



October 16, 2018

**GIS, Environmental, & Engineering Services**

71739

State Water Resources Control Board  
P.O. Box 2000  
Sacramento, CA 95812-2000

**RE: SB88 Alternative Compliance Plan  
Heath Ranch  
Lassen County, California  
Water Rights: A020983, A022491, A022492, A022493, A022494, S000445, S000447,  
S000448, S000449, S000450, S021467, S023298, and S023299**

To Whom It May Concern:

The points of diversion on the Heath Ranch, located in Lassen County, are uniquely located within a closed basin which drains to Grasshopper Valley. Property within Grasshopper Valley is owned and operated entirely by Heath Ranch, the water right holder. Property outside the valley is owned by multiple entities (Figure 1 and Table 1). Topography of the hydrologic basin is such that Heath Ranch is effectively the end user of all surface water within the closed basin (Figure 2). Additional water rights filed by other users within the closed basin are upstream, and therefore are unaffected by the Heath Ranch points of diversion. No surface discharge from the Heath Ranch points of diversion leaves the hydrologic basin. Surface water discharges from the Heath Ranch points of diversion do not reach or benefit any downstream user other than Heath Ranch.

The Heath Ranch is current with water use reporting and in compliance with Report of Licensee/Statement of Diversion and Use filing requirements and will continue to file the annual reports as required.

Heath Ranch operates approximately 14,500 acres dedicated to cattle production. Heath Ranch is owned by Andrea Olson, Stacey Joens, Blair Heath, Holly Fuller, Cameron Heath, and Kelsey Heath. The Heath Reservoir and dam is owned by Heath Family Partners II and Andrea Olson Logan. The ranch also holds allotments from the U.S. Bureau of Land Management (BLM) and U.S. Forest Service (USFS). The water rights are held by Heath Family Partners II and Andrea Olson; however, some existing documentation lists the water rights owner as George R. Heath, Jr., the Estate of G.R. Heath, and Heath Family Partners, LP. The owner is working to correct the ownership documentation independently of this Alternative Compliance Plan. For the purposes of this document, the water right holder's name remains the same as that used on existing documentation. Table 1 summarizes the points of diversion, ownership, and use. A complete list of assessor's parcel numbers and the current owner of each parcel can be found in Attachment 3.

The water diversions addressed herein provide irrigation for pasture and stock water for approximately 6,200 cattle. Diversion takes place at 13 points, providing both direct use and

diversion to storage. The Heath Ranch points of diversion include A020983, A022491, A022492, A022493, A022494, S000445, S000447, S000448, S000449, S000450, S021467, S023298, and S023299. Statement number S000449 is outside the Grasshopper Valley hydrologic basin and addressed separately from the water rights addressed herein. The 12 remaining points of diversion addressed herein include streams, springs, and reservoirs. All 12 points of diversion addressed by this Alternative Compliance Plan are within the closed hydrologic basin that drains into Grasshopper Valley.

Statements S022492 and S022493 each utilize three points of diversion, as authorized by License numbers 11083 and 11084, respectively. Points of diversion S000445, S000447, and S000448 are Willow, Dairy, and Coon Camp springs, respectively. The springs do not flow off of Heath Ranch property. Points of diversion A020298, S023298, and S023299 are Heath, Swanberger, and Said Valley reservoirs, respectively. All other points of diversion are located along streams, mostly unnamed, within the hydrologic basin.

A misunderstanding regarding reporting requirements resulted in duplicate reports being filed for Dairy Spring, Coon Camp Spring, Said Valley Reservoir, and Heath Reservoir in 2010. New statement numbers were issued for each of these sites and the property owner is currently working with the State Water Resources Control Board (SWRCB) to inactivate and eliminate the duplicate statements. The duplicate statement numbers are S010226 (Said Reservoir; inactive; duplicate of S023299), S023296 (Coon Camp Spring; duplicate of S000448), S023297 (Dairy Spring; duplicate of S000447), and S023301 (Heath Reservoir; duplicate of A020983). These sites are duplicates of other, previously filed points of diversion and are not included in Table 1 or Figure 1.

The California Irrigation Management Information System (CIMIS) station in Alturas is approximately 42 miles north-northeast of Heath Ranch. The Alturas CIMIS Station (No. 90) was used to estimate precipitation and evapotranspiration at Heath Ranch. The station is located in an area geographically similar to Heath Ranch. Yearly total precipitation at the CIMIS station from 2010 through 2016 ranged from 5.35 inches to 14.23 inches. Yearly total evapotranspiration ranged from 43.87 inches to 49.48 inches. Yearly average air high temperatures for the same period range from 85.2° F to 91.3° F, while lows ranged from 9.7° F to 21.5° F. The Alturas CIMIS data is provided as Attachment 1. Summer high temperatures typically range from the low-80s to low-90s and precipitation is minimal during these months. Summer months at the Heath Ranch are characterized by hot and dry conditions. A large percentage of the minimal yearly precipitation falls as snow during the cold months of the year.

The SB 88 regulations were adopted as an emergency measure during drought conditions. Section 13 of the regulation states, “...the emergency regulation is adopted to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversion when water is not available under the diverter’s priority of right...”. The ranch represents the end user of all water within the basin. The ranch does not waste or put water to unreasonable use. Curtailment of Heath Ranch water diversions would not benefit any other user in the basin. Diverted water not used for irrigation or stock water evaporates or provides groundwater recharge; therefore, all water diverted by Heath Ranch is beneficially used. Additional

measuring and monitoring at these points of diversion would not effectively identify water losses in a diversion system, protect senior rights of diverters, or provide better management and use of water during times of shortage. Strict compliance with SB88 measuring and monitoring requirements at the subject points of diversion would provide no tangible benefit.

In addition, the cost associated with strict compliance outweighs the benefit for these points of diversion. In order to achieve strict compliance with SB88 requirements, each point of diversion would require installation of a flume, or multiple flumes in parallel. Installation would require heavy equipment access, and additional expenditure for road repairs would be necessary in order for equipment to access some sites. Water level transducers capable of withstanding freezing conditions are not available, and would have to be removed during cold months and reinstalled and recalibrated each spring. An independent water rights consultant was hired to assess the cost of installing measuring and monitoring equipment to comply with SB 88 requirements at the ranch. The initial estimated cost for equipment and installation is \$110,000 and does not include permits, road repair, and contingencies. The total cost of compliance would be significantly higher than the initial estimated cost for equipment purchase and installation. The overall cost of installing measurement and monitoring devices to meet SB88 requirements places undue financial burden on Heath Ranch and would provide no tangible benefit to the State Water Resources Control Board, people of the State of California, or Heath Ranch.

As such, this Alternative Compliance Plan proposes no further monitoring at these points of diversion within the closed hydrologic basin flowing to Grasshopper Valley. Heath Ranch will continue to remain in compliance with annual reporting requirements. Reported water diversion and use is based on previous flow estimates, irrigated acreage, crop needs based on production levels, evapotranspiration in the basin, and number of cattle watered. For Heath Reservoir, water diversion is measured based on the water level at the staff gage and the design capacity curve for the dam (Attachment 2). This recording will continue. In addition, ranch staff will conduct an annual field estimate of flow at each point of diversion using a handheld flow meter. Flow data will be retained in ranch files and made available to the SWRCB upon request.

Please contact me with any questions at 530-223-2585.

Sincerely,

**VESTRA Resources, Inc.**



Wendy Johnston  
Compliance Specialist

Attachments

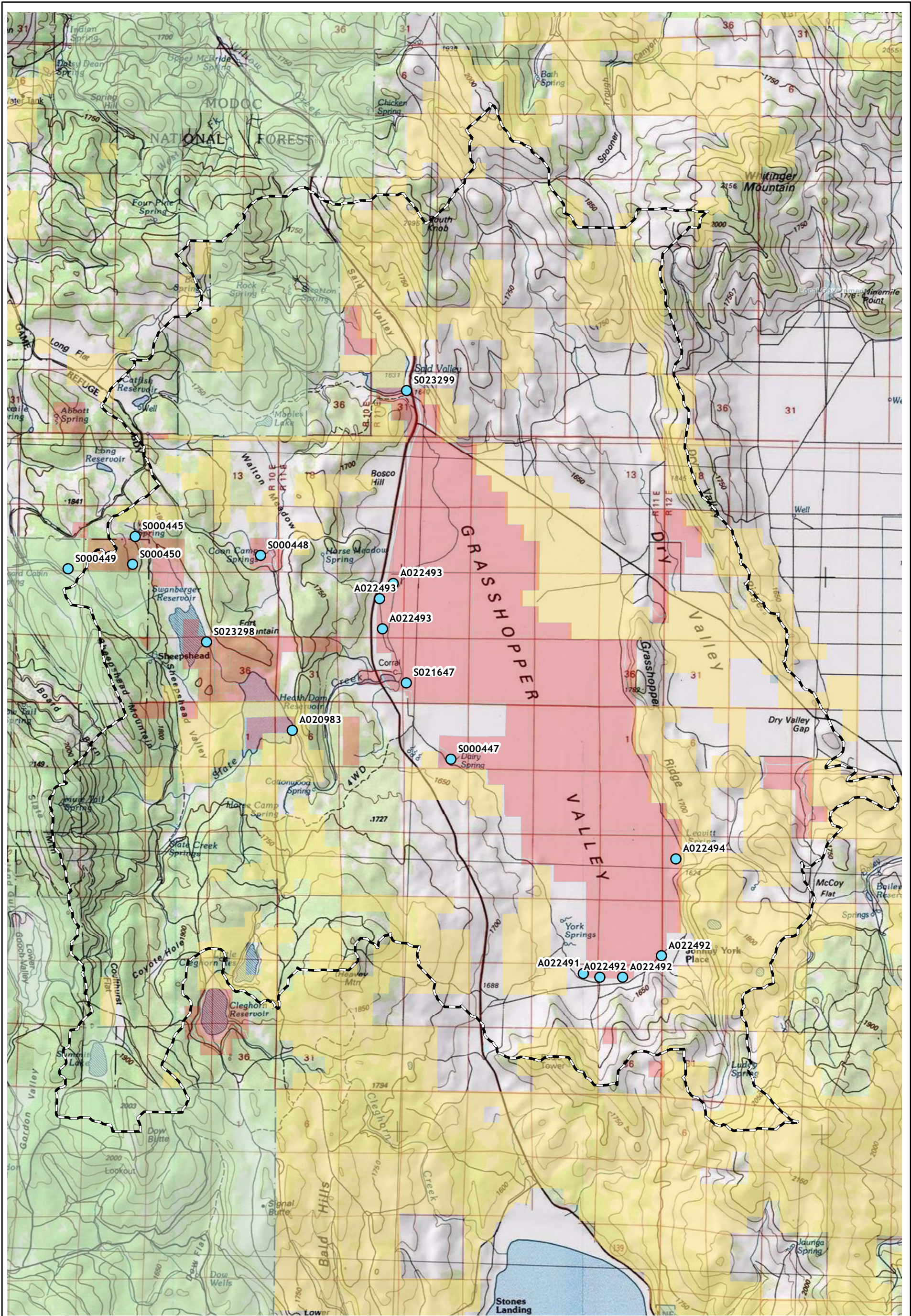
CC: Blair Heath

**Table 1  
SUMMARY OF WATER RIGHTS**

<b>Statement No.</b>	<b>Location</b>	<b>Water Right Holder</b>	<b>Property Owner</b>	<b>Type</b>	<b>Storage (ac-ft)</b>	<b>Flow rate (cfs)</b>	<b>Max. diversion (af/yr)</b>	<b>Diversion Season</b>	<b>Irrigated Acres</b>	<b>Cattle Pairs</b>
<b>A020983</b>	Slate Creek	Heath Family Partners, LP.	Heath Family Partners, LP.	Storage	6200	-	3800	Oct 1-Jun 1	2460	400
<b>A022491</b>	Unnamed stream	Heath Family Partners, LP.	Andrea Olson Logan ETAL	Direct diversion	-	3 cfs	540	Apr 1-Jun30, 3 cfs Jan 1-Mar 30, 6000 gpd	1480	200
<b>A022492</b>	3 points on unnamed stream	Heath Family Partners, LP.	Andrea Olson Logan ETAL	Direct diversion	-	3 cfs	540	Apr 1-Jun30, 3 cfs Jan 1-Mar 30, 6000 gpd	1360	200
<b>A022493</b>	3 points on unnamed stream	Heath Family Partners, LP.	Heath Family Partners, LP., Andrea Olson Logan ETAL	Direct diversion	-	3 cfs	540	Apr 1-Jun30, 3 cfs Jan 1-Mar 30, 6000 gpd	1320	200
<b>A022494</b>	Unnamed stream	Heath Family Partners, LP.	Andrea Olson Logan ETAL	Direct diversion	-	3 cfs	540	Apr 1-Jun30, 3 cfs Jan 1-Mar 30, 6000 gpd	1370	100
<b>S000445</b>	Willow Spring	Estate of G. R. Heath	Walton Homestead Family, LLC.	Direct diversion	-	50 gpm	-	June-November	-	200
<b>S000447</b>	Dairy Spring	Estate of G. R. Heath	Andrea Olson Logan ETAL	Direct diversion	-	100 gpm	-	-	-	200
<b>S000448</b>	Coon Camp Springs	Estate of G. R. Heath	Andrea Olson Logan ETAL	Direct diversion	-	75 gpm	-	-	-	200
<b>S000449</b>	Unamed stream	Estate of G. R. Heath	USA - Federal	Direct diversion	-	15 gpm	-	-	-	200
<b>S000450</b>	Unamed stream	Estate of G. R. Heath	Andrea Olson Logan ETAL	Direct diversion	-	25 gpm	-	-	-	200
<b>S021647</b>	Slate Creek, Cottonwood Springs	George R. Heath Jr.	Andrea Olson Logan ETAL	Direct diversion	-	5 cfs	-	-	-	200
<b>S023298</b>	Swanberger Reservoir	George R. Heath Jr.	Heath Family Partners, LP.	Direct diversion, storage	1500	10 cfs	-	-	3000	200
<b>S023299</b>	Said Valley Reservoir	George R. Heath Jr.	Andrea Olson Logan ETAL	Storage	900	15 cfs	-	-	800	400







Grasshopper Drainage Basin



Heath Ranch Parcel Boundary



WaterRights selection



Bureau of Land Management (BLM)



US Forest Service (USFS)



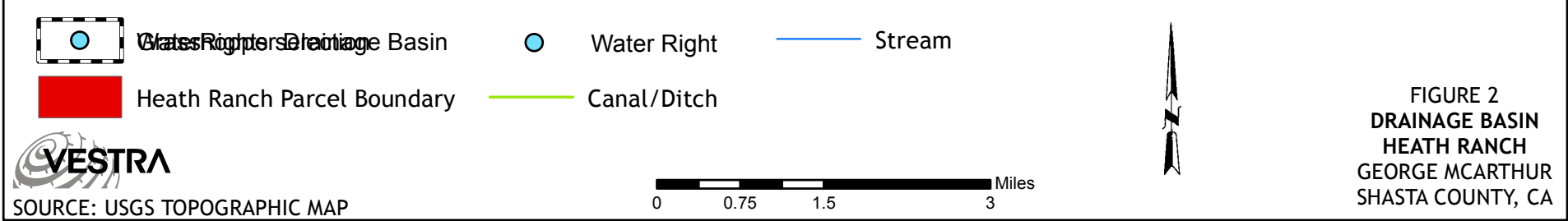
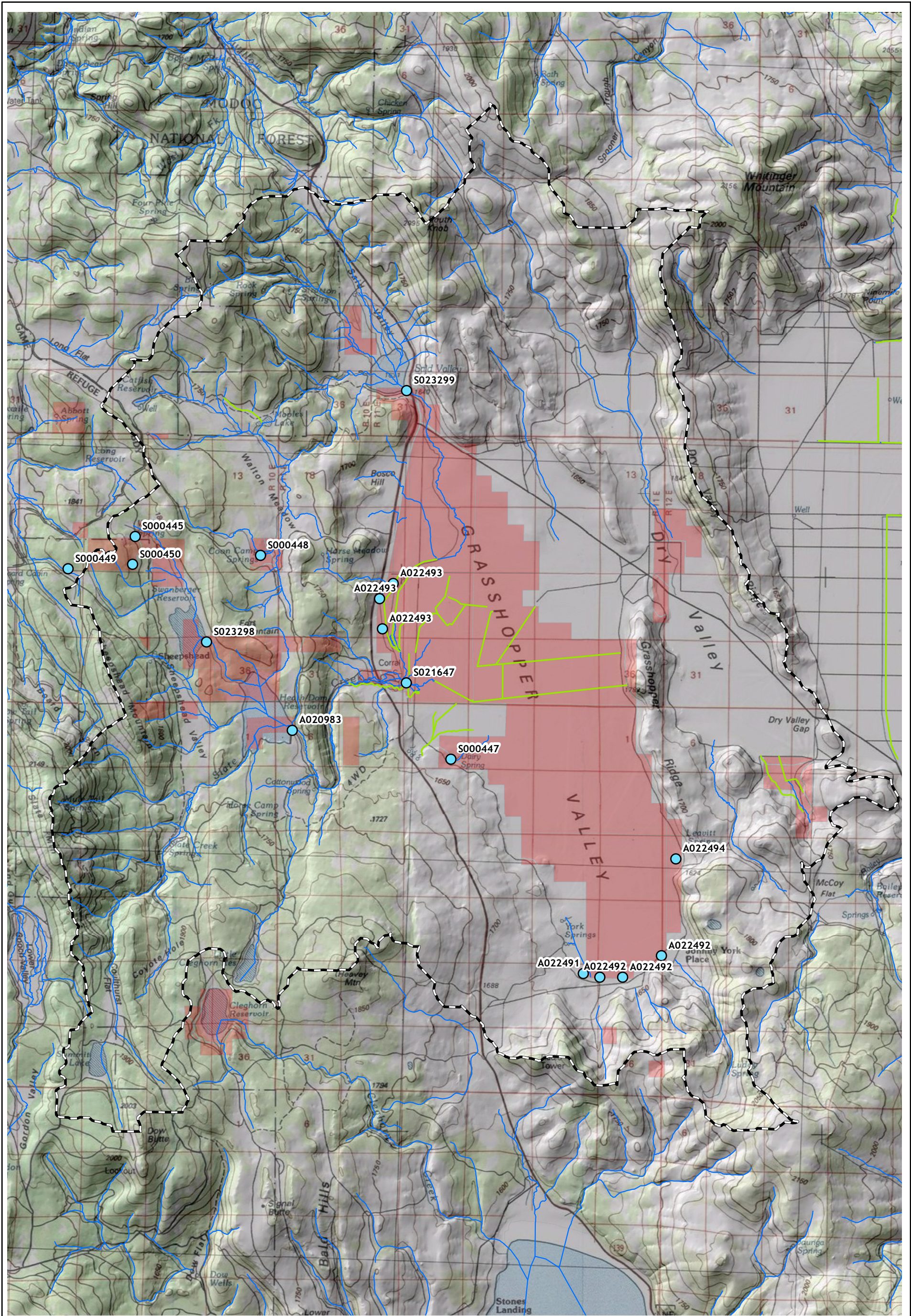
SOURCE: USGS TOPOGRAPHIC MAP

0 0.75 1.5 3 Miles



FIGURE 1  
HEATH RANCH WATER RIGHTS  
LAND OWNERSHIP  
GEORGE MCARTHUR  
SHASTA COUNTY, CA









Heath Frank E 99 Rev Tr Etal & Family Partners LP

Olson Robert & Andrea Revocable Living Trust Etal

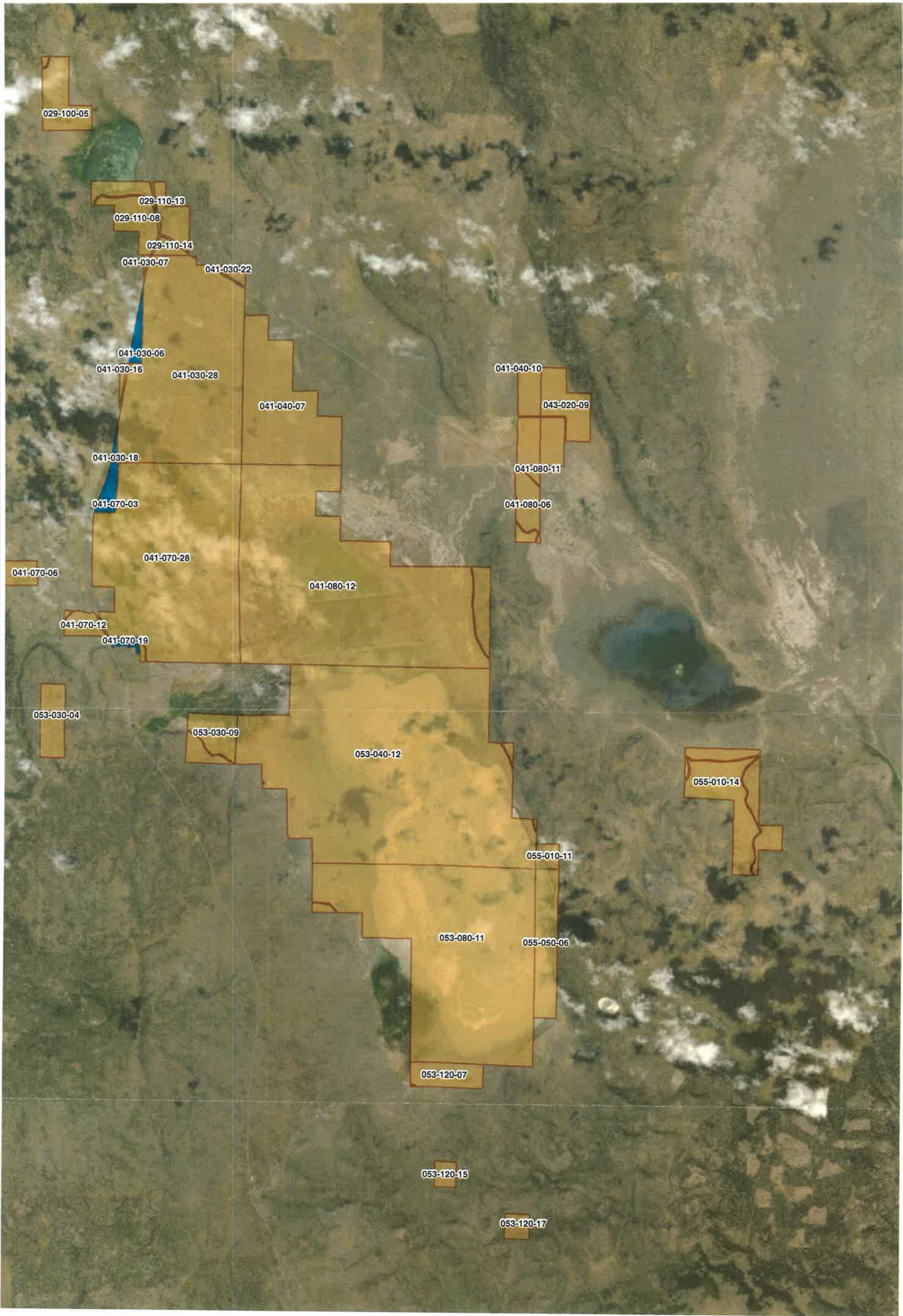


SOURCE: LASSEN COUNTY GIS 2016

0 0.5 1 2 Miles

PARCEL BOUNDARIES  
GEORGE MCARTHUR  
SHASTA COUNTY, CA





Heath Frank E 99 Rev Tr Etal & Family Partners LP



Olson Robert & Andrea Revocable Living Trust Etal



SOURCE: LASSEN COUNTY GIS 2016



PARCEL BOUNDARIES  
GEORGE MCARTHUR  
SHASTA COUNTY, CA







## California Irrigation Management Information System (CIMIS)

# CIMIS Monthly Report

Rendered in ENGLISH Units.

January 2010 - December 2016

Printed on Tuesday, August 15, 2017

## Alturas - Northeast Plateau - Station 90

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2010	1.20	0.39	128	5.6	46.3	29.2	37.1	90	56	75	29.8	7.2 K	37.1 K
Feb 2010	1.70	0.02	228	5.0	48.9	24.0	36.2	94	41	69	26.9	5.5 K	38.9
Mar 2010	3.09 K	1.11 K	337	4.8	51.0	23.3 K	37.6	90	40	63	25.7	6.6 K	40.9
Apr 2010	3.58 K	1.41 L	399 L	5.3 L	53.4 L	26.8 L	40.4 L	92 L	40 L	63 L	28.1 L	7.2 L	46.9 L
May 2010	4.49	1.64	485	6.5 K	58.4	31.3 K	45.0	93	39	63 K	32.9 K	5.6 K	53.4
Jun 2010	5.83	0.89	551	9.6 K	72.1	41.8	57.5	92	36	59 K	42.9 K	4.7 K	64.7 K
Jul 2010	7.87	0.06	642	9.2	87.2	43.5	67.3	82	19	40	42.0	4.2	68.2
Aug 2010	6.87 K	0.55	563	8.2	84.1 K	41.5	63.4 K	84 K	19 K	42	39.1	4.5 K	65.8 K
Sep 2010	4.81 K	0.79	447	7.3	78.5 K	34.6	56.5	91	21	47	36.0	4.0 K	58.9
Oct 2010	2.51	1.76	253	7.5 K	64.5 K	33.8 K	49.2	92	39	63 K	36.5 K	5.0 K	53.0 K
Nov 2010	1.25 K	0.84	163	5.1	47.5 K	21.5 K	34.5 K	93 K	51 K	74	26.6	4.6 K	42.1
Dec 2010	0.78	2.39 K	109	5.7 K	43.4 K	27.1	35.2	94	63	80 K	29.6 K	6.0 K	37.7 K
Tots/Avg	43.98	11.9	359	6.7	61.3	31.5	46.7	91	39	62	33.0	5.4	50.6

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Jan 2011	0.97 K	0.35	173	4.9 L	46.4 K	19.4	30.5	95 K	56 K	81 L	25.5 L	3.1	32.9 K
Feb 2011	1.63 K	0.55 K	255	4.1	42.6 K	18.0 K	30.0 K	91 K	47 K	72	21.8	6.1 K	34.3
Mar 2011	2.22 K	1.71	253	5.6	46.2	29.1	37.5	92	54	74	29.7	8.2 K	38.6 K
Apr 2011	3.25	2.51 K	405	5.8	51.0 K	27.6	39.9	92	45	68	29.9	5.9 K	45.5
May 2011	4.63	1.91 K	493	6.9	58.8 K	33.5 K	46.3	91	41	65	34.8	5.8 K	53.3
Jun 2011	5.83	0.98 K	606 K	9.3	71.0 K	39.5 K	56.3	93	35	60	42.2	3.8	62.6 K
Jul 2011	7.77	0.02	669	10.2	84.1	42.8	64.8	91	24	49	45.0	4.1 K	66.5
Aug 2011	7.13	0.06	619	9.1	85.2	43.0	64.9	88	19	43	42.0	4.0	67.6
Sep 2011	5.04	0.02	474	8.2	82.5	38.2 K	60.1	88	21	47	39.2	3.9	61.2
Oct 2011	2.73 K	0.56 K	312	6.8 K	65.0	28.9 K	46.0	94	34	63 K	33.6 K	3.7 K	51.9
Nov 2011	1.49	0.66 K	188	4.7	48.6	20.9 K	34.8	91	44	69	25.1	5.5 K	41.7
Dec 2011	1.18	0.11	183	3.4	47.2	12.1 K	27.2	89	34	65	16.7	3.9	32.5 K
Tots/Avg	43.87	9.4	386	6.6	60.7	29.4	44.9	91	38	63	32.1	4.8	49.1

## Alturas - Northeast Plateau - Station 90

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2012	1.33	0.82	182	4.1	48.4 K	16.7 K	31.5	90	39	66	21.1	5.0 K	32.9 K
Feb 2012	1.60 K	0.85 K	244	4.6 L	45.3	20.0	32.4	93 K	48 K	73 L	24.4 L	5.1 K	35.5
Mar 2012	3.05 K	1.12 K	329	5.1	50.2 K	27.1 K	38.0 K	88 K	42 K	64	26.5	9.4 K	39.5 K
Apr 2012	3.99	1.74 K	437	6.6	58.2 K	31.8	45.1	91	40	64	33.0	6.0 K	47.2 K
May 2012	5.77	0.86	585	7.3	67.3	34.4 K	51.7	90	34	56	35.9	4.8 K	58.5
Jun 2012	6.98	0.77 K	679	7.8	73.7 K	36.4 K	56.3	90	26	51	37.8	4.9 K	61.8
Jul 2012	8.33 K	0.00	664	8.4	87.2	43.8	66.8	83	15	37	39.8	4.7 K	67.3
Aug 2012	7.42 K	0.04	582	7.4	90.1 K	41.4 K	66.7	78	12	33	36.2	4.3 K	67.9
Sep 2012	5.42 K	0.00	485	6.1	84.5	36.0 K	60.6	78	13	34	31.5	3.7	63.4 K



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Oct 2012	3.27 K	0.49	329	5.8	68.0 K	28.9 K	48.1	86	26	52	30.2	4.3 K	54.3 K
Nov 2012	1.49 K	1.24 K	176 K	5.9 K	53.9 K	25.3 K	38.9 K	92 K	46 K	73	30.8	5.6 K	44.2 K
Dec 2012	0.82 K	2.35 L	123 L	4.6 L	38.4 L	19.9 L	29.7 L	93 K	63 K	81 L	24.2 L	5.9 L	37.0 L
Tots/Avg	49.47	10.3	401	6.1	63.8	30.1	47.2	88	34	57	31.0	5.3	50.8

## Alturas - Northeast Plateau - Station 90

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Jan 2013	0.84 K	0.43	195 L	3.6 K	36.9 K	11.8 K	21.5 K	91 K	62 K	81 K	16.3 K	3.6	32.8 L
Feb 2013	1.65	0.32	285	4.4	45.5	19.1 K	31.2	93	47	73	23.5	4.2	34.4
Mar 2013	3.28	0.30 K	380	5.2	55.8	23.9	39.5	92	33	62	27.2	5.3 K	41.5
Apr 2013	4.58 K	1.14 K	522 K	5.8	58.2	29.3	44.1	91	36	59	30.1	6.2 K	47.6
May 2013	5.74	1.36	575	7.8 K	66.1	36.8 K	52.1	89	35	58 K	37.1 K	5.4 K	55.5
Jun 2013	6.83	0.31	649	9.4	77.6 K	40.9 K	60.6	91	29	52	42.3	4.6 K	61.9
Jul 2013	8.53 K	0.00	673	8.6 K	91.3 K	44.9 K	70.1	80	14	34 K	39.9 K	4.7 K	69.5
Aug 2013	6.77	0.37	560	8.1	84.3 K	40.2 K	63.3	84	18	41	38.6	4.8 K	66.3
Sep 2013	4.83 K	0.46	421	7.8	74.0 K	36.8 K	56.8	86	26	50	37.4	6.0 K	61.0 K
Oct 2013	2.95 K	0.19 K	345 K	4.6 K	63.0 K	21.9	41.7 K	89 K	26 K	52	24.7	4.2 K	49.4 K
Nov 2013	1.58 K	0.35 L	215 L	4.5 L	55.5 L	19.3 L	36.0 L	89 L	33 L	61 L	23.4 L	4.5 L	41.3 L
Dec 2013	0.85 K	0.12 K	159 K	3.4 K	41.5 K	9.7 K	22.9 K	91 K	46 K	75	15.8	3.6 K	33.4 K
Tots/Avg	48.43	5.4	415	6.1	62.5	27.9	45.0	89	34	58	29.7	4.8	49.5

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Jan 2014	1.37	0.09	198	3.8	52.6 K	15.7	32.2	89	33	60	19.3	4.0	34.9 K
Feb 2014	1.66	1.60	232	5.3 K	48.5	25.4 K	36.5	93	46	70 K	27.4 K	5.8 K	39.2 K
Mar 2014	3.11	2.24 K	350	5.3	54.1	27.1 K	40.3	90	39	62	27.4	7.1 K	44.0
Apr 2014	4.81	0.97	517	5.8	60.8	30.3	46.0	90	31	56	30.3	5.7	50.0
May 2014	6.31	0.72	615	6.9	68.2	35.0	52.6	88	30	52	34.9	5.5 K	57.0
Jun 2014	7.13	0.24 K	686 K	7.9	77.1 K	40.8 K	60.4 K	82	24	45 K	38.2 K	4.2 K	65.5
Jul 2014	7.74 K	0.13	604	9.4	90.8 K	47.5 K	71.0	76	17	36	42.3	4.5 K	69.7
Aug 2014	6.58	0.29	532	8.8	84.5	44.3 K	64.9	81	20	42	40.8	4.5	67.7
Sep 2014	5.22 K	0.37 K	458 K	7.0	78.3	38.2 L	60.0	75	22	41	34.6	5.3 K	60.2 K
Oct 2014	3.40	1.15 K	330	6.2	69.0	30.6 L	49.5 K	87	27	53 K	31.8 K	5.1 K	52.3
Nov 2014	1.31	1.17	178	5.8	52.5	25.1	38.0	93	48	74	30.0	4.6	43.4
Dec 2014	0.84	1.80 K	106 K	6.0 K	44.5	29.1 K	36.8 K	91	64	78 K	30.7 K	6.5 K	40.2 L
Tots/Avg	49.48	10.8	401	6.5	65.1	32.4	49.0	86	33	56	32.3	5.2	52.0

## Alturas - Northeast Plateau - Station 90

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Jan 2015	1.26	0.22	191	5.3 K	51.7 K	23.5	35.6	94	45	74 K	28.1 K	3.6	36.5 K
Feb 2015	2.22	0.99	271	5.2 K	55.0	26.9 K	39.8 K	87	37	62 K	27.1 K	6.7 K	40.6 K
Mar 2015	3.65 K	0.41	384	5.5	61.6	26.9 K	44.0 K	90	29	56 K	28.7 K	5.3 K	45.1 K
Apr 2015	4.79	0.61 K	526	5.1	60.3	25.8	43.6	89	29	53	27.2	5.6	48.1
May 2015	5.11	3.65	520	8.4	65.8	38.1	52.1	90	42	63	39.4	4.8 K	56.1
Jun 2015	7.22	0.89 K	661	10.1 K	83.1 K	45.1 K	65.2 K	88	26	48 K	44.6 K	3.6	62.8
Jul 2015	6.85 K	1.81	580	10.8 K	84.7 K	46.6 K	66.2 K	89	25	50 K	45.9 K	3.8	65.2 K
Aug 2015	6.91 K	0.07	557	8.1	86.9	42.4 K	65.5 K	81 K	16 K	38	38.5	4.4 K	68.3 K
Sep 2015	4.71 K	0.14 K	443	6.6	79.2 K	34.6 K	57.0 K	86	19	42 K	33.4 K	3.9 K	62.3
Oct 2015	3.03	1.02	308	7.2 K	71.3	31.9 K	50.9 K	92	28	57 K	35.6 K	3.6	55.6 K
Nov 2015	1.24	1.44 K	201	4.7	46.2 K	18.6 K	31.6 K	93	47	74 L	24.7 L	4.1	42.2
Dec 2015	0.64 K	2.98 K	99	4.9	38.4 K	19.5 K	29.7 K	93	67	83 L	25.8 L	5.7 K	37.1
Tots/Avg	47.63	14.2	395	6.8	65.4	31.7	48.4	89	34	58	33.3	4.6	51.7



## Alturas - Northeast Plateau - Station 90

Month Year	Total ETo (in)	Total Precip (in)	Avg Sol Rad (Ly/day)	Avg Vap Pres (mBars)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Max Rel Hum (%)	Avg Min Rel Hum (%)	Avg Rel Hum (%)	Avg Dew Point (°F)	Avg Wind Speed (mph)	Avg Soil Temp (°F)
Jan 2016	0.94 K	1.69	142	5.1	41.4 K	24.6 K	32.6 K	91	64	79 L	27.9 L	6.1 K	36.6 K
Feb 2016	2.04	0.40	267	5.6 K	52.4	25.3	38.3	93	44	70 K	29.2 K	5.1 K	40.4 K
Mar 2016	3.11	1.46 K	335 K	5.8	53.1	28.8 K	41.1	91	44	67	30.6	8.5 K	43.4 K
Apr 2016	4.53	1.22	482	6.9 K	62.2 K	32.1 K	47.5 K	92	37	61 K	34.4 K	6.0 K	52.2 K
May 2016	5.45	1.79	549	8.4 K	65.7	37.6	52.2	92	41	63 K	39.8 K	4.7	58.4
Jun 2016	6.94	0.70	663	9.3 K	78.3 K	40.6 K	60.5 K	91	26	52 K	42.4 K	3.9	64.3
Jul 2016	8.00 K	0.32	675	8.9	84.9 K	42.7 K	65.8 K	85	20	41 K	41.3 K	4.4 K	67.8
Aug 2016	7.32	0.04	613	7.4	87.5	42.2	66.1	78	14	34	36.6	4.1	69.2 K
Sep 2016	5.02	0.22	482	6.5	76.2 K	34.4	55.4	82	19	44	33.1	4.4 K	60.2
Oct 2016	2.81 K	1.12 K	266 K	6.6 K	61.5 K	32.8 K	46.8 K	89 L	37 L	61 L	33.8 L	6.4 K	51.7 K
Nov 2016	1.65	0.65	181	5.5	54.2	24.1	39.4 K	91	40	67 K	28.7 K	5.1	44.5
Dec 2016	0.74 K	1.46 K	148	4.3	39.0	15.6	27.0 K	93	61	82 K	22.2 K	4.0	36.3
Tots/Avg	48.55	11.1	400	6.7	63.0	31.7	47.7	89	37	60	33.3	5.2	52.1

### Flag Legend

M - All Daily Values Missing	K - One or More Daily Values Flagged
J - One or More Daily Values Missing	L - Missing and Flagged Daily Values

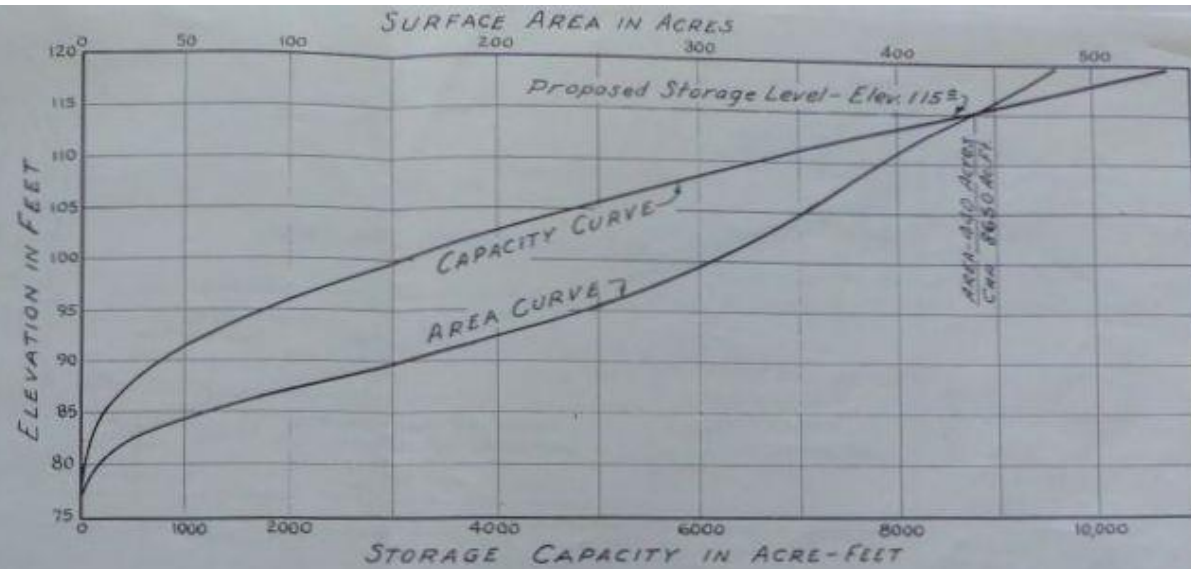
### Conversion Factors

W/sq.m = Ly/day/2.065	inches * 25.4 = mm	(F-32) * 5/9 = c
	mBars * 0.1 = kPa	--





## Heath Reservoir Capacity Curve

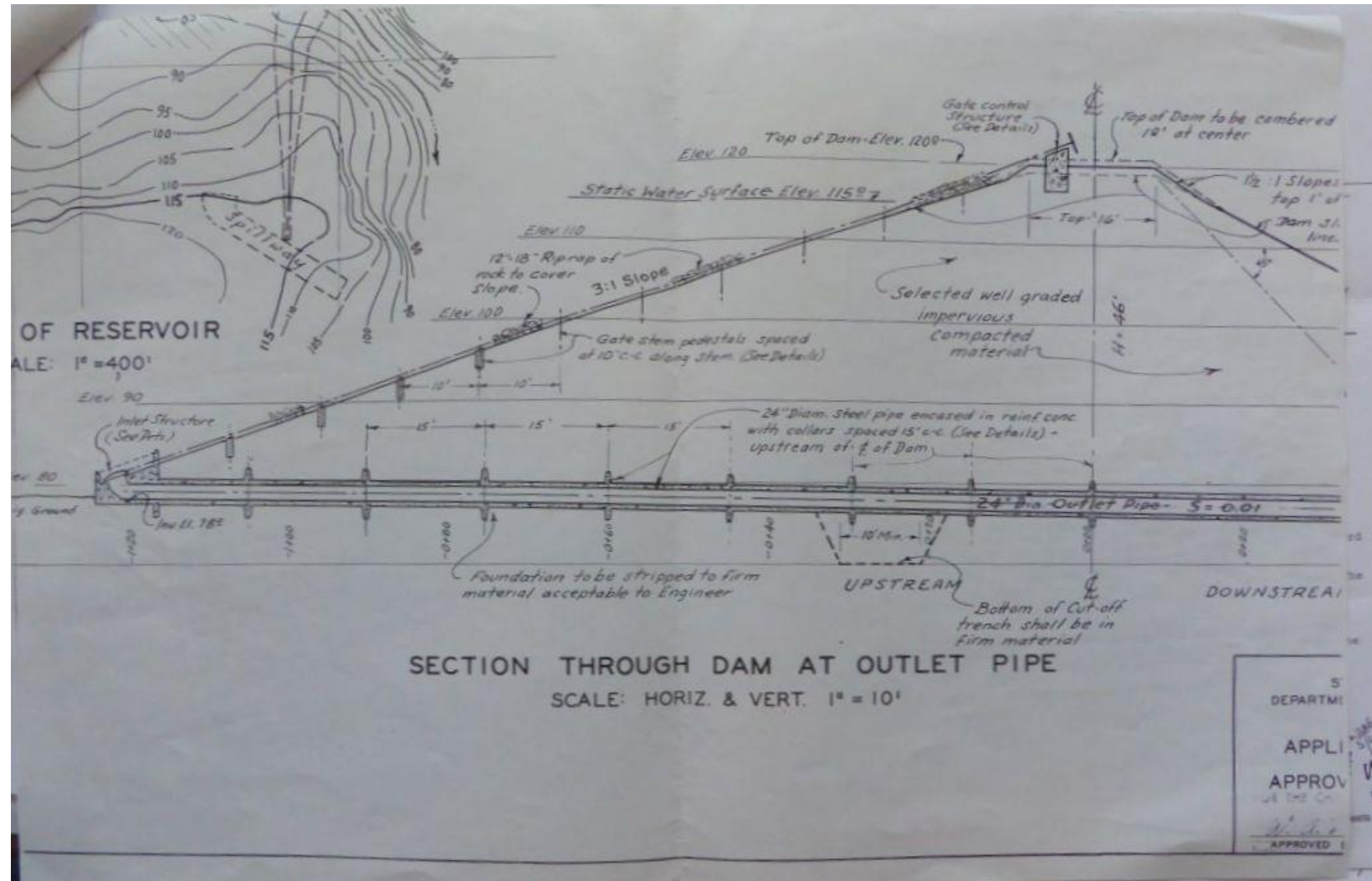


### AREA - CAPACITY CHART

Dam slope 3:1			Heath Reservoir		
Elev.	Vert. drop	Slope dist.	Elev.	Vert. drop	Slope dist.
120	0	0.00	99	21	86.41
119	1	3.16	98	22	89.57
118	2	6.32	97	23	92.73
117	3	9.49	96	24	95.89
116	4	12.65	95	25	99.06
115	5	15.81	94	26	102.22
114	6	18.97	93	27	105.38
113	7	22.14	92	28	108.54
112	8	25.30	91	29	111.71
111	9	28.46	90	30	114.87
110	10	31.62	89	31	118.03
109	11	34.79	88	32	121.19
108	12	37.95	87	33	124.36
107	13	41.11	86	34	127.52
106	14	44.27	85	35	130.68
105	15	47.43	84	36	133.84
104	16	50.60	83	37	137.00
103	17	53.76	82	38	140.17
102	18	56.92	81	39	143.33
101	19	60.08	80	40	146.49
100	20	63.25			



## Heath Reservoir Dam Design







APN	Owner
027-120-07	Olson Robert & Andrea Revocable Living Trust Etal
029-090-09	Olson Robert & Andrea Revocable Living Trust Etal
029-090-12	Olson Robert & Andrea Revocable Living Trust Etal
029-090-12	Olson Robert & Andrea Revocable Living Trust Etal
029-100-05	Olson Robert & Andrea Revocable Living Trust Etal
029-100-05	Olson Robert & Andrea Revocable Living Trust Etal
029-110-08	Olson Robert & Andrea Revocable Living Trust Etal
029-110-08	Olson Robert & Andrea Revocable Living Trust Etal
029-110-13	Olson Robert & Andrea Revocable Living Trust Etal
029-110-14	Olson Robert & Andrea Revocable Living Trust Etal
041-010-10	Olson Robert & Andrea Revocable Living Trust Etal
041-010-10	Olson Robert & Andrea Revocable Living Trust Etal
041-020-02	Olson Robert & Andrea Revocable Living Trust Etal
041-020-16	Olson Robert & Andrea Revocable Living Trust Etal
041-020-16	Olson Robert & Andrea Revocable Living Trust Etal
041-020-17	Olson Robert & Andrea Revocable Living Trust Etal
041-020-17	Olson Robert & Andrea Revocable Living Trust Etal
041-020-20	Olson Robert & Andrea Revocable Living Trust Etal
041-020-51	Olson Robert & Andrea Revocable Living Trust Etal
041-020-51	Olson Robert & Andrea Revocable Living Trust Etal
041-020-51	Olson Robert & Andrea Revocable Living Trust Etal
041-020-51	Olson Robert & Andrea Revocable Living Trust Etal
041-020-52	Olson Robert & Andrea Revocable Living Trust Etal
041-020-52	Olson Robert & Andrea Revocable Living Trust Etal
041-030-06	Heath Frank E 99 Rev Tr Etal & Family Partners LP
041-030-07	Olson Robert & Andrea Revocable Living Trust Etal
041-030-16	Olson Robert & Andrea Revocable Living Trust Etal
041-030-16	Olson Robert & Andrea Revocable Living Trust Etal
041-030-18	Heath Frank E 99 Rev Tr Etal & Family Partners LP
041-030-21	Olson Robert & Andrea Revocable Living Trust Etal
041-030-22	Olson Robert & Andrea Revocable Living Trust Etal
041-030-28	Olson Robert & Andrea Revocable Living Trust Etal
041-040-07	Olson Robert & Andrea Revocable Living Trust Etal
041-040-10	Olson Robert & Andrea Revocable Living Trust Etal
041-040-10	Olson Robert & Andrea Revocable Living Trust Etal
041-060-08	Olson Robert & Andrea Revocable Living Trust Etal
041-060-15	Olson Robert & Andrea Revocable Living Trust Etal
041-060-20	Olson Robert & Andrea Revocable Living Trust Etal
041-060-21	Olson Robert & Andrea Revocable Living Trust Etal
041-060-22	Olson Robert & Andrea Revocable Living Trust Etal
041-060-23	Heath Frank E 99 Rev Tr Etal & Family Partners LP
041-060-24	Heath Frank E 99 Rev Tr Etal & Family Partners LP

[illegible]



053-120-07	Olson Robert & Andrea Revocable Living Trust Etal
053-120-07	Olson Robert & Andrea Revocable Living Trust Etal
053-120-15	Olson Robert & Andrea Revocable Living Trust Etal
053-120-17	Olson Robert & Andrea Revocable Living Trust Etal
055-010-11	Olson Robert & Andrea Revocable Living Trust Etal
055-010-14	Olson Robert & Andrea Revocable Living Trust Etal
055-010-14	Olson Robert & Andrea Revocable Living Trust Etal
055-010-14	Olson Robert & Andrea Revocable Living Trust Etal
055-010-14	Olson Robert & Andrea Revocable Living Trust Etal
055-010-14	Olson Robert & Andrea Revocable Living Trust Etal
055-050-06	Olson Robert & Andrea Revocable Living Trust Etal