STATE OF NEVADA

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

JASON KING, P.E.
STATE ENGINEER

QUINN RIVER VALLEY - MCDERMITT SUBAREA
HYDROGRAPHIC BASIN 2-033B

CROP INVENTORY

CALENDAR YEAR 2014

Prepared by: Amanda Brownlee
Steve DelSoldato

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ABSTRACT

This inventory represents the status and usage of all permitted and certificated groundwater rights for irrigation purposes located within Quinn River Valley - McDermitt Subarea, Hydrographic Basin 2-033B, for the year 2014. **Only those groundwater rights associated with irrigation purposes are represented in this report**. For a listing and summary of all other manners of use within the basin please refer to the Nevada Division of Water Resources Hydrographic Basin Summary.

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 continuing basis.

For the year 2014, the permitted and certificated groundwater rights for irrigation purposes totaled **1,262 acres** with a total duty of 5,032 acre-feet within Quinn River Valley - McDermitt Subarea. An estimated **1,077 acres** were irrigated and 3,247 acre-feet were pumped during 2014.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER	033B, REGION 2
HYDROGRAPHIC BASIN NAME	QUINN RIVER VALLEY – MCDERMITT SUBAREA
COUNTIES	HUMBOLDT
MAJOR COMMUNITIES	MCDERMITT
DESIGNATED BASIN	PARTIALLY
DENIALS BASED UPON WATER AVAILABILITY	IRR
ESTIMATED IRRIGATION PUMPAGE 2014 (ACRE-FEET)	3,247*
STATE ENGINEER'S ORDERS	
NO. 285 – DESIGNATION (PORTION) OF BASIN	April 28, 1965

COMMITTED GROUNDWATER RESOURCE FOR IRRIGATION PURPOSES: 5,032 ACRE-FEET
DATE: MARCH 2016

NOTE: Committed groundwater resource data are accurate for March 2016. 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. Be advised this report acknowledges that other manner of uses may be present in the basin; however, only those groundwater rights associated with irrigation purposes are represented in this report.

* Acreage represented in this report may have surface water rights appurtenant. This report acknowledges those acres with surface water rights but is not intended to quantify, nor present any definitive use of those surface water rights**.** The data represent only the pumping of groundwater and the acreage to which it is applied.

PURPOSE AND SCOPE

The purpose of this report is to inventory all of the groundwater resources allocated to irrigation and described by the Office of the State Engineer, Nevada Division of Water Resources (NDWR), and to estimate the amount of groundwater pumped for irrigation purposes within the Quinn River Valley - McDermitt Subarea, Hydrographic Basin 2-033B, for the year 2014.

DESCRIPTION OF THE STUDY AREA

The Quinn River Valley - McDermitt Subarea Hydrographic Basin is located in north central Nevada (Figure 1), occupying approximately 592 square miles in Humboldt County. The adjacent hydrographic basins are Little Owyhee River Area (3-034) to the east, Hardscrabble Area (4-068) and Little Humboldt Valley (4-067) to the south and east, Quinn River Valley – Orovada Subarea (2-033A) and Paradise Valley (4-069) to the south and Kings River Valley – Rio King Subarea (2-030A) to the west.

Quinn River Valley - McDermitt Subarea is bounded to the north by the State of Oregon and the Oregon Canyon Mountains, to the east by the Santa Rosa Range, to the south by Long Canyon and Jordan Meadow Mountain, and to the west by The Granites and the Montana Mountains. The valley is approximately 43 miles wide by 23 miles long with basin elevations ranging from approximately 4,100 feet above mean sea level on the valley floor to approximately 9,800 feet in the surrounding mountains. Irrigation occurs primarily in the southern part of the basin (Figure 2).

GROUNDWATER LEVELS

Depths to groundwater in Quinn River Valley - McDermitt Subarea are measured by NDWR on an annual basis. Sites at which water level measurements are made by or reported to NDWR include:

033B N45 E37 14ADAC1	033B N45 E38 07CDCC1	033B N46 E38 09DDDC1
033B N46 E38 21CCBB1	033B N46 E38 31CBBC1	033B N47 E37 16DBAC1
033B N47 E37 24BAAA1	033B N47 E37 24BABB2	033B N47 E37 24BACB2
033B N47 E38 05AACD1	033B N47 E38 17DAAA1	

Groundwater level data have also been collected by the U.S. Geological Survey (USGS) and can be accessed through their website (http://nevada.usgs.gov).

METHODS TO ESTIMATE IRRIGATED ACREAGE

This report estimates the number of acres irrigated by the groundwater pumped under permits and certificates issued by the State Engineer. Table 1 and Figure 3 present the current and historic irrigated acreage and pumpage; Appendix A presents estimates detailed by certificate, permit, or vested claim number. The following methods were used to arrive at the estimated acreage:

- Field inspection of the place of use was conducted to estimate the number of acres under cultivation.

- In cases where field inspection of the place of use was not practical, aerial and/or satellite imagery were analyzed to determine acreages.

METHODS TO ESTIMATE PUMPAGE

This report estimates the amount of groundwater pumped under permits and certificates issued by the State Engineer. 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, the place of use was inspected to estimate the amount of acreage under cultivation. The number of acres under cultivation was then multiplied by Net Irrigation Water Requirement (NIWR), for the crop then divided by the efficiency of the irrigation method. 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/mapping/et/et_general.cfm. This approach using the NIWR to estimate pumpage was not used in previous inventories, and pumpage estimates for 2014 and later reports may differ significantly from estimates of previous years.

TABLES

Table 1. Quinn River Valley - McDermitt Subarea historical irrigated acreage and pumpage data. These data are modified from previously published data.

Year	2010	2011	2012	2013	2014
Acres Irrigated	671	631	732	732	1,077
*Acre-Feet Pumped	2,684	2,524	2,916	2,928	3,247

* The NIWR method to estimate pumpage was used starting in 2014; estimates may differ significantly from previous years.

FIGURES

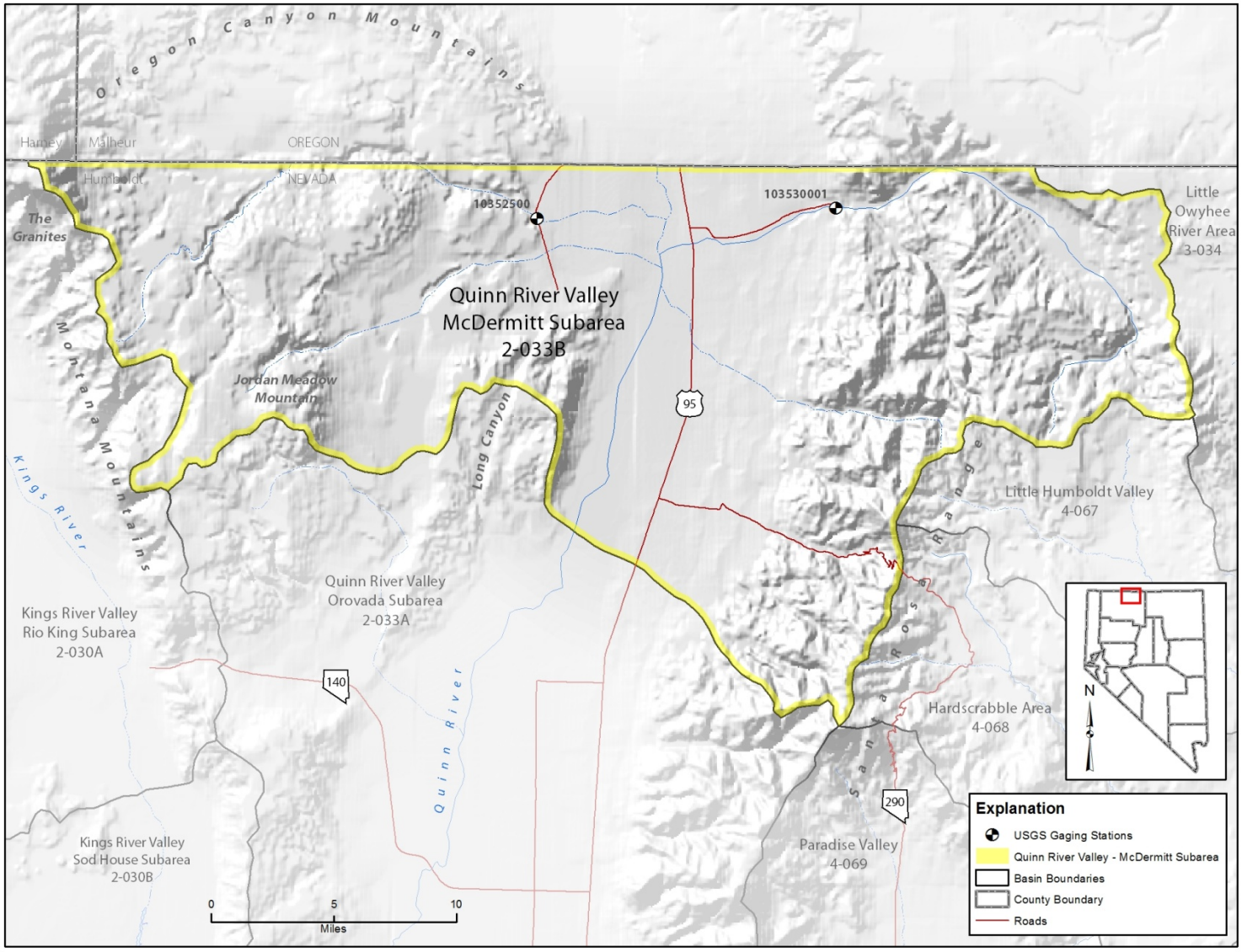

Figure 1. Physiographic map of Quinn River Valley - McDermitt Subarea (Hydrographic Basin 2-033B).

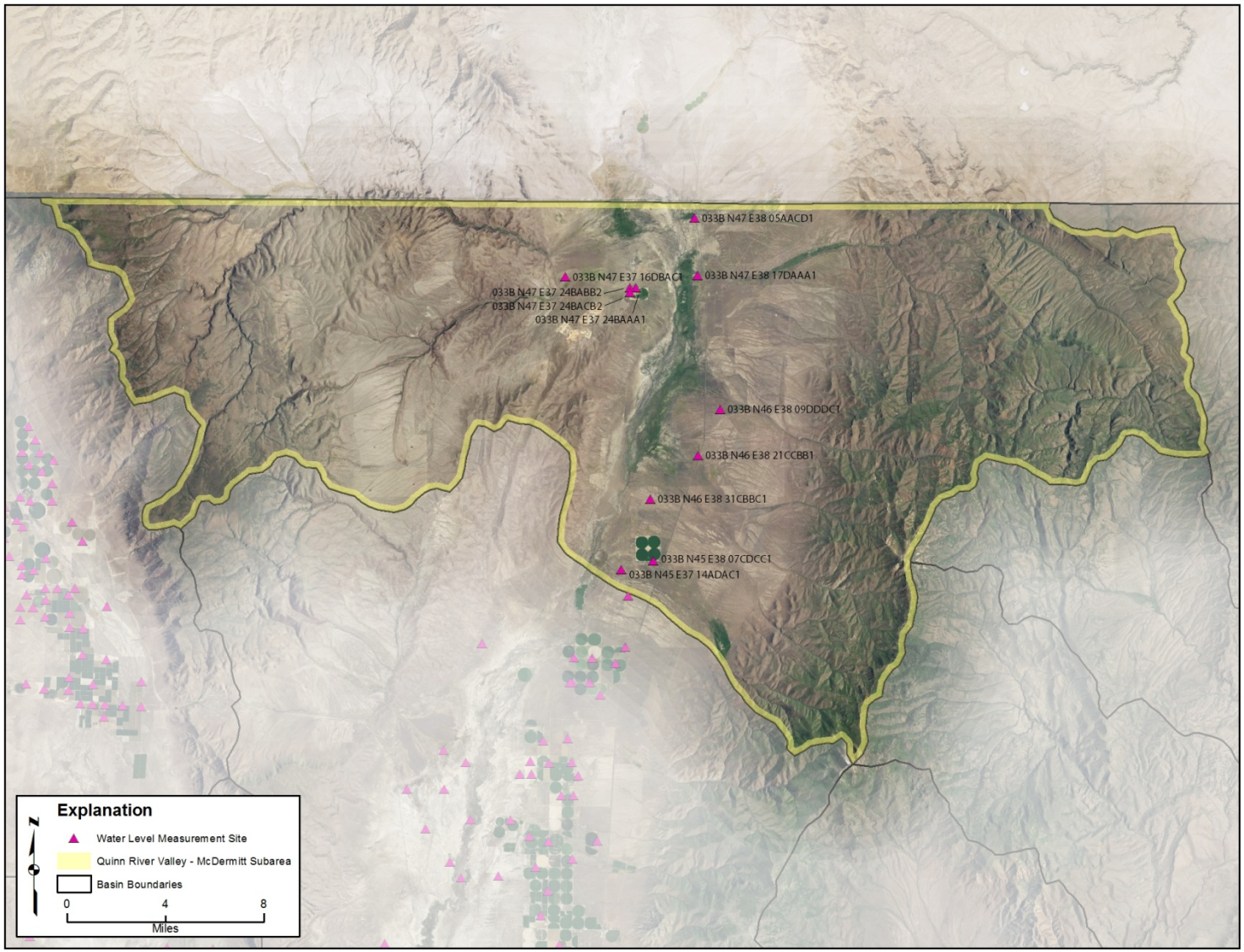

Figure 2. Map showing Quinn River Valley - McDermitt Subarea farm areas and water level monitoring sites.

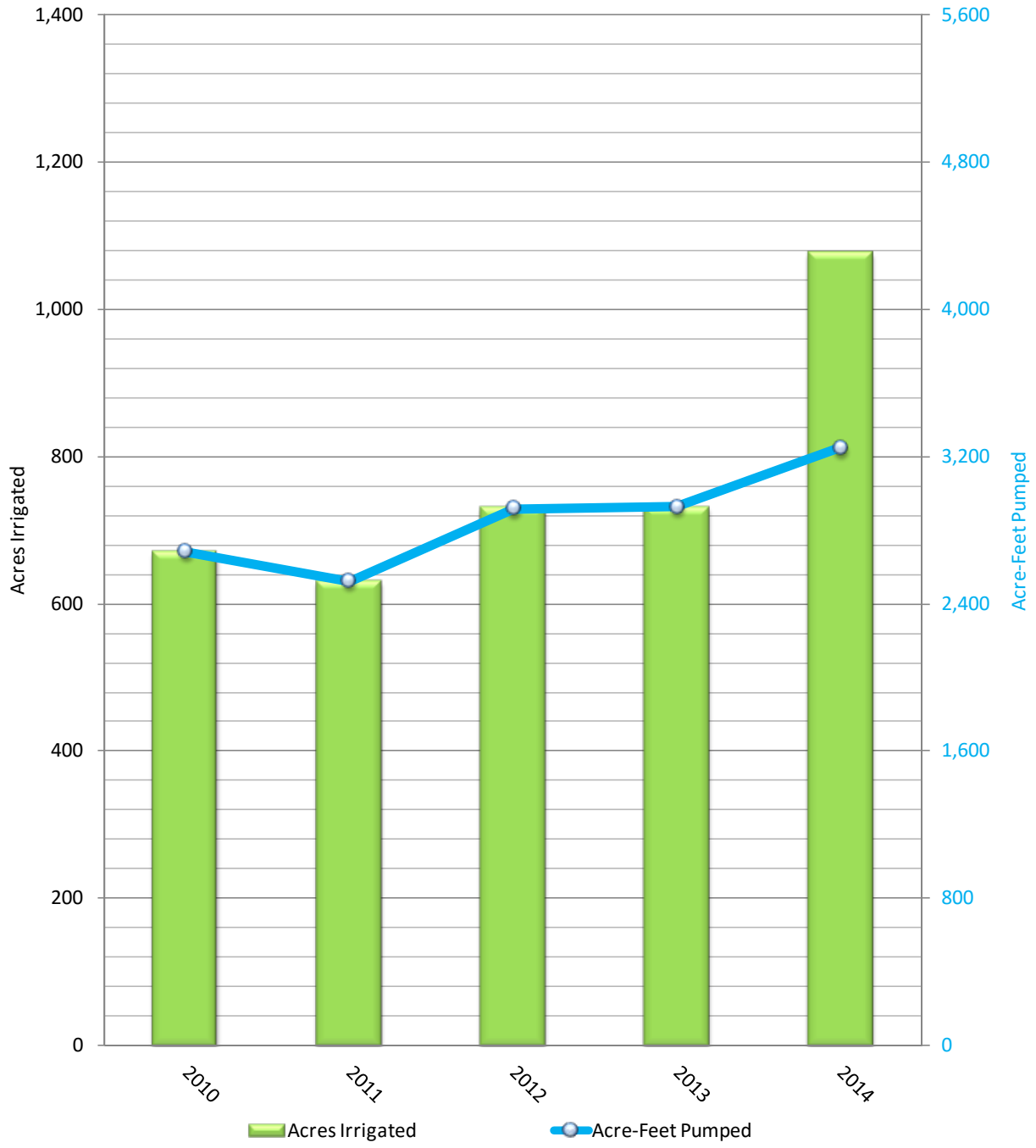

Figure 3. Graph showing Quinn River Valley - McDermitt Subarea historical irrigated acreage and pumpage. The NIWR method to estimate pumpage was used starting in 2014; estimates may differ significantly from previous years. Historical pumpage data modified from previously published data.

APPENDIX A. 2014 QUINN RIVER VALLEY - MCDERMITT SUBAREA) CROP INVENTORY.

EXPLANATION OF COLUMN HEADINGS

App No	The file number of the Application to Appropriate/Change Water
Status	Indicates the status of an application: Permit (PER), Certificated, or a Claim of Vested Right (VST). If an application has been certificated, the Certificate number will be listed in the column.
QQ	The quarter quarter of the Section in which the point of diversion is located.
Q	The quarter of the Section in which the point of diversion is located.
SEC	The Section in which the point of diversion is located.
Twn	The Township in which the point of diversion is located.
Rng	The Range in which the point of diversion is located.
Sup	Indicates whether the groundwater right is part of a group of groundwater rights used to irrigate all or a portion of the same acreage (supplemental). A Y in this column signifies the groundwater right is supplemental.
Supplemental Application Number	The application number(s) of the water right(s) that are supplemental.
Permitted Acres	The number of acres defined by the permit or certificate that are eligible to be irrigated.
Permitted Duty Acre-Feet	The amount of water that may be pumped in a given year, or season, expressed in acre-feet as defined by the permit or certificate.
Owner of Record	The owner of the water right as recorded in the records of the State Engineer. A water right may have more than one owner of record. Only the first, alphabetically, is listed in this table.
Crop Type	The common name description of the plants under cultivation (e.g. alfalfa).
Irrigation Method	The method by which the water is applied to the crop and ground (e.g. pivot).
Irrigated Acres	The number of irrigated acres associated with a particular water right.

Acreage Estimation Method	The method by which the number of acres irrigated was determined. F - Field inspection. I - Aerial or satellite imagery.
Acre-Feet Pumped	The estimate of the amount of water pumped under a particular water right, expressed in acre-feet. One acre-foot equals 325,851 gallons.
Pumpage Estimation Method	The method used to estimate the amount of water pumped. M - Totalizing meter readings. NIWR -. The number of acres under cultivation was then multiplied by Net Irrigation Water Requirement (NIWR), for the crop then divided by the efficiency of the irrigation method.
Remarks	Description of circumstances pertaining to the well, the acreage, or the use of the water that are not accommodated by the other fields in the table.

Crop Inventory and Groundwater Pumpage for Irrigation - Quinn River McDermitt Subarea - Basin 033B, 2014

App No	Status	QQ	Q	Sec	Twn	Rng	Sup	Supplemental Application Number	Permitted Acres	Supplementally Adjusted Permitted Acres	Permitted Duty Acre-Feet	Supplementally Adjusted Duty Acre-Feet	Owner of Record	Crop Type	NIWR Rates	Irrigation Method	Irrigation Efficiency %	Irrigated Acres	Acreage Estimation Method	Acre-Feet Pumped	Pumpage Estimation Method	Remarks
58518	PER	NW	SE	16	47N	37E			170.55	170.55	667.51	667.51	Maher, Steve and Amorita	Grain		Pivots		180	F, I	261.03	M	
23449	CER	NW	SE	20	47N	37E	N		11.66	11.66	46.64	46.64	Mentaberry Brothers					0	F, I	0.00		
30944	CER	NE	NW	24	47N	37E	Y	1	89.21		356.84		Mentaberry, John	Alfalfa	2.8	Pivot	85%	120	F, I	395.29	N	
30945	CER	NE	NW	24	47N	37E	Y	1	89.21		356.84		Mentaberry, John									
46821	CER	NE	NW	24	47N	37E	Y	25093 (surface)	24	24	96	96	Mentaberry, John									
25089	CER	NE	NW	24	47N	37E	N	1	63.85	153.12	255.64	612.5	Mentaberry, George & Eddie	Alfalfa	2.8	Pivot	85%	60	F, I	197.65	N	
18724	CER	NE	NW	24	47N	37E	N	1	52.25		209		Mentaberry Brothers					0	F, I	0.00		
15673	CER	NE	NE	5	47N	38E	N		97.72	97.72	390.88	390.88	Albisu, John A. & Rosie	Pasture	2.1	Flood	60%	81	F, I	283.50	N	
13605	CER	NE	SE	17	47N	38E	Y	16602, (surface)	215.97	215.97	863.9	863.9	Nouque Family Trust	Pasture	2.1	Flood	60%	70	F, I	245.00	N	
17650	CER	SE	SW	7	45N	38E	Y	17615, 28816	284.4	588.68	1087.5	2354.7	Brinkerhoff, Denis	Alfalfa	2.8	Pivot	85%	134	F, I	441.41	N	
														Alfalfa	2.8	Pivot	85%	134	F, I	441.41	N	
28816	CER	SE	SW	7	45N	38E	Y	17615, 17650	586.46		2345.84		Brinkerhoff, Denis	Alfalfa	2.8	Pivot	85%	134	F, I	441.41	N	
														Alfalfa	2.8	Pivot	85%	10	F, I	32.94	N	
17615	CER	SE	SE	12	45N	37E	Y	17650, 28816	316.8		1267.2		Brinkerhoff, Denis	Alfalfa	2.8	Pivot	85%	134	F, I	441.41	N	
														Alfalfa	2.8	Pivot	85%	20	F, I	65.88	N	

Total Supplementally Adjusted Permitted/Certificated Acreage	1261.7	**Total Estimated Acreage**	1077.00
Total Supplementally Adjusted Permitted/Certificated Pumpage	5032.13	**Total Estimated Pumpage**	3246.94

[1] PERMITS 18724, 25089,30944, AND 30945 HAVE A TOTAL COMBINED DUTY OF 612.5 AFA.