

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

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BIG SMOKY VALLEY–NORTHERN PART
HYDROGRAPHIC BASIN 10-137B

CROP INVENTORY

CALENDAR YEAR 2019

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ABSTRACT

This inventory represents the status and usage of all permitted and certificated groundwater rights for irrigation purposes located within Big Smoky Valley–Northern Part, Hydrographic Basin 10-137B, for calendar year 2019. **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 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 2019, the permitted and certificated groundwater rights for irrigation purposes totaled 9,771 acres with a total duty of 39,447 acre-feet within Big Smoky Valley–Northern Part. An estimated **3,791 acres** were irrigated and **15,462 acre-feet** were pumped during 2019.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER	137B, REGION 10
HYDROGRAPHIC BASIN NAME	BIG SMOKY VALLEY– NORTHERN PART
COUNTIES	LANDER, NYE
MAJOR COMMUNITIES	CARVERS, ROUND MOUNTAIN
BASIN DESIGNATION STATUS	DESIGNATED
DENIALS BASED UPON WATER AVAILABILITY	3293 , IRR DEN, 12/19/1985
ESTIMATED IRRIGATION PUMPAGE 2019 (ACRE-FEET)	15,462*

STATE ENGINEER’S ORDERS

NO. 827 – DESIGNATION OF BASIN	OCTOBER 24, 1983
NO. 852 – AMENDED DESIGNATION	APRIL 4, 1985
NO. 1233 – MINE DEWATERING	DECEMBER 20, 2013

COMMITTED GROUNDWATER RESOURCE FOR IRRIGATION PURPOSES: 39,447 ACRE-FEET
DATE: DECEMBER 2019

NOTE: Committed groundwater resource data are accurate for December 2019. 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 manners of use 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 Big Smoky Valley–Northern Part Hydrographic Basin (10-137B), for calendar year 2019.

DESCRIPTION OF THE STUDY AREA

The Big Smoky Valley–Northern Part Hydrographic Basin is located in central Nevada (Figure 1) and occupies approximately 1,323 square miles within Lander and Nye Counties. The adjacent hydrographic basins are Upper Reese River Valley (4-056) to the west, Grass Valley (10-138) to the north, Kobeh Valley (10-139) to the northeast, Monitor Valley–Northern Part (10-140A) and Monitor Valley–Southern Part (10-140B) to the east, Ralston Valley (10-141) to the southeast, and Big Smoky Valley–Tonopah Flat (10-137A) to the south.

Big Smoky Valley–Northern Part is bounded on the west by the Toiyabe Range, to the north by the southern reaches of the Simpson Park Range, and to the east by the Toquima Range. The southern basin boundary is an administrative delineation just south of the town of Round Mountain. The valley is approximately 24 miles wide by 67 miles long, with elevations ranging from approximately 5,500 feet above mean sea level at the valley floor to over 11,000 feet in the surrounding mountains. Irrigation occurs at various areas throughout the lowland portion of the basin (Figure 2).

GROUNDWATER LEVELS

Depths to groundwater in Big Smoky Valley–Northern Part are measured by NDWR and also reported by other entities. Data for active monitoring well sites (Figure 2) can be found on NDWR’s website at <http://water.nv.gov/WaterLevelData.aspx>, or via the Nevada Hydrology Data Mapping Application, accessible at <http://water.nv.gov/mapping.aspx>. Groundwater level data are also collected by the U.S. Geological Survey (USGS) and may be accessed through their website at <https://waterdata.usgs.gov/nv/nwis/gw>.

METHODS TO ESTIMATE IRRIGATED ACREAGE

This report estimates the number of acres irrigated by the groundwater pumped under permits, certificates, and claims of vested right 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 the permits and certificates issued by the Nevada State Engineer as well as claims of vested right in the Big Smoky Valley–Northern Part Hydrographic Basin. 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>.

TABLES

Table 1. Big Smoky Valley–Northern Part historical irrigated acreage and pumpage data.

Year	2015	2016	2017	2018	2019
Acres Irrigated	3,305	3,419	2,432	3,642	3,791
Acre-Feet Pumped	11,195	11,032	9,685	14,111	15,462

FIGURES

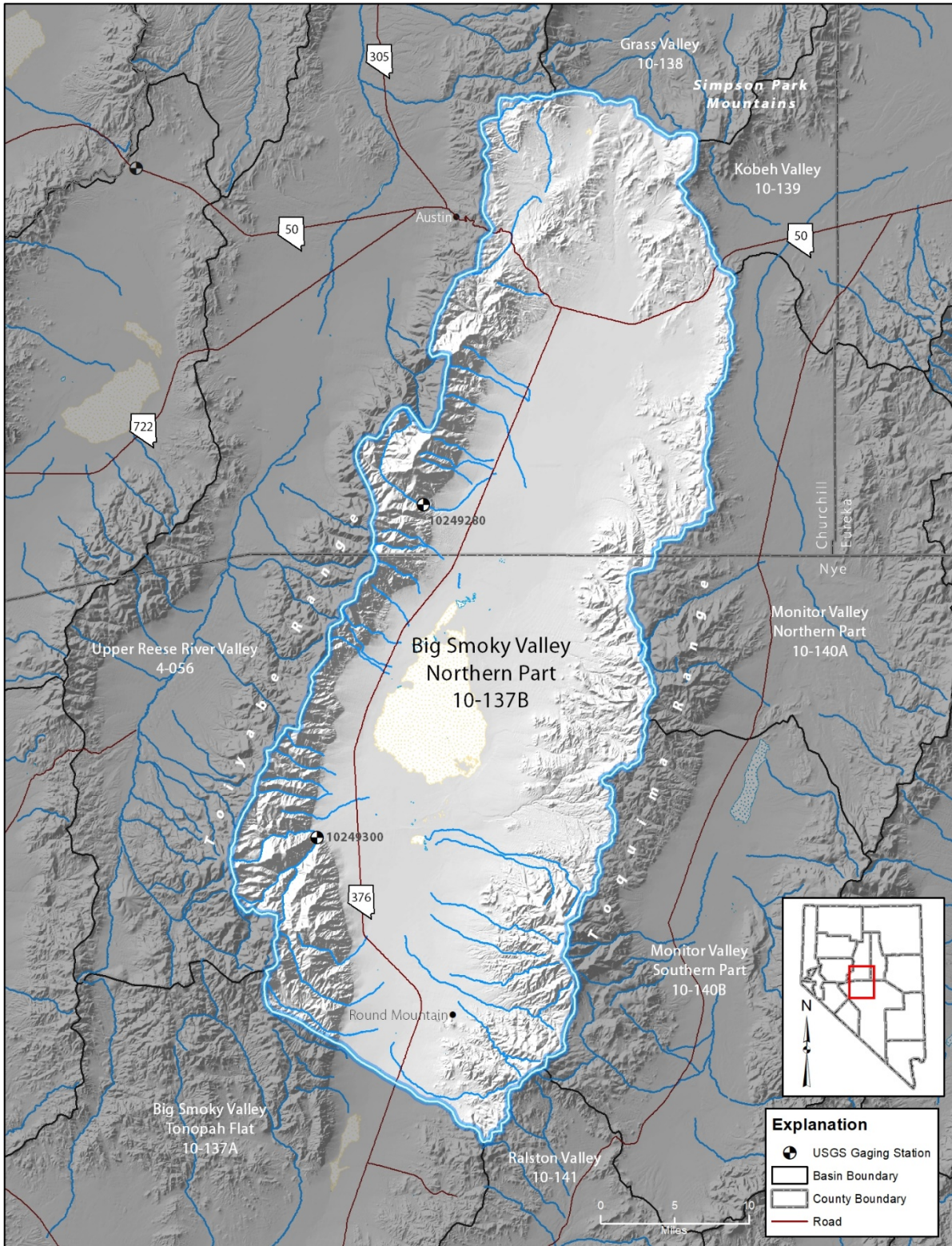


Figure 1. Physiographic map of Big Smoky Valley–Northern Part (Hydrographic Basin 10-137B).

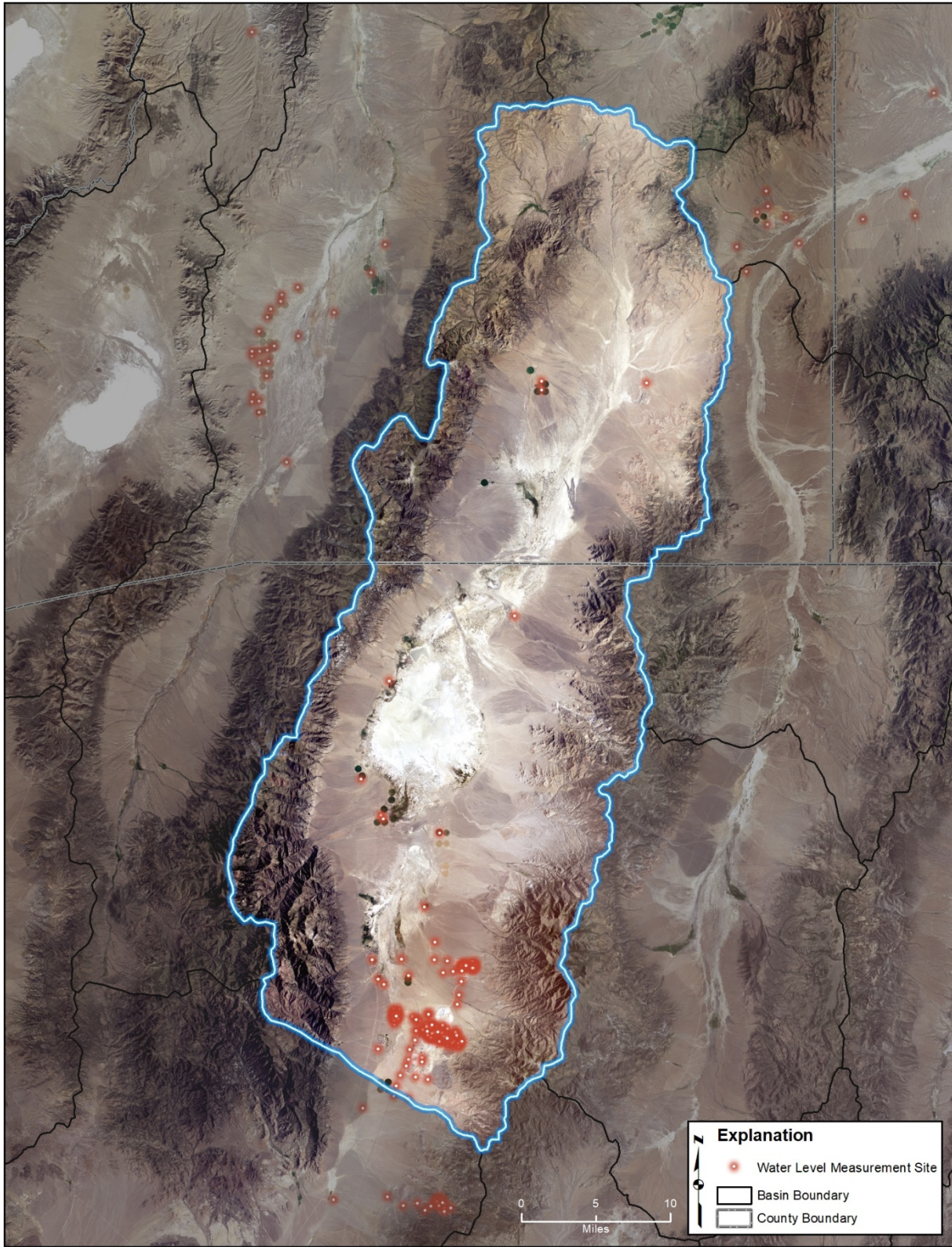


Figure 2. Big Smoky Valley–Northern Part irrigated acreage and groundwater level monitoring sites. Due to the high density of well sites within the southern portion of the basin, site names were omitted from this map.

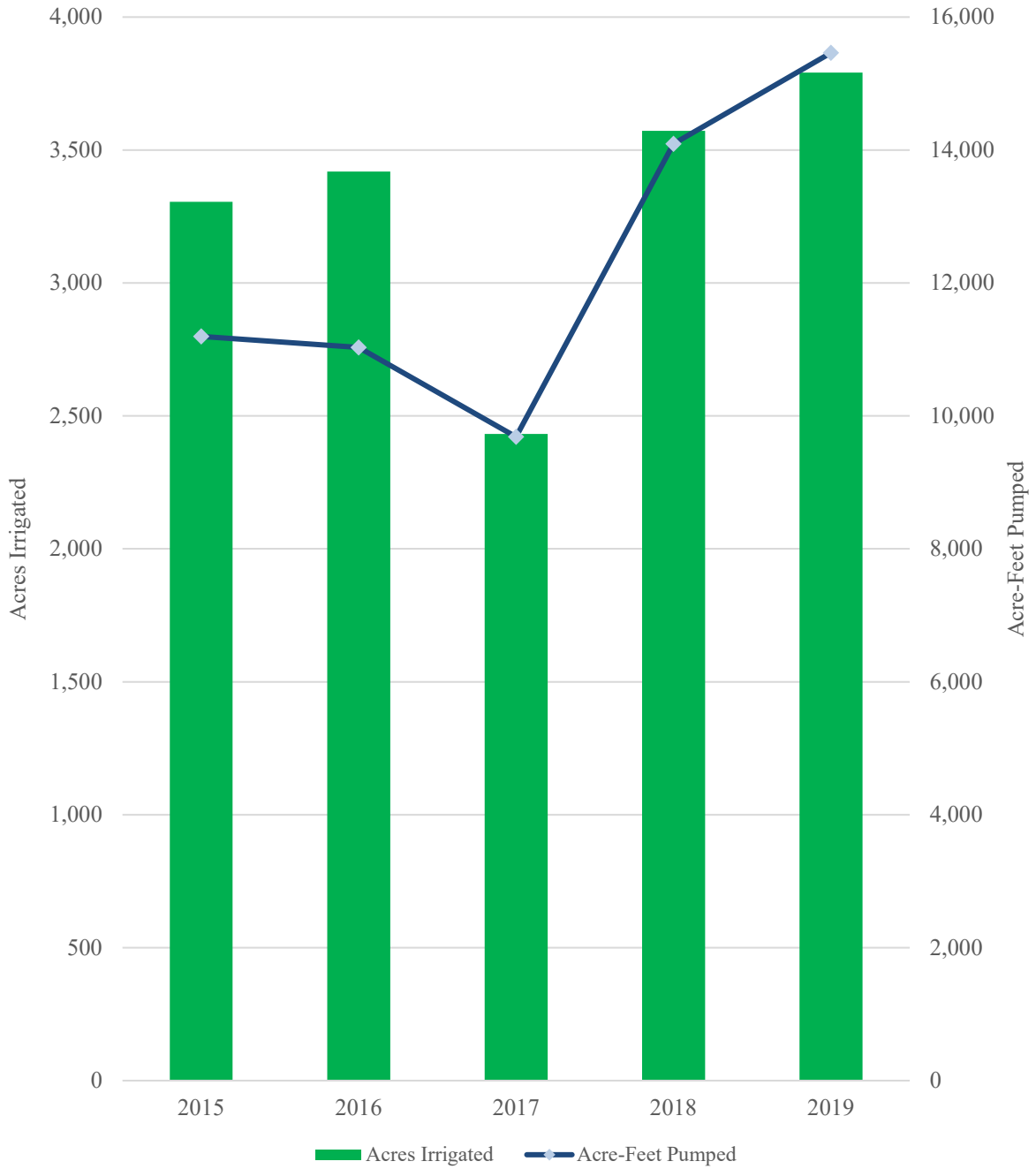


Figure 3. Big Smoky Valley–Northern Part historical irrigated acreage and pumpage.

APPENDIX A. 2019 BIG SMOKY VALLEY–NORTHERN PART CROP INVENTORY

EXPLANATION OF COLUMN HEADINGS

App No.	The file number of the Application to Appropriate/Change Water or the Claim of Vested Right.
Status	Indicates the status of an application: Permit (PER), Certificated (CER), or a Claim of Vested Right (VST).
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 to other groundwater rights.
Supplemental Application Number	The application number(s) of the water right(s) that are supplemental to one another.
Permitted Acres	The number of acres defined by the permit or certificate that is eligible to be irrigated.
Supplementally Adjusted Permitted Acres	The supplementally adjusted, total number of acres that is eligible to be irrigated under a supplemental group of water rights.
Permitted Duty (acre-feet)	The amount of water that may be pumped in a given year, or season, as defined by the permit, certificate, or claim of vested right. If there is a supplemental group, the total combined duty is listed as a supplementally adjusted duty.
Supplementally Adjusted Duty (acre-feet)	The supplementally adjusted, total combined duty that may be pumped in a given year, or season, for a supplemental group of water rights, expressed in acre-feet.
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	Indicates whether or not a crop was in production during the water year. If a crop was in production, the common name description of the plants under cultivation is given (e.g. alfalfa).

NIWR (ft)	Net Irrigation Water Requirement, defined to be equal to the annual crop evapotranspiration less the effective precipitation entering the root zone that is available for evaporation or transpiration.
Irrigation Method	The method by which the water is applied to the crop and ground (e.g. pivot).
Irrigation Efficiency	The estimated efficiency of the desired irrigation method used.
Irrigated Acreage	The estimate of the number of acres irrigated associated with a particular water right. A “-” in this field indicates that pumpage was attributed to a senior supplemental permit or certificated 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. A “-” in this field indicates that pumpage was attributed to a senior supplemental permit or certificated water right.
Pumpage Estimation Method	The method used to estimate the amount of water pumped. M – Totalizing meter readings. N – NIWR Method. D – Duty. X – Works of diversion are unequipped or non-functioning. Z – Works of diversion not yet constructed.

App No.	Status	County	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	Irrigation Method	Irrigated Acres	Acreage Estimation Method	Irrigation Efficiency	Acres-Foot Pumped	Pumpage Estimation Method
7300	CER	Nye	NE NW	24	10N	43E				12.00	12.00	15.00	15.00	STONIER, CAROL L.	None			0.00	F		0.00	
14014	CER	Nye	NW SW	9	12N	43E	Y	Footnote 1	781.87	5,120.00	3,127.50	20,480.00	BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	781.30	F	85%	3,127.50	D	
14015	CER	Nye	SW SE	8	12N	43E	Y	Footnote 1	969.66		487.80		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		181.54	N	
16847	CER	Nye	SW NE	28	14N	43E	Y	Footnote 2	1.25	87.92	5.00	351.68	MCLEOD RANCH & FISHERY LLC	Alfalfa	3.6	Wheel Lines	1.25	F	75%	6.00	N	
16848	CER	Nye	NW SE	28	14N	43E	Y	Footnote 2	20.47		81.88		MCLEOD RANCH & FISHERY LLC	Alfalfa	3.6	Wheel Lines	--	F		--	N	
18509	CER	Lander	NW SW	35	19N	45E			34.70	34.70	138.80	138.80	PARSONS, CHARLES W	None		Flood	0.00	F		0.00		
18840	CER	Nye	SE NW	29	11N	43E			3.12	3.12	12.48	12.48	CARVER, RICHARD L. AND MARGARET A.	None		None	0.00	N/A		0.00		
22606	CER	Nye	SW NW	33	11N	43E			15.00	15.00	60.00	60.00	STONIER, CAROL L	None		Wheel Lines	0.00	F		0.00		
26278	CER	Nye	SW SE	29	11N	43E			46.90	46.90	187.60	187.60	BERG, RONALD LEE	Alfalfa	3.6	Pivot	41.00	F	85%	173.65	N	
88045	CER	Nye	SE NE	11	11N	43E	Y	Footnote 4	14.69	280.00	58.76		KNIEFEL, RICHARD & TWILA	Alfalfa	3.6	Pivot	13.87	F	85%	58.76	D	
30130	CER	Nye	NW SE	4	12N	43E	Y	Footnote 1	198.50		794.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
31271	CER	Nye	NE NE	19	11N	43E	Y	Footnote 5	204.07	204.07	150.70	450.95	BTAZ NEVADA, LLC	Meadow Hay	3.5	Flood	10.20	F	60%	59.50	N	
32420	PER	Nye	SW NW	9	12N	43E	Y	Footnote 1	960.00		3,840.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
38752	CER	Nye	NE NE	5	10N	43E			74.92	74.92	299.68	299.68	BERG, KARL & ALICE	None		Wheel Lines	0.00	F		0.00		
40007	CER	Nye	SW NE	28	14N	43E	Y	Footnote 2	47.00		179.07		MCLEOD RANCH & FISHERY LLC	Alfalfa	3.6	Wheel Lines	47.00	F	75%	179.07	D	
44373	PER	Nye	NW SE	4	12N	43E	Y	Footnote 1	1,120.00		486.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
44374	PER	Nye	SW SE	4	12N	43E	Y	Footnote 1	1,000.00		4,000.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
45528	PER	Nye	SE SE	9	12N	43E	Y	Footnote 1	1,160.00		1,280.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
45530	PER	Nye	SE NW	33	13N	43E	Y	Footnote 1	1,520.00		1,280.00		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
46219	CER	Nye	NW NW	2	10N	43E			157.62	157.62	630.48	630.48	BTAZ NEVADA, LLC	Grass	3.5	Pivot	139.11	F	85%	572.81	N	
46687	CER	Nye	NW NW	2	10N	43E			78.38	78.38	313.52	313.52	BTAZ NEVADA, LLC	Grass	3.5	Pivot	62.09	F	85%	255.66	N	
51563	CER	Nye	SW SE	30	13N	43E			125.36	125.36	501.44	501.44	CANDEE, WILLIAM AND JOAN M.	Alfalfa	3.6	Pivot	125.36	F	85%	501.44	D	
52194	CER	Nye	NE NE	19	11N	43E	Y	Footnote 5	204.07		150.12		BTAZ NEVADA, LLC	Meadow Hay	3.5	Flood	--	F		--	N	
52730	CER	Nye	NE NE	19	11N	43E	Y	Footnote 5	204.07		150.12		BTAZ NEVADA, LLC	Meadow Hay	3.5	Flood	--	F		--	N	
52856	CER	Nye	NE SW	4	10N	43E			6.86	6.86	27.44	27.44	JONES, EVERETTE E. & VIRGINIA P.	Grass	3.5	Wheel Lines	6.86	F	75%	27.44	D	
54495	CER	Nye	SE NW	10	14N	43E	Y	Footnote 6	10.13	10.13	40.52	40.52	WALTERS, GORDON C	None		Sprinkler	0.00	F		0.00		
54911	CER	Nye	SW SW	28	10N	43E	Y	54912, 64181	32.79	105.81	131.16	487.24	ROUND MOUNTAIN GOLD CORP AND KG MINING INC.	Grass	3.5	Sprinkler	32.79	F		131.16	M	
54912	CER	Nye	SW SW	28	10N	43E	Y	54911, 64181	73.02		292.08		ROUND MOUNTAIN GOLD CORP AND KG MINING INC.	Grass	3.5	Sprinkler	73.02	F		292.08	M	
56192	PER	Nye	NW SE	9	12N	43E	Y	Footnote 1	1,468.68		4,343.82		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
56678	PER	Nye	NW SW	3	12N	43E	Y	Footnote 1	1,720.00		4,343.82		BTAZ NEVADA, LLC	Alfalfa, Grass	3.6	Pivot	--	F		--	N	
56692	CER	Nye	NE SW	10	14N	43E			4.76	4.76	11.82	11.82	KASTEN, JOEL T. & GEORGIA L	Pasture, Trees	2.8	Sprinkler	4.76	F	75%	11.82	D	
59759	PER	Nye	NE NE	9	12N	43E	Y	Footnote 1	1,000.00		4,000.00		BTAZ NEVADA, LLC	Alfalfa, Grass		Pivot	--	F		--	N	
62459	CER	Nye	SW NE	30	13N	43E			127.56	127.56	510.24	510.24	CANDEE, WILLIAM AND JOAN M.	Alfalfa	3.6	Pivot	110.00	F	85%	465.88	N	
64181	PER	Nye	SW SW	28	10N	43E	Y	54911, 54912	105.81		64.00		ROUND MTN GOLD CORP	Grass		Sprinkler	31.69	F		126.76	M	
66537	PER	Lander	NW SE	18	17N	45E			251.36	251.36	754.08	754.08	YOUNG, RALPH	Alfalfa	3.6	Pivot	240.00	F	85%	754.08	D	
66538	PER	Lander	NW NE	18	17N	45E			320.00	320.00	960.00	960.00	YOUNG, PATRICIA	Alfalfa	3.6	Pivot	240.00	F	85%	960.00	D	
70212	PER	Nye	NW NE	15	14N	43E	Y	Footnote 7	100.00	200.00	400.00	800.00	HASTIE, MICHAEL C.	Pasture	2.8	Flood	50.00	F	60%	233.33	N	
73563	PER	Nye	SW NW	19	12N	44E			300.00	300.00	1,200.00	1,200.00	BTAZ NEVADA, LLC	Alfalfa	3.6	Pivot	252.00	F	85%	1,067.29	N	
73564	PER	Nye	SW NW	18	12N	44E			300.00	300.00	1,200.00	1,200.00	BTAZ NEVADA, LLC	Alfalfa	3.6	Pivot	252.00	F	85%	1,067.29	N	
73565	PER	Nye	NW SE	30	12N	44E			300.00	300.00	1,200.00	1,200.00	BTAZ NEVADA, LLC	Alfalfa	3.6	Pivot	252.00	F	85%	1,067.29	N	
76073	PER	Nye	SW SE	7	13N	43E	Y	Footnote 8	130.75	130.75	422.71	422.71	BERG, RONALD L & GLENDA G	Pasture	2.8	Flood	130.75	F	60%	422.71	D	
88046	PER	Nye	SE NE	11	11N	43E	Y	Footnote 4	160.00		640.00		KNIEFEL, RICHARD & TWILA	Alfalfa	3.6	Pivot	55.31	F	85%	234.25	N	
88043	PER	Nye	SW W	1	11N	43E	Y	Footnote 4	280.00		960.00	1,120.00	KNIEFEL, RICHARD & TWILA	Alfalfa	3.6	Pivot	--	F		--	N	
88044	PER	Nye	SW W	1	11N	43E	Y	Footnote 4	280.00		960.00		KNIEFEL, RICHARD & TWILA	Alfalfa	3.6	Pivot	--	F		--	N	
77047	PER	Nye	SW SW	9	11N	43E	Y	Footnote 9	8.14	31.27	32.56	125.07	BERG, WILLIAM A., JR.	Meadow Hay	3.5	Wheel Lines	8.14	F	75%	32.56	D	
77048	PER	Nye	SW SW	9	11N	43E	Y	Footnote 9	8.81		35.23		BERG, WILLIAM A., JR.	Meadow Hay	3.5	Flood	6.86	F	60%	35.23	D	
77049	PER	Nye	SW SW	9	11N	43E	Y	Footnote 9	7.82		31.28		BERG, WILLIAM A., JR.	None		None	0.00	F		0.00		
77220	PER	Nye	NW SW	20	15N	44E	Y	Footnote 10	480.00	480.00	1,560.00	1,560.00	BTAZ NEVADA, LLC	None		None	0.00	F		0.00		
77641	PER	Lander	NE NE	21	16N	44E	Y	Footnote 11	320.00	320.00	1,280.00	1,280.00	YOUNG BROTHERS	Alfalfa	3.6	Pivot	124.00	F	85%	525.18	N	

App No.	Status	County	QQ	Q	Sec	Tw	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	Irrigation Method	Irrigated Acres	Acreage Estimation Method	Irrigation Efficiency	Acre-Feet Pumped	Pumpage Estimation Method
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¹² PERMIT 82643 IS SUPPLEMENTAL TO THE WATERS OF BELCHER CREEK UNDER PERMIT 6366, CERTIFICATE 1971; PERMIT 13612, CERTIFICATE 5150; PERMIT 15272, CERTIFICATE 5662 AND PROOF OF APPROPRIATION V00706.

¹³ APPROXIMATELY 91.1 ACRES WITHIN THE DESCRIBED PLACE OF USE OF PERMIT 82671 ARE SUPPLEMENTAL TO THE WATERS OF AIKEN CREEK UNDER PERMIT 25482, CERTIFICATE 7441.

¹⁴ PERMIT 84184 MAY BE SUPPLEMENTAL TO THE WATERS OF MCLEOD CREEK UNDER PROOF OF APPROPRIATION V05777.

¹⁵ PERMIT 85899 IS SUPPLEMENTAL TO THE WATERS OF BLACKBIRD CREEK UNDER PERMIT 20042.