

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

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GARNET VALLEY
(HYDROGRAPHIC BASIN 13-216)

GROUNDWATER PUMPAGE INVENTORY

CALENDAR YEAR 2014

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TABLE OF CONTENTS

ABSTRACT	1
HYDROGRAPHIC BASIN SUMMARY	2
PURPOSE AND SCOPE	3
DESCRIPTION OF THE STUDY AREA	3
GROUNDWATER LEVELS	3
FIGURE 1. PHYSIOGRAPHIC MAP OF GARNET VALLEY, HYDROGRAPHIC BASIN 13-216	4
METHODS TO ESTIMATE PUMPAGE	5
PUMPAGE BY MANNER OF USE	6
APPENDIX A. GARNET VALLEY HISTORICAL PUMPAGE.	7
APPENDIX B. GARNET VALLEY GROUNDWATER PUMPAGE FOR CALENDAR YEAR 2014 BY MANNER OF USE.	10
APPENDIX C. GARNET VALLEY GROUNDWATER PUMPAGE INVENTORY FOR CALENDAR YEAR 2014	12

ABSTRACT

This inventory represents the status and pumpage of all permitted, certificated and claims of vested right groundwater rights located within Garnet Valley, Hydrographic Basin 13-216, for calendar year 2014 (January 1, 2014 through December 31, 2014). Also included is data associated with depth to groundwater.

The data presented are valid for the time period of this report, and may vary from previously published data as water rights within the basin are subject to administrative action, such as certification, cancellation, forfeiture, or withdrawal on a continuing basis.

For calendar year 2014 the permitted, certificated and claims of vested right groundwater rights totaled **3,366 acre-feet**. Estimated pumpage for the calendar year was **1,568 acre-feet**. For calendar year 2014, appropriations for municipal (the largest manner of use in the basin) totaled 2,275 acre-feet and the pumpage was 915 acre-feet. The second largest manner of use was industrial, with appropriations totaling 615 acre-feet and pumpage of 492 acre-feet. The third largest manner of use was mining & milling, with appropriations totaling 284 acre-feet and the pumpage of 132 acre-feet.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER..... 216, REGION 13
HYDROGRAPHIC BASIN NAME GARNET VALLEY
COUNTIES..... CLARK
COMMUNITIES APEX
DESIGNATED YES
DENIALS BASED UPON WATER AVAILABILITY IRRIGATION
GROUNDWATER LEVEL MEASUREMENTS NDWR, SNWA
ESTIMATED PUMPAGE INVENTORY, ACRE-FEET IN 2014..... 1,568*

STATE ENGINEER'S ORDERS

[1025](#) - DESIGNATION & PREFERRED USE..... APRIL 24, 1990
[1169](#) - FURTHER STUDY..... MARCH 8, 2002
[1169a](#) - FURTHER STUDY..... DECEMBER 21, 2012

COMMITTED GROUNDWATER RESOURCE: 3,366 ACRE-FEET.... DATE: JUNE 2015

MUNICIPAL2,275 INDUSTRIAL 615 MINING&MILLING ... 284

QUASI-MUNICIPAL... 178 COMMERCIAL 14

NOTE: Committed groundwater resource data are accurate for June 2015. Manner of use category totals vary over time, as water rights (rights) are not necessarily static. Rights may be subject to change applications, certification, withdrawals, forfeiture and cancellations; each of these circumstances could impact the duty, diversion rate and acreage associated with a given right.

*Includes pumpage by exempt domestic wells, as defined by NRS 534.013. The domestic use estimate is based upon a count of the total domestic wells in the basin multiplied by 1 acre-foot per annum. The number of domestic wells in the basin, obtained by a query of the [Nevada Division of Water Resources Well Log Database](#), is estimated to be 0.

PURPOSE AND SCOPE

The purpose of this report is to inventory all of the groundwater resources allocated and described by the Office of the State Engineer, Nevada Division of Water Resources (NDWR), and to estimate the amount of groundwater pumped within the Garnet Valley Hydrographic Basin (13-216), for the time period beginning January 1, 2014 and ending December 31, 2014 (hereafter referred to as calendar year 2014). This report estimates the amount of groundwater pumped under the permits and certificates issued by the State Engineer, claims of vested right, and the amount pumped by exempt domestic wells within the basin. Associated information, such as groundwater level measurements, is also presented.

DESCRIPTION OF THE STUDY AREA

Garnet Valley is a small basin located in southeastern Nevada, approximately 28 miles northeast of Las Vegas. The basin is located within Clark County (see Figure 1), within the Colorado River Hydrographic Region.

Garnet Valley is bounded on the east by the Dry Valley Range. The Las Vegas Range forms the south and west boundary. The northern part of Garnet Valley is dissected by the Arrow Canyon Range. The adjacent Nevada hydrographic basins are as follows: California Wash (13-218), to the east; Black Mountains Area (13-215), to the southeast; Las Vegas Valley (13-212), to the south and west; and Hidden Valley (13-217), to the north. The exterior boundary of the Garnet Valley Hydrographic Basin is as described by Designation Order 1025, issued by the Nevada State Engineer April 24, 1990. The basin covers approximately 167 square miles.

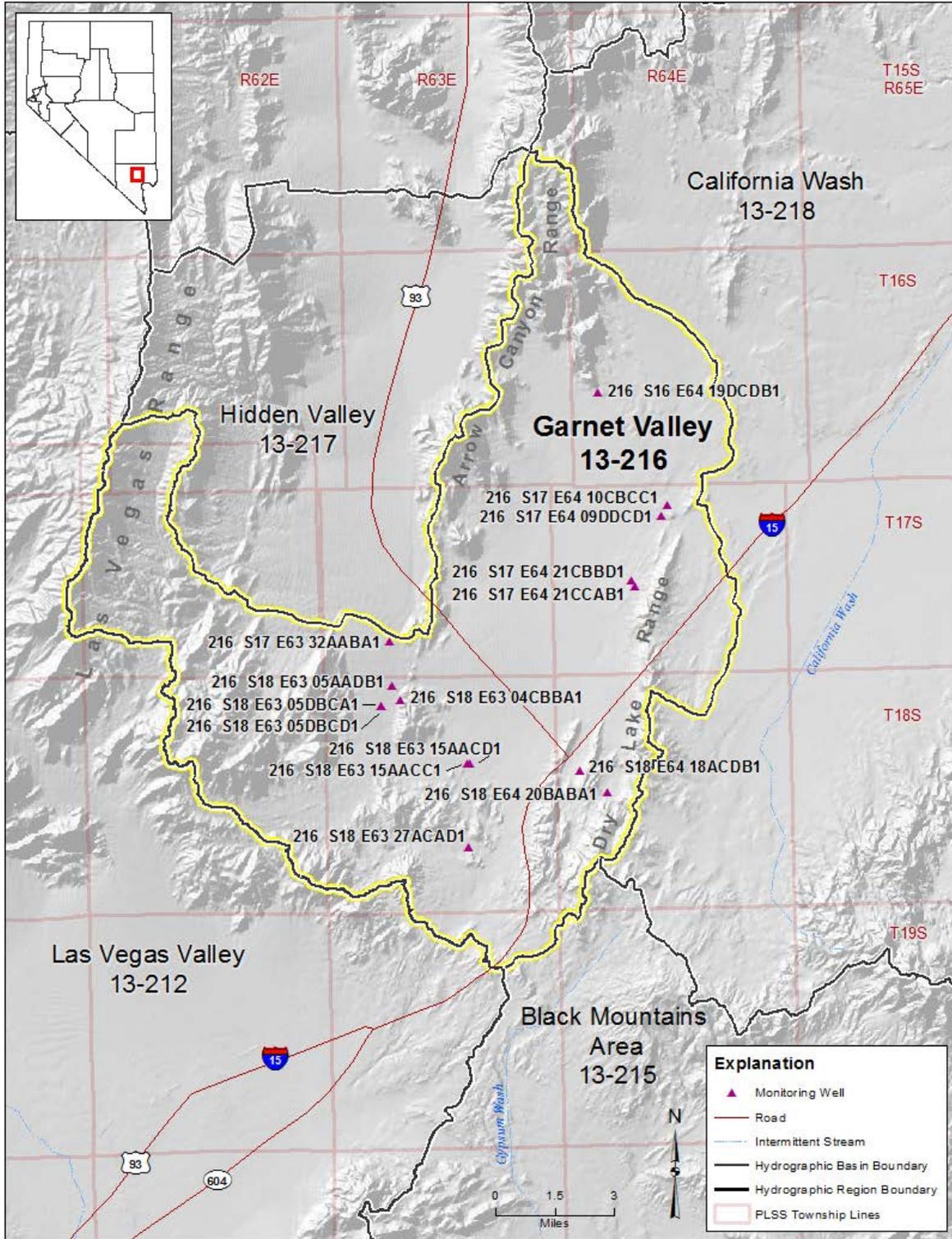
GROUNDWATER LEVELS

Depths to groundwater in are measured by multiple entities in the basin. Sites for which water level data are reported to NDWR (Figure 1) on a semi-annual basis include:

216 S16 E64 19DCDB1	216 S17 E63 32AABA1	216 S17 E64 09DDCD1
216 S17 E64 10CBCC1	216 S17 E64 21CBBD1	216 S18 E63 04CBBA1
216 S18 E63 05AADB1	216 S18 E63 05DBCA1	216 S18 E63 05DBCD1
216 S18 E63 15AACCI	216 S18 E63 15AACD1	216 S18 E63 27ACAD1
216 S18 E64 18ACDB1	216 S18 E64 20BABA1	

Additional water level and site data can be obtained on the NDWR website (<http://water.nv.gov>). Groundwater level data have also been collected by the US Geological Survey (USGS) and may be accessed through their website (<http://nevada.usgs.gov/>).

FIGURE 1. PHYSIOGRAPHIC MAP OF GARNET VALLEY, HYDROGRAPHIC BASIN 13-216.



METHODS TO ESTIMATE PUMPAGE

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

- Where totalizing meters are in place, meter readings were taken and compared with previous data (if available).
- Where meters were not in place and the use was irrigation, pumpage was estimated by multiplying the number of hours the well was operated during the past year (determined from an hour meter reading or asking the water user) by the certificated diversion rate.
- Where there are no flow meters or other reliable options for estimating pumpage and the use was irrigation, pumpage was estimated by dividing the Net Irrigation Water Requirement (NIWR) for the crop grown by the efficiency of the irrigation method used, then multiplying by the number of acres irrigated. Irrigation efficiencies associated with three types of irrigation methods are: pivot at 85%; wheel line or other hand moved sprinklers at 75%; and flood at 60%. The pumpage amount estimated by this method was limited by the duty of the permit. For places where the groundwater rights are supplemental to surface water, groundwater use is estimated using the NIWR method above, but is adjusted based on available surface water for the year. Evapotranspiration and NIWR data by basin can be found on the NDWR website at: http://water.nv.gov/mapping/et/et_general.cfm. This approach using the NIWR to estimate pumpage was not used in previous inventories, and pumpage estimates for 2014 may differ significantly from estimates of previous years.
- Where meters were not present, previous data were not available, and the manner of use was not irrigation, pumpage was estimated by applying the annual duty associated with the certificate (if the water right was perfected), permit or claim, if the use was as described in the certificate, permit or claim. If the use was not as described in the certificate, permit or claim, a value was estimated based upon the circumstances of use for the subject year.
- Exempt domestic wells may be drilled and utilized where water service from a purveyor is not available. These types of wells do not require a permit from the State Engineer if they do not pump more than 2 acre-feet per year as provided by Nevada Revised Statutes (NRS) [534.180](#). [NRS 534.013](#) defines this category of domestic use 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 exempt domestic wells in the basin was determined by querying the NDWR Well Log Database. The amount of water pumped by exempt domestic wells is estimated to be 1 acre-foot per well in Garnet Valley.

PUMPAGE BY MANNER OF USE

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

The total estimated groundwater pumpage for calendar year 2014 was **1,568 acre-feet**. The annual duties of the certificates, permits and claims of vested right within the Garnet Valley Hydrographic Basin totaled **3,366 acre-feet**. For calendar year 2014, the appropriated and actual pumped totals are categorized by manner of use:

A. Municipal (MUN)

Appropriations for municipal purposes totaled 2,275 acre-feet, with estimated groundwater pumpage of 915 acre-feet.

B. Industrial (IND)

Appropriations for industrial purposes totaled 615 acre-feet, with estimated groundwater pumpage of 492 acre-feet.

C. Mining & Milling (MM)

Appropriations for mining & milling purposes totaled 284 acre-feet, with estimated pumpage of 132 acre-feet.

D. Quasi-Municipal (QM)

Appropriations for quasi-municipal purposes totaled 178 acre-feet, with groundwater pumpage estimated at 16 acre-feet.

E. Commercial (COM)

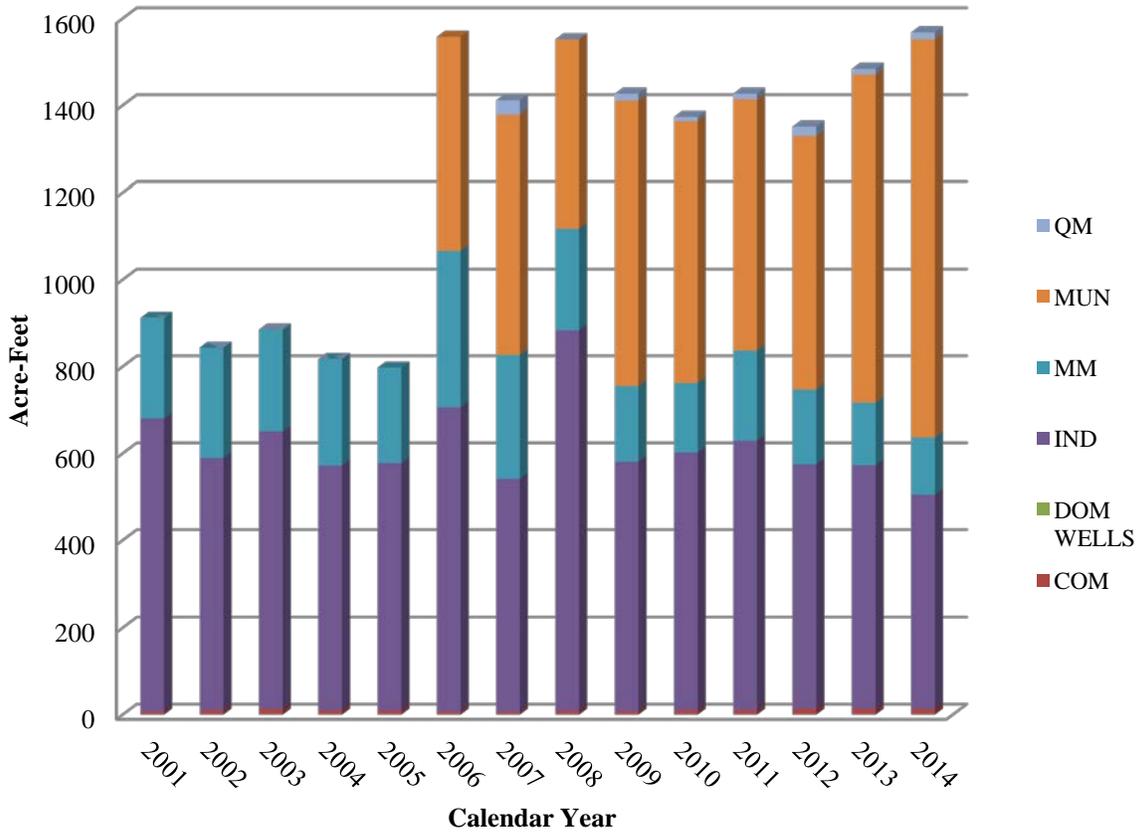
Appropriations for commercial purposes totaled 14 acre-feet, with estimated groundwater pumpage of 13 acre-feet.

APPENDIX A. GARNET VALLEY HISTORICAL PUMPAGE.

HISTORICAL GROUNDWATER PUMPAGE BY MANNER OF USE

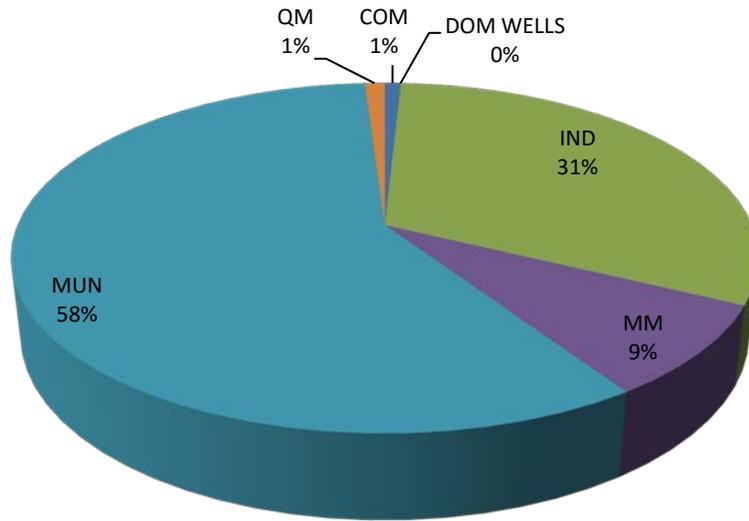
YEAR	COM	DOM	IND	MM	MUN	QM	TOTAL
2001	7	0	674	231	0	0	912
2002	10	0	579	254	0	0	844
2003	13	0	637	234	0	0	885
2004	10	0	562	245	0	0	817
2005	10	0	568	220	0	0	797
2006	7	0	699	360	492	0	1558
2007	6	0	535	285	552	33	1412
2008	9	0	874	234	435	0	1552
2009	8	0	573	174	656	16	1427
2010	10	0	592	160	601	10	1373
2011	10	0	619	208	577	13	1427
2012	14	0	561	172	583	21	1351
2013	14	0	559	144	754	13	1484
2014	13	0	492	132	915	16	1568

All values are in acre-feet

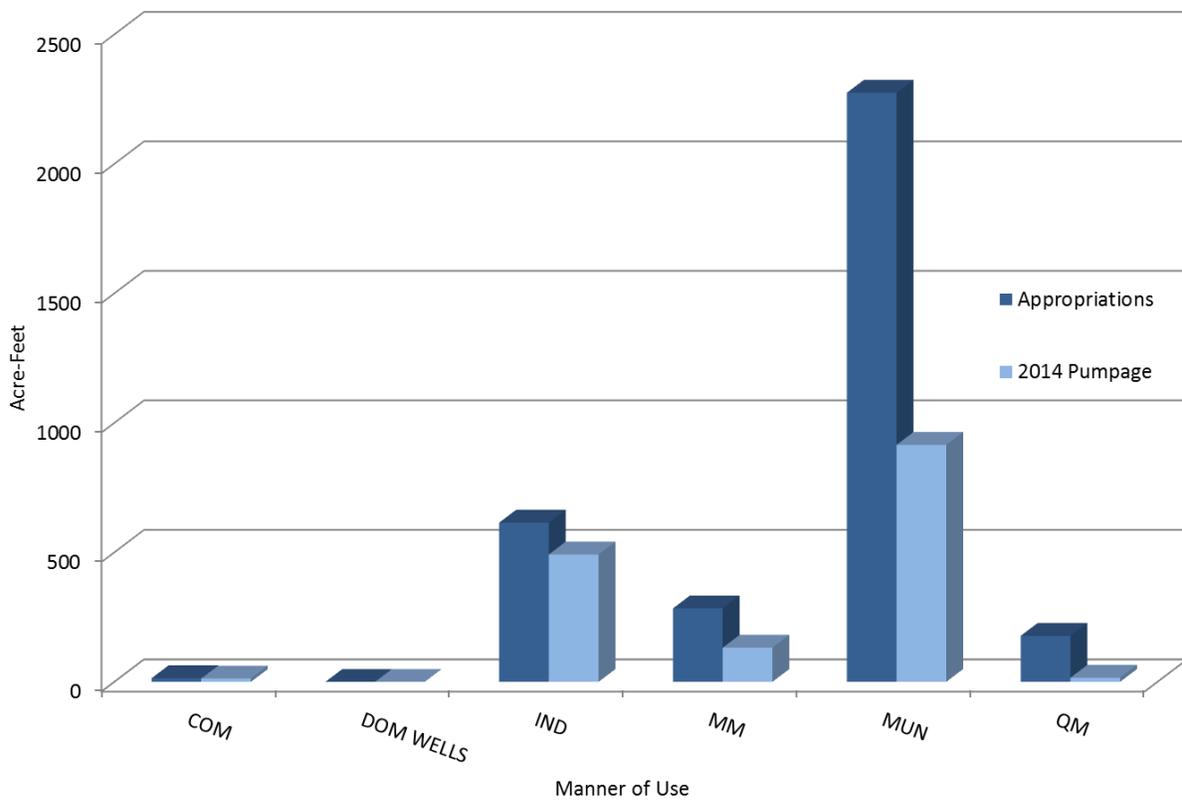


**APPENDIX B. GARNET VALLEY GROUNDWATER PUMPAGE FOR
CALENDAR YEAR 2014 BY MANNER OF USE.**

PERCENTAGE OF GROUNDWATER PUMPAGE FOR CALENDAR YEAR 2014 BY MANNER OF USE



GROUNDWATER PUMPAGE FOR CALENDAR YEAR 2014 APPROPRIATIONS VS. ACTUAL PUMPAGE



**APPENDIX C. GARNET VALLEY GROUNDWATER PUMPAGE INVENTORY
FOR CALENDAR YEAR 2014.**

EXPLANATION OF COLUMN HEADINGS FOR GROUNDWATER PUMPAGE INVENTORY

APP NUMBER	The file number of the Application or the Vested Claim of Right.																
STATUS	Indicates if the application is a Vested Claim of Right (VST), a Permit (Permit), or a Certificate (Cert).																
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.																
ACRES OR DUTY	The number of acres that are permitted to be irrigated or the duty if the manner of use is anything other than irrigation.																
ACRES IRR OR USE	The number of acres irrigated or the manner of use of the appropriated water. The types of manner of use may include: <table border="0" style="margin-left: 20px;"> <tr> <td>COM - Commercial</td> <td>CON - Construction</td> </tr> <tr> <td>DOM - Domestic</td> <td>ENV - Environmental</td> </tr> <tr> <td>IND - Industrial</td> <td>IRR - Irrigation</td> </tr> <tr> <td>MM - Mining & Milling</td> <td>MUN - Municipal</td> </tr> <tr> <td>OTH - Other</td> <td>PWR - Power</td> </tr> <tr> <td>QM - Quasi-Municipal</td> <td>REC - Recreation</td> </tr> <tr> <td>STK - Stockwater</td> <td>STO - Storage</td> </tr> <tr> <td>WLD - Wildlife</td> <td></td> </tr> </table>	COM - Commercial	CON - Construction	DOM - Domestic	ENV - Environmental	IND - Industrial	IRR - Irrigation	MM - Mining & Milling	MUN - Municipal	OTH - Other	PWR - Power	QM - Quasi-Municipal	REC - Recreation	STK - Stockwater	STO - Storage	WLD - Wildlife	
COM - Commercial	CON - Construction																
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OTH - Other	PWR - Power																
QM - Quasi-Municipal	REC - Recreation																
STK - Stockwater	STO - Storage																
WLD - Wildlife																	
USED (AF)	The amount of water used during the calendar year, in acre-feet, as determined by review of records and/or field investigation.																
REMARKS	Notes pertaining to field investigation and/or review of records.																

**GROUNDWATER PUMPAGE INVENTORY
GARNET VALLEY, NO. 216
2014**

APP NUMBER	STATUS	OWNER OF RECORD	PLACE OF USE					ACRES OR DUTY	ACRES IRR OR USE	USED (A/F)	REMARKS
			QQ	Qtr	Sec	T	R				
54073 68822	Permit Permit	LVVWD			CLARK COUNTY LINCOLN COUNTY NYE COUNTY WHITE PINE COUNTY			150.21	MUN	43.85	54073: WV, no works 04-26-12 Plotted POD is in the SW SW of Section 32 17S 63E; well drilled in Section 4 18S 63E.
56855	Cert	Georgia Pacific Corp.	SE	NE	34	18	63	144.15	IND	69.56	S/N 69045705 New Meter RD - 01084200 - 04-09-10 RD - 45442600 - 04-08-11
63261 64880	Cert Cert	Chemical Lime Co.	NE SW	NE SE	14 23	18 18	63 63	100.00 133.81	MM MM	60.52 70.99	S/N - 1595764-H001 East meter RD - 123431060 - 04-09-10 RD - 153965280 - 04-08-11 S/N - 108818-H001 West meter RD - 065329330 - 04-09-10 RD - 087830310 - 04-08-11 meters on water tank
63348	Cert	Western Mining & Milling	NE	SW	13	18	63	4.00	COM	2.58	S/N 97800120 RD - 18757100 - 04-09-10 RD - 19996700 - 04-08-11
66784 66785 72098 77389 79948 81344 84041	Permit Permit Cert Permit Permit Permit Permit	Dry Lake Water LLC	NE NE SE	NE NE SW	27 32 13	18 17 18	63 63 63	178.00	QM	15.69	Industrial Properties Development 66784: No meter, well not in use 66785: WV, no works 72098 & 79948: S/N 003216 RD - 05446800 - 04-08-11 RD - 09717700 - 04-11-12 74064: WNV; 77389: WNV
74399	Cert	Nevada Power Co.	NW	SW	21	17	64	74.57	IND	74.60	Harry Allen Plant. Harvey Well S/N 0870128188

**GROUNDWATER PUMPAGE INVENTORY
GARNET VALLEY, NO. 216
2014**

APP NUMBER	STATUS	OWNER OF RECORD	PLACE OF USE					ACRES OR DUTY	ACRES IRR OR USE	USED (A/F)	REMARKS
			QQ	Qtr	Sec	T	R				
77745 83490	Cert Permit	City of North Las Vegas LVVWD	NW	NW	16	18	63	310.02	COM	10.77	S/N F1031916000 new meter RD - 4957659 - 01-01-13 RD - 78916619 - 12-31-13 + 256,680 gallons flush water
79001	Permit	LVVWD			12	17	63	1400.00	MUN	871.07	Mirant, Silverhawk, and Chuck Lenzie power plant facilities.
79002	Permit				13						
79003	Permit				35						79001 & 79006: No S/N
79004	Permit				24						RD - 192920000 - 04-26-12
79005	Permit				25						well not in use
79006	Permit				36						
79007	Permit				7	17	64				79002 & 79007: No S/N
79008	Permit				18						RD - 19733140 - 04-26-12
79009	Permit				19						
79010	Permit				30						79004 & 79009: S/N 106102725
					31						RD - 26264300 - 04-26-12
					1	18	63				
					2						79005 & 79010: S/N 0860188417
			SE	NE	5						RD - 18919742 - 04-26-12
			NE	SE	5						
			SE	SW	5						79003 & 79008: same POD as 74399 (RW-1 well)
			E2	NE	15						
			E2	SE	15						
83553	Permit	Technichrome	SE	NE	3	19	63	3.00	IND	0.00	WNV, POU vacant.
83707	Permit	Republic Environ. Tech.	SW	NE	18	18	64	468.00	IND	348.17	S/N 53172198 Well 1
83708	Permit		SW	NE	18						RD - 01746100 - 05-22-08
83709	Permit		SE	SE	7						S/N 70177000 Well 2
83710	Permit		NE	NW	20						RD - 44457200 - 05-22-08
83711	Permit		SE	SE	7						S/N None Well 3

**GROUNDWATER PUMPAGE INVENTORY
GARNET VALLEY, NO. 216
2014**

APP NUMBER	STATUS	OWNER OF RECORD	PLACE OF USE					ACRES OR DUTY	ACRES IRR OR USE	USED (A/F)	REMARKS
			QQ	Qtr	Sec	T	R				
83712	Permit		NW	NE	19					RD - 1459730 - 05-22-08	
83713	Permit		SW	NE	18					S/N 70155806 Well 5	
83714	Permit		SE	SW	19					RD - 45882400 - 05-22-08	
83715	Permit		SW	NE	18					S/N 70155512 Well 6	
83716	Permit		SE	SE	7					RD - 17769300 - 05-22-08	
83717	Permit									S/N 49631323 Well 7 RD - 0068760 - 05-22-08	
TOTAL								1567.80		Permitted rights	