

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

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CHURCHILL VALLEY (HYDROGRAPHIC AREA 8-102)

GROUNDWATER PUMPAGE INVENTORY

WATER-YEAR 2008

By: Brandy Martinelli, NDWR

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PURPOSE AND SCOPE

This report is an effort by the Nevada Division of Water Resources to better understand the hydrology of Churchill Valley, hydrographic area 8-102. This is part of a continuing effort to document groundwater usage in the valley.

The purpose of this report is to detail and inventory the groundwater resources as allocated and described by the Office of the State Engineer, Nevada Division of Water Resources and estimate the amount of groundwater pumped within the Churchill Valley Groundwater Basin for the water year 2008, beginning October 1, 2007, and ending September 30, 2008 (hereafter referred to as the 2008 water year).

Associated information such as groundwater level measurements, streamflow, and precipitation statistics are also presented.

DESCRIPTION OF THE STUDY AREA

Churchill Valley is located in west central Nevada and lies wholly within the state. The basin occupies approximately 490 square miles and covers parts of four counties: Churchill, Douglas, Lyon, and Storey. Churchill Valley is bounded on the north by the Virginia Range that rises to elevations greater than 7,000 feet; on the east by the Dead Camel Mountains, rising to an elevation of approximately 5,260 feet; on the southeast by the Desert Mountains that rise to elevations greater than 6,000 feet; on the south by the Buckskin Range, rising to an approximate elevation of 7,000 feet; on the southwest by the Pine Nut Mountains, rising to an elevation greater than 8,700 feet; and on the west by Churchill Butte and the associated alluvial rise at an elevation of approximately 6,000 feet (all elevations in this text are above mean sea level). The adjacent hydrographic areas are Fernley Area (6-076) to the north; Carson Desert (8-101) to the east; Walker Lake Valley (8-110) and Mason Valley (8-108) to the southeast; Smith Valley (8-107) and Carson Valley (8-105) to the southwest; Dayton Valley (8-103) to the west; and Tracy Segment (6-083) to the northwest. The exterior boundary of the Churchill Valley hydrographic basin is as described by Designation Order 689 issued by the Nevada State Engineer dated August 23, 1977.

HYDROLOGY

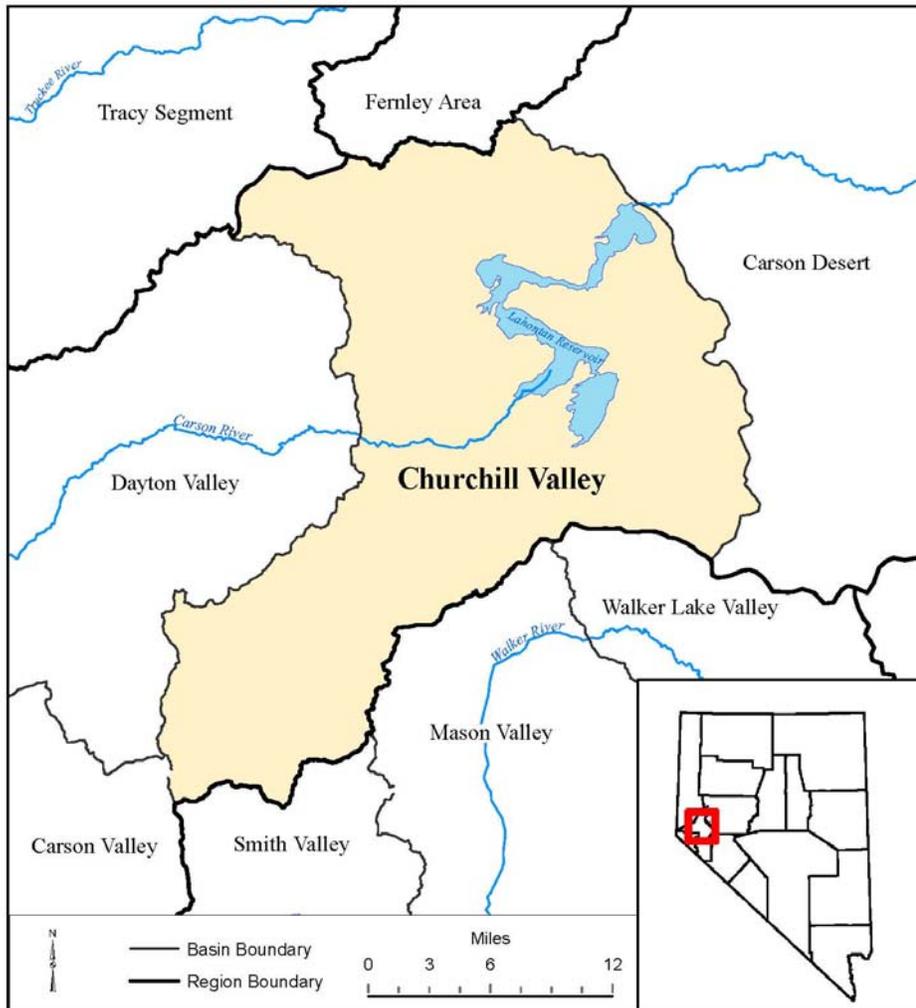
The dominant hydrologic features of Churchill Valley are the Carson River and Lahontan Reservoir.

From its headwaters in the Sierra Nevada, the Carson River flows through the Carson, Dayton, and Churchill Valleys to the Carson Sink, located in the Carson Desert, hydrographic area 8-101. The river crosses into Churchill Valley at an elevation of approximately 4,200 feet. The river flows from west to east and into Lahontan Reservoir. Tributaries to the Carson River in this valley are ephemeral and only reach the river in times of high flow during run-off. The river channel often goes dry in the later summer months within the Churchill Valley reach.

The U.S. Geological Survey (USGS) operates a streamflow gaging station near the location at which the Carson River enters Churchill Valley, (USGS #10312000 Carson River near Fort Churchill, Nevada). The gage is located in the NE ¼ SE ¼ Section 35, Township 17

Figure 1.

Location Map of Churchill Valley Groundwater Basin 8-102



North, Range 24 East. The period of record is April 1911 through the 2008 water year. The average annual run-off for the station is 269,900 acre-feet, while runoff data for water year 2008 was measured at 100,200 acre-feet (USGS, Water Data Report 2008).

Located approximately 400 feet upstream of the gaging station is the diversion for the Buckland Ditch. The ditch delivers Carson River water to pasture and alfalfa fields located in Churchill Valley. For water year 2008, approximately 3,377 acre-feet were diverted into this ditch (Written Communication, Federal Water Master's Office) for irrigation and stockwater. The diversions to the Buckland ditch should be added to the gage reading in order to estimate the Carson River discharge from Dayton Valley to Churchill Valley.

Lahontan Reservoir came into being with the completion of Lahontan Dam by the Bureau of Reclamation in 1915. The reservoir has a capacity of 295,500 acre-feet at the spillway level. Water is diverted into the reservoir from the Truckee River and the natural flows of the

Carson River. The reservoir supplies irrigation water for the Newlands Project in the Carson Desert. The minimum content of the reservoir during water year 2008 was 14,530 acre-feet on September 18, 2008 and the maximum content of the reservoir was 121,100 acre-feet on April 3, 2008 (USGS, Water Data Report 2008).

RECHARGE

The majority of the recharge for Churchill Valley is provided by precipitation in the surrounding mountains. Precipitation for the 2008 water year in the Carson River Basin was 67 percent of average and during the 2007 water year it was 58 percent of average (NRCS, NV Basin Outlook Report for Carson River Basin). A small component of the overall precipitation reaches the valley-fill reservoirs by seepage loss from streams and by flow through consolidated rocks.

The average annual precipitation at Lahontan Dam for the years 1911 through 2007 was 4.55 inches (WRCC, Western U.S. Climate Historical Summaries). Of the mountains bordering Churchill Valley, the Pinenut Range is the highest and receives the most precipitation, with elevations of 7,200 receiving more than 15 inches (Maurer, 1997, p.6). The other mountains bounding the valley receive significantly less precipitation due to the fact that they are lower in elevation and experience a greater rain-shadow effect from the Sierra Nevada Range (Glancy and Katzer, 1975, p.17).

Glancy and Katzer in *Reconnaissance Report 59* estimated the annual recharge from precipitation within the basin at 1,300 acre-feet, with an additional 70 acre-feet of groundwater inflow annually from Dayton Valley (1975, p.48, 51). Nowlin estimated the perennial yield at approximately 1,600 acre-feet per year (1986, p.195).

GROUNDWATER LEVELS

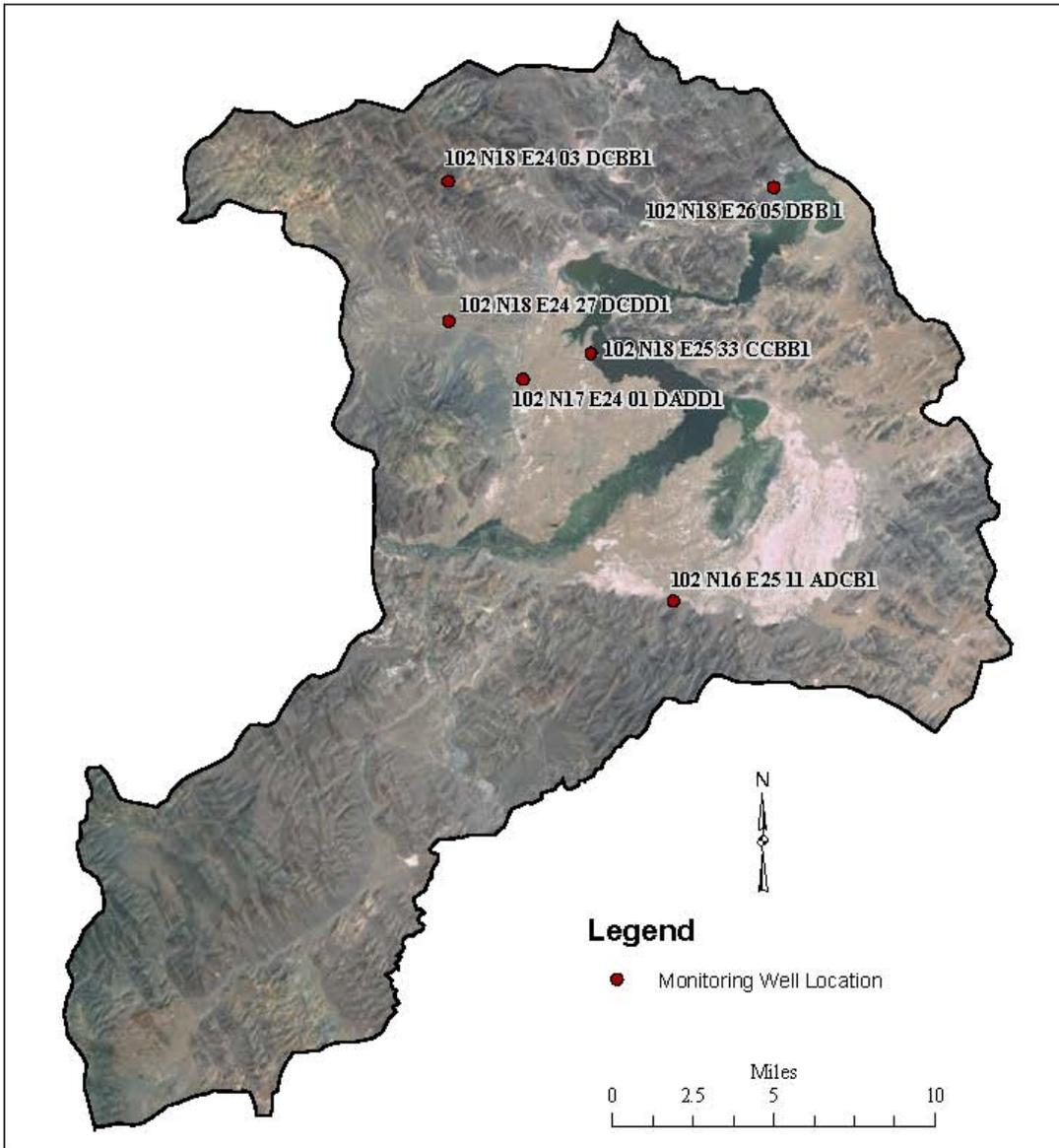
A groundwater level-monitoring network was instituted as part of the fieldwork done for the inventory. The network consists of six sites at the following locations (see figure 2, pg. 4):

- [102 N16 E25 11ADCB1](#)
- [102 N17 E24 01DADD1](#)
- [102 N18 E24 03DCBB1](#)
- [102 N18 E24 27DCDD1](#)
- [102 N18 E25 33CCBB1](#)
- [102 N18 E26 05DBBB1](#)

Water level measurements are conducted on a quarterly basis, and when additional sites are identified, they will be incorporated into the network. In addition to the sites monitored by the Division of Water Resources, the USGS monitors a network of different wells (<http://nevada.usgs.gov>). Data collected by the Division is available at <http://water.nv.gov/>.

Figure 2.

Location Map of Churchill Valley Groundwater Level-Monitoring Network



BASIC DATA AND PROCEDURES

This report estimates the amount of groundwater pumped under claims of vested right and the permits and certificates issued by the State Engineer, as well as the amount pumped by domestic wells in the valley. The following methods were used to arrive at the estimated use:

- Where totalizing meters were in place, meter readings were taken and compared with previous data (if available).
- Where meters were not in place and the use was irrigation, use was estimated by taking the number of hours the well was operated during the past year (determined from an hour meter reading or talking with the water user) and expanding it out by the certificated diversion rate; or a survey of the place of use was done to estimate the amount of acreage under cultivation. The number of acres under cultivation would then be multiplied by a duty of 4 acre-feet per acre to estimate the use.
- Where meters were not present, previous data was not available and the use was not irrigation, use was estimated by applying the annual duty associated with the certificate (if the water right is perfected) or permit if the usage was as described in the certificate or permit; if the use was not as described in the certificate or permit then a value was estimated based on actual usage.
- If there was no use of the water under the permit, zero use was recorded.
- The primary water purveyor for Churchill Valley is the Silver Springs Mutual Water Company (SSMWC). The SSMWC currently operates four production wells and serves approximately 1,079 hook ups (oral communication, SSMWC). This entity reports the amount of groundwater pumped on a quarterly basis, a condition of the permits to appropriate water issued by the State Engineer. This data was used to determine the amount pumped for SSMWC.
- None of the stock water wells are equipped with totalizing meters. Estimates of pumpage were derived from a combination of sources, including information from the BLM, documentation from the water right permit files and the certificated duty for the permit.
- The amount of water pumped by individual domestic wells was estimated by multiplying the number of domestic wells in the valley by a factor of 1 acre-foot. Domestic wells are defined by Nevada Revised Statutes 534.013 as follows: “Domestic use or domestic purposes extends to culinary and household purposes directly related to a single family dwelling, including, without limitation, the watering of a family garden and lawn and the watering of livestock and any other domestic animals or household pets.” The number of domestic wells in the valley was estimated from the records of the State Engineer at approximately 1,185. The number of wells was determined by a query of the Nevada Division of Water Resources’ Well Log Database.

Note that all data herein are estimates and subject to revision.

The total estimated groundwater pumpage for the water year 2008 is **2,352 acre-feet**. The annual duties of permitted, certificated and claims of vested right within the Churchill Valley hydrographic area total approximately **9,395 acre-feet**. The permitted and pumped totals as categorized by manner of use are as follows:

A. Quasi-Municipal

A total of 5,020 acre-feet have been granted for quasi-municipal purposes in the basin. Six hundred and sixty nine acre-feet were estimated to have been pumped during water year 2008.

B. Irrigation

The groundwater duty granted for irrigation in the basin is 3,881 acre-feet, and an estimated 459 acre-feet were pumped during the water year 2008. There is a total of 1,172 acres permitted for irrigation in the basin by groundwater and an estimated 679 acres were irrigated by groundwater during the water year 2008. A significant number of those acres have surface water rights appurtenant as well. This report acknowledges those acres with surface water rights but is not intended to quantify, nor present any definitive place of use of the surface water rights.

C. Commercial / Recreation

A total of 130 acre-feet have been granted for commercial and recreational purposes in the basin. Nineteen acre-feet were estimated to have been pumped during water year 2008.

D. Stock

Fifty-two acre-feet have been granted for stock purposes in the basin. Nineteen acre-feet were estimated to have been pumped during water year 2008.

E. Mining and Milling / Industrial / Other

Three hundred and twelve acre-feet have been granted for mining and milling, industrial and other purposes in the basin. One acre-foot was estimated to have been pumped during water year 2008.

G. Domestic

Zero acre-feet have been permitted for domestic purposes; however, as provided by NRS 534.013, the amount of water pumped for domestic use is estimated at 1,185 acre-feet during the water year 2008.

HYDROGRAPHIC AREA SUMMARY

HYDROGRAPHIC AREA NUMBER	102, REGION 8
HYDROGRAPHIC AREA NAME	CHURCHILL VALLEY
COUNTIES	DOUGLAS, LYON, STOREY CHURCHILL
MAJOR COMMUNITIES	SILVER SPRINGS
DESIGNATED	YES
DENIALS BASED UPON WATER AVAILABILITY	IRRIGATION, COMMERCIAL, QUASI- MUNICIPAL
GROUNDWATER LEVEL MEASUREMENTS	USGS, NDWR
PUMPAGE INVENTORY, ACRE-FEET IN 2008	2,352
YIELD, ACRE-FEET ANNUALLY	
USGS OPEN FILE REPORT 78-768	1,600 (Perennial Yield)
USGS WRRS REPORT 59	1,370 (Annual Recharge)
STATE ENGINEER'S ORDERS	689 – DESIGNATION DATE: AUGUST 23, 1977
COMMITTED GROUNDWATER RESOURCE: 9,395 ACRE-FEET,	DATE: SEPT. 2008
IRRIGATION3,881	QUASI-MUNICIPAL... 5,020
COMMERCIAL35	RECREATIONAL..... 95
	MM/IND/OTHER 312

COMMENTS:

- Domestic Use, as defined by NRS 534.180, totals approximately 1,185 acre-feet for Water Year 2008. The domestic use estimate is based upon a count of the domestic wells in the basin multiplied by 1 acre-foot per annum. The number of domestic wells in the basin was estimated by a query of the Nevada Division of Water Resources' Well Log Database and is approximately 1,185.
- The numbers associated with the committed groundwater resource represent the status for the time frame stated, September 2008. Manner of Use category totals vary over time, as rights are not necessarily static. Rights may be subject to change applications, certification, withdrawals, and cancellations; each of these circumstances would impact the duty, diversion rate and acreage associated with a given right. The value associated with each manner of use category does not include those portions that have been relinquished in support of domestic wells. A total of 2.02 acre-feet have been relinquished in the basin.

REFERENCES CITED

Glancy, P.A., and Katzer, T.L., 1975, Water-Resources Appraisal of the Carson River Basin, Western Nevada: Nevada Division of Water Resources, Reconnaissance Report 59, p. 17, 48, and 51.

Maurer, Douglas K., 1997, Hydrology and Ground-Water Budgets of the Dayton Valley Hydrographic Area, West-Central Nevada: U.S. Geological Survey Water-Resources Investigations Report 97-4123.

Nowlin, Jon O., 1986, Ground-Water Quality in Nevada - A Proposed Monitoring Program: U.S. Geological Survey Open File Report 78-768, p. 195.

U.S. Department of Agriculture, Natural Resources Conservation Service. "Nevada Basin Outlook Report for Carson River Basin." [Online] 4 June 2009. <<http://www.wcc.nrcs.usda.gov/cgibin/newbor2.pl?state=nv&year=2008&month=5&basin=22>>.

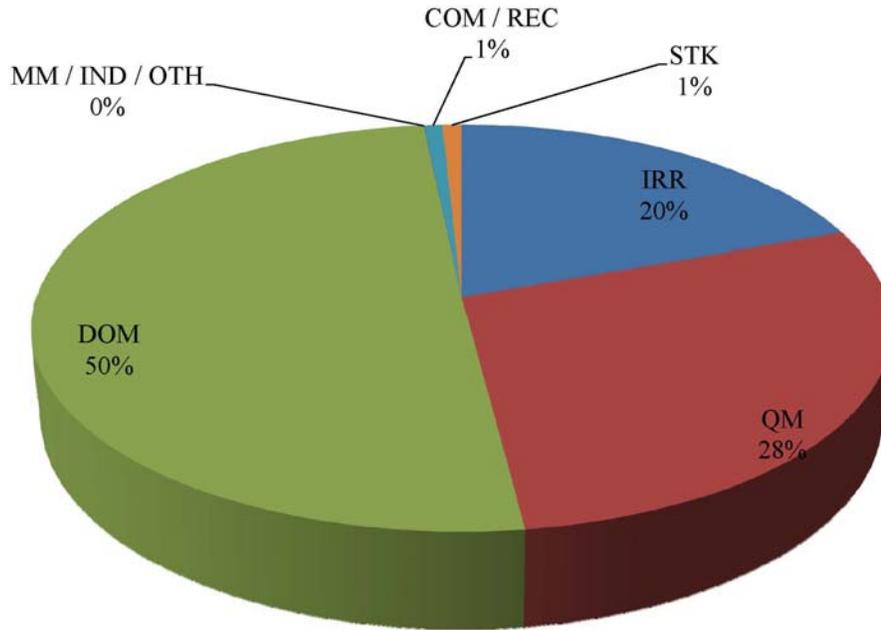
U.S. Department of the Interior, U.S. Geological Survey. "Nevada Water-Data Report 2008." [Online] 4 June 2009. <<http://wdr.water.usgs.gov/wy2008/search.jsp>>.

Western Regional Climate Center. "Western U.S. Climate Historical Summaries." [Online] 19 June, 2009. <<http://www.wrcc.dri.edu/Climsum.html>>

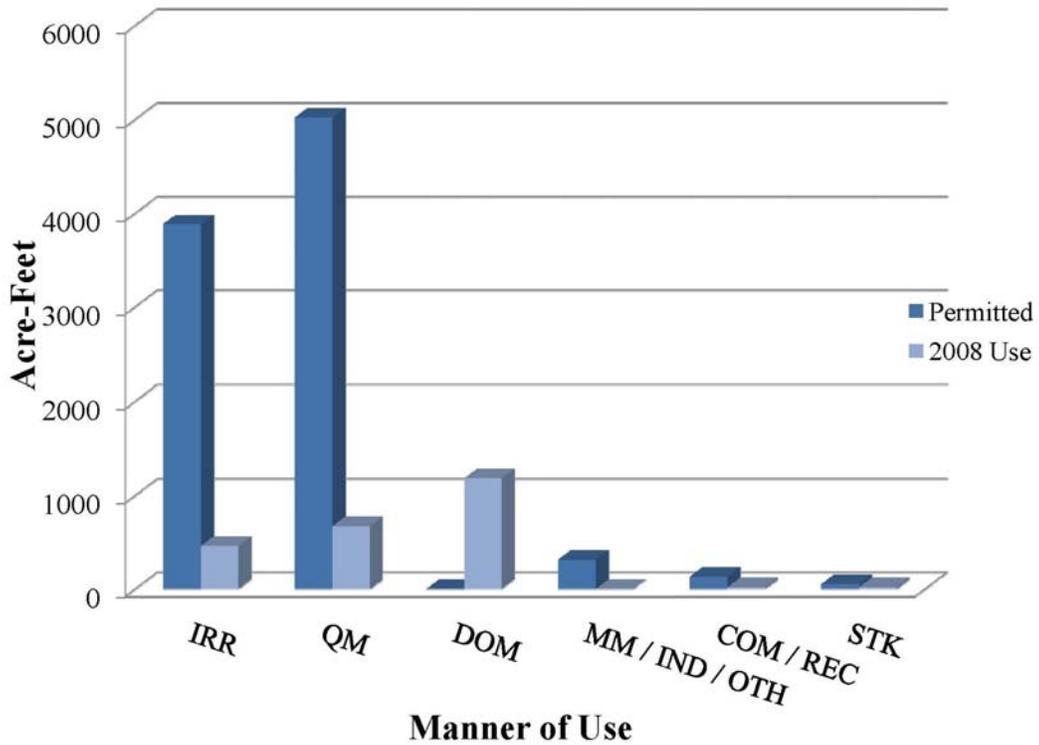
APPENDIX A

CHURCHILL VALLEY GROUNDWATER USE FOR 2008 BY MANNER OF USE

PERCENTAGE OF GROUNDWATER USE 2008 BY MANNER OF USE



GROUNDWATER USE 2008 PERMITTED vs. ACTUAL USAGE



APPENDIX B

CHURCHILL VALLEY GROUNDWATER USE FOR 2008 BY PERMIT NUMBER

Explanation of Column Headings for Groundwater Use by Permit Number

UNIQUE IDENTIFIER	An ID assigned to each well, based on its geographic location.
APP NO.	The file number of the Application to Appropriate/Change Water.
STATUS	Indicates if the application is a Permit (PER) or if it has been certificated. If an application has been certificated, the Certificate number will be listed in the column.
MOU	The manner of use of the appropriated water. COM - Commercial STK - Stock IRR - Irrigation MM - Mining and Milling QM - Quasi-Municipal IND - Industrial REC - Recreational OTH - Other
OWNER OF RECORD	The owner of the water right as recorded in the files of the state engineer. A water right may have more than one owner of record.
QQ	The quarter quarter of the section in which the point of diversion is located.
QTR	The quarter of the section in which the point of diversion is located.
SEC	The section in which the point of diversion is located.
T	The township in which the point of diversion is located.
R	The range in which the point of diversion is located.
PER ACRES	
IRR	The number of acres that are permitted to be irrigated.
DUTY (AF)	The number of acre-feet of water that the permittee may pump. An acre-foot equals 325,851 gallons.
SUPP ADJ	Where more than one permit is appurtenant to the same place of use, the permits are considered supplemental. Permits may be either completely or partially supplemental. In these cases, a total combined duty for the subject permits is employed.
UNIT	AFA stands for acre-feet annually, and AFS stands for acre-feet seasonally. AFS limits water usage to certain months out of the year.
DUTY USED	The amount of water used during water-year 2008, in acre-feet, as determined by review of records and/or field investigation.
SUPP SRC	The source of the supplemental water; UG means underground, CR stands for Carson River.
SUPP GW APP NO.	The file number(s) of any supplemental ground water appropriations.

UNIQUE IDENTIFIER	APP NO.	STATUS	MOU	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES IRR	DUTY (AF)	SUPP ADJ	UNIT	DUTY USED	SUPP SRC	SUPP GW APP NO
102 N16 E26 03DADA1	9906	2818	STK	CASEY, BENJAMIN F.	NE	SE	03	16N	26E		7.86	7.86	AFA	7.86		
102 N18 E24 25ADBB1	17107	5626	QM	ERGS, INC.	SE	NE	25	18N	24E		48.49	48.49	AFA	48.49		
102 N18 E24 27CACB1	17306	5738	QM	LYON COUNTY	NE	SW	27	18N	24E		3.44	3.44	AFA	8.27		
102 N18 E24 25BDA1	19868	6659	IRR	CALICO, MAC V. & CALICO, SALLEE I.	SE	NW	25	18N	24E	91.50	366.00	366.00	AFA	208.00		
102 N18 E25 19CCD1	21800	7405	QM	ERGS, INC.	SW	SW	19	18N	25E		289.58	289.58	AFA	3.36		
102 N17 E24 35CBBD1	22724	6204	REC	PARKS DIVISION-NEVADA	NW	SW	35	17N	24E		56.40	56.40	AFA	0.00		
102 N17 E25 28CBBC1	25345	8019	IRR	PARKS DIVISION-NEVADA	NW	SW	28	17N	25E	569.00	1,925.29	1,925.29	AFA	158.24	CR	
102 N17 E25 31AAD1	26778	9347	IRR	GONZALEZ, RAUL MURILLO	NE	NE	31	17N	25E	50.50	202.00	202.00	AFA	0.00		
102 N17 E24 35ADBA1	27664	10428	IRR	COTTONWOOD SPRINGS, LLC	SE	NE	35	17N	24E	8.00	32.00	32.00	AFA	0.00	CR	
102 N17 E25 18BCAB1	28380	9350	IRR	JOHNSON, L.W.	SW	NW	18	17N	25E	9.70	38.80	38.80	AFA	18.00		
102 N17 E25 31ADDA1	28555	9838	IRR	BONDS, MERLIN D. & CAROL V.	SE	NE	31	17N	25E	3.88	15.52	15.52	AFA	0.00		
102 N18 E25 33CCBB1	30303	10025	REC	PARKS DIVISION-NEVADA	SW	SW	33	18N	25E		27.00	27.00	AFA	2.04	UG	30305
102 N18 E25 33CCAB1	30305	10026	REC	PARKS DIVISION-NEVADA	SW	SW	33	18N	25E		20.16		AFA	0.00	UG	30303
102 N17 E24 34DDDA1	35025	10323	REC	PARKS DIVISION-NEVADA	SE	SE	34	17N	24E		8.59	8.59	AFA	7.47		
102 N17 E24 12DCCD1	35318	15860	QM	JACKSON, MICHAEL T	SW	SE	12	17N	24E		14.02	14.02	AFA	10.26		
102 N16 E24 01BADB1	35627	28090	IRR	PARKS DIVISION-NEVADA	NE	NW	01	16N	24E	150.00	180.95	180.95	AFA	0.00		
102 N18 E25 29DAB1	35987	10616	REC	CONSERVATION AND NATURAL RESOURCES	NE	SE	29	18N	25E		1.23	1.23	AFA	1.06		
102 N18 E25 30AAAB1	36636	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		2,857.79	4,550.56	AFA	293.73	UG	*
102 N18 E24 25ADBB1	36637	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	NE	25	18N	24E		2,133.78		AFA	114.08	UG	*
102 N18 E25 30BBCC1	36638	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NW	NW	30	18N	25E		2,133.78		AFA	152.76	UG	*
102 N18 E25 19CCD1	36639	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SW	SW	19	18N	25E		2,133.78		AFA	0.00	UG	*
102 N18 E24 26DDDD1	36640	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	SE	26	18N	24E		678.82		AFA	0.00	UG	*
102 N18 E24 28ADDA1	38152	11135	IRR	LYON COUNTY	SE	NE	28	18N	24E	9.13	2.00	2.00	AFA	2.00		
102 N17 E25 27ABBA1	38225	9366	IRR	PARKS DIVISION-NEVADA	NW	NE	27	17N	25E	273.30	1,093.20	1,093.20	AFA	69.38	CR	
102 N17 E25 32BDDC1	38968	10427	IRR	CASEY, MICHAEL AND CLAUDIA	NW	NW	32	17N	25E	6.05	24.20	24.20	AFA	1.34		
102 N18 E24 27AAD1	45477	15001	QM	LEPIRE TRUST OF 1977	NE	NE	27	18N	24E		4.34	4.34	AFA	0.01		
102 N16 E25 11ADCB1	46706	11216	STK	DEPAOLI, DEBRA M.	SE	NE	11	16N	25E		2.82	2.82	AFS	2.82		
102 N16 E25 05DCBD1	46707	11217	STK	DEPAOLI, DEBRA M.	SW	SE	05	16N	25E		2.76	2.76	AFS	2.76		
102 N18 E24 33BADA1	46710	13120	QM	LITTLER, EDWINA L.	NE	NW	33	18N	24E		1.32	1.32	AFA	1.32		
102 N14 E23 01ACA1	46885	11142	STK	HUNTSBERGER, RICHARD C.	SW	NE	01	14N	23E		8.68	8.68	AFA	0.67		
102 N15 E24 21CDBD1	46886	11143	STK	HUNTSBERGER, RICHARD C.	SE	SW	21	15N	24E		8.96	8.96	AFA	0.67		
102 N15 E24 31ADAD1	46887	11144	STK	HUNTSBERGER, RICHARD C.	SE	NE	31	15N	24E		8.96	8.96	AFA	0.67		
102 N16 E27 17AB1	46900	11465	STK	DAMONTE RANCH LLC	NW	NE	17	16N	27E		3.25	3.25	AFS	1.72		
102 N18 E25 04ABD1	49465	12635	STK	BLM		LT02	04	18N	25E		4.48	4.48	AFA	1.85		
102 N18 E25 17BAA1	51609	16133	COM	CLEARWATER ENVIRONMENTAL	NE	NW	17	18N	25E		2.02	2.02	AFA	0.11		
102 N18 E24 10ADCD1	52005	PER	MM	TALAPOOSA MINING, INC.	SE	NE	10	18N	24E		306.89	306.89	AFA	0.00		
102 N18 E24 27BDD1	52098	13480	COM	WOJCIECHOWSKI, HENRY	SE	NW	27	18N	24E		12.58	12.58	AFA	1.41		
102 N17 E24 24DAC1	53462	14316	IRR	LAWSON, LAWRENCE M.	NE	SE	24	17N	24E	0.50	2.00	2.00	AFA	2.00		
102 N18 E24 33CABB1	54279	14458	QM	PRISONS DEPARTMENT-NEVADA	NE	SW	33	18N	24E		18.50	18.50	AFA	14.45		
102 N18 E24 24CCDB1	57077	PER	COM	LAHONTAN AIRPORT DEVELOPMENT ASSOC.	SW	SW	24	18N	24E		6.00	6.00	AFA	0.69	UG	57078
102 N18 E24 25BBDB1	57078	PER	COM	LAHONTAN AIRPORT DEVELOPMENT ASSOC.	NW	NW	25	18N	24E		6.00		AFA	0.75	UG	57077
102 N18 E25 30AAAB1	60749	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		38.08		AFA	0.00	UG	*
102 N18 E25 30BBCC1	60751	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NW	NW	30	18N	25E		38.08		AFA	0.00	UG	*
102 N18 E25 19CCD1	60752	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	SW	19	18N	25E		38.08		AFA	0.00	UG	*
102 N18 E24 26DDDD1	60753	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	SE	26	18N	24E		38.08		AFA	0.00	UG	*
102 N18 E24 25ADBB1	62586	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	NE	25	18N	24E		38.08		AFA	0.00	UG	*
102 N18 E24 28CDDC1	62849	PER	QM	MOUNTAINTOP VENTURES, INC.	SE	SW	28	18N	24E		12.09	12.09	AFA	0.00	UG	62850

UNIQUE IDENTIFIER	APP NO.	STATUS	MOU	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES IRR	DUTY (AF)	SUPP ADJ	UNIT	DUTY USED	SUPP SRC	SUPP GW APP NO
102 N18 E24 28CDD1	62850	PER	QM	MOUNTAINTOP VENTURES, INC.	SE	SW	28	18N	24E		12.09		AFA	7.18	UG	62849
102 N18 E25 30AAAB1	62912	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		74.60		AFA	0.00	UG	*
102 N18 E25 30AAAB1	62913	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		74.60		AFA	0.00	UG	*
102 N18 E24 27CC1	63258	PER	QM	LYON COUNTY SCHOOL DISTRICT	SW	SW	27	18N	24E		46.93	46.93	AFA	14.28		
102 N18 E25 30AAAB1	65267	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		28.38	28.38	AFA	0.00		
102 N18 E25 30BBCC1	66171	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NW	NW	30	18N	25E		1.62		AFA	0.00	UG	*
102 N18 E25 30BBCC1	66172	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NW	NW	30	18N	25E		15.99		AFA	0.00	UG	*
102 N18 E25 30BBCC1	66173	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NW	NW	30	18N	25E		8.07		AFA	0.00	UG	*
102 N17 E24 01DADD1	66656	PER	QM	FAITH BAPTIST CHURCH OF SILVER SPR.	NE	SE	01	17N	24E		2.02	2.02	AFA	0.74		
102 N18 E25 17ABDC1	66724	PER	IND	FORSTER, DOROTHY J.	NW	NE	17	18N	25E		2.02	2.02	AFA	0.08		
102 N18 E25 17ABDD1	66740	PER	IND	ELSON, KARLA	NW	NE	17	19N	25E		2.02	2.02	AFA	0.44		
102 N18 E24 35CDD1	67637	PER	COM	KELLY, GENE W. & PAULA J.	SE	SW	35	18N	24E		2.02	2.02	AFA	0.00		
102 N17 E24 35DAAD1	68243	PER	REC	PARKS DIVISION-NEVADA	NE	SE	35	17N	24E		2.02	2.02	AFA	2.02		
102 N18 E24 28ACDA1	68766	PER	STK	ALT, DON	SW	SE	28	18N	24E		4.48	4.48	AFA	0.42		
102 N17 E25 05AABA1	70098	PER	COM	BATY, ELIZABETH A. & MICHAEL	NE	NE	05	17N	25E		2.02	2.02	AFA	0.60		
102 N17 E24 01DABA1	71332	PER	COM	STEAMBOAT WESTERN WEAR	NE	SE	01	17N	24E		1.12	1.12	AFA	0.02		
102 N18 E24 28DCAD1	71964	PER	COM	HANSEN, LINDA	SW	SE	28	18N	24E		1.97	1.97	AFA	0.61		
102 N19 E25 33DDBC1	72087	PER	COM	MUSTANG RANGE & FIREARMS CENTER LTD	SE	SE	33	19N	25E		2.02	2.02	AFA	0.00		
102 N18 E25 30AAAB1	72096	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		204.48		AFA	0.00	UG	*
102 N18 E25 30AAAB1	72097	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	NE	NE	30	18N	25E		50.00		AFA	0.00	UG	*
102 N17 E25 06BCCB1	72236	PER	COM	CORP OF CHRIST JESUS CHRIST OF LDS	SW	NW	06	17N	25E		2.02	2.02	AFA	2.02		
102 N18 E25 30BBCC1	72438	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SW	NW	30	18N	25E		20.00		AFA	0.00	UG	*
No POC filed 9-30-2008	72619	PER	QM	COTTONWOOD SPRINGS, LLC	SE	NE	19	18N	24E		2,128.00		AFA	0.00	UG	*
102 N17 E24 01CADD1	72913	PER	COM	ASSEMBLIES OF GOD	NE	SW	01	17N	24E		2.02	2.02	AFA	0.02		
102 N18 E24 32ACDD1	73007	PER	COM	MCCLELLAND-HAHN, ROBERT & LINDA	SW	NE	32	18N	24E		0.62	0.62	AFA	0.00		
102 N18 E24 32ACDC1	73008	PER	COM	MCCLELLAND-HAHN, ROBERT & LINDA	SW	NE	32	18N	24E		0.62	0.62	AFA	0.00		
102 N18 E24 25ADBB1	73525	PER	QM	SILVER SPRINGS MUTUAL WATER COMPANY	SE	NE	25	18N	24E		45.00		AFA	0.00	UG	*
102 N17 E24 35DAAD2	73590	PER	OTH	PARKS DIVISION - NEVADA	NE	SE	35	17N	24E		0.60	0.60	AFA	0.00		
102 N18 E24 26BDD1	73790	PER	COM	RUSSO, TONY	NW	NW	26	18N	24E		0.24	0.24	AFA	0.00		
102 N18 E24 28ACDA1	V09390	VST	STK	ALT, DON	SW	NE	28	18N	24E		0.00		AFA	0.00		

*Silver Springs Mutual Water Company: 36636, 36637, 36638, 36639, 36640, 60749, 60751, 60752, 60753, 62586, 62912, 62913, 66171, 66172, 66173, 72096, 72097, 72438, 72619, 73525

APPENDIX C

**CHURCHILL VALLEY 2008 PLACE OF USE OF GROUNDWATER PERMITS AND
CERTIFICATES FOR IRRIGATION**

Explanation of Column Headings for Place of Use of Groundwater Irrigation Rights

APP NO.	The file number of the Application to Appropriate/Change Water.
STATUS	Indicates if the application is a Permit (PER) or if it has been certificated. If an application has been certificated, the Certificate number will be listed in the column.
OWNER OF RECORD	The owner of the water right as recorded in the files of the state engineer. A water right may have more than one owner of record.
QQ	The quarter quarter of the section in which the point of diversion is located.
QTR	The quarter of the section in which the point of diversion is located.
SEC	The section in which the point of diversion is located.
T	The township in which the point of diversion is located.
R	The range in which the point of diversion is located.
PER ACRES	The number of acres, by quarter quarter that are permitted to be irrigated.
PER IRR ACRES 2008	The number of acres irrigated within the place of use of the associated permit, during water-year 2008, as determined by field inspection.
SUPP ACRES	The number of acres by quarter quarter that have more than one appropriation appurtenant.
SUPP SOURCE	Source of the supplemental water, UG (ground water) or CR (Carson River).
SUPP APP NO.	The file number of the supplemental water, DCR stands for Decreed Carson River.

APP NO.	STATUS	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES	PER IRR ACRES 2008	SUPP ACRES	SUPP SOURCE	SUPP APP NO.
19868	6659	CALICO, MAC V. & CALICO, SALLEE I.	NE	NW	25	18N	24E	11.5	0			
19868	6659		SE	NW	25	18N	24E	40	28.4			
19868	6659		SW	NW	25	18N	24E	40	23.3			
			Total Acres:				91.5	51.7	0			
25345	8019	PARKS DIVISION-NEVADA	NW	NW	28	17N	25E	20	20	20	CR	788DCR
25345	8019		NE	NW	28	17N	25E	35	35	35	CR	788DCR
25345	8019		SW	NW	28	17N	25E	40	40	40	CR	788DCR
25345	8019		SE	NW	28	17N	25E	40	40	40	CR	788DCR
25345	8019		NW	SW	28	17N	25E	38	38	38	CR	788DCR
25345	8019		NE	SW	28	17N	25E	40	40	40	CR	788DCR
25345	8019		NW	NE	28	17N	25E	40	40	40	CR	788DCR
25345	8019		NE	NE	28	17N	25E	32	32	16	CR	788DCR
25345	8019		SW	NE	28	17N	25E	31	31	26	CR	788DCR
25345	8019		SE	NE	28	17N	25E	19	19	3	CR	788DCR
25345	8019		NW	SE	28	17N	25E	13	13	5	CR	788DCR
25345	8019		SE	NE	29	17N	25E	10	10	10	CR	788DCR
25345	8019		NW	SE	21	17N	25E	6	6	6	CR	788DCR
25345	8019		NE	SE	21	17N	25E	30	30	30	CR	788DCR
25345	8019		SW	SE	21	17N	25E	33	33	33	CR	788DCR
25345	8019		SE	SE	21	17N	25E	40	40	37	CR	788DCR
25345	8019		NW	SW	22	17N	25E	40	40	27	CR	788DCR
25345	8019		NE	SW	22	17N	25E	33	33			
25345	8019		SW	SW	22	17N	25E	22	22	14	CR	788DCR
25345	8019		SE	SW	22	17N	25E	7	7			
			Total Acres:				569	569	460			
26778	9347	GONZALEZ, RAUL MURILLO	NE	NE	31	17N	25E	37.5	0			
26778	9347		NW	NE	31	17N	25E	13	0			
			Total Acres:				50.5	0	0			
27664	10428	COTTONWOOD SPRINGS, LLC	NE	SE	35	17N	24E	3	0	3	CR	783DCR
27664	10428		NW	SW	36	17N	24E	5	0	5	CR	784DCR
			Total Acres:				8	0	8			
28380	9350	JOHNSON, L.W.	SW	NW	18	17N	25E	9.7	4.5			
			Total Acres:				9.7	4.5	0			
28555	9838	BONDS, MERLIN D. & CAROL V.	SE	NE	31	17N	25E	3.88	0			
			Total Acres:				3.88	0	0			
35627	10437	PARKS DIVISION - NEVADA	NE	NW	1	16N	24E	15	0	10	CR	784DCR
35627	10437		NW	NE	1	16N	24E	32	0	19	CR	784DCR
35627	10437		NE	NE	1	16N	24E	21	0			
35627	10437		NW	NW	6	16N	25E	12	0			

APP NO.	STATUS	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES	PER IRR ACRES 2008	SUPP ACRES	SUPP SOURCE	SUPP APP NO.
35627	10437		NE	NW	6	16N	25E	18	0	5	CR	784DCR
35627	10437		NW	NE	6	16N	25E	28	0	11	CR	784DCR
35627	10437		NE	NE	6	16N	25E	24	0	8	CR	784DCR
Total Acres:							150	0	53⁺			
38152	11135	LYON COUNTY	SE	NE	28	18N	24E	9.13	9.13			
Total Acres:							9.13	9.13	0			
38225	9366	PARKS DIVISION-NEVADA	SW	SW	22	17N	25E	1.6	0	1.6	CR	791DCR
38225	9366		SE	SW	22	17N	25E	19.3	0	17	CR	791DCR
38225	9366		SW	SE	22	17N	25E	15.4	8.63	*	CR	791DCR
38225	9366		SE	SE	22	17N	25E	31.7	23.25	*	CR	791DCR
38225	9366		SW	SW	23	17N	25E	1.5	0			
38225	9366		NW	NW	27	17N	25E	12.4	0	12.4	CR	791DCR
38225	9366		NE	NW	27	17N	25E	33.3	0	*	CR	791DCR
38225	9366		NW	NE	27	17N	25E	22.1	10.15			
38225	9366		SW	NW	27	17N	25E	39.8	0	27	CR	791DCR
38225	9366		SE	NW	27	17N	25E	24.5	0			
38225	9366		NW	SW	27	17N	25E	35.7	0			
38225	9366		NE	SW	27	17N	25E	12.7	0			
38225	9366		SE	NE	28	17N	25E	10.5	0	9	CR	791DCR
38225	9366	NE	SE	28	17N	25E	12.8	0	*	CR	791DCR	
Total Acres:							273.3	42.03	67*			
38968	10427	CASEY, MICHAEL AND CLAUDIA	NW	NW	32	17N	25E	6.05	2.6			
Total Acres:							6.05	2.6	0			
53462	14316	LAWSON, LAWRENCE M.	NE	SE	24	17N	24E	0.5	0.5			
Total Acres:							0.5	0.5	0			

*Supplemental Acres to Carson River are preliminary acres

*Supplemental Acres to the Carson River have not yet been determined.

APPENDIX D

CHURCHILL VALLEY HISTORICAL PUMPAGE

HISTORICAL PUMPAGE BY POINT OF DIVERSION

UNIQUE IDENTIFIER	APP NO.	MOU	OWNER OF RECORD	DUTY USED 2004	DUTY USED 2005	DUTY USED 2006	DUTY USED 2007	DUTY USED 2008
102 N14 E23 01ACA1	46885	STK	HUNTSBERGER, RICHARD C.	8.68	2.03	8.68	8.68	0.67
102 N15 E24 21CDBD1	46886	STK	HUNTSBERGER, RICHARD C.	8.96	2.03	8.96	8.96	0.67
102 N15 E24 31ADAD1	46887	STK	HUNTSBERGER, RICHARD C.	8.96	2.03	8.96	8.96	0.67
102 N16 E24 01BADB1	35627	IRR	PARKS DIVISION-NEVADA			0.00	0.00	0.00
102 N16 E25 05DCBD1	46707	STK	DEPAOLI, DEBRA M.	2.76	2.76	2.82	2.76	2.76
102 N16 E25 11ADCB1	46706	STK	DEPAOLI, DEBRA M.	2.82	2.82	2.82	2.82	2.82
102 N16 E26 03DADA1	9906	STK	CASEY, BENJAMIN F.	7.86	7.86	7.86	7.86	7.86
102 N16 E27 17AB1	46900	STK	DAMONTE RANCH LLC	3.25	3.25	3.25	3.25	1.72
102 N17 E24 01CADD1	72913	COM	ASSEMBLIES OF GOD			0.00	0.00	0.02
102 N17 E24 01DABA1	71332	COM	STEAMBOAT WESTERN WEAR		0.60	1.12	0.15	0.02
102 N17 E24 01DADD1	66656	QM	FAITH BAPTIST CHURCH OF SILVER SPR.	2.02	0.76	0.67	0.54	0.74
102 N17 E24 12CCD1	35318	QM	JACKSON, MICHAEL T	11.18	14.02	8.77	10.92	10.26
102 N17 E24 24DAC1	53462	IRR	HOLLER, EMMA THOMSEN	2.00	2.00	2.00	2.00	2.00
102 N17 E24 34DDDA1	35025	REC	PARKS DIVISION-NEVADA	8.60	8.60	8.59	8.72	7.47
102 N17 E24 35ADBA1	27664	IRR	COTTONWOOD SPRINGS, LLC	0.00	0.00	38.55	57.00	0.00
102 N17 E24 35CBBD1	22724	REC	PARKS DIVISION-NEVADA	0.00	0.00	0.00	0.00	0.00
102 N17 E24 35DAAD1	68243	REC	PARKS DIVISION-NEVADA	0.00	0.00	0.00	1.12	2.02
102 N17 E24 35DAAD2	73590	OTH	PARKS DIVISION-NEVADA			0.00	0.00	0.00
102 N17 E25 05AABA1	70098	COM	BATY, ELIZABETH A. & MICHAEL	2.02	2.02	2.02	0.00	0.60
102 N17 E25 06BCCB1	72236	COM	CORP OF CHRIST JESUS CHRIST OF LDS			2.02	2.02	2.02
102 N17 E25 18BCAB1	28380	IRR	JOHNSON, L.W.	38.80	38.80	38.80	38.80	18.00
102 N17 E25 27ABBA1	38225	IRR	PARKS DIVISION-NEVADA	63.50	48.19	42.91	89.22	69.38
102 N17 E25 28CBBC1	25345	IRR	PARKS DIVISION-NEVADA	0.00	16.20	21.10	311.00	158.24
102 N17 E25 31AAAD1	26778	IRR	GONZALEZ, RAUL MURILLO	0.00	0.00	0.00	0.00	0.00
102 N17 E25 31ADDA1	28555	IRR	BONDS, MERLIN D. & CAROL V.	80.00	36.00	0.00	0.00	0.00
102 N17 E25 32BBDC1	38968	IRR	CASEY, MICHAEL AND CLAUDIA	7.20	7.20	7.20	5.00	1.34
102 N18 E24 10ADCD1	52005	MM	TALAPOOSA MINING, INC.	0.00	0.00	0.00	0.00	0.00
102 N18 E24 24CCDB1	57077	COM	LAHONTAN AIRPORT DEVELOPMENT ASSOC.	2.02	2.02	0.81	0.77	0.69
102 N18 E24 25ADBB1	17107, 36637, 62586, 73525	QM	ERGS, INC. / SILVER SPRINGS MUTUAL WATER COMPANY	167.11	135.23	164.36	210.00	162.57
102 N18 E24 25BBDB1	57078	COM	LAHONTAN AIRPORT DEVELOPMENT ASSOC.	5.97	1.17	0.73	3.34	0.75
102 N18 E24 25BDAA1	19868	IRR	CALICO, MAC V. & CALICO, SALLEE I.	0.00	0.00	268.00	268.00	208.00
102 N18 E24 26BBDD1	73790	COM	RUSSO, TONY			0.00	0.00	0.00
102 N18 E24 26DDDD1	36640, 60753	QM	SILVER SPRINGS MUTUAL WATER COMPANY	0.00	0.00	0.00	2.90	0.00
102 N18 E24 27AAD1	45477	QM	LEPIRE TRUST OF 1977	4.36	4.36	0.04	0.04	0.01
102 N18 E24 27BDD1	52098	COM	WOJCIECHOWSKI, HENRY	12.60	12.60	4.74	2.44	1.41
102 N18 E24 27CACB1	17306	QM	LYON COUNTY	3.44	38.30	3.44	3.44	8.27
102 N18 E24 27CC1	63258	QM	LYON COUNTY SCHOOL DISTRICT	46.93	8.00	8.00	14.71	14.28
102 N18 E24 28ACDA1	68766, V09390	STK	ALT, DON	4.84	4.84	4.84	4.84	0.42
102 N18 E24 28ADDA1	38152	IRR	LYON COUNTY	2.00	2.00	2.00	2.00	2.00
102 N18 E24 28CDBB1	62850	QM	MOUNTAINTOP VENTURES, INC.	9.75	8.30	9.38	8.58	7.18
102 N18 E24 28CDDC1	62849	QM	MOUNTAINTOP VENTURES, INC.	0.00	0.00	0.00	0.00	0.00
102 N18 E24 28DCAD1	71964	COM	HANSEN, LINDA			0.00	0.00	0.61

HISTORICAL PUMPAGE BY POINT OF DIVERSION

UNIQUE IDENTIFIER	APP NO.	MOU	OWNER OF RECORD	DUTY USED 2004	DUTY USED 2005	DUTY USED 2006	DUTY USED 2007	DUTY USED 2008
102 N18 E24 32ACDC1	73008	COM	MCCLELLAND-HAHN, ROBERT & LINDA			0.00	0.00	0.00
102 N18 E24 32ACDD1	73007	COM	MCCLELLAND-HAHN, ROBERT & LINDA			0.00	0.00	0.00
102 N18 E24 33BADA1	46710	QM	LITTLER, EDWINA L.	1.32	1.32	0.06	0.01	1.32
102 N18 E24 33CABB1	54279	QM	PRISONS DEPARTMENT-NEVADA	18.50	19.23	17.70	16.33	14.45
102 N18 E24 35CDDD1	67637	COM	KELLY, GENE W. & PAULA J.	2.02	0.50	0.00	1.12	0.00
102 N18 E25 04ABD1	49465	STK	BLM	4.48	4.35	4.48	4.48	1.85
102 N18 E25 17ABDC1	66724	IND	FORSTER, DOROTHY J.	0.00	1.00	1.00	1.00	0.08
102 N18 E25 17ABDD1	66740	IND	ELSON, KARLA			0.21	0.57	0.44
102 N18 E25 17BAA1	51609	COM	CLEARWATER ENVIRONMENTAL	3.36	0.14	0.16	0.22	0.11
102 N18 E25 19CCD1	21800, 36639, 60752	QM	ERGS, INC. / SILVER SPRINGS MUTUAL WATER COMPANY	30.79	14.22	2.70	2.79	3.36
102 N18 E25 29DAB1	35987	REC	CONSERVATION AND NATURAL RESOURCES	1.23	7.15	4.38	1.25	1.06
102 N18 E25 30AAAB1	36636, 60749, 62912, 62913, 65267, 72096, 72097	QM	SILVER SPRINGS MUTUAL WATER COMPANY	313.83	334.02	295.30	259.42	293.73
102 N18 E25 30BBCC1	36638, 60751, 66171, 66172, 66173, 72438	QM	SILVER SPRINGS MUTUAL WATER COMPANY	159.97	140.78	203.10	193.37	152.76
102 N18 E25 33CCAB1	30305	REC	PARKS DIVISION-NEVADA	0.00	0.00	0.00	0.00	0.00
102 N18 E25 33CCBB1	30303	REC	PARKS DIVISION-NEVADA	27.00	0.66	0.70	3.66	2.04
102 N19 E25 33DDBC1	72087	COM	MUSTANG RANGE & FIREARMS CENTER LTD			0.00	0.00	0.00
No POC filed 9-30-2008	72619	QM	COTTONWOOD SPRINGS, LLC					0.00

HISTORICAL GROUNDWATER USE BY MANNER OF USE

	2004	2005	2006	2007	2008
COM	28	19	12	10	6
IND	0	1	1	2	1
IRR	194	150	421	773	459
MM	0	0	0	0	0
OTH	0	0	0	0	0
QM	769	719	714	723	669
REC	37	16	14	15	13
STK	53	32	53	53	19

