

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

**JASON KING, P.E.**  
**STATE ENGINEER**



**ROSE VALLEY**  
**HYDROGRAPHIC BASIN 13-199**

**GROUNDWATER PUMPAGE INVENTORY**

**WATER YEAR 2015**

Field Investigated by: Christi Cooper & John Guillory, P.E.  
Report Prepared by: Christi Cooper

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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 Rose Valley, Hydrographic Basin 13-199, for water year 2015 (October 1, 2014 through September 30, 2015). Also included for summary purposes are graphs and data associated with this use, and yearly totals of historical groundwater use from 2009 through 2015 by manner of use.

The data presented are valid for the time 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 2015, the permitted, certificated and claims of vested right groundwater rights totaled 1,396 acre-feet, with estimated pumpage of approximately **670 acre-feet**. This figure includes an estimated 7 acre-feet pumped from exempt domestic wells.

Irrigation is the largest manner of use within the basin. For water year 2015, appropriations for irrigation totaled 1,396 acre-feet and pumpage was 663 acre-feet. The second largest manner of use was pumping by exempt domestic wells.

## HYDROGRAPHIC BASIN SUMMARY

|   |                  |
|---|------------------|
| HYDROGRAPHIC BASIN NUMBER                       | 199, REGION 13   |
| HYDROGRAPHIC BASIN NAME                         | ROSE VALLEY      |
| COUNTIES  | LINCOLN          |
| MAJOR COMMUNITIES                               | URSINE, PIOCHE   |
| DESIGNATED                                      | NO               |
| DENIALS BASED UPON WATER AVAILABILITY           | NONE             |
| GROUNDWATER LEVEL MEASUREMENTS                  | NDWR             |
| PUMPAGE INVENTORY, ACRE-FEET IN 2015            | 670 <sup>1</sup> |
| STATE ENGINEER'S ORDERS                         | NONE             |
| COMMITTED GROUNDWATER RESOURCE: 1,396 ACRE-FEET | DATE: APRIL 2016 |
| IRRIGATION...1,396                              |                  |

NOTE: Committed groundwater resource data are accurate for April 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 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.

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<sup>1</sup> 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 1.0 acre-foot per annum. The number of domestic wells in the basin, estimated by a query of the Nevada Division of Water Resources Well Log Database, is approximately 7.

## **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 Rose Valley Hydrographic Basin (13-199), for the time period beginning October 1, 2014 and ending September 30, 2015 (hereafter referred to as water year 2015). 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.

## **DESCRIPTION OF THE STUDY AREA**

Rose Valley is a very small basin located in central eastern Nevada, approximately 12 miles east of Pioche. The basin lies within Lincoln County, in the Colorado River Hydrographic Region. (Figure 1). The adjacent Nevada hydrographic basins are as follows: Dry Valley (13-198) to the south and east; Patterson Valley (13-202) to the west; and Eagle Valley (13-200) to the north.

## **GROUNDWATER LEVELS**

Depths to groundwater in Rose Valley have been measured by the Nevada Division of Water Resources consistently since the early 1980's. There are three active sites in the monitoring well network. Active site names and links to their data (refer to Figure 2) are:

[199 N01 E69 21AA 1](#)

[199 N01 E69 21AB 1](#)

[199 N01 E69 21AC 1](#)

Groundwater level data have also been collected by the U.S. Geological Survey (USGS) and may be accessed through 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. 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 are supplemental to surface water, groundwater use is 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/mapping/et/et\\_general.cfm](http://water.nv.gov/mapping/et/et_general.cfm).

- 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 annually by exempt domestic wells is estimated to be 1 acre-foot per well in Rose Valley.

#### **PUMPAGE BY MANNER OF USE**

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

The total estimated groundwater pumpage for the water year 2015 was 670 acre-feet. The annual duties of permitted, certificated and claims of vested groundwater rights within Rose Valley Hydrographic Basin total approximately 1,396 acre-feet. Table 1 and Figure 3 show historical pumpage in the basin by manner of use; Figure 4 shows the percentage of groundwater pumped by manner of use; and Figure 5 compares appropriations to actual pumpage. The permitted and pumped totals for water year 2015, categorized by manner of use, are as follows:

##### **A. Domestic (DOM)**

Appropriations for domestic purposes totaled 0 acre-feet in the basin. However, records of the State Engineer indicate an estimated 7 exempt domestic wells existed in the basin during water year 2015. The amount of water pumped for domestic use as described under NRS 534.013 is estimated at 7 acre-feet.

##### **B. Irrigation (IRR)**

Appropriations for irrigation purposes totaled 1,396 acre-feet, with estimated groundwater pumpage of 663 acre-feet.

## TABLES

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

| YEAR | DOM WELLS | IRR  | TOTAL |
|------|-----------|------|-------|
| 2009 | 7         | 1072 | 1079  |
| 2010 | 7         | 1072 | 1079  |
| 2011 | 7         | 293  | 300   |
| 2012 | 7         | 250  | 257   |
| 2013 | 7         | 693  | 700   |
| 2014 | 7         | 733  | 740   |
| 2015 | 7         | 663  | 670   |

All values are in acre-feet

# FIGURES

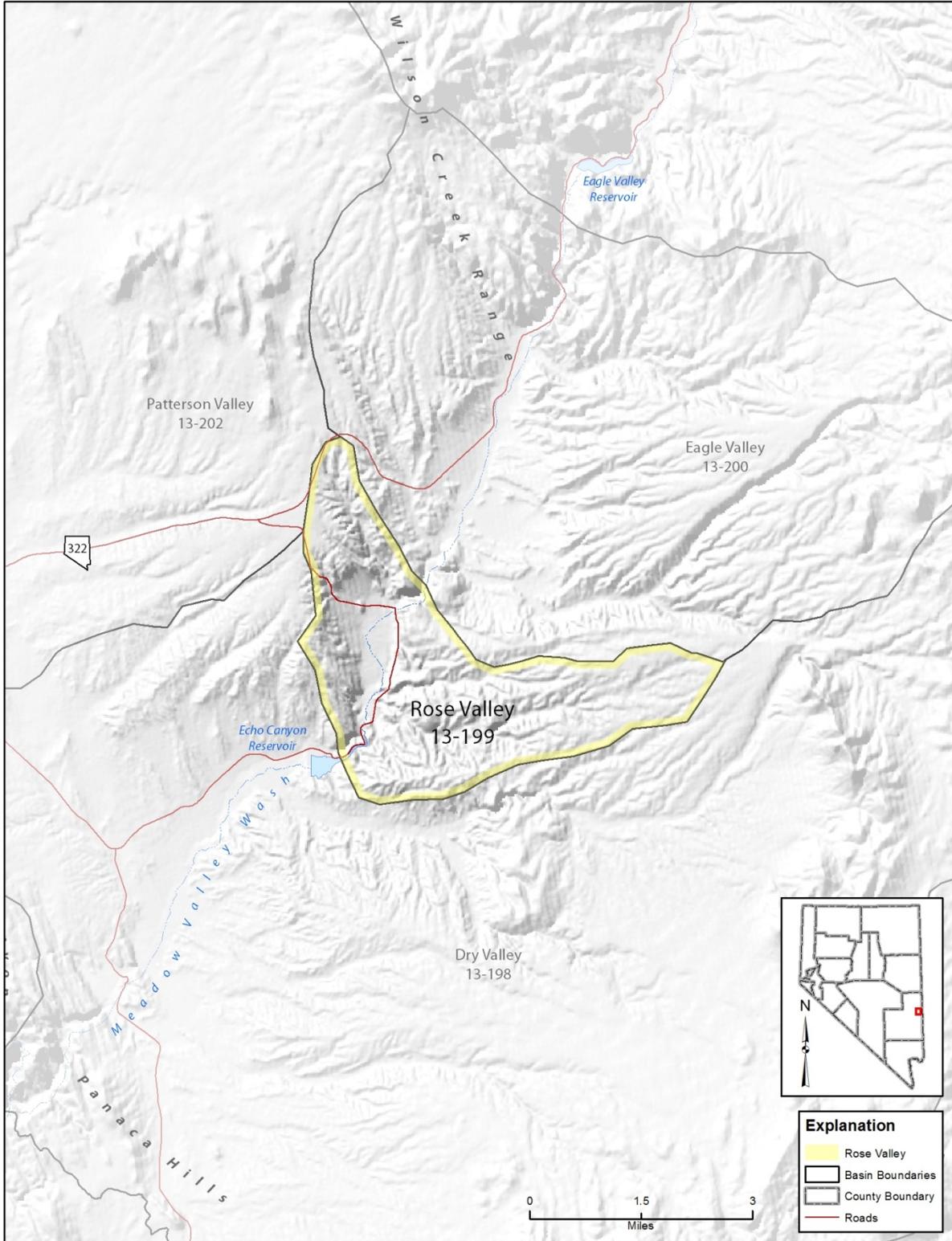


Figure 1. Location map for Rose Valley (Hydrographic Basin 13-199).

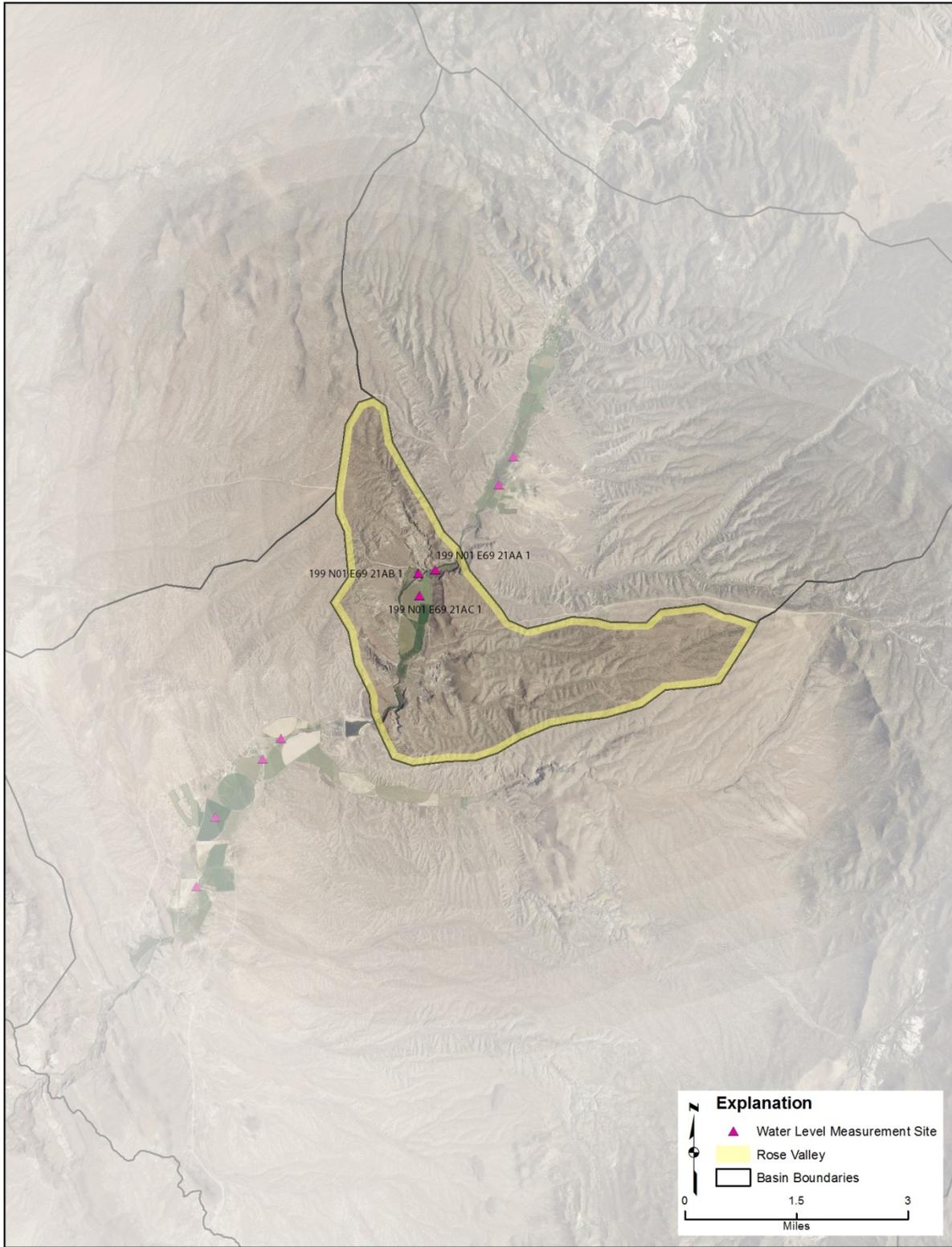


Figure 2. Rose Valley irrigated acreage and water level measurement sites.

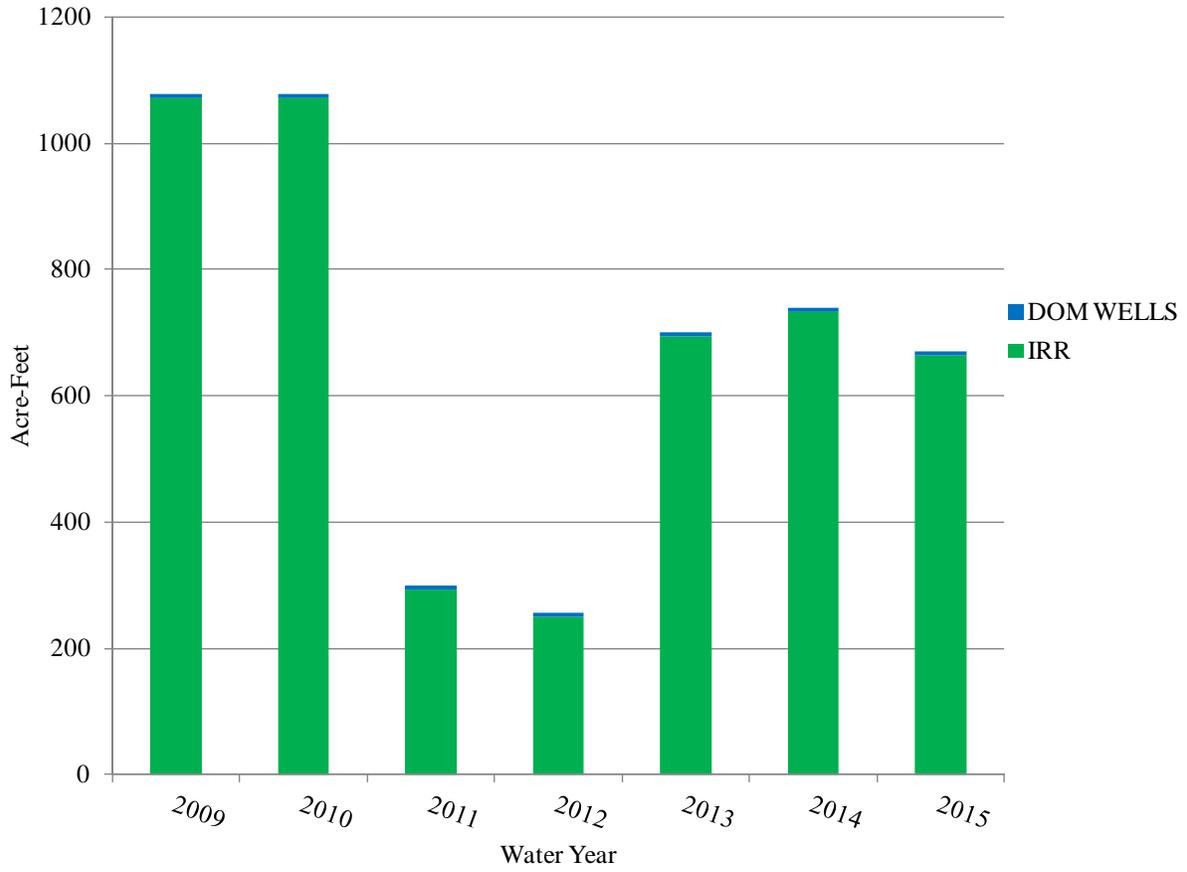


Figure 3. Rose Valley historical pumpage by manner of use.

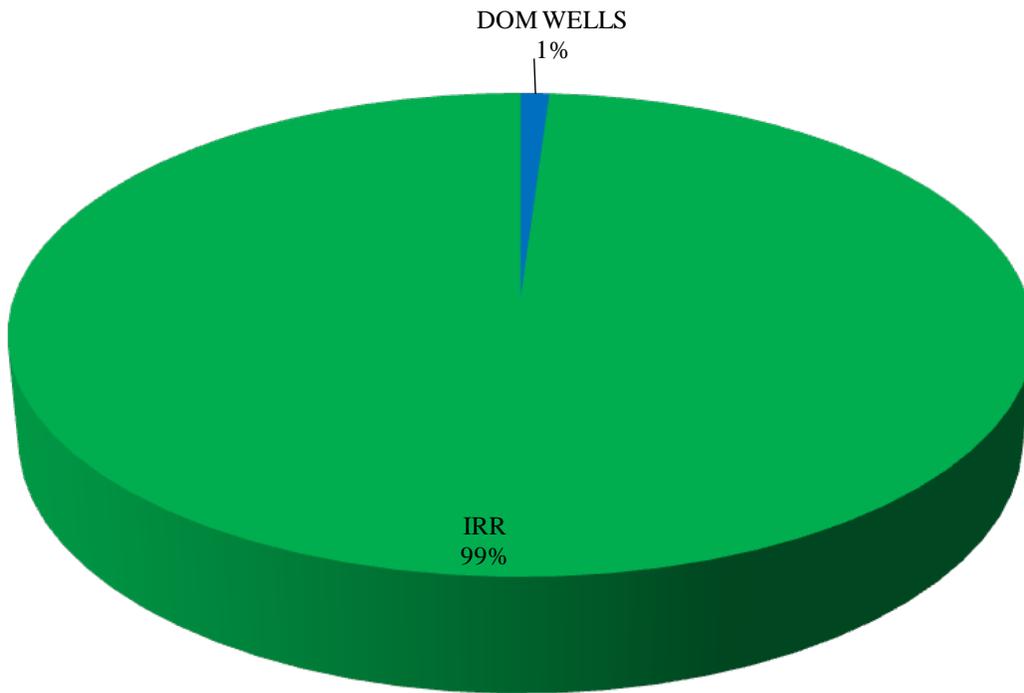


Figure 4. Percentage of 2015 groundwater pumpage by manner of use.

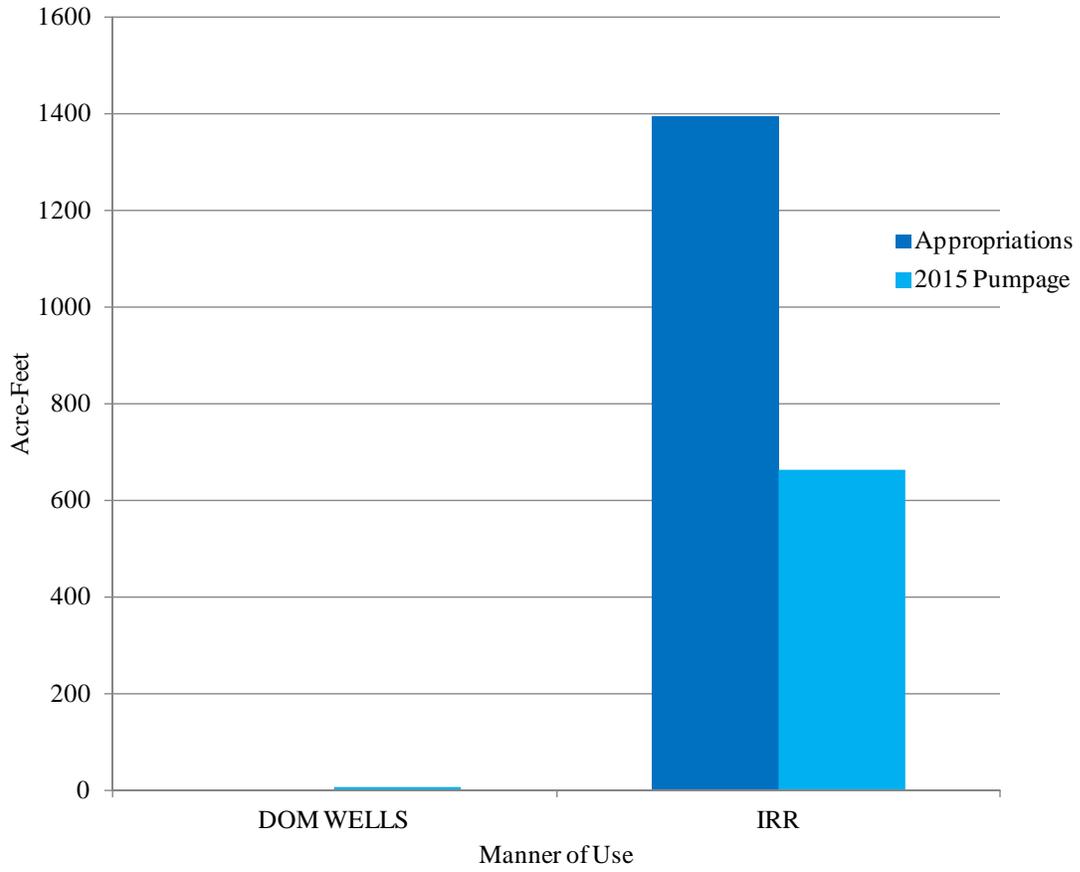


Figure 5. 2015 groundwater pumpage appropriations versus actual pumpage.

**APPENDIX A. ROSE VALLEY 2015 GROUNDWATER PUMPAGE BY APPLICATION NUMBER.**

## EXPLANATION OF COLUMN HEADINGS FOR GROUNDWATER PUMPAGE INVENTORY

|                       |   |                  |                    |                |                     |                  |                  |                       |                 |             |             |                      |                  |                  |               |                |  |
|-----------------------|---|------------------|--------------------|----------------|---------------------|------------------|------------------|-----------------------|-----------------|-------------|-------------|----------------------|------------------|------------------|---------------|----------------|--|
| APP<br>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<br>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<br>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<br>OR USE   | <p>The number of acres irrigated or the manner of use of the appropriated water.<br/>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 &amp; 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 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.   |                  |                    |                |                     |                  |                  |                       |                 |             |             |                      |                  |                  |               |                |  |

**GROUND WATER PUMPAGE INVENTORY  
ROSE VALLEY, NO 199 - 2015**

| NUMBER | STATUS | OWNER OF RECORD     | PLACE OF USE |     |    |    | ACRES<br>OR DUTY | ACRES IRR<br>OR USE | USED<br>(A/F) | REMARKS                           |
|--------|--------|---------------------|--------------|-----|----|----|------------------|---------------------|---------------|-----------------------------------|
|        |        |                     | 1/4          | 1/4 | S  | T  |                  |                     |               |                                   |
| 24199  | Cert   | Rosa, Jimmie        | SE           | NE  | 21 | 1N | 69               | 1.50                | 0.00          |                                   |
|        |        |                     | SW           | NE  |    |    |                  | 3.14                | 3.14          |                                   |
|        |        |                     | NW           | SE  |    |    |                  | 18.60               | 17.60         |                                   |
|        |        |                     | NE           | SE  |    |    |                  | 3.90                | 3.90          |                                   |
|        |        |                     | SW           | SE  |    |    |                  | 17.00               | 17.00         |                                   |
|        |        |                     | NW           | NE  | 28 | 1N | 69               | <u>5.86</u>         | <u>5.86</u>   |                                   |
|        |        |                     | <b>TOTAL</b> |     |    |    |                  | 50.00               | 47.50         | <b>196.25</b> Alfalfa, NIWR = 3.3 |
| 84531  | Per.   | Nevada Ranches, LLC | S2           | SW  | 16 | 1N | 69               |                     | 0.00          |                                   |
| 84533  | Per.   |                     | W2           | E2  | 21 | 1N | 69               |                     | 59.83         |                                   |
| 84534  | Per.   |                     |              | NW  |    |    |                  |                     | 12.39         |                                   |
| 11060  | Abr.   |                     | E2           | SW  |    |    |                  |                     | 37.89         |                                   |
| 20833  | Abr.   |                     | NW           | NE  | 28 | 1N | 69               |                     | 9.15          |                                   |
| 20861  | Abr.   |                     | NE           | NW  | 28 | 1N | 69               |                     | <u>0.85</u>   |                                   |
|        |        |                     | <b>TOTAL</b> |     |    |    |                  | 237.00              | 120.11        | <b>466.31</b> Alfalfa, NIWR = 3.3 |
|        |        |                     |              |     |    |    |                  | <b>TOTAL</b>        | <b>662.55</b> | <b>Permitted rights</b>           |

Verified with field notes Christi Cooper

**APPENDIX B. ROSE VALLEY 2015 GROUNDWATER PUMPAGE FIELD NOTES.**

2015

ROSE VALLEY

**No. 199**

# Inventory Field Notes

Compiled by:

Christi Cooper and John Guillory, P.E.

State of Nevada

Division of Water Resources

Southern Nevada Branch Office

# PUMPAGE INVENTORY FIELD REPORT

BASIN NO: 199

PERMIT NO: 24199

WELL: YES  NO

METER SER NO: \_\_\_\_\_

PUMP: YES  NO

PUMP TYPE: Turbine

MOTOR: YES  NO

MOTOR TYPE: \_\_\_\_\_

METER: YES  NO

METER READ: \_\_\_\_\_

PHOTO: YES  NO

ACRES IRR: 47.5

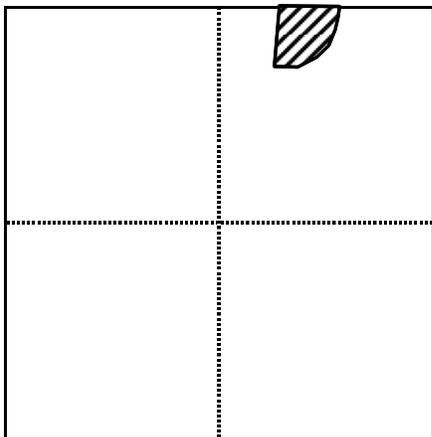
BENEFICIAL USE: YES  NO

PORTION  ALL  TYPE Irrigation

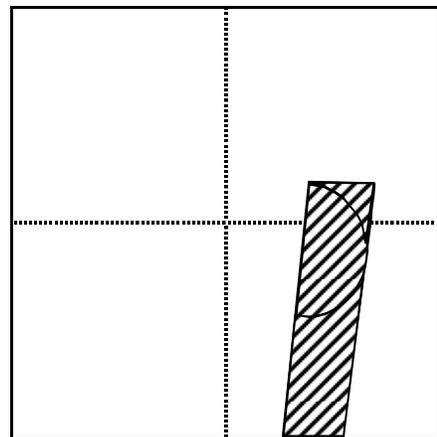
IF PARTIAL USE, SKETCH OF LAND IRRIGATED.

     1/4      1/4 SEC 21

     1/4      1/4 SEC 28



 - IRR



REMARKS: No meter. Alfalfa.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SIGNATURE: Christi Cooper

DATE: 10/13/2015

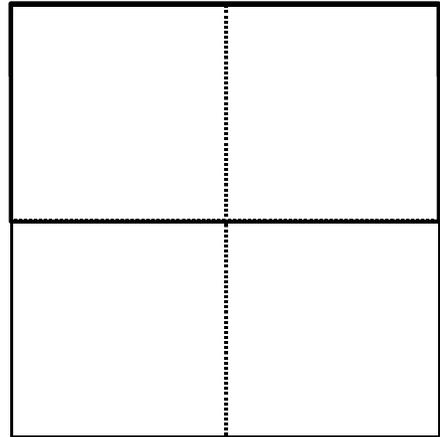
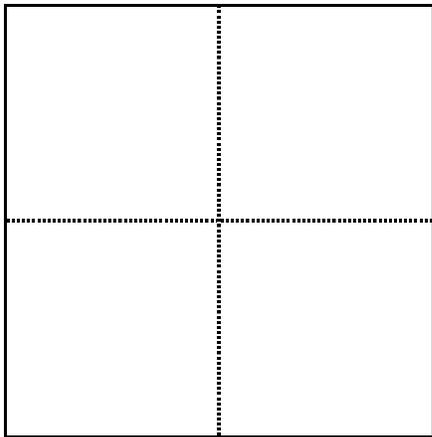
# PUMPAGE INVENTORY FIELD REPORT

BASIN NO: 199 PERMIT NO: 84531, 84533 and 84534  
 WELL: YES  NO  METER SER NO: \_\_\_\_\_  
 PUMP: YES  NO  PUMP TYPE: Turbine  
 MOTOR: YES  NO  MOTOR TYPE: \_\_\_\_\_  
 METER: YES  NO  METER READ: \_\_\_\_\_  
 PHOTO: YES  NO  ACRES IRR: See Page 2/2  
 BENEFICIAL USE: YES  NO  PORTION  ALL  TYPE Irrigation

IF PARTIAL USE, SKETCH OF LAND IRRIGATED.

     1/4      1/4 SEC     

     1/4 **SW** 1/4 SEC **16**



REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

SIGNATURE: Christi Cooper DATE: 10/13/2015

