

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 57-7639

Exam Date: June 21, 2012

1. Current Owner: ROBERT A THOMAS
AND
KELLY A THOMAS
AND
BEN A THOMAS JR
AND
LINDA K FERRIS
17947 SHORT CUT RD
MURPHY ID 83650-5089
2. Accompanied by: ROBERT A THOMAS
Phone No: 834-2638
Address: 17947 Short Cut Rd; Murphy Idaho
Relationship to Permit Holder: Permit holder
3. SOURCE TRIBUTARY
SPRING SINKS

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 57-50
2. Other water rights with the same point of diversion: 57-10558

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

SPRING SE1/4NW1/4SW1/4 Sec. 28, Twp 04S, Rge 01E, B.M. OWYHEE County

Method of Determination: GPS and visual inspection**PLACE OF USE:**

Twp Rge Sec			IRRIGATION																	
			NE				NW				SW				SE					
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals	
04S	01E	28													5.6		16			21.6
Total Acres:			21.6																	

STOCKWATER same as IRRIGATIONMethod of Determination: GIS Mapping and Visual Inspection.

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
YES Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
YES Aerial Photo Attached (required for irrigation of 10+ acres).
YES Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Re-lift pump	Marathon Electric	25	4C284TT DP707288L	Burkeley Pumps	M4543

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Thyme Flyte	Polysonic					3/28/2012

2. Measurements: Measured at the re-lift pump, which is the only flow for irrigation out of the spring collection system**E. FLOW CALCULATIONS**X Additional Computation Sheets AttachedMeasured Method: Thyme Flyte – see attached printout sheetMeasured amount = 1.68 cfsTheoretical amount = 1.59 cfs (see attachment)

The permit allows 0.82 cfs

22 acres X .02 = 0.44 cfs

Maximum capacity of the spring: 1.68 cfs

Water Right: 57-10558 -1.37 cfs

0.31 left over for water right 57-7639

Recommended amount for irrigation of 22 acres: 0.31 cfs (the amount left over in the system)

Recommended diversion rate for stockwater for 1000 head of cattle: 0.23 cfs

Total recommend amount: 0.31 cfs**F. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement 4.5}) = 22 \times 4.5 = 99 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.31 \text{ cfs} \times 260 \times 1.9835 = 159.9 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 99 \text{ AF}$$

2. Volume Calculations for Other Uses:

The owner states that there are 700 cow/calf pairs (1,400) @ 12 gallons per cow per day

$$[(1,400 \times 12 \times 365) / 325,850] = 18.8 \text{ AF per year}$$

The permit allows [(1,000 cows X 12 gpd X 365) / 325,850] = 13.4 AF per year

The recommended volume for livestock is 13.4 acre feet per year

G. NARRATIVE/REMARKS/COMMENTS

The spring was originally a large marsh area south of Catherine Creek. A large drain ditch was constructed on the north side of the marsh to drain the area for irrigation. The drainage ditch flows from the west through the property and pools just north of the irrigation pump. A head gate on the south side of the drainage ditch diverts water to the re-lift pump. An underground pipe runs to the pump which is approximately 450 feet due south of the head gate. Outflow from the drainage ditch returns to Catherine Creek

Irrigation water is pumped from the re-lift pump to the south field covered by water right 57-10558 and to the 22 acres of the north field covered by this water right. A pipe provides irrigation to the southern field running east from the pump. Sprinkler pipes, with approximately 165 sprinklers, take off from the mainline and run south to north. Crops are rotated on the southern field and irrigation requirements vary from year to year. The northern field, under this right, receives irrigation based on the crops planted in the southern field. This field is not irrigated every year.

The drainage ditch maintains a steady flow and the north field, irrigated under this right, is additional irrigated ground. They run water to the 22 acre field from the flow through trough, where the head gate is located, when they are growing oats and grain on the southern field and they have enough left to irrigate the northern field. The mainline for this right provides water for sprinkler lines that run east/west.

Water rights 57-2235 from groundwater and 57-40 from Catherine Creek are diverted into the drainage ditch at the western end of the ditch. The groundwater is discharged into Catherine Creek and re-diverted if needed.

It appears from the maps (see attachment showing location for 57-40) that the 22 acres were not covered in water right 57-40 and 57-2235.

The measured amount for this system is 1.68 cfs. Water right 57-10558 is diverted through this system and has a diversion rate of 1.37 cfs which leaves .31 cfs available for this right. Water rights 57-40 and 57-2235 can also be diverted through this system. Therefore a condition is needed to limit the combined amount of 57-10558, 57-2235 and 57-40 to 1.68 cfs at the re-lift pump diversion.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
STOCKWATER	1/01 to 12/31	0.230 CFS	13.4
IRRIGATION	3/15 to 11/15	0.310 CFS	
<u>Totals:</u>		0.31 CFS	

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name Samuel Thiel Date 2/19/2013

Reviewer _____ Date _____

State of Idaho
Department of Water Resources
Water Right License
57-7639

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

R01E

T04S

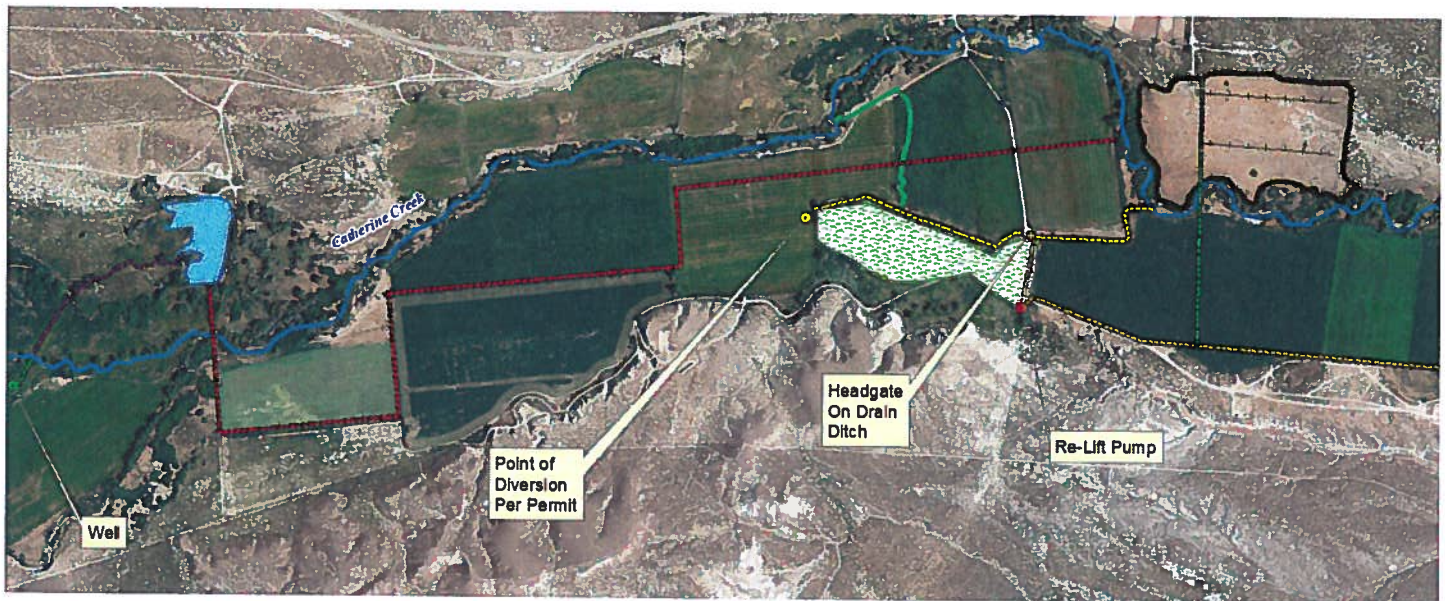


- Point of Diversion
- Place Of Use Boundary



0 0.25 0.5 Miles

Water Distribution System Water Right Number 57-7639



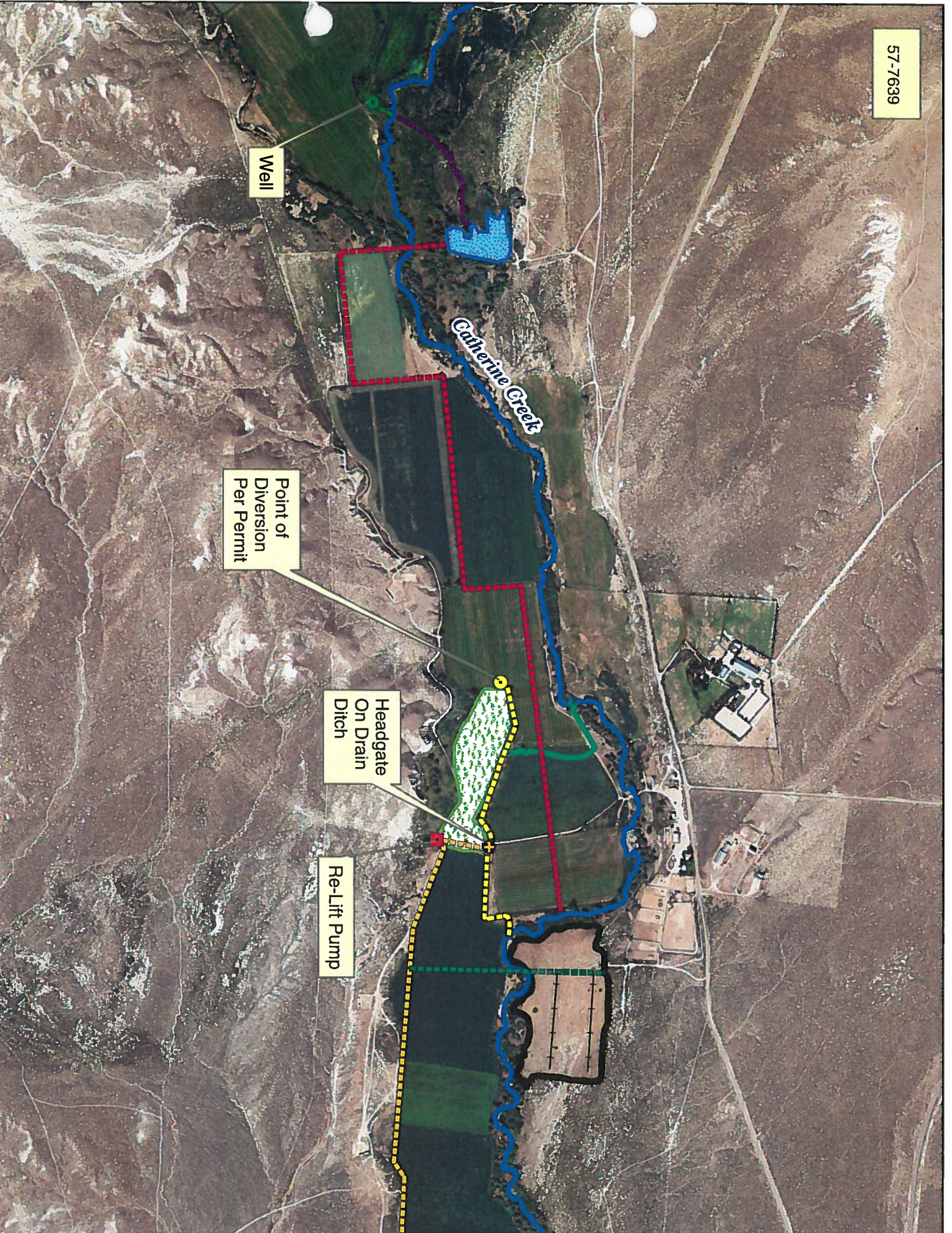
Water for this right is diverted from a ditch (yellow line) that drains a bog (green and white) through the headgate labeled above. The water in the drain ditch is backed up approximately 20 feet downstream of the headgate. Overflow from the drain ditch flows into Catherine Creek. Without development of the drainage ditch for the overflow water from the spring source would sink as indicated in a affidavit dated November 19, 1999, located in file no. 57-10558.

The water at the headgate travels south through a pipeline to a re-lift pump (Orange Square) that pressurizes a mainline (orange line) that feeds the eastern fields. From eastern mainline, a portable mainline (light blue line) travels due north to supply sprinklers for the field listed on this permit. This field was not included on the decreed water rights for this farm.

Water from the well (green circle on the left side of the page) is diverted directly into Catherine Creek through a ditch (Green Line). Well water and Catherine Creek water can be diverted to a pond (blue polygon) through a ditch (purple line). The water from the pond irrigates the eastern fields through a mainline, whose approximate location is shown by the red line above.

Water from Catherine Creek, that can include water from the well, is diverted as needed through a ditch (light green solid line) into the drain ditch. Therefore, water from the well and the drain ditch can be diverted onto the eastern fields.

Water from the eastern mainline does not connect to the western mainline.



Water Distribution System

Water Right Number 57-7639



Irrigation water is pumped from the re-lift pump, shown in the lower left as a red dot, to the south field, shown in the lighter green. This field is covered by water right 57-10558. The pipe continues to the north to supply water to the 22 acres to the area shown in the darker green. A pipe (black line) provides irrigation to the southern field running east from the pump. Sprinkler pipes, with approximately 165 sprinklers, take off from the mainline and run south to north.

The drainage ditch maintains a steady flow and the north field, irrigated under this right, is additional irrigated ground. They run water to the 22 acre field from the flow through trough, where the head gate is located approximately 450 feet north of the re-lift pump, when they are growing oats and grain on the southern field and they have enough left to irrigate the northern field. The mainline, shown as a dashed red line, for this right provides water for sprinkler lines that run east/west.

Crops are rotated on the southern field and irrigation requirements vary from year to year. The northern field, under this right, receives irrigation based on the crops planted in the southern field. This field is not irrigated every year.

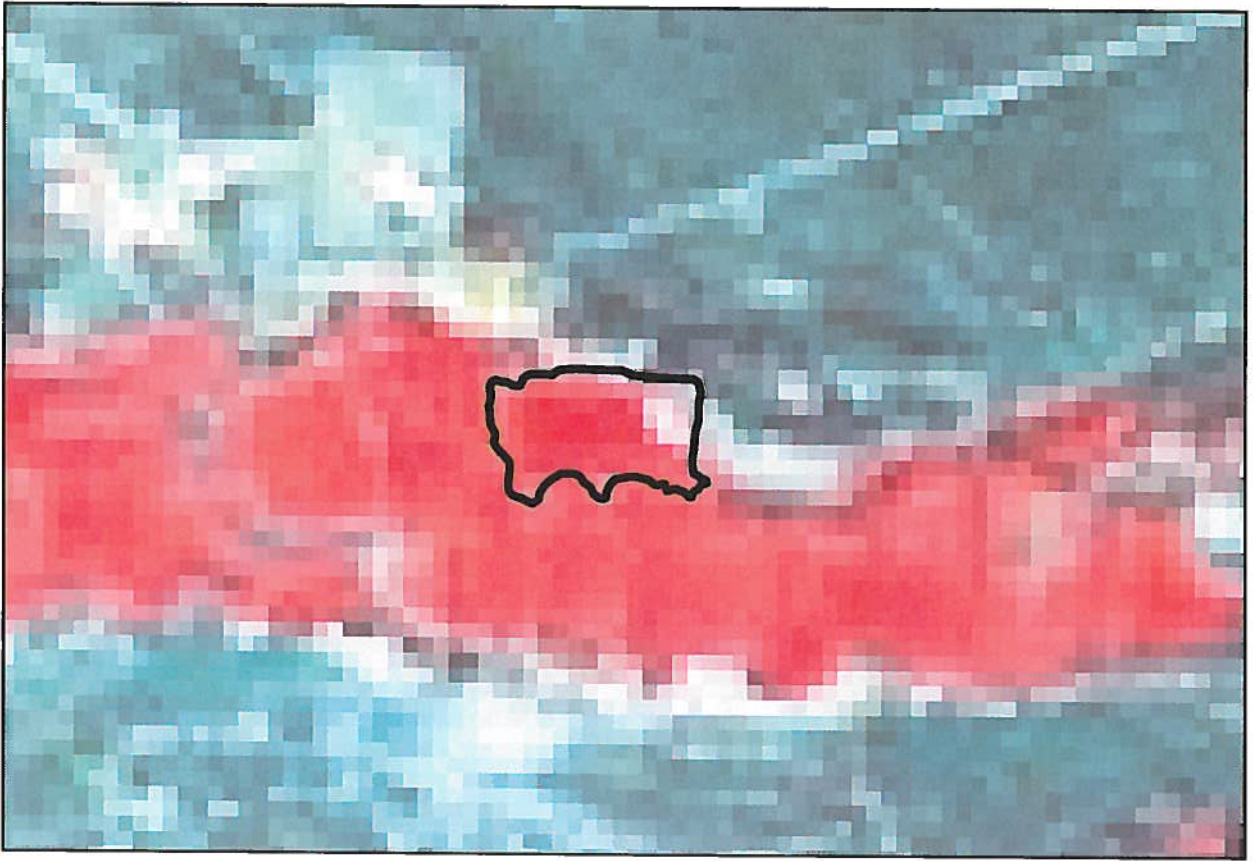
MEMORANDUM

TO: Water Rights File 57-7639
FROM: Sandra Thiel
DATE: January 17, 2013
SUBJECT: Irrigation of land

The aerial photography only clearly shows irrigation of the field in 1997 and 2009. However, we see that there is a historical practice to irrigate that ground. There is also evidence that the 21.6 acres in question has been plowed and prepped for irrigation. The field has been cleared and worked and is not covered in sagebrush.

Landsat Imagery

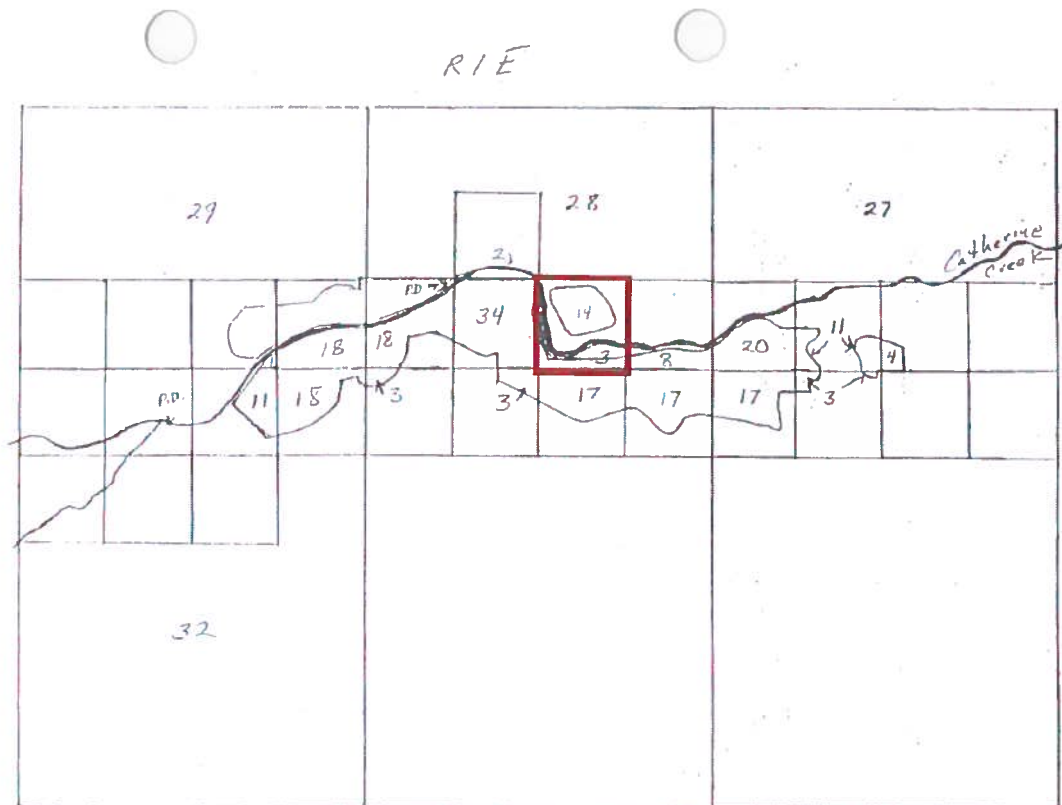
1997



2009



ACRES
AUG 05 1988
MICROFILMED
OCT 07 1992



A57-00040
A57-00049
A57-00050
A57 00054

This narrative refers to the above map, particularly to the area surrounded by the red box. Water rights 57-2235 and 57-40 allow for irrigation in Township 4 South, Range 1 East, Section 28. The place of use for these water rights are not included in the recommended acre amounts for water right 57-7639. The heavy dark line running through the above map is Catherine Creek. The irrigated acres for 57-2235 and 57-40 are included in the land south of Catherine Creek and are not part of the land irrigated in the area labeled as '14' within the red box.

6.0000 IN
OUTER DIAMETER
6.0000 IN

PIPE MATERIAL
? CS,SS

WALL THICKNESS
0.0902 IN

INNER LINING
? NO LING.

KIND OF FLUID
? WATER

SENSOR MOUNTING
? U

TYPE OF SENSOR
? SMALL

SPACING
4.048 IN U

06-25 14:4900 *R
+002.50 % AI2

0218.9 MMSEC
100.66 % T0

14:53+761.608E 00PM 00R
+00000 *10 G 00R
-00000 *10 G 00R

14:54+746.286E 00PM 00R
+00075 *10 G 00R
-00000 *10 G 00R

14:55+748.927E 00PM 00H
+00151 *10 G 00R
-00000 *10 G 00R

14:56+755.003E 00PM 00R
+00225 *10 G 00R
-00000 *10 G 00R

14:57+751.041E 00PM 00R
+00302 *10 G 00R
-00000 *10 G 00R

14:58+768.212E 00PM 00H
+00377 *10 G 00R
-00000 *10 G 00R

14:59+753.418E 00PM 00H
+00453 *10 G 00R
-00000 *10 G 00R

15:00+732.285E 00PM 00R
+00527 *10 G 00R
-00000 *10 G 00R

15:01+762.136E 00PM 00R
+00603 *10 G 00R
-00000 *10 G 00R

15:02+752.626E 00PM 00R
+00679 *10 G 00R
-00000 *10 G 00R

15:03+757.117E 00PM 00R
+00755 *10 G 00H
-00000 *10 G 00H

15:04+752.890E 00PM 00H
+00830 *10 G 00R
-00000 *10 G 00R

OUTER DIAMETER
6.0000 IN

PIPE MATERIAL
? CS,SS

WALL THICKNESS
0.0902 IN

INNER LINING
? NO LING.

KIND OF FLUID
? WATER

SENSOR MOUNTING
? U

TYPE OF SENSOR
? SMALL

SPACING
4.048 IN U

06-25 14:4900 *R
+002.50 % AI2

0218.9 MMSEC
100.66 % T0

14:53+761.608E 00PM 00R
+00000 *10 G 00R
-00000 *10 G 00R

14:54+746.286E 00PM 00R
+00075 *10 G 00R
-00000 *10 G 00R

14:55+748.927E 00PM 00H
+00151 *10 G 00R
-00000 *10 G 00R

14:56+755.003E 00PM 00R
+00225 *10 G 00R
-00000 *10 G 00R

14:57+751.041E 00PM 00R
+00302 *10 G 00R
-00000 *10 G 00R

14:58+768.212E 00PM 00H
+00377 *10 G 00R
-00000 *10 G 00R

14:59+753.418E 00PM 00H
+00453 *10 G 00R
-00000 *10 G 00R

15:00+732.285E 00PM 00R
+00527 *10 G 00R
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15:01+762.136E 00PM 00R
+00603 *10 G 00R
-00000 *10 G 00R

15:02+752.626E 00PM 00R
+00679 *10 G 00R
-00000 *10 G 00R

15:03+757.117E 00PM 00R
+00755 *10 G 00H
-00000 *10 G 00H

15:04+752.890E 00PM 00H
+00830 *10 G 00R
-00000 *10 G 00R

155 average GPM
1.68 cfs

GROUNDWATER THEORETICAL ANALYSIS

FILE: 57-7639

DATE: June 25, 2012

BY: Sandy Thiel and Dan Nelson

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (\text{HP}) \times (\text{EFF.}))}{\text{TDH}}$

Q = CFS
HP = Total Brake Horsepower of pumping plant (including booster)
Eff. = Pumping plant efficiency (assume 70% or 0.70)
TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]
LIFT = Depth to water in FEET from land surface to pumping water level
PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (25) \times (0.70)}{1} = 1.59 \text{ cfs}$$

$$[(\underline{0}) + (\underline{42} \times 2.31)] = 97.02$$

<u>LIFT FROM:</u>	<u>PSI FROM:</u>	<u>NOTES ON PUMP:</u>
Measurement ()	Measurement ()	Motor Make, Serial or ID
Owner ()	Owner (x)	<u>Marathon Electric 4C284TTDP707288L</u>
Area estimate (x)	Estimate ()	Pump Make, Serial or ID, rating
Well Logs ()	Owner Gage ()	<u>Burkeley Pumps</u>
Booster (Y) (N)		M4543

REMARKS:

PHOTOGRAPHER AND DATE OF PHOTOS Sandy Thiel, June 29, 2012

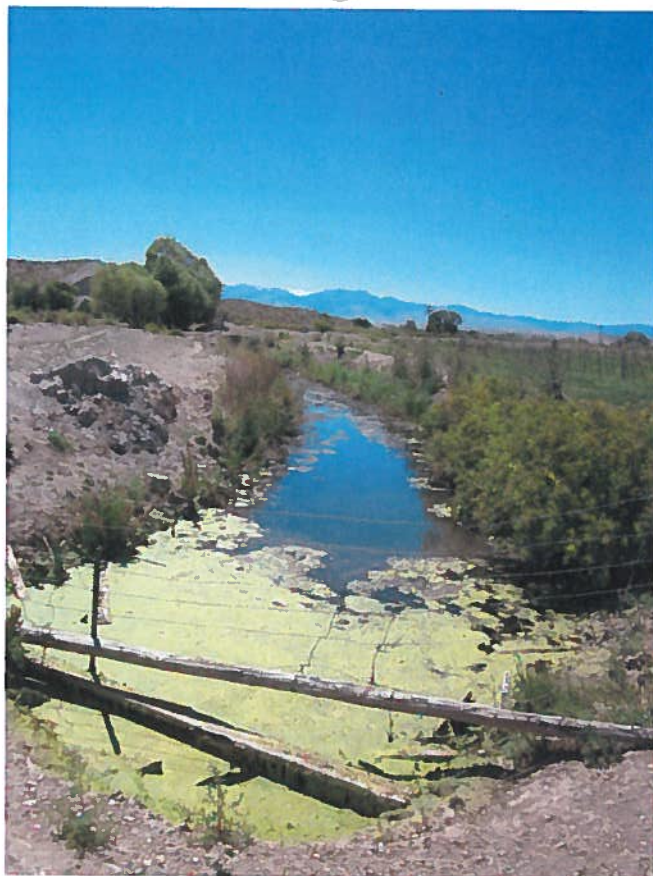
FILE NUMBER 57-7639



The pump is located approximately 450 feet south of the of the small flow though pond shown in photograph below.



This photo shows the location of the IDWR tag in relation to the pump



This image shows the source of the water looking west from the flow through pond



The image above shows flow through pond looking east. The concrete structure in the right upper-middle of the photograph is the headgate which diverts water to the pump.



The above panorama shows the place of use looking south, southwest



The pictures above show the place of use looking south and southeast. There is evidence of furrows in the foreground



The picture left shows the place of use looking east