300**				**-105.6**	**-14.10**				
182	**Inflow (Delamar)**	**24,100**				**-97.3**	**-12.92**				
206	**Inflow (Kane Springs)**	**4,200**				**-88.9**	**-12.20**				
210 NE	S. Delamar Mtns.	977				-89.0	-12.22				83
210 E	S. Meadow Valley Mtns.	14				-87.4	-11.92				84
210 NW	S. of Maynard Lake	0				-94.0	-12.30				87
210 SE	Arrow Canyon Rng.	14				-81.0	-10.60				88
210 W	Sheep Range	1,124				-92.7	-12.83				89
TR	**Total Recharge**	**2,100**				**-90.9**	**-12.53**				
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53				
W	Lamb Spring		1	86	Spring	-92.5	-13.15				
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67				
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31				
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85				
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35				
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93				
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17	Evaporated not used in recharge calculation			
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30				
SE	Wamp Spring		1	52	Spring	-81.0	-10.60				
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
NE	Bishop Spring		3	107	Spring	-87.2	-11.72				
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13				
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14				
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10				
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41				
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97				
Carb Well	CSI-1		1	609	Well	-102.6	-13.08				
Carb Well	CSI-2		1	610	Well	-100.2	-12.90				

Carb Well	CSI-3		1	611	Well	-99.6	-13.03				
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55				
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10				
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96				
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
CARB	**Carbonate Well (Avg)**		6			**-100.7**	**-13.11**	*-100.3*	*-13.38*		***Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys***
ET	**ET**	**0**						**-90.9**	**-12.53**		
219	**GW Outflow (Muddy)**	**37,700**						**-99.9**	**-13.35**		
217	**GW Outflow (Hidden)**	**15,000**						**-99.9**	**-13.35**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**4,000**				**-96.1**	**-12.90**				
210	**Inflow (Coyote)**	**37,700**				**-99.9**	**-13.35**				
219 S	E. Arrow Canyon?	2				-87.4	-11.92			85	
219 N	Wildcat Wash	36				-87.4	-11.92			86	
TR	**Total Recharge**	**0**				**-87.4**	**-11.92**				
N/S	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	*-99.5*	*-13.31*		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**	**Input into M**	**4**			**-97.9**	**-12.97**	*-99.5*	*-13.31*		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**6,000**						**-99.5**	**-13.31**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**									
218	**GW Outflow (California)**	**1,700**						**-99.5**	**-13.31**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**15,000**				**-99.9**	**-13.35**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	42				-81.0	-10.60			100	
TR	**Total Recharge**	**0**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-81.0**	**-10.60**		
216	**GW Outflow (Garnet)**	**15,000**						**-99.9**	**-13.35**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**15,000**				**-99.9**	**-13.35**				
216 E	Apex	0				-81.0	-10.60			104	
216 W	Las Vegas Range	96				-81.0	-10.60			105	
TR	**Total Recharge**	**100**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		6			-96.9	-13.32	*-99.9*	*-13.35*		***Inter-basin flow from Hidden Valley***
ET	**ET**	**0**						**-81.0**	**-10.60**		
218	**GW Outflow (California)**	**15,100**						**-99.8**	**-13.33**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	**California Wash**										

219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-99.5	-13.31				
205	Inflow (Lower Meadow VW)	5,300				-96.1	-12.90				
216	Inflow (Garnet)	15,100				-99.8	-13.33				
218 E	Moapa Paiutes	0				-82.0	-10.60			110	
218 W	Muddy Mtns.	0				-82.0	-10.60			111	
TR	Total Recharge	0				-82.0	-10.6				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-98.9*	*-13.22*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	4,500						-82.0	-10.60		
220	GW Outflow (Lower Moapa)	18,900						-98.9	-13.22		
215	GW Outflow (Black Mtn Area)	2,000						-98.9	-13.22		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	2,000				-98.9	-13.22				
215 NE	Muddy Mtns.	0				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	Total Recharge	0				-81.3	-10.75				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Spri	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-98.9*	*-13.22*		*Weighted Average of Inflow from Califronia Wash*
ET	ET	1,400						-81.3	-10.75		
999	GW Outflow (Colorado River)	600						-98.9	-13.22		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
218	GW Inflow (California Wash)	18,900				-98.9	-13.22				
218	SW Inflow (California Wash)	30,700									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	37				-88.3	-12.50			102	
TR	Total Recharge	0				-88.3	-12.50				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-96.1*	*-12.90*		*Inter-basin flow from Lower Meadow Valley Wash*
ET	ET	25,300						-88.3	-12.50		
999	GW Outflow (Colorado River)	15,300						-98.9	-13.22		
999	SW Outflow (Colorado River)	9,000									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	Lake Mead (Colorado River)										
210	GW Inflow (Black Mountains Area)	600				-98.9	-13.22				
205	GW Inflow (Lower Moapa)	15,300				-98.9	-13.22				
999	Groundwater Total	15,900						-98.9	-13.22		
205	SW Inflow (Lower Moapa)	9,000									

999	Surfacewater Total	9,000								
999	Inflow Total	24,900								
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
183	Lake Valley									
0	Inflow (None)	0				0.0	0.00			
183 NE	Fortification Rng	1,517				-106.3	-14.16			49
183 NW	Cen. Schell Cr. Rng	4,239				-108.1	-14.74			51
183 SE	Wilson Cr. Rng. @ Atlanta	4,816				-104.7	-13.75			50
183 SW	Fairview Rng.	1,737				-101.1	-13.29			60
TR	Total Recharge	12,300				-105.5	-14.08			
NE	Indian Springs		1	375	Spring	-106.3	-14.16			
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10			
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80			
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50			
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60			
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95			
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48			
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
SE	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40			
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25			
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60			
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90			
ET	ET	6,700						-105.5	-14.08	
202	GW Outflow (Patterson)	5,600						-105.5	-14.08	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
202	Patterson Valley									
183	Inflow (Lake)	5,600				-105.5	-14.08			
202 E	Wilson Cr. Rng. @ Mt. Wilson	6,542				-97.7	-12.99			47
202 W	Bristol Rng.	4,039				-99.2	-13.10			48
TR	Total Recharge	10,600				-98.3	-13.03			
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
E	Blue Rock Spring		1	98	Spring	-93.4	-12.68			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
E	Parsnip Spring		1	180	Spring	-93.5	-12.80			
E	Horsethief Spring		2	314	Spring	-97.0	-12.68			
E	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	ET	1,300						-98.3	-13.03	
203	GW Outflow (Panaca)	14,900						-101.0	-13.43	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	Spring Valley									
0	Inflow (None)	0				0.0	0.00			
201 E	White Rock Mtns.	5,975				-100.9	-13.52			52
201 W	Wilson Cr. Rng. @ Parsnip Pk.	5,223				-97.7	-12.99			53
TR	Total Recharge	11,200				-99.4	-13.28			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			

E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		1	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**3,900**						**-99.4**	**-13.28**	
200	**GW Outflow (Eagle)**	**7,300**						**-99.4**	**-13.28**	
200	**SW Outflow (Eagle)**	**0**						**-97.5**	**-13.00**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**7,300**				**-99.4**	**-13.28**			
201	**SW Inflow (Spring)**	**0**				**-97.5**	**-13.00**			
200 E	E. Eagle (Ursine) Valley	1,578				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	417				-97.0	-12.68			64
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.15**			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			
E	Newels Spring		1	423	Spring	-96.0	-12.48			
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95			
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47			
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
ET	**ET**	**1,000**						**-98.7**	**-13.15**	
199	**GW Outflow (Rose)**	**8,300**						**-99.3**	**-13.26**	
198	**SW Outflow (Rose)**	**0**						**-98.7**	**-13.00**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
199	**Rose Valley**									
200	**Inflow (Eagle)**	**8,300**				**-99.3**	**-13.26**			
200	**SW Inflow (Eagle)**	**0**				**-98.7**	**-13.00**			
199 E	E. Rose Valley	165				-99.1	-13.28			65
199 W	W. Rose Valley	79				-97.0	-12.68			66
TR	**Total Recharge**	**200**				**-98.4**	**-13.08**			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			
E	Newels Spring		1	423	Spring	-96.0	-12.48			
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95			
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47			
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
ET	**ET**	**600**						**-98.4**	**-13.08**	
198	**GW Outflow (Dry)**	**7,900**						**-99.3**	**-13.25**	
198	**SW Outflow (Dry)**	**0**						**-98.4**	**-13.08**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
198	**Dry Valley**									
199	**Inflow (Rose)**	**7,900**				**-99.3**	**-13.25**			

199	**SW Inflow (Rose)**	**0**				**-98.4**	**-13.08**				
198 E	E. Dry Valley	2,895				-96.9	-12.99			67	
198 W	W. Dry Valley	324				-97.0	-12.68			68	
TR	**Total Recharge**	**3,200**				**-96.9**	**-12.96**				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-99.3	-13.25		***Inter-basin flow from Dry Valley***
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40				Local Valley spring not included in recharge calculation
ET	**ET**	**3,700**						**-97.2**	**-13.00**		
203	**GW Outflow (Panaca)**	**7,400**						**-99.3**	**-13.25**		
203	**SW Outflow (Panaca)**	**0**						**-97.2**	**-13.00**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	**Clover Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
204 N	South of Beaver Dam	8,332				-92.2	-12.42			71	
204 S	North of Jack's Mtn	6,529				-92.0	-12.52			72	
TR	**Total Recharge**	**14,900**				**-92.1**	**-12.46**				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	**ET**	**5,200**						**-92.1**	**-12.46**		
205	**GW Outflow (LMVW)**	**9,700**						**-92.1**	**-12.46**		
205	**SW Outflow (LMVW)**	**0**						**-92.1**	**-12.46**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	**Panaca Valley**										
202	**Inflow (Patterson)**	**14,900**				**-101.0**	**-13.43**				
198	**Inflow (Dry)**	**7,400**				**-99.3**	**-13.25**				
198	**SW Inflow (Dry)**	**0**				**-97.2**	**-13.00**				
203 E	Condor Canyon	2,509				-92.0	-12.19			69	
203 W	Cathedral Gorge	3,020				-98.9	-13.28			70	
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.0*	*-13.43*		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-105.5*	*-14.08*		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-105.5*	*-14.08*		***Inter-basin flow from Lake Valley***
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	**ET**	**18,900**						**-99.1**	**-13.20**		
205	**GW Outflow (LMVW)**	**8,900**						**-100.4**	**-13.37**		
205	**SW Outflow (LMVW)**	**0**						**-99.1**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

205 **Lower Meadow Valley Wash**

203	**Inflow (Panaca)**	**8,900**				**-100.4**	**-13.37**				
204	**Inflow (Clover)**	**9,700**				**-92.1**	**-12.46**				
203	**SW Inflow (Panaca)**	**0**				**-99.1**	**-13.20**				
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**				
205 NW	Delamar Mtns.	3,114				-92.2	-12.28				92
205 NE	Clover Mountains	7,378				-90.4	-12.25				93
205 SW	Meadow Valley Mtns.	1,160				-87.4	-11.92				94
205 SE	Mormon Mtns.	906				-90.0	-12.65				95
TR	**Total Recharge**	**12,600**				**-90.6**	**-12.25**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08			Evaporated so not used in recharge calculation	
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NW	Oak Spring		1	269	Spring	-90.0	-11.87				
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30				
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
SE	Davies Spring		1	90	Spring	-89.0	-12.50				
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	***-96.1***	***-12.90***	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***	
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**21,900**						**-92.9**	**-12.53**		
206	**GW Outflow (Upper Moapa)**	**4,000**						**-96.1**	**-12.90**		
218	**GW Outflow (California Wash)**	**5,300**						**-96.1**	**-12.90**		
218	**SW Outflow (California Wash)**	**0**						**-90.6**	**-12.25**		
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	

		SNWA/BARCASS (SNWA, 2007; Welch and Bright, 2007)								
Region	**Name**	**Volume Arce-ft/yr**	**# of Samples**	**Site#**	**Site Type**	**Obs. δD**	**Obs. δ18O**	**Calc. δD**	**Calc. δ18O**	**IC**
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	**Long Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
175 SE	Butte Mtn. (S)	2,676				-119.6	-15.53			35
175 SW	Alligator Rdg.	3,667				-122.4	-15.96			36
175 NW	Maverick Springs	11,446				-123.9	-16.23			37
175 NE	Butte Mtn. (N)	3,228				-119.2	-15.36			164
TR	**Total Recharge**	**21,000**				**-122.4**	**-15.96**			
SE	Butte Spring		1	327	Spring	-120.4	-15.79			
SE	Cabin Spring		1	328	Spring	-124.4	-15.89			
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39			
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74			
SE	Summit Spring		1	348	Spring	-120.8	-15.94			
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40			
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21			
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75			
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04			
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60			
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55			
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36			
ET	**ET**	**1,200**						**-122.4**	**-15.96**	
154	**GW Outflow (Newark)**	**0**						**-122.4**	**-15.96**	
174	**GW Outflow (Jakes)**	**19,800**						**-122.4**	**-15.96**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	**Jakes Valley**									
175	**Inflow (Long)**	**19,800**				**-122.4**	**-15.96**			
174 E	Egan Range	2,909				-118.4	-15.31			33
174 W	North White Pine	10,076				-120.3	-15.83			34
TR	**Total Recharge**	**13,000**				**-119.9**	**-15.71**			
W	Tunnel Spring		1	366	Spring	-118.3	-15.02			
W	Aspen Springs North		1	349	Spring	-119.3	-15.84			
W	Aspen Springs South		1	324	Spring	-120.9	-16.02			
W	Chicken Spring		1	330	Spring	-122.0	-16.17			
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30			
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76			
W	Sand Spring		1	239	Spring	-123.0	-16.20			
W	Shellback Spring		1	344	Spring	-123.6	-16.54			
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69			
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18			
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80			
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39			
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31			
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30			
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Surface Water not included in recharge average		
ET	**ET**	**900**						**-121.4**	**-15.86**	
207N	**GW Outflow (NWRV)**	**31,900**						**-121.4**	**-15.86**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
180	**Cave Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
180 E	S. Schell Cr. Rng	7,438				-105.0	-14.28			43,44

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
180 W	S. Egan Rng	7,944				-107.8	-14.28			45,46	
TR	**Total Recharge**	**15,400**				**-106.5**	**-14.28**				
E	North Creek Spring		1	214	Spring	-105.0	-14.60				
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70				
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75				
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
W	Granite Spring		1	440	Spring	-103.4	-13.32				
W	Haggerty Spring		1	387	Spring	-109.6	-14.78				
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
W	Silver Spring		2	385	Spring	-111.4	-14.71				
W	Shingle Spring		2	203	Spring	-103.7	-13.33				
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
W	Trough Spring		1	413	Spring	-103.6	-13.56				
ET	**ET**	**1,600**						**-106.5**	**-14.28**		
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**				
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**				
208	**GW Outflow (Pahroc)**	**9,800**						**-106.5**	**-14.28**		
207S	**GW Outflow (SWRV)**	**4,000**						**-106.5**	**-14.28**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	**North White River Valley**										
174	**Inflow (Jakes)**	**31,900**				**-121.4**	**-15.86**				
207 NE	Egan Rng North	16,554				-112.3	-15.15			38	
207 NW	White Pine Rng.	12,030				-115.0	-15.18			39, 40	
TR	**Total Recharge**	**28,600**				**-113.5**	**-15.16**				
NE	on Creek Spring (Unnamed Spring in Gubler Canyon)		1	235	Spring	-111.0	-14.90				
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90				
NE	High Springs		1	433	Spring	-113.4	-15.43				
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34				
NE	Mud Spring		1	446	Spring	-111.0	-14.53				
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71				
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14				
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14				
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07				
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37				
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72				
NE	North Spring		2	237	Spring	-112.4	-15.11				
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70				
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12				
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42				
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60				
NE	Lund Spring		1	221	Spring	-113.0	-15.40				Local Valley spring not included in recharge calculation
NE	Water Canyon		2	233	Surface	-116.0	-15.25				Surface Water not included in recharge average
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92				
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87				
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36				
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66				
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96				
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01				
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36				
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98				
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52				
NW	Easter Spring		1	365	Spring	-119.4	-15.56				
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58				
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45				
NW	Secret Spring		1	220	Spring	-110.0	-14.00				
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00				
NW	Stove Spring		1	347	Spring	-114.5	-15.71				
NW	ied Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31				
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10				Surface Water not included in recharge average
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00				Surface Water not included in recharge average
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80				
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10				
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88				
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-121.4***	***-15.86***		***Inter-basin flow from Jakes Valley***
ET	**ET**	**29,500**						**-117.6**	**-15.53**		
207S	**GW Outflow (SWRV)**	**31,000**						**-117.6**	**-15.53**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	**South White River Valley**	WRV Tot Recharge **42,900**									
207N	**Inflow (N White River)**	**31,000**				**-117.6**	**-15.53**				
180	**Inflow (Cave)**	**4,000**				**-106.5**	**-14.28**				
207 SE	Egan Rng South	7,844				-106.9	-14.15			41	
207 SW	Grant Rng	6,467				-106.5	-14.23			42	
TR	**Total Recharge**	**14,300**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20				Local Valley spring not included in recharge calculation
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50				Local Valley spring not included in recharge calculation
E	Flag Spring #3		1	201	Spring	-105.0	-14.30				Local Valley spring not included in recharge calculation
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48				Evaporated so not used in recharge calculation
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**	**13**			**-119.2**	**-15.71**	***-117.6***	***-15.53***		***Inter-basin flow from Northern White River Valley***
ET	**ET**	**47,200**						**-113.6**	**-15.04**		
208	**GW Outflow (Pahroc)**	**2,100**						**-113.6**	**-15.04**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
SW	Quinn Canyon Range	15,621				-104.6	-14.08			171	
172 NW	Grant Range	7,993				-106.5	-14.27			170	
172 NE	Golden Gate Rng	1,063				-98.0	-13.30			55	
172 SE	Worthington Mountains	1,030				-98.0	-13.30			56	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
TR	**Total Recharge**	**25,700**				**-104.7**	**-14.08**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85				Evaporated so not used in recharge calculation
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48				Evaporated so not used in recharge calculation
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**1,700**						**-104.7**	**-14.08**		
171	**GW Outflow (Coal)**	**24,000**						**-104.7**	**-14.08**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**24,000**				**-104.7**	**-14.08**				
172	**Inflow (SWRV)**	**0**				**-113.6**	**-15.04**				
171 E	Seaman Rng	1,282				-99.0	-13.13			75	
171 W	Golden Gate Rng	2,882				-98.2	-12.87			76	
TR	**Total Recharge**	**4,200**				**-98.4**	**-12.95**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				
W	Henry Spring		1	287	Spring	-97.4	-12.77				
W	Little Cut Spring		2	286	Spring	-98.3	-12.85				
E	Seaman Spring		1	306	Spring	-99.0	-13.13				
ET	**ET**	**0**						**-103.7**	**-13.91**		
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.7***	***-14.08***		***Underflow from Garden Valley***
208	**GW Outflow (Pahroc)**	**28,200**						**-103.7**	**-13.91**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
208	**Pahroc Valley**										
207S	**Inflow (S. White River)**	**2,100**				**-113.6**	**-15.04**				
180	**Inflow (Cave)**	**9,800**				**-106.5**	**-14.28**				
171	**Inflow (Coal)**	**28,200**				**-103.7**	**-13.91**				
208 E	N. Pahroc Rng.	2,596				-94.2	-12.42			73	
208 W	Seaman Rng.	2,286				-99.0	-13.13			74	
TR	**Total Recharge**	**4,900**				**-96.4**	**-12.75**				
E	Black Rock Spring		2	158	Spring	-93.8	-12.31				
E	Coyote Spring		2	169	Spring	-95.1	-12.53				
E	Hamilton Spring		1	298	Spring	-93.1	-11.76				
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
E	Mustang Spring		2	135	Spring	-90.5	-12.49				
E	Pahroc Spring		3	131	Spring	-92.2	-12.65				
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
W	Seaman Spring		1	306	Spring	-99.0	-13.13				
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10				Evaporated not used in recharge calculation
ET	**ET**	**0**						**-104.0**	**-13.92**		
209	**GW Outflow (Pahranagat)**	**43,000**						**-104.0**	**-13.92**		
181	**GW Outflow (Dry Lake)**	**2,000**						**-106.5**	**-14.28**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
209	Pahranagat Valley										
208	Inflow (Pahroc)	43,000				-104.0	-13.92				
181	Inflow (Dry Lake)	0				-99.0	-13.12				
209	Inflow (Delamar)	0				-97.3	-12.93				
209 E	S. Pahroc Rng.	2,377				-94.9	-12.83			77, 78	
209 W	Mt. Irish/Pahranagat Rng.	3,545				-98.4	-14.24			79, 80 (172, 173)	
TR	Total Recharge	5,900				-97.0	-13.67				
E	Eightmile Spring		2	295	Spring	-95.6	-13.09				
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
E	Sixmile Spring		1	112	Spring	-93.4	-13.06				
E	Twin Spring		1	294	Spring	-97.4	-13.24				
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30	Local Valley spring not included in recharge calculation			
W	Reed Spring		1	289	Spring	-98.4	-14.24				
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11				
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20				
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41				
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39				
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-104.0*	*-13.92*		***Inter-basin flow from Pahroc Valley***
ET	ET	28,500						-103.2	-13.89		
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-104.0*	*-13.92*		***Inter-basin flow from Pahroc Valley***
210	GW Outflow (Coyote Spr)	20,400						-103.2	-13.89		
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
181	Dry Lake Valley										
180	Inflow (Pahroc)	2,000				-106.5	-14.28				
181 NW	S. Schell Ck Range	1,307				-100.4	-13.21			59	
181 SW	N. Pahroc Rng.	2,081				-94.2	-12.42			57	
181 NE	Fairview Rng.	3,709				-99.5	-12.89			58	
181 E	Bristol/Highland Rng.	7,895				-98.9	-13.28			61	
181 SE	Chief Rng.	1,696				-94.6	-12.36			62	
TR	Total Recharge	16,700				-98.1	-12.98				
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
E	Highland Spring		3	163	Spring	-99.1	-13.36				
E	Lime Spring		2	160	Spring	-98.5	-13.16				
E	Pine Spring		2	157	Spring	-99.0	-13.37				
E	Connor Spring		1	283	Spring	-100.6	-13.84				
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30				
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32				
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71				
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
SE	Oak Spring		1	269	Spring	-90.0	-11.87				
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69				
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73				
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
NE	Meloy Spring		1	276	Spring	-99.8	-12.75				
NE	Scotty Spring		1	272	Spring	-98.9	-12.73				
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
NE	Fence Spring		1	278	Spring	-97.4	-12.55				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	Fox Cabin		1	273	Spring	-103.5	-13.59				
NE	Lower Fairview		1	281	Spring	-97.5	-12.39				
NE	Robison Spring		1	279	Spring	-97.9	-12.34				
NE	Upper Fairview		1	280	Spring	-97.7	-12.66				
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31				
SW	Coyote Spring		2	169	Spring	-95.1	-12.53				
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76				
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
SW	Mustang Spring		2	135	Spring	-90.5	-12.49				
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65				
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
Evporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation			
ET	ET	0						-99.0	-13.12		
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
209	**GW Outflow (Pahranagat)**	**0**						**-99.0**	**-13.12**		
182	**GW Outflow (Delamar)**	**18,700**						**-99.0**	**-13.12**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
182	**Delamar Valley**										
181	**Inflow (Dry Lake)**	**18,700**				**-99.0**	**-13.12**				
182 E	Delamar Mtns.	5,755				-92.5	-12.32			81	
182 W	S. Pahroc Rng.	1,073				-94.6	-12.81			82	
TR	**Total Recharge**	**6,800**				**-92.8**	**-12.39**				
E	Abandoned Spring		1	266	Spring	-94.5	-12.32				
E	Red Rock Spring		1	256	Spring	-95.0	-12.30				
E	Oak Spring		1	269	Spring	-90.0	-11.87				
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
E	Bishop Spring		3	107	Spring	-87.2	-11.72				
E	Buckboard Spring		1	264	Spring	-88.2	-11.71				
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
W	Pahroc Spring		3	131	Spring	-92.2	-12.65				
W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	amed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
ET	ET	0						-97.3	-12.93		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-99.0***	***-13.12***		***Inter-basin flow from Dry Lake Valley***
209	**GW Outflow (Pahranagat)**	**0**						**-97.3**	**-12.93**		
210	**GW Outflow (Coyote Spr)**	**25,500**						**-97.3**	**-12.93**		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta 18O$	Calc. δD	Calc. $\delta 18O$	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
206	**Kane Springs Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
206 W	Delamar Mtns.	4,149				-89.0	-12.22			90
206 E	Meadow Valley Mtns.	305				-87.4	-11.92			91
TR	**Total Recharge**	**4,500**				**-88.9**	**-12.20**			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
W	Bishop Spring		3	107	Spring	-87.2	-11.72			
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
ET	**ET**	**0**						**-88.9**	**-12.20**	
210	**GW Outflow (Coyote Spr)**	**4,500**						**-88.9**	**-12.20**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
210	**Coyote Springs Valley**									
209	**Inflow (Pahranagat)**	**20,400**				**-103.2**	**-13.89**			
182	**Inflow (Delamar)**	**25,500**				**-97.3**	**-12.93**			
206	**Inflow (Kane Springs)**	**4,500**				**-88.9**	**-12.20**			
210 NE	S. Delamar Mtns.	1,059				-89.0	-12.22			83
210 E	S. Meadow Valley Mtns.	16				-87.4	-11.9			84
210 NW	S. of Maynard Lake	0				-94.0	-12.30			87
210 SE	Arrow Canyon Rng.	15				-81.0	-10.60			88
210 W	Sheep Range	1,202				-92.7	-12.83			89
TR	**Total Recharge**	**2,300**				**-90.8**	**-12.53**			
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53			
W	Lamb Spring		1	86	Spring	-92.5	-13.15			
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67			
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31			
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85			
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35			
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93			
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17	Evaporated not used in recharge calculation		
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30			
SE	Wamp Spring		1	52	Spring	-81.0	-10.60			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
NE	Bishop Spring		3	107	Spring	-87.2	-11.72			
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14			
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10			
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41			
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97			
Carb Well	CSI-1		1	609	Well	-102.6	-13.08			
Carb Well	CSI-2		1	610	Well	-100.2	-12.90			
Carb Well	CSI-3		1	611	Well	-99.6	-13.03			
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55			
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96				
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
CARB	**Carbonate Well (Avg)**		**14**			**-100.7**	**-13.11**	***-98.9***	***-13.25***		***Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys***
ET	**ET**	**0**						**-98.6**	**-13.22**		
219	**GW Outflow (Muddy)**	**37,700**						**-98.6**	**-13.22**		
217	**GW Outflow (Hidden)**	**15,000**						**-98.6**	**-13.22**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**4,000**				**-93.6**	**-12.60**				
210	**Inflow (Coyote)**	**37,700**				**-98.6**	**-13.22**				
219 S	E. Arrow Canyon?	3				-87.4	-11.92			85	
219 N	Wildcat Wash	40				-87.4	-11.92			86	
TR	**Total Recharge**	**0**				**-87.4**	**-11.92**				
N/S	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	***-98.1***	***-13.16***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**		**4**			**-97.9**	**-12.97**	***-98.1***	***-13.16***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**6,000**						**-98.1**	**-13.16**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**									
218	**GW Outflow (California)**	**1,700**						**-98.1**	**-13.16**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**15,000**				**-98.6**	**-13.22**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	47				-81.0	-10.60			100	
TR	**Total Recharge**	**0**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-98.6**	**-13.22**		
216	**GW Outflow (Garnet)**	**15,000**						**-98.6**	**-13.22**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**15,000**				**-98.6**	**-13.22**				
216 E	Apex	0				-81.0	-10.60			104	
216 W	Las Vegas Range	106				-81.0	-10.60			105	
TR	**Total Recharge**	**100**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		**6**			**-96.9**	**-13.32**	***-98.6***	***-13.22***		***Inter-basin flow from Hidden Valley***

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
ET	ET	0						-98.5	-13.20		
218	GW Outflow (California)	15,100						-98.5	-13.20		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										
219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-98.1	-13.16				
205	Inflow (Lower Meadow VW)	5,200				-93.6	-12.60				
216	Inflow (Garnet)	15,100				-98.5	-13.20				
218 E	Moapa Paiutes	0				-82.0	-10.60			110	
218 W	Muddy Mtns.	0				-82.0	-10.60			111	
TR	Total Recharge	0				0.0	0.00				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
ET	ET	4,500						-97.3	-13.06		
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-97.3*	*-13.06*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
220	GW Outflow (Lower Moapa)	18,800						-97.3	-13.06		
215	GW Outflow (Black Mtn Area)	2,000						-97.3	-13.06		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	2,000				-97.3	-13.06				
215 NE	Muddy Mtns.	0				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	Total Recharge	0				0.0	0.00				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Sprii	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
ET	ET	1,400						-97.3	-13.06		
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-97.3*	*-13.06*		***Weighted Average of Inflow from Califronia Wash***
999	GW Outflow (Colorado River)	600						-97.3	-13.06		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
218	GW Inflow (California Wash)	18,800				-97.3	-13.06				
218	SW Inflow (California Wash)	30,700									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	37				-88.3	-12.50			102	
TR	Total Recharge	0				-88.3	-12.50				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				
ET	**ET**	**25,300**						**-97.3**	**-13.06**		
CARB	**Carbonate Well (Avg)**		2			**-91.0**	**-12.58**	***-93.6***	***-12.60***		***Inter-basin flow from Lower Meadow Valley Wash***
999	**GW Outflow (Colorado River)**	**17,200**						**-97.3**	**-13.06**		
999	**SW Outflow (Colorado River)**	**7,000**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	**Lake Mead (Colorado River)**										
210	**GW Inflow (Black Mountains Area)**	**600**				**-97.3**	**-13.06**				
205	**GW Inflow (Lower Moapa)**	**17,200**				**-97.3**	**-13.06**				
999	**Groundwater Total**	**17,800**						**-97.3**	**-13.06**		
205	**SW Inflow (Lower Moapa)**	**7,000**									
999	**Surface water Total**	**7,000**									
999	**Inflow Total**	**24,800**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	**Lake Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
183 NE	Fortification Rng	1,499				-106.3	-14.16			49	
183 NW	Cen. Schell Cr. Rng	4,759				-108.1	-14.74			51	
183 SE	Wilson Cr. Rng. @ Atlanta	4,188				-104.7	-13.75			50	
183 SW	Fairview Rng.	1,716				-101.1	-13.29			60	
TR	**Total Recharge**	**12,200**				**-105.7**	**-14.12**				
NE	Indian Springs		1	375	Spring	-106.3	-14.16				
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10				
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80				
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50				
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60				
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
SE	Wilson Creek		1	189	Surface	-97.5	-13.20				Surface Water not included in recharge average
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
ET	**ET**	**6,100**						**-105.7**	**-14.12**		
202	**GW Outflow (Patterson)**	**6,100**						**-105.7**	**-14.12**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	**Patterson Valley**										
183	**Inflow (Lake)**	**6,100**				**-105.7**	**-14.12**				
202 E	Wilson Cr. Rng. @ Mt. Wilson	6,464				-97.7	-12.99			47	
202 W	Bristol Rng.	3,991				-99.2	-13.10			48	
TR	**Total Recharge**	**10,500**				**-98.3**	**-13.03**				
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
E	Blue Rock Spring		1	311	Spring	-93.4	-12.68				
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30				
E	Parsnip Spring		1	180	Spring	-93.5	-12.80				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
E	Horsethief Spring		2	314	Spring	-97.0	-12.68			
E	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	**ET**	**1,300**						**-101.0**	**-13.43**	
203	**GW Outflow (Panaca)**	**15,300**						**-101.0**	**-13.43**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	**Spring Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
201 E	White Rock Mtns.	5,904				-100.9	-13.52			52
201 W	Wilson Cr. Rng. @ Parsnip Pk.	5,161				-97.7	-12.99			53
TR	**Total Recharge**	**11,100**				**-99.4**	**-13.28**			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			
E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**3,900**						**-99.4**	**-13.28**	
200	**GW Outflow (Eagle)**	**7,200**						**-99.4**	**-13.28**	
200	**SW Outflow (Eagle)**	**0**						**-97.5**	**-13.00**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**7,200**				**-99.4**	**-13.28**			
201	**SW Inflow (Spring)**	**0**				**-97.5**	**-13.00**			
200 E	E. Eagle (Ursine) Valley	1,560				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	412				-97.0	-12.68			64
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.15**			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
E	Butcher Spring		1	424	Spring	-103.2	-14.22				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**1,000**						**-99.3**	**-13.25**		
199	**GW Outflow (Rose)**	**8,200**						**-99.3**	**-13.25**		
198	**SW Outflow (Rose)**	**0**						**-99.3**	**-13.25**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
199	**Rose Valley**										
200	**Inflow (Eagle)**	**8,200**				**-99.3**	**-13.25**				
200	**SW Inflow (Eagle)**	**0**				**-99.3**	**-13.25**				
199 E	E. Rose Valley	163				-99.1	-13.28			65	
199 W	W. Rose Valley	78				-97.0	-12.68			66	
TR	**Total Recharge**	**200**				**-98.4**	**-13.08**				
E	Butcher Spring		1	424	Spring	-103.2	-14.22				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**600**						**-99.2**	**-13.24**		
198	**GW Outflow (Dry)**	**7,800**						**-99.2**	**-13.24**		
198	**SW Outflow (Dry)**	**0**						**-99.3**	**-13.25**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
198	**Dry Valley**										
199	**Inflow (Rose)**	**7,800**				**-99.2**	**-13.24**				
199	**SW Inflow (Rose)**	**0**				**-99.3**	**-13.25**				
198 E	E. Dry Valley	2,860				-96.9	-12.99			67	
198 W	W. Dry Valley	321				-97.0	-12.68			68	
TR	**Total Recharge**	**3,200**				**-96.9**	**-12.96**				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-99.2	-13.24		***Inter-basin flow from Dry Valley***
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40				Local Valley spring not included in recharge calculation
ET	**ET**	**3,700**						**-98.5**	**-13.16**		
203	**GW Outflow (Panaca)**	**7,300**						**-98.5**	**-13.16**		
203	**SW Outflow (Panaca)**	**0**						**-99.2**	**-13.24**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	**Clover Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
204 N	South of Beaver Dam	8,232				-92.2	-12.42			71	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
204 S	North of Jack's Mtn	6,451				-92.0	-12.52			72	
TR	**Total Recharge**	**14,700**				**-92.1**	**-12.46**				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	**ET**	**5,200**						**-92.1**	**-12.46**		
205	**GW Outflow (LMVW)**	**9,500**						**-92.1**	**-12.46**		
205	**SW Outflow (LMVW)**	**0**						**-92.1**	**-12.46**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	**Panaca Valley**										
202	**Inflow (Patterson)**	**15,300**				**-101.0**	**-13.43**				
198	**Inflow (Dry)**	**7,300**				**-98.5**	**-13.16**				
198	**SW Inflow (Dry)**	**0**				**-99.2**	**-13.24**				
203 E	Condor Canyon	2,479				-92.0	-12.19			69	
203 W	Cathedral Gorge	2,984				-98.9	-13.28			70	
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	***-101.0***	***-13.43***		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	***-105.7***	***-14.12***		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	***-105.7***	***-14.12***		***Inter-basin flow from Lake Valley***
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	**ET**	**18,900**						**-99.3**	**-13.24**		
205	**GW Outflow (LMVW)**	**9,200**						**-99.3**	**-13.24**		
205	**SW Outflow (LMVW)**	**0**						**-97.0**	**-13.10**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**9,200**				**-99.3**	**-13.24**				
204	**Inflow (Clover)**	**9,500**				**-92.1**	**-12.46**				
203	**SW Inflow (Panaca)**	**0**				**-97.0**	**-13.10**				
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**				
205 NW	Delamar Mtns.	3,077				-92.23	-12.28			92	
205 NE	Clover Mountains	7,290				-90.4	-12.25			93	
205 SW	Meadow Valley Mtns.	1,146				-87.4	-11.92			94	
205 SE	Mormon Mtns.	895				-88.3	-12.50			95	
TR	**Total Recharge**	**12,400**				**-90.4**	**-12.24**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NW	Oak Spring		1	269	Spring	-90.0	-11.87				
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30				
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
SE	Davies Spring		1	90	Spring	-89.0	-12.50				
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-95.7*	*-12.84*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**21,900**						**-93.6**	**-12.60**		
206	**GW Outflow (Upper Moapa)**	**4,000**						**-93.6**	**-12.60**		
218	**GW Outflow (California Wash)**	**5,200**						**-93.6**	**-12.60**		
218	**GW Outflow (Lower Moapa)**	**0**						**-93.6**	**-12.60**		
218	**SW Outflow (California Wash)**	**0**						**-93.6**	**-12.60**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

		SNWA/BARCASS (SNWA, 2007; Welch and Bright, 2007)									
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
175	**Long Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
175 SE	Butte Mtn. (S)	2,673				-119.6	-15.53			35	
175 SW	Alligator Rdg.	3,664				-122.4	-15.96			36	
175 NW	Maverick Springs	11,435				-123.9	-16.23			37	
175 NE	Butte Mtn. (N)	3,224				-119.2	-15.36			164	
TR	**Total Recharge**	**21,000**				**-122.4**	**-15.96**				
SE	Butte Spring		1	327	Spring	-120.4	-15.79				
SE	Cabin Spring		1	328	Spring	-124.4	-15.89				
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39				
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74				
SE	Summit Spring		1	348	Spring	-120.8	-15.94				
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40				
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21				
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75				
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04				
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60				
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55				
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36				
ET	**ET**	**1,200**						**-122.4**	**-15.96**		
154	**GW Outflow (Newark)**	**0**						**-122.4**	**-15.96**		
174	**GW Outflow (Jakes)**	**19,800**						**-122.4**	**-15.96**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
174	**Jakes Valley**										
175	**Inflow (Long)**	**19,800**				**-122.4**	**-15.96**				
174 E	Egan Range	2,909				-118.4	-15.31			33	
174 W	North White Pine	10,076				-120.3	-15.83			34	
TR	**Total Recharge**	**13,000**				**-119.9**	**-15.71**				
NW	Tunnel Spring		1	366	Spring	-118.3	-15.02				
W	Aspen Springs North		1	349	Spring	-119.3	-15.84				
W	Aspen Springs South		1	324	Spring	-120.9	-16.02				
W	Chicken Spring		1	330	Spring	-122.0	-16.17				
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30				
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76				
W	Sand Spring		1	239	Spring	-123.0	-16.20				
W	Shellback Spring		1	344	Spring	-123.6	-16.54				
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69				
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18				
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80				
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39				
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31				
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30				
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Surface Water not included in recharge average			
ET	**ET**	**900**						**-119.9**	**-15.71**		
207N	**GW Outflow (NWRV)**	**31,900**						**-121.4**	**-15.86**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
180	**Cave Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
180 E	S. Schell Cr. Rng	7,438				-105.0	-14.28			43,44	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
180 W	S. Egan Rng	7,944				-107.8	-14.28			45,46	
TR	**Total Recharge**	**15,400**				**-106.5**	**-14.28**				
E	North Creek Spring		1	214	Spring	-105.0	-14.60				
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70				
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75				
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
W	Granite Spring		1	440	Spring	-103.4	-13.32				
W	Haggerty Spring		1	387	Spring	-109.6	-14.78				
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
W	Silver Spring		2	385	Spring	-111.4	-14.71				
W	Shingle Spring		2	203	Spring	-103.7	-13.33				
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
W	Trough Spring		1	413	Spring	-103.6	-13.56				
ET	**ET**	**1,600**						**-106.5**	**-14.28**		
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**				
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**				
208	**GW Outflow (Pahroc)**	**9,800**						**-106.5**	**-14.28**		
207S	**GW Outflow (SWRV)**	**4,000**						**-106.5**	**-14.28**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	**North White River Valley**										
174	**Inflow (Jakes)**	**31,900**				**-121.4**	**-15.86**				
207 NE	Egan Rng North	16,554				-112.3	-15.15			38	
207 NW	White Pine Rng.	12,030				-115.0	-15.18			39, 40	
TR	**Total Recharge**	**28,600**				**-113.5**	**-15.16**				
NE	on Creek Spring (Unnamed Spring in Gubler Canyon)		1	235	Spring	-111.0	-14.90				
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90				
NE	High Springs		1	433	Spring	-113.4	-15.43				
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34				
NE	Mud Spring		1	446	Spring	-111.0	-14.53				
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71				
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14				
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14				
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07				
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37				
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72				
NE	North Spring		2	237	Spring	-112.4	-15.11				
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70				
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12				
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42				
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60				
NE	Lund Spring		1	221	Spring	-113.0	-15.40	Local Valley spring not included in recharge calculation			
NE	Water Canyon		2	233	Surface	-116.0	-15.25	Surface Water not included in recharge average			
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92				
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87				
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36				
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66				
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96				
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01				
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36				
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98				
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52				
NW	Easter Spring		1	365	Spring	-119.4	-15.56				
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58				
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45				
NW	Secret Spring		1	220	Spring	-110.0	-14.00				
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00				
NW	Stove Spring		1	347	Spring	-114.5	-15.71				
NW	ıed Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31				
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10				Surface Water not included in recharge average
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00				Surface Water not included in recharge average
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80				
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10				
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88				
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-121.4***	***-15.86***		***Inter-basin flow from Jakes Valley***
ET	**ET**	**29,500**						**-113.7**	**-15.19**		
207S	**GW Outflow (SWRV)**	**31,000**						**-121.4**	**-15.86**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	**South White River Valley**	WRV Tot Recharge **42,900**									
207N	**Inflow (N White River)**	**31,000**				**-121.4**	**-15.86**				
180	**Inflow (Cave)**	**4,000**				**-106.5**	**-14.28**				
207 SE	Egan Rng South	7,844				-106.9	-14.15			41	
207 SW	Grant Rng	6,467				-106.5	-14.23			42	
TR	**Total Recharge**	**14,300**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20				local Valley spring not included in recharge calculation
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50				local Valley spring not included in recharge calculation
E	Flag Spring #3		1	201	Spring	-105.0	-14.30				local Valley spring not included in recharge calculation
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48				Evaporated so not used in recharge calculation
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**	**13**			**-119.2**	**-15.71**	***-121.4***	***-15.86***		***Inter-basin flow from Northern White River Valley***
ET	**ET**	**47,200**						**-115.8**	**-15.23**		
208	**GW Outflow (Pahroc)**	**2,100**						**-119.7**	**-15.68**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
172 SW	Quinn Canyon Range	15,621				-104.6	-14.08			171	
172 NW	Grant Range	7,993				-106.5	-14.27			170	
172 NE	Golden Gate Rng	1,063				-98.0	-13.30			55	
172 SE	Worthington Mountains	1,030				-98.0	-13.30			56	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
TR	**Total Recharge**	**25,700**				**-104.7**	**-14.08**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85	Evaporated so not used in recharge calculation			
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**1,700**						**-104.7**	**-14.08**		
171	**GW Outflow (Coal)**	**24,000**						**-104.7**	**-14.08**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**24,000**				**-104.7**	**-14.08**				
172	**Inflow (SWRV)**	**0**				**-119.7**	**-15.68**				
171 E	Seaman Rng	1,282				-99.0	-13.13			75	
171 W	Golden Gate Rng	2,882				-98.2	-12.87			76	
TR	**Total Recharge**	**4,200**				**-98.4**	**-12.95**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				
W	Henry Spring		1	287	Spring	-97.4	-12.77				
W	Little Cut Spring		2	286	Spring	-98.3	-12.85				
E	Seaman Spring		1	306	Spring	-99.0	-13.13				
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.7***	***-14.08***	***Underflow from Garden Valley***	
ET	**ET**	**0**						**-98.4**	**-12.95**		
208	**GW Outflow (Pahroc)**	**28,200**						**-103.7**	**-13.91**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
208	**Pahroc Valley**										
180	**Inflow (Cave)**	**9,800**				**-106.5**	**-14.28**				
207S	**Inflow (S. White River)**	**2,100**				**-119.7**	**-15.68**				
171	**Inflow (Coal)**	**28,200**				**-103.7**	**-13.91**				
208 E	N. Pahroc Rng.	2,596				-94.2	-12.42			73	
208 W	Seaman Rng.	2,286				-99.0	-13.13			74	
TR	**Total Recharge**	**4,900**				**-96.4**	**-12.75**				
E	Black Rock Spring		2	158	Spring	-93.8	-12.31				
E	Coyote Spring		2	169	Spring	-95.1	-12.53				
E	Hamilton Spring		1	298	Spring	-93.1	-11.76				
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
E	Mustang Spring		2	135	Spring	-90.5	-12.49				
E	Pahroc Spring		3	131	Spring	-92.2	-12.65				
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
W	Seaman Spring		1	306	Spring	-99.0	-13.13				
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10	Evaporated not used in recharge calculation			
ET	**ET**	**0**						**-96.4**	**-12.75**		
181	**GW Outflow (Dry Lake)**	**2,000**						**-106.5**	**-14.28**		
209	**GW Outflow (Pahranagat)**	**43,000**						**-104.3**	**-13.95**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
209	**Pahranagat Valley**										
208	**Inflow (Pahroc)**	**43,000**				**-104.3**	**-13.95**				
181	**Inflow (Dry Lake)**	**0**				**-99.0**	**-13.12**				
209	**Inflow (Delamar)**	**0**				**-97.3**	**-12.93**				
209 E	S. Pahroc Rng.	2,377				-94.9	-12.83			77, 78	
209 W	Mt. Irish/Pahranagat Rng.	3,545				-98.4	-14.24			79, 80 (172, 173)	
TR	**Total Recharge**	**5,900**				**-97.0**	**-13.67**				
E	Eightmile Spring		2	295	Spring	-95.6	-13.09				
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
E	Sixmile Spring		1	112	Spring	-93.4	-13.06				
E	Twin Spring		1	294	Spring	-97.4	-13.24				
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30	Local Valley spring not included in recharge calculation			
W	Reed Spring		1	289	Spring	-98.4	-14.24				
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11				
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20				
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41				
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39				
Warm	**Discharge Warm Springs (Avg)**	**25,400**	**31**			**-108.9**	**-14.26**	***-104.3***	***-13.95***	***Inter-basin flow from Pahroc Valley***	
ET	**ET**	**28,500**						**-102.8**	**-13.89**		
Well	**209M-1**		**1**	**608**	**Deep Well**	**-104.7**	**-13.53**	***-104.3***	***-13.95***	***Inter-basin flow from Pahroc Valley***	
210	**GW Outflow (Coyote Spr)**	**20,400**						**-104.3**	**-13.95**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
181	**Dry Lake Valley**										
208	**Inflow (Pahroc)**	**2,000**				**-106.5**	**-14.28**				
181 NW	S. Schell Ck Range	1,307				-100.4	-13.21			59	
181 SW	N. Pahroc Rng.	2,081				-94.2	-12.42			57	
181 NE	Fairview Rng.	3,709				-99.5	-12.89			58	
181 E	Bristol/Highland Rng.	7,895				-98.9	-13.28			61	
181 SE	Chief Rng.	1,696				-94.6	-12.36			62	
TR	**Total Recharge**	**16,700**				**-98.1**	**-12.98**				
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
E	Highland Spring		3	163	Spring	-99.1	-13.36				
E	Lime Spring		2	160	Spring	-98.5	-13.16				
E	Pine Spring		2	157	Spring	-99.0	-13.37				
E	Connor Spring		1	283	Spring	-100.6	-13.84				
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30				
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32				
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71				
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
SE	Oak Spring		1	269	Spring	-90.0	-11.87				
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69				
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73				
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
NE	Meloy Spring		1	276	Spring	-99.8	-12.75				
NE	Scotty Spring		1	272	Spring	-98.9	-12.73				
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
NE	Fence Spring		1	278	Spring	-97.4	-12.55				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	Fox Cabin		1	273	Spring	-103.5	-13.59				
NE	Lower Fairview		1	281	Spring	-97.5	-12.39				
NE	Robison Spring		1	279	Spring	-97.9	-12.34				
NE	Upper Fairview		1	280	Spring	-97.7	-12.66				
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31				
SW	Coyote Spring		2	169	Spring	-95.1	-12.53				
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76				
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
SW	Mustang Spring		2	135	Spring	-90.5	-12.49				
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65				
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation			
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-106.5***	***-14.28***		***Inter-basin flow from Cave Valley***
ET	**ET**	**0**						**-98.1**	**-12.98**		
209	**GW Outflow (Pahranagat)**	**0**						**-99.0**	**-13.12**		
182	**GW Outflow (Delamar)**	**18,700**						**-99.0**	**-13.12**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
182	**Delamar Valley**										
181	**Inflow (Dry Lake)**	**18,700**				**-99.0**	**-13.12**				
182 E	Delamar Mtns.	5,755				-92.5	-12.32			81	
182 W	S. Pahroc Rng.	1,073				-94.6	-12.81			82	
TR	**Total Recharge**	**6,800**				**-92.8**	**-12.39**				
E	Abandoned Spring		1	266	Spring	-94.5	-12.32				
E	Red Rock Spring		1	256	Spring	-95.0	-12.30				
E	Oak Spring		1	269	Spring	-90.0	-11.87				
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
E	Bishop Spring		3	107	Spring	-87.2	-11.72				
E	Buckboard Spring		1	264	Spring	-88.2	-11.71				
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
W	Pahroc Spring		3	131	Spring	-92.2	-12.65				
W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
ET	**ET**	**0**						**-92.8**	**-12.39**		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-99.0***	***-13.12***		***Inter-basin flow from Dry Lake Valley***
209	**GW Outflow (Pahranagat)**	**0**						**-97.3**	**-12.93**		
210	**GW Outflow (Coyote Spr)**	**25,500**						**-97.3**	**-12.93**		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
206	**Kane Springs Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
206 W	Delamar Mtns.	4,149				-89.0	-12.22			90
206 E	Meadow Valley Mtns.	305				-87.4	-11.92			91
TR	**Total Recharge**	**4,500**				**-88.9**	**-12.20**			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
W	Bishop Spring		3	107	Spring	-87.2	-11.72			
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
ET	**ET**	**0**						**-88.9**	**-12.20**	
210	**GW Outflow (Coyote Spr)**	**4,500**						**-88.9**	**-12.20**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
210	**Coyote Springs Valley**									
209	**Inflow (Pahranagat)**	**20,400**				**-104.3**	**-13.95**			
182	**Inflow (Delamar)**	**25,500**				**-97.3**	**-12.93**			
206	**Inflow (Kane Springs)**	**4,500**				**-88.9**	**-12.20**			
210 NE	S. Delamar Mtns.	1,059				-89.0	-12.22			83
210 E	S. Meadow Valley Mtns.	16				-87.4	-11.92			84
210 NW	S. of Maynard Lake	0				-94.0	-12.30			87
210 SE	Arrow Canyon Rng.	15				-81.0	-10.60			88
210 W	Sheep Range	1,202				-92.7	-12.83			89
TR	**Total Recharge**	**2,300**				**-90.8**	**-12.53**			
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53			
W	Lamb Spring		1	86	Spring	-92.5	-13.15			
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67			
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31			
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85			
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35			
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93			
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17	Evaporated not used in recharge calculation		
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30			
SE	Wamp Spring		1	52	Spring	-81.0	-10.60			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
NE	Bishop Spring		3	107	Spring	-87.2	-11.72			
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14			
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10			
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41			
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97			
Carb Well	CSI-1		1	609	Well	-102.6	-13.08			
Carb Well	CSI-2		1	610	Well	-100.2	-12.90			
Carb Well	CSI-3		1	611	Well	-99.6	-13.03			
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55			
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96				
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
ET	**ET**	**0**						**-90.8**	**-12.53**		
CARB	**Carbonate Well (Avg)**		**6**			**-100.7**	**-13.11**	***-99.4***	***-13.28***		***Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys***
219	**GW Outflow (Muddy)**	**37,700**						**-99.0**	**-13.24**		
217	**GW Outflow (Hidden)**	**15,000**						**-99.0**	**-13.24**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**4,000**				**-96.3**	**-12.92**				
210	**Inflow (Coyote)**	**37,700**				**-99.0**	**-13.24**				
219 S	E. Arrow Canyon?	3				-87.4	-11.92			85	
219 N	Wildcat Wash	40				-87.4	-11.92			86	
TR	**Total Recharge**	**0**				**-87.4**	**-11.92**				
N/S	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	***-98.8***	***-13.21***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**	**Input into M**	**4**			-97.9	-12.97	***-98.8***	***-13.21***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**6,000**						**-98.8**	**-13.21**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**									
218	**GW Outflow (California)**	**1,700**						**-98.8**	**-13.21**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**15,000**				**-99.0**	**-13.24**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	47				-81.0	-10.60			100	
TR	**Total Recharge**	**0**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-81.0**	**-10.60**		
216	**GW Outflow (Garnet)**	**15,000**						**-99.0**	**-13.24**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**15,000**				**-99.0**	**-13.24**				
216 E	Apex	0				-81.0	-10.60			104	
216 W	Las Vegas Range	106				-81.0	-10.60			105	
TR	**Total Recharge**	**100**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		**6**			**-96.9**	**-13.32**	***-99.0***	***-13.24***		***Inter-basin flow from Hidden Valley***

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
ET	ET	0						-81.0	-10.60		
218	GW Outflow (California)	15,100						-98.9	-13.23		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										
219	SW Inflow (Muddy)	34,000									
205	SW Inflow (LMVW)	0									
219	Inflow (Muddy)	1,700				-98.8	-13.21				
205	Inflow (Lower Meadow VW)	5,200				-96.3	-12.92				
216	Inflow (Garnet)	15,100				-98.9	-13.23				
218 E	Moapa Paiutes	0				-82.0	-10.60			110	
218 W	Muddy Mtns.	0				-82.0	-10.60			111	
TR	Total Recharge	0				-82.0	-10.6				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
ET	ET	4,500						-82.0	-10.60		
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-98.3*	*-13.15*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
220	GW Outflow (Lower Moapa)	18,800						-98.3	-13.15		
215	GW Outflow (Black Mtn Area)	2,000						-98.3	-13.15		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	2,000				-98.3	-13.15				
215 NE	Muddy Mtns.	0				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	Total Recharge	0				-81.3	-10.75				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Sprii	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
ET	ET	1,400						-81.3	-10.75		
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-98.3*	*-13.15*		***Weighted Average of Inflow from Califronia Wash***
999	GW Outflow (Colorado River)	600						-98.3	-13.15		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
218	GW Inflow (California Wash)	18,800				-98.3	-13.15				
218	SW Inflow (California Wash)	30,700									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	37				-88.3	-12.50			102	
TR	Total Recharge	0				-88.3	-12.50				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				
CARB	**Carbonate Well (Avg)**		**2**			**-91.0**	**-12.58**	***-96.3***	***-12.92***		***Inter-basin flow from Lower Meadow Valley Wash***
ET	**ET**	**25,300**						**-88.3**	**-12.50**		
999	**GW Outflow (Colorado River)**	**17,200**						**-98.3**	**-13.15**		
999	**SW Outflow (Colorado River)**	**7,000**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	**Lake Mead (Colorado River)**										
210	**GW Inflow (Black Mountains Area)**	**600**				**-98.3**	**-13.15**				
205	**GW Inflow (Lower Moapa)**	**17,200**				**-98.3**	**-13.15**				
999	**Groundwater Total**	**17,800**						**-98.3**	**-13.15**		
205	**SW Inflow (Lower Moapa)**	**7,000**									
999	**Surfacewater Total**	**7,000**									
999	**Inflow Total**	**24,800**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	**Lake Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
183 NE	Fortification Rng	1,499				-106.3	-14.16			49	
183 NW	Cen. Schell Cr. Rng	4,759				-108.1	-14.74			51	
183 SE	Wilson Cr. Rng. @ Atlanta	4,188				-104.7	-13.75			50	
183 SW	Fairview Rng.	1,716				-101.1	-13.29			60	
TR	**Total Recharge**	**12,200**				**-105.7**	**-14.12**				
NE	Indian Springs		1	375	Spring	-106.3	-14.16				
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10				
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80				
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50				
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60				
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
SE	Wilson Creek		1	189	Surface	-97.5	-13.20				Surface Water not included in recharge average
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
ET	**ET**	**6,100**						**-105.7**	**-14.12**		
202	**GW Outflow (Patterson)**	**6,100**						**-105.7**	**-14.12**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	**Patterson Valley**										
183	**Inflow (Lake)**	**6,100**				**-105.7**	**-14.12**				
202 E	Wilson Cr. Rng. @ Mt. Wilson	6,464				-97.7	-12.99			47	
202 W	Bristol Rng.	3,991				-99.2	-13.10			48	
TR	**Total Recharge**	**10,500**				**-98.3**	**-13.03**				
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
E	Blue Rock Spring		1	98	Spring	-93.4	-12.68				
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30				
E	Parsnip Spring		1	180	Spring	-93.5	-12.80				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
E	Horsethief Spring		2	314	Spring	-97.0	-12.68			
E	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average		
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	**ET**	**1,300**						**-98.3**	**-13.03**	
203	**GW Outflow (Panaca)**	**15,300**						**-101.3**	**-13.47**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	**Spring Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
201 W	Wilson Cr. Rng. @ Parsnip Pk.	5,161				-97.7	-12.99			53
201 E	White Rock Mtns.	5,904				-100.9	-13.52			52
TR	**Total Recharge**	**11,100**				**-99.4**	**-13.28**			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			
E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		1	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**3,900**						**-99.4**	**-13.28**	
200	**GW Outflow (Eagle)**	**7,200**						**-99.4**	**-13.28**	
200	**SW Outflow (Eagle)**	**0**						**-97.5**	**-13.00**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**7,200**				**-99.4**	**-13.28**			
201	**SW Inflow (Spring)**	**0**				**-97.5**	**-13.00**			
200 E	E. Eagle (Ursine) Valley	1,560				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	412				-97.0	-12.68			64
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.15**			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**1,000**						**-98.7**	**-13.15**		
199	**GW Outflow (Rose)**	**8,200**						**-99.3**	**-13.26**		
198	**SW Outflow (Rose)**	**0**						**-98.7**	**-13.00**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
199	**Rose Valley**										
200	**Inflow (Eagle)**	**8,200**				**-99.3**	**-13.26**				
200	**SW Inflow (Eagle)**	**0**				**-98.7**	**-13.00**				
199 E	E. Rose Valley	163				-99.1	-13.28			65	
199 W	W. Rose Valley	78				-97.0	-12.68			66	
TR	**Total Recharge**	**200**				**-98.4**	**-13.08**				
E	Butcher Spring		1	424	Spring	-103.2	-14.22				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**600**						**-98.4**	**-13.08**		
198	**GW Outflow (Dry)**	**7,800**						**-99.3**	**-13.25**		
198	**SW Outflow (Dry)**	**0**						**-98.4**	**-13.08**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
198	**Dry Valley**										
199	**Inflow (Rose)**	**7,800**				**-99.3**	**-13.25**				
199	**SW Inflow (Rose)**	**0**				**-98.4**	**-13.08**				
198 E	E. Dry Valley	2,860				-96.9	-12.99			67	
198 W	W. Dry Valley	321				-97.0	-12.68			68	
TR	**Total Recharge**	**3,200**				**-96.9**	**-12.96**				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-99.3	-13.25		***Inter-basin flow from Dry Valley***
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40				Local Valley spring not included in recharge calculation
ET	**ET**	**3,700**						**-97.2**	**-13.00**		
203	**GW Outflow (Panaca)**	**7,300**						**-99.3**	**-13.25**		
203	**SW Outflow (Panaca)**	**0**						**-97.2**	**-13.00**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	**Clover Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
204 N	South of Beaver Dam	8,232				-92.2	-12.42			71	
204 S	North of Jack's Mtn	6,451				-92.0	-12.52			72	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
TR	**Total Recharge**	**14,700**				**-92.1**	**-12.46**				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	**ET**	**5,200**						**-92.1**	**-12.46**		
205	**GW Outflow (LMVW)**	**9,500**						**-92.1**	**-12.46**		
205	**SW Outflow (LMVW)**	**0**						**-92.1**	**-12.46**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	**Panaca Valley**										
202	**Inflow (Patterson)**	**15,300**				**-101.3**	**-13.47**				
198	**Inflow (Dry)**	**7,300**				**-99.3**	**-13.25**				
198	**SW Inflow (Dry)**	**0**				**-97.2**	**-13.00**				
203 E	Condor Canyon	2,479				-92.0	-12.19			69	
203 W	Cathedral Gorge	2,984				-98.9	-13.28			70	
TR	**Total Recharge**	**5,500**				**-95.8**	**-12.78**				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	*-101.3*	*-13.47*		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	*-105.7*	*-14.12*		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	*-105.7*	*-14.12*		***Inter-basin flow from Lake Valley***
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	**ET**	**18,900**						**-99.2**	**-13.22**		
205	**GW Outflow (LMVW)**	**9,200**						**-100.6**	**-13.40**		
205	**SW Outflow (LMVW)**	**0**						**-99.2**	**-13.22**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**9,200**				**-100.6**	**-13.40**				
204	**Inflow (Clover)**	**9,500**				**-92.1**	**-12.46**				
203	**SW Inflow (Panaca)**	**0**				**-99.2**	**-13.22**				
204	**SW Inflow (Clover)**	**0**				**-92.1**	**-12.46**				
205 NW	Delamar Mtns.	3,077				-92.2	-12.28			92	
205 NE	Clover Mountains	7,290				-90.4	-12.25			93	
205 SW	Meadow Valley Mtns.	1,146				-87.4	-11.92			94	
205 SE	Mormon Mtns.	895				-88.3	-12.50			95	
TR	**Total Recharge**	**12,400**				**-90.4**	**-12.24**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
NW	Oak Spring		1	269	Spring	-90.0	-11.87				
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30				
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60				
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92				
SE	Davies Spring		1	90	Spring	-89.0	-12.50				
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30				
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-96.3*	*-12.92*		***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90				
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70				
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50				
ET	**ET**	**21,900**						**-93.0**	**-12.54**		
206	**GW Outflow (Upper Moapa)**	**4,000**						**-96.3**	**-12.92**		
218	**GW Outflow (California Wash)**	**5,200**						**-96.3**	**-12.92**		
218	**SW Outflow (California Wash)**	**0**						**-90.4**	**-12.24**		
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	

				Reconnaissance Series Water Budget						
Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	**Long Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
175 SE	Butte Mtn. (S)	2,379				-119.6	-15.53			35
175 SW	Alligator Rdg.	2,501				-121.7	-15.85			36
175 NW	Maverick Springs	3,911				-123.9	-16.23			37
175 NE	Butte Mtn. (N)	1,509				-119.2	-15.36			164
TR	**Total Recharge**	**10,300**				**-121.7**	**-15.85**			
SE	Butte Spring		1	327	Spring	-120.4	-15.79			
SE	Cabin Spring		1	328	Spring	-124.4	-15.89			
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39			
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74			
SE	Summit Spring		1	348	Spring	-120.8	-15.94			
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40			
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21			
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75			
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04			
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60			
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55			
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36			
ET	**ET**	**2,000**						**-121.7**	**-15.85**	
174	**GW Outflow (Jakes)**	**8,300**						**-121.7**	**-15.85**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	**Jakes Valley**									
175	**Inflow (Long)**	**8,300**				**-121.7**	**-15.85**			
174 E	Egan Range	5,404				-118.4	-15.31			33
174 W	North White Pine	11,596				-120.3	-15.83			34
TR	**Total Recharge**	**17,000**				**-119.7**	**-15.66**			
W	Tunnel Spring		1	366	Spring	-118.3	-15.02			
W	Aspen Springs North		1	349	Spring	-119.3	-15.84			
W	Aspen Springs South		1	324	Spring	-120.9	-16.02			
W	Chicken Spring		1	330	Spring	-122.0	-16.17			
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30			
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76			
W	Sand Spring		1	239	Spring	-123.0	-16.20			
W	Shellback Spring		1	344	Spring	-123.6	-16.54			
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69			
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18			
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80			
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39			
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31			
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30			
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Not used in W average		
ET	**ET**	**0**						**-120.3**	**-15.72**	
207N	**GW Outflow (NWRV)**	**25,300**						**-120.3**	**-15.72**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
180	**Cave Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
180 E	S. Schell Cr. Rng	6,220				-105.0	-14.28			43,44
180 W	S. Egan Rng	7,780				-107.8	-14.28			45,46

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
TR	**Total Recharge**	**14,000**				**-106.6**	**-14.28**				
E	North Creek Spring		1	214	Spring	-105.0	-14.60				
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70				
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75				
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
W	Haggerty Spring		1	387	Spring	-109.6	-14.78				
W	Granite Spring		1	440	Spring	-103.4	-13.32				
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
W	Silver Spring		2	385	Spring	-111.4	-14.71				
W	Shingle Spring		2	203	Spring	-103.7	-13.33				
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
W	Trough Spring		1	413	Spring	-103.6	-13.56				
ET	**ET**	**200**						**-106.6**	**-14.28**		
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**				
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**				
181	**GW Outflow (Dry Lake)**	**0**						-106.6	-14.28		
207S	**GW Outflow (SWRV)**	**13,800**						**-106.6**	**-14.28**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	**North White River Valley**										
174	**Inflow (Jakes)**	**25,300**				**-120.3**	**-15.72**				
207 NE	Egan Rng North	13,009				-112.4	-15.14			38	
207 NW	White Pine Rng.	12,727				-115.0	-15.18			39, 40	
TR	**Total Recharge**	**25,700**				**-113.7**	**-15.16**				
NE	on Creek Spring (Unnamed Spring in Gubler Canyon)		1	235	Spring	-111.0	-14.90				
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90				
NE	North Spring		1	237	Spring	-113.0	-15.00				
NE	High Springs		1	433	Spring	-113.4	-15.43				
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34				
NE	Mud Spring		1	446	Spring	-111.0	-14.53				
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71				
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14				
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14				
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07				
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37				
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72				
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70				
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12				
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42				
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60				
NE	Lund Spring		1	221	Spring	-113.0	-15.40				Local Valley spring not included in recharge calculation
NE	Water Canyon		2	233	Surface	-116.0	-15.25				Surface Water not included in recharge average
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92				
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87				
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36				
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66				
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96				
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01				
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36				
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98				
NW	Easter Spring		1	365	Spring	-119.4	-15.56				
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52				
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86				
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45				
NW	Secret Spring		1	220	Spring	-110.0	-14.00				
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00				
NW	Stove Spring		1	347	Spring	-114.5	-15.71				
NW	ned Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31				
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10	Surface Water not included in recharge average			
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00	Surface Water not included in recharge average			
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80				
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10				
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88				
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-120.3***	***-15.72***		***Inter-basin flow from Jakes Valley***
ET	**ET**	**22,000**						**-117.0**	**-15.44**		
207S	**GW Outflow (SWRV)**	**29,000**						**-117.0**	**-15.44**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	**South White River Valley**	WRV Tot Recharge									
		38,000									
207N	**Inflow (N White River)**	**29,000**				**-117.0**	**-15.44**				
180	**Inflow (Cave)**	**13,800**				**-106.6**	**-14.28**				
207 SE	Egan Rng South	6,529				-106.9	-14.15			41	
207 SW	Grant Rng	5,735				-106.5	-14.23			42	
TR	**Total Recharge**	**12,300**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20	local Valley spring not included in recharge calculation			
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50	local Valley spring not included in recharge calculation			
E	Flag Spring #3		1	201	Spring	-105.0	-14.30	local Valley spring not included in recharge calculation			
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**	**13**			**-119.2**	**-15.71**	***-117.0***	***-15.44***		***Inter-basin flow from Northern White River Valley***
ET	**ET**	**13,000**						**-112.1**	**-14.87**		
208	**GW Outflow (Pahroc)**	**42,100**						**-112.1**	**-14.87**		
208	GW Outflow (Garden Valley)	0						-112.1	-14.87		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
172	**Inflow (None)**	**0**				**-112.1**	**-14.87**				
172 SW	Quinn Canyon Range	5,348				-104.6	-14.08			171	
172 NW	Grant Range	3,502				-105.6	-14.12			170	
172 NE	Golden Gate Rng	428				-98.0	-13.30			55	
172 SE	Worthington Mountains	723				-98.0	-13.30			56	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
TR	**Total Recharge**	**10,000**				**-104.2**	**-14.00**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85				Evaporated so not used in recharge calculation
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48				Evaporated so not used in recharge calculation
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**2,000**						**-104.2**	**-14.00**		
171	**GW Outflow (Coal)**	**8,000**						**-104.2**	**-14.00**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**8,000**				**-104.2**	**-14.00**				
172	**Inflow (SWRV)**	**0**				**-112.1**	**-14.87**				
171 E	Seaman Rng	631				-98.2	-12.87			75	
171 W	Golden Gate Rng	1,369				-99.0	-13.13			76	
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.05**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				
W	Henry Spring		1	287	Spring	-97.4	-12.77				
W	Little Cut Spring		2	286	Spring	-98.3	-12.85				
E	Seaman Spring		1	306	Spring	-99.0	-13.13				
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.2***	***-14.0***		***Underflow from Garden Valley***
ET	**ET**	**0**						**-103.1**	**-13.81**		
208	**GW Outflow (Pahranagat)**	**10,000**						**-103.1**	**-13.81**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
208	**Pahroc Valley**										
207S	**Inflow (S. White River)**	**42,100**				**-112.1**	**-14.87**				
171	**Inflow (Coal)**	**0**				**0.0**	**0.00**				
208 E	N. Pahroc Rng.	1,019				-94.2	-12.42			73	
208 W	Seaman Rng.	1,181				-99.0	-13.13			74	
TR	**Total Recharge**	**2,200**				**-96.8**	**-12.80**				
E	Black Rock Spring		2	158	Spring	-93.8	-12.31				
E	Coyote Spring		2	169	Spring	-95.1	-12.53				
E	Hamilton Spring		1	298	Spring	-93.1	-11.76				
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
E	Mustang Spring		2	135	Spring	-90.5	-12.49				
E	Pahroc Spring		3	131	Spring	-92.2	-12.65				
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
W	Seaman Spring		1	306	Spring	-99.0	-13.13				
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10				Evaporated not used in recharge calculation
ET	**ET**	**0**						**-111.3**	**-14.77**		
209	**GW Outflow (Pahranagat)**	**44,300**						**-111.3**	**-14.77**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
209	**Pahranagat Valley**										

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
208	**Inflow (Pahroc)**	**44,300**				**-111.3**	**-14.77**				
171	**Inflow (Coal)**	**10,000**				**-103.1**	**-13.81**				
209	**Inflow (Delamar)**	**6,200**				**-97.7**	**-12.96**				
209 E	S. Pahroc Rng.	528				-94.9	-12.83			77, 78	
209 W	Mt. Irish/Pahranagat Rng.	1,272				-98.4	-14.24			79, 80 (172, 173)	
TR	**Total Recharge**	**1,800**				**-97.4**	**-13.83**				
E	Eightmile Spring		2	295	Spring	-95.6	-13.09				
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
E	Sixmile Spring		1	112	Spring	-93.4	-13.06				
E	Twin Spring		1	294	Spring	-97.4	-13.24				
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30				Local Valley spring not included in recharge calculation
W	Reed Spring		1	289	Spring	-98.4	-14.24				
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11				
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20				
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41				
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39				
Warm	**Discharge Warm Springs (Avg)**	**25,400**	**31**			**-108.9**	**-14.26**	***-111.3***	***-14.77***		***Inter-basin flow from Pahroc Valley***
ET	**ET**	**25,000**						**-108.3**	**-14.41**		
Warm	**209M-1**		**1**	**608**	**Deep Well**	**-104.7**	**-13.53**	***-111.3***	***-14.77***		***Inter-basin flow from Pahroc Valley***
210	**GW Outflow (Coyote Spr)**	**37,300**						**-108.3**	**-14.41**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
181	**Dry Lake Valley**										
180	**Inflow (None)**	**0**				**0.0**	**0.00**				
181 NW	S. Schell Ck Range	854				-100.4	-13.21			59	
181 SW	N. Pahroc Rng.	124				-94.2	-12.42			57	
181 NE	Fairview Rng.	1,180				-99.5	-12.89			58	
181 E	Bristol/Highland Rng.	2,567				-98.9	-13.28			61	
181 SE	Burnt Springs Rng.	274				-94.6	-12.36			62	
TR	**Total Recharge**	**5,000**				**-98.9**	**-13.10**				
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
E	Highland Spring		3	163	Spring	-99.1	-13.36				
E	Lime Spring		2	160	Spring	-98.5	-13.16				
E	Pine Spring		2	157	Spring	-99.0	-13.37				
E	Connor Spring		1	283	Spring	-100.6	-13.84				
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30				
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32				
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71				
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
SE	Oak Spring		1	269	Spring	-90.0	-11.87				
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69				
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73				
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
NE	Meloy Spring		1	276	Spring	-99.8	-12.75				
NE	Scotty Spring		1	272	Spring	-98.9	-12.73				
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
NE	Fence Spring		1	278	Spring	-97.4	-12.55				
NE	Fox Cabin		1	273	Spring	-103.5	-13.59				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	Lower Fairview		1	281	Spring	-97.5	-12.39				
NE	Robison Spring		1	279	Spring	-97.9	-12.34				
NE	Upper Fairview		1	280	Spring	-97.7	-12.66				
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31				
SW	Coyote Spring		2	169	Spring	-95.1	-12.53				
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76				
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
SW	Mustang Spring		2	135	Spring	-90.5	-12.49				
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65				
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70				Evaporated so not used in recharge calculation
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-98.9***	***-13.10***		***Local Recharge***
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-98.9***	***-13.10***		***Local Recharge***
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-98.9***	***-13.10***		***Local Recharge***
ET	**ET**	**0**						**-98.9**	**-13.10**		
209	**GW Outflow (Pahranagat)**	**0**						**-98.9**	**-13.10**		
182	**GW Outflow (Delamar)**	**5,000**						**-98.9**	**-13.10**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
182	**Delamar Valley**										
181	**Inflow (Dry Lake)**	**5,000**				**-98.9**	**-13.10**				
182 E	Delamar Mtns.	1,037				-92.5	-12.32			81	
182 W	S. Pahroc Rng.	163				-94.6	-12.81			82	
TR	**Total Recharge**	**1,200**				**-92.7**	**-12.38**				
E	Abandoned Spring		1	266	Spring	-94.5	-12.32				
E	Red Rock Spring		1	256	Spring	-95.0	-12.30				
E	Oak Spring		1	269	Spring	-90.0	-11.87				
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
E	Bishop Spring		3	107	Spring	-87.2	-11.72				
E	Buckboard Spring		1	264	Spring	-88.2	-11.71				
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
W	Pahroc Spring		3	131	Spring	-92.2	-12.65				
W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	iamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
ET	**ET**	**0**						**-97.7**	**-12.96**		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-98.9***	***-13.10***		***Inter-basin flow from Dry Lake Valley***
209	**GW Outflow (Pahranagat)**	**6,200**						**-97.7**	**-12.96**		
210	**GW Outflow (Coyote Spr)**	**0**						**-97.7**	**-12.96**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC
206	**Kane Springs Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
206 W	Delamar Mtns.	563				-89.0	-12.22			90
206 E	Meadow Valley Mtns.	0				-87.4	-11.92			91
TR	**Total Recharge**	**600**				**-89.0**	**-12.22**			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
W	Bishop Spring		3	107	Spring	-87.2	-11.72			
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
ET	**ET**	**0**						**-89.0**	**-12.22**	
210	**GW Outflow (Coyote Spr)**	**600**						**-89.0**	**-12.22**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
210	**Coyote Springs Valley**									
209	**Inflow (Pahranagat)**	**37,300**				**-108.3**	**-14.41**			
182	**Inflow (Delamar)**	**0**				**0.0**	**0.00**			
206	**Inflow (Kane Springs)**	**600**				**-89.0**	**-12.22**			
210 NE	S. Delamar Mtns.	27				-89.0	-12.22			83
210 E	S. Meadow Valley Mtns.	0				-87.4	-11.92			84
210 NW	S. of Maynard Lake	0				-94.0	-12.30			87
210 SE	Arrow Canyon Rng.	4				-81.0	-10.60			88
210 W	Sheep Range	2,007				-92.7	-12.83			89
TR	**Total Recharge**	**2,000**				**-92.6**	**-12.81**			
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53			
W	Lamb Spring		1	86	Spring	-92.5	-13.15			
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67			
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31			
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85			
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35			
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93			
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17	Evaporated not used in recharge calculation		
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30			
SE	Wamp Spring		1	52	Spring	-81.0	-10.60			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
NE	Bishop Spring		3	107	Spring	-87.2	-11.72			
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14			
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10			
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41			
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97			
Carb Well	CSI-1		1	609	Well	-102.6	-13.08			
Carb Well	CSI-2		1	610	Well	-100.2	-12.90			
Carb Well	CSI-3		1	611	Well	-99.6	-13.03			
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55			
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10			
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
ET	**ET**	**500**						**-107.2**	**-14.29**		
CARB	**Carbonate Well (Avg)**		**6**			**-100.7**	**-13.11**	***-107.9***	***-14.37***		***Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys***
219	**GW Outflow (Muddy)**	**39,400**						**-107.2**	**-14.29**		
217	**GW Outflow (Hidden)**	**0**						**0.0**	**0.00**		
216	**GW Outflow (Garnet)**	**0**						**0.0**	**0.00**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**0**				**0.0**	**0.00**				
210	**Inflow (Coyote)**	**39,400**				**-107.2**	**-14.29**				
219 S	E. Arrow Canyon?	0				-87.3	-11.86	Grapevine Sp.		85	
219 N	Wildcat Wash	0				-87.3	-11.86	Grapevine Sp.		86	
TR	**Total Recharge**	**0**				**-87.3**	**-11.86**				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	***-107.2***	***-14.29***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**	**Input into M**	**4**			**-97.9**	**-12.97**	***-107.2***	***-14.29***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**0**						**-107.2**	**-14.29**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**						**-107.2**	**-14.29**		
218	**GW Outflow (California)**	**5,400**						**-107.2**	**-14.29**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**0**				**0.0**	**0.00**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	400				-81.0	-10.60			100	
TR	**Total Recharge**	**400**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-81.0**	**-10.60**		
216	**GW Outflow (Garnet)**	**400**						**-81.0**	**-10.60**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXX	XXXXXXX	XXXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**400**				**-81.0**	**-10.60**				
216 E	Apex	10				-81.0	-10.60			104	
216 W	Las Vegas Range	390				-81.0	-10.60			105	
TR	**Total Recharge**	**400**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		**6**			**-96.9**	**-13.32**	***-81.0***	***-10.60***		***Inter-basin flow from Hidden Valley***
ET	**ET**	**0**						**-81.0**	**-10.60**		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
218	**GW Outflow (California)**	**800**						**-81.0**	**-10.60**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	**California Wash**										
219	**Inflow (LMVW)**	**12,700**				**-98.7**	**-13.20**				
219	**Inflow (Muddy)**	**5,400**				**-107.2**	**-14.29**				
216	**Inflow (Garnet)**	**800**				**-81.0**	**-10.60**				
218	**SW Inflow (Muddy)**	**34,000**									
218 E	Moapa Paiutes	45				-82.0	-10.60			110	
218 W	Muddy Mtns.	55				-82.0	-10.60			111	
TR	**Total Recharge**	**100**				**-82.0**	**-10.60**				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
CARB	**Carbonate Well (Avg)**					**-99.0**	**-13.45**	***-103.8***	***-13.82***	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***	
ET	**ET**	**1,000**						**-100.3**	**-13.38**		
220	**GW Outflow (Lower Moapa)**	**21,300**						**-100.3**	**-13.38**		
215	**GW Outflow (Black Mtn Area)**	**0**						**-100.3**	**-13.38**		
220	**SW Outflow (Lower Moapa)**	**30,700**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	**Black Mountains Area**										
218	**Inflow (California Wash)**	**0**				**-100.3**	**-13.38**				
215 NE	Muddy Mtns.	100				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	**Total Recharge**	**100**				**-85.0**	**-10.95**				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Sprii	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
CARB	**Carbonate Spr (Avg)**	1,700	13			**-91.3**	**-12.01**	***-85.0***	***-10.95***	***Weighted Average of Inflow from Califronia Wash plus recharge from Muddy Mountains***	
ET	**ET**	**0**						**-85.0**	**-10.95**		
999	**GW Outflow (Colorado River)**	**100**						**-85.0**	**-10.95**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	**Lower Moapa Valley**										
219	**Inflow (Muddy)**	**21,300**				**-107.2**	**-14.29**				
218	**SW Inflow (Muddy)**	**30,700**									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	100				-88.3	-12.50			102	
TR	**Total Recharge**	**100**				**-88.3**	**-12.50**				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				
CARB	**Carbonate Well (Avg)**		2			**-91.0**	**-12.58**	***-107.2***	***-14.29***		***Inter-basin flow from Lower Meadow Valley Wash***
ET	**ET**	**24,000**						**-107.1**	**-14.29**		
999	**GW Outflow (Colorado River)**	**21,100**						**-107.1**	**-14.29**		
999	**SW Outflow (Colorado River)**	**7,000**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	**Lake Mead (Colorado River)**										
210	**GW Inflow (Black Mountains Area)**	**0**				**0.0**	**0.00**				
205	**GW Inflow (Lower Moapa)**	**21,100**				-107.1	-14.29				
999	**Groundwater Total**	**21,100**						**-107.1**	**-14.29**		
205	**SW Inflow (Lower Moapa)**	**7,000**									
999	**Surfacewater Total**	**7,000**									
999	**Inflow Total**	**28,100**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	**Lake Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
183 NE	Fortification Rng	1,426				-106.3	-14.16			49	
183 NW	Cen. Schell Cr. Rng	6,436				-108.1	-14.74			51	
183 SE	Wilson Cr. Rng. @ Atlanta	3,974				-104.7	-13.75			50	
183 SW	Fairview Rng.	1,165				-101.1	-13.29			60	
TR	**Total Recharge**	**13,000**				**-106.2**	**-14.24**				
NE	Indian Springs		1	375	Spring	-106.3	-14.16				
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10				
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80				
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50				
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60				
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
SE	Wilson Creek		1	189	Surface	-97.5	-13.20				Surface Water not included in recharge average
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
ET	**ET**	**9,000**						**-106.2**	**-14.24**		
202	**GW Outflow (Patterson)**	**4,000**						**-106.2**	**-14.24**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	**Patterson Valley**										
183	**Inflow (Lake)**	**4,000**				**-106.2**	**-14.24**				
202 E	Wilson Cr. Rng. @ Mt. Wilson	4,059				-97.7	-12.99			47	
202 W	Bristol Rng.	1,941				-99.2	-13.10			48	
TR	**Total Recharge**	**6,000**				**-98.2**	**-13.03**				
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
E	Blue Rock Spring		1	311	Spring	-93.4	-12.68				
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30				
E	Parsnip Spring		1	180	Spring	-93.5	-12.80				
E	Horsethief Spring		2	314	Spring	-97.0	-12.68				
E	Wilson Creek		1	189	Surface	-97.5	-13.20				Surface Water not included in recharge average

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07			
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	**ET**	**100**						**-101.4**	**-13.51**	
203	**GW Outflow (Panaca)**	**9,900**						**-101.4**	**-13.51**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	**Spring Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
201 E	White Rock Mtns.	5,128				-100.9	-13.52			52
201 W	Wilson Cr. Rng. @ Parsnip Pk.	4,872				-97.7	-12.99			53
TR	**Total Recharge**	**10,000**				**-99.4**	**-13.26**			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			
E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**10,000**						**-99.4**	**-13.26**	
200	**GW Outflow (Eagle)**	**0**						**-99.4**	**-13.26**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**0**				**-99.4**	**-13.26**			
200 E	E. Eagle (Ursine) Valley	1,186				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	160				-97.0	-12.68			64
TR	**Total Recharge**	**1,300**				**-98.9**	**-13.20**			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			
E	Newels Spring		1	423	Spring	-96.0	-12.48			
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**1,000**						**-98.9**	**-13.20**		
199	**GW Outflow (Rose)**	**300**						**-98.9**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
199	**Rose Valley**										
200	**Inflow (Eagle)**	**300**				**-98.9**	**-13.20**				
199 E	E. Rose Valley	24				-99.1	-13.28			65	
199 W	W. Rose Valley	7				-97.0	-12.68			66	
TR	**Total Recharge**	**0**				**-98.6**	**-13.14**				
E	Butcher Spring		0	424	Spring	-103.2	-14.22				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		0	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		0	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		0	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**100**						**-98.9**	**-13.20**		
198	**GW Outflow (Dry)**	**200**						**-98.9**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
198	**Dry Valley**										
199	**Inflow (Rose)**	**200**				**-98.9**	**-13.20**				
198 E	E. Dry Valley	1,478				-96.9	-12.99			67	
198 W	W. Dry Valley	0				-97.0	-12.68			68	
TR	**Total Recharge**	**1,500**				**-96.9**	**-12.99**				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		0	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		0	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		0	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-98.9	-13.20		***Inter-basin flow from Dry Valley***
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40				Local Valley spring not included in recharge calculation
ET	**ET**	**1,000**						**-97.1**	**-13.02**		
203	**GW Outflow (Panaca)**	**700**						**-97.1**	**-13.02**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	**Clover Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
204 N	South of Beaver Dam	868				-92.2	-12.42			71	
204 S	North of Jack's Mtn	927				-92.0	-12.52			72	
TR	**Total Recharge**	**1,800**				**-92.1**	**-12.47**				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	**ET**	**0**						**-92.1**	**-12.47**		
205	**GW Outflow (LMVW)**	**1,800**						**-92.1**	**-12.47**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	**Panaca Valley**										
202	**Inflow (Patterson)**	**9,900**				**-101.4**	**-13.51**				
198	**Inflow (Dry)**	**700**				**-97.1**	**-13.02**				
203 E	Condor Canyon	564				-92.0	-12.19			69	
203 W	Cathedral Gorge	1,337				-98.9	-13.28			70	
TR	**Total Recharge**	**1,900**				**-96.8**	**-12.95**				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	***-101.4***	***-13.51***		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	***-106.2***	***-14.24***		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	***-106.2***	***-14.24***		***Inter-basin flow from Lake Valley***
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	**ET**	**2,000**						**-100.5**	**-13.40**		
205	**GW Outflow (LMVW)**	**12,500**						**-100.5**	**-13.40**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**12,500**				**-100.5**	**-13.40**				
204	**Inflow (Clover)**	**1,800**				**-92.1**	**-12.47**				
205 NW	Delamar Mtns.	713				-92.2	-12.28			92	
205 NE	Clover Mountains	589				-90.4	-12.25			93	
205 SW	Meadow Valley Mtns.	0				-87.4	-11.92			94	
205 SE	Mormon Mtns.	146				-88.3	-12.50			95	
TR	**Total Recharge**	**1,400**				**-91.1**	**-12.29**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62			
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NW	Oak Spring		1	269	Spring	-90.0	-11.87			
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30			
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54			
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96			
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69			
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46			
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
SE	Davies Spring		1	90	Spring	-89.0	-12.50			
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70			
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30			
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-99.4*	*-13.28*	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90			
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70			
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50			
ET	**ET**	**1,000**						**-98.7**	**-13.20**	
206	**GW Outflow (Upper Moapa)**	**0**						**-98.7**	**-13.20**	
218	**GW Outflow (California Wash)**	**12,700**						**-98.7**	**-13.20**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

Reconnaissance Series Water Budget

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
175	**Long Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
175 SE	Butte Mtn. (S)	2,379				-119.6	-15.53			35
175 SW	Alligator Rdg.	2,501				-121.7	-15.85			36
175 NW	Maverick Springs	3,911				-123.9	-16.23			37
175 NE	Butte Mtn. (N)	1,509				-119.2	-15.36			164
TR	**Total Recharge**	**10,300**				**-121.7**	**-15.85**			
SE	Butte Spring		1	327	Spring	-120.4	-15.79			
SE	Cabin Spring		1	328	Spring	-124.4	-15.89			
SE	Robbers Roost #2 Spring (Butte)		1	340	Spring	-112.0	-14.39			
SE	Deer Spring (Butte)		1	332	Spring	-114.1	-14.74			
SE	Summit Spring		1	348	Spring	-120.8	-15.94			
SE	Thirty Mile Spring		1	242	Spring	-126.0	-16.40			
NW	Mud Spring (Buck Mts)		1	339	Spring	-117.6	-15.21			
NW	Ram. Res. Wtr Supply Well		1	244	Well	-129.5	-16.75			
NW	Unnamed Near Little Willow Spring		1	351	Spring	-125.9	-17.04			
NW	Well at Alligator Ridge		1	243	Well	-127.0	-16.60			
NW	Woodchuck Spring		1	356	Spring	-119.6	-15.55			
NE	White Rock Spring (Butte)		1	355	Spring	-119.2	-15.36			
ET	**ET**	**2,000**						**-121.7**	**-15.85**	
174	**GW Outflow (Jakes)**	**8,300**						**-121.7**	**-15.85**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
174	**Jakes Valley**									
175	**Inflow (Long)**	**8,300**				**-121.7**	**-15.85**			
174 E	Egan Range	5,404				-118.4	-15.31			33
174 W	North White Pine	11,596				-120.3	-15.83			34
TR	**Total Recharge**	**17,000**				**-119.7**	**-15.66**			
W	Tunnel Spring		1	366	Spring	-118.3	-15.02			
W	Aspen Springs North		1	349	Spring	-119.3	-15.84			
W	Aspen Springs South		1	324	Spring	-120.9	-16.02			
W	Chicken Spring		1	330	Spring	-122.0	-16.17			
W	Circle Wash Spring		1	331	Spring	-114.5	-15.30			
W	Sage Hen Spring		1	342	Spring	-112.4	-14.76			
W	Sand Spring		1	239	Spring	-123.0	-16.20			
W	Shellback Spring		1	344	Spring	-123.6	-16.54			
W	Unnamed Hayden Canyon Spring		1	350	Spring	-120.9	-15.69			
W	Unnamed Shellback Ridge Spring		1	352	Spring	-123.6	-16.18			
W	Wild Horse Spring (White Pine)		1	240	Spring	-129.0	-16.80			
W	Unnamed Stone Cabin Spring		2	354	Spring	-116.2	-15.39			
W/E	Indian Spring (Butte)		1	334	Spring	-119.1	-15.31			
W/E	Sammy Spring		1	343	Spring	-117.6	-15.30			
W	Upper Illipah Crk		2	238	Surface	-123.5	-16.10	Not used in W average		
ET	**ET**	**0**						**-119.7**	**-15.66**	
207N	**GW Outflow (NWRV)**	**25,300**						**-120.3**	**-15.72**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
180	**Cave Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
180 E	S. Schell Cr. Rng	6,220				-105.0	-14.28			43,44
180 W	S. Egan Rng	7,780				-107.8	-14.28			45,46

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
TR	**Total Recharge**	**14,000**				**-106.6**	**-14.28**				
E	North Creek Spring		1	214	Spring	-105.0	-14.60				
E	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
E	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
E	Sheep Spring (Schell Ck)		1	212	Spring	-99.5	-13.70				
E	Robbers Roost Spring (Schell Ck)		1	389	Spring	-109.7	-14.75				
E	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
W	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
W	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
W	Haggerty Spring		1	387	Spring	-109.6	-14.78				
W	Granite Spring		1	440	Spring	-103.4	-13.32				
W	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
W	Silver Spring		2	385	Spring	-111.4	-14.71				
W	Shingle Spring		2	203	Spring	-103.7	-13.33				
W	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
W	Trough Spring		1	413	Spring	-103.6	-13.56				
ET	**ET**	**200**						**-106.6**	**-14.28**		
Well	**180W902**		**1**	**601**	**Deep Well**	**-104.7**	**-14.12**				
Well	**180W501**		**1**	**600**	**Deep Well**	**-105.6**	**-14.12**				
181	**GW Outflow (Dry Lake)**	**0**						**-106.6**	**-14.28**		
207S	**GW Outflow (SWRV)**	**13,800**						**-106.6**	**-14.28**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207N	**North White River Valley**										
174	**Inflow (Jakes)**	**25,300**				**-120.3**	**-15.72**				
207 NE	Egan Rng North	13,009				-112.4	-15.14			38	
207 NW	White Pine Rng.	12,727				-115.0	-15.18			39, 40	
TR	**Total Recharge**	**25,700**	**2**			**-113.7**	**-15.16**				
NE	on Creek Spring (Unnamed Spring in Gubler Canyon		1	235	Spring	-111.0	-14.90				
NE	Hole in the Bank Spring		1	386	Spring	-114.9	-15.37				
NE	Lone Pine Spring		3	223	Spring	-110.2	-14.90				
NE	North Spring		1	237	Spring	-113.0	-15.00				
NE	High Springs		1	433	Spring	-113.4	-15.43				
NE	Lion Spring (Egan Range)		1	430	Spring	-114.8	-15.34				
NE	Mud Spring		1	446	Spring	-111.0	-14.53				
NE	Pine Springs (Egan Range)		1	434	Spring	-116.0	-15.71				
NE	Unnamed Spring #1(Egan)		1	435	Spring	-112.2	-15.14				
NE	Unnamed Spring #2 (Egan Range)		1	436	Spring	-110.0	-15.14				
NE	Unnamed Spring #3 (Egan Range)		1	437	Spring	-110.2	-15.07				
NE	Unnamed Spring #4 (Egan Range)		1	438	Spring	-114.0	-15.37				
NE	Unnamed Spring #5 (Egan Range)		1	445	Spring	-109.6	-14.72				
NE	Second Sawmill Spring		1	222	Spring	-110.0	-14.70				
NE	South Spring (Egan)		2	236	Spring	-111.5	-15.12				
NE	Upper Terrace Spring WR2		14	270	Spring	-114.0	-15.42				
NE	Water Canyon Spring		1	358	Spring	-114.4	-15.60				
NE	Lund Spring		1	221	Spring	-113.0	-15.40				Local Valley spring not included in recharge calculation
NE	Water Canyon		2	233	Surface	-116.0	-15.25				Surface Water not included in recharge average
NW	Big Tom Plain Spring		1	326	Spring	-121.1	-15.92				
NW	Deer Spring (White Pine)		2	322	Spring	-119.3	-15.87				
NW	Unnamed Spring #1 (White Pine)		1	359	Spring	-114.8	-15.36				
NW	Unnamed Spring #2 (White Pine)		1	360	Spring	-114.9	-15.66				
NW	Unnamed Spring #3 (White Pine)		1	361	Spring	-113.1	-14.96				
NW	Unnamed Spring #4 (White Pine)		1	362	Spring	-116.3	-15.01				
NW	Unnamed Spring #5 (White Pine)		3	363	Spring	-116.0	-15.36				
NW	Unnamed Spring #6 (White Pine)		1	364	Spring	-115.1	-14.98				
NW	Easter Spring		1	365	Spring	-119.4	-15.56				
NW	Halfway Spring (RS)		2	429	Spring	-108.7	-13.52				
NW	Little Tom Plain Spring		2	337	Spring	-121.0	-15.86				
NW	Monitoring Spring WR1		14	320	Spring	-113.7	-15.58				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NW	Saddle Spring (White Pine)		3	357	Spring	-116.8	-15.45				
NW	Secret Spring		1	220	Spring	-110.0	-14.00				
NW	Unnamed Spring below Currant Mtn		1	226	Spring	-107.0	-14.00				
NW	Stove Spring		1	347	Spring	-114.5	-15.71				
NW	ıed Spring in dry creek bed (White Pine Range)		1	321	Spring	-113.6	-15.31				
NW	Snowmelt Below Duckwater Peak	5,700	1	224	Surface	-105.0	-14.10	Surface Water not included in recharge average			
NW	Little Currant Creek		1	217	Surface	-113.0	-15.00	Surface Water not included in recharge average			
Warm	Cold Spring, Preston	1,000	2	230	Spring	-123.5	-15.80				
Warm	Nicholas Spring	2,000	1	227	Spring	-124.0	-16.10				
Warm	Preston Big Spring	5,900	11	231	Spring	-122.0	-15.88				
Warm	**Discharge Warm Sprs (Avg)**	**8,900**	**14**			**-122.6**	**-15.92**	***-120.3***	***-15.72***		***Inter-basin flow from Jakes Valley***
ET	**ET**	**22,000**						**-113.7**	**-15.16**		
207S	**GW Outflow (SWRV)**	**29,000**						**-119.5**	**-15.65**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
207S	**South White River Valley**	WRV Tot Recharge									
		38,000									
207N	**Inflow (N White River)**	**29,000**				**-119.5**	**-15.65**				
180	**Inflow (Cave)**	**13,800**				**-106.6**	**-14.28**				
207 SE	Egan Rng South	6,529				-106.9	-14.15			41	
207 SW	Grant Rng	5,735				-106.5	-14.23			42	
TR	**Total Recharge**	**12,300**				**-106.7**	**-14.18**				
E	Chimney Rock Spring		2	219	Spring	-110.5	-14.52				
E	Granite Spring		1	440	Spring	-103.4	-13.32				
E	Haggerty Spring		1	387	Spring	-109.6	-14.78				
E	Silver Spring		2	385	Spring	-111.4	-14.71				
E	Big Spring (Egan)		4	206	Spring	-105.5	-13.90				
E	Shingle Spring		2	203	Spring	-103.7	-13.33				
E	Perry Sp Barcass 37		1	408	Spring	-107.7	-15.04				
E	Trough Spring		1	413	Spring	-103.6	-13.56				
E	Butterfield Spring	4,000	1	202	Spring	-105.0	-14.20	local Valley spring not included in recharge calculation			
E	Emigrant Spring	1,900	2	207	Spring	-107.8	-14.50	local Valley spring not included in recharge calculation			
E	Flag Spring #3		1	201	Spring	-105.0	-14.30	local Valley spring not included in recharge calculation			
SW	Albert Spring		1	204	Spring	-107.0	-13.95				
SW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
SW	Brady Spring		2	282	Spring	-109.5	-15.38				
SW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
SW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
SW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
SW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
SW	Murphy Spring		1	373	Spring	-114.5	-15.40				
SW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48	Evaporated so not used in recharge calculation			
Warm	Hot Creek Campground Well	0	1	198	Well	-118.0	-15.30				
Warm	Hot Creek Springs	10,000	10	197	Spring	-118.9	-15.69				
Warm	Moon River Spring	2,800	1	192	Spring	-120.0	-15.80				
Warm	Moorman Spring	400	1	205	Spring	-119.0	-15.70				
Warm	**Discharge Warm Sprs (Avg)**	**13,200**				**-119.2**	**-15.71**	***-119.5***	***-15.65***		***Inter-basin flow from Northern White River Valley***
ET	**ET**	**13,000**						**-107.2**	**-14.24**		
208	**GW Outflow (Pahroc)**	**42,100**						**-115.3**	**-15.21**		
208	**GW Outflow (Garden Valley)**	**0**						**-115.3**	**-15.21**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	
172	**Garden Valley**										
172	**Inflow (None)**	**0**				**-115.3**	**-15.21**				
172 SW	Quinn Canyon Range	5,348				-104.6	-14.08			170,171	
172 NW	Grant Range	3,502				-106.5	-14.27			170,171	
172 NE	Golden Gate Rng	428				-98.0	-13.30			55	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
172 SE	Worthington Mountains	723				-98.0	-13.30			56	
TR	**Total Recharge**	**10,000**				**-104.5**	**-14.06**				
SW	Unnamed Spring #7 (Quinn)		1	367	Spring	-105.9	-14.23				
SW	Unnamed Spring #8 (Quinn)		1	368	Spring	-104.4	-14.18				
SW	Adaven Spring		2	177	Spring	-105.3	-14.01				
SW	Lower Little Cherry Cr Spring		1	182	Spring	-103.0	-13.90				
SW	Carpenter Spring		1	171	Spring	-95.0	-11.85				Evaporated so not used in recharge calculation
NW	Big Spring (Grant)		1	194	Spring	-112.0	-15.20				
NW	Brady Spring		2	282	Spring	-109.5	-15.38				
NW	Forest Home Spring (Unnamed Spring)		1	195	Spring	-108.5	-14.50				
NW	Horse Spring (Grant)		1	370	Spring	-99.5	-12.86				
NW	Teaspoon Spring		1	371	Spring	-100.0	-13.26				
NW	Wiregrass Spring (Grant)		1	372	Spring	-101.4	-13.29				
NW	Murphy Spring		1	373	Spring	-114.5	-15.40				
NW	Little Spring (Grant Range)		1	369	Spring	-99.4	-12.48				Evaporated so not used in recharge calculation
SE	The Seeps (Spring)		1	136	Spring	-98.0	-13.30				
ET	**ET**	**2,000**						**-104.5**	**-14.06**		
171	**GW Outflow (Coal)**	**8,000**						**-104.5**	**-14.06**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
171	**Coal Valley**										
172	**Inflow (Garden)**	**8,000**				**-104.5**	**-14.06**				
172	**Inflow (SWRV)**	**0**				**-115.3**	**-15.21**				
171 E	Seaman Rng	631				-98.2	-12.87			75	
171 W	Golden Gate Rng	1,369				-99.0	-13.13			76	
TR	**Total Recharge**	**2,000**				**-98.7**	**-13.05**				
W	Cold Spring		1	288	Spring	-98.9	-12.98				
W	Henry Spring		1	287	Spring	-97.4	-12.77				
W	Little Cut Spring		2	286	Spring	-98.3	-12.85				
E	Seaman Spring		1	306	Spring	-99.0	-13.13				
Carb Well	**USGS-MX C.V. Well (CV-DT-1)**		**2**	**176**	**Well**	**-109.0**	**-14.56**	***-104.5***	***-14.06***		***Underflow from Garden Valley***
ET	**ET**	**0**						**-98.7**	**-13.05**		
208	**GW Outflow (Pahranagat)**	**10,000**						**-103.4**	**-13.85**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
208	**Pahroc Valley**										
207S	**Inflow (S. White River)**	**42,100**				**-115.3**	**-15.21**				
171	**Inflow (Coal)**	**0**				**0.0**	**0.00**				
208 E	N. Pahroc Rng.	1,019				-94.2	-12.42			73	
208 W	Seaman Rng.	1,181				-99.0	-13.13			74	
TR	**Total Recharge**	**2,200**	**2**			**-96.8**	**-12.80**				
E	Black Rock Spring		2	158	Spring	-93.8	-12.31				
E	Coyote Spring		2	169	Spring	-95.1	-12.53				
E	Hamilton Spring		1	298	Spring	-93.1	-11.76				
E	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
E	Mustang Spring		2	135	Spring	-90.5	-12.49				
E	Pahroc Spring		3	131	Spring	-92.2	-12.65				
E	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
E	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
W	Seaman Spring		1	306	Spring	-99.0	-13.13				
Evaporated	White Rock Spring (Seaman Range)		1	154	Spring	-90.0	-12.10				Evaporated not used in recharge calculation
ET	**ET**	**0**						**-96.8**	**-12.80**		
209	**GW Outflow (Pahranagat)**	**44,300**						**-114.4**	**-15.09**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
209	**Pahranagat Valley**										

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
208	Inflow (Pahroc)	44,300				-114.4	-15.09				
171	Inflow (Coal)	10,000				-103.4	-13.85				
209	Inflow (Delamar)	6,200				-97.7	-12.96				
209 E	S. Pahroc Rng.	528				-94.9	-12.83			77, 78	
209 W	Mt. Irish/Pahranagat Rng.	1,272				-98.4	-14.24			79, 80 (172, 173)	
TR	Total Recharge	1,800				-97.4	-13.83				
E	Eightmile Spring		2	295	Spring	-95.6	-13.09				
E	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
E	Sixmile Spring		1	112	Spring	-93.4	-13.06				
E	Twin Spring		1	294	Spring	-97.4	-13.24				
E	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
E	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
E	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
S	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30	Local Valley spring not included in recharge calculation			
W	Reed Spring		1	289	Spring	-98.4	-14.24				
Warm	Ash Springs	12400	6	110	Spring	-109.1	-14.11				
Warm	Little Ash Spring (Ash Spring)	500	1	111	Spring	-107.2	-14.20				
Warm	Crystal Springs	8,200	17	116	Spring	-108.8	-14.41				
Warm	Hiko Spring	4,300	7	122	Spring	-108.7	-14.39				
Warm	Discharge Warm Springs (Avg)	25,400	31			-108.9	-14.26	*-114.4*	*-15.09*		*Inter-basin flow from Pahroc Valley*
ET	ET	25,000						-109.9	-14.61		
Well	209M-1		1	608	Deep Well	-104.7	-13.53	*-114.4*	*-15.09*		*Inter-basin flow from Pahroc Valley*
210	GW Outflow (Coyote Spr)	37,300						-110.9	-14.67		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
181	Dry Lake Valley										
180	Inflow (None)	0				0.0	0.00				
181 NW	S. Schell Ck Range	854				-100.4	-13.21			59	
181 SW	N. Pahroc Rng.	124				-94.2	-12.42			57	
181 NE	Fairview Rng.	1,180				-99.5	-12.89			58	
181 E	Bristol/Highland Rng.	2,567				-98.9	-13.28			61	
181 SE	Burnt Springs Rng.	274				-94.6	-12.36			62	
TR	Total Recharge	5,000				-98.9	-13.10				
E	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
E	Highland Spring		3	163	Spring	-99.1	-13.36				
E	Lime Spring		2	160	Spring	-98.5	-13.16				
E	Pine Spring		2	157	Spring	-99.0	-13.37				
E	Connor Spring		1	283	Spring	-100.6	-13.84				
E	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
SE	Red Rock Spring		1	256	Spring	-95.0	-12.30				
SE	Abandoned Spring		1	266	Spring	-94.5	-12.32				
SE	Buckboard Spring		1	264	Spring	-88.2	-11.71				
SE	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
SE	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
SE	Oak Spring		1	269	Spring	-90.0	-11.87				
SE	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
SE	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
SE	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
NE	Bailey Spring (Fairview)		2	277	Spring	-98.2	-12.69				
NE	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
NE	Littlefield Spring		1	275	Spring	-98.5	-12.73				
NE	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
NE	Meloy Spring		1	276	Spring	-99.8	-12.75				
NE	Scotty Spring		1	272	Spring	-98.9	-12.73				
NE	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
NE	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
NE	Fence Spring		1	278	Spring	-97.4	-12.55				
NE	Fox Cabin		1	273	Spring	-103.5	-13.59				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
NE	Lower Fairview		1	281	Spring	-97.5	-12.39				
NE	Robison Spring		1	279	Spring	-97.9	-12.34				
NE	Upper Fairview		1	280	Spring	-97.7	-12.66				
SW	Black Rock Spring		2	158	Spring	-93.8	-12.31				
SW	Coyote Spring		2	169	Spring	-95.1	-12.53				
SW	Hamilton Spring		1	298	Spring	-93.1	-11.76				
SW	Little Boulder Spring		1	301	Spring	-97.2	-13.06				
SW	Mustang Spring		2	135	Spring	-90.5	-12.49				
SW	Pahroc Spring		3	131	Spring	-92.2	-12.65				
SW	Rattlesnake Spring		1	302	Spring	-97.3	-12.65				
SW	Unnamed Spring--nr Blackrock		1	299	Spring	-94.3	-11.90				
NW	Sidehill Spring	1,600	2	200	Spring	-100.4	-13.21				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
Evaporated	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70				Evaporated so not used in recharge calculation
Carb Well	**Fugro Dry Lake V Deep Well**		**2**	**179**	**Well**	**-107.5**	**-14.16**	***-98.9***	***-13.10***		***Local Recharge***
Carb Well	**181M1**		**1**	**603**	**Deep Well**	**-105.0**	**-13.67**	***-98.9***	***-13.10***		***Local Recharge***
Carb Well	**181W909M**		**1**	**604**	**Deep Well**	**-104.6**	**-13.50**	***-98.9***	***-13.10***		***Local Recharge***
ET	**ET**	**0**						**-98.9**	**-13.10**		
209	**GW Outflow (Pahranagat)**	**0**						**-98.9**	**-13.10**		
182	**GW Outflow (Delamar)**	**5,000**						**-98.9**	**-13.10**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
182	**Delamar Valley**										
181	**Inflow (Dry Lake)**	**5,000**				**-98.9**	**-13.10**				
182 E	Delamar Mtns.	1,037				-92.5	-12.32			81	
182 W	S. Pahroc Rng.	163				-94.6	-12.81			82	
TR	**Total Recharge**	**1,200**				**-92.7**	**-12.38**				
E	Abandoned Spring		1	266	Spring	-94.5	-12.32				
E	Red Rock Spring		1	256	Spring	-95.0	-12.30				
E	Oak Spring		1	269	Spring	-90.0	-11.87				
E	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96				
E	Upper Indian Spring		1	268	Spring	-88.0	-11.46				
E	Lower Indian Spring		1	267	Spring	-96.0	-12.62				
E	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47				
E	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47				
E	Bishop Spring		3	107	Spring	-87.2	-11.72				
E	Buckboard Spring		1	264	Spring	-88.2	-11.71				
E	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
E	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98				
E	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58				
E	Sawmill Spring West		1	258	Spring	-91.8	-12.86				
E	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95				
E	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54				
E	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69				
W	Pahroc Spring		3	131	Spring	-92.2	-12.65				
W	Gulch Spring(Unnamed Spring in Hells Acres Gulch)		1	109	Spring	-93.0	-12.30				
W	Sixmile Spring		1	112	Spring	-93.4	-13.06				
W	Eightmile Spring		2	295	Spring	-95.6	-13.09				
W	Twin Spring		1	294	Spring	-97.4	-13.24				
W	ıamed Spring in Road(South Pahroc Range)		1	303	Spring	-96.7	-13.07				
W	Unnamed Spring nr Six Mile seep		1	296	Spring	-94.5	-12.62				
W	Water Tank 0.4mi West of Sixmile		1	297	Spring	-93.8	-12.44				
Evaporated	Grassy Spring		3	117	Spring	-88.7	-11.08				Evaporated so not used in recharge calculation
ET	**ET**	**0**						**-92.7**	**-12.38**		
Well	**182W906M**		**1**	**607**	**Deep Well**	**-100.3**	**-13.33**	***-98.9***	***-13.10***		***Inter-basin flow from Dry Lake Valley***
209	**GW Outflow (Pahranagat)**	**6,200**						**-97.7**	**-12.96**		
210	**GW Outflow (Coyote Spr)**	**0**						**-97.7**	**-12.96**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
206	**Kane Springs Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
206 W	Delamar Mtns.	563				-89.0	-12.22			90
206 E	Meadow Valley Mtns.	0				-87.4	-11.92			91
TR	**Total Recharge**	**600**				**-89.0**	**-12.22**			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
W	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
W	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
W	Bishop Spring		3	107	Spring	-87.2	-11.72			
W	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
W	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
W	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
W	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
W	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
ET	**ET**	**0**						**-89.0**	**-12.22**	
210	**GW Outflow (Coyote Spr)**	**600**						**-89.0**	**-12.22**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXXX	XXXXXXX	XXXXXX	XXXXXXX	XXXXXX	XXXXXX
210	**Coyote Springs Valley**									
209	**Inflow (Pahranagat)**	**37,300**				**-110.9**	**-14.67**			
182	**Inflow (Delamar)**	**0**				**0.0**	**0.00**			
206	**Inflow (Kane Springs)**	**600**				**-89.0**	**-12.22**			
210 NE	S. Delamar Mtns.	27				-89.0	-12.22			83
210 E	S. Meadow Valley Mtns.	0				-87.4	-11.92			84
210 NW	S. of Maynard Lake	0				-94.0	-12.30			87
210 SE	Arrow Canyon Rng.	4				-81.0	-10.60			88
210 W	Sheep Range	2,007				-92.7	-12.83			89
TR	**Total Recharge**	**2,000**				**-92.6**	**-12.81**			
W	Cow Camp Spring		4	47	Spring	-91.9	-12.53			
W	Lamb Spring		1	86	Spring	-92.5	-13.15			
W	Mormon Well Spring		3	53	Spring	-91.8	-12.67			
W	Rye Patch Spring		1	341	Spring	-89.3	-12.31			
W	Sawmill Spring (Sheep)		1	58	Spring	-92.0	-12.85			
W	Sheep Spring (Sheep Range)		1	83	Spring	-96.0	-13.35			
W	Wiregrass Spring (Sheep)		13	49	Spring	-95.1	-12.93			
W	White Rock Spring (Sheep)		2	64	Spring	-85.5	-10.17	Evaporated not used in recharge calculation		
NW	Maynard Lake Spring (Unnamed Spring)		1	94	Spring	-94.0	-12.30			
SE	Wamp Spring		1	52	Spring	-81.0	-10.60			
E	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
NE	Bishop Spring		3	107	Spring	-87.2	-11.72			
NE	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
NE	Kane Springs (KSV-3)		3	97	Spring	-86.8	-12.13			
NE	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NE	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NE	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NE	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
NE	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
Carb Well	CSVM-2		1	612	Well	-97.7	-13.14			
Carb Well	CSVM-3		1	613	Well	-98.0	-13.10			
Carb Well	CSVM-4		1	614	Well	-102.5	-13.41			
Carb Well	CSVM-6		1	616	Well	-100.7	-12.97			
Carb Well	CSI-1		1	609	Well	-102.6	-13.08			
Carb Well	CSI-2		1	610	Well	-100.2	-12.90			
Carb Well	CSI-3		1	611	Well	-99.6	-13.03			
Carb Well	USGS CSV-1		1	71	Well	-103.0	-13.55			
Carb Well	CE-VF-2 Well		2	81	Well	-101.0	-13.10			
Carb Well	Fugro CV Deep Well CE-DT-5		3	77	Well	-99.6	-12.96			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
Carb Well	CE-DT-4		1	78	Well	-102.5	-13.00				
CARB	**Carbonate Well (Avg)**		**6**			**-100.7**	**-13.11**	**-110.5**	**-14.63**		Flow weighted average of inter-basin flow from Pahranagat, Kane Springs, and Delamar Valleys
ET	**ET**	**500**						**-92.6**	**-12.81**		
219	**GW Outflow (Muddy)**	**39,400**						**-109.8**	**-14.56**		
217	**GW Outflow (Hidden)**	**0**						**-109.8**	**-14.56**		
216	**GW Outflow (Garnet)**	**0**						**-109.8**	**-14.56**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
219	**Upper Moapa (Muddy) Valley**										
205	**Inflow (LMVW)**	**0**				**0.0**	**0.00**				
210	**Inflow (Coyote)**	**39,400**				**-109.8**	**-14.56**				
219 S	E. Arrow Canyon?	0				-87.3	-11.86	Grapevine Sp.		85	
219 N	Wildcat Wash	0				-87.3	-11.86	Grapevine Sp.		86	
TR	**Total Recharge**	**0**				**-87.3**	**-11.86**				
Warm	APCAR	0	1	292	Spring	-98.2	-12.94				
Warm	Baldwin Spring	2226	9	291	Spring	-97.6	-12.97				
Warm	Big Muddy Spring	5500	6	69	Spring	-97.9	-12.89				
Warm	Iverson's Spring	0	1	65	Spring	-97.0	--				
Warm	Jones Spring Pumphouse	0	6	292	Spring	-97.9	-13.05				
Warm	M-8 Spring (Unnamed Spring)	0	1	68	Spring	-99.0	-12.75				
Warm	M-9 Spring (Unnamed Spring)	200	1	70	Spring	-96.5	-12.45				
Warm	Pederson's East	0	9	290	Spring	-97.8	-12.98				
Warm	Pederson's Warm Spring (M-13)	400	15	67	Spring	-97.5	-12.93				
Warm	**Dicharge Warm Sprs (Avg)**	**8,300**	**49**			**-97.8**	**-12.90**	***-109.8***	***-14.56***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
Carb Well	CE-DT-6 Well		2	72	Well	-98.0	-13.03				
Carb Well	CSV-2 Well		2	76	Well	-97.9	-12.92				
CARB	**Deep Carbonate Well (Avg)**	**Input into M**	**4**			**-97.9**	**-12.97**	***-109.8***	***-14.56***		***Flow weighted average of inter-basin flow from Coyote and Lower Meadow Valley Wash Valleys***
ET	**ET**	**0**						**-87.3**	**-11.86**		
Gage	**Moapa Gage**	**34,000**									
218	**SW Outflow (California)**	**34,000**						**-109.8**	**-14.56**		
218	**GW Outflow (California)**	**5,400**						**-109.8**	**-14.56**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
217	**Hidden Valley**										
210	**Inflow (Coyote)**	**0**				**-109.8**	**-14.56**				
217 E	E. Hidden	0				-81.0	-10.60			99	
217 W	W. Hidden	400				-81.0	-10.60			100	
TR	**Total Recharge**	**400**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
ET	**ET**	**0**						**-81.0**	**-10.60**		
216	**GW Outflow (Garnet)**	**400**						**-81.0**	**-10.60**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
216	**Garnet Valley**										
217	**Inflow (Hidden)**	**400**				**-81.0**	**-10.60**				
216 E	Apex	10				-81.0	-10.60			104	
216 W	Las Vegas Range	390				-81.0	-10.60			105	
TR	**Total Recharge**	**400**				**-81.0**	**-10.60**				
W	Wamp Spring		1	52	Spring	-81.0	-10.60				
	Dry Lake Valley Well		1	34	Well	-97.5	-13.30				
Carb Well	GP Apex Well		3	17	Well	-97.2	-13.53				
Carb Well	Unnamed Well (Near Dry Lake Range)		1	24	Well	-96.0	-13.70				
Carb Well	US Lime Well (Genstar)		1	27	Well	-97.0	-12.75				
CARB	**Wells (Avg)**		**6**			**-96.9**	**-13.32**	***-81.0***	***-10.60***		***Inter-basin flow from Hidden Valley***
ET	**ET**	**0**						**-81.0**	**-10.60**		

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
218	GW Outflow (California)	800						-81.0	-10.60		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
218	California Wash										
219	Inflow (LMVW)	12,700				-99.8	-13.33				
219	Inflow (Muddy)	5,400				-109.8	-14.56				
216	Inflow (Garnet)	800				-81.0	-10.60				
218	SW Inflow (Muddy)	34,000									
218 E	Moapa Paiutes	45				-82.0	-10.60			110	
218 W	Muddy Mtns.	55				-82.0	-10.60			111	
TR	Total Recharge	100				-82.0	-10.60				
W	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Carb Well	Calpine Test Well 1a		1	43	Well	-99.0	-13.50				
Carb Well	Moapa Well		1	41	Well	-99.0	-13.40				
CARB	Carbonate Well (Avg)					-99.0	-13.45	*-106.1*	*-14.05*		*Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys*
ET	ET	1,000						-99.9	-13.3		
220	GW Outflow (Lower Moapa)	21,300						-101.9	-13.57		
215	GW Outflow (Black Mtn Area)	0						-101.9	-13.57		
220	SW Outflow (Lower Moapa)	30,700									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
215	Black Mountains Area										
218	Inflow (California Wash)	0				-101.9	-13.57				
215 NE	Muddy Mtns.	100				-85.0	-10.95			113	
215 SE	Black Mtns.	0				-79.5	-10.65			114	
215 W	Gypsum Wash	0				-79.5	-10.65			112, 166	
TR	Total Recharge	100				-85.0	-10.95				
SE	Cottonwood Spring (Black Mtns.)	0	1	8	Spring	-80.0	-10.80				
SE	Sandstone Spring	0	1	10	Spring	-79.0	-10.50				
NE	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
NE	Valley of Fire Well		1	31	Well	-82.0	-10.60				
Alluvial Sprii	Bitter Spring	5	1	14	Spring	-77.0	-9.90				
Carb Spr	Blue Point Spring	440	5	26	Spring	-92.6	-12.40				
Carb Spr	Corral Spring (Unnamed Spring)	0	1	19	Spring	-91.5	-12.10				
Carb Spr	Rogers Spring	1,200	3	21	Spring	-91.7	-12.33				
Carb Spr	Scirpus Spring (No spring on Map)	0	1	20	Spring	-90.0	-12.00				
Carb Spr	VF Spring 1	0	1	28	Spring	-88.0	-11.20				
Carb Spr	VF Spring 2	6	1	29	Spring	-92.0	-11.80				
Carb Spr	VF Spring 3	17	1	30	Spring	-93.0	-12.20				
CARB	Carbonate Spr (Avg)	1,700	13			-91.3	-12.01	*-85.0*	*-10.95*		*Weighted Average of Inflow from Califronia Wash plus recharge from Muddy Mountains*
ET	ET	0						-85.0	-10.95		
999	GW Outflow (Colorado River)	100						-85.0	-10.95		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
220	Lower Moapa Valley										
219	Inflow (Muddy)	21,300				-101.9	-13.57				
218	SW Inflow (California Wash)	30,700									
220 S	Valley of Fire	0				-88.0	-11.30			101	
220 N	S. Mormon Mtns.	100				-88.3	-12.50			102	
TR	Total Recharge	100				-88.3	-12.50				
N	Davies Spring		1	90	Spring	-89.0	-12.50				
N	Hackberry Spring		1	84	Spring	-87.0	-12.30				
N	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70				
S	Unnamed, Kaolin Wash		1	35	Spring	-88.0	-11.30				
Carb Well	EH-7		1	56	Well	-91.0	-12.45				
Carb Well	EH-3 Weiser Wash		1	61	Well	-91.0	-12.70				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
CARB	Carbonate Well (Avg)		2			-91.0	-12.58	*-101.9*	*-13.57*		***Inter-basin flow from Lower Meadow Valley Wash***
ET	**ET**	**24,000**						**-101.8**	**-13.56**		
999	**GW Outflow (Colorado River)**	**19,100**						**-101.9**	**-13.57**		
999	**SW Outflow (Colorado River)**	**9,000**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Colorado R	**Lake Mead (Colorado River)**										
210	**GW Inflow (Black Mountains Area)**	**100**				**-85.0**	**-10.95**				
205	**GW Inflow (Lower Moapa)**	**19,100**				**-101.9**	**-13.57**				
999	**Groundwater Total**	**19,200**						**-101.8**	**-13.55**		
205	**SW Inflow (Lower Moapa)**	**9,000**									
999	**Surfacewater Total**	**9,000**									
999	**Inflow Total**	**28,200**									
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
183	**Lake Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
183 NE	Fortification Rng	1,426				-106.3	-14.16			49	
183 NW	Cen. Schell Cr. Rng	6,436				-108.1	-14.74			51	
183 SE	Wilson Cr. Rng. @ Atlanta	3,974				-104.7	-13.75			50	
183 SW	Fairview Rng.	1,165				-101.1	-13.29			60	
TR	**Total Recharge**	**13,000**				**-106.2**	**-14.24**				
NE	Indian Springs		1	375	Spring	-106.3	-14.16				
NW	Big Spring North	700	1	211	Spring	-112.0	-15.10				
NW	Big Spring South	1,600	1	210	Spring	-111.0	-14.80				
NW	Geyser Spring	340	1	213	Spring	-105.0	-14.50				
NW	North Creek Spring	1,200	1	214	Spring	-105.0	-14.60				
NW	Patterson Pass Spring WR3		15	305	Spring	-108.4	-14.95				
NW	Unnamed Spring in Schell Creek Range		4	304	Spring	-107.3	-14.48				
SE	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
SE	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
SE	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average			
SW	Cottonwood Spring (Fairview)		1	274	Spring	-102.2	-13.40				
SW	Lower Pony Spring		2	190	Spring	-101.0	-13.25				
SW	Indian Spring near Steward Ranch		1	188	Spring	-102.0	-13.60				
SW	Unnamed Spring near Pony Spring		1	191	Spring	-99.0	-12.90				
ET	**ET**	**9,000**						**-106.2**	**-14.24**		
202	**GW Outflow (Patterson)**	**4,000**						**-106.2**	**-14.24**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
202	**Patterson Valley**										
183	**Inflow (Lake)**	**4,000**				**-106.2**	**-14.24**				
202 E	Wilson Cr. Rng. @ Mt. Wilson	4,059				-97.7	-12.99			47	
202 W	Bristol Rng.	1,941				-99.2	-13.10			48	
TR	**Total Recharge**	**6,000**				**-98.2**	**-13.03**				
E	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93				
E	Blue Rock Spring		1	311	Spring	-93.4	-12.68				
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57				
E	Upper Tower Spring		1	312	Spring	-93.3	-12.30				
E	Parsnip Spring		1	180	Spring	-93.5	-12.80				
E	Horsethief Spring		2	314	Spring	-97.0	-12.68				
E	Wilson Creek		1	189	Surface	-97.5	-13.20	Surface Water not included in recharge average			
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
W	Highland Spring		3	163	Spring	-99.1	-13.36			
W	Lime Spring		2	160	Spring	-98.5	-13.16			
W	Pine Spring		2	157	Spring	-99.0	-13.37			
W	Upper Conner Spring		1	156	Spring	-102.3	-13.88			
W	Connor Spring		1	283	Spring	-100.6	-13.84			
W	Fox Cabin		1	273	Spring	-103.5	-13.59			
W	Scotty Spring		1	272	Spring	-98.9	-12.73			
W	Upper Fairview		1	280	Spring	-97.7	-12.66			
W	Lower Fairview		1	281	Spring	-97.5	-12.39			
W	Wildhorse Spring (Fairview)		1	183	Spring	-92.5	-11.70	Evaporated so not used in recharge calculation		
W	McDermitt Spring		1	323	Spring	-94.3	-11.21	Evaporated so not used in recharge calculation		
ET	**ET**	**100**						**-98.2**	**-13.03**	
203	**GW Outflow (Panaca)**	**9,900**						**-101.5**	**-13.52**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
201	**Spring Valley**									
0	**Inflow (None)**	**0**				**0.0**	**0.00**			
201 E	White Rock Mtns.	5,128				-100.9	-13.52			52
201 W	Wilson Cr. Rng. @ Parsnip Pk.	4,872				-97.7	-12.99			53
TR	**Total Recharge**	**10,000**				**-99.4**	**-13.26**			
E	Barrel Spring		1	317	Spring	-100.5	-13.36			
E	anyon Spring (Unnamed Spring in Burnt Canyon)		1	187	Spring	-93.0	-12.30			
E	Lion Spring		1	318	Spring	-103.4	-14.11			
E	South Monument Spring		1	319	Spring	-102.3	-14.23			
E	Jnnamed Spring nr Redd's Cabin Summit		2	173	Spring	-94.4	-12.44			
E	Ripgut Sp #40		1	411	Spring	-106.4	-14.38			
E	Unnamed Spring #1(White Rock Mts)		1	415	Spring	-109.6	-15.05			
E	Unnamed Spring #2 (White RockMts)		1	417	Spring	-97.0	-13.00			
E	Upper Burnt Canyon Spring		1	416	Spring	-97.6	-12.83			
E	Upper Burnt Canyon Spring #2		1	416	Spring	-103.6	-13.66			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Unnamed Spring in Miller Canyon		1	313	Spring	-103.7	-14.27			
E	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Blue Rock Spring		1	311	Spring	-93.4	-12.68			
W	Headwaters Spring WR5		17	309	Spring	-107.3	-14.57			
W	Bailey Spring (Wilson Ck)		1	310	Spring	-102.0	-12.93			
W	Horsethief Spring		2	314	Spring	-97.0	-12.68			
W	Parsnip Spring		1	180	Spring	-93.5	-12.80			
W	Upper Tower Spring		1	312	Spring	-93.3	-12.30			
Surface	Camp Creek		1	184	Surface	-102.0	-14.00	Surface Water not included in recharge average		
Surface	MVW above Eagle Canyon		1	168	Surface	-93.0	-12.00	Surface Water not included in recharge average		
ET	**ET**	**10,000**						**-99.4**	**-13.26**	
200	**GW Outflow (Eagle)**	**0**						**-99.4**	**-13.26**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXX	XXXXX	XXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
200	**Eagle Valley**									
201	**Inflow (Spring)**	**0**				**-99.4**	**-13.26**			
200 E	E. Eagle (Ursine) Valley	1,186				-99.1	-13.28			63
200 W	W. Eagle (Ursine) Valley	160				-97.0	-12.68			64
TR	**Total Recharge**	**1,300**				**-98.9**	**-13.20**			
E	Tobe Spring		1	315	Spring	-100.0	-13.04			
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09			
E	Butcher Spring		1	424	Spring	-103.2	-14.22			

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC	
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		1	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		1	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		1	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**1,000**						**-98.9**	**-13.20**		
199	**GW Outflow (Rose)**	**300**						**-98.9**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
199	**Rose Valley**										
200	**Inflow (Eagle)**	**300**				**-98.9**	**-13.20**				
199 E	E. Rose Valley	24				-99.1	-13.28			65	
199 W	W. Rose Valley	7				-97.0	-12.68			66	
TR	**Total Recharge**	**0**				**-98.6**	**-13.14**				
E	Butcher Spring		0	424	Spring	-103.2	-14.22				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		0	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		0	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		0	420	Spring	-100.4	-13.68				
E	Tobe Spring		1	315	Spring	-100.0	-13.04				
E	Tobe Spring 2		1	316	Spring	-93.6	-12.09				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
ET	**ET**	**100**						**-98.6**	**-13.14**		
198	**GW Outflow (Dry)**	**200**						**-98.9**	**-13.20**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
198	**Dry Valley**										
199	**Inflow (Rose)**	**200**				**-98.9**	**-13.20**				
198 E	E. Dry Valley	1,478				-96.9	-12.99			67	
198 W	W. Dry Valley	0				-97.0	-12.68			68	
TR	**Total Recharge**	**1,500**				**-96.9**	**-12.99**				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
E	Newels Spring		1	423	Spring	-96.0	-12.48				
E	Ox Valley Spring		0	422	Spring	-100.0	-13.95				
E	Unnamed Spring #2 (Mahogany Mts)		0	421	Spring	-100.7	-13.47				
E	Water Canyon Spring (Mahogany)		0	420	Spring	-100.4	-13.68				
W	Horsethief Spring		2	314	Spring	-97.0	-12.68				
Warm Sprin	Flatnose Spring (Unnamed Spring)		1	153	Spring	-101.0	-13.40	-98.9	-13.20		***Inter-basin flow from Dry Valley***
Spring	Delmues Spring (Unnamed Spring)		1	149	Spring	-104.0	-13.40				Local Valley spring not included in recharge calculation
ET	**ET**	**1,000**						**-96.9**	**-12.99**		
203	**GW Outflow (Panaca)**	**700**						**-97.4**	**-13.05**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
204	**Clover Valley**										
0	**Inflow (None)**	**0**				**0.0**	**0.00**				
204 N	South of Beaver Dam	868				-92.2	-12.42			71	
204 S	North of Jack's Mtn	927				-92.0	-12.52			72	
TR	**Total Recharge**	**1,800**				**-92.1**	**-12.47**				
N	Acoma Well		1	118	Well	-95.0	-12.60				
N	Cave Spring (Clover)		2	247	Spring	-92.8	-12.37				
N	Clover Creek Valley Well 246		1	120	Well	-89.0	-12.40				
N	Ramone Mathews Well		1	115	Well	-92.0	-12.30				
S	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
S	East Settling Spring		1	248	Spring	-92.2	-12.76				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. $\delta^{18}O$	Calc. δD	Calc. $\delta^{18}O$	IC	
S	Ella Spring		1	251	Spring	-95.8	-12.56				
S	Little Springs (Clover Mts)		2	254	Spring	-93.3	-12.81				
S	Quaking Aspen Spring		1	255	Spring	-93.6	-12.98				
S	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
S	Unnamed Spring		1	113	Spring	-86.5	-11.60				
Alluvial Well	Clover Creek Valley Well 232		1	114	Well	-84.0	-11.70				
ET	**ET**	**0**						**-92.1**	**-12.47**		
205	**GW Outflow (LMVW)**	**1,800**						**-92.1**	**-12.47**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
203	**Panaca Valley**										
202	**Inflow (Patterson)**	**9,900**				**-101.5**	**-13.52**				
198	**Inflow (Dry)**	**700**				**-97.4**	**-13.05**				
203 E	Condor Canyon	564				-92.0	-12.19			69	
203 W	Cathedral Gorge	1,337				-98.9	-13.28			70	
TR	**Total Recharge**	**1,900**				**-96.8**	**-12.95**				
W	Connor Spring		1	283	Spring	-100.6	-13.84				
W	Deadman Spring (Highland)		2	162	Spring	-95.0	-12.07				
W	Highland Spring		3	163	Spring	-99.1	-13.36				
W	Lime Spring		2	160	Spring	-98.5	-13.16				
W	Pine Spring		2	157	Spring	-99.0	-13.37				
W	Upper Conner Spring		2	156	Spring	-101.2	-13.87				
E	Kiln Spring		1	418	Spring	-91.9	-12.34				
E	Summit Spring (Mahogany Mts.)		1	419	Spring	-92.1	-12.04				
Warm	Bennett Spring	20	1	141	Spring	-103.0	-13.70	***-101.5***	***-13.52***		***Inter-basin flow from Patterson Valley***
Warm	Caliente Hot Springs (Hotel)	0	8	129	Spring	-107.9	-14.44	***-106.2***	***-14.24***		***Inter-basin flow from Lake Valley***
Warm	Panaca Spring	7700	13	144	Spring	-106.9	-14.14	***-106.2***	***-14.24***		***Inter-basin flow from Lake Valley***
Surface	Meadow Valley Wash, Cal.		1	130	Surface	-97.0	-13.10				
Warm	Lester Mathews Well		1	142	Well	-103.0	-13.30				
Warm	Panaca Town Well		1	143	Well	-106.0	-14.00				
Warm	North Lee Well		1	147	Well	-101.0	-13.30				
ET	**ET**	**2,000**						**-97.1**	**-12.98**		
205	**GW Outflow (LMVW)**	**12,500**						**-101.2**	**-13.49**		
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXX	XXXXXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	
205	**Lower Meadow Valley Wash**										
203	**Inflow (Panaca)**	**12,500**				**-101.2**	**-13.49**				
204	**Inflow (Clover)**	**1,800**				**-92.1**	**-12.47**				
205 NW	Delamar Mtns.	713				-92.2	-12.28			92	
205 NE	Clover Mountains	589				-90.4	-12.25			93	
205 SW	Meadow Valley Mtns.	0				-87.4	-11.92			94	
205 SE	Mormon Mtns.	146				-88.3	-12.50			95	
TR	**Total Recharge**	**1,400**				**-91.1**	**-12.29**				
NE	Big Spring (Clover)		2	253	Spring	-93.6	-12.89				
NE	East Settling Spring		1	248	Spring	-92.2	-12.76				
NE	Ella Spring		1	251	Spring	-95.8	-12.56				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NE	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11				
NE	Sheep Spring (Clover)		2	108	Spring	-88.8	-12.03				
NE	Unnamed Spring		1	113	Spring	-86.5	-11.60				
NE	Unnamed Spring (Clover)		1	249	Spring	-88.0	-12.20				
NE	Garden Spring		1	246	Spring	-87.0	-11.54				
NW	Abandoned Spring		1	266	Spring	-94.5	-12.32				
NW	Grassy Spring		3	117	Spring	-88.7	-11.08	Evaporated so not used in recharge calculation			
NW	Buckboard Spring		1	264	Spring	-88.2	-11.71				
NW	Cottonwood Spring (Delamar)		1	265	Spring	-96.9	-12.87				
NW	Bishop Spring		3	107	Spring	-87.2	-11.72				

Region	Name	Volume Arce-ft/yr	# of Samples	Site#	Site Type	Obs. δD	Obs. δ18O	Calc. δD	Calc. δ18O	IC
NW	Boulder Spring (KSV-4)		4	98	Spring	-89.2	-12.47			
NW	Lower Chokecherry Spring		1	261	Spring	-98.4	-12.98			
NW	Lower Indian Spring		1	267	Spring	-96.0	-12.62			
NW	Narrow Canyon Spring		1	257	Spring	-92.5	-12.47			
NW	Oak Spring		1	269	Spring	-90.0	-11.87			
NW	Red Rock Spring		1	256	Spring	-95.0	-12.30			
NW	Willow Spring (KSV-1)		4	92	Spring	-88.4	-11.60			
NW	Sawmill Spring (Delamar Range)		1	259	Spring	-88.7	-12.58			
NW	Sawmill Spring West		1	258	Spring	-91.8	-12.86			
NW	Unnamed Chokecherry Spring		1	263	Spring	-98.1	-12.54			
NW	Upper Chokecherry Spring		1	262	Spring	-98.9	-12.96			
NW	Willow Spring 2 (So.of Oak Sps.summit)		1	260	Spring	-91.2	-11.69			
NW	Upper Indian Spring		1	268	Spring	-88.0	-11.46			
NW	Upper Riggs Spring WR4		5	105	Spring	-87.1	-11.95			
SW	Grapevine Spring (KSV-2)		10	93	Spring	-87.4	-11.92			
SE	Davies Spring		1	90	Spring	-89.0	-12.50			
SE	Horse Spring (Morman)		1	85	Spring	-89.0	-12.70			
SE	Hackberry Spring		1	84	Spring	-87.0	-12.30			
Warm	Kershaw-Ryan Spring #1		1	250	Spring	-95.1	-13.11	*-100.0*	*-13.36*	***Weighted Average of Infterbasin flow from Garnet and Upper Moapa Valleys***
Warm	EH-6 Weiser Wash		1	59	Well	-99.5	-13.90			
Warm	EH-8 Weiser Wash		1	57	Well	-96.5	-13.70			
Alluvial Well	Railroad Well (Farrier, NV)		1	80	Well	-97.5	-12.50			
ET	**ET**	**1,000**						**-91.1**	**-12.29**	
206	**GW Outflow (Upper Moapa)**	**0**						**-99.8**	**-13.33**	
218	**GW Outflow (California Wash)**	**12,700**						**-99.8**	**-13.33**	
XXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXX	XXXXXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXXX	XXXXXX

APPENDIX 3. Isotopic, field parameter, and water chemistry data for all sites used in this study

Name	Y	X	Water Temp ©	DO (mg/L)	pH	dO18	dD	Ca	Mg	Na	K	Cl	HCO3	SO4	SiO2	F	Sample#	Total	REF_ID	SiteType	Site#	Date
Abandoned Spring	37.49914	-114.72889	10.2	7.7	7.8	-12.32	-94.5	81.0	20.0	50.0	2.3	35.2	357.0	41.8	27.8	--	59699	1		Spring	266	03/26/04
Abandoned Spring	**37.49914**	**-114.72889**	**10.2**	**7.7**	**7.8**	**-12.32**	**-94.5**	**81.0**	**20.0**	**50.0**	**2.3**	**35.2**	**357.0**	**41.8**	**27.8**	**--**	**59699**	**1**		**Spring**	**266**	**03/26/04**
Acoma Well	37.54861	-114.17306	17.0		7.7	-12.60	-95.0	38.0	5.3	21.0	7.0	17.0	149.0	10.0	54.0	0.3	244	1	GS91	Well	118	06/03/85
Acoma Well	**37.54861**	**-114.17306**	**17.0**		**7.7**	**-12.60**	**-95.0**	**38.0**	**5.3**	**21.0**	**7.0**	**17.0**	**149.0**	**10.0**	**54.0**	**0.3**	**244**	**1**	**GS91**	**Well**	**118**	**06/03/85**
Adaven Spring	38.13861	-115.60139	12.5	6.9	7.5	-13.95	-103.0	63.0	25.0	14.0	2.2	4.8	324.0	18.0	28.0	0.2	341	1	GS131	Spring	177	07/31/85
Adaven Spring	38.13861	-115.60139	9.9		7.1	-14.07	-107.6						358.0				340	1	IT115	Spring	177	02/03/97
Adaven Spring	**38.13861**	**-115.60139**	**11.2**	**6.9**	**7.3**	**-14.01**	**-105.3**	**63.0**	**25.0**	**14.0**	**2.2**	**4.8**	**341.0**	**18.0**	**28.0**	**0.2**		**2**		**Spring**	**177**	
Alamo City Well #7	37.36222	-115.16833	18.5		7.6	-13.46	-101.1	61.4	56.0	96.3	13.7	54.6	454.0	188.0	59.1	1.3	205	1	IT116	Well	104	08/08/95
Alamo City Well #7	**37.36222**	**-115.16833**	**18.5**		**7.6**	**-13.46**	**-101.1**	**61.4**	**56.0**	**96.3**	**13.7**	**54.6**	**454.0**	**188.0**	**59.1**	**1.3**	**205**	**1**	**IT116**	**Well**	**104**	**08/08/95**
Albert Spring	38.56833	-115.36167	14.5			-13.95	-107.0										403	1	GS182	Spring	204	07/24/85
Albert Spring	**38.56833**	**-115.36167**	**14.5**			**-13.95**	**-107.0**										**403**	**1**	**GS182**	**Spring**	**204**	**07/24/85**
APCAR	36.71099	-114.71682	--	--	--	-12.94	-98.2	62.9	27.2	95.0	11.2	62.1	257.0	176.0	31.6	--	61616	1		Spring	292	10/19/04
APCAR	**36.71099**	**-114.71682**	**--**	**--**	**--**	**-12.94**	**-98.2**	**62.9**	**27.2**	**95.0**	**11.2**	**62.1**	**257.0**	**176.0**	**31.6**	**--**	**61616**	**1**		**Spring**	**292**	**10/19/04**
Arrow Canyon	36.734208	-114.74778				-12.91	-99.4										SNWA			Well	619	2/1/2006
Arrow Canyon	**36.734208**	**-114.74778**				**-12.91**	**-99.4**										**SNWA**			**Well**	**619**	**2/1/2006**
Ash Springs	37.46361	-115.19250					-107.0										222		IT27	Spring	110	08/01/68
Ash Springs	37.46361	-115.19250					-109.0										223		IT28	Spring	110	01/01/69
Ash Springs	37.46361	-115.19250					-112.0										224		IT29	Spring	110	03/01/70
Ash Springs	37.46361	-115.19250	36.0	2.3	7.0	-14.10	-108.0	43.0	14.0	27.0	7.4	8.5		34.0	30.0	0.8	225		GS81	Spring	110	07/20/81
Ash Springs	37.463564	-115.19252				-14.03	-110.0										SNWA			Spring		5/24/2004
Ash Springs	37.46361	-115.19250	34.0	1.6	7.4	-14.20	-108.4	46.4	16.8	28.4	7.3	8.6	248.0	32.8	32.7	--	61099	1		Spring	110	07/30/04
Ash Springs	**37.46361**	**-115.19250**	**35.0**	**1.9**	**7.2**	**-14.11**	**-109.1**	**44.7**	**15.4**	**27.7**	**7.3**	**8.6**	**248.0**	**33.4**	**31.4**	**0.8**				**Spring**	**110**	
Aspen Springs South	39.21629	-115.39800	6.9	9.4	7.0	-16.02	-120.9									--	62721	1	DRI-WP-16	Spring	324	06/07/05
Aspen Springs South	**39.21629**	**-115.39800**	**6.9**	**9.4**	**7.0**	**-16.02**	**-120.9**									**--**	**62721**	**1**	**DRI-WP-16**	**Spring**	**324**	**06/07/05**
Aspen Springs North	39.22100	-115.39905	6.9	7.7	6.5	-15.84	-119.3									--	62716	1	DRI-WP-11	Spring	349	06/07/05
Aspen Springs North	**39.22100**	**-115.39905**	**6.9**	**7.7**	**6.5**	**-15.84**	**-119.3**									**--**	**62716**	**1**	**DRI-WP-11**	**Spring**	**349**	**06/07/05**
Bailey Spring (Fairview)	38.17593	-114.72829	18.9	7.0	7.8	-12.68	-98.5	86.4	21.4	29.8	2.1	48.3	331.0	26.6	32.4	--	60849	1		Spring	277	06/29/04
Bailey Spring (Fairview)	38.17593	-114.72829	10.7	6.0	7.0	-12.70	-97.9	96.2	25.8	42.4	1.7	70.3	327.0	49.7	33.1	--	62407	1	DRI-FR-5	Spring	277	05/01/05
Bailey Spring (Fairview)	**38.17593**	**-114.72829**	**14.8**	**6.5**	**7.4**	**-12.69**	**-98.2**	**91.3**	**23.6**	**36.1**	**1.9**	**59.3**	**329.0**	**38.2**	**32.8**	**#DIV/0!**				**Spring**	**277**	
Bailey Spring (Wilson Ck)	38.35295	-114.36718	17.9	6.4	7.8	-12.93	-102.0	45.0	9.4	18.5	2.1	40.6	135.0	16.1	36.7	--	60310	2		Spring	310	05/18/04
Bailey Spring (Wilson Ck)	**38.35295**	**-114.36718**	**17.9**	**6.4**	**7.8**	**-12.93**	**-102.0**	**45.0**	**9.4**	**18.5**	**2.1**	**40.6**	**135.0**	**16.1**	**36.7**	**--**	**60310**	**2**		**Spring**	**310**	**05/18/04**
Baldwin Spring	36.72035	-114.72415	31.9	2.6	7.3	-12.95	-96.3	63.8	28.1	96.3	11.6	63.8	260.0	180.0	32.0	--	58496		DRI-MV-3	Spring	291	01/12/04
Baldwin Spring	36.72035	-114.72415	32.0	3.0	7.5	-12.93	-96.8	63.7	27.6	94.7	11.1	64.1	263.0	180.0	29.2	--	60309		DRI-MV-3	Spring	291	05/18/04
Baldwin Spring	36.72035	-114.72415				-12.96	-98.6	62.8	27.4	95.0	11.2	61.4	258.0	174.0	32.1	--	61620		DRI-MV-3	Spring	291	10/19/04
Baldwin Spring	36.72035	-114.72415	31.8	2.7	7.3	-12.94	-98.1	63.1	27.4	95.7	11.2	61.7	252.0	178.0	29.6	--	62034	1	DRI-MV-3	Spring	291	02/10/05
Baldwin Spring	36.72035	-114.72415	32.0	2.8	6.8	-12.94	-97.2									--	62035		DRI-MV-3	Spring	291	06/08/05
Baldwin Spring	36.720350	-114.724150	31.8	2.64	7.32	-13.05	-98.0	63.5	27.2	96.8	10.9	61.1	253	176	29.6	2.21	64174		DRI-MV-3	Spring	291	02/16/06
Baldwin Spring	36.720350	-114.724150	30.2	5.26	7.35	-13.03	-98.2	71.1	22.1	93.4	11.2	63.4	254	180	30.4	2.18	64903		DRI-MV-3	Spring	291	06/21/06
Baldwin Spring	36.720350	-114.724150	32.30	4.75	7.29	-13.03	-97.1	64.5	28.0	83.9	9.35	61.7	259	178	29.1	2.18	65284		DRI-MV-3	Spring	291	08/23/06
Baldwin Spring	36.720350	-114.724150	31.7	4.33	7.33	-12.91	-97.9	61.8	27.4	93.5	11.2	60.0	251	175	29.5	2.21	65662		DRI-MV-3	Spring	291	10/30/06
Baldwin Spring	**36.72035**	**-114.72415**	**31.7**	**3.5**	**7.3**	**-12.97**	**-97.6**	**64.3**	**26.9**	**93.7**	**11.0**	**62.2**	**256.3**	**177.6**	**30.2**	**2.2**			DRI-MV-3	**Spring**	**291**	
Barrel Spring	38.13105	-114.05505	9.8	6.2	7.7	-13.36	-100.5	55.7	6.1	16.5	0.5	18.8	193.0	10.7	22.9	--	60316	1		Spring	317	05/21/04
Barrel Spring	**38.13105**	**-114.05505**	**9.8**	**6.2**	**7.7**	**-13.36**	**-100.5**	**55.7**	**6.1**	**16.5**	**0.5**	**18.8**	**193.0**	**10.7**	**22.9**	**--**	**60316**	**1**		**Spring**	**317**	**05/21/04**
Bennett Spring	37.78417	-114.52806	24.0		7.5	-13.70	-103.0	56.0	26.0	6.5	1.5	7.9	318.0	6.9	14.0	<.1	288		GS103	Spring	141	04/10/85
Bennett Spring	**37.78417**	**-114.52806**	**24.0**		**7.5**	**-13.70**	**-103.0**	**56.0**	**26.0**	**6.5**	**1.5**	**7.9**	**318.0**	**6.9**	**14.0**	**<.1**	**288**		**GS103**	**Spring**	**141**	**04/10/85**
Big Muddy Spring	36.72196	-114.71682					-98.0										121.2			Spring	69	3/00/70
Big Muddy Spring	36.72196	-114.71682	32.5	3.0	7.2	-12.90	-96.5	66.0	26.0	96.0	10.0	61.0		190.0	29.0	2.1	122		GS42	Spring	69	07/22/81
Big Muddy Spring	36.72196	-114.71682				-12.75	-98.0										125		jim	Spring	69	10/30/85
Big Muddy Spring	36.72196	-114.71682				-13.05	-99.0										124		GS44	Spring	69	01/07/88
Big Muddy Spring	36.72196	-114.71682	31.0	--	--	-12.84	-98.4	64.4	27.6	99.9	10.9	64.2	270.0	198.0	29.9	--	60308			Spring	69	05/18/04
Big Muddy Spring	36.72196	-114.71682				-12.89	-97.6	63.4	27.0	99.1	10.9	64.5	255.0	178.0	32.6	--	61615	2		Spring	69	10/19/04
Big Muddy Spring	**36.72196**	**-114.71682**	**31.8**	**3.0**	**7.2**	**-12.89**	**-97.9**	**64.6**	**26.9**	**98.3**	**10.6**	**63.2**	**262.5**	**188.7**	**30.5**	**2.1**				**Spring**	**69**	
Big Spring (Clover)	37.52781	-114.35258	17.2	7.4	7.3	-12.89	-94.2	27.3	4.3	9.5	2.6	7.3	111.0	3.9	48.2	--	61094	1		Spring	253	07/31/04
Big Spring (Clover)	37.52781	-114.35258	17.0	7.1	7.4	-12.89	-92.9	30.2	4.5	11.1	2.6	9.0	114.0	4.8	45.8	--	62401		DRI-CR-6	Spring	253	04/30/05
Big Spring (Clover)	**37.52781**	**-114.35258**	**17.1**	**7.2**	**7.4**	**-12.89**	**-93.6**	**28.8**	**4.4**	**10.3**	**2.6**	**8.2**	**112.5**	**4.4**	**47.0**	**#DIV/0!**				**Spring**	**253**	
Big Spring (Egan)	38.59947	-114.91624	14.0	5.4	6.8	-13.85	-106.0	34.0	5.8	13.0		4.2	156.0	7.2	50.0	0.1	408		GS187	Spring	206	08/03/85
Big Spring (Egan)	38.59947	-114.91624	13.0	5.8	6.5	-13.92	-104.2	--	--	--	--	--	--	--	--	--	--	1		Spring	206	10/14/03
Big Spring (Egan)	38.59947	-114.91624	12.9	5.24	6.1	-13.98	-106.1	34.7	5.78	12.4	2.36	3.8	152	7.1	51.7		62980		ER-4	Spring	206	07/31/05
Big Spring (Egan)	38.59947	-114.91624	12.8	5.35	6.76	-13.86	-105.8	34.1	5.83	12.6	2.38	3.9	146	7.0	52.1	0.11	65050		ER-24	Spring	441	07/13/06
Big Spring (Egan)	**38.59947**	**-114.91624**	**13.2**	**5.5**	**6.5**	**-13.90**	**-105.5**	**34.3**	**5.8**	**12.7**	**2.4**	**4.0**	**151.3**	**7.1**	**51.3**	**0.1**				**Spring**	**206**	
Big Spring (Grant)	38.37056	-115.48111	12.5		8.1	-15.20	-112.0	78.0	7.0	4.9		2.1	268.0	13.0	9.5	<.1	366		GS151	Spring	194	07/24/85
Big Spring (Grant)	**38.37056**	**-115.48111**	**12.5**		**8.1**	**-15.20**	**-112.0**	**78.0**	**7.0**	**4.9**		**2.1**	**268.0**	**13.0**	**9.5**	**<.1**	**366**		**GS151**	**Spring**	**194**	**07/24/85**
Big Spring Snake Valley	38.698920	-114.132230	17.2	5.3	7.5	-15.14	-112.2	47.8	20.3	5.5	1.5	5.1	228.0	8.5	12.6	--	61964	1		Spring	325	01/22/05
Big Spring Snake Valley	38.698920	-114.132230				-15.22	-112.2	48.3	19.5	5.3	1.5	5.5	8.5	234.0	12.7	0.05	63226	1	SU-2	Spring	325	08/13/05
Big Spring Snake Valley	38.698920	-114.132230	17.2	4.88	7.5	-15.10	-110.3	42.9	20.2	5.34	1.51	5.8	229	8.5	12.7	0.13	63569	1		Spring		8-Nov-05
Big Spring Snake Valley	38.698920	-114.132230	16.8	5.16	7.61	-15.17	-111.6	47.5	19.6	5.32	1.50	5.5	229	8.6	12.5	0.13	64238	1	SU-2	Spring	325	02/25/06

Big Spring Snake Valley	38.698920	-114.132230	17.2	5.27	7.43	-15.10	-112.6	49.0	20.3	6.18	2.61	7.3	232	9.3	12.8	0.13	64741	1	SU-2	Spring	325	05/21/06
Big Spring Snake Valley	38.698920	-114.132230	17.30	5.44	7.49	-15.15	-111.8	47.7	20.4	5.2	1.42	5.33	232	8.84	12.7	0.12	65291	1	SU-2	Spring	325	08/24/06
Big Spring Snake Valley	38.698920	-114.132230	17.0	4.83	7.44	-15.20	-111.1	49.7	20.3	5.93	1.45	6.1	232	8.5	12.9	0.13	65659	1	SU-2	Spring	325	10/29/06
Big Spring Snake Valley	38.698920	-114.132230	**17.1**	**5.1**	**7.5**	**-15.15**	**-111.7**	**47.6**	**20.1**	**5.5**	**1.6**	**5.8**	**198.6**	**40.9**	**12.7**	**0.1**		**7**		**Spring**	**325**	
Big Spring North	38.65611	-114.63306	20.5		7.6	-15.10	-112.0	49.0	19.0	5.3	2.1	6.0	240.0	12.0	21.0	0.2	416		GS193	Spring	211	04/04/85
Big Spring North	**38.65611**	**-114.63306**	**20.5**		**7.6**	**-15.10**	**-112.0**	**49.0**	**19.0**	**5.3**	**2.1**	**6.0**	**240.0**	**12.0**	**21.0**	**0.2**	**416**		**GS193**	**Spring**	**211**	**04/04/85**
Big Spring South	38.65417	-114.63306	18.5		7.5	-14.80	-111.0	45.0	18.0	5.4	1.9	5.6	200.0	12.0	18.0	0.2	415		GS192	Spring	210	04/04/85
Big Spring South	**38.65417**	**-114.63306**	**18.5**		**7.5**	**-14.80**	**-111.0**	**45.0**	**18.0**	**5.4**	**1.9**	**5.6**	**200.0**	**12.0**	**18.0**	**0.2**	**415**		**GS192**	**Spring**	**210**	**04/04/85**
Bishop Spring	37.41854	-114.64169				-11.70	-85.5										208		GS80	Spring	107	02/02/84
Bishop Spring	37.41854	-114.64169	17.5	6.3	7.0	-11.67	-88.0	68.0	24.1	17.1	0.9	13.4	332.0	14.5	54.8	--	58493	1		Spring	107	01/14/04
Bishop Spring	37.41854	-114.64169	18.4	4.6	6.9	-11.78	-88.1									--	62618		DRI-DR-6	Spring	107	05/20/05
Bishop Spring	**37.41854**	**-114.64169**	**18.0**	**5.4**	**7.0**	**-11.72**	**-87.2**	**68.0**	**24.1**	**17.1**	**0.9**	**13.4**	**332.0**	**14.5**	**54.8**	**#DIV/0!**				**Spring**	**107**	
Bitter Spring	36.28500	-114.51417	17.2	4.8	7.6	-9.90	-77.0										22		PL15	Spring	14	02/06/96
Bitter Spring	**36.28500**	**-114.51417**	**17.2**	**4.8**	**7.6**	**-9.90**	**-77.0**										**22**		**PL15**	**Spring**	**14**	**02/06/96**
Black Rock Spring	37.91204	-114.91906				-12.25	-94.0										313		GS117	Spring	158	03/22/88
Black Rock Spring	37.91204	-114.91906	12.1	8.3	7.6	-12.36	-93.6	36.7	8.0	16.1	4.6	13.9	146.0	15.9	63.6	--	59687	1		Spring	158	03/23/04
Black Rock Spring	37.91204	-114.91906	**12.1**	**8.3**	**7.6**	**-12.31**	**-93.8**	**36.7**	**8.0**	**16.1**	**4.6**	**13.9**	**146.0**	**15.9**	**63.6**	**#DIV/0!**				**Spring**	**158**	
Blue Point Spring	36.39000	-114.43306				-12.40	-93.0										49		PL8	Spring	26	06/24/85
Blue Point Spring	36.39000	-114.43306				-12.35	-92.5										47.5		USGS	Spring	26	07/01/85
Blue Point Spring	36.39000	-114.43306	30.0		7.8	-12.50	-93.5	470.0	160.0	330.0	23.0	400.0	160.0	1900.0	16.0	1.5	48		GS15	Spring	26	07/01/85
Blue Point Spring	36.39000	-114.43306	29.6	2.7	7.1	-12.30	-91.0										47		PL8	Spring	26	02/08/96
Blue Point Springs	36.39000	-114.43306				-12.47	-93.0										USGS			spring		6/5/2003
Blue Point Spring	36.39000	-114.43306	**29.8**	**2.7**	**7.4**	**-12.40**	**-92.6**	**470.0**	**160.0**	**330.0**	**23.0**	**400.0**	**160.0**	**1900.0**	**16.0**	**1.5**				**Spring**	**26**	
Blue Rock Spring	38.15344	-114.35401	--	--	--	-12.68	-93.4	--	--	--	--	--	--	--	--	--	--	1		Spring	311	04/28/04
Blue Rock Spring	38.15344	**-114.35401**	**--**	**--**	**--**	**-12.68**	**-93.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**311**	**04/28/04**
Boulder Spring (KSV-4)	37.31436	-114.67261				-12.00	-87.5										196		Kirk1027	Spring	98	--
Boulder Spring (KSV-4)	37.31436	-114.67261	16.8		7.9	-12.60	-87.0	21.0	4.9	12.0	2.3	7.8	100.0	6.0	41.0	1.7	198		GS74	Spring	98	02/02/84
Boulder Spring (KSV-4)	37.31436	-114.67261	5.0	8.8	7.4	-12.60	-91.0	19.4	4.5	11.4	0.3	6.6	88.9	5.7	42.8	--	58491	1		Spring	98	01/13/04
Boulder Spring (KSV-4)	37.31436	-114.67261	13.6	7.7	7.6	-12.66	-91.3	21.2	3.8	55.2	4.1	25.0	138.0	34.8	65.3	--	62394		DRI-DR-3	Spring	98	04/27/05
Boulder Spring (KSV-4)	37.31436	-114.67261	**11.8**	**8.3**	**7.6**	**-12.47**	**-89.2**	**20.5**	**4.4**	**26.2**	**2.2**	**13.1**	**109.0**	**15.5**	**49.7**	**1.7**				**Spring**	**98**	
Big Tom Plain Spring	39.08701	-115.37737	7.4	6.1	6.7	-15.92	-121.1									--	62713		DRI-WP-8	Spring	326	06/06/05
Big Tom Plain Spring	**39.08701**	**-115.37737**	**7.4**	**6.1**	**6.7**	**-15.92**	**-121.1**									**--**	**62713**		**DRI-WP-8**	**Spring**	**326**	**06/06/05**
Bradshaw Well	37.34917	-114.54389	14.8		7.3	-11.40	-88.5	85.0	28.0	120.0	11.0	52.0	550.0	76.0	63.0	2.3	202		GS76	Well	102	02/01/84
Bradshaw Well	**37.34917**	**-114.54389**	**14.8**		**7.3**	**-11.40**	**-88.5**	**85.0**	**28.0**	**120.0**	**11.0**	**52.0**	**550.0**	**76.0**	**63.0**	**2.3**	**202**		**GS76**	**Well**	**102**	**02/01/84**
Brady Spring	38.32746	-115.47509	10.3	--	--	-15.38	-108.5	82.8	8.5	2.9	1.0	0.8	292.0	2.9	13.8	--	57754	1		Spring	282	10/28/03
Brady Spring (duplicate sample)	38.32746	-115.47509	--	--	--	-15.38	-110.4	--	--	--	--	--	--	--	--	--	57754	1		Spring	282	10/28/03
Brady Spring	38.32746	-115.47509	**10.3**	**#DIV/0!**	**#DIV/0!**	**-15.38**	**-109.5**	**82.8**	**8.5**	**2.9**	**1.0**	**0.8**	**292.0**	**2.9**	**13.8**	**#DIV/0!**		**2**		**Spring**	**282**	
Buckboard Spring	37.58886	-114.63111	14.7	7.1	7.7	-11.71	-88.2	45.1	8.3	17.3	2.1	13.9	182.0	10.6	45.5	--	59697	1		Spring	264	03/26/04
Buckboard Spring	**37.58886**	**-114.63111**	**14.7**	**7.1**	**7.7**	**-11.71**	**-88.2**	**45.1**	**8.3**	**17.3**	**2.1**	**13.9**	**182.0**	**10.6**	**45.5**	**--**	**59697**	**1**		**Spring**	**264**	**03/26/04**
Burnt Canyon Spring (Unnamed Spring in Burnt Canyon)	38.28944	-114.20889	11.0		7.6	-12.30	-93.0	35.0	7.7	8.1	0.5	5.2	140.0	8.2	38.0	0.1	356		GS140	Spring	187	06/05/85
Burnt Canyon Spring (Unnamed Spring in Burnt Canyon)	**38.28944**	**-114.20889**	**11.0**		**7.6**	**-12.30**	**-93.0**	**35.0**	**7.7**	**8.1**	**0.5**	**5.2**	**140.0**	**8.2**	**38.0**	**0.1**	**356**		**GS140**	**Spring**	**187**	**06/05/85**
Butcher Spring	38.030347	-114.015314	10.1	7.62	7.1	-14.22	-103.2	25.5	5.44	10.8	1.01	18.1	78.3	10.9	26.9	0.20	64910		MG-7	Spring	424	06/23/06
Butcher Spring	**38.030347**	**-114.015314**	**10.1**	**7.62**	**7.1**	**-14.22**	**-103.2**	**25.5**	**5.44**	**10.8**	**1.01**	**18.1**	**78.3**	**10.9**	**26.9**	**0.20**	**64910**	**1**	**MG-7**	**Spring**	**424**	**06/23/06**
Butte Spring	39.75816	-115.24246	13.7	7.4	6.9	-15.79	-120.4									--	62619		DRI-BT-1	Spring	327	05/24/05
Butte Spring	**39.75816**	**-115.24246**	**13.7**	**7.4**	**6.9**	**-15.79**	**-120.4**									**--**	**62619**		**DRI-BT-1**	**Spring**	**327**	**05/24/05**
Butterfield Spring	38.43972	-115.01083	16.5	6.1	7.3	-14.20	-105.0	47.0	22.0	6.0	2.5	4.7	260.0	8.0	23.0	0.1	384		GS163	Spring	202	07/19/81
Butterfield Spring	**38.43972**	**-115.01083**	**16.5**	**6.1**	**7.3**	**-14.20**	**-105.0**	**47.0**	**22.0**	**6.0**	**2.5**	**4.7**	**260.0**	**8.0**	**23.0**	**0.1**	**384**		**GS163**	**Spring**	**202**	**07/19/81**
Caliente City Well	37.61583	-114.51333	14.3			-12.40	-89.0										263		GS95	Well	124	01/31/84
Caliente City Well	**37.61583**	**-114.51333**	**14.3**			**-12.40**	**-89.0**										**263**		**GS95**	**Well**	**124**	**01/31/84**
Cabin Spring	39.75790	-115.27245	11.0	8.7	7.0	-15.89	-124.4									--	62708		DRI-BT-7	Spring	328	06/05/05
Cabin Spring	**39.75790**	**-115.27245**	**11.0**	**8.7**	**7.0**	**-15.89**	**-124.4**									**--**	**62708**		**DRI-BT-7**	**Spring**	**328**	**06/05/05**
Cain Springs	39.542581	-114.225882	14.9	4.5	6.92	-10.85	-98.4	191	53.6	117	0.85	352	322	162	34.7	0.34	63282			Spring	400	26-Aug-05
Cain Springs	**39.542581**	**-114.225882**	**14.9**	**4.5**	**6.92**	**-10.85**	**-98.4**	**191**	**53.6**	**117**	**0.85**	**352**	**322**	**162**	**34.7**	**0.34**	**63282**			**Spring**	**400**	**26-Aug-05**
Caliente Hot Springs (Hotel)	37.62111	-114.51042	45.0		7.8	-14.50	-109.0	37.0	7.3	49.0	19.0	13.0	222.0	34.0	130.0	1.4	270		GS99	Spring	129	04/10/85
Caliente Hot Springs (Hotel)	37.62111	-114.51042	40.7	4.4	8.2	-14.52	-106.4	35.0	7.3	50.1	18.7	14.5	213.0	37.2	128.0	--	61621			Spring	129	10/20/04
Caliente Hot Springs (Hotel)	37.62111	-114.51042	40.4	4.1	8.1	-14.29	-109.3	35.6	7.2	51.8	19.0	14.5	208.0	44.8	119.0	--	61970	2		Spring	129	01/24/05
Caliente Hot Springs (Hotel)	37.62111	-114.51042	41.0	4.0	7.5	-14.43	-107.0									--	62620		DRI-MW-2	Spring	129	05/19/05
Caliente Hot Springs (Hotel)	37.62111	-114.51042	40.1	2.8	7.6	-14.47	-109.0										63230		DRI-MW-2	Spring	129	08/16/05
Caliente Hot Springs (Hotel)	37.62111	-114.51042	41.5	3.12	7.71	-14.47	-107.2	35.0	7.36	51.2	18.8	13.7	214	39.1	122	1.47	63572			Spring	129	9-Nov-05
Caliente Hot Springs (Hotel)	37.62111	-114.51042	39.7	4.5	7.91	-14.42	-107.7	38.4	7.61	52.2	18.9	17.3	215	43.6	119	1.44	64170		MW-2	Spring	129	02/17/06
Caliente Hot Springs (Hotel)	37.62111	-114.51042	39.9	3.3	7.98	-14.38	-107.3	39.0	7.93	53.6	21.1	18.5	224	46.5	118	1.43	64744		MW-2	Spring	129	05/22/06
Caliente Hot Springs (Hotel)	**37.62111**	**-114.51042**	**41.0**	**3.7**	**7.8**	**-14.44**	**-107.9**	**36.7**	**7.5**	**51.3**	**19.3**	**15.3**	**216.0**	**40.9**	**122.7**	**1.4**		**8.0**		**Spring**	**129**	
Calpine Test Well 1a	36.54611	-114.80194	30.5			-13.50	-99.0										999		ECP-1a	Well	43	04/07/00
Calpine Test Well 1a	**36.54611**	**-114.80194**	**30.5**			**-13.50**	**-99.0**										**999**		**ECP-1a**	**Well**	**43**	**04/07/00**

Camp Creek	38.24361	-114.25222	9.0		7.9	-14.00	-102.0										349		E3	Surface	184	04/09/85
Camp Creek	**38.24361**	**-114.25222**	**9.0**		**7.9**	**-14.00**	**-102.0**										**349**		**E3**	**Surface**	**184**	**04/09/85**
Carpenter Spring	38.05000	-115.61167	16.0			-11.85	-95.0										332		GS126	Spring	171	07/31/85
Carpenter Spring	**38.05000**	**-115.61167**	**16.0**			**-11.85**	**-95.0**										**332**		**GS126**	**Spring**	**171**	**07/31/85**
Cave Spring	38.64111	-114.79583	12.0	8.4	7.4	-13.85	-100.0	16.0	2.2	3.1		1.0	62.0	4.5	14.0	<.1	414		GS191	Spring	209	08/02/85
Cave Spring	38.64111	-114.79583	11.7	7.55	7.2	-14.20	-102.2	15.4	2.04	2.57	0.68	1.0	55.4	2.6	16.0	0.05	65057		SC-8	Spring	448	07/14/06
Cave Spring	**38.64111**	**-114.79583**	**11.9**	**8.0**	**7.3**	**-14.03**	**-101.1**	**15.7**	**2.1**	**2.8**	**0.7**	**1.0**	**58.7**	**3.6**	**15.0**	**0.1**	**414**		**GS191**	**Spring**	**209**	**08/02/85**
Cave Spring (Clover)	37.52979	-114.24092	18.7	4.7	7.0	-12.21	-90.8	47.8	9.1	26.4	8.4	20.0	219.0	10.8	57.4	--	61101			Spring	247	07/31/04
Cave Spring (Clover)	37.52979	-114.24092	18.7	4.7	7.0	-12.53	-94.7	--	--	--	--	--	--	--	--	--	61101B	2		Spring	247	07/31/04
Cave Spring (Clover)	37.52979	-114.24092	**18.7**	**4.7**	**7.0**	**-12.37**	**-92.8**	**47.8**	**9.1**	**26.4**	**8.4**	**20.0**	**219.0**	**10.8**	**57.4**	**#DIV/0!**				**Spring**	**247**	
Cave Valley MX	38.468592	-114.869444				-13.94	-105.0										USGS		602	Deep Well	620	7/10/2003
Cave Valley MX	**38.468592**	**-114.869444**				**-13.94**	**-105.0**										**USGS**		**602**	**Deep Well**	**620**	**7/10/2003**
Cedar Spring	39.77309	-114.211402	14.4	2.83	7.2	-15.52	-121.5	104	50.6	16.5	1.60	42.9	208	262	14.6	0.49	63275	1		Spring	393	23-Aug-05
Cedar Spring	**39.77309**	**-114.211402**	**14.4**	**2.83**	**7.2**	**-15.52**	**-121.5**	**104**	**50.6**	**16.5**	**1.60**	**42.9**	**208**	**262**	**14.6**	**0.49**	**63275**	**1**		**Spring**	**393**	**23-Aug-05**
Cedar Cabin Spring	38.79689	-114.22339	9.6	9.0	7.6	-14.10	-106.0	62.3	20.2	5.5	1.0	5.0	5.7	272.0	12.0	<.04	62913		SN-4	Spring	380	07/13/05
Cedar Cabin Spring	**38.79689**	**-114.22339**	**9.6**	**9.0**	**7.6**	**-14.10**	**-106.0**	**62.3**	**20.2**	**5.5**	**1.0**	**5.0**	**5.7**	**272.0**	**12.0**	**<.04**	**62913**		**SN-4**	**Spring**	**380**	
The Cedars	38.93537	-114.41800	18.7	8.0	8.0	-15.02	-110.3	20.0	1.7	5.9	0.9	2.0	74.9	3.2	20.7	--	61965	1		Spring	329	01/22/05
The Cedars	38.93537	-114.41800	18.9	8.4	8.0	-15.03	-108.1									--	62621		DRI-SV-1	Spring	329	05/20/05
The Cedars	38.93537	-114.41800				-15.00	-108.6	19.8	1.7	5.9	0.9	2.0	3.3	74.2	20.6	0.34	63225		SV-1	Spring	329	08/12/05
The Cedars	38.93537	-114.41800	18.3	7.3	7.95	-15.00	-108.2	20.1	1.69	5.71	0.82	2.0	73.1	3.3	20.7	0.19	63570			Spring	329	8-Nov-05
The Cedars	38.93537	-114.41800	18.2	7.72	8.1	-15.02	-108.4	20.1	1.59	5.60	0.84	2.1	74.8	3.4	20.5	0.19	64240		SV-1	Spring	329	02/26/06
The Cedars	38.93537	-114.41800	18.8	8.45	7.9	-15.03	-108.3	20.1	1.67	5.85	1.84	2.1	74.1	3.5	20.8	0.19	64742		SV-1	Spring	329	05/21/06
The Cedars	38.93537	-114.41800	19.9	7.56	8	-14.97	-109.4	20.1	1.78	5.43	0.75	2.1	72.1	3.6	20.8	0.18	65369		SV-1	Spring	329	08/30/06
The Cedars	38.93537	-114.41800	18.4	8.25	7.83	-15.05	-109.9	20.0	1.68	5.67	0.82	2.0	72.9	3.4	20.6	0.20	65660		SV-1	Spring	329	10/29/06
The Cedars	**38.93537**	**-114.41800**	**18.7**	**8.0**	**8.0**	**-15.02**	**-108.9**	**20.0**	**1.7**	**5.7**	**1.0**	**2.0**	**63.6**	**13.5**	**20.7**	**0.2**				**Spring**	**329**	
CE-DT-4	36.79556	-114.89222	34.0	3.5	7.4	-13.00	-102.5	46.0	19.0	84.0	11.0	35.0	294.0	110.0	33.0	1.9	138		GS52	Well	78	12/23/80
CE-DT-4	**36.79556**	**-114.89222**	**34.0**	**3.5**	**7.4**	**-13.00**	**-102.5**	**46.0**	**19.0**	**84.0**	**11.0**	**35.0**	**294.0**	**110.0**	**33.0**	**1.9**	**138**	**1**	**GS52**	**Well**	**78**	**12/23/80**
CE-DT-6 Well	36.76778	-114.78694				-13.10	-99.0										130.2	1	DRI	Well	72	09/28/86
CE-DT-6 Well	36.76778	-114.78694	33.5	3.7	7.2	-12.95	-97.0	58.0	25.0	88.0	11.0	53.0	272.0	160.0	30.0	2.1	130	1	GS47	Well	72	09/28/86
CE-DT-6 Well	36.76778	-114.78694	**33.5**	**3.7**	**7.2**	**-13.03**	**-98.0**	**58.0**	**25.0**	**88.0**	**11.0**	**53.0**	**272.0**	**160.0**	**30.0**	**2.1**		**1**		**Well**	**72**	
CE-VF-2 Well	36.87500	-114.94556				-12.95	-101.0										155	1	USGS	Well	81	02/05/86
CE-VF-2 Well	36.87500	-114.94556	34.0	2.9	7.4	-13.10	-101.0	47.0	21.0	81.0	11.0	34.0	303.0	90.0	34.0	1.7	156	1	USGS	Well	81	01/06/88
CE-VF-2 Well	36.87500	-114.94556	**34.0**	**2.9**	**7.4**	**-13.10**	**-101.0**	**47.0**	**21.0**	**81.0**	**11.0**	**34.0**	**303.0**	**90.0**	**34.0**	**1.7**		**2.0**		**Well**	**81**	
Chicken Spring	39.23885	-115.38886	8.3	5.7	6.6	-16.17	-122.0									--	62715		DRI-WP-10	Spring	330	06/07/05
Chicken Spring	**39.23885**	**-115.38886**	**8.3**	**5.7**	**6.6**	**-16.17**	**-122.0**									**--**	**62715**	**1**	**DRI-WP-10**	**Spring**	**330**	**06/07/05**
Chimney Rock Spring	38.83528	-114.88417	13.0	1.4	6.8	-14.30	-109.0	56.0	6.8	12.0		5.4	207.0	21.0	56.0	0.2	425	1	GS205	Spring	219	08/01/85
Chimney Rock Spring	38.83528	-114.88417	12.8	0.88	6.73	-14.74	-112.0	39.3	5.51	14.0	8.38	3.3	171	10.7	61.1	0.17	65052	1	ER-26	Spring	443	07/13/06
Chimney Rock Spring	**38.83528**	**-114.88417**	**12.9**	**1.1**	**6.8**	**-14.52**	**-110.5**	**47.7**	**6.2**	**13.0**	**8.4**	**4.4**	**189.0**	**15.9**	**58.6**	**0.2**	**425**	**2**	**GS205**	**Spring**	**219**	**08/01/85**
Circle Wash Spring	39.12170	-115.36929	7.6	7.1	6.2	-15.30	-114.5									--	62710		DRI-WP-5	Spring	331	06/06/05
Circle Wash Spring	**39.12170**	**-115.36929**	**7.6**	**7.1**	**6.2**	**-15.30**	**-114.5**									**--**	**62710**	**1**	**DRI-WP-5**	**Spring**	**331**	**06/06/05**
Clover Creek Valley Well 232	37.50500	-114.27600	21.5		7.8	-11.70	-84.0	60.0	6.0	8.0	3.0	26.0	180.0	13.0		0.4	232		E29	Well	114	07/18/75
Clover Creek Valley Well 232	**37.50500**	**-114.27600**	**21.5**		**7.8**	**-11.70**	**-84.0**	**60.0**	**6.0**	**8.0**	**3.0**	**26.0**	**180.0**	**13.0**		**0.4**	**232**	**1**	**E29**	**Well**	**114**	**07/18/75**
Clover Creek Valley Well 246	37.58470	-114.25980	26.0		7.8	-12.40	-89.0	41.0	6.0	10.0	5.0	17.0	166.0	4.0			246		E28	Well	120	07/18/75
Clover Creek Valley Well 246	**37.58470**	**-114.25980**	**26.0**		**7.8**	**-12.40**	**-89.0**	**41.0**	**6.0**	**10.0**	**5.0**	**17.0**	**166.0**	**4.0**			**246**		**E28**	**Well**	**120**	**07/18/75**
Cold Spring	37.71370	-115.41016	--	--	--	-12.98	-98.9	49.7	12.1	22.8	1.5	19.4	208.0	22.6	50.7	--	60841	1		Spring	288	06/25/04
Cold Spring	**37.71370**	**-115.41016**	**--**	**--**	**--**	**-12.98**	**-98.9**	**49.7**	**12.1**	**22.8**	**1.5**	**19.4**	**208.0**	**22.6**	**50.7**	**--**	**60841**	**1**		**Spring**	**288**	**06/25/04**
Cold Spring, Preston	38.91800	-115.06680	22.0	3.0	7.2	-15.80	-121.0	39.0	19.0	12.0	3.1	13.0		39.0	20.0	0.3	446		GS221	Spring	230	07/16/81
Cold Spring, Preston	38.91800	-115.06680	21.5	3.0	7.8	-15.80	-126.0	43.0	20.0	13.0	2.9	14.0	190.0	37.0	20.0	0.4	447		GS222	Spring	230	06/16/83
Cold Spring, Preston	**38.91800**	**-115.06680**	**21.8**	**3.0**	**7.5**	**-15.80**	**-123.5**	**41.0**	**19.5**	**12.5**	**3.0**	**13.5**	**190.0**	**38.0**	**20.0**	**0.4**				**Spring**	**230**	
Connor Spring	37.90165	-114.56023	8.4	7.7	7.7	-13.84	-100.6	72.3	25.8	1.5	0.6	2.0	348.0	3.8	8.7	--	60838	1		Spring	283	06/24/04
Connor Spring	**37.90165**	**-114.56023**	**8.4**	**7.7**	**7.7**	**-13.84**	**-100.6**	**72.3**	**25.8**	**1.5**	**0.6**	**2.0**	**348.0**	**3.8**	**8.7**	**--**	**60838**	**1**		**Spring**	**283**	**06/24/04**
Corn Creek Spring South	36.43890	-115.35775	21.4	4.0	7.4	-12.88	-95.0	51.0	48.2	9.8	3.0	9.1	401.0	25.1	28.7	--	58503	1		Spring	307	01/17/04
Corn Creek Spring South	36.43890	-115.35775	21.1	3.3	7.3	-12.89	-95.0	47.4	33.7	6.4	2.1	6.9	288.0	18.5	19.5	--	60852	1		Spring	307	06/30/04
Corn Creek Spring South	36.43890	-115.35775	**21.1**	**3.3**	**7.3**	**-12.89**	**-95.0**	**47.4**	**33.7**	**6.4**	**2.1**	**6.9**	**288.0**	**18.5**	**19.5**	**#DIV/0!**		**2**		**Spring**	**307**	
Corral Spring (Unnamed Spring)	36.37056	-114.46000	17.0	6.2	7.3	-12.10	-91.5										28		PL13	Spring	19	02/07/96
Corral Spring (Unnamed Spring)	**36.37056**	**-114.46000**	**17.0**	**6.2**	**7.3**	**-12.10**	**-91.5**										**28**		**PL13**	**Spring**	**19**	**02/07/96**
Cottonwood Spring (Fairview)	38.31204	-114.63476	13.1	4.6	--	-13.40	-102.2	33.8	4.9	17.8	0.8	6.1	161.0	4.7	38.0	--	60848	1		Spring	274	06/29/04
Cottonwood Spring (Fairview)	**38.31204**	**-114.63476**	**13.1**	**4.6**	**--**	**-13.40**	**-102.2**	**33.8**	**4.9**	**17.8**	**0.8**	**6.1**	**161.0**	**4.7**	**38.0**	**--**	**60848**	**1**		**Spring**	**274**	**06/29/04**
Cottonwood Spring (Black Mtns.)	36.20333	-114.64361	12.6	6.5	7.8	-10.80	-80.0	524.0	220.0	209.0	10.7	63.6	205.0	2410.0	17.4		13		PL17	Spring	8	02/06/96
Cottonwood Spring (Black Mtns.)	**36.20333**	**-114.64361**	**12.6**	**6.5**	**7.8**	**-10.80**	**-80.0**	**524.0**	**220.0**	**209.0**	**10.7**	**63.6**	**205.0**	**2410.0**	**17.4**		**13**		**PL17**	**Spring**	**8**	**02/06/96**
Cottonwood Spring (Delamar)	37.53418	-114.74636	15.5	2.3	7.1	-12.87	-96.9	80.0	9.3	29.5	0.7	17.3	311.0	18.7	48.7	--	59698	1		Spring	265	03/26/04
Cottonwood Spring (Delamar)	**37.53418**	**-114.74636**	**15.5**	**2.3**	**7.1**	**-12.87**	**-96.9**	**80.0**	**9.3**	**29.5**	**0.7**	**17.3**	**311.0**	**18.7**	**48.7**	**--**	**59698**	**1**		**Spring**	**265**	**03/26/04**

Cow Camp Spring	36.58361	-115.30722	14.5		7.6	-12.60	-90.5	48.0	31.0	21.0	0.7	28.0	290.0	23.0	16.0	0.2	75		GS19	Spring	47	10/28/81
Cow Camp Spring	36.58361	-115.30722	10.0	5.9	7.6	-12.60	-93.0	50.0	35.0	25.0	0.6	29.0		29.0	15.0	0.2	77		GS21	Spring	47	05/10/83
Cow Camp Spring	36.58361	-115.30722	16.8	5.1	7.3	-12.46	-92.0	48.9	35.6	26.9	0.6	23.5	312.0	24.6	17.6	--	61105	1		Spring	47	07/27/04
Cow Camp Spring	36.58361	-115.30722	10.1	8.4	7.0	-12.47	-91.9	52.0	38.0	38.9	0.3	39.9	298.0	48.6	15.1	--	62399		DRI-SR-4	Spring	47	04/28/05
Cow Camp Spring	36.58361	-115.30722	**12.9**	**6.5**	**7.4**	**-12.53**	**-91.9**	**49.7**	**34.9**	**28.0**	**0.5**	**30.1**	**300.0**	**31.3**	**15.9**	**0.2**				**Spring**	**47**	
Coyote Spring	38.03186	-114.86219	13.3	4.7	6.8	-12.26	-95.2	75.1	11.4	55.5	10.7	31.7	246.0	105.0	82.7	--	62409		DRI-DL-1	Spring	169	05/01/05
Coyote Spring	38.03186	-114.86219				-12.80	-95.0										330		Kirk1017	Spring	169	--
Coyote Spring	38.03186	-114.86219	**13.3**	**4.7**	**6.8**	**-12.53**	**-95.1**	**75.1**	**11.4**	**55.5**	**10.7**	**31.7**	**246.0**	**105.0**	**82.7**	**#DIV/0!**				**Spring**	**169**	
Crystal Springs	37.53144	-115.23364					-109.0												Win	Spring	116	08/01/68
Crystal Springs	37.53144	-115.23364					-110.0												Win	Spring	116	01/01/69
Crystal Springs	37.53144	-115.23364					-109.0												Win	Spring	116	03/01/70
Crystal Springs	37.53144	-115.23364	27.5	1.8	7.3	-14.30	-109.0	43.0	21.0	22.0	5.0	8.9		34.0	25.0	0.3	235		GS87	Spring	116	07/20/81
Crystal Springs	37.53144	-115.23364	26.5		7.4	-14.38	-108.4	44.0	22.0	24.0	5.4	8.6	248.0	32.0	24.0	0.3	238		GS90	Spring	116	08/16/94
Crystal Springs	37.53144	-115.23364	28.0		7.7	-14.39	-106.9	44.2	22.6	23.8	4.8	9.6	255.0	34.7	24.7	0.4	239		IT120	Spring	116	08/07/95
Crystal Springs	37.531618	-115.233635				-14.32	-108.0										USGS			Spring		6/3/2003
Crystal Springs	37.53144	-115.23364	27.3	5.1	7.3	-14.36	-109.2	43.1	22.2	23.6	5.3	8.7	255.0	32.3	26.4	--	61106			Spring	116	07/30/04
Crystal Springs	37.53144	-115.23364	27.3	1.3	7.6	-14.41	-109.0	45.3	22.4	24.2	5.3	9.1	240.0	33.6	26.6	--	61618			Spring	116	10/20/04
Crystal Springs	37.53144	-115.23364	27.2	1.3	7.5	-14.35	-109.4	45.6	22.0	24.1	5.2	8.8	247.0	33.2	25.2	--	61971			Spring	116	01/24/05
Crystal Springs	37.53144	-115.23364	27.1	1.3	7.3	-14.44	-107.3									--	62622		DRI-PV-2	Spring	116	05/18/05
Crystal Springs	37.53144	-115.23364	27.0	1.3	6.9	-14.46	-109.3										63229		DRI-PV-2	Spring	116	08/14/05
Crystal Spring	37.53144	-115.23364	27.1	1.28	7.38	-14.42	-110.1	45.7	22.2	23.8	5.10	9.3	248	33.1	25	0.33	63574			Spring	116	9-Nov-05
Crystal Spring	37.531810	-115.233830	27.1	1.43	7.43	-14.47	-108.5	45.1	22.1	23.6	5.13	9.3	245	33.9	24.7	0.33	65655		PV-2	Spring	116	10/28/06
Crystal Springs	37.531810	-115.233830	27.1	1.26	7.44	-14.53	-108.8	46.3	22.5	24.2	5.35	9.5	247	33.8	24.7	0.35	64168		PV-2	Spring	116	02/17/06
Crystal Springs	37.531810	-115.233830	27.2	1.16	7.51	-14.47	-109.5	45.5	21.9	24.0	5.72	9.5	247	35.1	25.4	0.35	64746		PV-2	Spring	116	05/22/06
Crystal Springs	37.531810	-115.233830	27.10	1.32	7.42	-14.49	-108.8	45.9	22.6	21.2	4.36	9.07	239	34.8	25.0	0.33	65290		PV-2	Spring	116	08/23/06
Crystal Springs	37.53144	-115.23364	**27.2**	**1.7**	**7.4**	**-14.41**	**-108.8**	**44.9**	**22.1**	**23.5**	**5.1**	**9.1**	**247.1**	**33.7**	**25.2**	**0.3**				**Spring**	**116**	
CSV-2 Well	36.78056	-114.72222	27.0	4.0	7.4	-12.85	-98.0	60.0	27.0	100.0	10.0	61.0	276.0	160.0	30.0	2.3	135		GS51	Well	76	01/26/86
CSV-2 Well	36.78056	-114.72222				-12.99	-97.7										USGS			Well		7/8/2003
CSV-2 Well	**36.78056**	**-114.72222**	**27.0**	**4.0**	**7.4**	**-12.92**	**-97.9**	**60.0**	**27.0**	**100.0**	**10.0**	**61.0**	**276.0**	**160.0**	**30.0**	**2.3**	**135**		**GS51**	**Well**	**76**	**01/26/86**
CSV-3 Well	36.69083	-114.92500	41.0		7.4	-10.35	-75.0	51.0	25.0	38.0	10.0	26.0	239.0	54.0	24.0	1.2	104		GS38	Well	60	10/07/87
CSV-3 Well	**36.69083**	**-114.92500**	**41.0**		**7.4**	**-10.35**	**-75.0**	**51.0**	**25.0**	**38.0**	**10.0**	**26.0**	**239.0**	**54.0**	**24.0**	**1.2**	**104**		**GS38**	**Well**	**60**	**10/07/87**
Davies Spring	36.96556	-114.50194	14.3			-12.50	-89.0										177		GS64	Spring	90	02/06/84
Davies Spring	**36.96556**	**-114.50194**	**14.3**			**-12.50**	**-89.0**										**177**		**GS64**	**Spring**	**90**	**02/06/84**
Deadman Spring (Highland)	37.91861	-114.54139	9.5		7.1	-13.30	-99.0	98.0	41.0	5.0	0.9	4.2	506.0	8.3	19.0	0.1	319		GS119	Spring	162	04/07/85
Deadman Spring (Highland)	37.91861	-114.54139	27.9	4.9	9.7	-10.83	-90.9	12.2	40.1	4.1	0.4	2.5	143.0	5.4	2.1	--	60837	1		Spring	162	06/24/04
Deadman Spring (Highland)	37.91861	-114.54139	**18.7**	**4.9**	**8.4**	**-12.07**	**-95.0**	**55.1**	**40.6**	**4.6**	**0.7**	**3.4**	**324.5**	**6.9**	**10.6**	**0.1**		**2**		**Spring**	**162**	
Decathon Spring	38.80738	-114.27884	7.6	7.1	6.9	-14.60	-107.0	111.0	7.6	2.9	0.5	3.4	11.4	325.0	11.3	0.11	62914		SN-5	Spring	381	07/14/05
Decathon Spring	**38.80738**	**-114.27884**	**7.6**	**7.1**	**6.9**	**-14.60**	**-107.0**	**111.0**	**7.6**	**2.9**	**0.5**	**3.4**	**11.4**	**325.0**	**11.3**	**0.11**	**62914**		**SN-5**	**Spring**	**381**	**07/14/05**
Deer Spring (White Pine)	38.99498	-115.39136	--	--	--	-15.87	-118.9	--	--	--	--	--	--	--	--	--	JThomas-032304-	1	WP-4	Spring	322	10/12/03
Deer Spring (White Pine)	38.99498	-115.39136	9.4	6.3	6.9	-15.87	-119.6									--	62822		WP-4	Spring	322	06/28/05
Deer Spring (White Pine)	38.99498	-115.39136	**9.4**	**6.3**	**6.9**	**-15.87**	**-119.3**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**				**Spring**	**322**	
Deer Spring (Butte)	39.48683	-115.27559	12.3	6.4	6.3	-14.74	-114.1									--	62704		DRI-BT-6	Spring	332	06/04/05
Deer Spring (Butte)	39.48683	-115.27559	**12.30**	**6.35**	**6.30**	**-14.74**	**-114.1**									**--**	**62704.00**		**DRI-BT-6**	**Spring**	**332.00**	
Delmues Spring (Unnamed Spring)	37.86000	-114.32222	18.0		7.7	-13.40	-104.0	47.0	6.7	30.0	6.3	24.0	180.0	18.0	64.0	0.6	302		GS111	Spring	149	04/08/85
Delmues Spring (Unnamed Spring)	**37.86000**	**-114.32222**	**18.0**		**7.7**	**-13.40**	**-104.0**	**47.0**	**6.7**	**30.0**	**6.3**	**24.0**	**180.0**	**18.0**	**64.0**	**0.6**	**302**		**GS111**	**Spring**	**149**	
Desert Valley (Dry Lake) Well #1	36.95306	-115.19750	19.0	2.8	8.0	-13.10	-98.0	22.0	27.0	35.0	5.7	8.9	413.0	48.0	49.0	0.6	171		GS61	Well	87	03/18/87
Desert Valley (Dry Lake) Well #1	**36.95306**	**-115.19750**	**19.0**	**2.8**	**8.0**	**-13.10**	**-98.0**	**22.0**	**27.0**	**35.0**	**5.7**	**8.9**	**413.0**	**48.0**	**49.0**	**0.6**	**171**		**GS61**	**Well**	**87**	
Dipping Tank Spring	39.775222	-114.475117	12	7.77	6.83	-15.74	-119.8	47.5	8.37	16.2	2.01	18	167	14.6	30.7	0.10	63280	1		Spring	398	25-Aug-05
Dipping Tank Spring	**39.775222**	**-114.475117**	**12**	**7.77**	**6.83**	**-15.74**	**-119.8**	**47.5**	**8.37**	**16.2**	**2.01**	**18**	**167**	**14.6**	**30.7**	**0.10**	**63280**	**1**		**Spring**	**398**	**25-Aug-05**
DLLLC Hidden Valley	36.49340	-114.92657				-12.90	-97.0										999		HV-1	Well	37	06/05/00
DLLLC Hidden Valley	**36.49340**	**-114.92657**				**-12.90**	**-97.0**										**999**		**HV-1**	**Well**	**37**	
Dodge Well	38.24444	-114.54250	17.0			-14.20	-107.0										350		GS137	Well	185	06/07/85
Dodge Well	**38.24444**	**-114.54250**	**17.0**			**-14.20**	**-107.0**										**350**		**GS137**	**Well**	**185**	
Dry Lake Valley Well	36.45500	-114.84389	29.0	2.0	7.3	-13.30	-97.5	110.0	48.0	120.0	13.0	170.0	210.0	360.0	21.0	2.1	64	1	GS17	Well	34	07/01/85
Dry Lake Valley Well	**36.45500**	**-114.84389**	**29.0**	**2.0**	**7.3**	**-13.30**	**-97.5**	**110.0**	**48.0**	**120.0**	**13.0**	**170.0**	**210.0**	**360.0**	**21.0**	**2.1**	**64**	**1**	**GS17**	**Well**	**34**	**07/01/85**
East Settling Spring	37.37315	-114.23282	--	--	--	-12.76	-92.2	--	--	--	--	--	--	--	--	--	61100B	1		Spring	248	07/31/04
East Settling Spring	**37.37315**	**-114.23282**	**--**	**--**	**--**	**-12.76**	**-92.2**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**61100B**	**1**		**Spring**	**248**	**07/31/04**
Easter Spring	39.04120	-115.34883	11.1	6.7	7.3	-15.56	-119.4										62823		WP-23	Spring	365	06/29/05
Easter Spring	**39.04120**	**-115.34883**	**11.1**	**6.7**	**7.3**	**-15.56**	**-119.4**										**62823**		**WP-23**	**Spring**	**365**	**06/29/05**
EH-3 Weiser Wash	36.69222	-114.52556	24.1		7.8	-12.70	-91.0	511.0	201.0	170.0	22.0	194.0	123.0	2100.0	15.0			GS999	4	Well	61	averages
EH-3 Weiser Wash	**36.69222**	**-114.52556**	**24.1**		**7.8**	**-12.70**	**-91.0**	**511.0**	**201.0**	**170.0**	**22.0**	**194.0**	**123.0**	**2100.0**	**15.0**			**GS999**	**4**	**Well**	**61**	**averages**
EH-4 Weiser Wash	36.70639	-114.71611	22.8	0.0	8.3	-13.00	-98.0	49.0	30.0	90.0	12.0	57.0	245.0	171.0	28.0	0.0	AVG	1		Well	63	averages
EH-4 Weiser Wash	**36.70639**	**-114.71611**	**22.8**	**0.0**	**8.3**	**-13.00**	**-98.0**	**49.0**	**30.0**	**90.0**	**12.0**	**57.0**	**245.0**	**171.0**	**28.0**	**0.0**	**AVG**	**1**		**Well**	**63**	**averages**
EH-6 Weiser Wash	36.68167	-114.57000	24.8	0.0	7.7	-13.90	-99.5	341.0	131.0	274.0	31.0	41.0	178.0	1800.0	13.0	0.0	AVG	1		Well	59	averages
EH-6 Weiser Wash	**36.68167**	**-114.57000**	**24.8**	**0.0**	**7.7**	**-13.90**	**-99.5**	**341.0**	**131.0**	**274.0**	**31.0**	**41.0**	**178.0**	**1800.0**	**13.0**	**0.0**	**AVG**	**1**		**Well**	**59**	**averages**

EH-7	36.67056	-114.53139	21.0		7.3	-12.45	-91.0	470.0	190.0	170.0	20.0	65.0		2000.0	15.0	0.9	99		GS35	Well	56	03/19/87
EH-7	36.67056	-114.53139	21.0		7.3	-12.45	-91.0	470.0	190.0	170.0	20.0	65.0		2000.0	15.0	0.9	99		GS35	Well	56	03/19/87
EH-8 Weiser Wash	36.67389	-114.57583	0.0	0.0	7.6	-13.70	-96.5	375.0	104.0	416.0	22.0	233.0	162.0	1780.0	26.0	0.0	AVG	1		Well	57	averages
EH-8 Weiser Wash	36.67389	-114.57583	0.0	0.0	7.6	-13.70	-96.5	375.0	104.0	416.0	22.0	233.0	162.0	1780.0	26.0	0.0	AVG	1		Well	57	averages
Eightmile Spring	37.46466	-115.06440	17.9	6.7	7.2	-13.12	-96.7	45.0	9.2	13.2	1.5	10.6	189.0	8.9	43.2	--	61103	1		Spring	295	07/30/04
Eightmile Spring	37.46466	-115.06440	14.4	6.7	7.4	-13.06	-94.4	52.2	9.9	17.8	1.1	16.2	195.0	14.8	37.6	--	61106C		DRI-PR-11	Spring	295	04/30/05
Eightmile Spring	37.46466	-115.06440	16.2	6.7	7.3	-13.09	-95.6	48.6	9.5	15.5	1.3	13.4	192.0	11.9	40.4	#DIV/0!				Spring	295	
Eight Mile Spring (Snake Range)	39.388297	-114.28433	11.1	7.65	7.02	-15.53	-116.3	77.8	18.3	5.74	0.86	4.7	307	9.5	12.6	<.05	63284	1	SN-32	Spring	402	26-Aug-05
Eight Mile Spring (Resample)	39.388280	-114.284365	11	7.1	7.31	-15.38	-114.8	79.7	18.5	5.28	0.76	4.9	306	9.6	12.4	0.05	65421	1	SN-32	Spring	496	09/17/06
Eight Mile Spring (Snake Range)	39.388297	-114.28433	11.05	7.375	7.165	-15.46	-115.6	78.75	18.4	5.51	0.81	4.78	306.5	9.545	12.5	0.05	63284	2	SN-32	Spring	402	
Ella Spring	37.49072	-114.44835	7.5	3.6	7.7	-12.56	-95.8	44.2	8.6	11.1	1.8	7.0	170.0	8.8	27.1	--	59702	1		Spring	251	03/27/04
Ella Spring	37.49072	-114.44835	7.5	3.6	7.7	-12.56	-95.8	44.2	8.6	11.1	1.8	7.0	170.0	8.8	27.1	--	59702	1		Spring	251	03/27/04
Emigrant Spring	38.62500	-115.04778	19.5	5.2	7.1	-14.50	-108.0	67.0	24.0	5.3	1.6	2.9	300.0	14.0	13.0	0.2	410		GS188	Spring	207	07/18/81
Emigrant Spring	38.62500	-115.04778	20.1				-107.5										411		GS189	Spring	207	01/17/84
Emigrant Spring	38.62500	-115.04778	19.8	5.2	7.1	-14.50	-107.8	67.0	24.0	5.3	1.6	2.9	300.0	14.0	13.0	0.2				Spring	207	
Fence Spring	38.17978	-114.71593	--	--	--	-12.55	-97.4	--	--	--	--	--	--	--	--	--	--	1		Spring	278	06/29/04
Fence Spring	38.17978	-114.71593	--	--	--	-12.55	-97.4	--	--	--	--	--	--	--	--	--	--	1		Spring	278	06/29/04
Flag Spring #3	38.42139	-115.02222	22.8		7.5	-14.30	-105.0	50.0	21.0	10.0	3.4	6.6	270.0	12.0	26.0	0.2	380		GS161	Spring	201	01/17/84
Flag Spring #3	38.42139	-115.02222	22.8		7.5	-14.30	-105.0	50.0	21.0	10.0	3.4	6.6	270.0	12.0	26.0	0.2	380		GS161	Spring	201	01/17/84
Flatnose Spring (Unnamed Spring)	37.89611	-114.22583	25.0		8.0	-13.40	-101.0	26.0	3.5	34.0	5.6	10.0	146.0	18.0	55.0	1.3	306		GS113	Spring	153	04/08/85
Flatnose Spring (Unnamed Spring)	37.89611	-114.22583	25.0		8.0	-13.40	-101.0	26.0	3.5	34.0	5.6	10.0	146.0	18.0	55.0	1.3	306		GS113	Spring	153	04/08/85
Forest Home Spring (Unnamed Spring)	38.37750	-115.37528	14.0	5.3	7.6	-14.50	-108.5	62.0	26.0	9.9		6.9	309.0	19.0	14.0	<.1	368		GS152	Spring	195	07/24/85
Forest Home Spring (Unnamed Spring)	38.37750	-115.37528	14.0	5.3	7.6	-14.50	-108.5	62.0	26.0	9.9		6.9	309.0	19.0	14.0	<.1	368		GS152	Spring	195	07/24/85
Four Mile Spring	39.307241	-114.298032	9.4	6.5	7.23	-14.75	-112.5	85.5	33.7	8.88	1.18	7.5	375	40.2	15.8	0.10	65413		SN-25	Spring	488	09/16/06
Four Mile Spring	39.307241	-114.298032	9.4	6.5	7.23	-14.75	-112.5	85.5	33.7	8.88	1.18	7.5	375	40.2	15.8	0.10	65413		SN-25	Spring	488	09/16/06
Fox Cabin	38.16267	-114.65034	--	--	--	-13.59	-103.5	--	--	--	--	--	--	--	--	--	--	1		Spring	273	06/29/04
Fox Cabin	38.16267	-114.65034	--	--	--	-13.59	-103.5	--	--	--	--	--	--	--	--	--	--	1		Spring	273	06/29/04
Fugro CV Deep Well CE-DT-5	36.79556	-114.89222	35.5	2.3	7.2	-12.90	-99.5	46.0	20.0	78.0	11.0	34.0	300.0	100.0	33.0	1.9	139		GS53	Well	77	07/22/81
Fugro CV Deep Well CE-DT-5	36.79556	-114.89222				-12.99	-99.6										USGS			Well		5/28/2003
Fugro CV Deep Well CE-DT-5	36.79556	-114.89222				-12.99	-99.6										USGS			Deep Well		2/16/2005
Fugro CV Deep Well CE-DT-5	36.79556	-114.89222	35.5	2.3	7.2	-12.96	-99.6	46.0	20.0	78.0	11.0	34.0	300.0	100.0	33.0	1.9	139		GS53	Well	77	07/22/81
Fugro Dry Lake V Deep Well	38.14583	-114.89333	27.5	3.2	7.1	-14.20	-108.0	73.0	29.0	20.0	6.9	6.2		27.0	25.0	0.5	343		GS133	Well	179	12/10/80
Fugro Dry Lake V Deep Well	38.14583	-114.89333				-14.11	-107.0										USGS			Well		6/19/2003
Fugro Dry Lake V Deep Well	38.14583	-114.89333	27.5	3.2	7.1	-14.16	-107.5	73.0	29.0	20.0	6.9	6.2		27.0	25.0	0.5	343		GS133	Well	179	12/10/80
Fugro Steptoe V Deep Well	38.92000	-114.84528	11.0	5.5	7.5	-14.90	-117.0	66.0	14.0	15.0	4.4	12.0		57.0	28.0	0.4	443		GS218	Well	228	01/19/81
Fugro Steptoe V Deep Well	38.92000	-114.84528	11.0	5.5	7.5	-14.90	-117.0	66.0	14.0	15.0	4.4	12.0		57.0	28.0	0.4	443		GS218	Well	228	01/19/81
Garden Spring	37.26425	-114.28869	8.8	6.5	7.1	-11.54	-87.0	--	--	--	--	--	--	--	--	--	58500	1		Spring	246	01/15/04
Garden Spring	37.26425	-114.28869	8.8	6.5	7.1	-11.54	-87.0	--	--	--	--	--	--	--	--	--	58500	1		Spring	246	01/15/04
Geyser Spring	38.68000	-114.66556	12.5		7.8	-14.50	-105.0										419		E1	Spring	213	04/03/85
Geyser Spring	38.68000	-114.66556	12.5		7.8	-14.50	-105.0										419		E1	Spring	213	04/03/85
Gourd Spring	36.95861	-114.29167	E16.			-10.60	-77.5										175		GS63	Spring	89	02/06/84
Gourd Spring	36.95861	-114.29167	E16.			-10.60	-77.5										175		GS63	Spring	89	02/06/84
GP Apex Well	36.34111	-114.92667				-13.35	-97.5										999		Jim	Well	17	09/29/86
GP Apex Well	36.34111	-114.92667	31.0	5.5	7.0	-13.45	-98.0	120.0	47.0	130.0	13.0	200.0		380.0	23.0	1.4	24		PLC23	Well	17	09/30/86
GP Apex Well	36.34111	-114.92667				-13.80	-96.0						226.0				25		GS8	Well	17	09/30/86
GP Apex Well	36.34111	-114.92667	31.0	5.5	7.0	-13.53	-97.2	120.0	47.0	130.0	13.0	200.0	226.0	380.0	23.0	1.4				Well	17	
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	27.0	492.0	7.2	-15.83	-119.6	49.8	16.8	29.3	3.9	23.9	245.0	22.1	23.1	--	61482			Spring	333	09/24/04
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.9	6.3	7.7	-15.88	-120.0	50.7	17.1	29.1	3.9	23.6	236.0	22.6	22.8	--	61963	2		Spring	333	01/22/05
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707				-15.83	-119.4										62623			Spring	333	05/23/05
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707				-15.93	-119.8	49.9	16.4	28.4	3.9	23.6	22.2	240.0	22.3	0.23	63224		SU-1	Spring	333	08/12/05
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.6	4.9	7.52	-15.90	-122.8	47.3	17.0	28.5	3.91	22.8	235	22.5	22.7	0.6	63568			Spring	333	8-Nov-05
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.8	5.5	7.58	-15.96	-119.5	50.8	16.2	28.2	3.89	23.7	236	22.8	22.5	0.65	64237		SU-1	Spring	333	02/25/06
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	27.3	5.75	7.55	-16.00	-121.2	50.4	16.6	28.8	4.92	24.2	236	23.5	23.0	0.63	64740		SU-1	Spring	333	05/21/06
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.70	5.75	7.59	-15.88	-120.4	51.2	17.0	24.1	3.01	24.4	247	22.8	21.8	0.62	65292		SU-1	Spring	333	08/25/06
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.9	5.74	7.56	-15.91	-120.3	51.1	17.1	28.6	3.85	24.1	233	22.7	22.4	0.58	65658		SU-1	Spring	333	10/29/06
Gandy Warm Spring (Warm Spring Near Gandy)	39.46000	-114.03707	26.9	75.1	7.5	-15.90	-120.3	50.2	16.8	28.1	3.9	23.8	211.3	49.9	22.6	0.6				Spring	333	
Granite Spring	38.562713	-114.916582	11.8	5.84	6.83	-13.32	-103.4	44.6	10.9	16.6	2.92	12.6	186	17.2	57.3	0.17	65049		ER-23	Spring	440	07/13/06
Granite Spring	38.562713	-114.916582	11.8	5.84	6.83	-13.32	-103.4	44.6	10.9	16.6	2.92	12.6	186	17.2	57.3	0.17	65049		ER-23	Spring	440	07/13/06
Grapevine Spring (KSV-2)	37.12988	-114.70972				-11.60	-88.0										183		Kirk1028	Spring	93	--
Grapevine Spring (KSV-2)	37.12988	-114.70972	18.5		7.3	-12.00	-87.5	75.0	22.0	17.0	2.3	27.0	280.0	40.0	22.0	0.9	185		GS69	Spring	93	02/03/84
Grapevine Spring (KSV-2)	37.12988	-114.70972	18.2	2.4	7.6	-11.90	-88.6	77.2	17.3	20.2	2.9	31.4	236.0	44.5	28.3	--	62396		DRI-MM-1	Spring	93	04/27/05
Grapevine Spring (KSV-2)	37.12988	-114.70972				-11.95	-85.2	77.5	17.9	18.7	2.38	32.7	245.0	46.7	27.3	0.27	63223		DRI-MM-1	Spring	93	08/16/05
Grapevine Spring (KSV-2)	37.12988	-114.70972	18.3	5.7	7.71	-11.89	-87.7	79.2	17.6	18.1	2.62	30.1	244	42.8	26.8	0.68	63573			Spring	93	9-Nov-05
Grapevine Spring WR7	37.12988	-114.70972	12.1	4.86	7.5	-12.00	-87.3	76.3	18.0	18.0	1.95	32.1	228	44.8	24.2	0.66	64171		MM-1	Spring	93	02/16/06
Grapevine Spring WR7	37.12988	-114.70972	18.8	1.33	7.3	-11.92	-87.3	76.7	17.7	16.8	2.55	28.0	248	40.0	26.7	0.71	64745		MM-1	Spring	93	05/22/06

Grapevine Spring WR7	37.12988	-114.70972	20.70	2.56	7.14	-12.00	-87.4	73.4	18.5	16.7	1.96	31.0	233	45.6	24.8	0.67	65288		MM-1	Spring	93	08/23/06
Grapevine Spring WR7	37.12988	-114.70972	17.3	2.92	7.28	-11.93	-87.2	74.0	18.5	18.1	2.05	29.6	228	44.7	24.1	0.66	65665		MM-1	Spring	93	10/30/06
Grapevine Spring WR7	37.12988	-114.70972	-	-	-	-12.03	-87.5	-	-	-	-	-	-	-	-	-	-	-	MM-1	Spring	-	5/9/2007
Grapevine Spring (KSV-2)	37.12988	-114.70972	**17.7**	**3.3**	**7.4**	**-11.92**	**-87.4**	**76.2**	**18.4**	**18.0**	**2.3**	**30.2**	**242.8**	**43.6**	**25.5**	**0.7**				**Spring**	**93**	
Grass Valley Springs	39.713209	-114.233004	9.2	6	6.35	-16.72	-124.7	18.0	3.26	12.3	0.94	5.9	81.0	5.1	26.6	0.09	63274			Spring	392	23-Aug-05
Grass Valley Springs	**39.713209**	**-114.233004**	**9.2**	**6**	**6.35**	**-16.72**	**-124.7**	**18.0**	**3.26**	**12.3**	**0.94**	**5.9**	**81.0**	**5.1**	**26.6**	**0.09**	**63274**			**Spring**	**392**	**23-Aug-05**
Grassy Spring	37.54107	-114.79174	13.0	6.5	7.4	-10.90	-85.0	85.2	15.3	30.8	0.7	36.9	269.0	58.0	33.0		241		K7	Spring	117	01/14/85
Grassy Spring	37.54107	-114.79174	14.2	5.3	7.5	-11.23	-90.9	111.0	19.2	51.0	0.6	57.0	339.0	54.0	36.4	--	59700	1		Spring	117	03/26/04
Grassy Spring	37.54107	-114.79174	13.6	5.7	7.0	-11.10	-90.1	116.0	20.7	39.9	0.9	70.7	330.0	69.0	36.8	--	62402		DRI-DR-20	Spring	117	04/27/05
Grassy Spring	**37.54107**	**-114.79174**	**13.6**	**5.8**	**7.3**	**-11.08**	**-88.7**	**104.1**	**18.4**	**40.6**	**0.7**	**54.9**	**312.7**	**60.3**	**35.4**	**--**				**Spring**	**117**	
Gubler Canyon Creek Spring (Unnamed Spring in Gubler Canyon)	39.13389	-114.96139	12.5			-14.90	-111.0					2.4					457		GS243	Spring	235	06/16/83
Gubler Canyon Creek Spring (Unnamed Spring in Gubler Canyon)	**39.13389**	**-114.96139**	**12.5**			**-14.90**	**-111.0**					**2.4**					**457**		**GS243**	**Spring**	**235**	**06/16/83**
Hackberry Spring	36.91778	-114.43778	10.0			-12.30	-87.0										162		GS58	Spring	84	02/05/84
Hackberry Spring	**36.91778**	**-114.43778**	**10.0**			**-12.30**	**-87.0**										**162**		**GS58**	**Spring**	**84**	**02/05/84**
Haggerty Spring	38.66930	-114.90482	11.9	5.98	6.85	-14.78	-109.6	69.7	13.0	3.94	0.76	2.8	259	7.0	10.6		62979		ER-9	Spring	387	07/31/05
Haggerty Spring	**38.66930**	**-114.90482**	**11.9**	**5.98**	**6.85**	**-14.78**	**-109.6**	**69.7**	**13.0**	**3.94**	**0.76**	**2.8**	**259**	**7.0**	**10.6**		**62979**		**ER-9**	**Spring**	**387**	**07/31/05**
Halfway Spring (RS)	38.964420	-115.311490	12.9	2.6	7.8	-13.35	-108.4	Iso Only	-	-	-	-	-	-	-	-	--		WP-14	Spring	429	07/11/06
Halfway Spring	38.964420	-115.311490	16.5	0.85	6.93	-13.68	-109.0	100	21.2	37.6	1.9	14.7	448	21.1	56.6	-	--		WP-14	Spring	429	06/29/05
Halfway Spring (RS)	**38.964420**	**-115.311490**	**14.7**	**1.725**	**7.365**	**-13.52**	**-108.7**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**--**		**WP-14**	**Spring**	**429**	**07/11/06**
Hamilton Spring	37.93572	-114.88764	14.4	6.8	7.2	-11.76	-93.1	66.9	10.8	29.4	7.2	22.9	260.0	25.5	69.4	--	59686	1		Spring	298	03/23/04
Hamilton Spring	**37.93572**	**-114.88764**	**14.4**	**6.8**	**7.2**	**-11.76**	**-93.1**	**66.9**	**10.8**	**29.4**	**7.2**	**22.9**	**260.0**	**25.5**	**69.4**	**--**	**59686**	**1**		**Spring**	**298**	**03/23/04**
Headwaters Spring WR5	38.36575	-114.31935	9.6	6.5	7.0	-14.65	-106.9	10.4	2.4	4.5	1.3	4.5	37.1	4.7	19.1	--	60311			Spring	309	05/19/04
Headwaters Spring WR5	38.36575	-114.31935	--	--	--	-14.67	-108.7	--	--	--	--	--	--	--	--	--	60311B	4		Spring	309	07/18/04
Headwaters Spring WR5	38.36575	-114.31935	8.2	7.1	6.9	-14.67	-108.8	11.2	2.5	4.8	1.2	4.2	37.2	4.4	20.4	--	61481			Spring	309	09/23/04
Headwaters Spring WR5	38.36575	-114.31935				-15.01	-110.4										62970			Spring	309	07/27/05
Headwaters Spring WR5	38.36575	-114.31935				-14.99	-109.6	11.8	2.5	4.9	1.2	4.7	3.4	44.3	21.1	0.20	63221		WC-1	Spring	309	08/13/05
Headwaters Spring WR5	38.36575	-114.31935	9.5	5.97	6.36	-14.71	-107.8	13.8	3.00	5.43	1.34	6.2	46.9	4.4	21.4	0.06	63565	1		Spring	309	7-Nov-05
Headwaters Spring WR5	38.365750	-114.319350	9.3	6.25	6.54	-14.52	-106.3	11.4	2.57	5.21	1.27	3.7	45.0	3.7	22.0	0.08	64737		WC-1	Spring	309	05/23/06
Headwaters Spring WR5	38.365750	-114.319350	12.1	6.14	6.37	-14.59	-107.7	10.7	2.46	5.04	1.29	4.5	43.2	4.1	21.2	0.06	65370		WC-1	Spring	309	08/31/06
Headwaters Spring WR5	38.365750	-114.319350	8.9	7.09	6.50	-14.47	-107.3	11.5	2.68	5.28	1.30	4.4	41.1	4.0	21.5	0.07	65744		WC-1	Spring	309	11/16/06
WR 5 Autosampler	38.365750	-114.319350	-	-	-	-14.61	-107.6	-	-	-	-	-	-	-	-	-	DRI-65370-9		WC-1	Spring	309	12/01/05
WR 5 Autosampler	38.365750	-114.319350	-	-	-	-14.70	-108.6	-	-	-	-	-	-	-	-	-	DRI-65370-12		WC-1	Spring	309	01/01/06
WR 5 Autosampler	38.365750	-114.319350	-	-	-	-14.52	-107.7	-	-	-	-	-	-	-	-	-	DRI-65370-14		WC-1	Spring	309	02/01/06
WR 5 Autosampler	38.365750	-114.319350	-	-	-	-14.34	-105.7	-	-	-	-	-	-	-	-	-	DRI-65370-16		WC-1	Spring	309	03/01/06
WR 5 Autosampler	38.365750	-114.319350	-	-	-	-14.36	-105.5	-	-	-	-	-	-	-	-	-	DRI-65370-20		WC-1	Spring	309	05/01/06
WR5 Autosample 1	38.365750	-114.319350	-	-	-	-14.53	-105.7	-	-	-	-	-	-	-	-	-	65744Auto1		WC-1	Spring	309	09/01/06
WR5 Autosample 5	38.365750	-114.319350	-	-	-	-14.10	-105.4	-	-	-	-	-	-	-	-	-	65744Auto5		WC-1	Spring	309	11/01/06
Headwaters Spring WR5	38.365750	-114.319350	8.5	NA	6.24	-14.24	-105.0	10.6	2.41	4.62	1.24	3.1	41.8	3.5	19.4	0.08	65744		WC-1	Spring	309	5/7/2007
Headwaters Spring WR5	38.36575	-114.31935	**9.4**	**6.5**	**6.6**	**-14.57**	**-107.3**	**11.4**	**2.6**	**5.0**	**1.3**	**4.4**	**37.0**	**9.1**	**20.8**	**0.1**		17	WC-1	**Spring**	**309**	
Hells Acres Gulch Spring (Unnamed Spring in Hells Acres Gulch)	37.46028	-115.12472	13.0		8.3	-12.30	-93.0	45.2	9.0	20.7	2.4	8.2	198.0	19.9	39.0		211		K9	Spring	109	01/14/85
Hells Acres Gulch Spring(Unnamed Spring in Hells Acres Gulch)	**37.46028**	**-115.12472**	**13.0**		**8.3**	**-12.30**	**-93.0**	**45.2**	**9.0**	**20.7**	**2.4**	**8.2**	**198.0**	**19.9**	**39.0**		**211**		**K9**	**Spring**	**109**	**01/14/85**
Henry Spring	37.68990	-115.37391	--	--	--	-12.77	-97.4	--	--	--	--	--	--	--	--	--	--	1		Spring	287	06/25/04
Henry Spring	**37.68990**	**-115.37391**	**--**	**--**	**--**	**-12.77**	**-97.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**287**	**06/25/04**
High Springs	39.130125	-114.950408	7.4	6.49	7.5	-15.43	-113.4	66.2	10.1	3.65	0.91	0.8	232	17.9	10.4	0.12	65042		ER-16	Spring	433	07/12/06
High Springs	**39.130125**	**-114.950408**	**7.4**	**6.49**	**7.5**	**-15.43**	**-113.4**	**66.2**	**10.1**	**3.65**	**0.91**	**0.8**	**232**	**17.9**	**10.4**	**0.12**	**65042**		**ER-16**	**Spring**	**433**	**07/12/06**
Highland Spring	37.92110	-114.54923	10.0		7.2	-13.30	-98.5	86.0	36.0	4.7	1.0	4.4	474.0	8.1	15.0	0.1	320		GS120	Spring	163	04/07/85
Highland Spring	37.92110	-114.54923	11.6	5.8	7.4	-13.49	-99.6	77.1	35.9	3.7	0.7	3.7	413.0	6.2	15.3	--	60839	1		Spring	163	06/24/04
Highland Spring	37.92110	-114.54923	10.2	7.3	6.8	-13.30	-99.3	82.9	35.1	4.3	0.6	3.4	403.0	5.9	16.1	--	62408		DRI-HR-1	Spring	163	05/01/05
Highland Spring	37.92110	-114.54923	**10.6**	**6.6**	**7.1**	**-13.36**	**-99.1**	**82.0**	**35.7**	**4.3**	**0.8**	**3.8**	**430.0**	**6.7**	**15.5**	**0.1**				**Spring**	**163**	
Hiko Spring	37.59833	-115.21444				-13.80	-109.0										249		PLC12	Spring	122	--
Hiko Spring	37.59833	-115.21444					-110.5										254		IT127	Spring	122	08/01/68
Hiko Spring	37.59833	-115.21444					-109.5										255		IT128	Spring	122	01/01/69
Hiko Spring	37.59833	-115.21444					-109.5										256		IT129	Spring	122	03/01/70
Hiko Spring	37.59833	-115.21444				-15.30	-110.0										251		IT124	Spring	122	01/14/85
Hiko Spring	37.59833	-115.21444				-14.00	-105.0										257		IT130	Spring	122	01/14/85
Hiko Spring	37.59833	-115.21444	26.5		7.7	-14.45	-107.7	46.4	23.3	25.6	6.6	46.3	273.0	38.1	33.1	0.5	252		IT125	Spring	122	08/07/95
Hiko Spring	37.59833	-115.21444	**26.5**	**#DIV/0!**	**7.7**	**-14.39**	**-108.7**	**46.4**	**23.3**	**25.6**	**6.6**	**46.3**	**273.0**	**38.1**	**33.1**	**0.5**				**Spring**	**122**	
Hole in the Bank Spring	38.84915	-114.89566	6.9	7.9	6.6	-15.37	-114.9	43.7	11.0	12.4	2.95	5.1	195	10.5	50.6	0.13	62977		ER-8	Spring	386	07/31/05
Hole in the Bank Spring	**38.84915**	**-114.89566**	**6.9**	**7.9**	**6.6**	**-15.37**	**-114.9**	**43.7**	**11.0**	**12.4**	**2.95**	**5.1**	**195**	**10.5**	**50.6**	**0.13**	**62977**		**ER-8**	**Spring**	**386**	**07/31/05**
Horse Spring (Morman)	36.94139	-114.44639				-12.70	-89.0										167		GS59	Spring	85	02/05/84
Horse Spring (Morman)	**36.94139**	**-114.44639**				**-12.70**	**-89.0**										**167**		**GS59**	**Spring**	**85**	**02/05/84**
Horse Spring (Grant)	38.32951	-115.38580	14.7	7.2	7.1	-12.86	-99.5										62829		GR-3	Spring	370	06/30/05
Horse Spring (Grant)	**38.32951**	**-115.38580**	**14.7**	**7.2**	**7.1**	**-12.86**	**-99.5**										**62829**		**GR-3**	**Spring**	**370**	**06/30/05**
Horsethief Spring	38.02649	-114.24511	11.7	1.6	6.9	-12.73	-96.3	56.6	8.0	16.5	1.2	18.6	206.0	13.0	50.1	--	60314	1		Spring	314	05/20/04
Horsethief Spring	38.02649	-114.24511	9.7	1.9	6.4	-12.62	-97.6	76.5	10.6	27.6	0.5	19.5	293.0	13.5	60.3	--	62406		DRI-WC-6	Spring	314	05/01/05
Horsethief Spring	38.02649	-114.24511	**10.7**	**1.8**	**6.7**	**-12.68**	**-97.0**	**66.6**	**9.3**	**22.1**	**0.9**	**19.1**	**249.5**	**13.3**	**55.2**	**#DIV/0!**				**Spring**	**314**	
Hot Creek Campground Well	38.38833	-115.13278	19.0			-15.30	-118.0										374		GS155	Well	198	07/19/81
Hot Creek Campground Well	**38.38833**	**-115.13278**	**19.0**			**-15.30**	**-118.0**										**374**		**GS155**	**Well**	**198**	**07/19/81**

Hot Creek Springs	38.38251	-115.15451	32.5	1.0	7.2	-15.50	-118.0	59.0	21.0	24.0	5.5	10.0		46.0	28.0	0.9	372		GS153	Spring	197	07/19/81
Hot Creek Springs	38.38251	-115.15451	31.8	1.3	7.2	-15.71	-120.5	57.9	22.1	24.9	4.8	10.1	282.0	43.9	28.2	--	61484			Spring	197	09/25/04
Hot Creek Springs	38.38251	-115.15451	31.3	1.4	7.3	-15.66	-119.0	59.0	22.2	25.0	5.3	10.0	272.0	45.5	27.8	--	61972	2		Spring	197	01/24/05
Hot Creek Springs	38.38251	-115.15451	31.2	1.6	7.1	-15.66	-118.6									--	62624		DRI-WV-2	Spring	197	05/18/05
Hot Creek Springs	38.38251	-115.15451	31.3	1.6	6.8	-15.70	-117.4										63228		DRI-WV-2	Spring	197	08/14/05
Hot Creek Spring	38.38251	-115.15451	30.9	1.52	7.33	-15.73	-119.1	59.7	22.4	24.3	5.03	10	273	45.1	27.7	1.02	63564			Spring	197	11/6/05
Hot Creek Spring	38.382510	-115.154510	31.3	1.87	7.32	-15.77	-119.2	58.7	22.1	24.5	5.22	10.2	269	45.4	27.8	1.02	65656		WV-2	Spring	197	10/28/06
Hot Creek Springs	38.382510	-115.154510	31.3	1.06	7.29	-15.75	-118.4	59.5	21.5	24.3	5.14	10.1	271	45.2	28.8	1.04	64234		WV-2	Spring	197	02/17/06
Hot Creek Springs	38.382510	-115.154510	31.7	1.54	7.36	-15.67	-120.1	59.6	21.6	25.2	5.15	10.6	269	47.0	28.4	1.02	64736		WV-2	Spring	197	05/22/06
Hot Creek Springs	38.382510	-115.154510	31.4	1.32	7.3	-15.75	-119.0	59.3	22.3	22.3	4.53	10.1	268	46.0	27.7	1.00	65367		WV-2	Spring	197	08/29/06
Hot Creek Springs	38.38251	-115.15451	**31.5**	**1.4**	**7.2**	**-15.69**	**-118.9**	**59.1**	**21.9**	**24.3**	**5.1**	**10.1**	**272.0**	**45.5**	**28.1**	**1.0**				**Spring**	**197**	
Indian Spring (Butte)	39.44040	-115.31884	11.3	7.9	7.1	-15.31	-119.1									--	62709		DRI-BT-8	Spring	334	06/05/05
Indian Spring (Butte)	**39.44040**	**-115.31884**	**11.3**	**7.9**	**7.1**	**-15.31**	**-119.1**									**--**	**62709**		**DRI-BT-8**	**Spring**	**334**	**06/05/05**
Indian Springs	38.64160	-114.44957				-14.16	-106.3	26.3	4.10	12.7	4.56	9.4	114.0	6.7	72.8	0.10	62974		FO-1	Spring	375	07/29/05
Indian Springs	**38.64160**	**-114.44957**				**-14.16**	**-106.3**	**26.3**	**4.10**	**12.7**	**4.56**	**9.4**	**114.0**	**6.7**	**72.8**	**0.10**	**62974**		**FO-1**	**Spring**	**375**	**07/29/05**
Iverson's Spring	36.71028	-114.71194					-97.0										111		PLC18	Spring	65	--
Iverson's Spring	**36.71028**	**-114.71194**					**-97.0**										**111**		**PLC18**	**Spring**	**65**	**--**
Jenson Well	37.18417	-114.46444	18.0		7.7	-11.60	-88.5	55.0	14.0	100.0	7.2	45.0	340.0	80.0	56.0	2.1	187		GS70	Well	95	04/10/85
Jenson Well	**37.18417**	**-114.46444**	**18.0**		**7.7**	**-11.60**	**-88.5**	**55.0**	**14.0**	**100.0**	**7.2**	**45.0**	**340.0**	**80.0**	**56.0**	**2.1**	**187**		**GS70**	**Well**	**95**	**04/10/85**
John Wadsworth	37.76861	-114.40694	14.5		7.5	-12.90	-101.0	120.0	47.0	150.0	9.5	88.0	601.0	200.0	76.0	6.5	286		GS101	Well	140	06/04/85
John Wadsworth	**37.76861**	**-114.40694**	**14.5**		**7.5**	**-12.90**	**-101.0**	**120.0**	**47.0**	**150.0**	**9.5**	**88.0**	**601.0**	**200.0**	**76.0**	**6.5**	**286**		**GS101**	**Well**	**140**	**06/04/85**
Johnson Spring	39.92319	-114.98923	10.2	9.0	7.5	-15.94	-123.4									--	62625		DRI-CC-1	Spring	335	05/24/05
Johnson Spring	**39.92319**	**-114.98923**	**10.2**	**9.0**	**7.5**	**-15.94**	**-123.4**									**--**	**62625**		**DRI-CC-1**	**Spring**	**335**	**05/24/05**
Jones Spring Pumphouse	36.71116	-114.71694	27.2	5.3	7.4	-12.99	-98.9	63.4	27.4	95.7	11.1	63.1	252.0	178.0	29.5	--	62033	1		Spring	293	02/10/05
Jones Spring Pumphouse	36.71116	-114.71694	32.00	3.90	7.00	-12.99	-97.80	63.70	27.30	96.00	11.20	61.90	256.00	174.00	31.40	2.18	62034		DRI-MV-6	Spring	293	06/08/05
Jones Spring Pumphouse	36.711160	-114.716940	31.7	3.67	7.36	-13.07	-97.7	63.8	27.4	96.3	10.9	61.8	254	178	29.4	2.20	64175		MV-5	Spring	292	02/16/06
Jones Spring Pumphouse	36.711160	-114.716940	32.2	4.36	7.27	-13.07	-97.9	62.6	27.1	93.1	11.2	62.6	254	181	29.7	2.19	64902		MV-5	Spring	292	06/21/06
Jones Spring Pumphouse	36.711160	-114.716940	32.20	4.05	7.30	-13.10	-97.3	63.7	27.8	84.5	9.32	62.2	269	179	29.3	2.13	65285		MV-5	Spring	292	08/23/06
Jones Spring Pumphouse	36.711160	-114.716940	31.7	3.14	7.35	-13.09	-98.0	64.6	27.2	95.0	11.1	60.7	252	176	29.2	2.2	65661		MV-5	Spring	292	10/30/06
Jones Spring Pumphouse	**36.71116**	**-114.71694**	**31.2**	**4.1**	**7.3**	**-13.05**	**-97.9**	**63.6**	**27.4**	**93.4**	**10.8**	**62.1**	**256.2**	**177.7**	**29.8**	**2.2**				**Spring**	292	
Juanita Spring	36.63694	-114.24750	26.0		7.3	-11.65	-87.0	130.0	43.0	25.0	5.3	15.0		370.0	29.0	1.0	90		GS30	Spring	50	01/25/86
Juanita Spring	**36.63694**	**-114.24750**	**26.0**		**7.3**	**-11.65**	**-87.0**	**130.0**	**43.0**	**25.0**	**5.3**	**15.0**		**370.0**	**29.0**	**1.0**	**90**		**GS30**	**Spring**	**50**	**01/25/86**
Kalamazoo Spring WR6	39.56648	-114.59594	12.1	6.8	7.3	-16.22	-121.6	47.2	15.5	2.5	0.7	2.1	208.0	10.6	10.5	--	60962			Spring	336	07/20/04
Kalamazoo Spring WR6	39.56648	-114.59594	12.3	6.7	7.3	-16.22	-118.5	46.8	16.0	3.2	0.9	1.9	196.0	11.0	11.7	--	61348A			Spring	336	09/21/04
Kalamazoo Spring WR6	39.56648	-114.59594	11.9	6.9	7.4	-16.28	-121.6	48.6	16.5	3.5	0.8	1.8	209.0	12.1	11.4	--	61966	3		Spring	336	01/23/05
Kalamazoo Spring WR6	39.56648	-114.59594				-16.13	-118.6										62636			Spring	336	05/23/05
Kalamazoo Spring WR6	39.56648	-114.59594				-16.18	-119.2	49.6	15.2	3.0	0.7	1.8	11.4	214.0	11.5	0.13	63222A		SC-3	Spring	336	08/12/05
Kalamazoo Spring WR6	39.56648	-114.59594	11.9	7.33	7.47	-16.17	-121.0	49.1	17.5	3.46	0.74	1.9	219	12.8	12.4	<.05	63567			Spring	336	8-Nov-05
Kalamazoo Spring WR6	39.566480	-114.595940	11.7	7.14	7.6	-16.22	-119.3	49.3	16.6	3.42	0.79	2.0	213	12.8	12.1	<.1	64236		SC-3	Spring	336	02/25/06
Kalamazoo Spring WR6	39.566480	-114.595940	9.8	8.1	7.51	-16.06	-118.0	50.0	11.0	2.65	0.55	1.4	191	7.4	9.6	<.05	64739		SC-3	Spring	336	05/21/06
Kalamazoo Spring WR6	39.566480	-114.595940	-	-	-	-16.16	-120.1	-	-	-	-	-	-	-	-	-	--		SC-3	Spring	336	08/02/06
Kalamazoo Spring WR6	39.566480	-114.595940	11.9	7.3	7.55	-16.24	-119.7	50.0	17.1	2.87	0.60	2.0	230	12.4	12.0	<.05	65368		SC-3	Spring	336	08/30/06
Kalamazoo Spring WR6	39.566480	-114.595940	12.0	6.50	7.52	-16.11	-120.5	50.2	17.3	3.51	0.82	1.5	216	12.5	12.4	<.05	65657		SC-3	Spring	336	10/29/06
Kalamazoo Spring WR6	39.566480	-114.595940	11.3	NA	7.6	-16.19	-120.4	48.7	16.3	3.67	0.76	1.5	220	11.7	12.4	0.05	65657		SC-3	Spring		5/8/2007
Kalamazoo Spring WR6	39.56648	-114.59594	**11.7**	**7.1**	**7.5**	**-16.18**	**-119.9**	**49.0**	**15.9**	**3.2**	**0.7**	**1.8**	**191.3**	**31.7**	**11.6**	**0.1**				**Spring**	**336**	
Kane Springs (KSV-3)	37.24611	-114.70584				-12.60	-87.0										193		Kirk1025	Spring	97	--
Kane Springs (KSV-3)	37.24611	-114.70584	16.4		7.2	-11.90	-86.5	44.0	13.0	20.0	5.9	17.0	210.0	14.0	60.0	2.8	195		GS72	Spring	97	02/02/84
Kane Springs (KSV-3)	37.24611	-114.70584	14.8	5.2	7.0	-11.88	-87.0	49.0	13.6	20.3	1.4	17.6	214.0	15.1	64.5	--	58490	1		Spring	97	01/13/04
Kane Springs (KSV-3)	**37.24611**	**-114.70584**	**15.6**	**5.2**	**7.1**	**-12.13**	**-86.8**	**46.5**	**13.3**	**20.2**	**3.6**	**17.3**	**212.0**	**14.6**	**62.3**	**2.8**				**Spring**	**97**	
Kershaw-Ryan Spring #1	37.59028	-114.52010	20.0	6.5	8.4	-13.11	-95.1	24.2	2.7	26.5	4.4	6.3	140.0	4.4	46.1	--	59701	1		Spring	250	03/27/04
Kershaw-Ryan Spring #1	**37.59028**	**-114.52010**	**20.0**	**6.5**	**8.4**	**-13.11**	**-95.1**	**24.2**	**2.7**	**26.5**	**4.4**	**6.3**	**140.0**	**4.4**	**46.1**	**--**	**59701**	**1**		**Spring**	**250**	**03/27/04**
Kiln Spring	37.805098	-114.164229	11.5	2.43	7.11	-12.34	-91.9	93.5	22.9	34.8	0.53	51.2	320	56.9	27.4	0.24	64904		MG-1	Spring	418	06/21/06
Kiln Spring	**37.805098**	**-114.164229**	**11.5**	**2.43**	**7.11**	**-12.34**	**-91.9**	**93.5**	**22.9**	**34.8**	**0.53**	**51.2**	**320**	**56.9**	**27.4**	**0.24**	**64904**		**MG-1**	**Spring**	**418**	**06/21/06**
Lake Mead Base Well #3	36.23917	-115.00444				-13.80	-101.5										19		PLC35	Well	12	--
Lake Mead Base Well #3	**36.23917**	**-115.00444**				**-13.80**	**-101.5**										**19**		**PLC35**	**Well**	**12**	**--**
Lake Valley Well	38.35556	-114.58917	18.0		8.1	-14.70	-111.0	61.0	9.7	22.0	2.1	68.0	121.0	25.0	25.0	0.2	365		GS147	Well	193	06/07/85
Lake Valley Well	**38.35556**	**-114.58917**	**18.0**		**8.1**	**-14.70**	**-111.0**	**61.0**	**9.7**	**22.0**	**2.1**	**68.0**	**121.0**	**25.0**	**25.0**	**0.2**	**365**		**GS147**	**Well**	**193**	**06/07/85**
Lamb Spring	36.94500	-115.10583	13.5			-13.15	-92.5	37.0	41.0	8.7	0.6	8.6		24.0	12.0	0.2	168			Spring	86	05/19/88
Lamb Spring	**36.94500**	**-115.10583**	**13.5**			**-13.15**	**-92.5**	**37.0**	**41.0**	**8.7**	**0.6**	**8.6**		**24.0**	**12.0**	**0.2**	**168**			**Spring**	**86**	**05/19/88**
Lester Mathews Well	37.79361	-114.39972	20.0		8.1	-13.30	-103.0	73.0	21.0	140.0	10.0	44.0		170.0	64.0	3.1	289		GS104	Well	142	06/04/85
Lester Mathews Well	**37.79361**	**-114.39972**	**20.0**		**8.1**	**-13.30**	**-103.0**	**73.0**	**21.0**	**140.0**	**10.0**	**44.0**		**170.0**	**64.0**	**3.1**	**289**		**GS104**	**Well**	**142**	**06/04/85**
Lime Spring	37.91467	-114.54022	21.0		8.3	-12.90	-97.0	55.0	31.0	3.8	0.9	4.1	290.0	8.9	14.0	0.1	315		GS118	Spring	160	04/07/85
Lime Spring	37.91467	-114.54022	15.1	0.4	7.4	-13.41	-99.9	76.1	40.6	3.3	1.1	3.6	433.0	6.4	14.1	--	60840	1		Spring	160	06/24/04
Lime Spring	37.91467	-114.54022	**18.1**	**0.4**	**7.8**	**-13.16**	**-98.5**	**65.6**	**35.8**	**3.5**	**1.0**	**3.9**	**361.5**	**7.7**	**14.1**	**0.1**				**Spring**	**160**	
Lion Spring	38.25863	-114.13032	9.8	8.2	7.8	-14.11	-103.4	37.0	7.0	17.2	3.8	36.1	124.0	15.3	56.6	--	60317	1		Spring	318	05/21/04
Lion Spring	**38.25863**	**-114.13032**	**9.8**	**8.2**	**7.8**	**-14.11**	**-103.4**	**37.0**	**7.0**	**17.2**	**3.8**	**36.1**	**124.0**	**15.3**	**56.6**	**--**	**60317**	**1**		**Spring**	**318**	**05/21/04**

Lion Spring (Egan Range)	39.180372	-114.984442	12.5	5.07	7.28	-15.34	-114.8	64.5	13.2	13.7	4.61	15.4	237	28.7	42.3	0.10	65039		ER-13	Spring	430	07/12/06
Lion Spring (Egan Range)	**39.180372**	**-114.984442**	**12.5**	**5.07**	**7.28**	**-15.34**	**-114.8**	**64.5**	**13.2**	**13.7**	**4.61**	**15.4**	**237**	**28.7**	**42.3**	**0.10**	**65039**		**ER-13**	**Spring**	**430**	**07/12/06**
Little Ash Spring (Ash Spring)	37.46389	-115.19167	37.0		7.4	-14.20	-107.2	45.3	15.4	29.8	7.3	9.5	250.0	35.0	31.5	0.8	229		IT33	Spring	111	08/08/95
Little Ash Spring (Ash Spring)	**37.46389**	**-115.19167**	**37.0**		**7.4**	**-14.20**	**-107.2**	**45.3**	**15.4**	**29.8**	**7.3**	**9.5**	**250.0**	**35.0**	**31.5**	**0.8**	**229**		**IT33**	**Spring**	**111**	**08/08/95**
Little Boulder Spring	37.71330	-114.95217	12.0	6.4	7.1	-13.06	-97.2	21.8	5.9	8.0	2.9	4.9	101.0	7.8	44.8	--	59690	1		Spring	301	03/24/04
Little Boulder Spring	**37.71330**	**-114.95217**	**12.0**	**6.4**	**7.1**	**-13.06**	**-97.2**	**21.8**	**5.9**	**8.0**	**2.9**	**4.9**	**101.0**	**7.8**	**44.8**	**--**	**59690**	**1**		**Spring**	**301**	**03/24/04**
Little Currant Creek	38.83444	-115.35806	10.5			-15.00	-113.0													Surface	217	08/23/83
Little Currant Creek	**38.83444**	**-115.35806**	**10.5**			**-15.00**	**-113.0**													**Surface**	**217**	**08/23/83**
Little Spring (Grant Range)	38.33197	-115.36050	14.7	1.7	6.9	-12.48	-99.4										62828	1		Spring	369	06/30/05
Little Spring (Grant Range)	**38.33197**	**-115.36050**	**14.7**	**1.7**	**6.9**	**-12.48**	**-99.4**										**62828**	**1**		**Spring**	**369**	**06/30/05**
Little Springs (Clover Mts)	37.53418	-114.35607	18.5	5.3	7.6	-12.78	-93.0	30.2	5.1	11.2	2.8	9.7	137.0	4.8	56.5	--	61096	1		Spring	254	07/31/04
Little Springs (Clover Mts)	37.53418	-114.35607	17.1	6.7	6.8	-12.84	-93.5	29.6	4.7	10.8	2.5	8.6	112.0	5.0	46.6	--	62403		DRI-CR-7	Spring	254	04/30/05
Little Springs (Clover Mts)	37.53418	-114.35607	**17.8**	**6.0**	**7.2**	**-12.81**	**-93.3**	**29.9**	**4.9**	**11.0**	**2.6**	**9.2**	**124.5**	**4.9**	**51.6**	**#DIV/0!**				**Spring**	**254**	
Little Cut Spring	37.69653	-115.37810	--	--	--	-12.93	-98.4	68.8	19.7	21.1	2.6	22.2	295.0	30.6	55.9	--	60844	1		Spring	286	06/25/04
Little Cut Spring	37.69653	-115.37810	10.4	4.8	6.8	-12.76	-98.2	75.0	21.0	22.8	2.3	21.1	302.0	33.1	52.2	--	62410		DRI-MI-1	Spring	286	05/02/05
Little Cut Spring	37.69653	-115.37810	**10.4**	**4.8**	**6.8**	**-12.85**	**-98.3**	**71.9**	**20.4**	**22.0**	**2.4**	**21.7**	**298.5**	**31.9**	**54.1**	**#DIV/0!**				**Spring**	**286**	
Little Tom Plain Spring	39.08092	-115.37152	8.0	7.2	6.7	-15.87	-121.8									--	62712		DRI-WP-7	Spring	337	06/06/05
Little Tom Plain Spring (RS)	39.081026	-115.371715	8.9	5.74	7.13	-15.85	-120.1	66.8	5.61	19.3	2.63	14.7	231	19.8	47.3	0.25	65037		WP-12	Spring	427	07/11/06
Little Tom Plain Spring	**39.08092**	**-115.37152**	**8.5**	**6.4**	**6.9**	**-15.86**	**-121.0**	**66.8**	**5.6**	**19.3**	**2.6**	**14.7**	**231.0**	**19.8**	**47.3**	**0.3**	**62712**		**DRI-WP-7**	**Spring**	**337**	**06/06/05**
Littlefield Spring	38.23125	-114.70223	14.9	5.0	7.0	-12.73	-98.5	67.1	13.3	16.3	2.8	22.5	254.0	20.9	47.5	--	60847	1		Spring	275	06/26/04
Littlefield Spring	**38.23125**	**-114.70223**	**14.9**	**5.0**	**7.0**	**-12.73**	**-98.5**	**67.1**	**13.3**	**16.3**	**2.8**	**22.5**	**254.0**	**20.9**	**47.5**	**--**	**60847**	**1**		**Spring**	**275**	**06/26/04**
Lone Pine Spring	38.89556	-114.89944	--	--	--	-14.98	-109.2	--	--	--	--	--	--	--	--	--	--	1		Spring	223	10/13/03
Lone Pine Spring	38.89556	-114.89944	8.0	7.4	7.5	-14.95	-111.5	67.0	4.2	3.5		1.6	224.0	3.7	17.0	<.1	434		GS214	Spring	223	08/01/85
Lone Pine Spring	38.89556	-114.89944	7	7.09	7.44	-14.77	-110.0	72.5	3.80	4.35	1.27	2.3	220	6.0	27.6	0.05	65053		ER-27	Spring	444	07/13/06
Lone Pine Spring	38.89556	-114.89944	**7.5**	**7.2**	**7.5**	**-14.90**	**-110.2**	**69.8**	**4.0**	**3.9**	**1.3**	**2.0**	**222.0**	**4.9**	**22.3**	**0.1**				**Spring**	**223**	
Lower Chokecherry Spring	37.53721	-114.69709	6.4	7.3	7.7	-12.98	-98.4	73.2	15.2	26.7	1.6	19.4	296.0	25.0	53.4	--	59694	1		Spring	261	03/25/04
Lower Chokecherry Spring	**37.53721**	**-114.69709**	**6.4**	**7.3**	**7.7**	**-12.98**	**-98.4**	**73.2**	**15.2**	**26.7**	**1.6**	**19.4**	**296.0**	**25.0**	**53.4**	**--**	**59694**	**1**		**Spring**	**261**	**03/25/04**
Lower Fairview	38.17573	-114.65551	--	--	--	-12.39	-97.5	--	--	--	--	--	--	--	--	--	--	1		Spring	281	06/29/04
Lower Fairview	**38.17573**	**-114.65551**	**--**	**--**	**--**	**-12.39**	**-97.5**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**281**	**06/29/04**
Lower Indian Spring	37.45006	-114.65730	21.4	3.6	8.3	-12.62	-96.0	1.9	0.2	95.1	0.8	12.1	221.0	10.4	56.2	--	58498	1		Spring	267	01/14/04
Lower Indian Spring	**37.45006**	**-114.65730**	**21.4**	**3.6**	**8.3**	**-12.62**	**-96.0**	**1.9**	**0.2**	**95.1**	**0.8**	**12.1**	**221.0**	**10.4**	**56.2**	**--**	**58498**	**1**		**Spring**	**267**	**01/14/04**
Lower Little Cherry Cr Spring	38.16722	-115.65333		8.0	7.6	-13.90	-103.0						268.0				346		GS135	Spring	182	07/31/85
Lower Little Cherry Cr Spring	**38.16722**	**-115.65333**		**8.0**	**7.6**	**-13.90**	**-103.0**						**268.0**				**346**		**GS135**	**Spring**	**182**	**07/31/85**
Lower Pony Spring	38.31972	-114.60722	20.0			-13.20	-101.0										359		GS142	Spring	190	07/23/81
Lower Pony Spring	38.31972	-114.60722	14.0		7.9	-13.30	-101.0	45.0	2.0	36.0	1.1	10.0	202.0	8.2	47.0	0.1	360		GS143	Spring	190	04/05/85
Lower Pony Spring	38.31972	-114.60722	**17.0**	**#DIV/0!**	**7.9**	**-13.25**	**-101.0**	**45.0**	**2.0**	**36.0**	**1.1**	**10.0**	**202.0**	**8.2**	**47.0**	**0.1**				**Spring**	**190**	
Unnamed Spring in Snow Creek	40.07837	-114.91138				-16.24	-120.9									--	62629B		DRI-CC-3	Spring	338	05/24/05
Unnamed Spring in Snow Creek	**40.07837**	**-114.91138**				**-16.24**	**-120.9**									**--**	**62629B**		**DRI-CC-3**	**Spring**	**338**	**05/24/05**
Lund Spring	38.85000	-115.00250	19.0	5.7	7.5	-15.40	-113.0	56.0	23.0	3.8	0.9	2.8	270.0	11.0	11.0	0.1	429		GS210	Spring	221	04/27/82
Lund Spring	38.85000	-115.00250	**19.0**	**5.7**	**7.5**	**-15.40**	**-113.0**	**56.0**	**23.0**	**3.8**	**0.9**	**2.8**	**270.0**	**11.0**	**11.0**	**0.1**				**Spring**	**221**	
M-8 Spring (Unnamed Spring)	36.72083	-114.72750				-12.75	-99.0										119		PLC15	Spring	68	10/30/85
M-8 Spring (Unnamed Spring)	**36.72083**	**-114.72750**				**-12.75**	**-99.0**										**119**		**PLC15**	**Spring**	**68**	**10/30/85**
M-9 Spring (Unnamed Spring)	36.72583	-114.72722				-12.45	-96.5										126		PLC16	Spring	70	10/30/85
M-9 Spring (Unnamed Spring)	**36.72583**	**-114.72722**				**-12.45**	**-96.5**										**126**		**PLC16**	**Spring**	**70**	**10/30/85**
Maynard Lake Spring (Unnamed Spring)	37.19167	-115.03389	9.6		7.9	-12.30	-94.0	43.0	23.0	114.0	14.0	30.0	405.0	88.0			186		IT136	Spring	94	01/14/85
Maynard Lake Spring (Unnamed Spring)	**37.19167**	**-115.03389**	**9.6**		**7.9**	**-12.30**	**-94.0**	**43.0**	**23.0**	**114.0**	**14.0**	**30.0**	**405.0**	**88.0**			**186**		**IT136**	**Spring**	**94**	**01/14/85**
McDermitt Spring	38.25914	-114.63164				-11.21	-94.3													Spring	323	06/26/04
McDermitt Spring	**38.25914**	**-114.63164**				**-11.21**	**-94.3**													**Spring**	**323**	**06/26/04**
Meadow Valley Wash, Cal.	37.63581	-114.51357	5.0		7.8	-13.10	-97.0	58.0	25.0	94.6	15.4	59.1	387.0	66.2	59.0	2.0	271		E27	Surface	130	12/00/79
Meadow Valley Wash, Cal.	**37.63581**	**-114.51357**	**5.0**		**7.8**	**-13.10**	**-97.0**	**58.0**	**25.0**	**94.6**	**15.4**	**59.1**	**387.0**	**66.2**	**59.0**	**2.0**	**271**		**E27**	**Surface**	**130**	**12/00/79**
Meloy Spring	38.25181	-114.70497	14.4	6.9	7.2	-12.75	-99.8	68.1	12.2	16.4	4.4	24.9	248.0	18.1	54.2	--	60845	1		Spring	276	06/26/04
Meloy Spring	**38.25181**	**-114.70497**	**14.4**	**6.9**	**7.2**	**-12.75**	**-99.8**	**68.1**	**12.2**	**16.4**	**4.4**	**24.9**	**248.0**	**18.1**	**54.2**	**--**	**60845**	**1**		**Spring**	**276**	**06/26/04**
Merril's Camp #39	38.18825	-113.866363	8.4	6.27	7.21	-14.13	-102.1	41.8	5.69	8.36	0.38	6.5	156	5.4	15.5	0.09	63597	1		Spring	410	19-Nov-05
Merril's Camp #39	**38.18825**	**-113.866363**	**8.4**	**6.27**	**7.21**	**-14.13**	**-102.1**	**41.8**	**5.69**	**8.36**	**0.38**	**6.5**	**156**	**5.4**	**15.5**	**0.09**	**63597**	**1**		**Spring**	**410**	**19-Nov-05**
Mesquite Wtr Bunkerville 1	36.77528	-114.11806	23.0		7.5	-13.51	-102.5	54.0	28.0	39.0	8.1	31.0	198.0	120.0	25.0	0.9	132		GS49	Well	74	08/17/94
Mesquite Wtr Bunkerville 1	**36.77528**	**-114.11806**	**23.0**		**7.5**	**-13.51**	**-102.5**	**54.0**	**28.0**	**39.0**	**8.1**	**31.0**	**198.0**	**120.0**	**25.0**	**0.9**	**132**		**GS49**	**Well**	**74**	**08/17/94**
Mesquite Wtr Bunkerville 2	36.77417	-114.12889	23.0		7.6	-13.51	-102.1	38.0	20.0	50.0	7.5	13.0	220.0	89.0	21.0	1.4	131		GS48	Well	73	08/18/94
Mesquite Wtr Bunkerville 2	**36.77417**	**-114.12889**	**23.0**		**7.6**	**-13.51**	**-102.1**	**38.0**	**20.0**	**50.0**	**7.5**	**13.0**	**220.0**	**89.0**	**21.0**	**1.4**	**131**		**GS48**	**Well**	**73**	**08/18/94**
Mesquite Wtr Virgin Vly 5	36.77806	-114.08417	26.5		7.4	-13.78	-103.3	110.0	54.0	100.0	7.6	100.0	145.0	440.0	22.0	0.3	133		GS50	Well	75	08/17/94
Mesquite Wtr Virgin Vly 5	**36.77806**	**-114.08417**	**26.5**		**7.4**	**-13.78**	**-103.3**	**110.0**	**54.0**	**100.0**	**7.6**	**100.0**	**145.0**	**440.0**	**22.0**	**0.3**	**133**		**GS50**	**Well**	**75**	**08/17/94**

Mesquite Wtr Virgin Vly 25	36.80833	-114.07250	23.0		7.6	-12.85	-98.9	55.0	34.0	210.0	9.3	160.0	210.0	300.0	28.0	1.2	152		GS54	Well	79	08/18/94
Mesquite Wtr Virgin Vly 25	**36.80833**	**-114.07250**	**23.0**		**7.6**	**-12.85**	**-98.9**	**55.0**	**34.0**	**210.0**	**9.3**	**160.0**	**210.0**	**300.0**	**28.0**	**1.2**	**152**		**GS54**	**Well**	**79**	**08/18/94**
Moapa Well	36.53139	-114.79667				-13.40	-99.0										999		TH-1	Well	41	04/07/00
Moapa Well	**36.53139**	**-114.79667**				**-13.40**	**-99.0**										**999**		**TH-1**	**Well**	**41**	**04/07/00**
Mike's Spring	39.643701	-114.2049	10.7	6.4	6.77	-15.89	-121.1	61.9	18.9	31.8	1.81	29.2	246	34.8	27.5	0.35	63272			Spring	390	23-Aug-05
Mike's Spring	**39.643701**	**-114.2049**	**10.7**	**6.4**	**6.77**	**-15.89**	**-121.1**	**61.9**	**18.9**	**31.8**	**1.81**	**29.2**	**246**	**34.8**	**27.5**	**0.35**	**63272**			**Spring**	**390**	**23-Aug-05**
Mirant	36.418611	-114.9575				-13.23	-96.8										USGS		618	Well	622	6/4/2003
Mirant	36.418611	-114.9575				-13.23	-96.8										USGS		618	Well	622	6/4/2003
Monitoring Spring WR1	38.94903	-115.41008	5.7	8.7	7.5	-15.58	-111.2	56.7	10.0	2.5	0.6	1.1	229.0	4.3	7.4	--	57694			Spring	320	10/12/03
Monitoring Spring WR1	38.94903	-115.41008	6.0	8.5	7.5	-15.32	-113.3	76.0	7.7	2.7	0.7	1.1	259.0	3.3	9.0	--	59578			Spring	320	03/23/04
Monitoring Spring WR1	38.94903	-115.41008	6.7	9.7	8.0	-15.62	-114.0	60.5	9.9	2.1	0.5	1.0	219.0	3.8	7.8	--	60784			Spring	320	06/21/04
Monitoring Spring WR1	38.94903	-115.41008	7.3	10.1	7.4	-15.51	-115.7	60.8	10.9	3.2	1.0	1.2	231.0	4.2	7.5	--	61478			Spring	320	09/22/04
Monitoring Spring WR1	38.94903	-115.41008	5.0	8.6	8.1	-15.58	-115.1	62.0	10.7	2.8	0.8	1.3	227.0	4.5	7.4	--	61962	5		Spring	320	01/21/05
Monitoring Spring WR1	38.94903	-115.41008	6.4	9.4	6.6	-15.55	-112.3									--	62632A		DRI-WP-1	Spring	320	05/21/05
Monitoring Spring WR1	38.94903	-115.41008	5.9	9.4	6.8	-15.63	-113.2	59.1	9.81	2.38	0.63	1.1	224.0	4.3	7.6	0.52	63218		DRI-WP-1	Spring	320	08/14/05
Monitoring Spring WR1	38.94903	-115.41008	5.7	9.79	7.2	-15.65	-113.8	57.2	10.1	2.34	0.58	1.2	211	4.5	7.4	0.11	63561			Spring	320	5-Nov-05
Monitoring Spring WR1	38.949510	-115.408980	5.7	8.11	7.51	-15.69	-113.8	55.7	9.83	2.45	0.64	1.2	208	4.7	7.3	<.1	64235		WP-1	Spring	320	02/24/06
Monitoring Spring WR1	38.949510	-115.408980	5.9	9.22	7.38	-15.38	-111.8	59.1	6.32	1.89	0.49	1.0	199	2.4	7.8	0.05	64733		WP-1	Spring	320	05/20/06
Monitoring Spring WR1	38.949510	-115.408980	-	-	-	-15.63	-114.1	-	-	-	-	-	-	-	-	-	--		WP-1	Spring	320	07/11/06
Monitoring Spring WR1	38.949510	-115.408980	5.7	8.36	7.12	-15.64	-114.7	56.2	10.1	2.41	0.58	1.3	217	4.8	7.39	0.05	65365		WP-1	Spring	320	08/29/06
Monitoring Spring WR1	38.949510	-115.408980	5.6	8.31	7.20	-15.67	-114.5	56.0	10.2	2.48	0.62	1.2	209	4.6	7.28	0.06	65743		WP-1	Spring	320	11/15/06
Monitoring Spring WR1	38.949510	-115.408980	5.9	NA	7.24	-15.61	-114.6	64.9	8.57	2.36	0.61	0.9	244	3.6	7.1	0.06	65743		WP-1	Spring	320	5/6/2007
Monitoring Spring WR1	38.94903	-115.41008	**6.0**	**9.0**	**7.4**	**-15.58**	**-113.7**	**60.4**	**9.5**	**2.5**	**0.6**	**1.2**	**223.1**	**4.1**	**7.6**	**0.1**		**14**	WP-1	**Spring**	**320**	
Moon River Spring	38.35167	-115.18083	32.5	2.3	7.4	-15.80	-120.0	55.0	22.0	22.0	4.4	9.3	260.0	44.0	25.0	1.2	362		GS145	Spring	192	04/27/82
Moon River Spring	**38.35167**	**-115.18083**	**32.5**	**2.3**	**7.4**	**-15.80**	**-120.0**	**55.0**	**22.0**	**22.0**	**4.4**	**9.3**	**260.0**	**44.0**	**25.0**	**1.2**	**362**		**GS145**	**Spring**	**192**	**04/27/82**
Moorman Spring	38.59472	-115.13833	37.0	1.7	7.0	-15.70	-119.0	58.0	19.0	24.0	5.9	9.9		47.0	27.0	1.3	405		GS185	Spring	205	07/18/81
Moorman Spring	**38.59472**	**-115.13833**	**37.0**	**1.7**	**7.0**	**-15.70**	**-119.0**	**58.0**	**19.0**	**24.0**	**5.9**	**9.9**		**47.0**	**27.0**	**1.3**	**405**		**GS185**	**Spring**	**205**	**07/18/81**
Mormon Well Spring	36.64389	-115.09778	11.5		7.3	-12.90	-92.5	81.0	40.0	11.0	0.4	24.0			16.0	0.1	94		GS32	Spring	53	10/27/81
Mormon Well Spring	36.64389	-115.09778	10.0	5.1	7.6	-12.50	-91.0	65.0	41.0	12.0	1.0	12.0	395.0	21.0	16.0	0.1	95		GS33	Spring	53	05/09/83
Mormon Well Spring	36.64389	-115.09778	12.0		7.4	-12.60	-92.0	84.0	44.0	13.0	0.5	12.0		23.0	17.0	0.2	96		GS34	Spring	53	10/07/87
Mormon Well Spring	36.64389	-115.09778	**11.2**	**5.1**	**7.4**	**-12.67**	**-91.8**	**76.7**	**41.7**	**12.0**	**0.6**	**16.0**	**395.0**	**22.0**	**16.3**	**0.1**				**Spring**	**53**	
Mud Spring (Buck Mts)	39.73587	-115.57036	11.6	9.4	6.9	-15.21	-117.6									--	62705		DRI-BK-1	Spring	339	06/05/05
Mud Spring (Buck Mts)	**39.73587**	**-115.57036**	**11.6**	**9.4**	**6.9**	**-15.21**	**-117.6**									**--**	**62705**		**DRI-BK-1**	**Spring**	**339**	**06/05/05**
Mud Sp Barcass 34 (Snake Range)	39.325706	-114.26714	6.9	7.51	7.13	-15.43	-117.1	73.4	14.5	3.02	0.64	2.5	287	5.4	10.0	<.05	63528	1		Spring	404	25-Oct-05
Mud Sp Barcass 34 (Snake Range)	**39.325706**	**-114.26714**	**6.9**	**7.51**	**7.13**	**-15.43**	**-117.1**	**73.4**	**14.5**	**3.02**	**0.64**	**2.5**	**287**	**5.4**	**10.0**	**<.05**	**63528**	**1**		**Spring**	**404**	**25-Oct-05**
Mud Spring	39.081603	-114.972414	12.4	5.02	7.31	-14.53	-111.0	62.4	11.2	14.1	0.57	8.6	235	18.4	15.2	0.11	65055		ER-29	Spring	446	07/13/06
Mud Spring	**39.081603**	**-114.972414**	**12.4**	**5.02**	**7.31**	**-14.53**	**-111.0**	**62.4**	**11.2**	**14.1**	**0.57**	**8.6**	**235**	**18.4**	**15.2**	**0.11**	**65055**		**ER-29**	**Spring**	**446**	**07/13/06**
Murphy Spring	38.33973	-115.44937	10.6	8.7	6.7	-15.40	-114.5										62833			Spring	373	07/02/05
Murphy Spring	**38.33973**	**-115.44937**	**10.6**	**8.7**	**6.7**	**-15.40**	**-114.5**										**62833**			**Spring**	**373**	**07/02/05**
Mustang Spring	37.73553	-114.92166	10.0	3.4	7.0	-12.60	-91.0	111.0	8.0	17.3	6.5	11.4	346.0	58.0	58.0		277		K6	Spring	135	01/14/85
Mustang Spring	37.73553	-114.92166	13.4	6.2	6.8	-12.37	-90.0	105.0	7.8	18.4	6.8	9.9	319.0	61.6	62.1	--	59691	1		Spring	135	03/24/04
Mustang Spring	37.73553	-114.92166	**11.7**	**4.8**	**6.9**	**-12.49**	**-90.5**	**108.0**	**7.9**	**17.9**	**6.6**	**10.7**	**332.5**	**59.8**	**60.1**	**#DIV/0!**				**Spring**	**135**	
Mustang Spring (Snake)	38.86257	-114.27179	4.3	8.4	7.1	-15.30	-111.0	68.0	4.6	1.3	0.4	0.8	5.5	218.0	5.7	2.18	62915		SN-6	Spring	382	07/14/05
Mustang Spring (Snake)	**38.86257**	**-114.27179**	**4.3**	**8.4**	**7.1**	**-15.30**	**-111.0**	**68.0**	**4.6**	**1.3**	**0.4**	**0.8**	**5.5**	**218.0**	**5.7**	**2.18**	**62915**		**SN-6**	**Spring**	**382**	**07/14/05**
MVW above Eagle Canyon	38.02778	-114.18583	19.0		8.2	-12.00	-93.0										328		E6	Surface	168	04/09/85
MVW above Eagle Canyon	**38.02778**	**-114.18583**	**19.0**		**8.2**	**-12.00**	**-93.0**										**328**		**E6**	**Surface**	**168**	**04/09/85**
Narrow Canyon Spring	37.36729	-114.67807	9.9	5.8	7.2	-12.47	-92.5	61.9	12.7	17.7	1.9	17.9	228.0	20.8	47.2	--	59683	1		Spring	257	03/22/04
Narrow Canyon Spring	**37.36729**	**-114.67807**	**9.9**	**5.8**	**7.2**	**-12.47**	**-92.5**	**61.9**	**12.7**	**17.7**	**1.9**	**17.9**	**228.0**	**20.8**	**47.2**	**--**	**59683**	**1**		**Spring**	**257**	**03/22/04**
Nellis AFB #4	36.24889	-115.00417				-13.20	-95.0										20		PLC36	Well	13	--
Nellis AFB #4	**36.24889**	**-115.00417**				**-13.20**	**-95.0**										**20**		**PLC36**	**Well**	**13**	**--**
Nellis AFB Well #13	36.21222	-115.05000				-13.80	-98.0										18		PLC34	Well	11	--
Nellis AFB Well #13	**36.21222**	**-115.05000**				**-13.80**	**-98.0**										**18**		**PLC34**	**Well**	**11**	**--**
Newels Spring	37.902479	-114.032021	21.5	7.17	7.74	-12.48	-96.0	88.0	16.9	22.6	2.39	39	289	36.5	36.1	0.46	64909		MG-6	Spring	423	06/22/06
Newels Spring	**37.902479**	**-114.032021**	**21.5**	**7.17**	**7.74**	**-12.48**	**-96.0**	**88.0**	**16.9**	**22.6**	**2.39**	**39**	**289**	**36.5**	**36.1**	**0.46**	**64909**		**MG-6**	**Spring**	**423**	**06/22/06**
Nicholas Spring	38.91062	-115.06142	22.0	3.4	7.8	-16.10	-124.0	42.0	19.0	13.0	3.3	24.0	180.0	40.0	20.0	0.6	440		GS219	Spring	227	04/27/82
Nicholas Spring	**38.91062**	**-115.06142**	**22.0**	**3.4**	**7.8**	**-16.10**	**-124.0**	**42.0**	**19.0**	**13.0**	**3.3**	**24.0**	**180.0**	**40.0**	**20.0**	**0.6**	**440**		**GS219**	**Spring**	**227**	**04/27/82**
North Creek Spring	38.71056	-114.73056	8.5		6.9	-14.60	-105.0	9.1	1.6	2.2	0.9	1.3	25.0	3.8	12.0	0.4	420		GS198	Spring	214	04/03/85
North Creek Spring	**38.71056**	**-114.73056**	**8.5**		**6.9**	**-14.60**	**-105.0**	**9.1**	**1.6**	**2.2**	**0.9**	**1.3**	**25.0**	**3.8**	**12.0**	**0.4**	**420**		**GS198**	**Spring**	**214**	**04/03/85**
North Lee Well	37.82444	-114.38444	22.0		8.0	-13.30	-101.0	59.0	12.0	44.0	9.9	48.0	220.0	33.0	54.0	1.0	299		GS109	Well	147	06/04/85
North Lee Well	**37.82444**	**-114.38444**	**22.0**		**8.0**	**-13.30**	**-101.0**	**59.0**	**12.0**	**44.0**	**9.9**	**48.0**	**220.0**	**33.0**	**54.0**	**1.0**	**299**		**GS109**	**Well**	**147**	**06/04/85**
North Spring	39.15611	-114.96306	5.5			-15.00	-113.0					4.2					459		GS245	Spring	237	06/17/83
North Springs	39.154903	-114.962777	6.3	7.14	7.42	-15.21	-111.7	54.3	9.63	3.44	0.52	1.4	201	10.7	9.3	0.10	65041		ER-15	Spring	432	07/12/06
North Spring	**39.15551**	**-114.96292**	**5.90000**	**7.14000**	**7.42000**	**-15.11**	**-112.4**	**54.30000**	**9.63000**	**3.44000**	**0.52000**	**2.80000**	**201.00000**	**10.70000**	**9.30000**	**0.10000**	**459**		**GS245**	**Spring**	**237**	**06/17/83**

Oak Spring	37.60547	-114.71015	10.5	7.1	7.1	-11.87	-90.0	84.9	16.5	64.1	2.0	41.1	355.0	34.2	56.5	--	58502	1		Spring	269	01/16/04
Oak Spring	**37.60547**	**-114.71015**	**10.5**	**7.1**	**7.1**	**-11.87**	**-90.0**	**84.9**	**16.5**	**64.1**	**2.0**	**41.1**	**355.0**	**34.2**	**56.5**	**--**	**58502**	**1**		**Spring**	**269**	**01/16/04**
Ox Valley Spring	37.970526	-114.059658	8.8	6.03	7.02	-13.95	-100.0	37.5	6.97	5.23	0.50	4.6	118	25.0	12.4	0.63	64908		MG-5	Spring	422	06/22/06
Ox Valley Spring	**37.970526**	**-114.059658**	**8.8**	**6.03**	**7.02**	**-13.95**	**-100.0**	**37.5**	**6.97**	**5.23**	**0.50**	**4.6**	**118**	**25.0**	**12.4**	**0.63**	**64908**		**MG-5**	**Spring**	**422**	**06/22/06**
Oxborrow Well	37.88611	-114.30472	11.5		7.9	-11.80	-92.0	130.0	22.0	65.0	11.0	140.0	351.0	63.0	58.0	0.8	303		GS112	Well	150	06/05/85
Oxborrow Well	**37.88611**	**-114.30472**	**11.5**		**7.9**	**-11.80**	**-92.0**	**130.0**	**22.0**	**65.0**	**11.0**	**140.0**	**351.0**	**63.0**	**58.0**	**0.8**	**303**		**GS112**	**Well**	**150**	**06/05/85**
Pahroc Spring	37.66466	-114.98065	16.0	0.8	7.6	-12.50	-89.0	30.9	8.3	12.3	5.6	11.7	135.0	11.4	59.0		272		K5	Spring	131	01/14/85
Pahroc Spring	37.66466	-114.98065	14.4	5.7	7.4	-12.65	-94.0	25.6	6.7	40.1	5.7	13.1	169.0	12.9	66.8	--	58494	1		Spring	131	01/16/04
Pahroc Spring	37.66466	-114.98065	16.0	7.3	6.6	-12.79	-93.5	31.3	8.3	12.7	5.2	12.6	134.0	12.8	62.1	--	61106C		DRI-PR-1	Spring	131	04/30/05
Pahroc Spring	37.66466	-114.98065	**15.5**	**4.6**	**7.2**	**-12.65**	**-92.2**	**29.3**	**7.8**	**21.7**	**5.5**	**12.5**	**146.0**	**12.4**	**62.6**	**#DIV/0!**				**Spring**	**131**	
Panaca Spring	37.80754	-114.38086	29.0	5.6	7.8	-13.90	-106.0	32.0	9.8	36.0	6.8	15.0		29.0	45.0	1.6	294		GS107	Spring	144	04/26/84
Panaca Spring	37.80754	-114.38086	29.5		7.9	-14.00	-108.0	34.0	10.0	38.0	7.1	16.0		25.0	50.0	1.5	292		GS105	Spring	144	04/08/85
Panaca Spring	37.80754	-114.38086	28.5	6.2	7.8	-14.20	-106.5	33.0	10.0	37.0	6.7	17.0		27.0	48.0	1.4	293		GS106	Spring	144	11/11/86
Panaca Spring	37.80754	-114.38086					-107.0										293		DRI	Spring	144	11/11/86
Panaca Spring	37.80754	-114.38086	28.4	4.0	7.8	-14.11	-107.4	32.4	10.4	38.0	7.4	17.8	176.0	30.4	52.4	--	61619			Spring	144	10/20/04
Panaca Spring	37.80754	-114.38086	28.6	5.4	7.7	-14.25	-107.9	32.6	10.3	37.9	7.2	17.3	177.0	29.3	49.7	--	61969	2		Spring	144	01/24/05
Panaca Spring	37.80754	-114.38086	28.3	4.7	7.0	-14.15	-107.1									--	62626		DRI-MW-1	Spring	144	05/20/05
Panaca Spring	37.80754	-114.38086	28.9	4.4	7.0	-14.17	-106.4										63231		DRI-MW-1	Spring	144	08/16/05
Panaca Spring	37.80754	-114.38086	28.7	4.6	7.6	-14.18	-106.8	30.0	10.3	37.6	7.00	17.4	179	29.1	49.0	1.42	63571			Spring	144	9-Nov-05
Panaca Spring	37.80754	-114.38086	28.8	4.15	7.71	-14.20	-105.8	34.2	10.2	37.9	6.97	17.9	178	29.7	48.8	1.50	64169		MW-1	Spring	144	02/17/06
Panaca Spring	37.80754	-114.38086	28.8	5.9	7.8	-14.17	-107.1	32.6	9.97	37.0	9.66	18.2	180	30.7	50.2	1.48	64743		MW-1	Spring	144	05/22/06
Panaca Spring	37.80754	-114.38086	29.10	5.85	7.67	-14.24	-107.0	32.6	10.2	34.6	6.06	17.8	184	30.5	49.8	1.51	65289		MW-1	Spring	144	08/23/06
Panaca Spring	37.80754	-114.38086	28.9	4.43	7.62	-14.14	-106.9	32.7	10.0	37.0	1.74	17.3	175	29.8	49.9	1.52	65654		MW-1	Spring	144	10/28/06
Panaca Spring	37.80754	-114.38086	**28.8**	**5.0**	**7.6**	**-14.14**	**-106.9**	**32.6**	**10.1**	**37.1**	**6.7**	**17.2**	**178.4**	**29.1**	**49.3**	**1.5**				**Spring**	**144**	
Panaca Town Well	37.79722	-114.39917	29.5		7.9	-14.00	-106.0	45.0	1.0	47.0	8.3	19.0	203.0	68.0	58.0	1.8	291		E16	Well	143	06/04/85
Panaca Town Well	**37.79722**	**-114.39917**	**29.5**		**7.9**	**-14.00**	**-106.0**	**45.0**	**1.0**	**47.0**	**8.3**	**19.0**	**203.0**	**68.0**	**58.0**	**1.8**	**291**		**E16**	**Well**	**143**	**06/04/85**
Parsnip Spring	38.14944	-114.26250	19.0		7.7	-12.80	-93.5	16.0	3.0	12.0	2.2	7.5	70.0	9.1	41.0	0.1	344		GS134	Spring	180	06/05/85
Parsnip Spring	**38.14944**	**-114.26250**	**19.0**		**7.7**	**-12.80**	**-93.5**	**16.0**	**3.0**	**12.0**	**2.2**	**7.5**	**70.0**	**9.1**	**41.0**	**0.1**	**344**		**GS134**	**Spring**	**180**	**06/05/85**
Patterson Pass Spring WR3	38.60280	-114.71481	12.0	6.0	6.6	-14.91	-106.5	58.4	9.0	22.4	0.3	10.6	230.0	23.2	17.5	--	57755			Spring	305	10/30/03
Patterson Pass Spring WR3 (duplicate sample)	38.60280	-114.71481	--	--	--	-14.94	-109.2	--	--	--	--	--	--	--	--	--	57755	5		Spring	305	10/30/03
Patterson Pass Spring WR3	38.60280	-114.71481	11.8	3.6	6.1	-16.25	-114.4	19.5	3.8	2.0	1.4	0.9	68.6	9.6	10.8	--	59579		DRI-SC-2	Spring	305	03/24/04
Patterson Pass Spring WR3	38.60280	-114.71481	11.5	6.2	7.1	-14.84	-109.1	19.8	4.6	3.0	1.5	1.2	67.0	9.8	11.1	--	60786		DRI-SC-2	Spring	305	06/23/04
Patterson Pass Spring WR3	38.60280	-114.71481	12.0	5.9	7.5	-14.79	-107.9	18.5	3.9	1.9	1.4	0.9	66.5	9.4	10.2	--	61480		DRI-SC-2	Spring	305	09/23/04
Patterson Pass Spring WR3	38.60280	-114.71481	11.7	5.5	6.8	-14.77	-108.3	20.5	4.1	2.2	1.5	1.2	71.6	9.8	10.5	--	61967		DRI-SC-2	Spring	305	01/23/05
Patterson Pass Spring WR3	38.60280	-114.71481	11.4	6.0	6.7	-14.71	-106.8									--	61481		DRI-SC-2	Spring	305	05/20/05
Patterson Pass Spring WR3	38.60280	-114.71481				-14.83	-107.6	18.8	3.66	1.89	1.41	1.0	65.5	8.7	10.1	0.73	63220		DRI-SC-2	Spring	305	08/15/05
Patterson Pass Spring WR3	38.60280	-114.71481	12.1	6.08	6.97	-14.87	-107.5	19.3	3.74	1.90	1.35	1.1	63.8	8.7	10.0	0.44	63566			Spring		11/07/05
Patterson Pass Spring WR3	38.602800	-114.714880	11.8	7.09	6.78	-14.91	-108.1	19.6	3.82	1.86	1.23	1.1	65.9	9.1	10.2	0.46	65371		SC-2	Spring	305	08/31/06
Patterson Pass Spring WR3	38.602800	-114.714880	12.2	6.80	6.87	-14.89	-108.4	19.2	3.81	2.07	1.43	1.0	66.3	8.8	10.1	0.47	65653		SC-2	Spring	305	10/28/06
Patterson Pass Spring WR3	38.602800	-114.714880	11.9	6.38	6.52	-14.90	-106.9	19.4	3.68	1.86	1.42	1.2	65.0	8.8	10.1	0.46	64239		SC-2	Spring	305	02/26/06
Patterson Pass Spring WR3	38.602800	-114.714880	11.7	7.47	6.95	-14.86	-108.5	19.2	3.80	2.2	1.20	1.2	67.2	9.1	10.2	0.47	64738		SC-2	Spring	305	05/23/06
Patterson Pass Spring WR3	38.602800	-114.714880	-	-	-	-14.86	-107.9	-	-	-	-	-	-	-	-	-	--		SC-2	Spring	305	07/14/06
Patterson Pass Spring WR3	38.602800	-114.714880	11.7	NA	6.6	-14.96	-108.5	19.9	3.82	1.99	1.40	1.0	69.0	8.4	9.59	0.47	65653		SC-2	Spring	305	5/7/2007
Patterson Pass Spring WR3	38.60280	-114.71481	**11.8**	**6.1**	**6.8**	**-14.95**	**-108.4**	**22.7**	**4.3**	**3.8**	**1.3**	**1.9**	**66.9**	**10.3**	**10.9**	**0.5**				**Spring**	**305**	
Peach Spring	36.95444	-114.28972	15.1			-10.40	-76.5										173		GS62	Spring	88	02/06/84
Peach Spring	**36.95444**	**-114.28972**	**15.1**			**-10.40**	**-76.5**										**173**		**GS62**	**Spring**	**88**	**02/06/84**
Pederson's East	36.70933	-114.71556	32.0	2.4	7.3	-12.92	-97.0	64.3	28.5	96.4	11.6	66.1	255.0	178.0	30.3	--	58497		DRI-MV-2	Spring	290	01/12/04
Pederson's East	36.70933	-114.71556	31.9	2.7	7.4	-12.92	-97.0	64.6	27.6	94.2	11.1	61.4	264.0	181.0	29.1	--	60307		DRI-MV-2	Spring	290	05/18/04
Pederson's East	36.70933	-114.71556				-12.98	-98.4	68.2	28.3	94.0	11.3	61.5	257.0	178.0	31.2	--	61613		DRI-MV-2	Spring	290	10/19/04
Pederson's East	36.70933	-114.71556	31.2	3.2	7.4	-12.89	-98.3	64.4	27.7	95.6	11.2	62.0	253.0	181.0	29.5	--	62032	4	DRI-MV-2	Spring	290	02/10/05
Pederson's East	36.70933	-114.71556	32.0	3.0	6.8	-12.96	-98.3									--	62033		DRI-MV-2	Spring	290	06/08/05
Pederson East	36.709330	-114.715560	31.6	2.7	7.32	-13.00	-97.5	64.8	27.7	95.7	10.1	61.0	254	180	29.1	2.19	64173		MV-2	Spring	290	02/16/06
Pederson East	36.709330	-114.715560	31.7	2.65	7.28	-13.02	-97.7	63.4	27.3	92.7	11.1	61.7	253	182	29.4	2.19	64901		MV-2	Spring	290	06/21/06
Pederson East	36.709330	-114.715560	32.00	2.76	7.25	-13.06	-97.4	64.8	28.1	86.0	9.64	61.8	257	183	29.1	2.16	65287		MV-2	Spring	290	08/23/06
Pederson East	36.709330	-114.715560	31.9	2.63	7.30	-13.03	-98.7	63.9	27.8	93.3	11.0	59.3	253	179	29.0	2.20	65663		MV-2	Spring	290	10/30/06
Pederson's East	36.70933	-114.71556	**31.8**	**2.8**	**7.3**	**-12.98**	**-97.8**	**64.8**	**27.9**	**93.5**	**10.9**	**61.9**	**255.8**	**180.3**	**29.6**	**2.2**				**Spring**	**290**	
Pederson's Warm Spring (M-13)	36.70958	-114.71594					-98.0										113.2		jim	Spring	67	1/00/69
Pederson's Warm Spring (M-13)	36.70958	-114.71594					-97.0										113.2		jim	Spring	67	3/00/70
Pederson's Warm Spring (M-13)	36.70958	-114.71594	32.5		7.2	-12.90	-96.5	66.0	26.0	96.0	10.0	61.0	270.0	190.0	62.1	2.1	113		IT249	Spring	67	07/22/81
Pederson's Warm Spring (M-13)	36.70958	-114.71594				-12.75	-97.0										118		PLC17	Spring	67	10/30/85
Pederson's Warm Spring (M-13)	36.70958	-114.71594				-13.05	-99.0										115		IT251	Spring	67	01/07/88
Pederson's Warm Spring (M-13)	36.70958	-114.71594				-12.85	-96.9										USGS			spring		7/30/2003
Pederson's Warm Spring (M-13)	36.70958	-114.71594	31.6	2.2	7.3	-12.91	-97.2	65.3	28.4	99.2	11.4	67.7	261.0	189.0	28.4	--	58488		DRI-MV-1	Spring	67	01/12/04
Pederson's Warm Spring (M-13)	36.70958	-114.71594	31.1	3.8	7.4	-12.85	-97.5	65.4	27.8	97.2	10.9	65.9	265.0	184.0	29.2	--	60306		DRI-MV-1	Spring	67	05/18/04
Pederson's Warm Spring (M-13)	36.70958	-114.71594				-12.92	-97.4	64.5	27.8	97.2	11.0	63.0	257.0	183.0	30.6	--	61617		DRI-MV-1	Spring	67	10/19/04
Pederson's Warm Spring (M-13)	36.70958	-114.71594	31.2	3.0	7.3	-12.91	-98.0	64.8	27.4	98.8	10.9	63.2	256.0	186.0	29.8	--	62031	4	DRI-MV-1	Spring	67	02/10/05
Pederson's Warm Spring (M-13)	36.70958	-114.71594	31.9	3.6	7.0	-12.91	-97.6									--	62032		DRI-MV-1	Spring	67	06/08/05
Pederson's Warm Spring (M-13)	36.709580	-114.715940	31.3	2.65	7.34	-13.02	-97.2	66.6	27.7	99.2	10.6	62.4	255	185	29.4	2.20	64172		MV-1	Spring	67	02/16/06
Pederson's Warm Spring (M-13)	36.709580	-114.715940	31.6	4.3	7.39	-12.98	-98.1	64.1	27.2	95.2	10.9	62.9	255	186	29.1	2.18	64900		MV-1	Spring	67	06/21/06
Pederson's Warm Spring (M-13)	36.709580	-114.715940	31.80	2.92	7.24	-13.01	-97.7	65.3	28.2	90.0	9.3	63.7	251	187	29.2	2.15	65286		MV-1	Spring	67	08/23/06
Pederson's Warm Spring (M-13)	36.709580	-114.715940	31.5	2.33	7.35	-13.04	-97.3	64.8	27.8	97.0	10.9	61.3	254	184	28.8	2.23	65664		MV-1	Spring	67	10/30/06
Pederson's Warm Spring (M-13)	36.70958	-114.71594	**31.6**	**3.1**	**7.3**	**-12.93**	**-97.5**	**65.2**	**27.6**	**96.6**	**10.7**	**63.5**	**258.2**	**186.0**	**33.0**	**2.2**		**9**		**Spring**	**67**	
Perry Sp Barcass 37	38.332851	-114.975864	12.1	4.81	7.06	-15.04	-107.7	78.9	20.9	24.1	2.64	19.1	333	25.1	27.9	0.22	63531	1		Spring	408	27-Oct-05
Perry Sp Barcass 37	**38.332851**	**-114.975864**	**12.1**	**4.81**	**7.06**	**-15.04**	**-107.7**	**78.9**	**20.9**	**24.1**	**2.64**	**19.1**	**333**	**25.1**	**27.9**	**0.22**	**63531**	**1**		**Spring**	**408**	**27-Oct-05**

Pine Spring	37.90800	-114.55132	4.5			-13.40	-99.0										312	1	GS116	Spring	157	04/07/85
Pine Spring	37.90800	-114.55132	--	--	--	-13.33	-99.0	--	--	--	--	--	--	--	--	--	--	1		Spring	157	06/24/04
Pine Spring	**37.90800**	**-114.55132**	**4.5**	**#DIV/0!**	**#DIV/0!**	**-13.37**	**-99.0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**		**2**		**Spring**	**157**	
Pine Springs (Egan Range)	39.117546	-114.944249	8.7	7.9	7.9	-15.71	-116.0	71.1	9.58	3.69	0.46	0.7	246	13.9	10.9	0.10	65043		ER-17	Spring	434	07/12/06
Pine Springs (Egan Range)	**39.117546**	**-114.944249**	**8.7**	**7.9**	**7.9**	**-15.71**	**-116.0**	**71.1**	**9.58**	**3.69**	**0.46**	**0.7**	**246**	**13.9**	**10.9**	**0.10**	**65043**		**ER-17**	**Spring**	**434**	**07/12/06**
Preston Big Spring	38.93331	-115.08222	21.0	3.1	7.7	-15.60	-126.0	44.0	20.0	13.0	2.9	14.0	185.0	36.0	20.0	0.4	450		GS224	Spring	231	06/16/83
Preston Big Spring	38.93331	-115.08222	22.0	3.1	7.7	-15.90	-123.0	45.0	20.0	13.0	3.0	15.0		38.0	19.0	0.4	452		GS226	Spring	231	06/26/84
Preston Big Spring	38.93331	-115.08222	21.2	2.6	7.3	-15.87	-122.6	40.7	19.4	13.6	3.1	15.9	182.0	37.7	19.9	--	61483		DRI-WV-1	Spring	231	09/25/04
Preston Big Spring	38.93331	-115.08222	20.8	3.1	7.6	-15.89	-122.4	41.9	19.8	13.0	3.2	16.0	176.0	38.1	19.9	--	61968	2	DRI-WV-1	Spring	231	01/24/05
Preston Big Spring	38.93331	-115.08222	21.1	3.1	7.5	-15.86	-120.0									--	62627		DRI-WV-1	Spring	231	05/21/05
Preston Big Spring	38.93331	-115.08222	21.1	3.0	7.0	-15.88	-121.2										63227		DRI-WV-1	Spring	231	08/14/05
Preston Big Spring	38.93331	-115.08222	20.9	2.6	7.77	-15.86	-120.4	41.9	19.6	12.6	3.08	15.8	174	38.1	20.0	0.34	63563			Spring	231	6-Nov-05
Preston Big Spring	38.933310	-115.082220	21.3	3.79	7.66	-15.95	-121.8	41.6	19.2	13.2	3.16	16.5	175	39.9	20.4	0.36	64735		WV-1	Spring	231	05/20/06
Preston Big Spring	38.933310	-115.082220	-	-	-	-15.98	-121.7	-	-	-	-	-	-	-	-	-	--		WV-1	Spring	231	07/12/06
Preston Big Spring	38.933310	-115.082220	21	2.7	7.54	-15.96	-121.6	42.0	19.7	12.5	2.94	16.1	183	39.6	19.9	0.35	65366		WV-1	Spring	231	08/29/06
Preston Big Spring	38.933310	-115.082220	21.0	3.04	7.66	-15.88	-120.9	41.8	19.6	12.7	3.16	15.6	174	39.0	19.8	0.36	65652		WV-1	Spring	231	10/27/06
Preston Big Spring	38.93331	-115.08222	**21.1**	**3.0**	**7.6**	**-15.88**	**-122.0**	**42.4**	**19.7**	**13.0**	**3.1**	**15.6**	**178.4**	**38.3**	**19.9**	**0.4**				**Spring**	**231**	
Quaking Aspen Spring	37.37563	-114.24255	9.6	3.2	6.2	-12.98	-93.6	13.8	3.7	11.4	1.5	4.1	83.3	2.1	49.6	--	61100	1		Spring	255	07/31/04
Quaking Aspen Spring	**37.37563**	**-114.24255**	**9.6**	**3.2**	**6.2**	**-12.98**	**-93.6**	**13.8**	**3.7**	**11.4**	**1.5**	**4.1**	**83.3**	**2.1**	**49.6**	**--**	**61100**	**1**		**Spring**	**255**	**07/31/04**
Rabbit Brush	39.18383	-114.27363	--	--	--	-15.50	-117.1											1.00		Spring	412	26-Oct-05
Rabbit Brush	**39.18383**	**-114.27363**	**--**	**--**	**--**	**-15.50**	**-117.1**											**1.00**		**Spring**	**412**	**26-Oct-05**
Railroad Well	37.35111	-114.53389	16.0		7.6	-11.60	-86.0	42.0	14.0	98.0	8.8	42.0	300.0	60.0	51.0	2.3	204		GS77	Well	103	01/31/84
Railroad Well	**37.35111**	**-114.53389**	**16.0**		**7.6**	**-11.60**	**-86.0**	**42.0**	**14.0**	**98.0**	**8.8**	**42.0**	**300.0**	**60.0**	**51.0**	**2.3**	**204**		**GS77**	**Well**	**103**	**01/31/84**
Railroad Well (Farrier, NV)	36.81361	-114.65389	22.8		8.0	-12.50	-97.5	84.0	31.0	150.0	19.0	52.0	64.0	550.0	23.0	1.6	154		USGS	Well	80	02/04/84
Railroad Well (Farrier, NV)	**36.81361**	**-114.65389**	**22.8**		**8.0**	**-12.50**	**-97.5**	**84.0**	**31.0**	**150.0**	**19.0**	**52.0**	**64.0**	**550.0**	**23.0**	**1.6**	**154**		**USGS**	**Well**	**80**	**02/04/84**
Raised Sp Barcass 36	38.972591	-114.370414	10.8	7.62	6.07	-13.54	-103.7	7.01	1.77	2.38	0.66	1.0	31.2	2.4	11.4	0.05	63532	1		Spring	407	27-Oct-05
Raised Sp Barcass 36	**38.972591**	**-114.370414**	**10.8**	**7.62**	**6.07**	**-13.54**	**-103.7**	**7.01**	**1.77**	**2.38**	**0.66**	**1.0**	**31.2**	**2.4**	**11.4**	**0.05**	**63532**	**1**		**Spring**	**407**	**27-Oct-05**
Ram. Res. Wtr Supply Well	39.74333	-115.45111	11.9	50.0	8.0	-16.75	-129.5						155.0				470		GS261	Well	244	07/19/85
Ram. Res. Wtr Supply Well	**39.74333**	**-115.45111**	**11.9**	**50.0**	**8.0**	**-16.75**	**-129.5**						**155.0**				**470**		**GS261**	**Well**	**244**	**07/19/85**
Ramone Mathews Well	37.52667	-114.24417	18.5		7.8	-12.30	-92.0	42.0	6.3	20.0	5.9	15.0	171.0	12.0	61.0	0.3	233		GS86	Well	115	06/03/85
Ramone Mathews Well	**37.52667**	**-114.24417**	**18.5**		**7.8**	**-12.30**	**-92.0**	**42.0**	**6.3**	**20.0**	**5.9**	**15.0**	**171.0**	**12.0**	**61.0**	**0.3**	**233**		**GS86**	**Well**	**115**	**06/03/85**
Randono Well	37.32389	-114.50222	17.2		7.6	-11.70	-87.5	46.0	14.0	100.0	8.4	44.0	350.0	63.0	54.0	2.3	200		GS75	Well	100	02/03/84
Randono Well	**37.32389**	**-114.50222**	**17.2**		**7.6**	**-11.70**	**-87.5**	**46.0**	**14.0**	**100.0**	**8.4**	**44.0**	**350.0**	**63.0**	**54.0**	**2.3**	**200**		**GS75**	**Well**	**100**	**02/03/84**
Rattlesnake Spring	37.82624	-114.93012	14.1	7.4	7.8	-12.65	-97.3	47.6	7.5	27.6	5.2	16.5	199.0	19.3	52.5	--	59692	1		Spring	302	03/24/04
Rattlesnake Spring	**37.82624**	**-114.93012**	**14.1**	**7.4**	**7.8**	**-12.65**	**-97.3**	**47.6**	**7.5**	**27.6**	**5.2**	**16.5**	**199.0**	**19.3**	**52.5**	**--**	**59692**	**1**		**Spring**	**302**	**03/24/04**
Red Rock Spring	37.56698	-114.75320	10.0	--	7.3	-12.30	-95.0	85.4	13.3	28.4	2.4	15.7	332.0	16.3	41.1	--	58495	1		Spring	256	01/10/04
Red Rock Spring	**37.56698**	**-114.75320**	**10.0**	**--**	**7.3**	**-12.30**	**-95.0**	**85.4**	**13.3**	**28.4**	**2.4**	**15.7**	**332.0**	**16.3**	**41.1**	**--**	**58495**	**1**		**Spring**	**256**	**01/10/04**
Reed Spring	37.55731	-115.41800	--	--	--	-14.24	-98.4	49.6	14.2	13.7	2.8	17.3	199.0	18.9	43.9	--	60843	1		Spring	289	06/25/04
Reed Spring	**37.55731**	**-115.41800**	**--**	**--**	**--**	**-14.24**	**-98.4**	**49.6**	**14.2**	**13.7**	**2.8**	**17.3**	**199.0**	**18.9**	**43.9**	**--**	**60843**	**1**		**Spring**	**289**	**06/25/04**
Ripgut Sp #40	38.248018	-114.039204	18.7	5.67	6.95	-14.38	-106.4	25.2	4.58	18.2	8.17	17.0	116	6.4	63.5	0.15	63598	1		Spring	411	19-Nov-05
Ripgut Sp #40	**38.248018**	**-114.039204**	**18.7**	**5.67**	**6.95**	**-14.38**	**-106.4**	**25.2**	**4.58**	**18.2**	**8.17**	**17.0**	**116**	**6.4**	**63.5**	**0.15**	**63598**	**1**		**Spring**	**411**	**19-Nov-05**
Robison Spring	38.21273	-114.70636	--	--	--	-12.34	-97.9	--	--	--	--	--	--	--	--	--	--	1		Spring	279	06/29/04
Robison Spring	**38.21273**	**-114.70636**	**--**	**--**	**--**	**-12.34**	**-97.9**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**279**	**06/29/04**
Robbers Roost #2 Spring (Butte)	39.49596	-115.28046	12.7	1.3	6.2	-14.39	-112.0									--	62703		DRI-BT-5	Spring	340	06/04/05
Robbers Roost #2 Spring (Butte)	**39.49596**	**-115.28046**	**12.7**	**1.3**	**6.2**	**-14.39**	**-112.0**									**--**	**62703**		**DRI-BT-5**	**Spring**	**340**	**06/04/05**
Robbers Roost Spring (Schell Ck)	38.77051	-114.78331				-14.75	-109.7	58.8	27.9	11.2	0.56	7.2	304.0	21.7	14.3	0.10	62978		SC-5	Spring	389	07/31/01
Robbers Roost Spring (Schell Ck)	**38.77051**	**-114.78331**				**-14.75**	**-109.7**	**58.8**	**27.9**	**11.2**	**0.56**	**7.2**	**304.0**	**21.7**	**14.3**	**0.10**	**62978**		**SC-5**	**Spring**	**389**	**07/31/01**
Rock Springs	39.859787	-114.472767	9.4	5.1	6.05	-15.17	-118.4	50.0	8.01	12.5	0.91	5.8	188	15.7	38.2	0.05	63281	1		Spring	399	25-Aug-05
Rock Springs	**39.859787**	**-114.472767**	**9.4**	**5.1**	**6.05**	**-15.17**	**-118.4**	**50.0**	**8.01**	**12.5**	**0.91**	**5.8**	**188**	**15.7**	**38.2**	**0.05**	**63281**	**1**		**Spring**	**399**	**25-Aug-05**
Rogers Spring	36.37750	-114.44389	30.5	2.3	7.0	-12.20	-92.0	410.0	140.0	280.0	21.0	330.0		1600.0	18.0	1.3	35		GS10	Spring	21	07/21/81
Rogers Spring	36.37750	-114.44389	30.0		7.5	-12.40	-92.0	423.0	143.0	291.0	22.7	327.0	161.0	1620.0	16.8	1.4	33		PL11	Spring	21	03/19/92
Rogers Spring	36.37750	-114.44389	30.0	2.6	7.0	-12.40	-91.0										32		PL11	Spring	21	02/08/96
Rogers Spring	36.37750	-114.44389	**30.2**	**2.5**	**7.2**	**-12.33**	**-91.7**	**416.5**	**141.5**	**285.5**	**21.9**	**328.5**	**161.0**	**1610.0**	**17.4**	**1.4**		**2**		**Spring**	**21**	
Ryans Spring D 38	38.331207	-113.928551	8	2.2	7.07	-13.68	-103.5	80.8	8.31	24.9	0.91	41.5	264	22.8	33.3	0.09	63596			Spring	409	19-Nov-05
Ryans Spring D 38	**38.331207**	**-113.928551**	**8**	**2.2**	**7.07**	**-13.68**	**-103.5**	**80.8**	**8.31**	**24.9**	**0.91**	**41.5**	**264**	**22.8**	**33.3**	**0.09**	**63596**			**Spring**	**409**	**19-Nov-05**
Rye Patch Spring	36.57967	-115.30586	9.7	8.1	7.5	-12.31	-89.3	49.5	24.2	16.0	2.0	17.5	218.0	22.0	13.7	--	62397		DRI-SR-5	Spring	341	04/28/05
Rye Patch Spring	**36.57967**	**-115.30586**	**9.7**	**8.1**	**7.5**	**-12.31**	**-89.3**	**49.5**	**24.2**	**16.0**	**2.0**	**17.5**	**218.0**	**22.0**	**13.7**	**--**	**62397**		**DRI-SR-5**	**Spring**	**341**	**04/28/05**
Saddle Spring (White Pine)	38.97541	-115.40023				-15.00	-116.0					3.1					438	1	GS217	Spring	225	06/15/83
Saddle Spring (White Pine)	38.97541	-115.40023	7.6	6.9	6.2	-15.66	-118.6										62820	1	WP-2	Spring	357	06/28/05
Saddle Spring (White Pine)	38.97541	-115.40023	--	--	--	-15.70	-115.7	--	--	--	--	--	--	--	--	--		1	WP-2	Spring	357	10/12/03
Saddle Spring (White Pine)	38.97541	-115.40023	**7.6**	**6.9**	**6.2**	**-15.45**	**-116.8**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**		**3**		**Spring**	**357**	

Sage Hen Spring	39.11533	-115.39212	7.7	7.0	6.2	-14.76	-112.4									--	62714		DRI-WP-9	Spring	342	06/06/05
Sage Hen Spring	**39.11533**	**-115.39212**	**7.7**	**7.0**	**6.2**	**-14.76**	**-112.4**									**--**	**62714**		**DRI-WP-9**	**Spring**	**342**	**06/06/05**
Sand Spring	39.33056	-115.45500	13.0			-16.20	-123.0										465		GS250	Spring	239	07/14/81
Sand Spring	**39.33056**	**-115.45500**	**13.0**			**-16.20**	**-123.0**										**465**		**GS250**	**Spring**	**239**	**07/14/81**
Sammy Spring	39.43597	-115.32453	11.6	6.9	6.9	-15.30	-117.6									--	62628		DRI-BT-2	Spring	343	05/24/05
Sammy Spring	**39.43597**	**-115.32453**	**11.6**	**6.9**	**6.9**	**-15.30**	**-117.6**									**--**	**62628**		**DRI-BT-2**	**Spring**	**343**	**05/24/05**
Sandstone Spring	36.21111	-114.55667	11.0	2.0	7.0	-10.50	-79.0	209.0	79.2	21.9	5.0	16.9	249.0	725.0	13.8		17		PL16	Spring	10	02/07/96
Sandstone Spring	**36.21111**	**-114.55667**	**11.0**	**2.0**	**7.0**	**-10.50**	**-79.0**	**209.0**	**79.2**	**21.9**	**5.0**	**16.9**	**249.0**	**725.0**	**13.8**		**17**		**PL16**	**Spring**	**10**	**02/07/96**
Sawmill Spring (Sheep)	36.68056	-115.17611				-12.85	-92.0	12.0	29.0	1.8	0.6	2.1		5.9	6.1	0.2	101		GS36	Spring	58	05/19/88
Sawmill Spring (Sheep)	**36.68056**	**-115.17611**				**-12.85**	**-92.0**	**12.0**	**29.0**	**1.8**	**0.6**	**2.1**		**5.9**	**6.1**	**0.2**	**101**		**GS36**	**Spring**	**58**	**05/19/88**
Sawmill Spring (Delamar Range)	37.36762	-114.69708	10.3	10.3	6.9	-12.58	-88.7	56.2	10.4	18.9	2.2	16.6	220.0	19.0	41.7	--	59685	1		Spring	259	03/22/04
Sawmill Spring (Delamar Range)	**37.36762**	**-114.69708**	**10.3**	**10.3**	**6.9**	**-12.58**	**-88.7**	**56.2**	**10.4**	**18.9**	**2.2**	**16.6**	**220.0**	**19.0**	**41.7**	**--**	**59685**	**1**		**Spring**	**259**	**03/22/04**
Sawmill Spring West	37.36734	-114.69749	9.7	6.6	6.5	-12.86	-91.8	33.9	4.6	12.1	2.0	7.4	146.0	7.0	36.8	--	59684	1		Spring	258	03/22/04
Sawmill Spring West	**37.36734**	**-114.69749**	**9.7**	**6.6**	**6.5**	**-12.86**	**-91.8**	**33.9**	**4.6**	**12.1**	**2.0**	**7.4**	**146.0**	**7.0**	**36.8**	**--**	**59684**	**1**		**Spring**	**258**	**03/22/04**
Scirpus Spring (No spring on Map)	36.37694	-114.44917	17.0	0.7	7.1	-12.00	-90.0	513.0	186.0	350.0	25.3	386.0	266.0	2040.0	20.4		30		PL12	Spring	20	02/07/96
Scirpus Spring (No spring on Map)	**36.37694**	**-114.44917**	**17.0**	**0.7**	**7.1**	**-12.00**	**-90.0**	**513.0**	**186.0**	**350.0**	**25.3**	**386.0**	**266.0**	**2040.0**	**20.4**		**30**		**PL12**	**Spring**	**20**	**02/07/96**
Scotty Spring	38.16479	-114.68374	14.2	1.9	7.1	-12.73	-98.9	67.3	12.6	23.0	1.4	30.7	254.0	21.1	44.6	--	60846	1		Spring	272	06/26/04
Scotty Spring	**38.16479**	**-114.68374**	**14.2**	**1.9**	**7.1**	**-12.73**	**-98.9**	**67.3**	**12.6**	**23.0**	**1.4**	**30.7**	**254.0**	**21.1**	**44.6**	**--**	**60846**	**1**		**Spring**	**272**	**06/26/04**
Seaman Spring	37.86120	-115.19877	--	--	--	-13.13	-99.0	--	--	--	--	--	--	--	--	--	--	1		Spring	306	06/25/04
Seaman Spring	**37.86120**	**-115.19877**	**--**	**--**	**--**	**-13.13**	**-99.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**306**	**06/25/04**
Second Sawmill Spring	38.87583	-114.89861	6.5			-14.70	-110.0										431		GS212	Spring	222	08/01/85
Second Sawmill Spring	**38.87583**	**-114.89861**	**6.5**			**-14.70**	**-110.0**										**431**		**GS212**	**Spring**	**222**	**08/01/85**
Secret Spring	38.83889	-115.28972				-14.00	-110.0					11.0					427		GS208	Spring	220	06/16/83
Secret Spring	**38.83889**	**-115.28972**				**-14.00**	**-110.0**					**11.0**					**427**		**GS208**	**Spring**	**220**	**06/16/83**
Sheep Spring (Clover)	37.40063	-114.27779	10.0		6.8	-12.00	-87.0	24.0	5.0	9.8	1.3	7.9	96.0	7.0	33.0	0.7	209.5		Jim	Spring	108	06/03/85
Sheep Spring (Clover)	37.40063	-114.27779	18.5	1.1	6.9	-12.06	-90.5	32.7	6.5	11.8	2.0	9.8	143.0	5.1	45.5	--	61097	1	DRI-CR-9	Spring	108	07/31/04
Sheep Spring (Clover)	37.40063	-114.27779	**14.3**	**1.1**	**6.9**	**-12.03**	**-88.8**	**28.4**	**5.7**	**10.8**	**1.7**	**8.9**	**119.5**	**6.1**	**39.3**	**0.7**	**209.5**			**Spring**	**108**	
Sheep Spring (Schell Ck)	38.67611	-114.77667	14.0	6.7	6.6	-13.70	-99.5	8.0	2.1	2.8		1.5	46.0	4.1	14.0	<.1	418		GS194	Spring	212	08/02/85
Sheep Spring (Schell Ck)	**38.67611**	**-114.77667**	**14.0**	**6.7**	**6.6**	**-13.70**	**-99.5**	**8.0**	**2.1**	**2.8**		**1.5**	**46.0**	**4.1**	**14.0**	**<.1**	**418**		**GS194**	**Spring**	**212**	**08/02/85**
Sheep Spring (Sheep Range)	36.89500	-115.11472	15.0	6.5	7.8	-13.35	-96.0	31.0	40.0	7.9	1.1	7.1		13.0	13.0	0.2	159		GS57	Spring	83	05/19/88
Sheep Spring (Sheep Range)	**36.89500**	**-115.11472**	**15.0**	**6.5**	**7.8**	**-13.35**	**-96.0**	**31.0**	**40.0**	**7.9**	**1.1**	**7.1**		**13.0**	**13.0**	**0.2**			**GS57**	**Spring**	**83**	**05/19/88**
Shellback Spring	39.13197	-115.38436	7.7	8.8	6.5	-16.54	-123.6									--	62719		DRI-WP-14	Spring	344	06/07/05
Shellback Spring	**39.13197**	**-115.38436**	**7.7**	**8.8**	**6.5**	**-16.54**	**-123.6**									**--**			**DRI-WP-14**	**Spring**	**344**	**06/07/05**
Shingle Spring	38.53972	-114.93472	15.0			-13.25	-103.5										388		GS168	Spring	203	08/03/85
Shingle Spring	38.539585	-114.935526	15.2	4.34	7.15	-13.41	-103.8	61.7	18.8	15.6	2.51	16.2	260	23.3	44.8	0.17	65048		ER-22	Spring	439	07/13/06
Shingle Spring	**38.53972**	**-114.93472**	**15.1**	**4.3**	**7.2**	**-13.33**	**-103.7**	**61.7**	**18.8**	**15.6**	**2.5**	**16.2**	**260.0**	**23.3**	**44.8**	**0.2**			**GS168**	**Spring**	**203**	**08/03/85**
Sidehill Spring	38.41596	-114.79613	13.0			-13.05	-100.0										377		GS160	Spring	200	08/02/85
Sidehill Spring	38.41596	-114.79613	12.6	6.3	6.8	-13.37	-100.8	50.9	16.6	12.5	1.14	6.9	242.0	11.9	51.4	0.08	62981			Spring	200	08/01/05
Sidehill Spring	38.41596	-114.79613	**12.8**	**6.3**	**6.8**	**-13.21**	**-100.4**	**50.9**	**16.6**	**12.5**	**1.1**	**6.9**	**242.0**	**11.9**	**51.4**	**0.1**			**GS160**	**Spring**	**200**	
Silver Spring	38.81085	-114.88121	9.3	7.84	6.72	-14.74	-111.9	80.6	5.42	5.40	0.66	3.5	261	10.3	12.5	0.09	62975		ER-7	Spring	385	07/29/05
Silver Spring (RS)	38.810613	-114.881175	9	8.25	7.43	-14.68	-110.8	79.9	5.50	5.45	0.59	3.1	255	10.7	12.6	0.07	65051		ER-25	Spring	442	07/13/06
Silver Spring	**38.81085**	**-114.88121**	**9.15**	**8.045**	**7.075**	**-14.71**	**-111.4**	**80.25**	**5.46**	**5.425**	**0.625**	**3.3**	**258**	**10.5**	**12.55**	**0.08**	**62975**		**ER-7**	**Spring**	**385**	**07/29/05**
Sixmile Spring	37.49222	-115.08806	22.0		7.9	-13.06	-93.4	45.2	10.6	16.9	1.3	3.2	207.0	11.7	49.6	0.1	230		IT151	Spring	112	08/08/95
Sixmile Spring	**37.49222**	**-115.08806**	**22.0**		**7.9**	**-13.06**	**-93.4**	**45.2**	**10.6**	**16.9**	**1.3**	**3.2**	**207.0**	**11.7**	**49.6**	**0.1**			**IT151**	**Spring**	**112**	**08/08/95**
SK-10	38.75000	-115.17000					-119.0					16.3					423		Kirk110	Well	218	--
SK-10	**38.75000**	**-115.17000**					**-119.0**					**16.3**					**423**		**Kirk110**	**Well**	**218**	**--**
SK-18	37.71000	-114.80000					-95.0					11.3					276		Kirk130	Well	134	--
SK-18	**37.71000**	**-114.80000**					**-95.0**					**11.3**					**276**		**Kirk130**	**Well**	**134**	**--**
Snow Creek Spring (Unnamed Spring in Snow Creek)	40.07837	-114.91138	7.9	9.3	7.2	-16.22	-120.7									--	62629A		DRI-CC-2	Spring	345	05/24/05
Snow Creek Spring (Unnamed Spring in Snow Creek)	**40.07837**	**-114.91138**	**7.9**	**9.3**	**7.2**	**-16.22**	**-120.7**									**--**	**62629A**		**DRI-CC-2**	**Spring**	**345**	**05/24/05**
Snowmelt Below Duckwater Peak	38.90056	-115.38250	10.0			-14.10	-105.0					0.6					437		GS216	Surface	224	06/15/83
Snowmelt Below Duckwater Peak	**38.90056**	**-115.38250**	**10.0**			**-14.10**	**-105.0**					**0.6**					**437**		**GS216**	**Surface**	**224**	**06/15/83**
South Monument Spring	38.25586	-114.11651	9.1	5.8	7.1	-14.23	-102.3	25.5	5.6	12.6	5.8	22.5	101.0	8.6	55.5	--	60318	1		Spring	319	05/21/04
South Monument Spring	**38.25586**	**-114.11651**	**9.1**	**5.8**	**7.1**	**-14.23**	**-102.3**	**25.5**	**5.6**	**12.6**	**5.8**	**22.5**	**101.0**	**8.6**	**55.5**	**--**	**60318**	**1**		**Spring**	**319**	**05/21/04**
South Spring (Egan)	39.14556	-114.97000	7.0			-15.00	-111.0					3.0					458		GS244	Spring	236	06/17/83
South Springs	39.145258	-114.972867	6.8	8.83	7.8	-15.23	-111.9	46.6	10.9	5.15	0.53	2.3	190	11.2	9.5	0.11	65040		ER-14	Spring	431	07/12/06
South Spring (Egan)	**39.14556**	**-114.97000**	**6.9**	**8.8**	**7.8**	**-15.12**	**-111.5**	**46.6**	**10.9**	**5.2**	**0.5**	**2.7**	**190.0**	**11.2**	**9.5**	**0.1**	**458**		**GS244**	**Spring**	**236**	**06/17/83**
South Spring (Snake)	38.80405	-114.17588	9.7	5.7	6.9	-14.70	-108.0	66.3	28.8	2.2	0.5	2.6	3.4	343.0	7.6	0.18	62917		SN-7	Spring	383	07/14/05
South Spring (Snake)	**38.80405**	**-114.17588**	**9.7**	**5.7**	**6.9**	**-14.70**	**-108.0**	**66.3**	**28.8**	**2.2**	**0.5**	**2.6**	**3.4**	**343.0**	**7.6**	**0.18**	**62917**		**SN-7**	**Spring**	**383**	**07/14/05**

Spencer Well	37.39500	-115.18028	19.0		7.7	-13.68	-104.1	53.8	44.0	119.4	14.5	45.9	466.0	158.0	59.8	1.6	206		IT155	Well	106	08/06/95
Spencer Well	**37.39500**	**-115.18028**	**19.0**		**7.7**	**-13.68**	**-104.1**	**53.8**	**44.0**	**119.4**	**14.5**	**45.9**	**466.0**	**158.0**	**59.8**	**1.6**	**206**		**IT155**	**Well**	**106**	**08/06/95**
Spring Creek Spring	38.90935	-114.11295	12.9	8.1	7.3	-15.40	-113.0	64.2	7.9	6.9	1.2	6.7	12.5	227.0	11.5	1.51	62916		SN-8	Spring	384	07/16/05
Spring Creek Spring	**38.90935**	**-114.11295**	**12.9**	**8.1**	**7.3**	**-15.40**	**-113.0**	**64.2**	**7.9**	**6.9**	**1.2**	**6.7**	**12.5**	**227.0**	**11.5**	**1.51**	**62916**		**SN-8**	**Spring**	**384**	**07/16/05**
Unnamed Spring below Currant Mtn	38.89417	-115.38278	18.0			-14.00	-107.0					11.0					439		GS213	Spring	226	06/15/83
Unnamed Spring below Currant Mtn	**38.89417**	**-115.38278**	**18.0**			**-14.00**	**-107.0**					**11.0**					**439**		**GS213**	**Spring**	**226**	**06/15/83**
Unnamed Spring nr Redd's Cabin Summit	38.12512	-114.06920	8.0		7.9	-12.50	-95.0	92.0	19.0	26.0	2.4	23.0		25.0	23.0	0.3	334		GS128	Spring	173	04/09/85
Unnamed Spring nr Redd's Cabin Summit	38.12512	-114.06920	15.9	7.7	7.9	-12.37	-93.7	93.1	21.3	30.9	1.3	26.9	374.0	31.6	25.5	--	60315	1	WM-3	Spring	173	05/21/04
Unnamed Spring nr Redd's Cabin Summit	**38.12512**	**-114.06920**	**12.0**	**7.7**	**7.9**	**-12.44**	**-94.4**	**92.6**	**20.2**	**28.5**	**1.9**	**25.0**	**374.0**	**28.3**	**24.3**	**0.3**				**Spring**	**173**	
Unnamed Spring in Schell Creek Range	38.51851	-114.74229	--	--	--	-14.40	-108.1	17.6	3.8	1.9	1.2	0.9	67.9	9.5	10.8	--	57756			Spring	304	10/29/03
Unnamed Spring in Schell Creek Range	38.51851	-114.74229	--	--	--	-14.46	-105.8	--	--	--	--	--	--	--	--	--	57756	2		Spring	304	10/29/03
Unnamed Spring in Schell Creek Range	38.51851	-114.74229	10.7	6.47	7.22	-14.61	-106.9	56.0	8.70	23.2	0.34	11.8	210	26.2	16.2	0.15	62976	1	SC-4	Spring	374	07/30/05
Unnamed Spring in Schell Creek Range	38.51851	-114.74229	11	3.76	7.41	-14.45	-108.3	55.6	8.58	21.4	<.1	11.5	210	25.0	15.4	0.13	65058		SC-9	Spring	449	07/14/06
Unnamed Spring in Schell Creek Range	38.51851	-114.74229	**10.9**	**5.1**	**7.3**	**-14.48**	**-107.3**	**43.1**	**7.0**	**15.5**	**0.8**	**8.1**	**162.6**	**20.2**	**14.1**	**0.1**				**Spring**	**304**	
Indian Spring near Steward Ranch	38.31056	-114.65028	8.0		7.0	-13.60	-102.0	38.0	5.9	17.0	0.6	7.9	161.0	12.0	46.0	0.2	357		GS141	Spring	188	04/05/85
Indian Spring near Steward Ranch	**38.31056**	**-114.65028**	**8.0**		**7.0**	**-13.60**	**-102.0**	**38.0**	**5.9**	**17.0**	**0.6**	**7.9**	**161.0**	**12.0**	**46.0**	**0.2**	**357**		**GS141**	**Spring**	**188**	**04/05/85**
Stock Well (Delamar Wash)	37.34944	-114.75833					-88.0										1000		GS999	Well	101	--
Stock Well (Delamar Wash)	**37.34944**	**-114.75833**					**-88.0**										**1000**		**GS999**	**Well**	**101**	**--**
Stove Spring	39.09486	-115.36359	9.1	7.1	6.4	-15.71	-114.5									--	62711		DRI-WP-6	Spring	347	06/06/05
Stove Spring	**39.09486**	**-115.36359**	**9.1**	**7.1**	**6.4**	**-15.71**	**-114.5**									**--**	**62711**		**DRI-WP-6**	**Spring**	**347**	**06/06/05**
Summit Spring	39.55109	-115.23000	7.7	6.4	6.5	-15.94	-120.8									--	62702		DRI-BT-4	Spring	348	06/04/05
Summit Spring	**39.55109**	**-115.23000**	**7.7**	**6.4**	**6.5**	**-15.94**	**-120.8**									**--**	**62702**		**DRI-BT-4**	**Spring**	**348**	**06/04/05**
Summit Spring (Mahogany Mts.)	37.749840	-114.153585	13.2	2.08	7.07	-12.04	-92.1	107	24.4	57.1	2.74	59.4	422	40.8	55.0	0.38	64905		MG-2	Spring	419	06/21/06
Summit Spring (Mahogany Mts.)	**37.749840**	**-114.153585**	**13.2**	**2.08**	**7.07**	**-12.04**	**-92.1**	**107**	**24.4**	**57.1**	**2.74**	**59.4**	**422**	**40.8**	**55.0**	**0.38**	**64905**		**MG-2**	**Spring**	**419**	**06/21/06**
Teaspoon Spring	38.34509	-115.41189	11.9	4.8	7.0	-13.26	-100.0										62830			Spring	371	06/30/05
Teaspoon Spring	**38.34509**	**-115.41189**	**11.9**	**4.8**	**7.0**	**-13.26**	**-100.0**										**62830**			**Spring**	**371**	**06/30/05**
The Seeps (Spring)	37.73944	-115.57556	9.0		7.5	-13.30	-98.0	110.0	25.9	53.0	3.9	41.7	455.0	53.4	55.0		281		K10	Spring	136	01/15/85
The Seeps (Spring)	**37.73944**	**-115.57556**	**9.0**		**7.5**	**-13.30**	**-98.0**	**110.0**	**25.9**	**53.0**	**3.9**	**41.7**	**455.0**	**53.4**	**55.0**		**281**		**K10**	**Spring**	**136**	**01/15/85**
Thirty Mile Spring	39.55556	-115.21806	8.5		8.0	-16.40	-126.0	29.0	4.6	13.0	2.8	5.5	140.0	7.9	43.0	0.2	468		GS256	Spring	242	08/23/83
Thirty Mile Spring	**39.55556**	**-115.21806**	**8.5**		**8.0**	**-16.40**	**-126.0**	**29.0**	**4.6**	**13.0**	**2.8**	**5.5**	**140.0**	**7.9**	**43.0**	**0.2**	**468**		**GS256**	**Spring**	**242**	**08/23/83**
Tippet Spring	39.876915	-114.37348	21.4	2.76	6.8	-16.24	-121.9	54.8	30.2	7.65	1.08	7.1	279	26.0	12.0	0.05	63276	1		Spring	394	24-Aug-05
Tippet Spring	**39.876915**	**-114.37348**	**21.4**	**2.76**	**6.8**	**-16.24**	**-121.9**	**54.8**	**30.2**	**7.65**	**1.08**	**7.1**	**279**	**26.0**	**12.0**	**0.05**	**63276**	**1**		**Spring**	**394**	**24-Aug-05**
Tobe Spring	38.00609	-114.08980	19.8	8.0	8.7	-13.04	-100.0	49.6	7.8	25.3	3.2	20.9	89.1	20.5	45.6	--	60312	1		Spring	315	05/20/04
Tobe Spring	**38.00609**	**-114.08980**	**19.8**	**8.0**	**8.7**	**-13.04**	**-100.0**	**49.6**	**7.8**	**25.3**	**3.2**	**20.9**	**89.1**	**20.5**	**45.6**	**--**	**60312**	**1**		**Spring**	**315**	**05/20/04**
Tobe Spring 2	38.00675	-114.08969	13.7	4.0	7.2	-12.09	-93.6	38.2	5.7	17.1	3.4	14.8	157.0	7.0	47.0	--	60313	1		Spring	316	05/20/04
Tobe Spring 2	**38.00675**	**-114.08969**	**13.7**	**4.0**	**7.2**	**-12.09**	**-93.6**	**38.2**	**5.7**	**17.1**	**3.4**	**14.8**	**157.0**	**7.0**	**47.0**	**--**	**60313**	**1**		**Spring**	**316**	**05/20/04**
Trough Spring	38.36971	-114.96316	--	--	--	-13.56	-103.6											1		Spring	413	28-Oct_05
Trough Spring	**38.36971**	**-114.96316**	**--**	**--**	**--**	**-13.56**	**-103.6**											**1**		**Spring**	**413**	**28-Oct_05**
Tunnel Spring	39.35142	-115.44964	10.4	5.5	7.0	-15.02	-118.3										62832			Spring	366	07/01/05
Tunnel Spring	**39.35142**	**-115.44964**	**10.4**	**5.5**	**7.0**	**-15.02**	**-118.3**										**62832**			**Spring**	**366**	**07/01/05**
Twin Spring	37.46996	-115.02371	16.9	7.0	7.2	-13.24	-97.4	40.9	9.5	17.2	2.2	10.4	190.0	8.8	48.6	--	61104	1		Spring	294	07/30/04
Twin Spring	**37.46996**	**-115.02371**	**16.9**	**7.0**	**7.2**	**-13.24**	**-97.4**	**40.9**	**9.5**	**17.2**	**2.2**	**10.4**	**190.0**	**8.8**	**48.6**	**--**	**61104**	**1**		**Spring**	**294**	**07/30/04**
Unnamed Chokecherry Spring	37.53905	-114.70312	11.8	6.2	7.2	-12.54	-98.1	23.9	5.9	9.3	1.4	3.5	109.0	7.9	48.6	--	59696	1		Spring	263	03/25/04
Unnamed Chokecherry Spring	**37.53905**	**-114.70312**	**11.8**	**6.2**	**7.2**	**-12.54**	**-98.1**	**23.9**	**5.9**	**9.3**	**1.4**	**3.5**	**109.0**	**7.9**	**48.6**	**--**	**59696**	**1**		**Spring**	**263**	**03/25/04**
Unnamed Hayden Canyon Spring	39.15147	-115.39264	6.9	6.0	7.0	-15.69	-120.9									--	62718		DRI-WP-13	Spring	350	06/07/05
Unnamed Hayden Canyon Spring	**39.15147**	**-115.39264**	**6.9**	**6.0**	**7.0**	**-15.69**	**-120.9**									**--**	**62718**		**DRI-WP-13**	**Spring**	**350**	**06/07/05**
Unnamed Near Little Willow Spring	39.72235	-115.60986	9.4	8.4	7.2	-17.04	-125.9									--	62707		DRI-BK-3	Spring	351	06/05/05
Unnamed Near Little Willow Spring	**39.72235**	**-115.60986**	**9.4**	**8.4**	**7.2**	**-17.04**	**-125.9**									**--**	**62707**		**DRI-BK-3**	**Spring**	**351**	**06/05/05**
Unnamed Shellback Ridge Spring	39.14038	-115.38952	7.0	0.3	4.9	-16.18	-123.6									--	62720		DRI-WP-15	Spring	352	06/07/05
Unnamed Shellback Ridge Spring	**39.14038**	**-115.38952**	**7.0**	**0.3**	**4.9**	**-16.18**	**-123.6**									**--**	**62720**		**DRI-WP-15**	**Spring**	**352**	**06/07/05**
Unnamed Spring (Unnamed Combs Creek Spring)	39.50919	-114.99298				-15.63	-118.9									--	62630		DRI-ER-6	Spring	353	05/24/05
Unnamed Spring (Unnamed Combs Creek Spring)	**39.50919**	**-114.99298**				**-15.63**	**-118.9**									**--**	**62630**		**DRI-ER-6**	**Spring**	**353**	**05/24/05**
Unnamed Spring #3 (Snake)	38.73321	-114.33335	11.7	6.5	6.8	-14.10	-109.0	104.0	21.4	44.7	1.7	90.1	70.0	283.0	114.0	0.16	62920		SN-3	Spring	379	07/13/05
Unnamed Spring #3 (Snake)	**38.73321**	**-114.33335**	**11.7**	**6.5**	**6.8**	**-14.10**	**-109.0**	**104.0**	**21.4**	**44.7**	**1.7**	**90.1**	**70.0**	**283.0**	**114.0**	**0.16**	**62920**		**SN-3**	**Spring**	**379**	**07/13/05**
Unnamed Spring #4 (Snake)	38.83515	-114.19643	6.1	4.98	6.43	-14.65	-107.2	131	22.3	6.06	1.02	6.6	474	17.9	11.0	0.05	62972		SN-1	Spring	376	07/28/05
Unnamed Spring #4 (Snake)	**38.83515**	**-114.19643**	**6.1**	**4.98**	**6.43**	**-14.65**	**-107.2**	**131**	**22.3**	**6.06**	**1.02**	**6.6**	**474**	**17.9**	**11.0**	**0.05**	**62972**		**SN-1**	**Spring**	**376**	**07/28/05**
Unnamed Spring #5 (Snake)	38.85148	-114.17036	11.9	5.84	6.97	-14.04	-106.7	58.4	30.8	9.34	1.22	9.2	322	9.2	10.9	0.08	62973		SN-2	Spring	377	07/28/05
Unnamed Spring #5 (Snake)	**38.85148**	**-114.17036**	**11.9**	**5.84**	**6.97**	**-14.04**	**-106.7**	**58.4**	**30.8**	**9.34**	**1.22**	**9.2**	**322**	**9.2**	**10.9**	**0.08**	**62973**		**SN-2**	**Spring**	**377**	**07/28/05**
Unnamed Spring #1 (White Pine)	38.96778	-115.39900	8.3	8.9	6.5	-15.36	-114.8										62818	1		Spring	359	06/28/05

Unnamed Spring #1 (White Pine)	**38.96778**	**-115.39900**	**8.3**	**8.9**	**6.5**	**-15.36**	**-114.8**										**62818**	**1**		**Spring**	**359**	**06/28/05**
Unnamed Spring #2 (Mahogany Mts)	37.943211	-114.068416	13.4	6.27	7.35	-13.47	-100.7	64.1	8.94	12.1	0.89	10.2	210	23.6	21.6	0.67	64907		MG-4	Spring	421	06/22/06
Unnamed Spring #2 (Mahogany Mts)	**37.943211**	**-114.068416**	**13.4**	**6.27**	**7.35**	**-13.47**	**-100.7**	**64.1**	**8.94**	**12.1**	**0.89**	**10.2**	**210**	**23.6**	**21.6**	**0.67**	**64907**		**MG-4**	**Spring**	**421**	**06/22/06**
Unnamed Spring #1(White Rock Mts)	38.303410	-114.160379	10.4	8.01	7.35	-15.05	-109.6	47.2	8.85	15.9	0.98	45.5	128	14.0	35.5	0.08	64897		WM-8	Spring	415	06/19/06
Unnamed Spring #1(White Rock Mts)	**38.303410**	**-114.160379**	**10.4**	**8.01**	**7.35**	**-15.05**	**-109.6**	**47.2**	**8.85**	**15.9**	**0.98**	**45.5**	**128**	**14.0**	**35.5**	**0.08**	**64897**		**WM-8**	**Spring**	**415**	**06/19/06**
Unnamed Spring #2 (White Rock Mts)	38.195394	-114.105820	11.1	2.82	6.67	-13.00	-97.0	29.1	7.85	10.4	0.52	3.3	130	8.3	40.7	0.15	64899		WM-10	Spring	417	06/19/06
Unnamed Spring #2 (White RockMts)	**38.195394**	**-114.105820**	**11.1**	**2.82**	**6.67**	**-13.00**	**-97.0**	**29.1**	**7.85**	**10.4**	**0.52**	**3.3**	**130**	**8.3**	**40.7**	**0.15**	**64899**		**WM-10**	**Spring**	**417**	**06/19/06**
Unnamed Spring #1(Egan)	39.068946	-114.918846	7	6.9	7.11	-15.14	-112.2	82.6	9.14	4.46	0.94	1.6	277	20.9	11.2	0.12	65044		ER-18	Spring	435	07/12/06
Unnamed Spring #1(Egan)	**39.068946**	**-114.918846**	**7**	**6.9**	**7.11**	**-15.14**	**-112.2**	**82.6**	**9.14**	**4.46**	**0.94**	**1.6**	**277**	**20.9**	**11.2**	**0.12**	**65044**		**ER-18**	**Spring**	**435**	**07/12/06**
Unnamed Spring #2 (White Pine)	38.97696	-115.40065	8.7	5.9	5.7	-15.66	-114.9										62819	1		Spring	360	06/28/05
Unnamed Spring #2 (White Pine)	**38.97696**	**-115.40065**	**8.7**	**5.9**	**5.7**	**-15.66**	**-114.9**										**62819**	**1**		**Spring**	**360**	**06/28/05**
Unnamed Spring #2 (Egan Range)	39.045766	-114.924576	4.1	7.62	7.5	-15.14	-110.0	50.7	5.87	3.95	0.68	1.0	182	5.8	9.2	0.08	65045		ER-19	Spring	436	07/12/06
Unnamed Spring #2 (Egan Range)	**39.045766**	**-114.924576**	**4.1**	**7.62**	**7.5**	**-15.14**	**-110.0**	**50.7**	**5.87**	**3.95**	**0.68**	**1.0**	**182**	**5.8**	**9.2**	**0.08**	**65045**		**ER-19**	**Spring**	**436**	**07/12/06**
Unnamed Spring #3 (White Pine)	38.98418	-115.39037	9.8	2.9	6.1	-14.96	-113.1										62821	1		Spring	361	06/28/05
Unnamed Spring #3 (White Pine)	**38.98418**	**-115.39037**	**9.8**	**2.9**	**6.1**	**-14.96**	**-113.1**										**62821**	**1**		**Spring**	**361**	**06/28/05**
Unnamed Spring #3 (Egan Range)	39.056771	-114.926784	4.8	8.75	7.5	-15.07	-110.2	66.9	4.69	3.98	0.69	0.9	221	5.5	10.2	0.10	65046		ER-20	Spring	437	07/12/06
Unnamed Spring #3 (Egan Range)	**39.056771**	**-114.926784**	**4.8**	**8.75**	**7.5**	**-15.07**	**-110.2**	**66.9**	**4.69**	**3.98**	**0.69**	**0.9**	**221**	**5.5**	**10.2**	**0.10**	**65046**		**ER-20**	**Spring**	**437**	**07/12/06**
Unnamed Spring #4 (White Pine)	39.03633	-115.39347	8.1	3.7	6.9	-15.01	-116.3										62824	1		Spring	362	06/29/05
Unnamed Spring #4 (White Pine)	**39.03633**	**-115.39347**	**8.1**	**3.7**	**6.9**	**-15.01**	**-116.3**										**62824**	**1**		**Spring**	**362**	**06/29/05**
Unnamed Spring #4 (Egan Range)	39.085308	-114.921879	6.7	8.65	7.43	-15.37	-114.0	65.1	10.1	3.38	0.78	1.3	229	11.9	11.5	0.11	65047		ER-21	Spring	438	07/12/06
Unnamed Spring #4 (Egan Range)	**39.085308**	**-114.921879**	**6.7**	**8.65**	**7.43**	**-15.37**	**-114.0**	**65.1**	**10.1**	**3.38**	**0.78**	**1.3**	**229**	**11.9**	**11.5**	**0.11**	**65047**		**ER-21**	**Spring**	**438**	**07/12/06**
Unnamed Spring #5 (White Pine)	39.00631	-115.39043	9.0	7.0	7.0	-16.01	-120.4										62825	1	WP-13	Spring	363	06/29/05
Unnamed Spring #5 (White Pine)	39.00631	-115.39043				-14.04	-106.7										62973		WP-13	Spring	363	07/28/01
Unnamed Spring #5(RS, White Pine)	39.006300	-115.390430	8.9	6.83	7.12	-16.02	-120.8	62.5	5.30	14.8	1.16	6.9	224	10.6	30.5	0.16	65038		WP-13	Spring	428	07/11/06
Unnamed Spring #5 (White Pine)	39.00631	-115.39043	**9.0**	**6.9**	**7.1**	**-15.36**	**-116.0**	**62.5**	**5.3**	**14.8**	**1.2**	**6.9**	**224.0**	**10.6**	**30.5**	**0.2**		**3**	WP-13	**Spring**	**363**	
Unnamed Spring #5 (Egan Range)	38.903097	-114.923433	7.3	7.13	7.04	-14.72	-109.6	93.1	18.3	4.39	0.92	3.3	331	32.4	14.0	0.06	65054		ER-28	Spring	445	07/13/06
Unnamed Spring #5 (Egan Range)	**38.903097**	**-114.923433**	**7.3**	**7.13**	**7.04**	**-14.72**	**-109.6**	**93.1**	**18.3**	**4.39**	**0.92**	**3.3**	**331**	**32.4**	**14.0**	**0.06**	**65054**		**ER-28**	**Spring**	**445**	**07/13/06**
Unnamed Spring #6 (White Pine)	38.99300	-115.37519	9.1	0.5	6.8	-14.98	-115.1										62826	1		Spring	364	06/29/05
Unnamed Spring #6 (White Pine)	**38.99300**	**-115.37519**	**9.1**	**0.5**	**6.8**	**-14.98**	**-115.1**										**62826**	**1**		**Spring**	**364**	**06/29/05**
Unnamed Spring #7 (Quinn)	38.16152	-115.64159	7.4	6.1	6.7	-14.23	-105.9										62834	1		Spring	367	07/02/05
Unnamed Spring #7 (Quinn)	**38.16152**	**-115.64159**	**7.4**	**6.1**	**6.7**	**-14.23**	**-105.9**										**62834**	**1**		**Spring**	**367**	**07/02/05**
Unnamed Spring #8 (Quinn)	38.05659	-115.66484	11.5	0.3	6.5	-14.18	-104.4										62835	1		Spring	368	07/02/05
Unnamed Spring #8 (Quinn)	**38.05659**	**-115.66484**	**11.5**	**0.3**	**6.5**	**-14.18**	**-104.4**										**62835**	**1**		**Spring**	**368**	**07/02/05**
Unnamed Spring #7(Kern MTS)	39.680719	-114.190886	10.2	0.06	6.32	-15.80	-116.3	51.5	11.0	25.7	0.82	14.9	232	14.1	36.0	0.40	63273			Spring	391	23-Aug-05
Unnamed Spring #7(Kern MTS)	**39.680719**	**-114.190886**	**10.2**	**0.06**	**6.32**	**-15.80**	**-116.3**	**51.5**	**11.0**	**25.7**	**0.82**	**14.9**	**232**	**14.1**	**36.0**	**0.40**	**63273**			**Spring**	**391**	**23-Aug-05**
Unnamed Spring #8 (Antelope Range)	39.987784	-114.433412	9.2	2.9	6.13	-15.85	-121.4	35.9	6.98	12.8	1.89	11.1	130	22.1	44.9	0.13	63277	1		Spring	395	24-Aug-05
Unnamed Spring #8 (Antelope Range)	**39.987784**	**-114.433412**	**9.2**	**2.9**	**6.13**	**-15.85**	**-121.4**	**35.9**	**6.98**	**12.8**	**1.89**	**11.1**	**130**	**22.1**	**44.9**	**0.13**	**63277**	**1**		**Spring**	**395**	**24-Aug-05**
Unnamed Spring #9 (Antelope Range)	39.993636	-114.420708	8.3	5.6	6.16	-16.41	-123.0	32.8	6.25	8.86	3.03	14.8	109	14.9	44.4	0.10	63278	1		Spring	396	25-Aug-05
Unnamed Spring #9 (Antelope Range)	**39.993636**	**-114.420708**	**8.3**	**5.6**	**6.16**	**-16.41**	**-123.0**	**32.8**	**6.25**	**8.86**	**3.03**	**14.8**	**109**	**14.9**	**44.4**	**0.10**	**63278**	**1**		**Spring**	**396**	**25-Aug-05**
Unnamed Spring #10 (Antelope Range)	39.937971	-114.360742	12.9	1.29	6.59	-15.95	-122.0	92.0	49.2	34.1	1.19	35.5	329	175	19.3	0.16	63279	1		Spring	397	25-Aug-05
Unnamed Spring #10 (Antelope Range)	**39.937971**	**-114.360742**	**12.9**	**1.29**	**6.59**	**-15.95**	**-122.0**	**92.0**	**49.2**	**34.1**	**1.19**	**35.5**	**329**	**175**	**19.3**	**0.16**	**63279**	**1**		**Spring**	**397**	**25-Aug-05**
Unnamed Springs #11(Snake Range)	39.484774	-114.310317	8.9	7.85	6.71	-15.65	-117.1	60.1	11.4	11.4	1.56	8.3	231	11.1	19.1	0.06	63283	1		Spring	401	26-Aug-05
Unnamed Springs #11(Snake Range)	**39.484774**	**-114.310317**	**8.9**	**7.85**	**6.71**	**-15.65**	**-117.1**	**60.1**	**11.4**	**11.4**	**1.56**	**8.3**	**231**	**11.1**	**19.1**	**0.06**	**63283**	**1**		**Spring**	**401**	**26-Aug-05**
Unnamed Spring #12 (Snake Range)	39.307465	-114.216096	7.6	6.54	7.24	-15.89	-116.6	39.1	3.53	4.78	0.64	2.4	130	4.2	11.9	0.07	63527	1		Spring	403	25-Oct-05
Unnamed Spring #12 (Snake Range)	**39.307465**	**-114.216096**	**7.6**	**6.54**	**7.24**	**-15.89**	**-116.6**	**39.1**	**3.53**	**4.78**	**0.64**	**2.4**	**130**	**4.2**	**11.9**	**0.07**	**63527**	**1**		**Spring**	**403**	**25-Oct-05**
Unnamed Sp Silver Cr Canyon	39.22899	-114.26075	9.2	3.12	7.39	-15.38	-115.7	71.3	30.4	8.93	0.75	6.6	322	35.4	12.6	0.08	63529	1		Spring	405	26-Oct-05
Unnamed Sp Silver Cr Canyon	**39.22899**	**-114.26075**	**9.2**	**3.12**	**7.39**	**-15.38**	**-115.7**	**71.3**	**30.4**	**8.93**	**0.75**	**6.6**	**322**	**35.4**	**12.6**	**0.08**	**63529**	**1**		**Spring**	**405**	**26-Oct-05**
Unnamed Spring 13 (Snake Range)	39.177792	-114.286862	9.9	6.17	7.48	-14.76	-114.3	79.1	94.7	67.8	1.14	83.6	437	234	19.6	0.15	63530	1		Spring	406	26-Oct-05
Unnamed Spring 13 (Snake Range)	**39.177792**	**-114.286862**	**9.9**	**6.17**	**7.48**	**-14.76**	**-114.3**	**79.1**	**94.7**	**67.8**	**1.14**	**83.6**	**437**	**234**	**19.6**	**0.15**	**63530**	**1**		**Spring**	**406**	**26-Oct-05**
Unnamed Stone Cabin Spring	39.15911	-115.39892	8.5	8.2	6.8	-15.31	-114.2									--	62717		DRI-WP-12	Spring	354	06/07/05
Unnamed Stone Cabin Spring	39.15911	-115.39892	9.2	7.22	7.31	-15.47	-118.2	66.7	11.7	14.3	0.92	7.9	248	13.0	16.8	0.23	65036		WP-11	Spring	426	07/11/06
Unnamed Stone Cabin Spring	**39.15911**	**-115.39892**	**8.9**	**7.7**	**7.1**	**-15.39**	**-116.2**	**66.7**	**11.7**	**14.3**	**0.9**	**7.9**	**248.0**	**13.0**	**16.8**	**0.2**			**DRI-WP-12**	**Spring**	**354**	**06/07/05**
Unnamed Spring (Clover)	37.27654	-114.30744	3.3	4.9	7.1	-12.20	-88.0	126.0	22.6	56.6	1.5	14.8	401.0	157.0	35.4	--	58501	1		Spring	249	01/15/04
Unnamed Spring (Clover)	**37.27654**	**-114.30744**	**3.3**	**4.9**	**7.1**	**-12.20**	**-88.0**	**126.0**	**22.6**	**56.6**	**1.5**	**14.8**	**401.0**	**157.0**	**35.4**	**--**	**58501**	**1**		**Spring**	**249**	**01/15/04**
Unnamed Spring	37.49917	-114.45250	10.0			-11.60	-86.5										231		GS85	Spring	113	06/03/85
Unnamed Spring	**37.49917**	**-114.45250**	**10.0**			**-11.60**	**-86.5**										**231**		**GS85**	**Spring**	**113**	**06/03/85**
Unnamed Spring in dry creek bed (White Pine Range)	38.89546	-115.38372	--	--	--	-15.31	-113.6	--	--	--	--	--	--	--	--	--	--	1		Spring	321	10/12/03
Unnamed Spring in dry creek bed (White Pine Range)	**38.89546**	**-115.38372**	**--**	**--**	**--**	**-15.31**	**-113.6**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**321**	**10/12/03**

Unnamed Spring in Miller Canyon	38.32738	-114.24383	--	--	--	-14.27	-103.7	--	--	--	--	--	--	--	--	--	--	1		Spring	313	05/19/04
Unnamed Spring in Miller Canyon	**38.32738**	**-114.24383**	**--**	**--**	**--**	**-14.27**	**-103.7**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1**		**Spring**	**313**	**05/19/04**
Unnamed Spring in Road (South Pahroc Range)	37.53638	-115.10651	28.4	4.5	6.4	-13.07	-96.7	42.6	10.0	16.1	1.5	8.8	193.0	8.7	49.7	--	61098	1		Spring	303	07/30/04
Unnamed Spring in Road(South Pahroc Range)	**37.53638**	**-115.10651**	**28.4**	**4.5**	**6.4**	**-13.07**	**-96.7**	**42.6**	**10.0**	**16.1**	**1.5**	**8.8**	**193.0**	**8.7**	**49.7**	**--**	**61098**	**1**		**Spring**	**303**	**07/30/04**
Unnamed Spring nr Clover Creek	37.61461	-114.45061	16.2	0.9	7.0	-11.96	-89.7	67.4	9.1	29.9	6.8	20.3	299.0	11.1	55.6	--	61102	1		Spring	252	07/31/04
Unnamed Spring nr Clover Creek	**37.61461**	**-114.45061**	**16.2**	**0.9**	**7.0**	**-11.96**	**-89.7**	**67.4**	**9.1**	**29.9**	**6.8**	**20.3**	**299.0**	**11.1**	**55.6**	**--**	**61102**	**1**		**Spring**	**252**	**07/31/04**
Unnamed Spring nr Six Mile seep	37.49680	-115.09102	--	--	--	-12.62	-94.5	--	--	--	--	--	--	--	--	--	61106A	1		Spring	296	07/30/04
Unnamed Spring nr Six Mile seep	**37.49680**	**-115.09102**	**--**	**--**	**--**	**-12.62**	**-94.5**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**61106A**	**1**		**Spring**	**296**	**07/30/04**
Unnamed Spring--nr Blackrock	37.91689	-114.91859	9.2	7.1	7.4	-11.90	-94.3	45.9	9.3	25.8	6.1	23.7	184.0	23.1	69.2	--	59688	1		Spring	299	03/23/04
Unnamed Spring--nr Blackrock	**37.91689**	**-114.91859**	**9.2**	**7.1**	**7.4**	**-11.90**	**-94.3**	**45.9**	**9.3**	**25.8**	**6.1**	**23.7**	**184.0**	**23.1**	**69.2**	**--**	**59688**	**1**		**Spring**	**299**	**03/23/04**
Unnamed Well (Longdale)	36.59000	-114.48000			7.8	-13.20	-103.0	29.0	2.2	35.0	5.2	6.0	135.0	26.0	132.7	1.0	78		IT174	Well	48	03/04/74
Unnamed Well (Longdale)	**36.59000**	**-114.48000**			**7.8**	**-13.20**	**-103.0**	**29.0**	**2.2**	**35.0**	**5.2**	**6.0**	**135.0**	**26.0**	**132.7**	**1.0**	**78**		**IT174**	**Well**	**48**	**03/04/74**
Unnamed Well (Near Dry Lake Range)	36.38278	-114.91667	26.5	0.5	7.3	-13.70	-96.0	123.0	46.0	140.0	16.0	190.0	230.0	360.0	21.0	1.6	41		GS12	Well	24	04/26/82
Unnamed Well (Near Dry Lake Range)	**36.38278**	**-114.91667**	**26.5**	**0.5**	**7.3**	**-13.70**	**-96.0**	**123.0**	**46.0**	**140.0**	**16.0**	**190.0**	**230.0**	**360.0**	**21.0**	**1.6**	**41**		**GS12**	**Well**	**24**	**04/26/82**
South Fox Well	38.77222	-114.52667	12.0	3.3	7.8	-15.00	-113.0	34.0	21.0	7.1	1.6	6.0		8.0	15.0	0.3	422		GS201	Well	216	07/06/83
South Fox Well	**38.77222**	**-114.52667**	**12.0**	**3.3**	**7.8**	**-15.00**	**-113.0**	**34.0**	**21.0**	**7.1**	**1.6**	**6.0**		**8.0**	**15.0**	**0.3**	**422**		**GS201**	**Well**	**216**	**07/06/83**
Unnamed, Kaolin Wash	36.48722	-114.46667	14.1	6.0	8.5	-11.30	-88.0	48.9	25.9	77.6	21.3	46.5	213.0	168.0	19.1		67		PL3	Spring	35	02/09/96
Unnamed, Kaolin Wash	**36.48722**	**-114.46667**	**14.1**	**6.0**	**8.5**	**-11.30**	**-88.0**	**48.9**	**25.9**	**77.6**	**21.3**	**46.5**	**213.0**	**168.0**	**19.1**		**67**		**PL3**	**Spring**	**35**	**02/09/96**
Upper Burnt Canyon Spring	38.287295	-114.200492	14.8	3.00	6.80	-12.83	-97.6	65.9	15.3	11.5	0.57	17.3	251	6.7	50.4	0.18	64898		WM-9	Spring	416	06/19/06
Upper Burnt Canyon Spring	**38.287295**	**-114.200492**	**14.8**	**3.00**	**6.80**	**-12.83**	**-97.6**	**65.9**	**15.3**	**11.5**	**0.57**	**17.3**	**251**	**6.7**	**50.4**	**0.18**	**64898**		**WM-9**	**Spring**	**416**	**06/19/06**
Upper Burnt Canyon Spring #2	38.287295	-114.200492	-	-	-	-13.66	-103.6	-	-	-	-	-	-	-	-	-	--		WM-9b	Spring	416	06/19/06
Upper Burnt Canyon Spring #2	**38.287295**	**-114.200492**	**-**	**-**	**-**	**-13.66**	**-103.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**--**		**WM-9b**	**Spring**	**416**	**06/19/06**
Upper Chokecherry Spring	37.53746	-114.69833	9.3	7.3	8.0	-12.96	-98.9	53.0	10.6	23.2	1.2	13.6	219.0	16.7	50.0	--	59695	1		Spring	262	03/25/04
Upper Chokecherry Spring	**37.53746**	**-114.69833**	**9.3**	**7.3**	**8.0**	**-12.96**	**-98.9**	**53.0**	**10.6**	**23.2**	**1.2**	**13.6**	**219.0**	**16.7**	**50.0**	**--**	**59695**	**1**		**Spring**	**262**	**03/25/04**
Upper Conner Spring	37.90278	-114.56056	8.0	8.2	7.4	-13.85	-100.0	73.0	26.0	2.2	0.5	2.1	351.0	5.4	8.5	<.1	310		GS115	Spring	156	11/11/86
Upper Conner Spring	37.90278	-114.56056	9.2	8.1	7.7	-13.88	-102.3	76.9	27.6	1.6	0.6	1.9	368.0	3.6	8.5	--	60836	1		Spring	156	06/24/04
Upper Conner Spring	37.90278	-114.56056	**8.6**	**8.2**	**7.6**	**-13.87**	**-101.2**	**75.0**	**26.8**	**1.9**	**0.5**	**2.0**	**359.5**	**4.5**	**8.5**	**<.1**	**310**		**GS115**	**Spring**	**156**	**11/11/86**
Upper Fairview	38.18657	-114.66620	18.0	1.8	7.2	-12.66	-97.7	60.2	10.6	28.1	2.6	23.6	259.0	14.5	48.4	--	60850	1		Spring	280	06/29/04
Upper Fairview	**38.18657**	**-114.66620**	**18.0**	**1.8**	**7.2**	**-12.66**	**-97.7**	**60.2**	**10.6**	**28.1**	**2.6**	**23.6**	**259.0**	**14.5**	**48.4**	**--**	**60850**	**1**		**Spring**	**280**	**06/29/04**
Upper Illipah Crk	39.28167	-115.39000				-16.00	-124.0												GS999	Surface	238	06/13/83
Upper Illipah Crk	39.28167	-115.39000				-16.20	-123.0												GS999	Surface	238	08/23/83
Upper Illipah Crk	**39.28167**	**-115.39000**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**-16.10**	**-123.5**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**				**Surface**	**238**	
Upper Indian Spring	37.45202	-114.65831	11.7	3.6	7.3	-11.46	-88.0	68.0	19.3	23.9	0.3	9.1	319.0	13.0	53.4	--	58499	1		Spring	268	01/14/04
Upper Indian Spring	**37.45202**	**-114.65831**	**11.7**	**3.6**	**7.3**	**-11.46**	**-88.0**	**68.0**	**19.3**	**23.9**	**0.3**	**9.1**	**319.0**	**13.0**	**53.4**	**--**	**58499**	**1**		**Spring**	**268**	**01/14/04**
Unnamed Spring near Pony Spring	38.32139	-114.64222	11.5			-12.90	-99.0										361		GS144	Spring	191	07/23/81
Unnamed Spring near Pony Spring	**38.32139**	**-114.64222**	**11.5**			**-12.90**	**-99.0**										**361**		**GS144**	**Spring**	**191**	**07/23/81**
Upper Riggs Spring WR4	37.36833	-114.64778															477			Spring	105	--
Upper Riggs Spring WR4	37.36833	-114.64778	10.8			-11.90	-88.0										207		GS78	Spring	105	02/02/84
Upper Riggs Spring WR4	37.36833	-114.64778	10.1	4.4	7.3	-11.90	-87.0	64.7	15.9	19.4	0.0	17.5	274.0	12.0	57.8	--	58492			Spring	105	01/13/04
Upper Riggs Spring WR4	37.36833	-114.64778	16.9	10.9	8.0	-11.95	-87.3	57.6	15.9	17.6	3.4	16.5	256.0	12.7	48.8	--	60082			Spring	105	04/29/04
Upper Riggs Spring WR4	37.36833	-114.64778	13.2	0.7	7.4	-11.55	-86.2	63.4	16.6	18.8	4.2	16.4	277.0	8.7	57.2	--	61614			Spring	105	10/19/04
Upper Riggs Spring WR4	37.36833	-114.64778	6.0	6.8	7.1	-12.46	-87.0	35.5	8.8	11.6	2.0	7.2	153.0	8.1	42.0	--	62035	4		Spring	105	02/10/05
Upper Riggs Spring WR4	37.36833	-114.64778	**11.4**	**5.7**	**7.4**	**-11.95**	**-87.1**	**55.3**	**14.3**	**16.9**	**2.4**	**14.4**	**240.0**	**10.4**	**51.5**	**#DIV/0!**		**5**		**Spring**	**105**	
Upper Terrace Spring WR2	39.08664	-114.92565	--	--	--	-15.43	-111.3	39.7	10.9	4.1	0.7	2.1	173.0	7.3	11.9	--	57696			Spring	270	10/13/03
Upper Terrace Spring WR2	39.08664	-114.92565	8.2	5.1	7.1	-15.43	-114.9	39.8	11.0	4.1	0.7	2.1	172.0	7.3	12.1	--	57697			Spring	270	10/15/03
Upper Terrace Spring WR2	39.08664	-114.92565	7.6	--	7.9	-15.44	-111.8	40.5	10.8	4.3	0.8	2.1	172.0	7.1	9.2	--	60080			Spring	270	04/26/04
Upper Terrace Spring WR2	39.08664	-114.92565	8.0	8.0	7.5	-15.40	-115.6	40.4	10.7	3.6	0.7	2.4	169.0	7.4	11.8	--	60785			Spring	270	06/23/04
Upper Terrace Spring WR2	39.08664	-114.92565	8.2	7.1	6.9	-15.35	-114.4	41.6	11.3	4.3	0.8	2.4	177.0	7.3	11.8	--	61479			Spring	270	09/22/04
Upper Terrace Spring WR2	39.08664	-114.92565	7.2	8.3	7.8	-15.41	-114.6	40.3	10.7	4.2	0.8	2.3	168.0	7.7	11.1	--	62030	6		Spring	270	02/09/05
Upper Terrace Spring WR2	39.08664	-114.92565				-15.24	-113.7									--	62633A		DRI-ER-1	Spring	270	05/21/05
Upper Terrace Spring WR2	39.08664	-114.92565				-15.43	-113.4	41.8	10.5	4.14	0.76	2.3	173.0	7.9	11.2	<.05	63219		DRI-ER-1	Spring	270	08/14/05
Upper Terrace Spring WR2	39.08664	-114.92565	7.7	8.05	7.77	-15.41	-113.7	41.3	10.8	4.06	0.74	2.2	167	7.5	11.3	0.1	63562			Spring	270	6-Nov-05
Upper Terrace Spring WR2	39.086640	-114.925650	7.5	8.26	7.87	-15.41	-114.5	40.5	10.7	4.23	1.10	2.3	164	7.7	11.5	0.11	64734		ER-1	Spring	270	05/24/06
Upper Terrace Spring WR2	39.086640	-114.925650	-	-	-	-15.43	-114.1	-	-	-	-	-	-	-	-	-	--		ER-1	Spring	270	07/12/06
Upper Terrace Spring WR2	39.086640	-114.925650	7.9	7.55	7.68	-15.48	-114.1	41.4	10.9	3.65	0.61	2.1	166	7.6	11.2	0.09	65364		ER-1	Spring	270	08/29/06
Upper Terrace Spring WR2	39.086640	-114.925650	7.7	7.09	7.80	-15.50	-115.2	41.1	10.9	4.34	0.92	1.4	169	7.2	11.2	0.10	65651		ER-1	Spring	270	10/27/06
Upper Terrace Spring WR2	39.086640	-114.925650	7.5	NA	7.87	-15.46	-114.2	40.3	10.7	4.07	0.76	1.9	173	6.5	10.6	0.11	65651		ER-1	Spring		5/8/2007
Upper Terrace Spring WR2	39.08664	-114.92565	**7.8**	**7.4**	**7.6**	**-15.42**	**-114.0**	**40.7**	**10.8**	**4.1**	**0.8**	**2.1**	**170.0**	**7.4**	**11.2**	**0.1**				**Spring**	**270**	
Upper Tower Spring	38.12049	-114.33344	--	--	--	-12.30	-93.3	20.2	3.3	16.3	6.2	7.6	104.0	7.2	45.8	--	60081	1		Spring	312	04/28/04
Upper Tower Spring	**38.12049**	**-114.33344**	**--**	**--**	**--**	**-12.30**	**-93.3**	**20.2**	**3.3**	**16.3**	**6.2**	**7.6**	**104.0**	**7.2**	**45.8**	**--**	**60081**	**1**		**Spring**	**312**	**04/28/04**
US Lime Well (Genstar)	36.39139	-114.90389	24.0	4.8	7.4	-12.75	-97.0	120.0	47.0	140.0	1.3	180.0	226.0	370.0	23.0	1.6	52		GS16	Well	27	03/31/86
US Lime Well (Genstar)	**36.39139**	**-114.90389**	**24.0**	**4.8**	**7.4**	**-12.75**	**-97.0**	**120.0**	**47.0**	**140.0**	**1.3**	**180.0**	**226.0**	**370.0**	**23.0**	**1.6**	**52**		**GS16**	**Well**	**27**	**03/31/86**
USGS CSV-1	36.76694	-114.86194	29.5			-13.55	-103.0	260.0	93.0	160.0	30.0	39.0		1300.0	19.0	1.2	127		GS45	Well	71	05/18/88
USGS CSV-1	**36.76694**	**-114.86194**	**29.5**			**-13.55**	**-103.0**	**260.0**	**93.0**	**160.0**	**30.0**	**39.0**		**1300.0**	**19.0**	**1.2**	**127**		**GS45**	**Well**	**71**	**05/18/88**

USGS-MX C.V. Well (CV-DT-1)	38.13778	-115.33861	23.0	3.4	7.2	-14.60	-110.0	37.0	19.0	20.0	4.6	5.7	253.0	26.0	36.0	0.4	338		GS130	Well	176	10/15/81
USGS-MX C.V. Well (CV-DT-1)	38.13778	-115.33861				-14.52	-108.0										USGS			Well		6/25/2003
USGS-MX C.V. Well (CV-DT-1)	38.13778	-115.33861	23.0	3.4	7.2	-14.56	-109.0	37.0	19.0	20.0	4.6	5.7	253.0	26.0	36.0	0.4	338		GS130	Well	176	10/15/81
USGS-MX CE, VF-1	36.87528	-114.94528	28.0		7.0	-12.65	-94.0	41.0	7.5	34.0	1.2	42.0	156.0	20.0	14.0	0.5	157		GS56	Well	82	01/06/88
USGS-MX CE, VF-1	36.87528	-114.94528	28.0		7.0	-12.65	-94.0	41.0	7.5	34.0	1.2	42.0	156.0	20.0	14.0	0.5	157		GS56	Well	82	01/06/88
Valley of Fire Well	36.42250	-114.54778	28.0		7.4	-10.60	-82.0	118.0	53.0	39.0	8.2	21.0	164.0	449.0	8.3	0.2	58		PLC33	Well	31	06/24/85
Valley of Fire Well	36.42250	-114.54778	28.0		7.4	-10.60	-82.0	118.0	53.0	39.0	8.2	21.0	164.0	449.0	8.3	0.2	58		PLC33	Well	31	06/24/85
VF Spring 1	36.40139	-114.40194	23.0	5.0	7.1	-11.20	-88.0										53		PL7	Spring	28	02/09/96
VF Spring 1	36.40139	-114.40194	23.0	5.0	7.1	-11.20	-88.0										53		PL7	Spring	28	02/09/96
VF Spring 2	36.40528	-114.43056	13.5	3.9	7.8	-11.80	-92.0										55		PL6	Spring	29	03/07/96
VF Spring 2	36.40528	-114.43056	13.5	3.9	7.8	-11.80	-92.0										55		PL6	Spring	29	03/07/96
VF Spring 3	36.40583	-114.44389	15.0	5.3	7.6	-12.20	-93.0	537.0	208.0	295.0	51.1	278.0	169.0	2290.0	12.4		57		PL5	Spring	30	03/07/96
VF Spring 3	36.40583	-114.44389	15.0	5.3	7.6	-12.20	-93.0	537.0	208.0	295.0	51.1	278.0	169.0	2290.0	12.4		57		PL5	Spring	30	03/07/96
Wamp Spring	36.64167	-115.07000	7.0		8.2	-10.60	-81.0	71.0	13.0	10.0	2.1	4.9	585.0	8.4	24.0	0.2	91		GS31	Spring	52	03/20/87
Wamp Spring	36.64167	-115.07000	7.0		8.2	-10.60	-81.0	71.0	13.0	10.0	2.1	4.9	585.0	8.4	24.0	0.2	91		GS31	Spring	52	03/20/87
Water Canyon	38.98816	-114.96032	11.0			-15.00	-115.0										1033		GS999	Surface	233	06/14/83
Water Canyon	38.98816	-114.96032	9.0			-15.50	-117.0										1033		GS999	Surface	233	08/23/83
Water Canyon	38.98816	-114.96032	10.0	#DIV/0!	#DIV/0!	-15.25	-116.0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				Surface	233	
Water Canyon at USGS gage	38.98700	-114.95500	--	--	--	-15.41	-109.5	--	--	--	--	--	--	--	--	--	--			Spring	271	10/24/03
Water Canyon at USGS gage (duplicate sample)	38.98700	-114.95500	--	--	--	-15.43	-112.7	--	--	--	--	--	--	--	--	--	--	2		Spring	271	10/24/03
Water Canyon at USGS gage	38.98700	-114.95500	#DIV/0!	#DIV/0!	#DIV/0!	-15.42	-111.1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				Spring	271	
Water Canyon Spring	39.00691	-114.91063	8.9	7.9	7.3	-15.60	-114.4	40.1	11.0	4.0	0.7	7.3	180.0	1.6	12.0	--	57695	1		Spring	358	10/14/03
Water Canyon Spring	39.00691	-114.91063	8.9	7.9	7.3	-15.60	-114.4	40.1	11.0	4.0	0.7	7.3	180.0	1.6	12.0	--	57695	1		Spring	358	10/14/03
Water Canyon Spring (Mahogany)	37.956621	-114.064936	11.1	2.21	7.11	-13.68	-100.4	81.9	11.8	9.44	1.12	5.1	210	84.1	17.2	1.58	64906		MG-3	Spring	420	06/22/06
Water Canyon Spring (Mahogany)	37.956621	-114.064936	11.1	2.21	7.11	-13.68	-100.4	81.9	11.8	9.44	1.12	5.1	210	84.1	17.2	1.58	64906		MG-3	Spring	420	06/22/06
Water Tank 0.4mi West of Sixmile	37.49119	-115.09605	--	--	--	-12.44	-93.8	--	--	--	--	--	--	--	--	--	61106C	1		Spring	297	07/30/04
Water Tank 0.4mi West of Sixmile	37.49119	-115.09605	--	--	--	-12.44	-93.8	--	--	--	--	--	--	--	--	--	61106C	1		Spring	297	07/30/04
Weaver Well	37.74472	-114.43070	17.0		7.7	-13.10	-101.0	100.0	42.0	110.0	14.0	110.0	430.0	180.0	73.0	2.9	283		GS100	Well	137	06/04/85
Weaver Well	37.74472	-114.43070	17.0		7.7	-13.10	-101.0	100.0	42.0	110.0	14.0	110.0	430.0	180.0	73.0	2.9	283		GS100	Well	137	06/04/85
Well at Alligator Ridge	39.73735	-115.51432	34.0	4.1	7.2	-16.60	-127.0	60.0	23.0	19.0	6.5	6.7		52.0	26.0	1.0	469		GS260	Well	243	04/24/84
Well at Alligator Ridge	39.73735	-115.51432	34.0	4.1	7.2	-16.60	-127.0	60.0	23.0	19.0	6.5	6.7		52.0	26.0	1.0	469		GS260	Well	243	04/24/84
White Rock Spring (Sheep)	36.70791	-115.23942	19.9	1.7	7.0	-9.96	-84.8	41.8	35.1	18.2	11.9	10.8	326.0	12.7	57.7	--	61095	1		Spring	64	07/27/04
White Rock Spring (Sheep)	36.70791	-115.23942	10.2	3.8	6.5	-10.38	-86.1	39.8	35.2	16.8	10.5	10.3	303.0	12.5	46.5	--	62398		DRI-SR-3	Spring	64	04/28/05
White Rock Spring (Sheep)	36.70791	-115.23942	15.1	2.7	6.8	-10.17	-85.5	40.8	35.2	17.5	11.2	10.6	314.5	12.6	52.1	#DIV/0!				Spring	64	
White Rock Spring (Butte)	40.06079	-115.16385	9.4	6.0	6.4	-15.36	-119.2									--	62631		DRI-BT-3	Spring	355	05/24/05
White Rock Spring (Butte)	40.06079	-115.16385	9.4	6.0	6.4	-15.36	-119.2									--	62631		DRI-BT-3	Spring	355	05/24/05
White Rock Well	38.12557	-114.17027	14.5		7.9	-13.10	-101.0	68.0	10.0	11.0	4.0	51.0	168.0	20.0	61.0	0.6	336		E4	Well	175	07/24/75
White Rock Well	38.12557	-114.17027	14.5		7.9	-13.10	-101.0	68.0	10.0	11.0	4.0	51.0	168.0	20.0	61.0	0.6	336		E4	Well	175	07/24/75
White Rock Spring (Seaman Range)	37.89630	-115.01970				-12.10	-90.0										308		Kirk1019	Spring	154	01/13/85
White Rock Spring (Seaman Range)	37.89630	-115.01970				-12.10	-90.0										308		Kirk1019	Spring	154	01/13/85
Wildhorse Spring (Fairview)	38.19722	-114.60861	8.0		7.6	-11.70	-92.5										348		GS136	Spring	183	04/06/85
Wildhorse Spring (Fairview)	38.19722	-114.60861	8.0		7.6	-11.70	-92.5										348		GS136	Spring	183	04/06/85
Wild Horse Spring (White Pine)	39.33361	-115.44333	17.5			-16.80	-129.0										466		GS251	Spring	240	07/14/81
Wild Horse Spring (White Pine)	39.33361	-115.44333	17.5			-16.80	-129.0										466		GS251	Spring	240	07/14/81
Warm Spring (White Pine Range)	38.94778	-115.22806	53.0	1.0	9.3	-15.80	-118.0	1.6	<.12	61.0	0.6	9.4		16.0	56.0	13.0	453		GS204	Spring	232	04/29/82
Warm Spring (White Pine Range)	38.94778	-115.22806	53.0	1.0	9.3	-15.80	-118.0	1.6	<.12	61.0	0.6	9.4		16.0	56.0	13.0	453		GS204	Spring	232	04/29/82
Willow Spring (KSV-1)	37.09483	-114.83096				-11.90	-86.5										180		Kirk1026	Spring	92	--
Willow Spring (KSV-1)	37.09483	-114.83096															476			Spring	92	--
Willow Spring (KSV-1)	37.09483	-114.83096	17.4		7.5	-11.60	-88.0	20.0	2.7	56.0	4.6	22.0	140.0	34.0	65.0	1.1	182		GS67	Spring	92	02/03/84
Willow Spring (KSV-1)	37.09483	-114.83096	9.3	8.3	7.5	-11.57	-88.0	18.2	3.2	55.9	2.2	21.3	131.0	33.5	67.3	--	58489	1		Spring	92	01/12/04
Willow Spring (KSV-1)	37.09483	-114.83096	16.7	1.6	7.4	-11.63	-89.1	19.9	4.3	9.9	1.7	6.5	84.9	6.3	37.2	--	62395		DRI-DR-2	Spring	92	04/27/05
Willow Spring (KSV-1)	37.09483	-114.83096	14.5	5.0	7.5	-11.60	-88.4	19.4	3.4	40.6	2.9	16.6	118.6	24.6	56.5	1.1				Spring	92	
Willow Spring 2 (So.of Oak Sps.summit)	37.55653	-114.69773	13.7	2.5	7.4	-11.69	-91.2	59.4	14.7	25.5	1.8	13.6	274.0	15.2	55.7	--	59693	1		Spring	260	03/25/04
Willow Spring 2 (So.of Oak Sps.summit)	37.55653	-114.69773	13.7	2.5	7.4	-11.69	-91.2	59.4	14.7	25.5	1.8	13.6	274.0	15.2	55.7	--	59693	1		Spring	260	03/25/04
Wilson Creek	38.31806	-114.40333	17.0		8.0	-13.20	-97.5	21.0	3.3	11.0	2.9	7.0	77.0	11.0	39.0	0.3	358		E2	Surface	189	04/05/85
Wilson Creek	38.31806	-114.40333	17.0		8.0	-13.20	-97.5	21.0	3.3	11.0	2.9	7.0	77.0	11.0	39.0	0.3	358		E2	Surface	189	04/05/85
Wiregrass Spring (Sheep)	36.63325	-115.20842	9.5		7.3	-12.80	-94.0	69.0	32.0	2.7	1.1	3.0		5.0	12.0	0.1	82		GS22	Spring	49	10/28/81
Wiregrass Spring (Sheep)	36.63325	-115.20842	6.5	6.1	7.3	-12.70	-96.0	68.0	32.0	3.2	1.1	3.2		9.0	12.0	0.1	83		GS23	Spring	49	05/11/83
Wiregrass Spring (Sheep)	36.63325	-115.20842				-12.85	-94.0										83.5		JIM	Spring	49	10/09/86
Wiregrass Spring (Sheep)	36.63325	-115.20842	4.0		7.3	-12.80	-91.5	71.0	34.0	2.8	1.1	3.4	374.0	6.9	12.0	0.1	84		GS24	Spring	49	03/20/87
Wiregrass Spring (Sheep)	36.63325	-115.20842	13.0			-12.55	-92.0	70.0	33.0	2.8	1.5	2.9		7.1	12.0	0.2	85		GS25	Spring	49	06/17/87

Wiregrass Spring (Sheep)	36.63325	-115.20842	14.0	5.4	7.3	-12.75	-94.0	68.0	33.0	3.1	1.0	2.9	372.0	7.3	12.0	0.2	86		GS26	Spring	49	08/04/87
Wiregrass Spring (Sheep)	36.63325	-115.20842	4.0	5.0	7.3	-12.85	-97.0	72.0	34.0	3.1	5.7	3.8		7.7	12.0	0.2	87		GS27	Spring	49	01/05/88
Wiregrass Spring (Sheep)	36.63325	-115.20842	8.0	5.0	7.4	-12.95	-95.5	72.0	34.0	2.8	1.0	2.6		7.3	12.0	0.2	88		GS28	Spring	49	04/06/88
Wiregrass Spring (Sheep)	36.63325	-115.20842	7.0		7.3	-12.85	-94.5	69.0	36.0	3.1	1.1	2.7		7.3	12.0	0.1	89		GS29	Spring	49	12/12/88
Wiregrass Spring (Sheep)	36.63325	-115.20842	8.2	2.3	7.3	-12.87	-94.0	--	--	--	--	--	--	--	--	--	58487			Spring	49	01/17/04
Wiregrass Spring (Sheep)	36.63325	-115.20842	9.9	2.5	6.9	-13.12	-96.8	67.8	33.2	2.5	1.0	3.7	367.0	6.0	14.4	--	60851	2		Spring	49	06/30/04
Wiregrass Spring (Sheep)	36.63325	-115.20842	8.3	4.0	6.6	-13.76	-101.2	74.4	40.6	3.9	1.3	3.9	404.0	5.4	14.8	--	62400		DRI-SR-2	Spring	49	04/29/05
Wiregrass Spring (Sheep Range)	36.63325	-115.20842	-	-	-	-13.19	-95.6	-	-	-	-	-	-	-	-	-	--		SH-2	Spring	49	04/29/06
Wiregrass Spring (Sheep)	36.63325	-115.20842	**8.4**	**4.3**	**7.2**	**-12.93**	**-95.1**	**70.1**	**34.2**	**3.0**	**1.6**	**3.2**	**379.3**	**6.9**	**12.5**	**0.2**				**Spring**	**49**	
Wiregrass Spring (Grant)	38.35211	-115.42693	14.3	4.3	7.5	-13.29	-101.4										62831			Spring	372	06/30/05
Wiregrass Spring (Grant)	**38.35211**	**-115.42693**	**14.3**	**4.3**	**7.5**	**-13.29**	**-101.4**										**62831**			**Spring**	**372**	**06/30/05**
Woodchuck Spring	39.72453	-115.57297	7.5	6.9	6.8	-15.55	-119.6									--	62706		DRI-BK-2	Spring	356	06/05/05
Woodchuck Spring	**39.72453**	**-115.57297**	**7.5**	**6.9**	**6.8**	**-15.55**	**-119.6**									**--**	**62706**		**DRI-BK-2**	**Spring**	**356**	**06/05/05**
180W501	38.592009	-114.840798				-14.12	-105.6										SNWA			Deep Well	600	5/17/2006
180W501	**38.592009**	**-114.840798**				**-14.12**	**-105.6**										**SNWA**			**Deep Well**	**600**	**5/17/2006**
180W902	38.363315	-114.827504				-14.12	-104.7										SNWA			Deep Well	601	5/18/2006
180W902	**38.363315**	**-114.827504**				**-14.12**	**-104.7**										**SNWA**			**Deep Well**	**601**	**5/18/2006**
181M1	37.911628	-114.855283				-13.67	-105.0										SNWA			Deep Well	603	5/31/2006
181M1	**37.911628**	**-114.855283**				**-13.67**	**-105.0**										**SNWA**			**Deep Well**	**603**	**5/31/2006**
181W909M	37.695999	-114.746389				-13.50	-104.6										SNWA			Deep Well	604	6/5/2006
181W909M	**37.695999**	**-114.746389**				**-13.50**	**-104.6**										**SNWA**			**Deep Well**	**604**	**6/5/2006**
182M-1	37.34683	-114.957963				-14.07	-109.6										SNWA			Deep Well	606	5/23/2006
182M-1	**37.34683**	**-114.957963**				**-14.07**	**-109.6**										**SNWA**			**Deep Well**	**606**	**5/23/2006**
182W906M	37.326909	-114.854631				-13.33	-100.3										SNWA			Deep Well	607	9/2/2005
182W906M	**37.326909**	**-114.854631**				**-13.33**	**-100.3**										**SNWA**			**Deep Well**	**607**	**9/2/2005**
209M-1	37.643513	-114.989498				-13.53	-104.7										SNWA			Deep Well	608	6/14/2006
209M-1	**37.643513**	**-114.989498**				**-13.53**	**-104.7**										**SNWA**			**Deep Well**	**608**	**6/14/2006**
CSI-1	36.797679	-114.914709				-13.08	-102.6										SNWA			Well	609	5/31/2005
CSI-1	**36.797679**	**-114.914709**				**-13.08**	**-102.6**										**SNWA**			**Well**	**609**	**5/31/2005**
CSI-2	36.797681	-114.914709				-12.90	-100.2										SNWA			Well	610	9/30/2005
CSI-2	**36.797681**	**-114.914709**				**-12.90**	**-100.2**										**SNWA**			**Well**	**610**	**9/30/2005**
CSI-3	36.825539	-114.916667				-13.03	-99.6										SNWA			Well	611	9/13/2006
CSI-3	**36.825539**	**-114.916667**				**-13.03**	**-99.6**										**SNWA**			**Well**	**611**	**9/13/2006**
CSVM-2	36.661822	-114.923053				-13.14	-97.7										SNWA			Well	612	1/10/2006
CSVM-2	**36.661822**	**-114.923053**				**-13.14**	**-97.7**										**SNWA**			**Well**	**612**	**1/10/2006**
CSVM-3	37.052496	-114.983361				-13.10	-98.0										SNWA			Well	613	1/6/2006
CSVM-3	**37.052496**	**-114.983361**				**-13.10**	**-98.0**										**SNWA**			**Well**	**613**	**1/6/2006**
CSVM-4	36.991061	-114.886481				-13.41	-102.5										SNWA			Well	614	1/16/2006
CSVM-4	**36.991061**	**-114.886481**				**-13.41**	**-102.5**										**SNWA**			**Well**	**614**	**1/16/2006**
CSVM-5	36.747576	-114.980445				-12.67	-95.0										SNWA			Well	615	1/8/2006
CSVM-5	**36.747576**	**-114.980445**				**-12.67**	**-95.0**										**SNWA**			**Well**	**615**	**1/8/2006**
CSVM-6	36.832502	-114.909164				-12.97	-100.7										SNWA			Well	616	1/11/2006
CSVM-6	**36.832502**	**-114.909164**				**-12.97**	**-100.7**										**SNWA**			**Well**	**616**	**1/11/2006**
CSVM-7	37.047013	-114.995714				-12.51	-93.6										SNWA			Well	617	1/23/2006
CSVM-7	**37.047013**	**-114.995714**				**-12.51**	**-93.6**										**SNWA**			**Well**	**617**	**1/23/2006**
KPW-1						-14.00	-104.0										SNWA			Well	618	12/15/05
KPW-1						**-14.00**	**-104.0**										**SNWA**			**Well**	**618**	**12/15/05**