

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 71-7169

Exam Date: 8/27/2008

1. Current Owner: THOMAS T TIERNEY
2412 MESA DR
NEWPORT BEACH CA 92660
(949)548-9346

ELIZABETH C TIERNEY
2832 DOW AVE
TUSTIN CA 92680

RECEIVED**SEP 26 2008**

DEPARTMENT OF WATER RESOURCES

2. Accompanied by: Del OvesonPhone No: (208) 774-4858Address: HC 64 Box 9122, Ketchum, ID 83340Relationship to Permit Holder: Ranch Manager3. SOURCETRIBUTARY

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NONE
2. Other water rights with the same point of diversion: NONE

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER

SE1/4NW1/4SW1/4

Sec. 10, Twp 07N, Rge 14E, B.M.

CUSTER County

Method of Determination: Visual Inspection and use of 2004 Aerial Photography

2.

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
07N 14E 10							35.0				29.0						64.0

Total Acres: 64

Method of Determination: Visual Inspection and use of 2004 Aerial Photography

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/pipe i.d. as applicable.

SEE ATTACHED SHEET.

YES Copy of USGS Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

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
POINT OF DIVERSION	CENTRIPRO	40 Hp	MFG# 627884E	GOULDS	MODEL # 7CHC (3 STAGES)

*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
PANAMETRICS	ULTRA SONIC	N/A	878	2283	N/A	3/24/2008

2. Measurements: At the same time that the measurement was done for this permit, I also calibrated the flowmeter for this system. The flow meter was reading 11% low compared to the flow meter being used. I feel the flow measurement we made was a fairly good measurement, and that the poor installation of the flow meter was the reason for the difference between the Department's meter and the meter installed on the pipeline.

E. FLOW CALCULATIONS

YES Additional Computation Sheets Attached

Measured Method:

Flow Measurement = 606.3 gpm / 448.8 = 1.35 cfs

Theoretical Calculation = 1.37 cfs

Permit Allows = 1.00 cfs

This permit is limited by the diversion rate applied for under the permit. Therefore, I am recommending that this permit be limited to 1.00 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 69 \text{ acres} \times 3.0 \text{ af/acre} = 207 \text{ acre feet}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 1.00 \text{ cfs} \times 184 \text{ days} \times 1.9835 = 364 \text{ acre feet}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 207 \text{ acre feet / year recommended.}$$

2. Volume Calculations for Other Uses:

G. NARRATIVE/REMARKS/COMMENTS

The water for this permit is diverted from a submersible well located in the SENWSW S10 T7N R14E. The water is diverted through a buried 8 inch mainline that travels east from the well. Approximately 3-4 feet from the well, there is a nipple on the mainline that feeds a 2-3 inch polypipe that irrigates the lawn around the main house/lodge, the sides of the driveway from the entrance to the lodge, and the yards around the guest houses and other outbuildings. After this split, the 8 inch mainline goes underground where it splits and travels east and west from the pump.

The portion of the mainline that travels east from the pump supplies hand lines that irrigate the southwest pasture. The line then travels north and supplies water to the hand lines that irrigate the north pasture.

The portion of the mainline that travels west from the pump turns north and meets with a mainline that travels east and west that supplies the water for the hand line that irrigates the southeast pasture. The mainline continues northeast to the middle of the small pivot just north east of the ranch complex. The mainline travels from the small pivot in a northwesterly direction to the large pivot that irrigates the northern most field of the property.

The permit shows 2 legal descriptions, which suggests that there are two points of diversion. Only one diversion was developed. I could find no overlapping water rights, but the ranch manager is planning on filing a second permit to bring the water for this ranch up to the inch per acre range. The 1.00 cfs applied for under this permit only supplies $\frac{3}{4}$ of an inch of water. The pump capacity was measured at 1.35 cfs or pretty close to the full inch per acre for the 69 acres found irrigated.

This permit was approved prior to the change in season of use. Therefore, I am recommending the current season of use, since the volume for this permit is going to be limited by the diversion rate and not by the season.

The owner has installed a McCrometer flow meter on the pump, so it appears as though they have complied with all of the conditions of their water rights. I would add the condition that this water right is under the control of the watermaster for Water District 170. The watermaster accompanied me during the field exam and we also calibrated the flow meter for this system.

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>
IRRIGATION	05/01 to 10/31	1.000 CFS	~~207.00 AF~~ 192 - DAN 9-26-08
	<u>Totals:</u>	1.000 CFS	~~207.00 AF~~ 192 - DAN 9-26-08

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

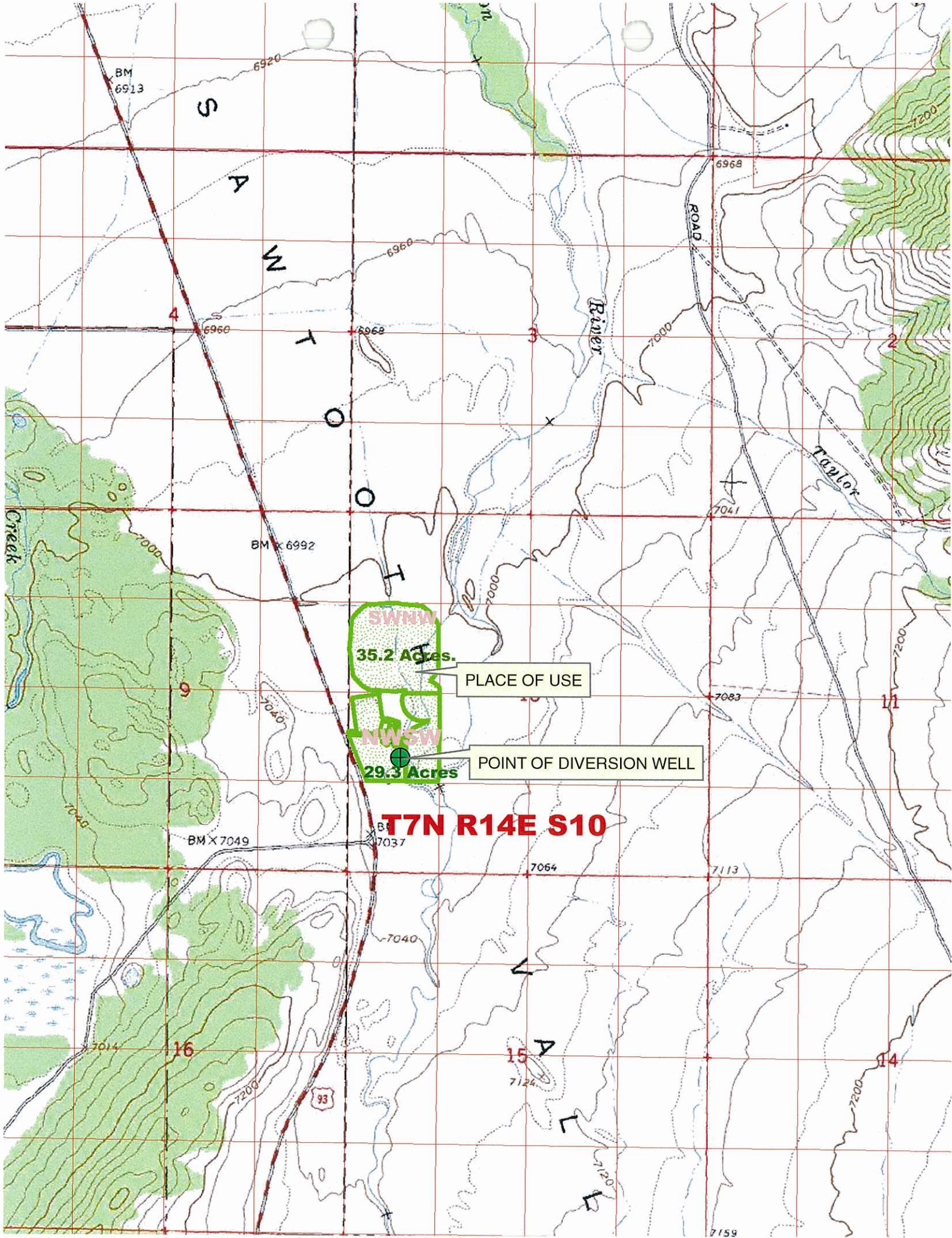
I. AUTHENTICATION

DANIEL A. NELSON – SENIOR AGENT

Field Examiner's Name Daniel A. Nelson Date 9-26-08

Reviewer _____ Date _____

SEAL



BM
6913

S

A

N

T

O

O

H

S10

35.2 Acres.

PLACE OF USE

N10

29.3 Acres

POINT OF DIVERSION WELL

T7N R14E S10

BM X 6992

BM X 7049

BM
7037

7064

7113

7014

16

15

7124

14

7159

SWNW

35.2 Acres.

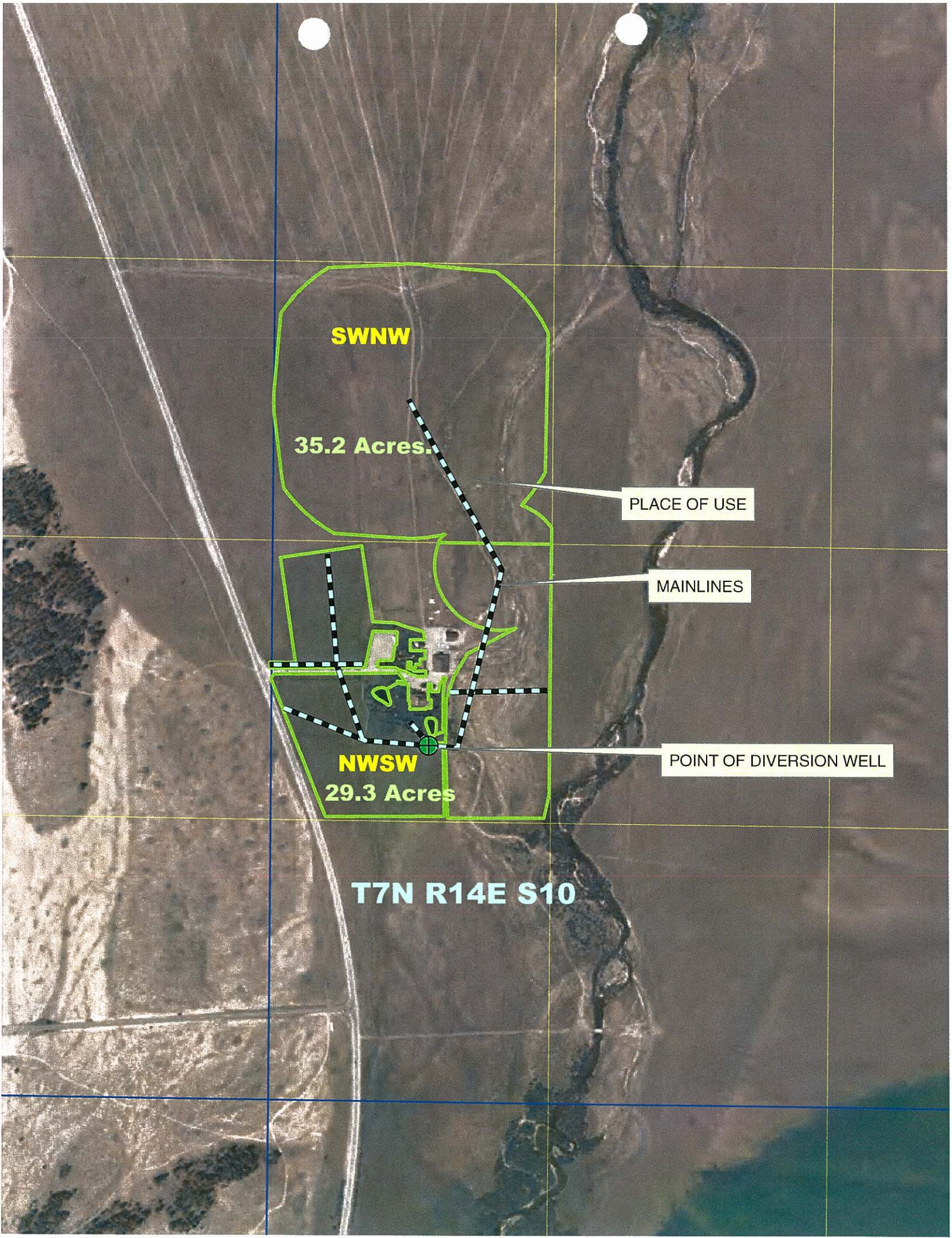
PLACE OF USE

NWSW

29.3 Acres

POINT OF DIVERSION WELL

T7N R14E S10



SWNW

35.2 Acres.

PLACE OF USE

MAINLINES

NWSW

29.3 Acres

POINT OF DIVERSION WELL

T7N R14E S10

Log Name D:\salmon river stuff\8-25-08 data\TIERNEY.LOG
Log Title D:\salmon river stuff\8-25-08 data\TIERNEY.LOG
Start Time 8/27/2008 9:42
End Time 8/27/2008 9:53
Records 3
Interval 60
Error Flags 8208
Cyclic Flags 2

Tierny Field Exam and Flow Meter Calibration

Item #	Label	Symbol	UnitType	Channel	Comport	Computer	Decimal	Width	Input	NodeID
0	Velocity	ft/s	578	0	0	PT878	4	12	2	0
1	Volume	gal/m	846	0	0	PT878	4	12	3	0
2	(+)Total	gal	1160	0	0	PT878	4	12	20	0

Date/Time	Velocity (ft/s)	Volume (gal/m)	(+)Total (gal)	Error #
8/27/2008 9:42:36	3.973693995	604.6416696	872752.9591	0
8/27/2008 9:43:36	3.986004311	606.5148209	873340.1375	0
8/27/2008 9:44:36	3.977275544	605.1866422	873944.7768	0
8/27/2008 9:45:36	3.900056786	593.4369505	874555.6843	0
8/27/2008 9:46:37	3.972481219	604.4571323	875164.7064	0
8/27/2008 9:47:36	3.994229605	607.7663907	875743.5185	0
8/27/2008 9:48:36	3.980075124	605.6126294	876360.0882	0
8/27/2008 9:49:37	3.987060088	606.6754692	876970.4499	0
8/27/2008 9:50:36	3.944614785	600.2169449	877585.5708	0
8/27/2008 9:51:36	3.947242045	600.6167118	878157.8649	0
8/27/2008 9:52:37	4.068588048	619.0808536	878815.9085	0

Last Total	First Total	Number of Readings	Average Flow Rate in GPM
878815.9085	872752.9591	10	606.29

GROUNDWATER THEORETICAL ANALYSIS

FILE: 71-7169

DATE: 8-27-08

BY: Don Nelson

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

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])

$$Q = \frac{(8.8) \times (40) \times (0.70)}{180.5} = 1.37 \text{ CFS}$$

612.66 gpm.

$$[(65) + (50 \text{ psi} \times 2.31)] = 180.5$$

LIFT FROM:

Measurement ()

Owner ()

Area estimate ()

Well Logs (x)

Booster (Y) (N)

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage (X)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: ACCORDING TO THE WELL LOG, WATER WAS FIRST FOUND AT 50 FT. AT 55 FT THERE IS A 5 FT. CLAY AND BOULDER LAYER. THE STATIC WATER LEVEL IS AT 45 FT, WHICH SUGGESTS SOME ARTESIAN PRESSURE. I ESTIMATED THE PUMPING WATER LEVEL APPROXIMATELY 5 FT BELOW THIS CLAY LAYER. THIS AMOUNT IS PRETTY CLOSE TO THE AMOUNT MEASURED. THE SYSTEM WAS OPERATING AT THE MAXIMUM OF ITS CAPABILITY SO THERE COULD BE SOME VARIANCE IN EFFICIENCY. HOWEVER, THIS MATCHES PRETTY CLOSE TO THE FIELD MEASUREMENT.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8-27-2008

FILE NUMBER 37-7169



The top photo is a close-up of the well head and site tag. This is a 40 Hp motor. It is located in the southeast corner of the yard of the main house/lodge.



The second photo shows discharge system from the well.



The third photo shows the flow meter on the well.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8-27-2008

FILE NUMBER 37-7169



These are photos of the small pivot located northeast of the lodge.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8-27-2008

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The top two photos are of the large pivot. The large pivot is located due north of the main ranch area.



The bottom photo shows the north pasture that is northeast of the main ranch area.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8-27-2008

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These photos show the front entry into the ranch that is irrigated and portions of the yard. All irrigation on this property comes out of this single well.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 8-27-2008

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The photo shown above shows the southwest pasture that is south of the homestead and runs along the highway.

The bottom photo shows the southeast pasture. This pasture is clearly irrigated, but it they haven't pulled the sagebrush out of this pasture. It does appear to have crested wheat and other drought tolerant grasses in it. Due to the low diversion rate allowable, this pasture is the last one to be used.

