

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

JASON KING, P.E.
STATE ENGINEER



MESQUITE (SANDY) VALLEY
(HYDROGRAPHIC BASIN 10-163)

GROUNDWATER PUMPAGE INVENTORY

WATER YEAR 2016

Field Investigated by: Christi Cooper & Tracy Geter
Report Prepared by: Tracy Geter

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ABSTRACT

This inventory represents the status and usage of all permitted, certificated, claims of vested right groundwater rights, and exempt domestic wells located within Mesquite (Sandy) Valley, Hydrographic Basin 10-163, for water year 2016 (October 1, 2015 through September 30, 2016). Also included are tables, graphs, and data associated with this use.

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

For water year 2016, the committed water resource totaled 2,146 acre-feet, with estimated pumpage of approximately **623 acre-feet**. This figure includes an estimated 440 acre-feet pumped from exempt domestic wells.

Pumping by exempt domestic wells is the largest manner of use within the basin. The second largest manner of use was quasi-municipal, with commitments totaling 309 acre-feet and pumpage of 130 acre-feet.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER	163, REGION 10	
HYDROGRAPHIC BASIN NAME	MESQUITE V. (SANDY V.)	
COUNTIES	CLARK	
MAJOR COMMUNITIES	SANDY VALLEY	
DESIGNATED	YES	
DENIALS BASED UPON WATER AVAILABILITY	IRRIGATION	
GROUNDWATER LEVEL MEASUREMENTS	NDWR	
PUMPAGE INVENTORY, ACRE-FEET IN 2016	623 ¹	
STATE ENGINEER'S ORDERS		
<u>NO. 701 – DESIGNATION</u>	DATE: JANUARY 5, 1978	
COMMITTED GROUNDWATER RESOURCE ² : 2,146 ACRE-FEET	DATE: JULY 2016	
COMMERCIAL 33	DOMESTIC..... 1,760	IRRIGATION44
MINING & MILLING ... 0	QUASI-MUNICIPAL. 309	

¹ Includes pumpage by exempt domestic wells, as defined by NRS 534.013.

² Committed groundwater resource data are accurate for July 2016. 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 affect 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 query of the NDWR Well Log Database indicates that 880 domestic wells existed in the basin during water year 2016. This query is assumed to represent both appropriations and exempt domestic wells. The committed domestic water resource is considered to be 2 acre-feet per domestic well, or 1,760 acre-feet annually.

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 Mesquite (Sandy) Valley Hydrographic Basin (10-163; hereafter referred to as Mesquite Valley), during water year 2016. This report estimates the amount of groundwater pumped under the permits and certificates issued by the State Engineer, claims of vested right, as well as the amount pumped by exempt domestic wells within the basin.

DESCRIPTION OF THE STUDY AREA

Mesquite Valley is a basin located in southern Nevada that straddles the Nevada and California state line. The valley is approximately 40 miles southwest of Las Vegas and 15 miles west of Jean, and is within the Central Hydrographic Region. The town of Sandy is the principal community. The Nevada portion of the basin (approximately 240 square miles) lies within Clark County and the California portion of the basin (approximately 220 square miles) lies within Inyo and San Bernardino Counties (Figure 1).

Mesquite Valley is bounded on the east and northeast by the Spring Mountain Range, the primary watershed for the basin. The Clark Mountain Range forms the south boundary, the Mesquite Mountains border the basin to the southwest, and the Kingston Range borders the basin to the west. The northern and northwest boundaries are formed by a low alluvial rise and intermittent hills separating Mesquite Valley from Pahrump Valley. The adjacent Nevada hydrographic basins are Pahrump Valley (10-162) to the northwest, Las Vegas Valley (13-212) to the northeast, Ivanpah Valley - Northern Part (10-164A) to the east, and Ivanpah Valley - Southern Part (10-164B) to the southeast. The exterior boundary of the Mesquite Valley Hydrographic Basin is as described by Designation Order 701, issued by the Nevada State Engineer on January 5, 1978.

GROUNDWATER LEVELS

Depths to groundwater in Mesquite Valley are measured by NDWR on a semi-annual basis. The following are site names and links to their data for active sites (Figure 2):

[163 S25 E57 05AD 1](#)
[163 S25 E57 09AD 1](#)

[163 S25 E57 16DA 1](#)

[163 S25 E57 26BC 1](#)

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 U.S. Geological Survey (USGS) and can be accessed on their website (<http://nevada.usgs.gov/>).

METHODS TO ESTIMATE PUMPAGE

One of the purposes of this report is to estimate the amount of groundwater pumped under vested claims, permits and certificates issued by the State Engineer, as well as the amount pumped by the exempt domestic wells in the valley. Table 1 and Figure 3 show historical pumpage by manner of use; Figure 4 shows the percentage of water pumped by manner of use; and Figure 5 compares groundwater commitments and estimated pumpage by manner of use. 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, 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 were 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 were supplemental to surface water, groundwater use was estimated using the NIWR method above, but 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/Evapotranspiration.aspx>.
- 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 was estimated to be 0.5 acre-foot per well in Mesquite Valley, or 440 acre-feet.

TABLES

Table 1. Mesquite Valley historical pumpage (acre-feet) by water year.

YEAR	DOM	COM	IRR	MM	QM	TOTAL
2012	432	18	8	5	142	605
2013	432	18	39	5	147	641
2014	436	17	37	3	130	623
2015	436	18	45	3	126	628
2016	440	17	33	3	130	623

FIGURES

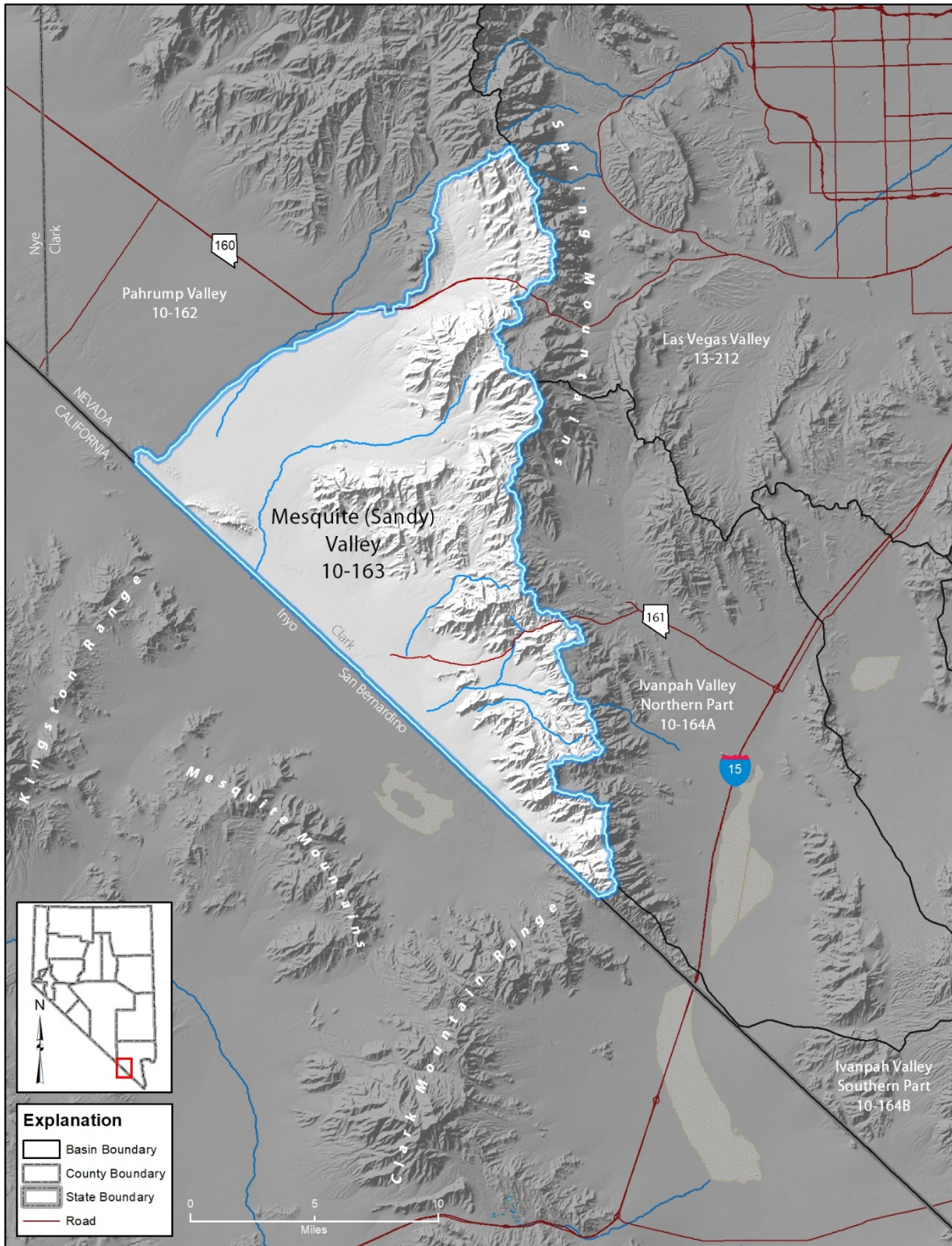


Figure 1. Physiographic map of Mesquite Valley (Hydrographic Basin 10-163).



Figure 2. Mesquite Valley water level measurement sites.

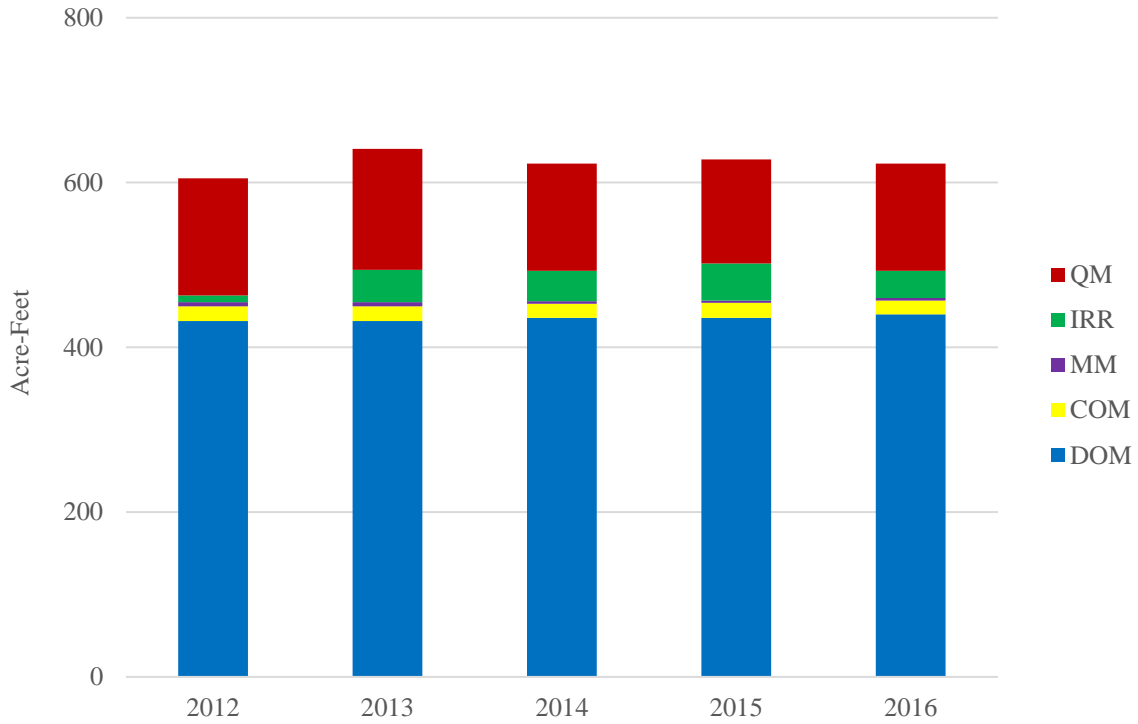


Figure 3. Mesquite Valley historical pumpage by manner of use.

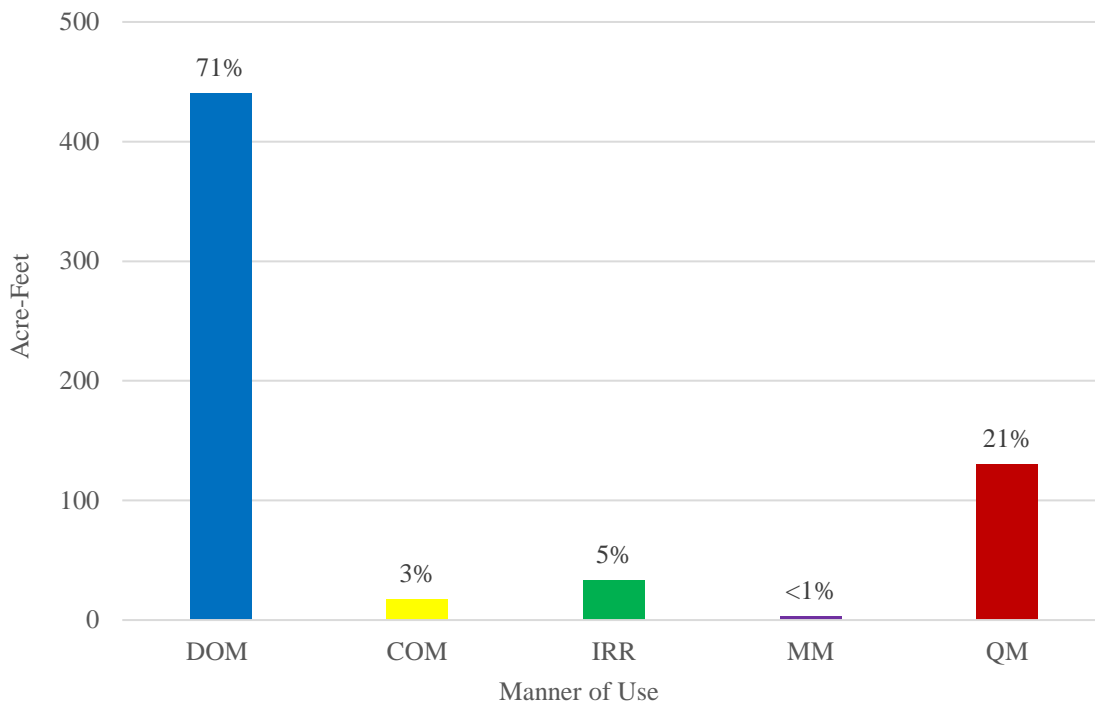


Figure 4. Percentage of 2016 groundwater pumpage by manner of use.

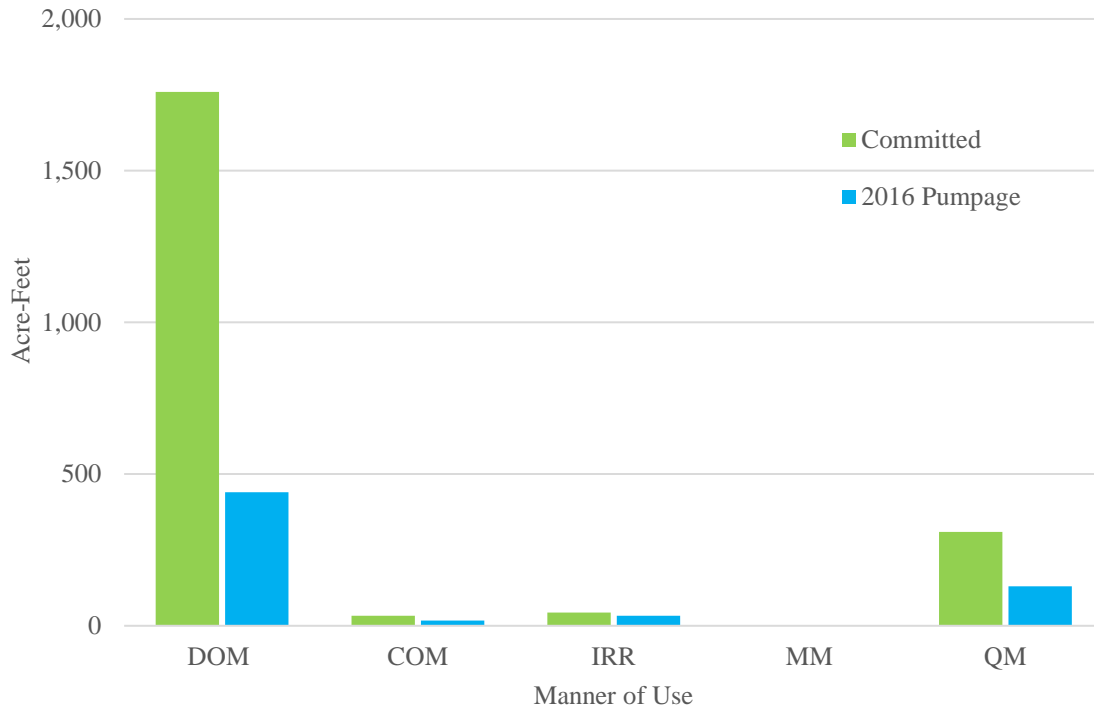


Figure 5. Comparison between 2016 groundwater commitments and estimated pumpage.

**APPENDIX A. MESQUITE VALLEY 2016 GROUNDWATER PUMPAGE BY
APPLICATION NUMBER.**

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.
 PLACE OF USE	
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:
	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 water 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 FOR MESQUITE (SANDY) VALLEY, NO. 163
2016**

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				
V09638 V09639	VST VST	KMI Zeolite, Inc.	N2	SW	03	25	57	0.00	MM	2.50	WV, no meter. Used for dust control at zeolite mine. Approx. 2,000 gpd per operations manager 09-09-16
26713	Cert	Gibson, Nadine and MJ Bud	SW	SW	25	24	56	0.60	0.30	2.71	S/N 9812750 Domestic use. Meter installed 09-20-13 RD - 2,025,300 - 09-01-15 RD - 2,937,900 - 09-11-16
28954	Cert	Bell Telephone	SE	SW	31	24	57	0.06	COM	0.00	POD 28945: S/N 78915860 RD - 220 - 09-25-15 RD - 1,410 - 09-06-16 New well drilled in 2015, Log # 123486
31209	Permit	Larson, Mel & Marilyn	SW	SE	06	25	57	152.04	QM	0.09	POD 31209: S/N 66143282 RD - 8,341,200 - 09-01-15 RD - 8,369,600 - 09-06-16
42512 67960	Permit Permit	Larson, Mel & Marilyn Sky Ranch Estates							QM	42.00	POD 42512 & 67960: S/N 135877 RD - 16,409,000 - 09-06-16 RD - 2,462,000 - 09-01-15
59006	Cert	Larson, Mel & Marilyn						8.96	QM	16.95	POD 59006: S/N 144889 RD - 21,738,900 - 09-01-15 RD - 27,352,700 - 09-06-16 45 homes, 12 mobile homes, 33 hangars, 2 commercials bldgs.
38311	Cert	Sweney	SW	SE	32	24	57	3.13	COM	5.61	S/N 05004964 1 trailer, restaurant RD - 22,038,900 - 09-01-15 RD - 23,902,400 - 09-06-16

**GROUNDWATER PUMPAGE INVENTORY FOR MESQUITE (SANDY) VALLEY, NO. 163
2016**

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				
45515	Cert	L Mejia	SW	SW	25	24	56	4.75	4.75	30.76	S/N 873082-06
50656	Cert							4.74	2.37		RD - 11,224,000 - 09-01-15 RD - 11,224,000 - 09-06-16 Meter broken in 2016 per owner Alfalfa, NIWR = 5.3 Permitted duty 41.03 Ac-Ft/Yr Domestic well serves 50656 POU Issue 4.32 acre-feet per acre irrigated.
45690	Cert	Clark County	NE	SW	32	24	57	15.80	QM	7.65	No S/N. Sandy Valley School
50990	Cert										RD - 60,477,200 - 09-01-15 RD - 63,016,400 - 09-06-16
45762	Cert	L.D.S. Church	SW	NE	04	25	57	2.90	QM	3.88	S/N 67305279 RD - 5,677,400 - 09-01-15 RD - 6,964,960 - 09-06-16
50579	Cert	Joseph Rodriguez Jr.	NW	SW	25	24	56	1.00	QM	0.88	S/N 051158204 RD - 7,014,500 - 09-01-15 RD - 7,308,200 - 09-06-16
57190	Cert	Slankard	SW	SE	31	24	57	1.12	COM	3.04	S/N 92538818 General Store RD - 23,722,600 - 09-01-15 RD - 24,729,700 - 09-06-16
60087	Cert	Edward J. Haddad Revoc. Trust	NE	NE	06	25	57	2.02	COM	0.51	S/N 94528666 Shopping center RD - 7,301,800 - 09-01-15 RD - 7,471,200 - 09-06-16
60264	Permit	Clark County	Lt.	01	01	23	57	8.00	QM	0.02	Camp Potosi. S/N 49081567 RD - 2,702,900 - 09-01-15 RD - 2,709,600 - 08-24-16

**GROUNDWATER PUMPAGE INVENTORY FOR MESQUITE (SANDY) VALLEY, NO. 163
2016**

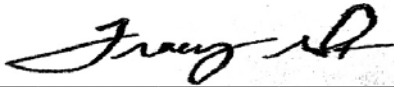
APP NUMBER	STATUS	OWNER OF RECORD	PLACE OF USE					ACRES OR DUTY	ACRES IRR OR USE	USED (A/F)	REMARKS
			QQ	Qtr	Sec	T	R				
61409	Canc	Augustine Bustos	SW	SW	01	23	57	19.33	COM	0.01	S/N 12005462 RD - 18,000 - 09-01-15 RD - 20,450 - 08-24-16
62466	Permit	Skip Powell Mgmt. Corp	NE	SW	24	24	56	4.50	COM	0.00	S/N 96502368 gravel pit RD - 20,622,300 - 09-01-15 RD - 20,622,300 - 09-06-16
62506 62507 62941 83124T	Permit Permit Permit Expired	Clark County	Gov.	Lot #6	36	24	56	90.00	QM	18.74	POD 62941: S/N 48621390 use for IRR & fire RD - 47,682,900 - 09-01-15 RD - 53,908,000 - 09-06-16
									QM	4.13	POD 62507: S/N 10-010038 DLJ use for potable water RD - 857,000 - 09-01-15 RD - 2,227,000 - 09-06-16
64471	Cert	Valley Elect. Assoc. Inc.	SW	SW	32	24	57	1.12	COM	0.05	S/N 6917517 RD - 732,600 - 09-01-15 RD - 747,700 - 09-06-16
65713	Canc	Talavera	SW	SE	32	24	57	1.34	COM	0.00	WV, open casing, POU vacant Cancelled 05-20-16
66227 72909	DEN RFP	Vidler Water Company	NW	NE	14	25	57	415.00	QM	0.00	WV, capped. 09-06-16
66275	Cert	John Kamp	SW	NE	05	25	57	0.98	COM	0.001	S/N 70809192 American Gas RD - 193,670 - 09-01-15 RD - 193,670 - 09-06-16 Broken Meter

**GROUNDWATER PUMPAGE INVENTORY FOR MESQUITE (SANDY) VALLEY, NO. 163
2016**

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				
2016 Pumpage = 2015 Pumpage											
66545	Cert	Valley Educational	SE	SE	31	24	57	23.80	QM	28.58	S/N 0108206,POD 66545,units in cubic ft.
84183	Canc	Valley Educational	SE	SE	31	24	57				RD - 6,101,260 - 09-01-15
85202	Permit										RD - 7,312,850 - 09-06-16
85203	Permit										S/N 14012048,POD 84183,units in gallons
											RD - 231,370 - 09-01-15
											RD - 661,190 - 09-06-16
67442	Permit	Benny LLC & Mark Weinger	NE	NW	06	25	57	2.02	COM	1.01	S/N 00728194
											RD - 52,490 - 09-06-16
											New meter. Issue partial credit.
70428	Permit	Angellotti F/Trust	NE	SE	19	22	58	4.03	COM	3.89	S/N 64677680 Mtn. Springs Bar
											RD - 6,774,000 - 09-01-15
											RD - 8,021,500 - 08-24-16
71449	Canc	ACVLB Family Trust	NW	SW	20	22	58	8.00	COM	1.83	S/N 12005461
											RD - 2,896,100 - 09-01-15
											RD - 3,505,520 - 09-07-16
71962	Canc	Sandy Valley Rancheros Water Users	SW	SE	32	24	57	3.36	QM	7.01	S/N 850859
											RD - 19,038,500 - 09-01-15
											RD - 21,372,800 - 09-06-16
73594	Permit	Sandy Valley Church	SW	NE	06	25	57	2.00	COM	0.73	S/N 955877
											RD - 8,896,400 - 09-01-15
											RD - 9,140,100 - 09-06-16
74313	Permit	Zeigler	NW	NE	5	25	57	12.00	COM	0.00	WNV, POU vacant. 09-06-16
83725	Permit	Altschuler Trust	SW	SW	25	24	56	4.00	QM	0.00	No meter installed - 09-06-16
75476	Abr	Altschuler Trust	NW	SW	25	24	56				

**GROUNDWATER PUMPAGE INVENTORY FOR MESQUITE (SANDY) VALLEY, NO. 163
2016**

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				
77285	Permit	Monte Brown	S2	SW	31	24	58	2.00	COM	0.00	WV, no meter, gravel pit, no use.
77286	RFP								MM	0.00	09-06-16
84258	Permit	Robert Fulstone	NE	NW	06	25	57	1.00	COM	0.00	Existing well, no works, vacant lot 09-06-16
									TOTAL	182.58	Permitted rights

Verified with field notes: 

**APPENDIX B. MESQUITE VALLEY 2016 GROUNDWATER PUMPAGE FIELD
NOTES.**

2016

Mesquite (Sandy) Valley
No. 163

Inventory Field Notes

Compiled by:
Tracy Geter

State of Nevada
Division of Water Resources
Southern Nevada Branch Office

PUMPAGE INVENTORY FIELD REPORT

BASIN NO: 163

PERMIT NO: 26713

WELL: YES NO

METER SER NO: 9812750

PUMP: YES NO

PUMP TYPE: Submersible

MOTOR: YES NO

MOTOR TYPE: _____

METER: YES NO

METER READ: 2,937,900

PHOTO: YES NO

ACRES IRR: 0.3

BENEFICIAL USE: YES NO

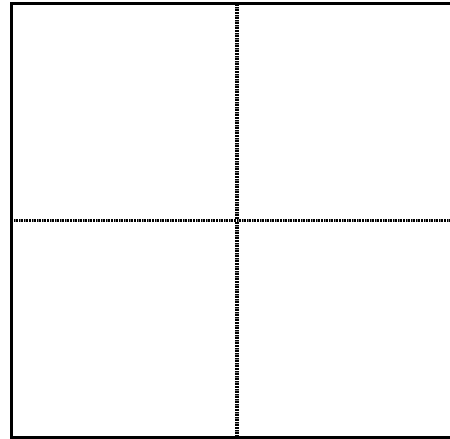
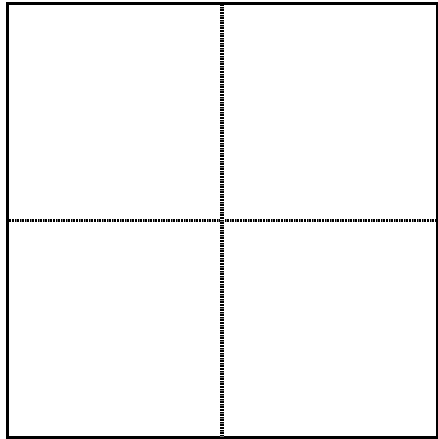
PORTION ALL

TYPE Irrigation

IF PARTIAL USE, SKETCH OF LAND IRRIGATED.

 1/4 1/4 SEC

 1/4 1/4 SEC



REMARKS: APN 200-25-401-002. Domestic use and hydroponic use. Hersey meter.

09-01-15 - 2,025,300

09-11-16 - 2,937,900 = 912,600 gallons ≈ 2.71 acre-feet annually

SIGNATURE: 

DATE: 9/6/2016

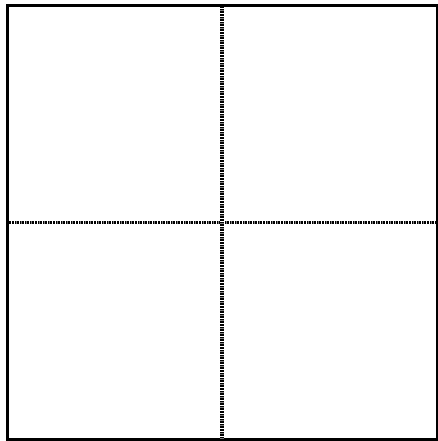
PUMPAGE INVENTORY FIELD REPORT

BASIN NO: 163 PERMIT NO: 45515 & 50656
 WELL: YES NO METER SER NO: 873082-06
 PUMP: YES NO PUMP TYPE: _____
 MOTOR: YES NO MOTOR TYPE: Turbine
 METER: YES NO METER READ: 11,224,000
 PHOTO: YES NO ACRES IRR: 7.12
 BENEFICIAL USE: YES NO PORTION ALL TYPE Irrigation

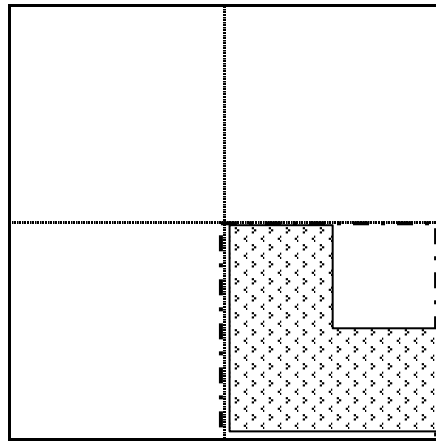
IF PARTIAL USE, SKETCH OF LAND IRRIGATED.

 1/4 1/4 SEC

SW 1/4 SW 1/4 SEC 25




Place of Use
 Alfalfa



REMARKS: Alfalfa, wheel line. Meter broken per owner in 2016.

Issue 4.32 acre-feet per acre irrigated.

SIGNATURE:  DATE: 9/6/2016