

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

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NEWARK VALLEY
HYDROGRAPHIC BASIN 10-154

CROP INVENTORY

CALENDAR YEAR 2014

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ABSTRACT

This inventory represents the status and usage of all permitted, certificated, and claims of vested right groundwater rights for irrigation purposes located within Newark Valley, Hydrographic Basin 10-154, 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 **6,566 acres** with a total duty of 24,903 acre-feet within Newark Valley. An estimated **2,708 acres** were irrigated and 8,490 acre-feet were pumped during 2014.

HYDROGRAPHIC BASIN SUMMARY

HYDROGRAPHIC BASIN NUMBER	154, REGION 10
HYDROGRAPHIC BASIN NAME	NEWARK VALLEY
COUNTIES	WHITE PINE, EUREKA
MAJOR COMMUNITIES	NONE
DESIGNATED BASIN	NON-DESIGNATED
DENIALS BASED UPON WATER AVAILABILITY	5561 , IRR DEN, 2/9/2006 5562 , IRR DEN, 2/9/2006 5925 , IRR DEN, 2/4/2009
ESTIMATED IRRIGATION PUMPAGE 2014 (ACRE-FEET)	8,490*
STATE ENGINEER'S ORDERS	NONE

COMMITTED GROUNDWATER RESOURCE FOR IRRIGATION PURPOSES: 24,903 ACRE-FEET
DATE: DECEMBER 2014

NOTE: Committed groundwater resource data are approximate for December 2014. 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 Newark Valley Hydrographic Basin (10-154), for the year 2014.

DESCRIPTION OF THE STUDY AREA

The Newark Valley Hydrographic Basin is located in eastern central Nevada (Figure 1), occupying approximately 801 square miles in White Pine and Eureka Counties. The adjacent hydrographic basins are Huntington Valley (4-047) to the north, Ruby Valley (10-176) to the northeast, Long Valley (10-175) to the east, Jakes Valley (10-174) to the southeast, Railroad Valley – Northern Part (10-173B) to the south, Little Smoky Valley – Northern Part (10-155A) and Diamond Valley (10-153) to the west.

Newark Valley is bounded by the Diamond Mountain Range on the west, the Ruby Mountains to the north, White Pine Range to the east and by the Pancake Range to the south. The southwest is bounded by an administrative delineation with the adjacent Little Smoky Valley – Northern Part hydrographic basin. Newark Valley is approximately 15 miles wide by 25 miles long with basin elevations ranging from approximately 5,860 feet above mean sea level on the valley floor to approximately 10,600 feet in the surrounding mountains. Irrigation is scattered throughout the basin (Figure 2).

GROUNDWATER LEVELS

Depths to groundwater in Newark Valley are measured by multiple agencies on an annual basis. Sites at which water level measurements are made include:

<u>154 N17 E54 11A 1</u>	<u>154 N17 E54 16B 1</u>	<u>154 N17 E55 04CA 1</u>
<u>154 N17 E55 18AB 1</u>	<u>154 N17 E55 18AD 1</u>	<u>154 N17 E55 18DB 1</u>
<u>154 N17 E55 18DC 1</u>	<u>154 N17 E56 34ABAD1</u>	<u>154 N18 E55 08BDA 01</u>
<u>154 N18 E55 09AB 1</u>	<u>154 N18 E55 09BC 1</u>	<u>154 N18 E55 09BCC 1</u>
<u>154 N18 E55 11CD 1</u>	<u>154 N18 E55 19B 1</u>	<u>154 N18 E55 21DD 1</u>
<u>154 N18 E55 30A 1</u>	<u>154 N19 E55 15BB 1</u>	<u>154 N19 E55 15CCC 2</u>
<u>154 N19 E55 22AC 1</u>	<u>154 N19 E55 22BC 1</u>	<u>154 N19 E55 22CC 1</u>
<u>154 N19 E55 22DC 1</u>	<u>154 N19 E55 27DC 1</u>	<u>154 N19 E56 13BC 1</u>
<u>154 N20 E55 34DD 1</u>	<u>154 N21 E55 03D 1</u>	<u>154 N21 E56 20AB 1</u>
<u>154 N22 E56 10CA 1</u>	<u>154 N23 E55 24BA 1</u>	<u>154 N23 E55 35ADC 01</u>
<u>154 N23 E56 16DB 1</u>		

Water level measurements have also been made by the U.S. Geological Survey, and are available from their website (www.nevada.usgs.gov).

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 Newark Valley 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/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 of previous years.
- Where lands were irrigated by both surface water and groundwater, the surface water supply for the irrigation season was considered in estimating groundwater pumpage.

TABLES

Table 1. Newark Valley historical irrigated acreage and pumpage data.

Year	2010	2011	2012	2013	2014
Acres Irrigated	2,391	2,566	2,653	2,856	2,708
Acre-Feet Pumped*	8,934	9,309	9,319	10,051	8,490

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

FIGURES

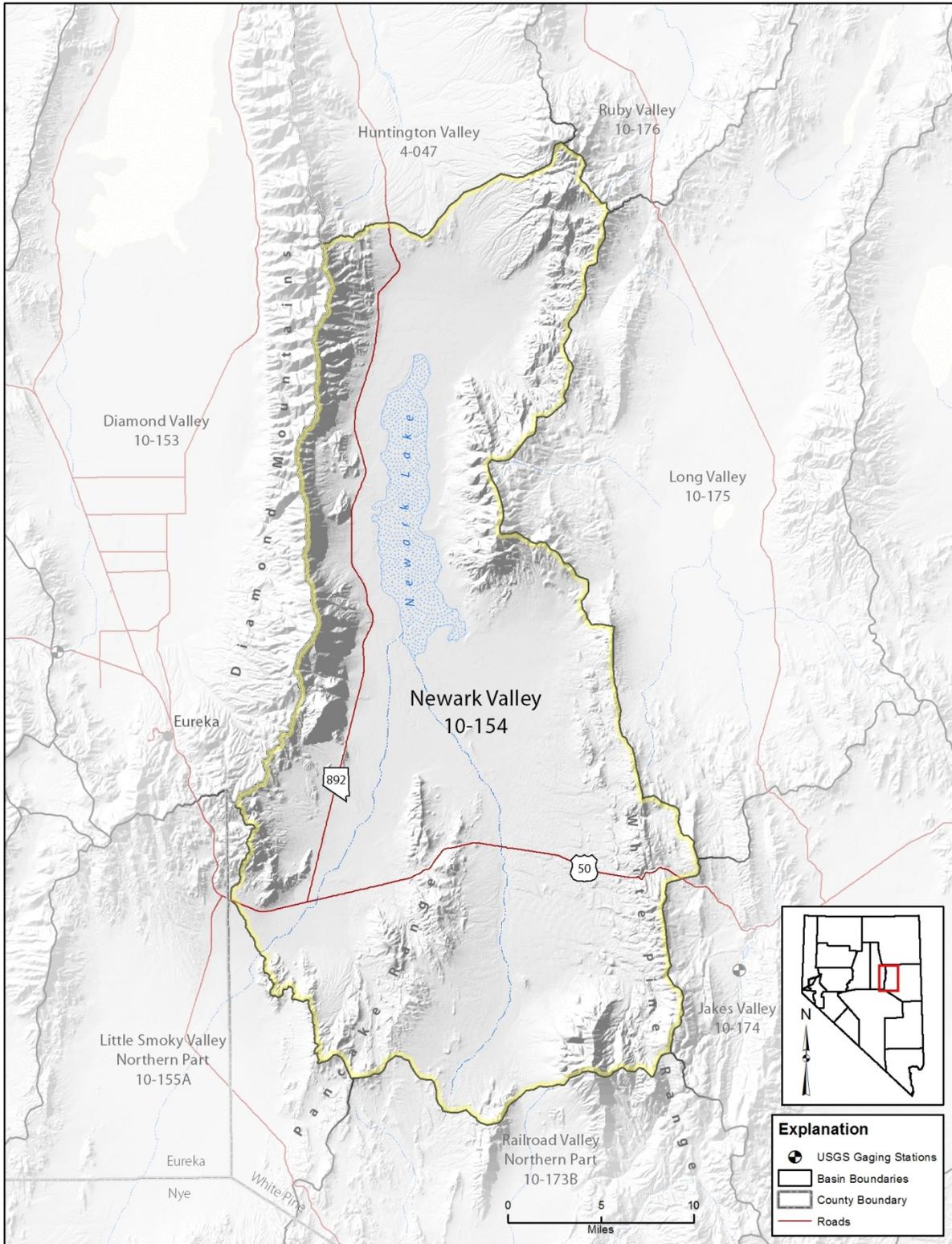


Figure 1. Physiographic map of Newark Valley (Hydrographic Basin 10-154).

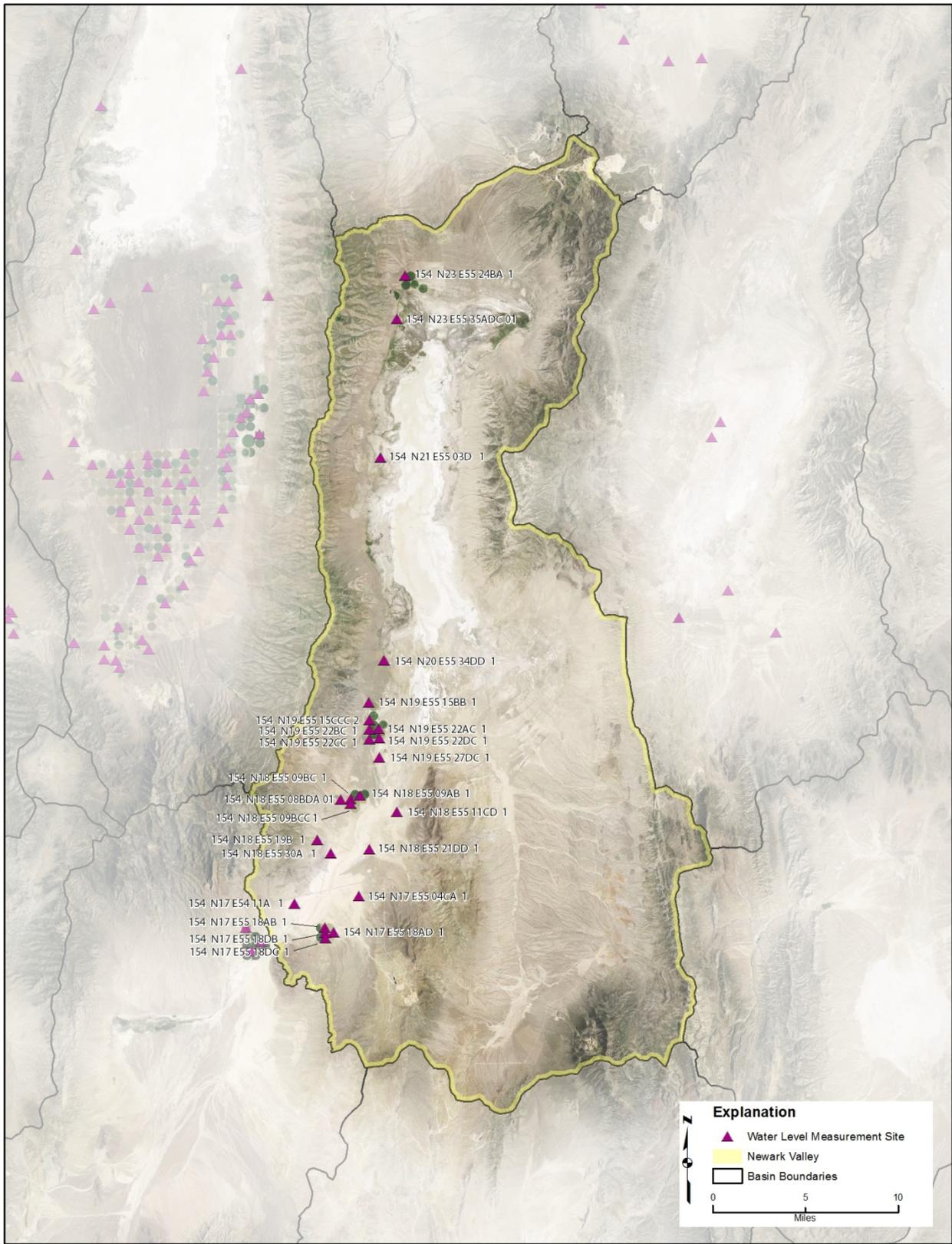


Figure 2. Map showing Newark Valley water level monitoring sites.

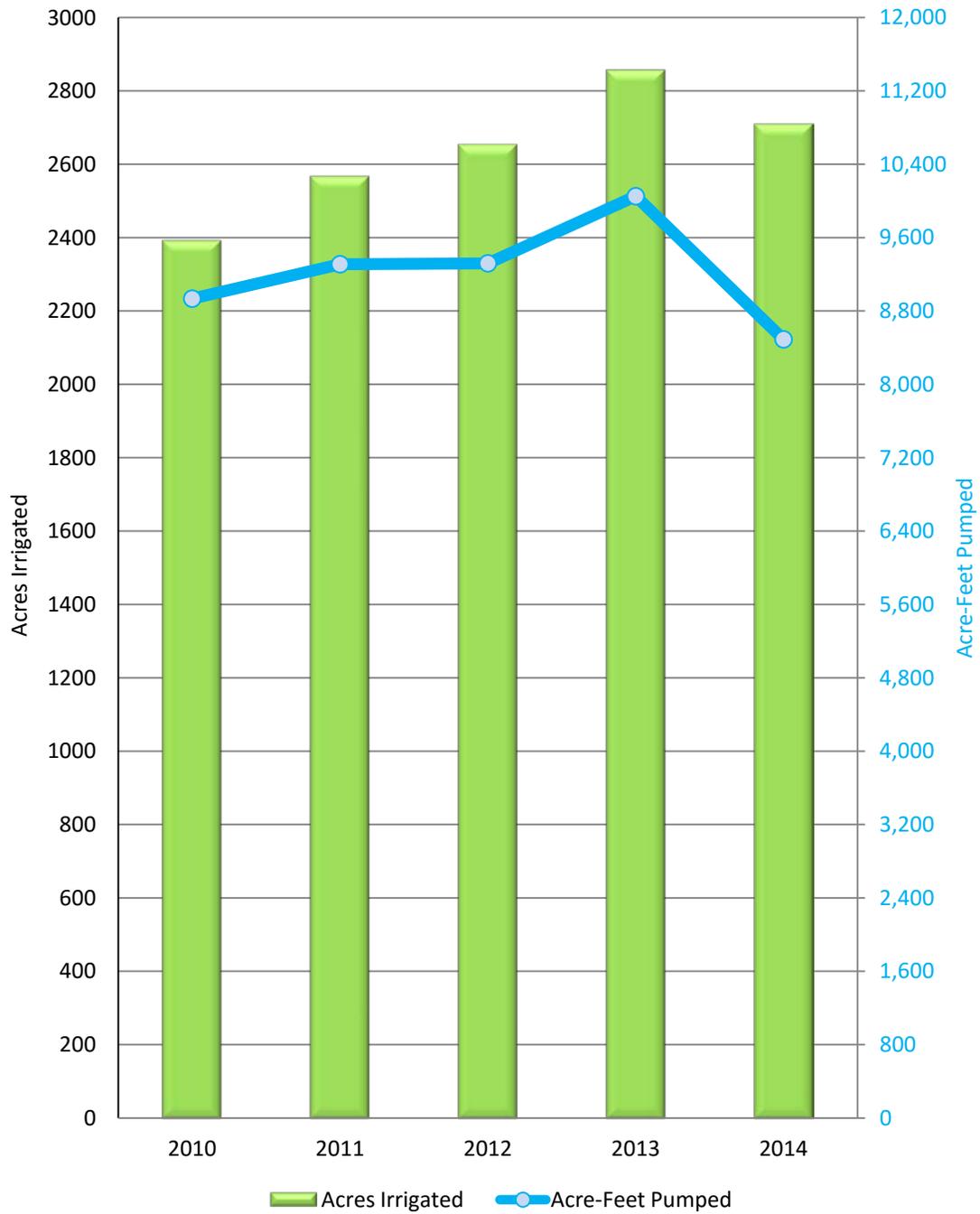


Figure 3. Graph showing Newark Valley historical irrigated acreage and pumpage. The NIWR method to estimate pumpage was used starting in 2014; estimates may differ significantly from previous years.

APPENDIX A. 2014 NEWARK VALLEY 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 if 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).
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	The method used to estimate the amount of water pumped. M – Totalizing meter readings. N – NIWR Method. D – The estimate was made by multiplying the number of irrigated acres by the acre-feet per acre duty rate, as defined in the permit or certificate.

Crop Inventory and Groundwater Pumpage for Irrigation - Newark Valley, Basin 154, 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	Irrigation Method	Irrigated Acres	Acreage Estimation Method	Acre-Feet Pumped	Pumpage Estimation	Remarks
21278	CER	NW	NW	15	19N	55E	Y	23769	260.00	260.00	1,040.00	1,040.00	PLACER DOME US, INC	ALFALFA	PIVOT	124.60	F-1	395.79	N	
23508	CER	SW	NE	22	19N	55E			130.00	130.00	520.00	520.00	PLACER DOME US, INC	ALFALFA	PIVOT	127.49		404.97	N	
23510	CER	SW	NW	22	19N	55E			127.00	127.00	508.00	508.00	PLACER DOME US, INC	ALFALFA	PIVOT	122.81	F-1	390.10	N	
23511	CER	SW	SW	22	19N	55E			127.00	127.00	508.00	508.00	PLACER DOME US, INC	ALFALFA	PIVOT	126.56	F-1	402.01	N	
23743	CER	SW	SE	27	19N	55E	Y	33316	97.00	158.96	388.00	635.84	DALY, MARK	NO CROP	PIVOT	0.00	F-1			
23769	CER	SW	SW	15	19N	55E	Y	21278	130.00		520.00		PLACER DOME US, INC	GRAIN	PIVOT	123.91	F-1	379.02	N	
30172	CER	SE	SE	34	20N	55E			144.55	144.55	578.20	578.20	GOICOECHEA, PETER J & GLADYS P	GRAIN	1 PIVOT	148.30	F-1	453.62	N	
33316	CER	SW	SE	27	19N	55E	Y	23743	116.50		466.00		DALY, MARK	NO CROP	PIVOT	0.00	F-1			
36310	CER	SW	NW	9	18N	55E	Y	38224, 70082	270.04	270.04	1,080.20	1,080.20	SCOPPETTONE, G. GARY	ALFALFA	WHEEL LINE	73.00	F-1	262.80	N	
38224	CER	SW	NW	9	18N	55E	Y	36310, 70082	270.04		1,080.20		SCOPPETTONE, G. GARY	ALFALFA	PIVOT	71.67	F-1	227.66	N	
46818	PER	NW	NE	9	18N	55E			62.68	62.68	247.28	247.28	WARREN	ALFALFA	PIVOT	70.13	F-1	222.77	N	
48548	CER	NW	NE	9	18N	55E			62.68	62.68	250.72	250.72	SCOPPETTONE, WARREN	ALFALFA	PIVOT	56.23	F-1	178.61	N	
48549	CER	SW	NW	9	18N	55E			62.68	62.68	250.72	250.72	SCOPPETTONE, WARREN	ALFALFA	PIVOT	56.00	F-1	177.88	N	
49096	CER	NW	SE	18	17N	55E	Y	1	122.43	495.00	367.29	1,485.05	SCOPPETTONE, WARREN	ALFALFA	PIVOT	124.66	F-1	373.98	D	
52925	CER	NW	NE	18	17N	55E	Y	1	135.82		407.45		SCOPPETTONE, WARREN	ALFALFA	PIVOT	129.59	F-1	388.77	D	
57430	CER	SW	SE	18	17N	55E	Y	1	126.03		378.09		SCOPPETTONE, WARREN	ALFALFA	PIVOT	123.89	F-1	371.67	D	
62947	PER	SE	NE	26	23N	55E			520.00	520.00	1,200.90	1,200.90	BARRICK GOLD US, INC	ALFALFA	PIVOT	211.11	F-1	670.58	N	SUPPLEMENTAL TO SURFACE RIGHTS
62948	PER	SE	NE	35	23N	55E			880.00	880.00	2,640.00	2,640.00	PLACER DOME US, INC	GRAIN	PIVOT	106.33	F-1	325.24	N	SUPPLEMENTAL TO SURFACE RIGHT
62949	PER	SE	NE	2	22N	55E			520.00	520.00	1,560.00	1,560.00	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE RIGHTS
62950	PER	SE	NW	11	22N	55E			0.00	0.00	2,896.00	2,896.00	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE RIGHTS
62951	PER	NE	NE	35	23N	56E			800.00	800.00	2,400.00	2,400.00	PLACER DOME US, INC	NO CROP		0.00	F-1			SUPPLEMENTAL TO SURFACE SPRINGS
62952	PER		LT04	1	22N	56E			880.00	880.00	2,640.00	2,640.00	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE RIGHTS
62953	PER	SW	SW	21	22N	56E			3.30	3.30	9.90	9.90	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE RIGHTS
62954	PER	NW	NW	15	22N	56E			18.00	18.00	54.00	54.00	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE RIGHTS
62955	PER	NW	SW	9	21N	56E					326.70	326.70	PLACER DOME US, INC	NO CROP	NO WELL	0.00	F-1			SUPPLEMENTAL TO SURFACE
64848	PER	SE	NE	18	17N	55E	Y	1	470.00		1,410.05		SCOPPETTONE, WARREN	ALFALFA	PIVOT	91.97	F-1	275.91	D	
68967	PER	NW	SW	9	18N	55E			73.32	73.32	293.28	293.28	SCOPPETTONE, WARREN	ALFALFA	WHEEL LINE	73.32	F-1	263.95	N	
70082	PER	NW	SW	9	18N	55E	Y	38224, 36310	270.04		1,080.20		SCOPPETTONE, GARY	ALFALFA	PIVOT	133.00	F-1	422.47	N	
77346	PER	SW	SE	22	19N	55E	Y	77352	130.00	130.00	520.00	520.00	BARRICK GOLD US, INC	GRASS	PIVOT	129.05	F-1	394.74	N	
77352	PER	SW	SE	22	19N	55E	Y	77346	0.00		289.60		BARRICK GOLD US, INC	GRASS	PIVOT	--	F-1	--		
80022	PER	NW	SW	19	23N	56E	Y	80024	130.00	130.00	520.00	520.00	BARRICK GOLD US, INC	GRAIN	PIVOT	126.47	F-1	386.85	N	
80023	PER	NW	NW	30	23N	56E	Y	80025	130.00	130.00	520.00	520.00	BARRICK GOLD US, INC	NO CROP	PIVOT	0.00	F-1			

Crop Inventory and Groundwater Pumpage for Irrigation - Newark Valley, Basin 154, 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	Irrigation Method	Irrigated Acres	Acreage Estimation Method	Acre-Feet Pumped	Pumpage Estimation	Remarks
80024	PER	NW	SW	19	23N	56E	Y	80022	0.00		520.00		BARRICK GOLD US, INC			--	F-1	--		
80025	PER	NW	NW	30	23N	56E	Y	80023	0.00		520.00		BARRICK GOLD US, INC	NO CROP	CONSTRUCTED	0.00	F-1			
80089	PER	NE	NW	24	23N	55E	Y	80089	120.00	120.00	480.00	480.00	BARRICK GOLD US, INC	ALFALFA	PIVOT	127.66	F-1	405.51	N	
80090	PER	NE	NW	24	23N	55E	Y	80090	120.00		480.00		BARRICK GOLD US, INC	ALFALFA		--	F-1			
80525	PER	SW	NE	24	23N	55E	Y	80528	89.80	99.00	359.10	396.00	BARRICK GOLD US, INC	ALFALFA	PIVOT	89.80	F-1	274.68	N	
80526	PER	NW	SE	24	23N	55E	Y	80526	44.04	59.10	132.12	236.40	BARRICK GOLD US, INC	ALFALFA	PIVOT	20.29	F-1	64.45	N	
80527	PER	NW	SE	24	23N	55E	Y	80527			104.28		BARRICK GOLD US, INC	ALFALFA		--	F-1	--		
80528	PER	NE	NW	24	23N	55E	Y	80525	9.20		36.90		BARRICK GOLD US, INC	ALFALFA	PIVOT	7.03	F-1	21.50	N	
81495	PER	SE	NW	8	18N	55E	Y	81496, 81500	49.96	49.96	199.84	199.84	WARREN W & G GARY SCOPPETTONE	ALFALFA	PIVOT	49.81	F-1	158.22	N	
81496	PER	SE	NW	8	18N	55E	Y	81495, 81500	49.96		199.84		WARREN W & G GARY SCOPPETTONE	ALFALFA		--	F-1	--	--	
81497	PER	SE	NW	8	18N	55E			18.18	18.18	72.72	72.72	SCOPPETTONE	NO CROP		0.00		0.00		
81498	PER	SE	NW	8	18N	55E			104.54	104.54	313.61	313.61	SCOPPETTONE, WARREN	NO CROP		0.00	F-1	0.00		
81500	PER	SE	NW	8	18N	55E	Y	81495, 81496	49.96		199.84		WARREN W & G GARY SCOPPETTONE	ALFALFA		--	F-1	--	--	
81962	PER	NE	NW	24	23N	55E			130.00	130.00	520.00	520.00	BARRICK GOLD US, INC	ALFALFA	PIVOT	39.41	F-1	125.18	N	
82104	PER	SE	SE	18	17N	55E	Y	¹	25.00		75.00		SCOPPETTONE, WARRI	ALFALFA	PIVOT	23.82	F-1	71.46	D	
											Total Supplementally Adjusted Permitted/Certified Pumpage				24,903.36					
											Total Supplementally Adjusted Permitted/Certified Acreage				6,565.99					
																	Total Estimated Pumpage		8,490.42	
																	Total Estimated Acreage		2,707.91	
¹ PERMITS 49096, 52925, 57430, 64848 AND 82104 HAVE A TOTAL COMBINED DUTY OF 1485.05 AFA.																				