

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-14924

Exam Date: 7/16/20

1. Current Owner:

JOHN RYGH 349 CARMEN DR # 7 MCCALL ID 83638-3823

3. **SOURCE:**

GROUND WATER

Method of Determination: Determined groundwater source by field exam, well on site, and well log.**B. OVERLAP REVIEW**1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A			

Comments: No POU overlap.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A			

Comments: No POD overlap.

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

GROUND WATER SW¼ SE¼, Sec. 3, Twp 17N, Rge 02W, B.M. ADAMS County

Method of Determination: Field exam, PLSS digital map using ArcMap and aerial imagery.**PLACE OF USE: IRRIGATION**

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
17N	02W	3																0.3	0.3

Total Acres: 0.3

PLACE OF USE: WILDLIFE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
17N	02W	3																X	

Method of Determination: Field exam, PLSS digital map using ArcMap and aerial imagery.

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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
418060	N/A	800V	N/A	Rural Power Systems, Inc. (RPS)	N/A

D. FLOW MEASUREMENTS

2. Measurements:

5 gallon bucket fill time:

21.45 seconds

20.90 seconds

21.05 seconds

14.2 gal/ minute

0.03 CFS**E. FLOW CALCULATIONS**

Theoretical Flow calculation:

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Pump Horsepower	1
Pumping Level	32
Discharge Pressure	50
Rate of Flow (cfs)	0.04

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (0.30\text{ac}) \times (4.0 \text{ af/ac}) = 1.2 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.03 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 15.5$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{1.2 \text{ af}}$$

2. Volume Calculations for other uses:

Wildlife:

Surface area (GIS): 0.02 acres

Average pond depth: 4 feet

Pond Capacity (Spreadsheet): 0.1 af

$$\mathbf{0.1 \text{ af} = 32,000 \text{ gallons}}$$

Length	20 ft
Width	15 ft
Height	4 ft

Volume	1200	ft ³
Gallons	8,977	

24 hour rule:

$$\mathbf{0.03 \text{ cfs} = 19,389 \text{ gpd}}$$

G. NARRATIVE/REMARKS/COMMENTS

The field exam was conducted July 16, 2020 by Kate Huelse.

The permit was assigned to John Rygh October 24, 2007. The partial proof of beneficial use was submitted September 30, 2019. Current Valley county taxlot data represent John Rygh as the owner of the land pertinent to the place of use and point of diversion. Overlap review found no additional existing water rights for the place of use nor the point of diversion.

Ground water comes from a well drilled in 2007. The well log gives both the legal description and the GPS coordinates in Degrees-Minutes- Seconds. Both of these methods place the well in Section 3, Township 17 North, Range 02 West, SW 1/4, SE ¼ and 44.49.005, -116.33.647. Well log suggests a potential of 80 gallons per minute (0.18 cfs). The system diverts water using a 1.0 horsepower pump to a 1.5" mainline pipe that T's off to 0.25 – 0.50 inch inch driplines. The original permit allowed for the irrigation of up to 8 acres , 0.40 CFS for stockwater , 0.160, CFS for Wildlife, 0.40 CFS for Domestic, and 0.160 CFS for Recreation . A review of satellite photos of the property from 2009 to 2017 did not show any evidence of irrigation or pond development. Water Resource Agent Kate Huelse met John Rygh to conduct a field exam July 16th, 2020. It was verified that Mr. Rygh developed 0.25 acres of land as a garden with approximately 400 feet of drip line as well as a small 500 square foot pond. Mr. Rygh claimed that he uses no more than 500 gallons a day. The well was turned on to take a diversion measurement. Overflow from the storage tanks were flowing from the well being turned on. A rate of 14 gallons a minute was calculated by performing a 5 gallon bucket test.

Additionally, the site reconnaissance revealed that the pond used for wildlife was located in SE ¼ SE ¼. Local animals such as deer and elk, as well as waterfowl drink directly from the pond which measures a capacity of 32,000 gallons. Mr Rygh said he will fill the pond with approximately 500 gallons every 2- 3 weeks times a year for a total of 10,000 gallons. Because the permit only specified acreage in the SW ¼ SE ¼ , I am recommending a permit amendment for licensing purposes.

According to AP Memo no. 17, irrigation of less than 5 acres may have a diversion rate of 0.03 cfs per acre. Irrigation for 0.3 acres in this right's POU is allowed a rate up to 0.03 cfs/acre, and therefore a rate 0.03cfs/acre multiplied by 0.3 acres results in a diversion rate of 0.01 cfs and a maximum volume of 1.2 af. Based on the volume calculation spreadsheet the pond would require a total volume of 0.03 AF. Because the water can be diverted at a rate that would fill the pond within 24 hours the water used for wildlife is considered live and will be licensed as such.

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>Rate of Diversion</u>	<u>Volume</u>
IRRIGATION	04/01 to 10/31	0.01 CFS	1.2 AF
WILDLIFE	01/01 to 12/31	0.03 CFS	0.1 AF
<u>Totals:</u>		0.03 CFS	1.3 AF

2. Recommended Amendments

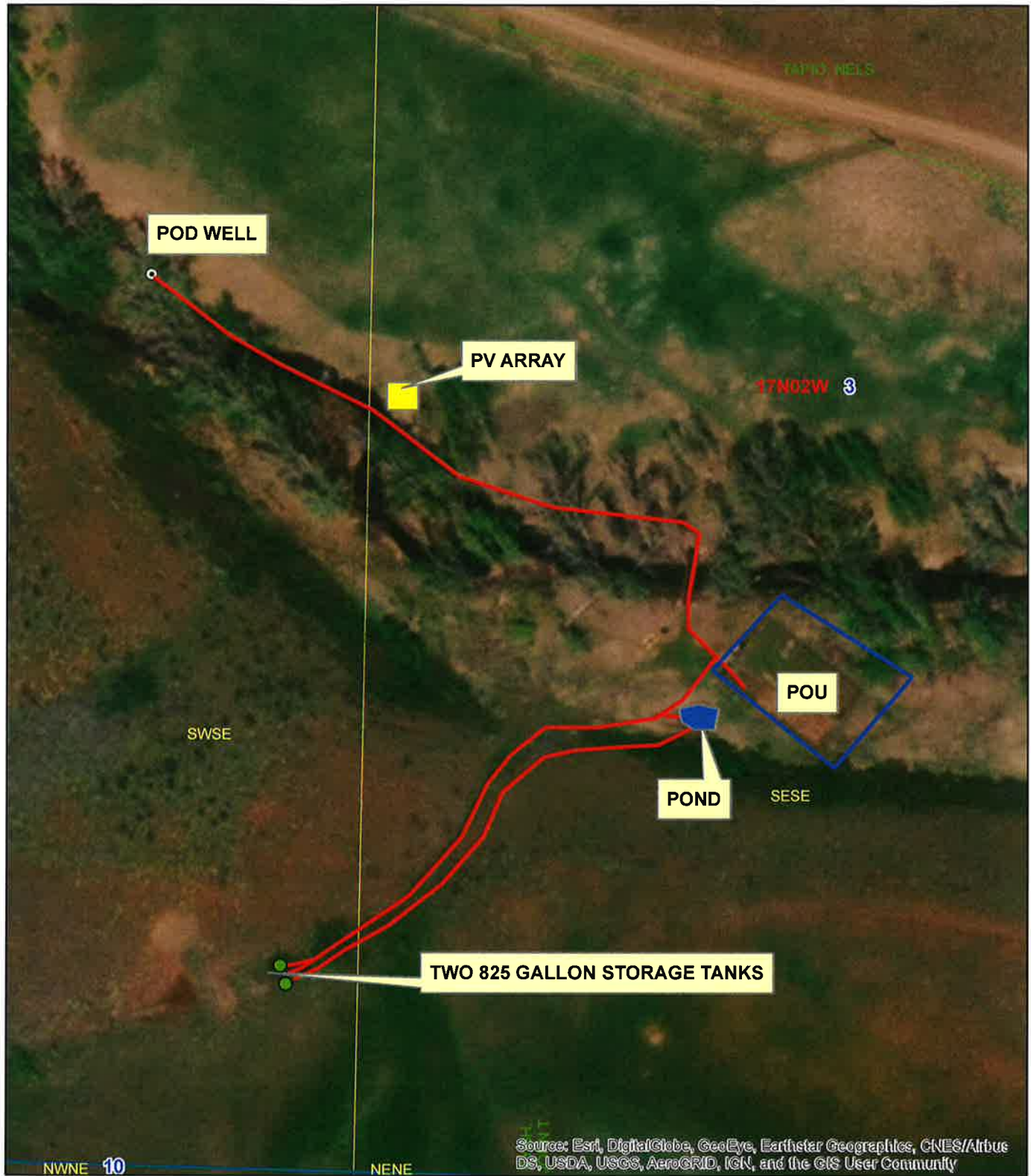
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION Kate Huelse - Water Resource Agent

Field Examiner's Name Kate Huelse Date 8/11/20
Reviewer Patin Mly Date 8-13-2020

System Diagram Rygh



Legend

- Township/Range
- Sections
- QQ

0 0.03 0.06 Miles



Point of Diversion (44.49.005, -116.33.647)

- Well ID: 418060
- Well Tag No.: D0052084
- Well Diameter: 6 in.
- Well Depth: 261 ft.
- Driller: Rob Dawson, Inc.
- Date Drilled: 7/27/07
- Picture shows the well within the structure that permit owner installed over well to insulate for winter conditions.



Hosing from well T's off to POU to 400 feet of drip irrigation hosing



POU

500 square foot pond used for wildlife.



Hose from storage tanks to 500 square foot pond.
Diversion rate measured at 14 gallons/ minute using
a 5 gallon bucket test



POU

0.20 Acre Place of Use, fenced and irrigated using a drip irrigation system.





Two 825 gallon above ground storage tanks
SW of POU

Total Storage Calculations

FILE NUMBER	67-14924
REVIEWER	John Rygh
DATE	7/7/2020

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.02	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	2	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	0.04	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.0	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	0.1	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	67-14924
REVIEWER	John Rygh
DATE	7/7/2020

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any negative precipitation deficit values.

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: Twin Falls 2 NNE (NWS -- 109294)

Month	mm/day ¹	Days per month	mm/Month
Jan	-2.18	31	0.00
Feb	-1.18	28	0.00
March	-0.28	31	0.00
April	1.67	30	50.10
May	2.13	31	66.03
June	3.20	30	96.00
July	4.19	31	129.89
August	3.66	31	113.46
September	2.34	30	70.20
October	0.67	31	20.77
November	-1.57	30	0.00
December	-2.80	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = 546.45

$[(\text{mm/yr}) \div (\text{convert to feet})] \times (\text{Surface area of pond, in acres}) = \text{Evaporation Loss in Acre Feet}$

(546.45 ÷ 304.8) X 0.20 = 0.4 AFA

Soil Classification with Published Soil Surveys

Alternative to Soil Classification with the NRCS Web Soil Survey

This spreadsheet has been designed by Idaho Department of Water Resources to determine the soil type and classification at the pond site.

FILE NUMBER	67-14924	7/7/2020	User Input
REVIEWER	Kate Huelse		Calculated value
DATE	7/7/2020		Formula Explanations

County: ADAMS, Idaho

1. Navigate to the NRCS Soil Survey Website

NRCS Published Soil Surveys for Idaho found at:

<https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=ID>

Reviewer used the Survey entitled:

ADAMS COUNTY AREA

2. Use GIS and the Soil Survey to determine Soil Type

Utilize ArcGIS to Obtain the Soil Symbol (may be a number or abbreviated name)

The shapefile SSURGOOnePlan is found at X:\Spatial\Soils\SSURGOOnePlan\soils.shp

Soil Symbol (GIS field MUSYM):

110

What if my Soil Symbol is 999?* (see box)

Find the name of the soil in the Soil Legend.

The Soil Legend is typically the last bookmark in the Soil Survey report.

The Full Name of This Soil is:

Langrell Loam, 0 to 2% slopes

3. Use the Soil Survey to determine the USCS Classification

Within the county NRCS Soil Survey report, click the bookmarked link to "Tables."

Scroll down until you reach a table called "Engineering Properties and Classifications" or

"Engineering Index Properties." The table is ordered by soil symbol and the soil name.

Scroll down until you reach the soil which matches your soil symbol and name.

The table lists the USCS Classification for each depth in the soil profile.

Be sure to use the predominant soil classification for the pond depth where seepage occurs.

If the pond has a greater depth than the soil survey, use data from the lowest depth reported.

Pond Depth: 5 feet = 60 inches

The Soil Survey states the soil USCS Classification at

60

inches is

CL

WELL DRILLER'S REPORT

1. WELL TAG NO. D 0052084

DRILLING PERMIT NO. _____

Water Right or Injection Well No. _____

2. OWNER: John Ryck

Name _____

Address P.O. Box 7

City McCall State ID Zip 83638

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 17 North ☒ or South ☐

Rge. 2 East ☐ or West ☒

Sec. 3 SE 1/4 SW 1/4 SE 1/4

Gov't Lot _____ County Adams

Lat: 44:49:99S Long: 116:33:64W

Address of Well Site 2 miles NW of

Council Cyprum Rd City Council

(Give at least name of road - Distance to Road or Landmark)

Blk. _____ Sub. Name on N Horner

Cherok

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	13	400	pour
Bentonite	13	66	1000	pour

Was drive shoe used? ☒ N ☐ Shoe Depth(s) 66.5

Was drive shoe seal tested? ☒ N ☐ How? H₂O

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	1	66.5	250	steel	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method Saw

Screen Type & Method of Installation PVC - Drop

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
65	261	1/16" x 2	300	4.5	PVC	☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
-----------------	------	----	-----------------	------------------

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

10 ft. below ground Artesian pressure _____ lb.

Depth flow encountered _____ ft. Describe access port or control devices: _____

848115
Office Use Only
Well ID No. 418060
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: _____ Long: _____

12. WELL TESTS:

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
80	226	236	2 hrs

Water Temp. 60 Bottom hole temp. 60

Water Quality test or comments: _____

Depth first Water Encounter 5

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
11	0	3	Soil		X
11	3	12	6" gravel	X	
10	12	17	Fractured Rock		X
10	17	29	yellow clay		X
10	29	54	Fract Rock & yellow clay		X
10	54	63	Basalt		X
8	63	66	Basalt		X
6	66	75	Basalt		X
6	75	77	Broken Basalt	X	
6	77	163	Basalt		X
6	163	166	Brown Lava		X
6	166	170	Basalt		X
6	170	174	Brown Lava	X	
6	174	183	Basalt		X
6	183	187	Brown Lava - Hard		X
6	187	214	Basalt		X
6	214	218	Broken - mbs some clay	X	
6	218	234	Basalt		X
6	234	239	softer Basalt	X	
6	239	240	Broken Basalt	X	
6	240	261	Basalt w/ fractures	X	

RECEIVED

AUG 22 2007

WATER RESOURCES
WESTERN REGION

Completed Depth 261 (Measurable)

Date: Started 7-24-07 Completed 7-22-07

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name B. Dawson, Inc Firm No. 589

Principal Driller [Signature] Date 8-12-07

and _____ Date _____

Driller or Operator II _____ Date _____

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

TRS	Process	BasinSequit Draft	Owner	Source	PODPOU	Use	NENE	NESE	NWSE	SWSE	SESE	TotalAcres	RightID
17N02W3	Water Right 67-14924	Y	RYGH, JOH GROUND	V POU	DOMESTIC					X			697687
17N02W3	Water Right 67-14924	Y	RYGH, JOH GROUND	V POU	IRRIGATION				2		5	1	8
17N02W3	Water Right 67-14924	Y	RYGH, JOH GROUND	V POU	RECREATION					X			697687
17N02W3	Water Right 67-14924	Y	RYGH, JOH GROUND	V POU	STOCKWATER						X		697687
17N02W3	Water Right 67-14924	Y	RYGH, JOH GROUND	V POU	WILDLIFE					X			697687