

MEMORANDUM

TO: Water Right File – 63-9982
FROM: Aaron Skinner – Water Resource Agent
DATE: February 2, 2017
SUBJECT: Field Exam Review

This water right permit was approved on March 17, 1983 for mining use for 0.20 cfs with no volume limit. The Proof of Beneficial Use form was received on January 15, 1988. A field exam was completed by department staff on July 20, 1988.

I was assigned this file on February 2, 2017. Robert Weatherby was contacted via telephone on February 2, 2017 to verify if mining was still taking place. Mr. Weatherby stated they currently do not mine that area, but have ~20,000 tons of ore piled up and may start mining again. So, he would like to continue to licensing. Exam notes, pictures, and maps suggest beneficial use was developed at the time of the field exam. An amendment will be needed as the field exam identified the Point of Diversion (POD) to be located in a different quarter-quarter (QQ) than what was permitted and the Place of Use (POU) did not include the NESE in Section 25. A change in address will need to be received before sending the license.

My review of the documentation supplied with the field exam is as follows:

Ownership: Permit 63-9982 is in the name of Weatherby Mining Company. Elmore County taxlot data shows Weatherby Mining Company as the current owners of the associated land. IDSOS records did not find any business under Weatherby Mining Company.

Source, POU, POD: The source is Fly Creek, a tributary of the Middle Fork of the Boise River. The examiner explains the system as diverting from Fly Creek by means of a diversion box to a 3" PVC pipe. Water flows through the pipe about 100 yards to a 1,800 gallon storage tank and 150 yards further to the mill. Beyond the mill there are two settling ponds.

The examiner changed the legal description for the POD to be located in the SWSWNW of Section 30. Accompanying maps also suggest the change in location. I created a map of the suggested change and attached it to the file.

The place of use was difficult to infer via aerial imagery. The examiner's system diagram shows two settling ponds west of the mill house. Google Earth imagery and ArcMap imagery were used to identify the mill and one settling pond. The pond has a surface area of ~0.06 acres and a maximum depth of 5 feet. These numbers were obtained from an email I received from Mr. Weatherby's daughter, Katie Weatherby-Berryman. The settling pond is located in the NESE of Section 25 and the NWSW of Section 30. The permit only states the QQ in Section 30. This change will be included with the POD amendments.

Diversion rate and Volume: The diversion rate for this permit is 0.20 cubic feet per second (cfs) with no limiting volume. A flow measurement was not taken during the field exam. I completed two theoretical calculations to better understand the system flow rate capacity. These analyses are attached to this file. The system rate capacity totaled 0.34 cfs and 0.41 cfs. My initial evaluation of this permit raised concern about WR no. 63-4956, a domestic right for 0.16

cfs (Statutory Claim). The domestic use is for 4 cabins on the Weatherby's property. The field exam was unclear if this permit and WR no. 63-4956 overlapped and/or used the same delivery system. Because the additive for both permitted rates is only 0.02 cfs above the lower theoretical flow capacity, combine use limits are not warranted. Fly Creek is a very seasonal creek and it is inferred that simultaneous use does not occur. A conversation with Mr. Weatherby also concluded that the POD for the Statutory Claim is north of the POD for this permit along Fly Creek.

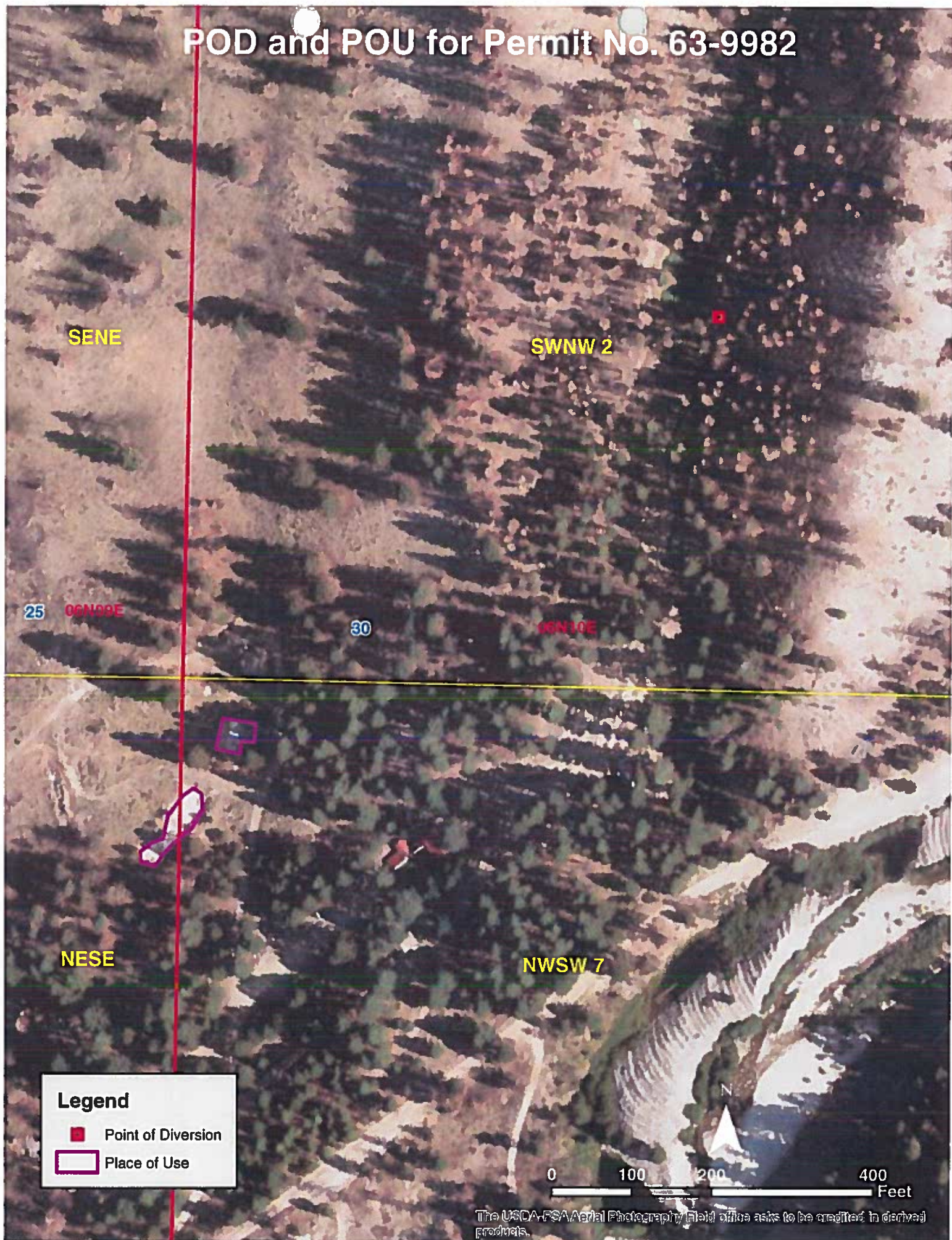
The examiner did not recommend storage, so it was assumed the ponds refill time is no greater than 24 hours. As such, the diversion rate multiplied by 1.9835 gives a 0.4 acre feet per day (af/d) volume limit for the pond ($0.20 \text{ cfs} \times 1.9835 = 0.4 \text{ af/d}$), while the 1,800 gallon storage tank volume was divided by 325,850 gallons to set a limit of $\sim 0.1 \text{ af/d}$ use. Together these total 0.5 af/d. An email from the Weatherby's stated the water was used intermittently May 1 thru October 31st for 8 hours a day. I interpreted this to be three days a week maximum. Therefore, 24 hours a week established a weekly volume of 0.5 af and a yearly volume of 13.0 af ($0.5 \text{ af} \times 26 \text{ weeks}$). The recommended volume limit for licensing is 13.0 af/year.

Overlap Review: POD overlap analysis did not identify any overlap. The field exam did not identify any overlap, but did mention that water at this permit's POD was available for domestic use at the time of exam. As aforementioned, the POD for the Statutory Claim is north of the POD for this permit along Fly Creek. Therefore no POD overlap is pertinent.

POU analysis revealed no overlap.

Summary: It is recommended to license a rate and volume of 0.20 cfs and 13.0 af respectively. Condition 005 was replaced with condition R05. Condition 06A is an inactive condition, but is recommended for licensing to establish seepage pond maintenance relative to water quality concerns and there were no other conditions that meet this criteria. Condition 004 was also forwarded to licensing.

POD and POU for Permit No. 63-9982



Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

$S = 0.0733$ ft/ft
 $n = 0.009$ manning's coefficient
 $d = 3.0$ pipe diameter (inches)
 $D = 0.25$ pipe diameter (feet)
 $r = 0.13$ pipe radius (feet)
 $A = 0.05$ area (ft²)
 $WP = 0.79$ wetted perimeter (ft)
 $R = 0.06$ hydraulic radius (ft)

Q = 0.34 flow rate (CFS)

READ ME

Manning's Equation for velocity (v) in a circular conduit is equation (2) where R is the hydraulic radius, computed from the area (A) and the wetted perimeter (P).

In equations (1) and (2), n is the Manning roughness coefficient, which is a function of the channel type. For a circular conduit, R is equal to the area (A) divided by the wetted perimeter (P), $R = A/P$.

Because Manning's equation is based on a velocity reported in ft/s, the velocity must be reported in ft/s, not ft/min. The velocity must be reported in ft/s, not ft/min.

Channel Slope

Slope Options

☐ Manual Entry
 ☒ Slope Calculator

Slope Calculator

Rise = feet

Run = feet

Slope, $S = 0.0733$ ft/ft

Pipe Material, (n):

plastic (pvc, abs)

Pipe Diameter (inches)

3.0 inches

$$(1) \quad v = \frac{1.486}{n} R^{2/3} S^{1/2}$$

$$(2) \quad Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

$$(3) \quad Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

Estimating Pipeline Flow Rates for WR Permit No. 63-9982 (System Capacity)

	POD	Storage Tank	Mill
Pipe Diameter (in.)		3	
Elevation (ft.)	4,628	4,591	4,573
$(z_1 - z_2)$ (ft.)		37	55
Length (ft.)		300	750
Velocity (ft/sec)		10.70	8.28
Area of Pipe (ft ²)		0.0491	
Q (cfs)		0.53	0.41

	Storage Tank to Mill	POD to Mill
Velocity; v=	10.70	8.28
Pipe Length; L=	300	750
Pipe Diameter; D=	0.25	
f(x)=	37	55

$$(z_1 - z_2) = (0.0232919) * (v^2) + (0.0002816) \left(\frac{L}{D^{1.167}} \right) (v^{1.852})$$

Overlap Analysis for Water Permit No. 63-9982 POD

06N10E30

Process	BasinSequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	TotalAcres
Water Right	63-24403	N	UNITED STATES OF AMERICA ACTING THROUGH	SMITH CREEK				X														
Water Right	63-24404	N	UNITED STATES OF AMERICA ACTING THROUGH	FLY CREEK							X											
Water Right	63-24426	N	UNITED STATES OF AMERICA ACTING THROUGH	HOT CREEK																		
Water Right	63-4956	N	WEATHERBY, HELEN	FLY CREEK																		
Water Right	63-9982	Y	WEATHERBY MINING CO	FLY CREEK								X										

(X) May overlap. Source is Fly Creek but POD shapefile is centroid. Not confirm on FE.

Overlap Analysis for Water Permit No. 63-9982 POU

06N10E30

Process	BasinSequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	TotalAcres
Water Right	63-24403	N	UNITED STATES OF AMERICA ACTING THROUGH	SMITH CREEK	STOCKWATER			X			X											
Water Right	63-24404	N	UNITED STATES OF AMERICA ACTING THROUGH	FLY CREEK	STOCKWATER							X										
Water Right	63-24415	N	UNITED STATES OF AMERICA ACTING THROUGH	BOISE RIVER	STOCKWATER				X	X				X	X	X	X		X			
Water Right	63-24426	N	UNITED STATES OF AMERICA ACTING THROUGH	HOT CREEK	STOCKWATER											X	X				X	
Water Right	63-4956	N	WEATHERBY, HELEN	FLY CREEK	DOMESTIC											X						
Water Right	63-9982	Y	WEATHERBY MINING CO	FLY CREEK	MINING											X						

Skinner, Aaron

From: Katie Weatherby-Berryman <katievilla2010@hotmail.com>
Sent: Sunday, April 30, 2017 2:34 PM
To: Skinner, Aaron
Subject: Fwd: Water Permit No. 63-9982 (Mining Use)

Aaron - I will mail out the change of address form Monday. Can you email me the form we need to fill out for the 100\$ payment. If it's faster I can fax all these forms back to you.

Also the pond is five feet deep and it did not flow back into any of the water sources I.e fly creek.

Thanks

Katie

Sent from my iPhone

Begin forwarded message:

From: user100193@aol.com
Date: April 30, 2017 at 8:09:25 AM MDT
To: katievilla2010@hotmail.com
Subject: Fwd: Water Permit No. 63-9982 (Mining Use)

-----Original Message-----

From: Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>
To: user100193 <user100193@aol.com>
Cc: katievilla2010 <katievilla2010@hotmail.com>
Sent: Thu, Apr 20, 2017 12:20 pm
Subject: RE: Water Permit No. 63-9982 (Mining Use)

Hmmm. Not sure what the mix up would have been. Yes, that is the correct address.

Idaho Department of Water Resources
2735 Airport Way
Boise, ID 83705-5082

Please let me know how I can help...

Aaron Skinner
Idaho Department of Water Resources
Water Resource Agent
(208) 334-2190
aaron.skinner@idwr.idaho.gov

From: user100193@aol.com [<mailto:user100193@aol.com>]
Sent: Thursday, April 20, 2017 8:10 AM
To: Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>
Subject: Re: Water Permit No. 63-9982 (Mining Use)

ARRON

I mailed the change of address form on March 20 and it came back yesterday in the mail as unable to forward. I used 2735 Airport Way Boise Id 83705. Is that the proper address?

Robert

-----Original Message-----

From: Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>

To: user100193 <user100193@aol.com>

Cc: katievilla2010 <katievilla2010@hotmail.com>

Sent: Fri, Apr 14, 2017 3:02 pm

Subject: RE: Water Permit No. 63-9982 (Mining Use)

Robert,

Checking in to see how things are going in regards to the Change in Address form...? I also have one last question. On average, what is the max depth of the settling pond? This will help me develop a total capacity. Once the Change in Address form is received, I'll send out the amendment changing the Point of Diversion and Place of Use descriptions. Please let me know if you have any questions.

Hope all is well!!

Best,

Aaron Skinner
Idaho Department of Water Resources
Water Resource Agent
(208) 334-2190
aaron.skinner@idwr.idaho.gov

From: user100193@aol.com [<mailto:user100193@aol.com>]

Sent: Sunday, March 19, 2017 3:48 PM

To: Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>

Subject: Re: Water Permit No. 63-9982 (Mining Use)

Aaron

Sorry this is taking so long but we have been involved in handling an estate. I will try to get this done in the next two weeks.

as for your questions

- a. the pond only fills partially once a year
- b. no water ever leaves the pond except by evaporation

c. water is used intermittently, May thru October for about 8 hours at a time.

Thanks Robert

-----Original Message-----

From: Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>

To: user100193 <user100193@aol.com>

Cc: katievilla2010 <katievilla2010@hotmail.com>; Skinner, Aaron <Aaron.Skinner@idwr.idaho.gov>

Sent: Tue, Feb 21, 2017 12:19 pm

Subject: Water Permit No. 63-9982 (Mining Use)

Robert and Katie,

Below are two things I need from you to finish drafting a license for the mining use.

1. Will you please fill out and send back the attached change in address form at your earliest convenience. The current address on the permit is 160000 S. Cloverdale Road, Kuna, Idaho. When speaking with you over the phone, you mentioned 16225 S. Cloverdale Road is the address you would like on the license. Please include Permit no. 63-9982 (mining) and Water Right no. 63-4956 (Domestic) as the affected rights. Once this form is received, we will be able to update the address in our system. There is no fee associated to the change in address form. When the amendment is sent, please review the purposed amendment to verify you agree with the change and submit a check for the \$100 amendment fee. The license amendment will change the point of diversion from the NWSW to the SWNW quarter-quarter. We will need the original form, so please mail it to the address below.

Idaho Department of Water Resources

2735 Airport Way

Boise, Idaho 83705-5082

2. I'm in the process of drafting a license for the mining use and hit a snag relative to a volume limit that should accompany the permitted rate of 0.20 cfs. Below is a list of questions about the stilling pond that I would like you to answer to the best of your ability.
 - a. How often was the pond filled? The field exam did not mention this, so it was assumed the pond was only filled once during the year.
 - b. Was there water running through the pond back into the Middle Fork or Fly Creek as the pond is filled?
 - c. How often was water used to crush the ore (e.g., June-July 5 days a week for 40 hour weeks)?

Again, this will not affect the rate of diversion from Fly Creek or season of use. Idaho Statue requires a volume limit for mining use, so I am trying to better understand what you do on site so I can accurately calculate a volume limit. Please let me know if you have questions. I look forward to hearing back from you at your earliest convenience.

Best,

Aaron Skinner

Idaho Department of Water Resources

Water Resource Agent

(208) 334-2190

aaron.skinner@idwr.idaho.gov