

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 61-7600

Exam Date: 5/30/2012

1. Current Owner: WAYNE RUSSELL
10875 WAYNO DR
TIPANUK ID 83647
2. Accompanied by: Wayne Russell (owner) & Sonny Hornbaker (IDWR)
Phone No: (208) 781-7600 (home)
Address: Same
Relationship to Permit Holder: Same
3. SOURCE TRIBUTARY
DITTO CREEK SQUAW CREEK

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

DITTO CREEK SE1/4NW1/4 Sec. 23, Twp 01S, Rge 05E, B.M.
ELMORE County

Method of Determination: Aerial photo w/ field verification

2. PLACE OF USE: IRRIGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
01S	05E	23			X		X			X									

PLACE OF USE: AESTHETIC STORAGE and STOCKWATER STORAGE same as IRRIGATION STORAGEPLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
01S	05E	23		19	1		14			1									35

Total Acres: 35

PLACE OF USE: IRRIGATION FROM STORAGE same as IRRIGATION - TOTAL LAND IRRIGATED IS 35 ACRES

Method of Determination: Aerial photo w/ field verification

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

4. <u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
<u>N/A</u>	<u>Avco Lycoming</u>	<u>40</u>	<u>3A1188</u>	<u>Unknown</u>	Pump Serial No. GWH688(?) <u>4" Discharge</u>

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

D. FLOW MEASUREMENTS

1. Measurement Equipment
- | <u>Equipment</u> | <u>Type</u> | <u>Make/Model No.</u> | <u>Serial No.</u> | <u>Size</u> | <u>Calib. Date</u> |
|--------------------------------|-------------|-----------------------|-------------------|-------------|--------------------|
| No physical measurement @ exam | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
- See Flow Calculations Section below for Theoretical HP Equation and Sprinkler System Estimations.
2. Measurements: None taken. No water available from source for diversion via irrigation system, limited water present in reservoir at time of exam.

E. FLOW CALCULATIONS

____ Additional Computation Sheets Attached

Measured Method: Theoretical HP Equation:

HP = 40

PSI = 60 (est. pressure closed system irrigation)

Z = 10 ft (est. elevation difference per topo map and visual est. in field)

$Q = (8.8 \times 0.7 \times \text{HP}) / [Z + (2.31 \times \text{PSI})] = (8.8 \times 0.7 \times 40) / [10 + (2.31 \times 60)] = 1.66 \text{ cfs}$ est. capacity of pumping system

Measured Method: Sprinkler System Estimation:

of lines @ one time = 2

of sprinkler heads @ one time = 20 heads each line = 2 x 20 = 40 heads

Type of sprinklers = Rainbird

Nozzle size = max nozzle size 3/16" rated for 8.12 gpm @ 60 psi (per Sprinkler System Discharge – Exhibit 9 Exam Handbook)

$Q = \# \text{ heads} \times \text{gpm} = 40 \times 8.12 \text{ gpm} = 324.80 \text{ gpm} = 0.72 \text{ cfs}$ est. discharge from sprinklers

Theoretical HP Equation est. capacity of pumping system = **1.66 cfs**

Sprinkler System Estimation = **0.72 cfs**

Permitted Rate = **1.00 cfs**

Beneficial Use Limit (Irrigation) = 35 ac x 0.02 cfs/ac = **0.70 cfs**

Proof of Beneficial Use fee paid = \$100.00 = up to **1.00 cfs and/or 100 AF**

Recommend Beneficial Use Limit Rate for Irrigation Use = 0.70 cfs

Highest rate allowable based on beneficial use 0.70 cfs recommended. System is capable of diverting recommended rate when water is available.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 35 \text{ acres} \times 4.0 \text{ afa} = \mathbf{140.0 \text{ afa}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.70 \text{ cfs} \times 246 \text{ days} \times 1.9835 = \mathbf{341.6 \text{ afa}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 140.0 \text{ afa} < 341.6 \text{ afa} = \mathbf{\text{Recommend } 140.0 \text{ afa}}$$

2. Volume Calculations for Storage (Irrigation, Aesthetic, and Stockwater):

Capacity based on general shape, surface area (SA) @ high water level (WL) elevation & average depth data:

General Shape = Flat Bottomed

SA @ high WL = 5.0 ac

Avg Depth = 8.0 ft

$$5.0 \text{ ac} \times 8.0 \text{ ft} = \mathbf{40.0 \text{ af}}$$

Evaporation/Seepage Losses & Refill Volume:

Reservoir fills via spring runoff in ~ February and is either used or seeps into the ground by late May each year. Only a small portion of the reservoir remains year round. After the spring runoff, water supply into the reservoir/refill is minimal to non-existent. Therefore, it is not worth considering a refill component in the volume recommendation for the storage use(s).

3. Volume Calculations for Irrigation from Storage:

Recommend the entire reservoir capacity (**40 af**) since irrigation system is capable of diverting.

Calculated Reservoir Capacity Volume = **40.0 af**

Permitted Volume = **49.0 af**

Proof of Beneficial Use fee paid = \$100.00 = up to **100.0 af**

Recommend Calculated Reservoir Capacity Volume (for all storage related uses) = 40.0 afa

G. NARRATIVE/REMARKS/COMMENTS**SYSTEM DESCRIPTION:**

System consists of a 20 to 30 ft dam built in the natural channel of Ditto Creek to provide means of onstream storage for a reservoir that fills with spring runoff from which a diesel motor and pump is used to pump water for sprinkler irrigation. At full capacity, the reservoir covers approximately 5 acres with an average depth of 8 ft. Excess water spills out the east side of dam in low land area into Dry Creek channel before flowing into Squaw Creek. The dam is built on Ditto Creek just upstream of the confluence of Ditto Creek and Dry Creek where Squaw Creek originates. Recommend the source be clarified at licensing from Squaw Creek to Ditto Creek, which is tributary to Squaw Creek.

IRRIGATION PRACTICES AND OTHER USES:

Mr. Russell places a portable 40 hp diesel motor and pump in the reservoir that pumps water to two handlines (3" dia to a few 2" dia pipes at ends) with up to 40 sprinkler 3/16" nozzle heads. He irrigates for as long as he can in the spring time, until the water ceases flowing into the reservoir and/or seeps into the very sandy ground. Usually there is enough water for irrigation and irrigation from storage until ~ May of each year. Mr. Russell has disked and planted crested wheat within the 35 acres he irrigates. A small portion of water (approximately 1.0 af) remains in the reservoir year round for aesthetic and stockwater storage. Mr. Russell pastures up to 30 range cattle on the property.

OVERLAP:

There are no overlapping water rights from the P/D or P/U. Mr. Russell has an unrecorded domestic use of ground water from a well for his home on the same property.

P/U OWNERSHIP:

A portion of the P/U Mr. Russell irrigates is owned by his son (per Mr. Russell – taxlot data indicates property is owned by a Brad Lewis). Still recommend including this land as part of the P/U considering it is likely Mr. Russell has permission to irrigate this property. However, recommend including condition 004 (water right does not grant access to property of another) for licensing.

G. NARRATIVE/REMARKS/COMMENTS CONTINUED**WATER AVAILABILITY/VOLUME RECOMMENDATION:**

Typically, water only flows in Ditto Creek at property from early spring through late May. Volume recommendation is not required for natural flow irrigation, but included in this right considering all other uses have associated volumes. Considering limited natural flow with available storage, historically there has not been enough water available/beneficially used for full irrigation volume requirement for 35 acre irrigation water right. However, due to limited information, there is no defensible quantification method to limit acres based on available volume. Therefore, I'm recommending the full volume for the natural flow irrigation use. Should the owner propose any future changes to the right via a transfer (nature of use, change place of use, etc.), historic water availability data will need to be critically analyzed to determine maximum extent of beneficial use of the right.

COMPLIANCE WITH PERMIT CONDITIONS:

Permit condition requiring installation of a measuring device was waived via order issued 12/12/96. Diversion under the right is only to occur during periods when flows in the Snake River at Swan Falls Dam exceed 8400 cfs. Considering water typically available for use under this right in early spring through May each year, likely water typically diverted when flows at Swan Falls exceed 8400 cfs. There are no conditions regarding compliance with Dam Safety program regulations on the permit, however compliance with these regulations was considered. The dam does not presently fall into regulatory authority since storage is less than 50 af and it is considered a low hazard dam (if the dam breached nothing would likely be harmed downstream as water readily seeps into extremely sandy ground and the reservoir does not hold a substantial amount of water) per Sonny Hornbaker (IDWR Dam Safety Program staff) who accompanied me for the field examination. To the best of my knowledge, owner has complied with all other permit conditions. Recommend including trust water condition(s) (no. 051 w/ 5 yr period) per Tim Luke's staff memorandum on file for this right. Also recommend installation upon notification measurement device condition no. 01M should this right become subject to future water district regulation.

Have conditions of permit approval been met? X 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 STORAGE	01/01 to 12/31	N/A	40.0 AF
AESTHETIC STORAGE	01/01 to 12/31	N/A	40.0 AF
IRRIGATION FROM STORAGE	03/15 to 11/15	N/A	40.0 AF
STOCKWATER STORAGE	01/01 to 12/31	N/A	40.0 AF
IRRIGATION	03/15 to 11/15	0.70 CFS	140.0 AF
<u>Totals:</u>		0.70 CFS	180.0 AF

2. Recommended Amendments

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

 X Change P.U. as reflected above Add P.U. as reflected above X Other – Clarification of Source

I. AUTHENTICATION

Field Examiner's Name



Date

8/14/2012

Reviewer

Date

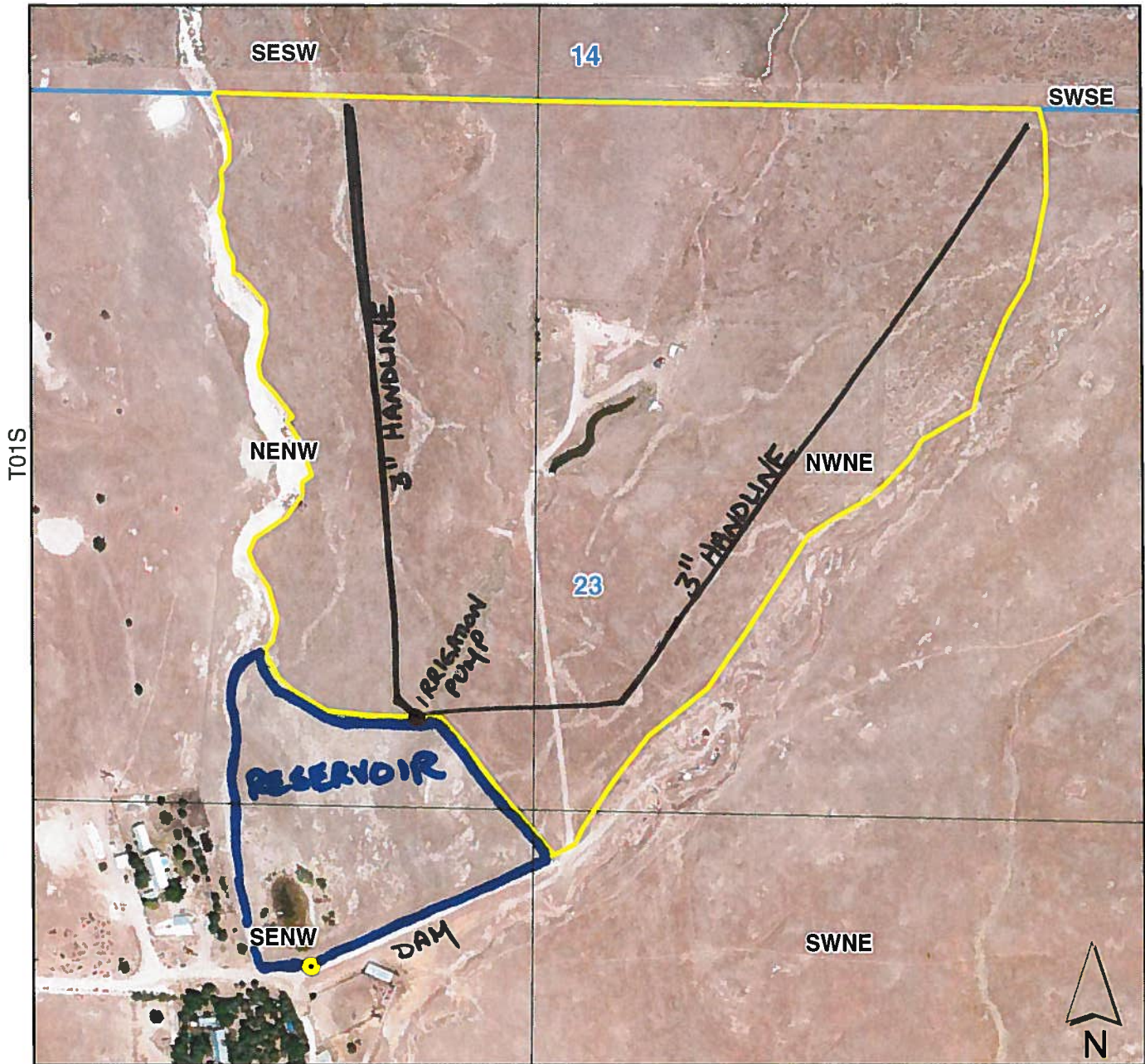
State of Idaho
Department of Water Resources

Beneficial Use Field Report Map & System Diagram

61-7600

P/U for Irrigation and Irrigation from Storage Uses

R05E



Point of Diversion



Place Of Use Boundary



Townships



PLS Sections



Quarter Quarters

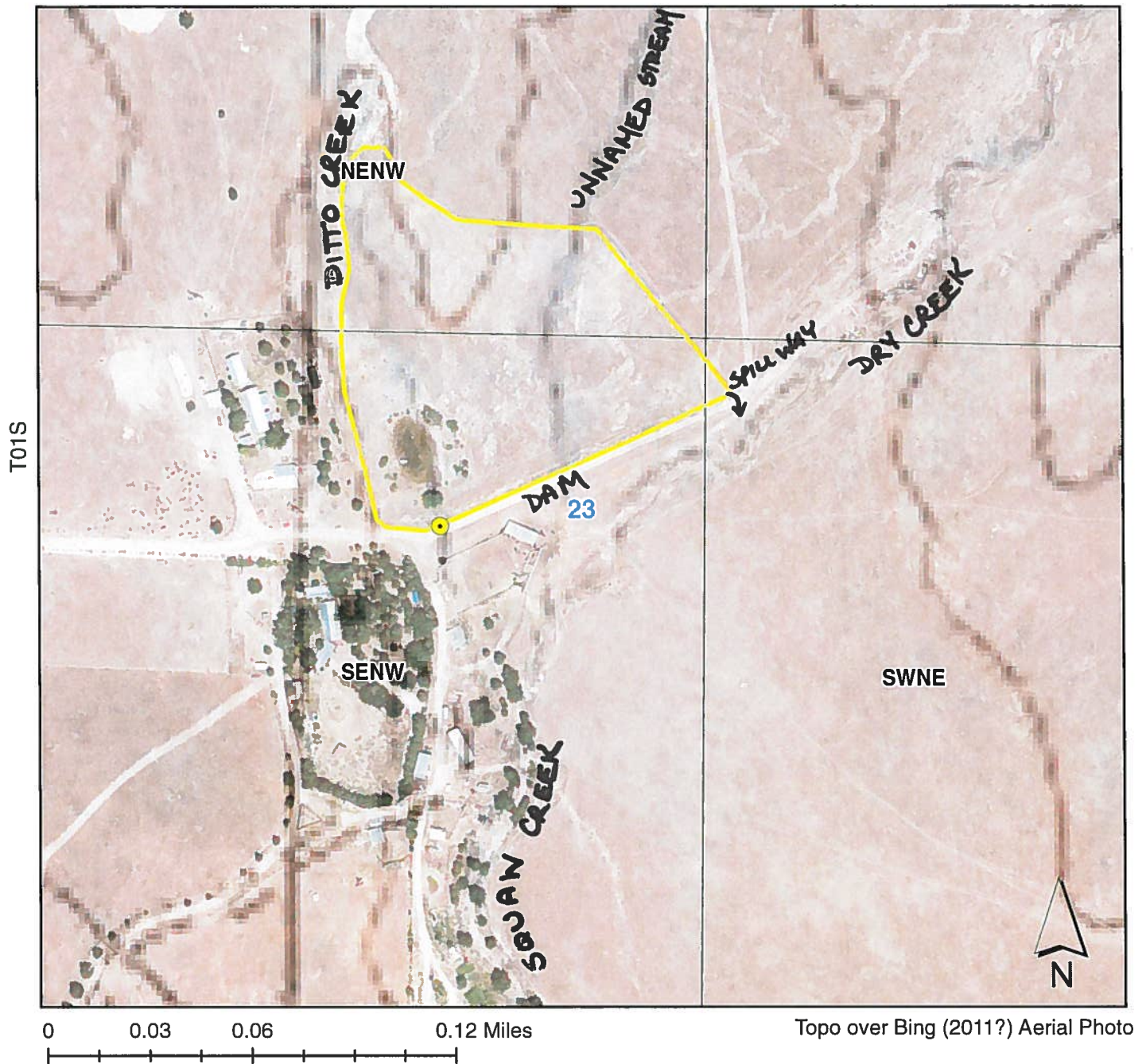
State of Idaho
Department of Water Resources

Beneficial Use Field Report Map & System Diagram

61-7600

P/U for Storage (Aesthetic, Stockwater, & Irrigation) Uses

R05E



● Point of Diversion

□ Place Of Use Boundary

□ Townships

□ PLS Sections

□ Quarter Quarters

61-7600 Beneficial Use Field Report Photos



61-7600 Exam 5/30/2012: Reservoir facing east. Irrigation/Irrigation from Storage P/U slightly greenier area in middleground in front of mountains just beyond the fence line. Dam in middleground to the south (right) of reservoir.



61-7600 Exam 5/30/2012: Diesel motor and pump on trailer (portable) for irrigation system.