

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

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STATE ENGINEER



BLACK MOUNTAINS AREA
(HYDROGRAPHIC BASIN 13-215)

GROUNDWATER PUMPAGE INVENTORY

CALENDAR YEAR 2014

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Report Prepared by: John Guillory, P.E.

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ABSTRACT

This inventory represents the status and usage of all permitted, certificated and claims of vested right groundwater rights located within Black Mountains Area, Hydrographic Basin 13-215, 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 **5,797 acre-feet**. Estimated pumpage for the calendar year was **1,624 acre-feet**. For calendar year 2014, appropriations for quasi-municipal (the largest manner of use in the basin) totaled 3,603 acre-feet and the pumpage was 7 acre-feet. The second largest manner of use was industrial, with appropriations totaling 1,665 acre-feet and pumpage of 1,429 acre-feet. The third largest manner of use was mining & milling, with appropriations totaling 527 acre-feet and pumpage of 187 acre-feet. The fourth largest manner of use was pumping by exempt domestic wells, at 1 acre-foot. Exempt domestic wells are defined by Nevada Revised Statutes 534.013 and do not require a permit issued by the State Engineer.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER..... 215, REGION 13

HYDROGRAPHIC BASIN NAME BLACK MOUNTAINS AREA

COUNTIES..... CLARK

COMMUNITIES BOULDER CITY

DESIGNATED YES

DENIALS BASED UPON WATER AVAILABILITY IRRIGATION

GROUNDWATER LEVEL MEASUREMENTS SNWA, USGS

ESTIMATED PUMPAGE INVENTORY, ACRE-FEET IN 2014..... 1,624*

STATE ENGINEER'S ORDERS

[1018](#) - DESIGNATION NOVEMBER 22, 1989
[1169](#) - FURTHER STUDY..... MARCH 8, 2002
[1169a](#) - FURTHER STUDY..... DECEMBER 21, 2012

COMMITTED GROUNDWATER RESOURCE: 5,797 ACRE-FEET.... DATE: JUNE 2015

QUASI-MUNICIPAL...3,603 INDUSTRIAL1,665 MINING&MILLING ... 527

COMMERCIAL1 ENVIRONMENTAL.... 1

NOTE: Committed groundwater resource data are accurate for June 2015. Manner of use category totals vary over time, as 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 1.

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 Black Mountains Area (Hydrographic Basin 13-215), 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

Black Mountains Area is a basin located in southern Nevada. The valley lies within Clark County (Figure 1) approximately 30 miles east of Las Vegas, Nevada, and is within the Colorado River Hydrographic Region.

Black Mountains Area is bounded on the north by the Muddy Mountains. The centerline of Lake Mead forms the east and south boundaries. The River Mountains border the basin to the south; the Frenchman Mountains border the basin to the west. The northwest boundary is formed by the Dry Valley Range.

The adjacent Nevada hydrographic basins are as follows: Colorado River Valley (13-213) and Eldorado Valley (10-167), to the south; Las Vegas Valley (13-212), to the west; Garnet Valley (13-216), to the northwest; California Wash (13-218), to the north; and Lower Moapa Valley (13-220), to the northeast. The exterior boundary of the Black Mountains Area Hydrographic Basin is as described by Designation Order 1018, issued by the Nevada State Engineer November 22, 1989. The basin covers approximately 627 square miles.

GROUNDWATER LEVELS

Depths to groundwater in Black Mountains Area are measured by multiple entities in the basin on a semi-annual basis. These include:

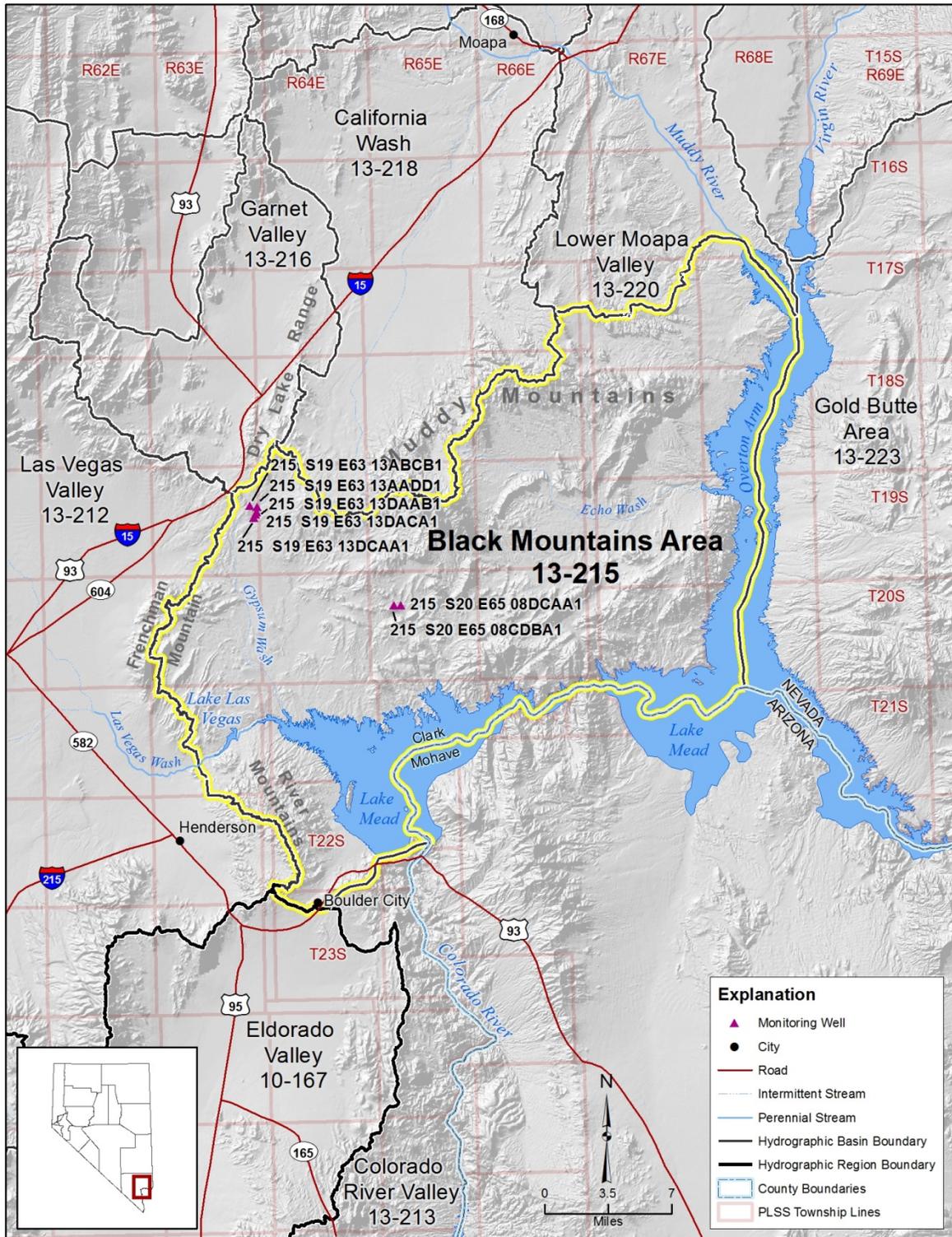
[215 S19 E63 13AADD1](#)
[215 S19 E63 13DACA1](#)
[215 S20 E65 08DCAA1](#)

[215 S19 E63 13ABCB1](#)
[215 S19 E63 13DCAA1](#)

[215 S19 E63 13DAAB1](#)
[215 S20 E65 08CDBA1](#)

Groundwater level data are also collected by the US Geological Survey (USGS), and may be accessed through their website (<http://nevada.usgs.gov/>).

FIGURE 1. PHYSIOGRAPHIC MAP OF BLACK MOUNTAINS AREA, HYDROGRAPHIC BASIN 13-215.



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 multiplied by the amount 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 for 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 a query of the NDWR Well Log Database. The amount of water pumped by exempt domestic wells is estimated to be 1.0 acre-foot per well in Black Mountains Area.

PUMPAGE BY MANNER OF USE

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

The total estimated groundwater pumpage for calendar year 2014 was **1,624 acre-feet**. The annual duties of the certificates, permits and claims of vested right within the Black Mountains Area Hydrographic Basin totaled **5,797 acre-feet**. For calendar year 2014, the appropriated and actual pumped totals are categorized by manner of use, as follows:

A. Quasi-Municipal (QM)

Appropriations for quasi-municipal purposes totaled 3,603 acre-feet, with estimated groundwater pumpage of 7 acre-feet.

B. Industrial (IND)

Appropriations for industrial purposes totaled 1,665 acre-feet, with estimated groundwater pumpage of 1,429 acre-feet.

C. Mining & Milling (MM)

Appropriations for mining & milling purposes totaled 527 acre-feet, with estimated pumpage of 187 acre-feet.

D. Commercial (COM)

Appropriations for commercial purposes totaled 1 acre-foot in the basin, with estimated pumpage of 0 acre-feet.

E. Environmental (ENV)

Appropriations for environmental purposes totaled 1 acre-foot, with estimated pumpage of 0 acre-feet.

F. Domestic (DOM)

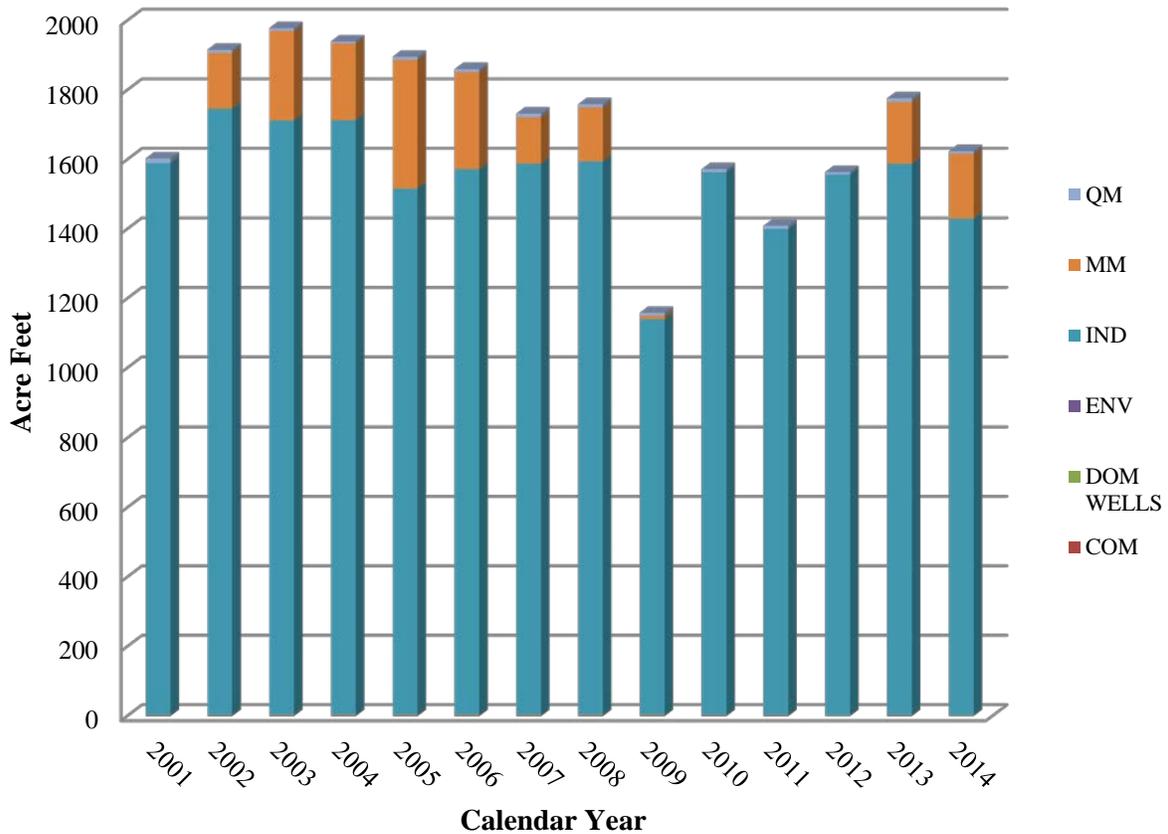
Appropriations for domestic purposes totaled 0 acre-feet in the basin. However, records of the State Engineer indicate an estimated 1 exempt domestic well existed in the basin during water year 2014. The amount of water pumped for domestic use as described under NRS 534.013 is estimated at 1 acre-foot.

APPENDIX A. BLACK MOUNTAINS AREA HISTORICAL PUMPAGE.

HISTORICAL GROUNDWATER PUMPAGE BY MANNER OF USE

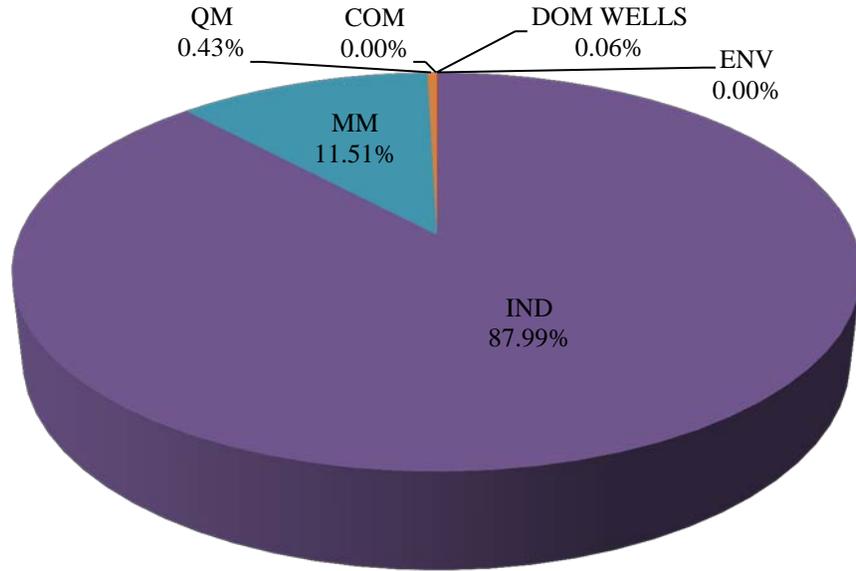
YEAR	COM	DOM	ENV	IND	MM	QM	TOTAL
2001	1	1	0	1588	0	13	1603
2002	1	1	0	1744	161	9	1916
2003	1	2	0	1709	258	8	1978
2004	1	2	0	1710	221	6	1940
2005	1	2	0	1513	371	9	1896
2006	1	2	0	1569	279	9	1860
2007	1	2	0	1585	134	10	1732
2008	1	2	0	1591	156	9	1759
2009	1	2	0	1137	10	9	1159
2010	1	1	0	1561	0	9	1572
2011	1	1	0	1398	0	9	1409
2012	0	1	0	1556	0	7	1564
2013	1	1	0	1585	179	10	1776
2014	0	1	0	1429	187	7	1624

All values are in acre-feet

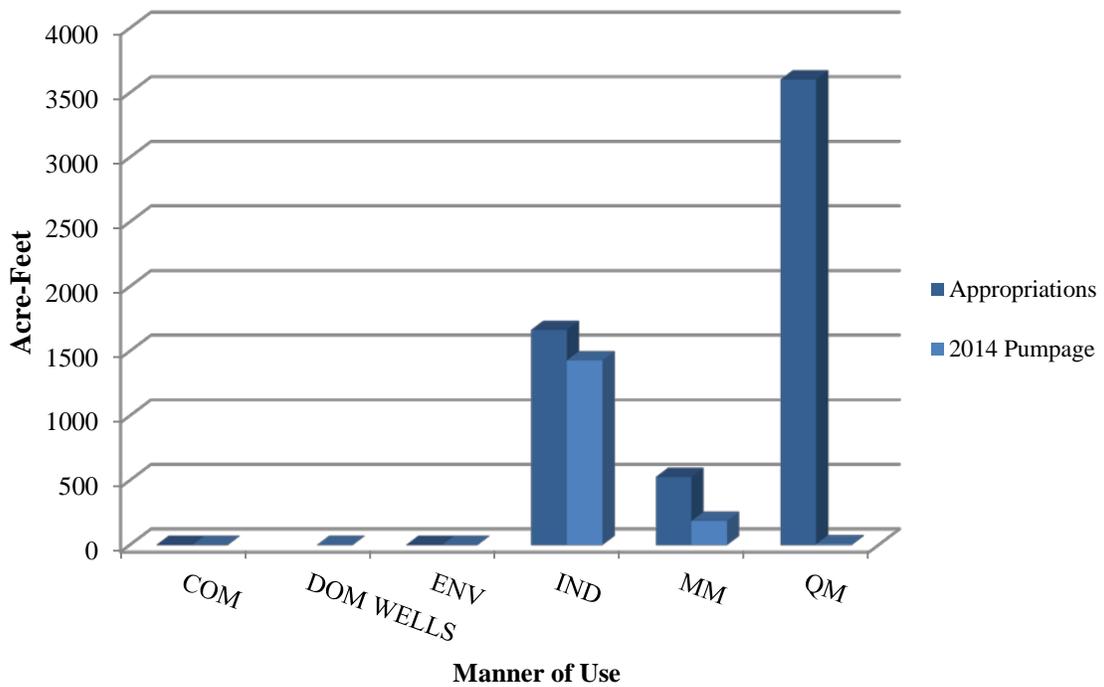


**APPENDIX B. BLACK MOUNTAINS AREA GROUNDWATER PUMPAGE FOR
CALENDAR YEAR 2014 BY MANNER OF USE.**

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



GROUNDWATER PUMPAGE FOR CALENDAR YEAR 2014 APPROPRIATIONS vs. ACTUAL PUMPAGE



**APPENDIX C. BLACK MOUNTAINS AREA 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	<p>The number of acres irrigated or the manner of use of the appropriated water. The types of manner of use may include:</p> <table border="0" style="width: 100%;"> <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																
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																	
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
BLACK MOUNTAINS AREA, NO. 215
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				
29368	Cert.	NV State Park System	NW	NE	30	17	67	2.39	QM	0.00	Valley of Fire
48816	Cert.		NW	SW				4.47	QM	7.28	
76086	Permit							4.00	QM	0.00	
46029	Permit	Lake Las Vegas	NE	NW	23	21	63	2200.00	QM	0.00	Not in use.
46030	Permit		NE	NE	22						
53829	Permit		NW	SW	22						
53831	Permit		NW	NE	15						
56150	Permit		NE	NE	15						
70441-T	Exp		SW	SW	22						
55269	Cert.	NV Cogeneration Assoc.	SE	SE	13	19	63	1665.00	IND	1428.85	S/N 20021800 North well RD - 358772000 - 05-22-08 S/N 9324526 Middle well RD - 475047000 - 05-22-08 S/N 2002180006 South well RD - 037774000 - 05-22-08
58031	Cert.		NE	SE							
58032	Cert.		NE	SE							
64960-E	Exp	Seven Crown Resorts dba Echo Bay Resorts	NW	SW	5	19	68	9.92	ENV	0.00	
66085-E	Permit										
66973-E	Permit										
66108	Permit	Laker Plaza	NE	NW	35	21	63	1.34	COM	0.09	S/N 38441345 RD - 0418340 - 03-14-14 RD - 0445570 - 02-26-15 Mini mart.

**GROUNDWATER PUMPAGE INVENTORY
BLACK MOUNTAINS AREA, NO. 215
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				
68350	Permit	Dry Lake Water Co., LLC	NE	NE	13	19	63	1392.06	QM	0.00	2 wells visible, not in use
68351	Permit		NE	NE	13						
68352	Permit		NE	NE	13						
68353	Permit		NW	NE	13						
72759	Permit	Pacific Coast (Sandia)	E/2	SE	29	20	64	527.28	MM	187.05	Government wash. 3 wells
72760	Permit										
72761	Permit										
72762	Permit										
TOTAL									1623.27	Permitted rights	