

# Spring Rights within Spring Valley

PRESENTATION TO THE OFFICE OF THE NEVADA STATE ENGINEER

Prepared for



SOUTHERN NEVADA  
WATER AUTHORITY

Prepared by

**Stanka Consulting, LTD**

A Professional Engineering Company

August 2011

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# Spring Rights within Spring Valley

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Pertaining to:  
Groundwater Applications 54003 through 54021 in  
Spring Valley  
and  
Groundwater Applications 53987 through 53992 in  
Cave, Dry Lake, and Delamar Valleys

August 2011

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*Aug 18 2011*  
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Date

## 1.0 INTRODUCTION

The report titled “*Hydrogeology of Spring Valley and Surrounding Areas Part A: Conceptual Flow Model*”, prepared by Thomas Myers, Ph.D. and dated June 17, 2011 (Myers, 2011) stated the following:

*“Water rights associated with springs provide an alternate estimate of spring discharge. Based on water rights downloaded from the Nevada State Engineer’s water rights database (<http://water.nv.gov/>, read in 2006), there are 3118, 660, 467, and 118,450 for a total 122,695 af/y of certificated, permitted, reserved and vested water rights in Spring Valley, respectively.”*

The quantity of Spring Rights cited in Myers (2011) is not supplementally adjusted or adjusted for consumptive use. This analysis will estimate the total committed spring resources located within the discharge area of Spring Valley. Nevada Division of Water Resources (NDWR) Hydrographic Area (HA) 184, Spring Valley, is located in the east-central portion of Nevada. [Figure 1](#) shows the Townships and Ranges within Spring Valley. Spring Valley HA 184 will be referred to as Spring Valley for the remainder of this report.

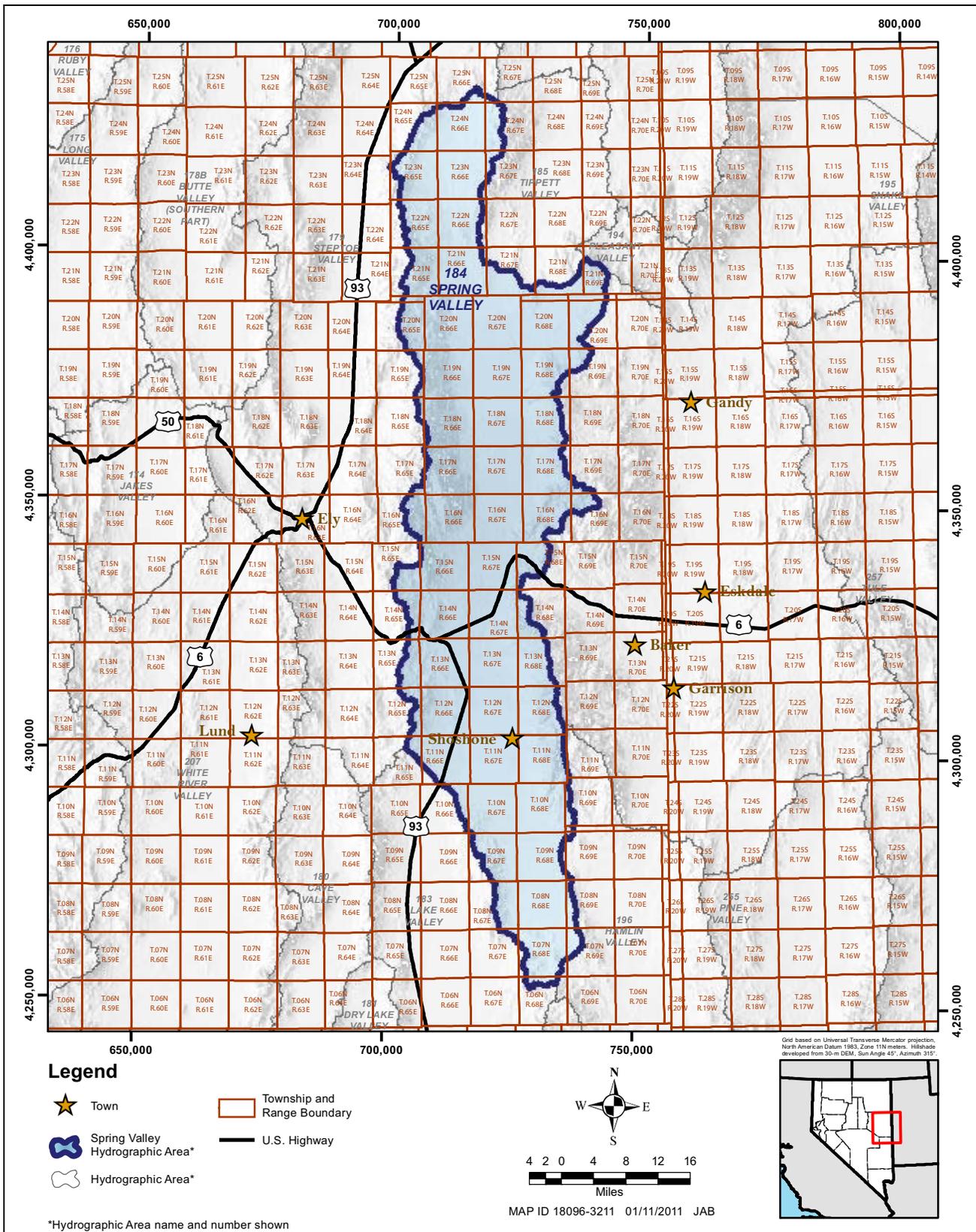
## 2.0 ANALYSIS OF SPRING IRRIGATION RIGHTS

The Southern Nevada Water Authority (SNWA) identified 43 springs within the discharge area of Spring Valley. [Plate 1](#) ([Appendix 1, Spring Rights within Spring Valley](#)), shows the locations of all spring rights within Spring Valley, including the 43 springs analyzed here. [Table 1](#) lists the 43 springs identified in Spring Valley with Application Number, Status, Source, Manner of Use, Owner of Record, SNWA Ownership, Priority Date after October 17, 1989, and Annual Duty. The annual duty is the duty listed in the NDWR on-line database.

The spring rights are a combination of Vested Claims (21), Certificated Rights (9), Permitted (3), and Reserved (10). Review of the 43 spring rights within the discharge area of Spring Valley shows that 28 are listed with a manner of use of irrigation, five as stockwater, and ten as “other.”

### 2.1 Spring Rights with Stockwater Manner of Use

There are five spring rights listed with a manner of use as stockwater and ten with a manner of use as “other.” The 10 rights listed with a manner of use as “other” are Bureau of Land Management (BLM) reserved rights for stockwater and wildlife. These rights will be considered stockwater rights for the balance of this report. [Table 2](#) is a listing of the 15 rights and their associated duty. Stockwater rights are normally not adjusted for supplemental use unless stated in the permit conditions. For the 15



**Figure 1**  
**Townships/Ranges within NDWR HA 184, Spring Valley**

**Table 1**  
**Discharge Area Spring Rights within Spring Valley**

App	Status	Source	Manner of Use	Owner of Record	SNWA Owned	Priority Date After Oct. 17, 1989	Annual Duty (Per NDWR on-line Database)
802	CER	SPR	Stock	Olsen, Gasten	No	No	12.03
2745	CER	SPR	IRR	Adams Mcgill Company	No	No	80.00
3203	CER	SPR	IRR	George Eldridge & Son, Inc.	No	No	190.60
3973	CER	SPR	Stock	Rogers, G. W.	No	No	5.65
4171	CER	SPR	Stock	Robison Brothers	No	No	14.33
6754	CER	SPR	IRR	Cazier, James	No	No	195.00
8721	CER	SPR	Stock	Corp. of Church of LDS	No	No	14.49
10921	CER	SPR	IRR	George Eldridge & Son, Inc.	No	No	570.73
10993	CER	SPR	IRR	George Eldridge & Son, Inc.	No	No	433.62
55363	PER	SPR	IRR	SNWA	Yes	Yes	160.00
55364	PER	SPR	IRR	SNWA	Yes	Yes	160.00
55365	PER	SPR	IRR	SNWA	Yes	Yes	160.00
R05269	RES	SPR	OTH	BLM	No	No	3.59
R05272	RES	SPR	OTH	BLM	No	No	67.24
R05273	RES	SPR	OTH	BLM	No	No	2.15
R05278	RES	SPR	OTH	BLM	No	No	67.24
R05279	RES	SPR	OTH	BLM	No	No	7.95
R05280	RES	SPR	OTH	BLM	No	No	7.95
R05291	RES	SPR	OTH	BLM	No	No	5.77
R05292	RES	SPR	OTH	BLM	No	No	7.95
R05293	RES	SPR	OTH	BLM	No	No	7.95
R05294	RES	SPR	OTH	BLM	No	No	7.95
V02077	VST	SPR	STOCK	Robison, Doyle C.	No	No	11.20
V02817	VST	SPR	IRR	LDS	No	No	9,600.00
V02818	VST	SPR	IRR	LDS	No	No	9,600.00
V02819	VST	SPR	IRR	LDS	No	No	9,600.00
V02820	VST	SPR	IRR	LDS	No	No	9,600.00
V02821	VST	SPR	IRR	LDS	No	No	9,600.00
V02822	VST	SPR	IRR	LDS	No	No	9,600.00
V02823	VST	SPR	IRR	LDS	No	No	9,600.00
V02824	VST	SPR	IRR	LDS	No	No	9,600.00
V02825	VST	SPR	IRR	LDS	No	No	9,600.00
V02826	VST	SPR	IRR	LDS	No	No	9,600.00
V02827	VST	SPR	IRR	LDS	No	No	9,600.00
V02828	VST	SPR	IRR	LDS	No	No	9,600.00
V09665	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09666	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09667	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09668	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09669	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09670	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09671	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0
V09672	VST	SPR	IRR	Arthur and Audrae Andrae	No	No	0

Note: Annual Duty is the Duty listed in the NDWR on-line database. This number is not adjusted for supplemental use or consumptive use. Additionally, V09665 through V09672 shows an Annual Duty of 0.00, which is incorrect.

stockwater spring rights in this analysis, permit conditions did not state that they were supplemental. For this analysis, these rights will therefore be considered non-supplemental, although the reserved rights (no permits issued) probably have a supplemental component to them. Considering all these stockwater (and “other”) rights non-supplemental results in a more conservative estimate of spring rights because they are not reduced as part of the supplemental analysis. The total spring rights with a manner of use listed as stockwater (and “other”) is 243.58 afa. All of these rights have priority dates prior to October 17, 1989.

**Table 2  
Spring Rights with Stockwater Manner of Use within Spring Valley**

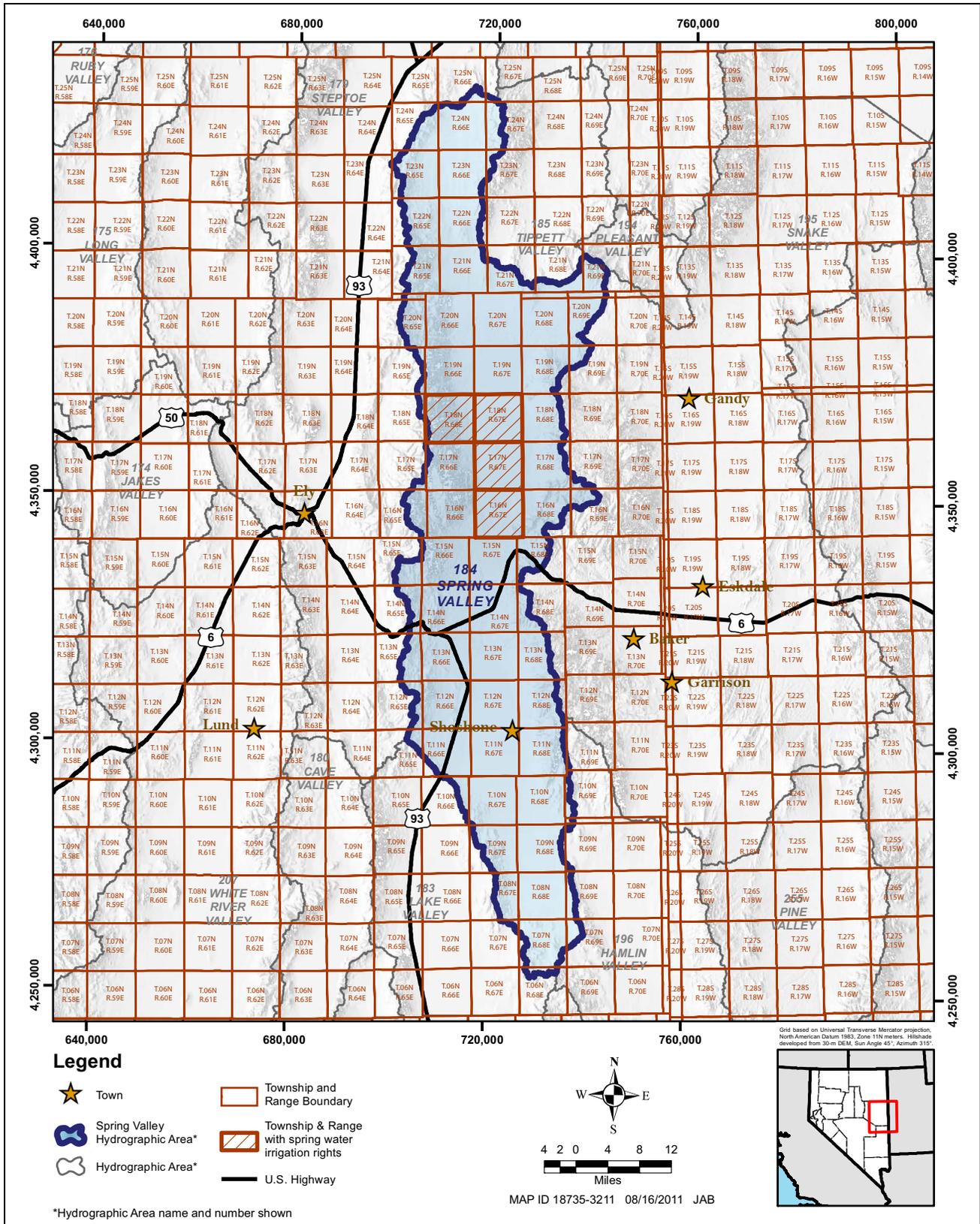
App	Status	Source	Manner of Use	Owner of Record	SNWA Owned	Priority Date After October 17, 1989	Annual Duty
802	CER	SPR	Stock	Olsen, Gasten	No	No	12.03
3973	CER	SPR	Stock	Rogers, G. W.	No	No	5.65
4171	CER	SPR	Stock	Robison Brothers	No	No	14.48 <sup>a</sup>
8721	CER	SPR	Stock	Corp. of Church of LDS	No	No	14.48 <sup>b</sup>
R05269	RES	SPR	Oth	BLM	No	No	3.59
R05272	RES	SPR	Oth	BLM	No	No	67.24
R05273	RES	SPR	Oth	BLM	No	No	2.15
R05278	RES	SPR	Oth	BLM	No	No	67.24
R05279	RES	SPR	Oth	BLM	No	No	7.95
R05280	RES	SPR	Oth	BLM	No	No	7.95
R05291	RES	SPR	Oth	BLM	No	No	5.77
R05292	RES	SPR	Oth	BLM	No	No	7.95
R05293	RES	SPR	Oth	BLM	No	No	7.95
R05294	RES	SPR	Oth	BLM	No	No	7.95
V02077	VST	SPR	Stock	Robison, Doyle C.	No	No	11.2
<b>Total</b>							<b>243.58</b>

<sup>a</sup>Certificate 1981 for Permit 4171 lists 0.02 cfs, which is 14.48 af per year @ 723.97 af-annually/cfs.

<sup>b</sup>Certificate 2509 for Permit 8721 lists 0.02 cfs, which is 14.48 af per year @ 723.97 af-annually/cfs.

**2.2 Spring Rights with Irrigation Manner of Use**

The place of use of the irrigation spring rights were reviewed to determine if any of these rights overlap with any groundwater rights identified in “*Committed Groundwater Resources in Four Nevada Hydrographic Areas: Cave, Dry Lake, Delamar, and Spring Valley*” (Stanka, 2011). Spring irrigation rights associated with discharge areas are located within four Township/Ranges. [Figure 2](#) shows the four Township/Ranges where the irrigation spring rights are located.



**Figure 2**  
Townships/Ranges of Spring Rights within Spring Valley

Three of the four Township/Ranges that have spring irrigation rights also have groundwater irrigation rights. [Table 3](#) lists the four Township/Ranges where spring rights are located as well as identifies the three township/ranges that also have groundwater rights. The groundwater rights were previously mapped in Stanka (2011) and the spring rights were mapped as part of this report. Appendix numbers of the maps showing the groundwater and spring water rights are included in [Table 3](#).

**Table 3**  
**Township/Ranges of Groundwater and**  
**Spring Irrigation Rights within Spring Valley**

Township	Range	Meridian	Appendix GW	Appendix Springs
18 N	66 E	MDBM	2	4
16 N	67 E	MDBM	3	5
17 N	67 E	MDBM	N/A	6
18 N	67 E	MDBM	2	4

A groundwater right or portion of that right would be considered supplemental to a spring right if the place of use was in the same location. Review of the places of use of the groundwater and spring rights show only one location where groundwater potentially could be supplemental to spring rights. Vested Claims (springs) V-02817 through V-02828 and Permits 54204 and 54205 (groundwater) have overlapping places of use. Permits 54204 and 54205 have a combined groundwater duty of 2,082.3 af. The applied duty is limited to 3.0 af per acre on 694.1 acres. Only a portion of the place of use of Permits 54204 and 54205 is within the place of use of V-02817 through V-02828. There is more than 694.1 acres within the place of use of Permits 54204 and 54205 which are not co-located with the place of use of V-02817 through V-02828. Therefore, Permits 54204 and 54205, depending on irrigation practices, could be certificated in a manner that would not result in them being supplemental to V-02817 through V-02828. Consequently, Permits 54204 and 54205 will not be considered supplemental to Spring Vested Claims V-02817 through V-02818.

The identified spring irrigation rights were researched to determine if any of these rights could be considered supplemental to other spring rights. Irrigation spring rights would be considered supplemental if they shared the same place of use as another spring right. [Table 4](#) shows the supplemental adjustment for spring rights within Spring Valley. Vested Claims V-09665 through V-09672 have overlapping places of use and varying duties. [Appendix 7, Supplemental Analysis for V-09665 through V-09672](#), is a spreadsheet showing the supplemental analysis completed per 40 acre subdivision. This analysis was based on a review of the vested claims and accompanying maps. The estimate for total supplementally adjusted irrigation spring rights associated with discharge areas is 14,582.06 afa. There are 14,422.06 afa with priority dates prior to October 17, 1989 and 160.0 afa with priority dates after October 17, 1989.

**Table 4  
Spring Rights within Spring Valley - Supplementally Adjusted**

App	Status	Source	Manner of Use	Owner of Record	Acre	Duty	AFA	Notes	
2745	CER	SPR	IRR	Adams McGill Company	20	4	80.00	---	
3203	CER	SPR	IRR	George Eldridge & Son, Inc.	35	5.45	190.60	---	
6754	CER	SPR	IRR	Cazier, James	53.8	3.62	195.00	---	
10921	CER	SPR	IRR	George Eldridge & Son, Inc.	240.74	2.37	570.73	Certificate Note states 10921 and 10993 have same place of use and implies duties are additive.	
10993	CER	SPR	IRR	George Eldridge & Son, Inc.	178.54	2.43	433.62	Certificate Note states 10993 has same place of use as 10921 and implies duties are additive.	
55363	PER	SPR	IRR	SNWA	40	4	160.00	Permit conditions state combined Duty not to exceed 160.0 afa. 55363, 55364, 55365 have Priority Dates after October 17, 1989.	
55364	PER	SPR	IRR	SNWA					
55365	PER	SPR	IRR	SNWA					
V02817 to V02828	VST	SPR	IRR	LDS	2,400	4	9,600.00	V-02817 through V-02828 has same place of use. Vested Claims lists 2,500 acres total, but individual line items add to 2,400 acres. NDWR website lists duty of 9,600 afa.	
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	410.29	3	1,230.87	Supplemental Analysis Completed per quarter – quarter. Duty is 3.0 for Meadow Grass and 6.0 for Harvest Grass. See <a href="#">Appendix 7</a> .	
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	353.54	6	2,121.24	Supplemental Analysis Completed per quarter – quarter. Duty is 3.0 for Meadow Grass and 6.0 for Harvest Grass. See <a href="#">Appendix 7</a> .	
<b>Total</b>							<b>14,582.06</b>	<b>14,422.06 afa Pre-Oct 17, 1989</b>	

### **3.0 ADJUSTMENT FOR SPRING RIGHTS CO-LOCATED WITH SURFACE WATER IRRIGATION RIGHTS**

Supplementally adjusted spring rights within discharge areas with a manner of use of irrigation were estimated to be 14,582.06 afa. These rights are a combination of certificated, permitted, and vested claims. The vested claims have not been adjudicated. As identified previously, the listed owner of Vested Claims V-02817 through V-02828 is LDS and Vested Claims V-09665 through V-09672 is Arthur and Audrae Andrae. Review of the existing permits and certificates show that there are substantial surface water rights for irrigation within the same place of use as these vested spring claims.

Surface water irrigation is normally restricted to a maximum duty (afa) “from all sources.” Within Spring Valley, the historical maximum duty was 4.0 af per acre. The vested claims state claims to duties of 3.0 afa, 4.0 afa, and 6.0 afa. The vested claims do not identify the portion of total flow which is contributed by surface water sources and that portion which is contributed from spring sources. As the place of use has numerous surface water rights, it is reasonable to conclude that total irrigation does not come solely from the springs. Information regarding the volume of flow from all springs within these areas is not available because the U.S. Geological Survey (USGS) and NDWR

do not measure these springs or keep these records. Therefore, an alternative method to estimate the flow from these springs was required. The following assumptions were used for this analysis:

- Flow volume from spring sources has not been quantified.
- Vested claims with sources listed as springs do not identify the land which is also water righted with stream rights. Therefore, those claims overstate the portion of flow contributed by springs.
- Spring and surface water supply is not greater than the total duty of irrigated lands.
- Surface water and spring water are co-mingled for use.
- Average yearly flow from streams will be used on land that is water righted with those surface water rights.
- Acreage with only spring rights will use their full duty from springs.
- Acreage with spring and surface water rights will use a combination of available surface water and spring water.

### ***Vested Claims V-02817 through V-02828***

Vested Claims V-00790, V-01217, V-01218 and Permit 2852 – (Certificate 902) list a total of approximately 4,031 acres within the Cleveland Ranch that is water righted with irrigation surface water rights from multiple sources including Cleve, Indian, Freehill, and Stephens Creeks. Vested Claims V-02817 through V-02828 identify 2,400 acres of irrigated lands from numerous springs within the Cleveland Ranch, with all of these acres within the place of use of surface water rights. Cleve, Indian, Freehill and Stephens Creek supply 100 percent of their flow to irrigation of Cleveland Ranch, based on verbiage in Vested Claims V-00790 and V-01217 and review of their supporting maps. The USGS estimates of average flow from Cleve Creek is 7,400 af per year (USGS Water Data Report 2010, 10243700 Cleve Creek) and SNWA estimates the average flow from Stephens and Indian Creeks at a combined 1,014 af per year. SNWA has not obtained stream flow measurements from Freehill Creek because average flow is less than 0.5 c.f.s. The average total flow from Cleve, Indian and Stephens is estimated to be 8,414 af per year. [Appendix 8](#) is a copy of the USGS Water Data Report 2010, 10243700 Cleve Creek. [Appendix 9](#) is the stream flow data for Indian and Stephens Creek obtained from SNWA.

Vested Claims V-00790, V-01217, V-01218 and Permit 2852 – (Certificate 902) includes co-mingled stream sources from Cleve, Indian, Freehill, and Stephens Creeks. Additionally, irrigation season for V-00790 is April 1 to October 1. Irrigation season for Vested Claims V-01217 and V-01218 is year round and the irrigation season for Permit 2852 (Certificate 902) is October 1 through April 1. The surface water is being applied year round based on the irrigation seasons listed in the vested claims and permits.

Approximately 2.1 af per acre of irrigation can be attributed to surface water, assuming that these waters are applied over the entire 4,031 acres of water righted land (8,414 af/4,031 acre). Using

4.0 af per acre as the maximum duty from all sources, then the balance of 1.9 af per acre would need to come from spring sources.

The entire 2,400 acres of vested claims with a source listed as spring is within the place of use of the surface water rights. [Appendix 10](#) shows the place of use of the surface water rights and spring rights. Based on the preceding analysis, it is estimated that 1.9 af per acre, or 4,560 afa, would originate from spring sources within the 2,400 acres identified in Vested Claims V-02817 through V-02828.

### ***Vested Claims V-09665 through V-09672***

The previously presented supplemental analysis of Vested Claims V-09665 through V-09672 identified 410.29 acres of irrigation with a duty of 3.0 afa and 353.54 acres with a duty of 6.0 afa. The place of use corresponds with substantial surface water rights within the “Yelland Ranch.” Approximately 385 acres of Yelland Ranch is water righted with irrigation surface water rights from Taft Creek (and tributaries). A query of the NDWR database shows the Yelland Ranch is the only user of Taft Creek water rights for irrigation purposes. SNWA has collected limited stream flow data for Taft Creek from 1980 to 2011. SNWA stream flow data is presented in [Appendix 11](#). Vested Claims V-09665 through V-09672 state an irrigation season from March 15 through October 15. This data was evaluated by SNWA and it is estimated that Taft Creek and its tributaries has an average discharge of 1,697 afa during the irrigation season. Using the water flow during the irrigation season, 4.4 af per acre of irrigation can be attributed to surface water (1,697 af/385 acres). This is assuming that these waters are applied over the entire 385 acres of water righted land.

Duty for this area, as identified in the vested claims, is 3.0 afa for meadow grass and 6.0 afa for harvest grass. Based on this analysis, land with surface water rights and spring vested claims for meadow grass (3.0 afa) would be able to irrigate 100 percent with surface water. Land with surface water rights and spring vested claims for harvest grass (6.0 afa) would be able to irrigate partially (4.4 afa) with surface water and would require spring water for the remaining 1.6 afa requirement.

Review of the place of use maps of the surface water and spring vested claims shows that a portion of the spring vested claim place of use is within the surface water place of use and a portion is not within the surface water place of use. [Table 5](#) shows the approximate acreage of vested claim spring irrigation rights, per duty, that are co-located with surface water rights. [Appendix 12](#) shows the areas of co-located surface water and spring irrigation rights within the Yelland Ranch area. Based on accuracy of mapping, acreage is presented to the nearest acre. It is expected that a total of 1,902 af per season would originate from spring sources for irrigation within the Yelland Ranch area.

[Table 6](#) shows the total spring rights within the discharge area of Spring Valley. The spring rights are supplementally adjusted and include revisions based on spring and surface water co-mingled places of use analysis. The estimate for total spring rights associated with discharge areas is 8,091.95 afa. There are 7,931.95 afa with priority dates prior to October 17, 1989 and 160.0 afa with priority dates after October 17, 1989.

**Table 5  
Spring Vested Claims V-09965 through V-09972  
Co-Located Acreage with Surface Water**

	Vested Claims V-09965 – V-09972 Meadow Grass Duty = 3.0 af/season	Duty (af/acre) from Springs	Spring Rights Required (afa)	Vested Claims V-09965 – V-09972 – Harvest Grass Duty = 6.0 (af/season)	Duty (af/acre) from Springs	Spring Rights Required (afa)
Co-located with Surface water rights	48	0.0	0.0	296	1.6	474
Not co-located with Surface water rights	362	3.0	1,086	57	6.0	342
<b>Total</b>	410	---	1,086	353	---	816

**Table 6  
Spring Rights within the Discharge Area of Spring Valley**

App	Status	Source	Manner of Use	Owner of Record	Acre	Duty	AFA	Notes
2745	CER	SPR	IRR	Adams McGill Company	20	4.0	80.00	---
3203	CER	SPR	IRR	George Eldridge & Son, Inc.	35	5.45	190.60	---
6754	CER	SPR	IRR	Cazier, James	53.8	3.62	195.00	---
10921	CER	SPR	IRR	George Eldridge & Son, Inc.	240.74	2.37	570.73	Certificate Note states 10921 and 10993 have same place of use and implies duties are additive.
10993	CER	SPR	IRR	George Eldridge & Son, Inc.	178.54	2.43	433.62	Certificate Note states 10993 has same place of use as 10921 and implies duties are additive.
55363	PER	SPR	IRR	SNWA	40	4.0	160.00	Permit conditions state combined Duty not to exceed 160.0 afa. <b>55363, 55364, 55365 have Priority Dates after October 17, 1989.</b>
55364	PER	SPR	IRR	SNWA				
55365	PER	SPR	IRR	SNWA				
V02817 to V02828	VST	SPR	IRR	LDS	2,400	1.9	4,560.00	V02817 through V02828 has same place of use. Vested Claims lists 2,500 acres total, but individual line items add to 2,400 acres. NDWR website lists duty of 9,600 afa. Reduction based on analysis of Spring and Surface Water collocated irrigated areas.
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	48	0.0	0.00	Duty is 3.0 for Meadow Grass. 48 acres is co-located within surface water place of use and assumed irrigated with available surface water. See <a href="#">Table 5</a> and <a href="#">Appendix 12</a> .
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	362	3.0	1,086.00	Duty is 3.0 for Meadow Grass. 362 acres is not co-located within surface water place of use and irrigated solely with spring water. See <a href="#">Table 5</a> and <a href="#">Appendix 12</a> .
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	296	1.6	474.00	Duty is 6.0 for Harvest Grass. 296 acres is co-located within surface water place of use. 4.4 af per acre is available from surface water and remainder of 1.6 af per acre from spring water. See <a href="#">Table 5</a> and <a href="#">Appendix 12</a> .
V09665 to V09672	VST	SPR	IRR	Arthur and Audrae Andrae	57	6.0	342.00	Duty is 6.0 for Harvest Grass. 57 acres is not co-located within surface water place of use and irrigated solely with spring water. See <a href="#">Table 5</a> and <a href="#">Appendix 12</a> .
<b>Total</b>							<b>8,091.95</b>	7,931.95 afa have Priority Dates prior to October 17, 1989.

## **4.0 ESTIMATED CROP CONSUMPTIVE USE FOR SPRING VALLEY**

Consumptive use of a crop is defined as that portion of the annual volume of water diverted under a water right that is transpired by growing vegetation, evaporated from soils, converted to non-recoverable water vapor, incorporated into product, or otherwise does not return to the water of the state. The consumptive use of a crop is equal to the crop evapotranspiration (ET) less the precipitation amount that is effective for ET by the crop, that is, the amount of water that is consumed in the growing of the crop.

The NDWR has established ET data per basins within Nevada. Basin 184, Spring Valley, lists ET actual for alfalfa of 3.7 feet (44.4 inches) and Net Irrigation Water Requirements (NIWR) of 3.0 feet (36.0 inches). [Appendix 13, NDWR ET Rates for Basin 184, Spring Valley](#), lists the various ET and NIWR rates for Spring Valley. The NIWR is equal to the ET actual minus the precipitation and is the “consumptive” use portion of the irrigation water rights or 36.0 inches per irrigation season.

[Table 7](#) lists the total permitted, certificated, and vested claims acreage of irrigation spring water rights with various duties and their corresponding calculated consumptive use ratios and adjusted consumptive use.

**Table 7**  
**Consumptive Use with Varying Duties of Irrigation Spring Rights within Spring Valley**

App	Status	Acre	Duty	AFA	Crop Consumptive Use – NIWR (feet)	% Consumed (NIWR/Duty)	Total AFA Consumed (AFA x NIWR/Duty)	AFA Returned to GW System (AFA – Total AFA Consumed)	AFA Consumed with Priority Dates after October 17, 1989	AFA Consumed with Priority Dates before October 17, 1989
2745	CER	20	4	80	3	75%	60.00	20.00	0.00	60
3203	CER	35	5.45	190.6	3	55%	104.9	85.7	0.00	104.9
6754	CER	53.8	3.62	195	3	83%	161.6	33.4	0.00	161.6
10921 and 10993	CER	62.2	2.37	147.70	3	100% <sup>a</sup>	147.7	0.00	0.00	147.7
10921 and 10993	CER	178.54	4.8	856.65	3	63% <sup>a</sup>	535.4	321.25	0.00	535.4
55363	PER	40	4	160	3	75%	120.00	40.00	120.00	0
55364	PER									
55365	PER									
V02817 to V02828	VST	2,400.00	1.9	4,560.00	3	75% <sup>b</sup>	3,420.00	1,140.00	0.00	3,420.00
V09665 to V09672	VST	48 <sup>c</sup>	0	0	0	0%	0.00	0.00	0.00	0.00
V09665 to V09672	VST	362 <sup>c</sup>	3.0	1,086	2.4 <sup>d</sup>	80%	868.8	217.2	0.00	868.8
V09665 to V09672	VST	296 <sup>c</sup>	1.6 <sup>e</sup>	473.6	3	50% <sup>e</sup>	236.8	236.8	0.00	236.8
V09665 to V09672	VST	57 <sup>c</sup>	6.0	342	3	50%	171.0	171.0	0.00	171.0
Total	---	---	---	8,091.55	---	---	5,826.2	2,265.35	120.00	5,706.2

Notes:

<sup>a</sup>Permit 10993 has a duty of 2.43 afa for 178.54 acres. The entire 178.54 is also water righted by Permit 10921 with a duty of 2.37 afa. Total duty for the 178.54 acres is 4.8. The 62.2 acres (remaining portion of Permit 10921) only is water righted by Permit 10921 with a duty of 2.37 afa.

<sup>b</sup>The entire 2,400 acre has additional surface water rights. Based on the preceding analysis, it is estimated that 2.1 af will be contributed by surface water and 1.9 contributed by springs (4.0 afa total). Consumptive use is estimated at 75% for both the surface and spring rights.

<sup>c</sup>See [Section 3.0](#) and [Appendix 12](#).

<sup>d</sup>NIWR for low managed pasture grass is 2.4 feet – See [Appendix 13](#).

<sup>e</sup>The identified 296 acres has additional surface water rights. Based on the preceding analysis, it is estimated that 4.4 af will be contributed by surface water and 1.6 contributed by springs (6.0 afa total). Consumptive use (3.0 afa) is estimated at 50% of the combined surface and spring rights (6.0 afa). For this analysis, it will be assumed that both the spring and surface water will contribute proportionally (50% of their flow) to the consumptive use.

## 5.0 ESTIMATE OF SPRING RIGHTS WITHIN DISCHARGE AREA

Based on the analysis presented in this report, it is estimated that there are a total of 6,069.78 afa of spring committed resources within the discharge areas of Spring Valley. 120.0 afa have priority dates after October 17, 1989 and 5,949.78 afa have priority dates before October 17, 1989. Table 8 shows a summary of the irrigation and stockwater spring committed resources within Spring Valley.

**Table 8**  
**Irrigation and Stockwater Spring**  
**Committed Rights within Spring Valley**

Manner of Use	Duty AFA Total	Duty AFA with Priority Dates after October 17, 1989	Duty AFA with Priority Dates before October 17, 1989
Stock	243.58	0.00	243.58
Irrigation	5,826.2	120.00	5,706.2
<b>Total</b>	<b>6,069.78</b>	<b>120.00</b>	<b>5,949.78</b>

## 6.0 REFERENCES

Huntington, J. L., and Allen, R.G., 2010, Evapotranspiration and net irrigation water requirements for Nevada: Department of Conservation and Natural Resources–Division of Water Planning, Carson City, Nevada, Appendix 14, Appendix 15, Plate 1.

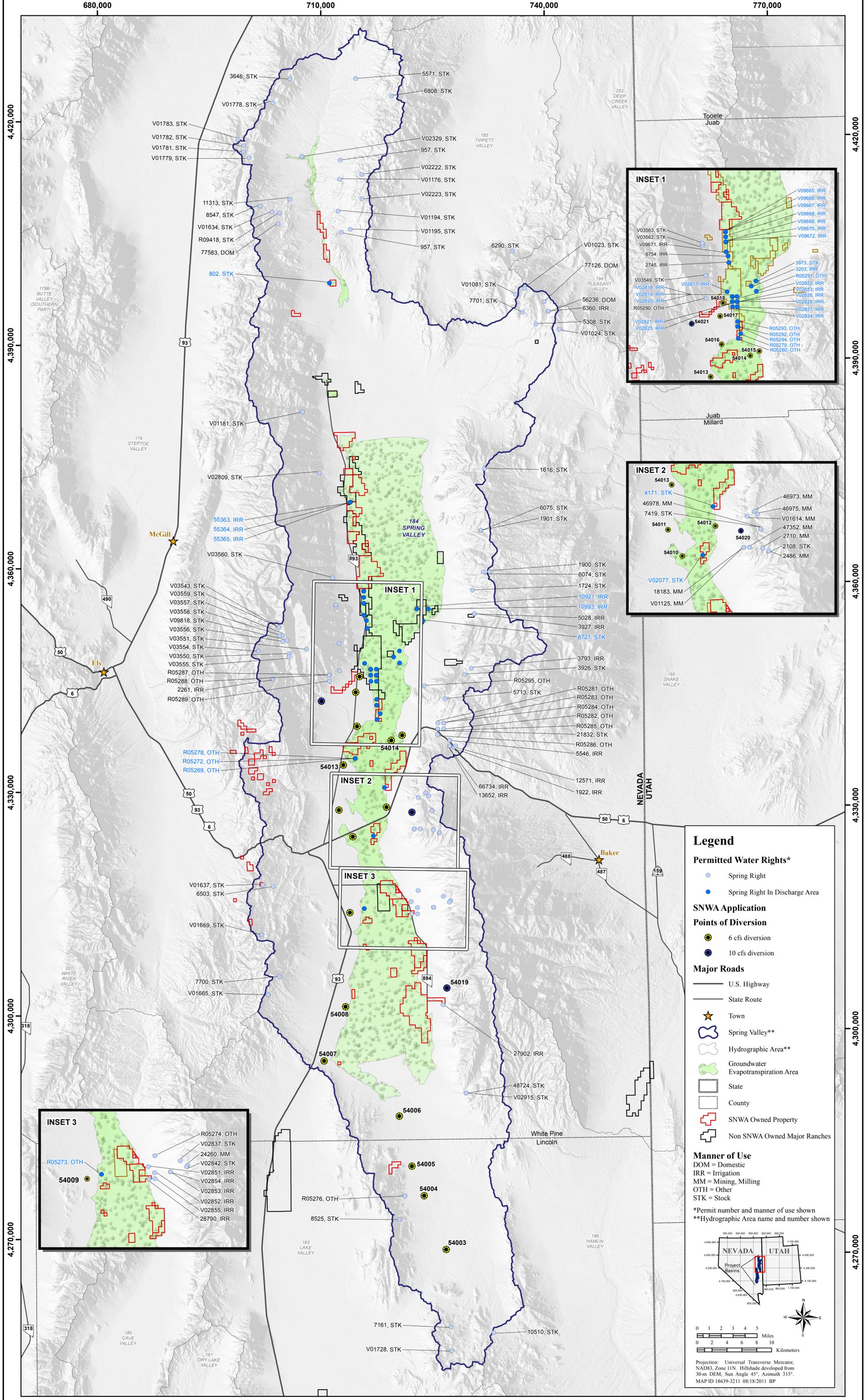
Myers, T., 2011, Hydrogeology of Spring Valley and surrounding areas Part A: Conceptual flow model: Presentation to the Office of the Nevada State Engineer: Great Basin Water Network, Reno, Nevada, and the Federated Tribes of the Goshute Indians, Ibapah, Utah.

Stanka, M.A., 2011, Committed groundwater resources in four Nevada hydrographic areas: Cave, Dry Lake, Delamar, and Spring valleys: Presentation to the Office of the Nevada State Engineer: Stanka Consulting, LTD., Carson City, Nevada.

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**Appendix 1**

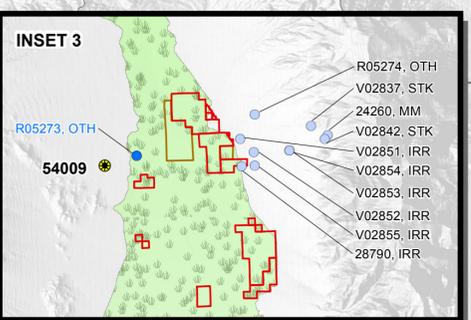
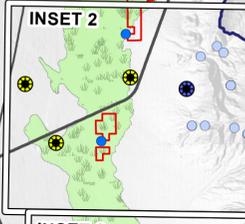
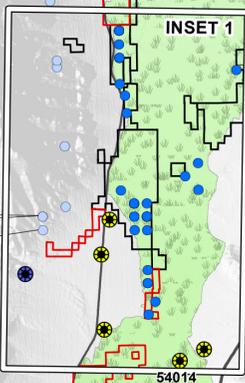
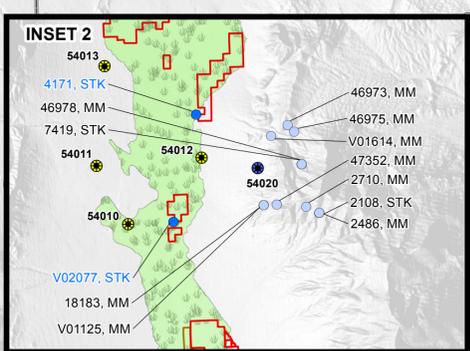
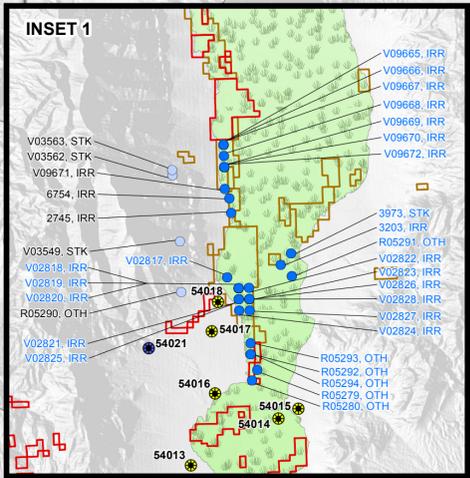
**Spring Rights within Spring Valley**



4,420,000  
4,390,000  
4,360,000  
4,330,000  
4,300,000  
4,270,000

680,000 710,000 740,000 770,000

4,420,000  
4,390,000  
4,360,000  
4,330,000  
4,300,000  
4,270,000



**Legend**

**Permitted Water Rights\***

- Spring Right
- Spring Right In Discharge Area

**SNWA Application**

**Points of Diversion**

- 6 cfs diversion
- 10 cfs diversion

**Major Roads**

- U.S. Highway
- State Route

**Towns**

- McGil
- Ely
- Baker

**Spring Valley\*\***

- Spring Valley\*\*
- Hydrographic Area\*\*
- Groundwater
- Evapotranspiration Area

**State**

- State
- County

**SNWA Owned Property**

- SNWA Owned Property
- Non SNWA Owned Major Ranches

**Manner of Use**

DOM = Domestic  
IRR = Irrigation  
MM = Mining, Milling  
OTH = Other  
STK = Stock

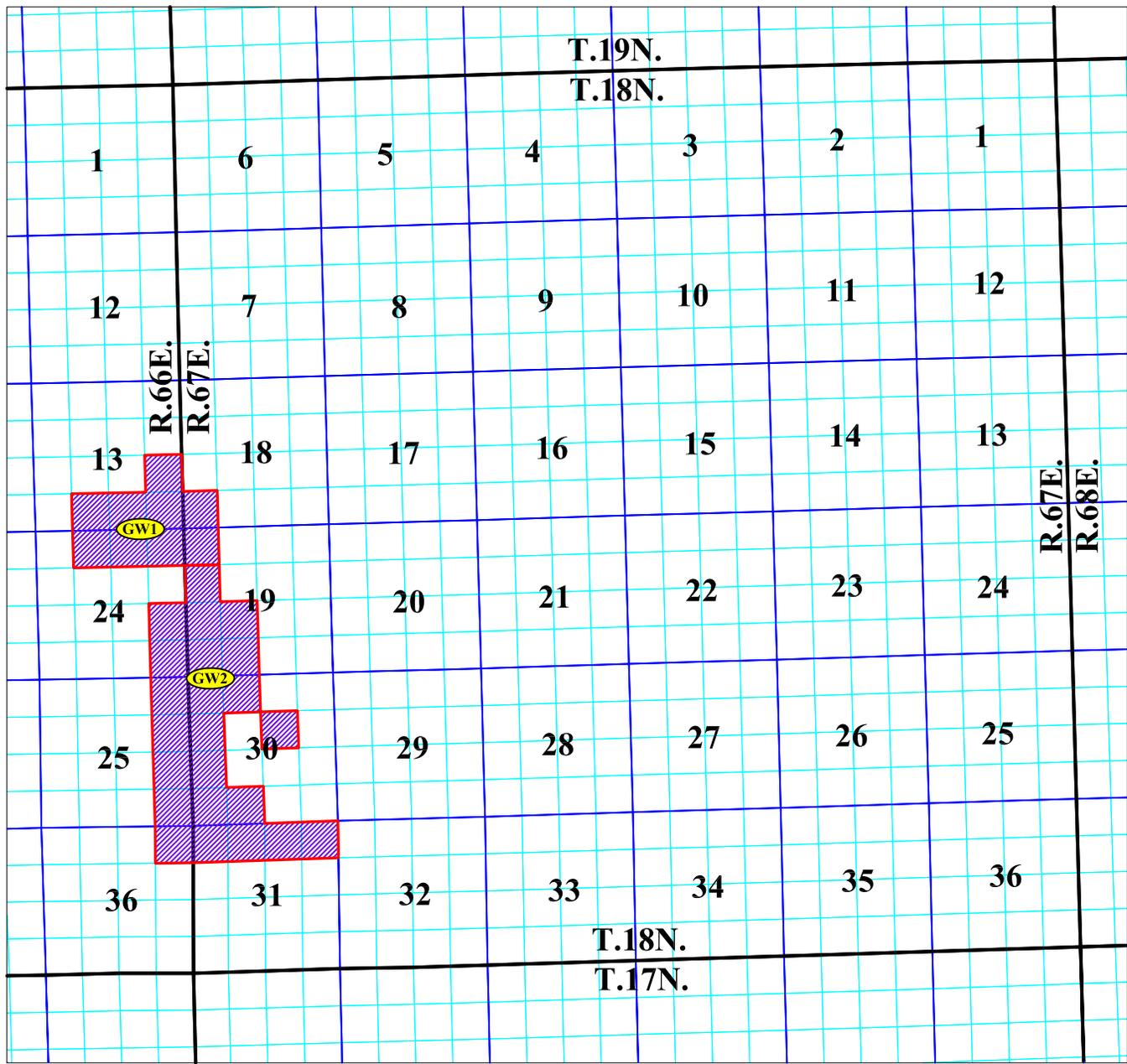
\*Permit number and manner of use shown  
\*\*Hydrographic Area name and number shown

Projection: Universal Transverse Mercator, NAD83, Zone 11N, Hillshade developed from 30-m DEM, Sun Angle 45°, Azimuth 315°. MAP ID 18639-3211 08/18/2011 BP

PLATE 1: SPRING WATER RIGHTS IN SPRING VALLEY, NEVADA

**Appendix 2**

**Groundwater Place of Use Township 18N,  
Range 66E, and Township 18N, Range 67E, MDBM**



# Index Key

Groundwater		
ID NO	Application No.	Status
GW-1	39817	Permit
GW-2	39818	Permit

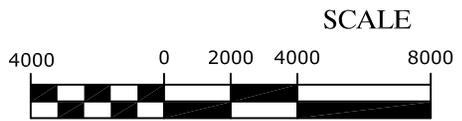
# Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use

- Groundwater Place of Use
- Groundwater Reference Label
- 14** Section Number

# Notes

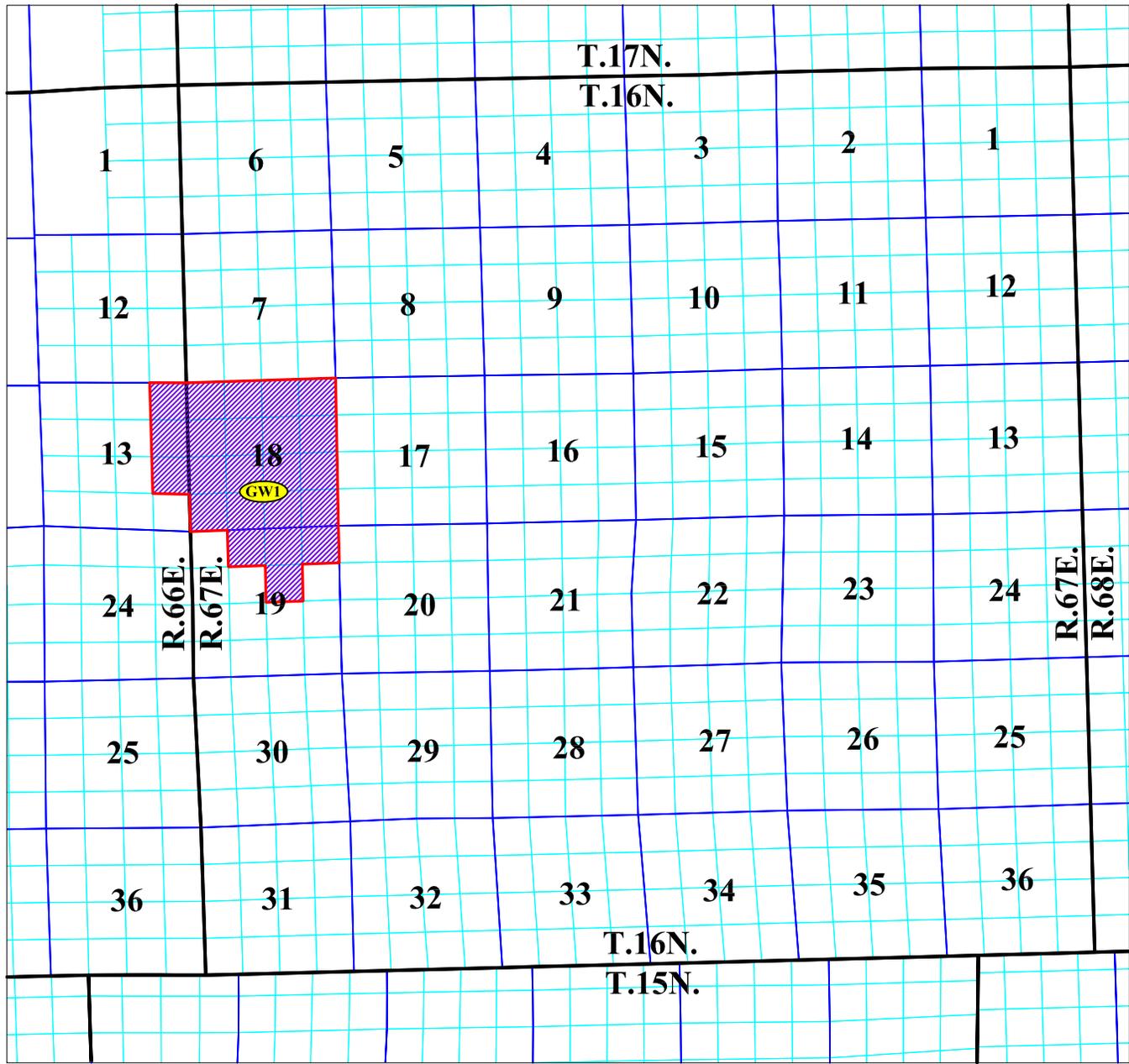
Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]



**Groundwater Places of Use**  
**Township 18 North, Range 67 East;**  
**Portion of T. 18 North, Range 66 East;**  
**Mount Diablo Baseline and Meridian**

**Appendix 3**

**Groundwater Place of Use Township 16N,  
Range 67E, and Township 16N, Range 66E, MDBM**



# Index Key

Groundwater		
ID NO	Application No.	Status
GW-1	54204 and 54205	Permits

# Legend

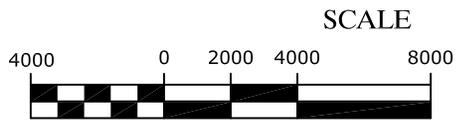
- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use

- Groundwater Place of Use
- Groundwater Reference Label
- 14** Section Number

# Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]

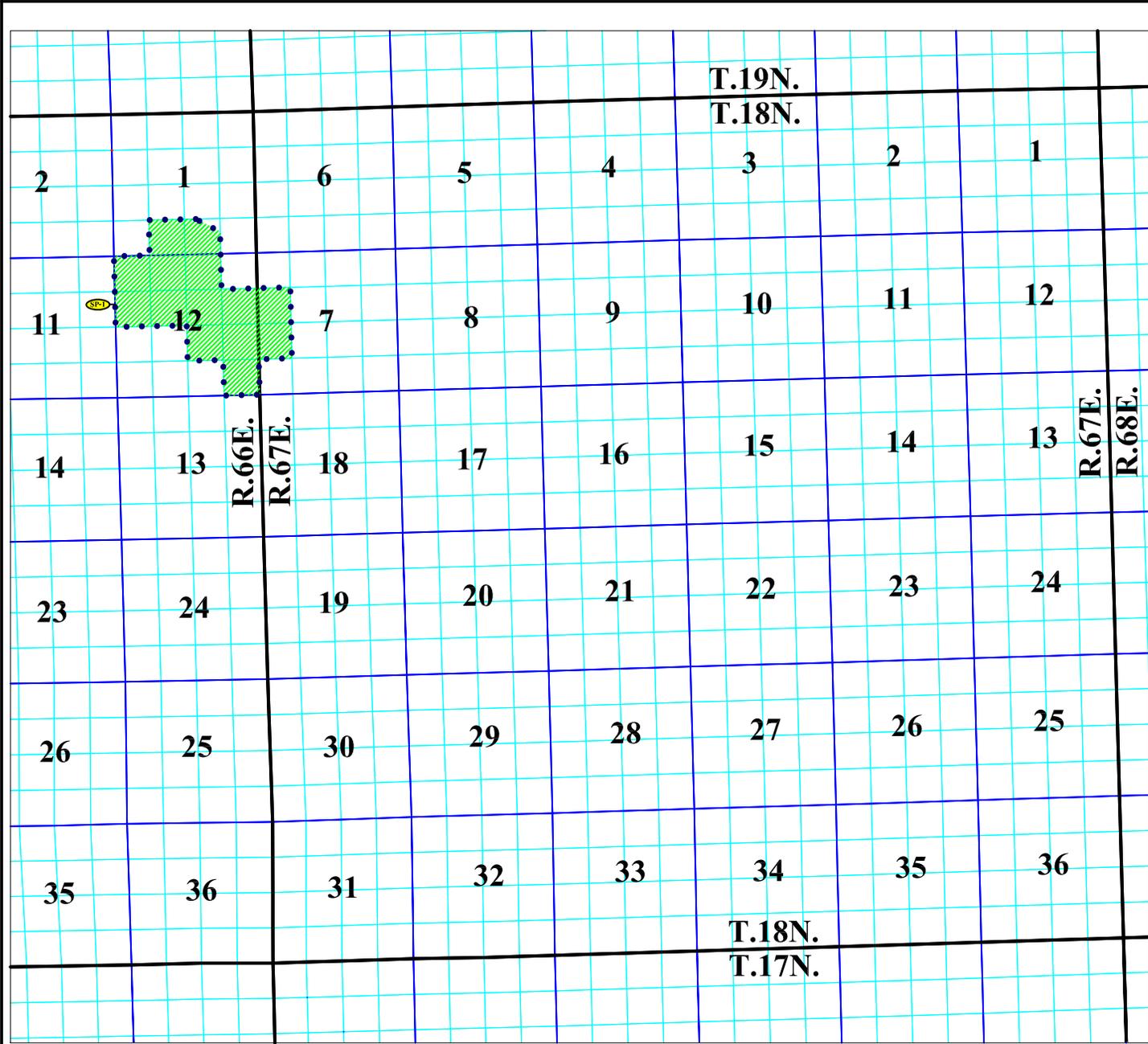
Permits 54204 and 54205 share a common place of use; however, Permit 54204's point of diversion is located within Township 16 North, Range 67 East, and Permit 54205's point of diversion is located within Township 16 North, Range 66 East.



**Groundwater Places of Use**  
**Township 16 North, Range 67 East;**  
**Portion of T. 16 North, Range 66 East;**  
**Mount Diablo Baseline and Meridian**

**Appendix 4**

**Spring Water Place of Use Township 18N,  
Range 66E, and Township 18N, Range 67E, MDBM**



# Index Key

Spring Water

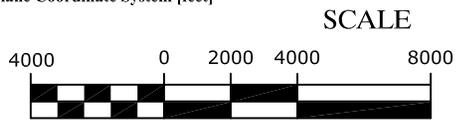
ID NO	Application No.	Status	Notes
SP-1	55363, 55364, and 55365	Permits	

# Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Permit Place of Use of Water Rights
- Approximate Place of Overlapping Use
- Spring Water Place of Use
- Spring Water Reference Label
- 14** Section Number

# Notes

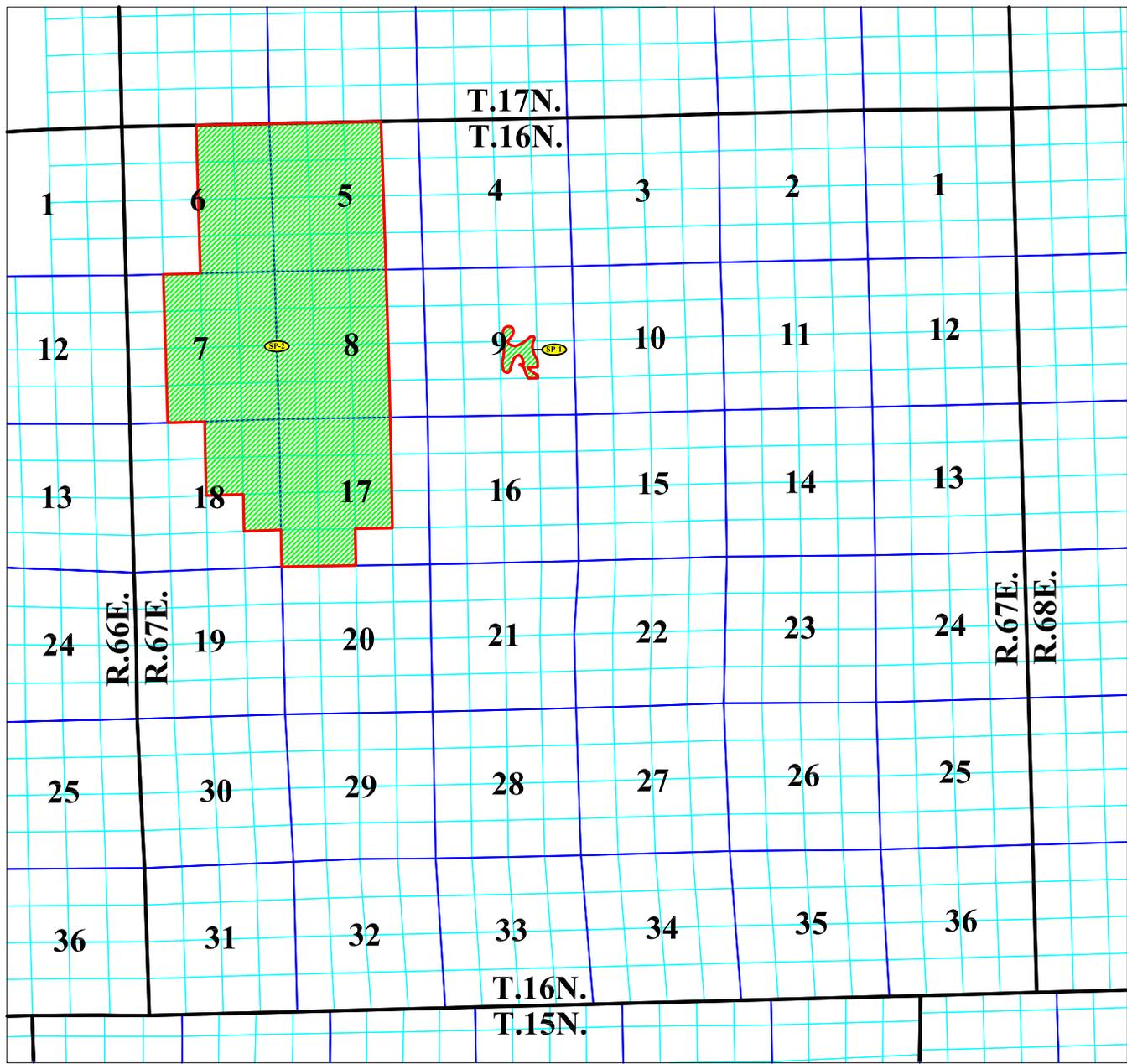
Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]



**Spring Water Places of Use**  
 Township 18 North, Range 67 East;  
 Portion of Township 18 North, Range 66 East;  
 Mount Diablo Baseline and Meridian

**Appendix 5**

**Spring Water Place of Use Township 16N,  
Range 67E, MDBM**



# Index Key

## Spring Water

ID NO	Application No.	Status	Notes
SP-1	3203	Certificate	
SP-2	V02817, V02818 V02819, V02820 V02821, V02822, V02823, V02824, V02825, V02826, V02827, V02828	Vested Claims Vested Claims Vested Claims Vested Claims Vested Claims	

# Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use



Spring Water Place of Use



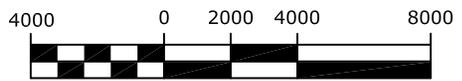
Spring Water Reference Label

14 Section Number

# Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]

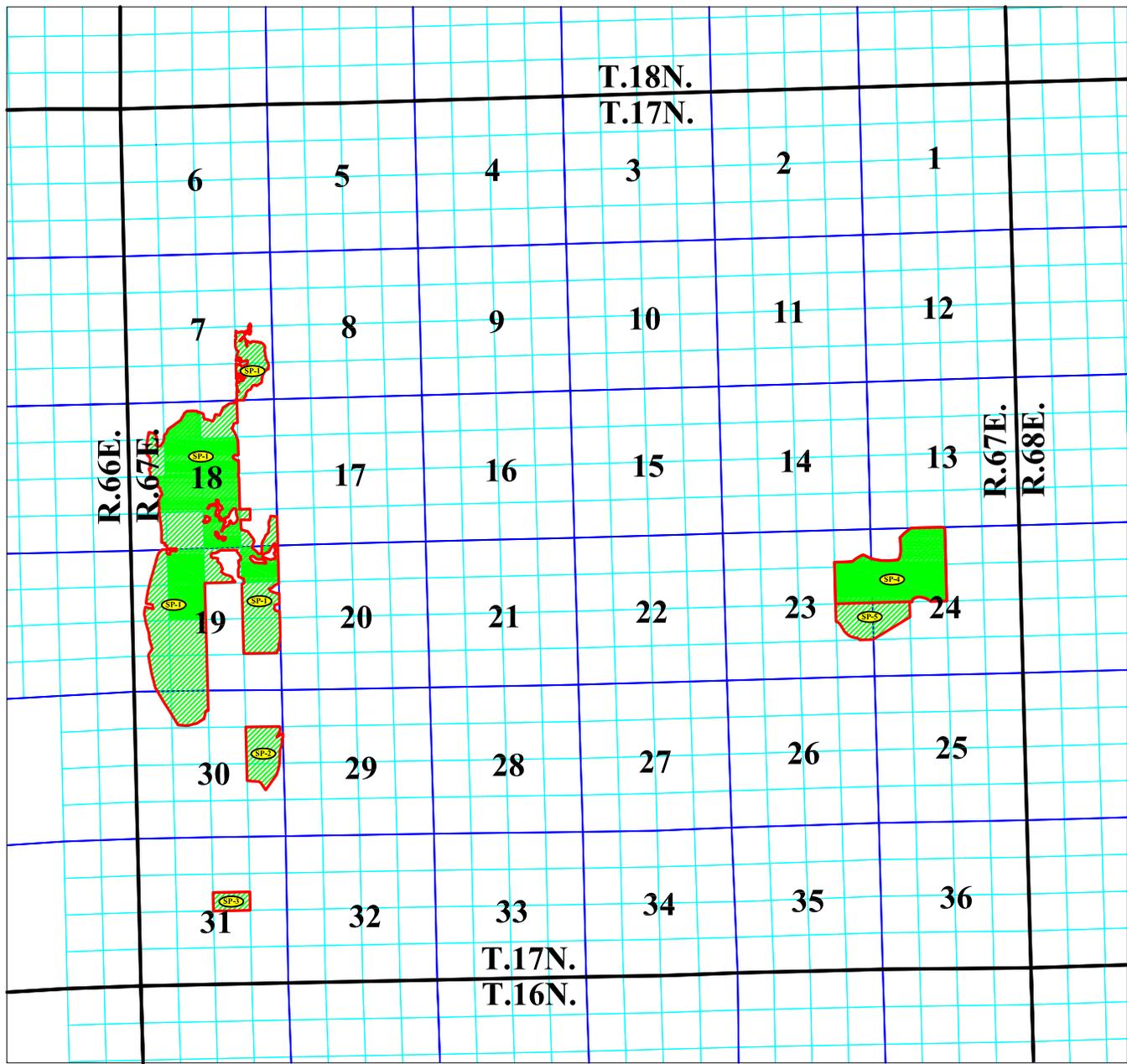
## SCALE



**Spring Water Places of Use**  
**Township 16 North, Range 67 East;**  
**Portion of Township 16 North, Range 66 East;**  
**Mount Diablo Baseline and Meridian**

**Appendix 6**

**Spring Water Place of Use Township 17N,  
Range 67E, MDBM**



# Index Key

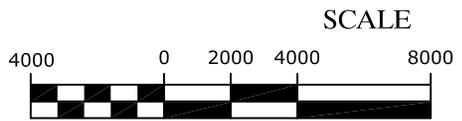
Spring Water			
ID N0	Application No.	Status	Notes
SP-1	V09665, V09666, V09667 V09668, V09669, V09670 V09671, and V09672	Vested Claims Vested Claims Vested Claims	SW-1 contains Place of Use for Vested Claims V09665-V09672. Overlapping Place of Use is Solid Green.
SP-2	6754	Certificate	
SP-3	2745	Certificate	
SP-4	10921 and 10993	Certificates	
SP-5	10921	Certificate	

# Legend

- Quarter - Quarter Subdivisions Lines
  - Section Lines
  - Township and Range Lines
  - Boundary of Place of Use of Water Rights
  - Property Lines
  - Approximate Place of Overlapping Use
- 
- Spring Water Place of Use
  - Shared Spring Water Place of Use
  - Spring Water Reference Label
  - 14** Section Number

# Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]



**Spring Water Places of Use  
Township 17 North, Range 67 East;  
Mount Diablo Baseline and Meridian**

**Appendix 7**

**Supplemental Analysis for  
V-09665 through V-09672**

Supplemental Analysis: V-09665 - V-09672

					Permit No.		V-09665		V-09666		V-09667		V-09668		V-09669		V-09670		V-09671		V-09672	
					Duty ac-ft/ac.		3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6
¼ ¼	¼	SEC	TWN (N)	RGE (E)	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre
SE	NE	7	17	67	0.16																	
NE	SE	7	17	67	20.95																	
SE	SE	7	17	67	21.24																	
NW	NE	18	17	67	26.31																	
SW	NE	18	17	67	11.15	28.32				11.15	28.32											
NE	NW	18	17	67	3.11	17.43	3.11	17.43														
NW	NW	18	17	67				1.37														
SE	NW	18	17	67		40.1		40.1		40.1												
SW	NW	18	17	67				15.9														
NW	SE	18	17	67					14.29	24.29	14.29	24.29										
SE	SE	18	17	67							16.91											
SW	SE	18	17	67							16.96	14.61										
NE	SW	18	17	67						40.17		40.17										
NW	SW	18	17	67				7.84				7.84										
SE	SW	18	17	67								41.91										
SW	SW	18	17	67								5.23										
NE	NE	19	17	67										32.26							32.26	
NW	NE	19	17	67										21.18	1.06							
SE	NE	19	17	67										36.18							36.18	
NE	NW	19	17	67										12.36	25.17	12.36	25.17					
NW	NW	19	17	67													13.01					
SE	NW	19	17	67										3.16	35.08	3.16	35.08					
SW	NW	19	17	67													21.98					
NE	SE	19	17	67														38.28			38.28	
NE	SW	19	17	67												32.96	5.25					
NW	SW	19	17	67												6.38	14.82					

					Permit No. V-09665		V-09666		V-09667		V-09668		V-09669		V-09670		V-09671		V-09672		
					Duty ac-ft/ac.																
¼ ¼	¼	SEC	TWN (N)	RGE (E)	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	
SE	SW	19	17	67														38.36			
NE	NE	23	17	67																	
SE	NE	23	17	67																	
NE	SE	23	17	67																	
NE	NW	24	17	67																	
NW	NW	24	17	67																	
SE	NW	24	17	67																	
SW	NW	24	17	67																	
NW	SW	24	17	67																	
SE	NE	30	17	67																	
NE	NW	30	17	67														34.06			
NW	NW	30	17	67														4.9			
NE	SE	30	17	67																	
SW	SW	30	17	67														19.13			
SW	NE	31	17	67																	
<b>TOTAL ACRE</b>					82.92	85.85	3.11	82.64	25.44	132.88	48.16	134.05	105.14	61.31	54.86	115.31	134.73	0	106.72	0	
<b>Duty</b>					3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	
<b>TOTAL DUTY (acre-feet)</b>					248.76	515.1	9.33	495.84	76.32	797.28	144.48	804.3	315.42	367.86	164.58	691.86	404.19	0	320.16	0	5,355.48
<b>Non Supplemental (acre-feet)</b>					248.76	515.1	0	150.66	42.87	386.76	101.61	370.5	315.42	367.86	118.02	330.36	404.19	0	0	0	3,352.11
<b>Supplemental (acre-feet)</b>					0	0	9.33	345.18	33.45	410.52	42.87	433.8	0	0	46.56	361.5	0	0	320.16	0	2,003.37

**Appendix 8**

**USGS Water Data Report 2010,  
10243700 Cleve Creek**



Water-Data Report 2010

## 10243700 Cleve Creek Near Ely, NV

Central Nevada Desert Basins  
Spring-Steptoe Valleys Subbasin

LOCATION.--Lat 39°12'59.68", long 114°31'46.7" referenced to North American Datum of 1983, in SE ¼ SE ¼ sec.27, T.16 N., R.66 E., White Pine County, NV, Hydrologic Unit 16060008, on right bank, 2.3 mi downstream from North Fork, 4 mi southwest of Cleveland Ranch headquarters, and 18 mi east of Ely.

DRAINAGE AREA.--31.8 mi<sup>2</sup>.

### SURFACE-WATER RECORDS

PERIOD OF RECORD.--Jun. 1914 to Dec. 1916 (published as Cleveland Creek near Osceola), Oct. 1959 to Sep. 1967, Oct. 1976 to Sep. 1981, Dec. 1982 to Sep. 1987, Mar. 1990 to current year. Crest-stage partial-record station Oct. 1967 to Sep. 1976.

GAGE.--Water-stage recorder. Elevation of gage is 6,140 ft above National Geodetic Vertical Datum of 1929, from topographic map. Oct. 1, 1967, to Sep. 30, 1976, crest-stage gage at same site and datum. Prior to Sep. 13, 1984, at site ¼ mi upstream, at different datum. Prior to Apr. 18, 1985, at different datum. Prior to Oct. 4, 1985, at datum 2.00 ft lower. From Nov. 19, 1986, at site 75 ft downstream at datum, 5.2 ft higher.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion above station. Practically entire flow diverted for irrigation by Cleveland Ranch below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 440 ft<sup>3</sup>/s, May 30, 1983, gage height, unknown; Maximum gage height 2.75 ft, May 24, 2005; minimum daily, 2.7 ft<sup>3</sup>/s, Dec. 22, 1990.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20 ft<sup>3</sup>/s and (or) maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr 21	0245	26	1.85
May 19	0515	26	1.88
Jun 7	0545	*73	*2.51

## 10243700 Cleve Creek Near Ely, NV—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**  
**DAILY MEAN VALUES**  
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5.2	5.4	5.6	e5.5	e5.5	5.1	7.3	12	18	14	7.9	6.0
2	5.2	5.3	5.7	e5.5	e5.5	5.0	7.2	11	21	13	7.7	6.0
3	5.2	5.3	e5.5	5.6	5.7	5.2	7.1	11	26	13	7.5	5.9
4	5.3	5.2	e5.2	5.7	5.9	5.4	7.4	13	39	12	7.4	5.7
5	5.3	5.2	e5.0	5.4	5.7	5.4	7.5	14	40	12	7.3	5.8
6	5.5	5.3	e5.0	5.5	5.8	5.4	7.4	14	57	12	7.1	6.0
7	5.6	5.3	e5.0	5.3	5.9	5.6	7.4	13	62	12	7.0	6.0
8	5.4	5.3	e5.0	5.4	5.7	5.5	8.1	16	59	11	7.1	5.9
9	5.4	5.3	5.0	5.2	e5.6	5.7	9.1	17	51	11	7.0	6.1
10	5.4	5.3	5.6	5.1	e5.6	5.5	10	16	44	11	6.9	6.3
11	5.3	5.2	6.3	5.2	5.4	6.5	11	16	40	11	6.8	6.3
12	5.3	5.2	6.2	5.2	5.4	5.7	12	14	34	10	6.8	6.2
13	5.4	5.2	6.1	5.3	5.4	5.6	12	13	30	10	6.7	6.0
14	6.0	5.1	5.6	5.3	5.5	5.6	10	16	26	10	6.7	5.9
15	5.6	5.0	5.5	5.7	5.6	5.9	10	12	24	9.7	6.6	6.0
16	5.5	5.4	5.5	5.4	5.5	6.2	10	14	23	9.5	6.4	5.9
17	5.4	5.4	5.4	5.4	5.6	6.5	12	18	22	9.8	6.3	5.8
18	5.4	5.4	5.4	5.5	5.6	6.9	15	21	20	9.6	6.5	5.8
19	5.7	5.3	5.5	5.5	5.6	6.9	17	e21	19	9.2	6.8	5.8
20	6.7	5.3	5.5	5.6	5.5	6.8	19	e20	18	9.0	6.6	6.0
21	5.5	5.5	5.5	e5.5	5.5	6.9	21	e20	18	8.8	6.4	6.1
22	5.4	5.7	5.5	e5.5	6.3	7.2	18	e19	17	8.7	6.3	5.9
23	5.3	5.5	5.6	e5.5	7.7	7.3	15	e19	17	8.6	6.3	6.0
24	5.3	5.7	e5.5	e5.5	6.0	7.1	11	e18	17	8.5	6.4	5.8
25	5.3	5.6	e5.5	e5.5	5.4	7.1	11	18	16	8.4	6.2	5.7
26	5.3	5.6	e5.5	e5.5	5.4	6.9	12	18	16	8.6	6.3	5.6
27	5.4	5.6	e5.5	e5.5	5.2	6.7	13	17	15	9.5	6.0	5.7
28	5.5	5.6	e5.5	e5.5	5.1	6.7	14	16	15	8.9	6.0	5.6
29	5.6	5.5	e5.5	e5.5	---	7.0	13	16	15	8.5	6.1	5.5
30	5.6	5.6	e5.5	e5.5	---	7.3	12	15	14	8.2	6.3	5.5
31	5.6	---	e5.5	e5.5	---	7.8	---	18	---	8.0	6.2	---
<b>Total</b>	169.6	161.3	170.2	168.8	158.6	194.4	346.5	496	833	313.5	207.6	176.8
<b>Mean</b>	5.47	5.38	5.49	5.45	5.66	6.27	11.6	16.0	27.8	10.1	6.70	5.89
<b>Max</b>	6.7	5.7	6.3	5.7	7.7	7.8	21	21	62	14	7.9	6.3
<b>Min</b>	5.2	5.0	5.0	5.1	5.1	5.0	7.1	11	14	8.0	6.0	5.5
<b>Ac-ft</b>	336	320	338	335	315	386	687	984	1,650	622	412	351

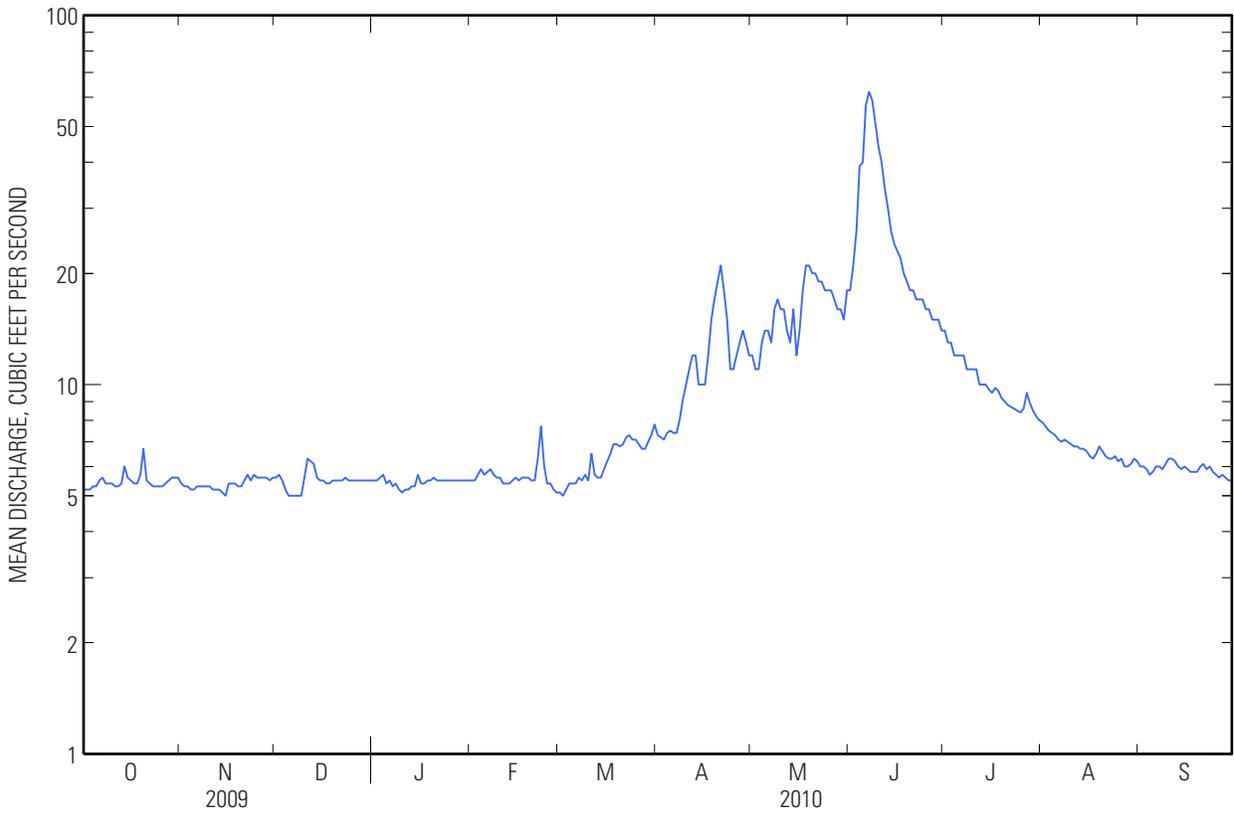
**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2010, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	7.24	7.18	6.71	6.54	6.88	8.50	12.3	23.2	23.1	10.7	7.92	7.21
<b>Max</b>	16.8	15.3	12.9	11.5	11.8	15.4	30.3	82.9	117	30.0	21.1	16.2
<b>(WY)</b>	(1985)	(1985)	(1985)	(1984)	(1984)	(1984)	(1984)	(1983)	(1983)	(1983)	(1983)	(1983)
<b>Min</b>	4.54	4.53	4.27	4.05	4.42	4.58	5.20	6.85	5.63	4.60	3.99	3.75
<b>(WY)</b>	(1993)	(1962)	(1961)	(1960)	(1960)	(1991)	(1991)	(1990)	(1992)	(1992)	(1960)	(1960)

10243700 Cleve Creek Near Ely, NV—Continued

SUMMARY STATISTICS

	Calendar Year 2009	Water Year 2010	Water Years 1914 - 2010
<b>Annual total</b>	2,945.3	3,396.3	
<b>Annual mean</b>	8.07	9.30	10.2
<b>Highest annual mean</b>			22.2 1984
<b>Lowest annual mean</b>			5.15 1960
<b>Highest daily mean</b>	28 May 8	62 Jun 7	280 May 30, 1983
<b>Lowest daily mean</b>	3.6 Jan 4	5.0 Nov 15	2.7 Dec 22, 1990
<b>Annual seven-day minimum</b>	4.2 Jan 15	5.1 Dec 3	3.4 Dec 18, 1990
<b>Maximum peak flow</b>		73 Jun 7	440 May 30, 1983
<b>Maximum peak stage</b>		2.51 Jun 7	2.75 May 24, 2005
<b>Annual runoff (ac-ft)</b>	5,840	6,740	7,400
<b>10 percent exceeds</b>	15	17	17
<b>50 percent exceeds</b>	5.7	6.0	7.4
<b>90 percent exceeds</b>	4.8	5.3	5.0



**Appendix 9**

**SNWA Indian and Stephens Creek  
Stream Flow Data**

Stephens Creek Flow Data From SNWA

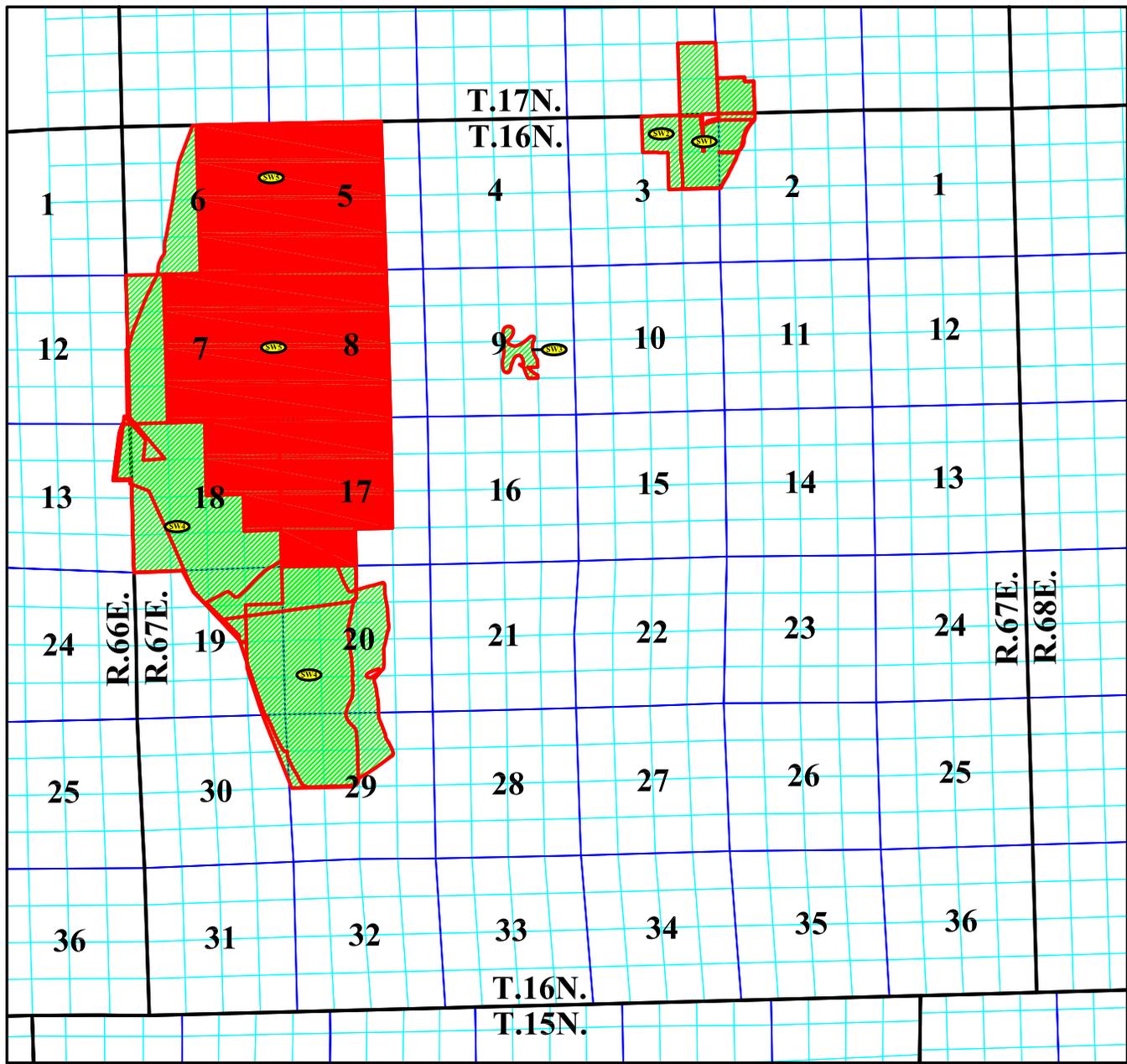
SW_DISCH#	PRIMARY_N	STATION_NA	LOCAL_NUM	STREAM_NUM	SITE_ALIASE	SITE_TYPE	BASIN_NUM	BASIN_NAM	SNWA	DATA_COLLECT	DATA_COLLECTION	DATA_COLL	DISCHARGE	DISCHARGE	DISCHARGE	REPORTED	WIDTH_FT	AREA_SQFT	VELOCITY_F
1990	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		2/5/2008	2:30 PM	PST	N			N/A			
553	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/25/2000	1:13 PM		Y	309.7	0.69	CFS	4.5	1.23	0.6
554	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/27/2000	11:30 AM		Y	341.1	0.76	CFS	4.6	1.51	0.503
1788	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		11/27/2007	3:38 PM	PST	Y	181.3	0.404	CFS	3	0.5	0.808
3430	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		2/12/2007	4:25 PM		Y	237	0.528	CFS	2.9	0.91	0.58
4676	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		3/26/2007	3:02 PM		Y	314.2	0.7	CFS	3.8	1.1	0.636
5226	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/23/2007	3:50 PM	PDT	Y	145.4	0.324	CFS	3.3	0.66	0.491
16357	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		9/8/2008	12:47 PM	PDT	Y	114	0.253	CFS	2.3	0.44	0.575
16562	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		12/11/2008	9:11 AM	PST	Y	158	0.353	CFS	3.1	0.85	0.415
16609	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		2/2/2009	2:15 PM	PST	Y	154	0.344	CFS	2.9	0.72	0.478
3457	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		5/7/2007	2:35 PM	PDT	Y	303.9	0.677	CFS	3	0.63	1.07
5193	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		6/14/2007	4:54 PM	PDT	Y	245.5	0.547	CFS	4.5	1.1	0.497
5371	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		8/29/2007	8:40 AM	PDT	Y	136.9	0.305	CFS			
15723	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		3/25/2008	3:35 PM	PDT	Y	168.3	0.375	CFS	3	0.43	0.872
15745	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		4/28/2008	3:58 PM	PDT	Y	320.9	0.715	CFS	2.9	0.59	1.21
16108	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/23/2008	11:54 AM	PDT	Y	170	0.38	CFS	2.8	0.51	0.745
16472	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		10/16/2008	1:15 PM	PDT	Y	134	0.298	CFS	3.1	0.53	0.562
16864	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		4/16/2009	9:31 AM	PDT	Y	201	0.447	CFS	2.9	0.6	0.745
16938	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		5/27/2009	2:50 PM	PDT	Y	396	1.06	CFS	3.1	0.99	1.07
17014	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/9/2009	10:05 AM	PDT	Y	187	0.417	CFS	2	0.34	1.23
17101	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		8/18/2009	10:27 AM	PDT	Y	189	0.422	CFS	1.6	0.6	0.703
17249	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		11/19/2009	10:05 AM	PST	Y	184	0.409	CFS	2.3	0.52	0.787
2563	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		7/25/2006	8:53 AM		Y	446.1	0.994	CFS	6.2	1.3	0.764
16019	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		6/11/2008	2:29 PM	PDT	Y	303	0.675	CFS	3	0.76	0.888
17415	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		6/17/2010	1:40 PM	PDT	Y	812.382	1.81	CFS	2.3	1.4	1.29
17907	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		11/8/2010	4:45 PM	PST	Y	300.716	0.67	CFS	2.5	0.97	0.691
18031	1841501	Stephens Creek at Mount		18415	184029	STREAM	184	SPRING VALLEY		6/8/2011	1:19 PM	PDT	Y	3779.149	8.42	CFS	7.6	5.2	1.61

Indian Creek Flow Data From SNWA

SW_DISCHARGE	PRIMARY_NA	STATION_NAME	LOCAL_NUMBER	STREAM_N	SITE_ALIAS	SITE_TYPE	BASIN_NUM	BASIN_NAME	DATA_COLLECTI	DATA_COLLECTI	DATA_COLL	DISCHARGE	DISCHARGE	DISCHARGE_CFS	REPORTED_U	WIDTH_FT	AREA_SQFT	VELOCITY_FPS
1766	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	11/26/2007	2:40 PM	PST	Y	122	0.273	CFS			
5005	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	7/23/2007	4:00 PM	PDT	Y	109	0.243	CFS	1.7	0.29	0.838
5209	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	6/15/2007	8:50 AM	PDT	Y	180	0.4	CFS	2.1	0.44	0.909
5465	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	10/9/2007	3:00 PM	PDT	Y	132	0.294	CFS			
5369	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	8/28/2007	2:30 PM	PDT	Y	123	0.273	CFS			
15746	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	4/28/2008	4:44 PM	PDT	Y	176.8	0.394	CFS	1.8	0.49	0.804
16358	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	9/8/2008	12:07 PM	PDT	Y	145	0.323	CFS	2.7	0.93	0.347
16436	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	10/16/2008	2:00 PM	PDT	Y	214	0.477	CFS	2	0.83	0.575
16511	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	12/11/2008	9:56 AM	PST	Y	140	0.312	CFS	1.9	0.82	0.38
16596	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	2/2/2009	12:45 PM	PST	Y	125	0.278	CFS	2.3	0.84	0.331
15722	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	3/25/2008	2:50 PM	PDT	Y	290.8	0.648	CFS	2.1	0.44	1.47
16094	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	7/23/2008	1:00 PM	PDT	Y	153	0.341	CFS	2.7	0.82	0.416
16940	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	5/27/2009	1:50 PM	PDT	Y	334	0.895	CFS	3.4	1.7	0.526
17009	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	7/9/2009	9:00 AM	PDT	Y	375	0.836	CFS	3.5	1.9	0.44
17110	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	8/18/2009	8:34 AM	PDT	Y	242	0.539	CFS	2.4	1.2	0.449
17248	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	11/19/2009	9:05 AM	PST	Y	268	0.597	CFS	2.3	1.3	0.459
15644	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	2/5/2008	2:10 PM	PST	Y	82.6	0.184	CFS			
16054	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	6/11/2008	3:23 PM	PDT	Y	196	0.437	CFS	2.6	0.65	0.672
17916	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	11/8/2010	3:45 PM	PST	Y	257.18	0.573	CFS	2.2	0.99	0.579
18029	1846901	Indian Creek at Mountain Block	18469			STREAM	184	SPRING VALLEY	6/8/2011	12:02 PM	PDT	Y	866.242	1.93	CFS	3.1	1	1.91

**Appendix 10**

**Place of Use of Surface Water Rights and  
Spring Rights (V-02871–V-02828)**



# Index Key

## Surfacewater

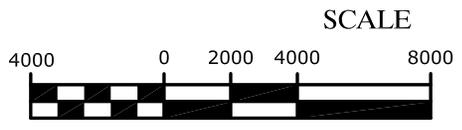
ID NO.	Application No.	Status	Notes
SW-1	8393 and 10487	Certificates	
SW-2	10487	Certificate	
SW-3	3203	Certificate	
SW-4	2852 V00790, V01217, and V01218	Certificate Vested Claims Vested Claim	SW-4 is a combination of Certificated Applications 2852, and Vested Claims V00790, V01217, and V01218
SW-5	V00790, V01217, V01218 V02817, V02818, V02819, V02820, V02821, V02822, V02823, V02824, V02825, V02826, V02827, and V02828	Vested Claims Vested Claim Vested Claims Vested Claims Vested Claims Vested Claims Vested Claims Vested Claims	SW-5 is a combination of Vested Claims V00790, V01217, V01218, and V02817-V02827.  Vested Claims V02817-V02828 are spring water rights, where V00790, V01217, and V01218 are surface water rights.

# Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use
- Surfacewater Place of Use
- Spring Water Place of Use
- Shared Surface and Spring Water Place of Use
- Surfacewater Reference Label
- Section Number

# Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]



Surfacewater and Spring Water Places of Use  
Township 16 North, Range 67 East;  
Portion of Township 16 North, Range 66 East;  
Mount Diablo Baseline and Meridian

**Appendix 11**

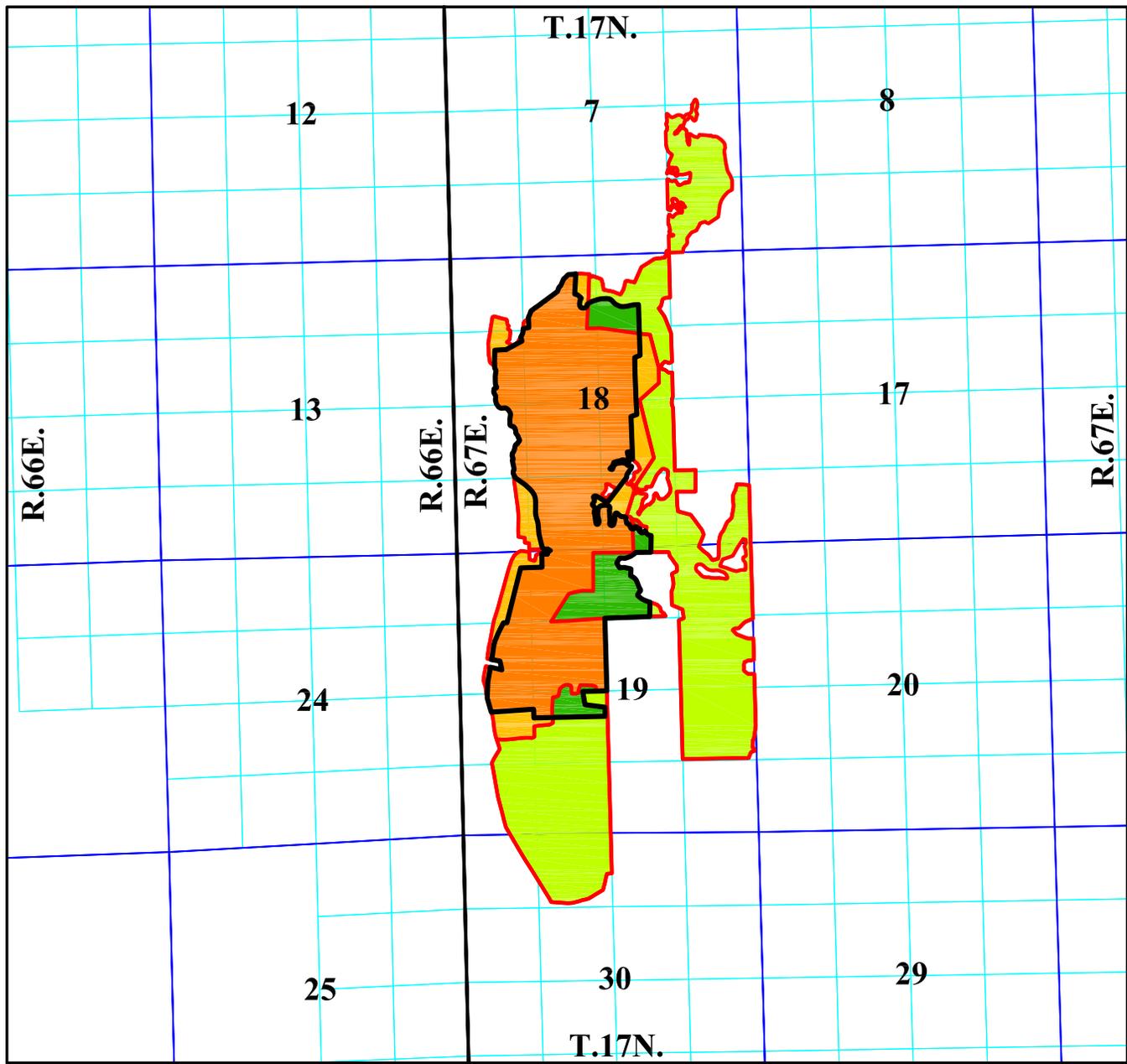
**SNWA Taft Creek Stream Flow Data**

Taft Creek Flow Data From SNWA

SW_DISCHARGE_MISC_ID	PRIMARY_NAME	STATION_NAME	STREAM_NUMBER	SITE_ALIASES	SITE_TYPE	BASIN_NUMBER	BASIN_NAME	DATA_COLLECTION_DATE	DATA_COLLECTION_TIME	DATA_COLLECTION_TIMEZONE	ARGE_MEAS_URED_IND	DISCHARGE_GPM	DISCHARGE_CFS	REPORTED_UNIT	WIDTH_FT	AREA_SQFT	VELOCITY_FPS
1993	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	2/5/2008	3:00 PM	PST	N			N/A			
16604	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	2/4/2009	3:50 PM	PST	N			N/A			
534	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/15/1998			Y	4802.5	10.7	CFS	2.55	4.67	2.14
535	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/16/1998	4:17 PM		Y	3783.6	8.43	CFS	2.55	3.89	2.16
536	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/13/1999	2:32 PM		Y	1939	4.32	CFS	2.5	2.45	1.76
538	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/27/2000	10:12 AM		Y	570	1.27	CFS	2.45	1.43	0.888
539	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	8/7/2001			Y	543.1	1.21	CFS	2.5	1.36	0.89
1791	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	11/28/2007	10:51 AM	PST	Y	195	0.434	CFS			
3161	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	2/20/2007	2:52 PM		Y	230	0.52	CFS	2.7	1.2	0.42
3456	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	5/7/2007	5:15 PM	PDT	Y	1040	2.32	CFS			
4674	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	3/26/2007	5:48 PM		Y	490	1.1	CFS			
5243	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/23/2007	2:15 PM	PDT	Y	388	0.865	CFS	2.3	1.1	0.786
537	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/24/2000	8:45 AM		Y	556.6	1.24	CFS	2.4	1.22	1.02
15724	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	3/25/2008	5:35 PM	PDT	Y	351.4	0.783	CFS	2.3	1.1	0.712
16355	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	9/8/2008	2:52 PM	PDT	Y	205	0.456	CFS	2.3	0.99	0.461
16543	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	12/11/2008	10:41 AM	PST	Y	215	0.478	CFS	4	0.86	0.556
533	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/18/1996	12:30 PM		Y	933.6	2.08	CFS	4.5	1.88	1.05
2559	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/25/2006	1:30 PM		Y	897.7	2	CFS	2	1.7	1.18
5194	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/14/2007	2:44 PM	PDT	Y	839.3	1.87	CFS	2.4	1.9	0.984
5375	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	8/29/2007	10:20 AM	PDT	Y	339.8	0.757	CFS	2.3	1	0.757
5461	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	10/9/2007	5:30 PM	PDT	Y	255.8	0.57	CFS	2.1	0.81	0.704
16095	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/23/2008	11:02 AM	PDT	Y	552	1.23	CFS	2.3	1.4	0.879
16438	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	10/16/2008	11:24 AM	PDT	Y	280	0.624	CFS	4.4	1.2	0.52
16859	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	4/16/2009	11:39 AM	PDT	Y	727	1.62	CFS	4.2	1.2	1.35
16951	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	5/27/2009	6:17 PM	PDT	Y	3850	10.3	CFS	8.9	12	0.858
16997	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/9/2009	11:19 AM	PDT	Y	1970	4.38	CFS	7.9	6.7	0.654
17099	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	8/18/2009	11:58 AM	PDT	Y	637	1.42	CFS	5.3	2.9	0.49
17212	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	11/19/2009	11:00 AM	PST	Y	270	0.601	CFS	3	0.61	0.985
15773	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	4/30/2008	10:59 AM	PDT	Y	848	1.89	CFS	4.7	1.5	1.26
16053	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/11/2008	1:25 PM	PDT	Y	1680	3.74	CFS	2.3	2.3	1.63
17453	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/17/2010	3:00 PM	PDT	Y	3608.593	8.04	CFS	2.5	4.1	1.96
17871	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	11/10/2010	12:26 PM	PST	Y	448.381	0.999	CFS	5.2	2.2	0.454
31	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	10/23/1991			Y	318.67	0.71	CFS			
33	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	3/17/1992			Y	166.07	0.37	CFS			
34	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/24/1992			Y	547.57	1.22	CFS			
53	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	7/16/1991			Y	1126.56	2.51	CFS			
32	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	12/4/1991			Y	345.6	0.77	CFS			
58	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/1/1980			Y	5800	12.9	GPM			
18028	1841401	Taft Creek at Diversion	18414	184025	STREAM	184	SPRING VALLEY	6/8/2011	5:28 PM	PDT	Y	5430.843	12.1	CFS	8.4	8.9	1.36
1545	1841402	Taft Creek below South Taft Cree	18414	R33-06	STREAM	184	SPRING VALLEY	9/18/1964			Y	897.66	2	CFS			
1544	1841402	Taft Creek below South Taft Cree	18414	R33-06	STREAM	184	SPRING VALLEY	7/14/1964			Y	1346.49	3	CFS			

## **Appendix 12**

### **Place of Use of Surface Water Rights and Spring Rights (V-09665–V-09672)**



# Legend

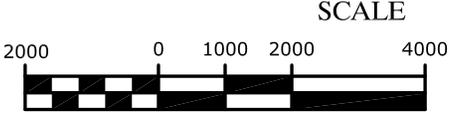
- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Outline of Certificated Rights 21220, 21687, and 21688

- Place of Use of Vested Claims V09665 - V09672  
"Meadow Grass" with Duty of 3.0 Acre-feet / Acre  
[No Co-located Surface Water Rights]
- Place of Use of Vested Claims V09665 - V09672  
"Meadow Grass" with Duty of 3.0 Acre-feet / Acre  
[With Co-located Surface Water Rights 21220/ 21687/ 21688]
- Place of Use of Vested Claims V09665 - V09672  
"Harvest Grass" with Duty of 3.0 Acre-feet / Acre  
[No Co-located Surface Water Rights]
- Place of Use of Vested Claims V09665 - V09672  
"Harvest Grass" with Duty of 6.0 Acre-feet / Acre  
[With Co-located Surface Water Rights 21220/ 21687/ 21688 ]

14 Section Number

# Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]



**Yelland Ranch**  
**Surfacewater and Spring Water Places of Use**  
**Township 17 North, Range 67 East;**  
**Mount Diablo Baseline and Meridian**

**Appendix 13**

**NDWR ET Rates for Basin 184, Spring Valley**

Choose by Basin or Station

All Basin Data

All Station Data

## Nevada Evapotranspiration Data by Hydrographic Basin and Weather Station

184 SPRING VALLEY ▼

Get Values for Basin

LAS VEGAS\* ▼

Get Values for Station

### Basin 184 SPRING VALLEY

Central Region; Reference ETos (ft): 4.5

	ET Actual (ft)	NIWR (ft)
ALFALFA (ft)	3.7	3
HIGHLY MANAGED PASTURE GRASS	3.6	3
LOW MANAGED PASTURE GRASS	3	2.4
GRASS HAY	3.5	2.9
TURF GRASS	3.5	2.9
SHALLOW OPEN WATER	4.7	3.9

Net Irrigation Water Requirement (NIWR)  
is ET Actual minus effective precipitation