

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 45-14137
Exam Date: 8/27/2018

1. Current Owner:
SIX S RANCH LLC
1354 E SIX S RANCH RD
DECLO ID 83323
2. Accompanied by:
Nick Takas
Phone No: (208) 654-2564
Address: 1354 E SIX S RANCH RD, DECLO ID 83323
Relationship to Permit Holder: Ranch Manager
3. SOURCE: MARSH CREEK TRIBUTARY: SNAKE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 45-14111; 45-14113; 45-14115; 45-14117; 45-14119; 45-14121; 45-14123; 45-14125; 45-14127; 45-14129; 45-14131 and 45-14133 (all rights listed are for water quality improvement; water quality improvement storage; wildlife and wildlife storage)
2. Other water rights with the same point-of-diversion: 45-14111; 45-14113; 45-14115; 45-14117; 45-14119; 45-14121; 45-14123; 45-14125; 45-14127; 45-14129; 45-14131 and 45-14133

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:
MARSH CREEK NW¼ SW¼, Sec. 27, Twp 10S, Rge 25E, B.M. CASSIA County

Method of Determination: on-site inspection, aerial photography

2. 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	
10S	25E	28	X			X													

PLACE OF USE: WATER QUALITY IMPROVEMENT

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
10S	25E	28	X			X													

Method of Determination: on-site inspection, aerial imagery in ArcMap (2009, 2011, & 2013 NAIP), satellite imagery in ArcMap (LANDSAT 2013) & Google Earth (2009-2013)

3. ATTACHMENTS

- 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
- X 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
N/A					

*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
Submerged Orifice	Rectangular				9" X 48"	

2. Measurements:

The Ranch Manager indicated the ponds were utilized from 9/1 – 4/30 and provided some diversion data from the winter of 2017/2018 observed at the staff gages at the point of diversion (see attached); however, the data provided do not show both the upstream and downstream staff gage readings. Without both readings, it is not possible to calculate the head difference which is required to measure the flow through the submerged orifice.

On a previous visit to the property in March 2017, Corey Skinner and Bill Mills observed water diverted under this permit. They noted the staff gage readings at the upstream and downstream sides of the submerged orifice as 2.95' and 2.40', respectively. Absent more detailed information, this measurement was used for licensing purposes.

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method: Staff gages on upstream and downstream sides of rectangular submerged orifice

Equation 9-1b in the US Bureau of Reclamation Water Measurement Manual provides a method to calculate flow through a rectangular submerged orifice.

$$Q = C_d A \sqrt{2g\Delta h}$$

Where C_d is the coefficient of discharge (assumed to be 0.61 for rectangular irrigation weirs), A is the area of the orifice in square feet, g is acceleration due to gravity in ft/s^2 , and Δh is the differential head in feet. This results in:

$$Q = 0.61 * 3\sqrt{2} * 32.15 * 0.55 = 10.88 \text{ cfs}$$

Per IDAPA 37.03.02, Rule 35.01.o the amount of water shall be limited to the smaller of the following amounts:

- Permitted amount: 10.6 cfs
- Amt. upon which the license exam fee is paid: up to 10.6 cfs
- Capacity of diversion works: unknown
- Amt. beneficially used: 10.88 cfs

In this case, the permitted amount is the limiting factor at 10.6 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: N/A

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

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

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

2. Volume Calculations for Other Uses: Wildlife & Water Quality Improvement

Per Ranch Manager, assume diversion season 9/1 – 4/30 (242 days).

Absent more detailed information, assume constant diversion rate of 10.6 cfs.

This results in an annual diversion volume of 5088 acre feet.

$$10.6 \text{ cfs} \times \frac{1.9835 \frac{\text{ac} - \text{ft}}{\text{day}}}{1 \text{ cfs}} \times 242 \text{ days} = 5088 \text{ ac} - \text{ft}$$

G. NARRATIVE/REMARKS/COMMENTS

Application for Permit 45-14137 was filed on April 13, 2007 by Travis Thompson, the attorney representing Six S Ranch LLC, for the diversion of 10.6 cfs from Marsh Creek for wildlife and water quality improvement uses. The permit was issued on September 9, 2008 with proof due by October 1, 2013. Proof of Beneficial Use was filed on September 27, 2013. On August 27, 2018, Corey Skinner, Bill Mills, and I met ranch manager Nick Takas to perform the field exam. Note that Bill Mills and Corey Skinner had also previously visited the property in March 2017.

The point of diversion and place of use are located approximately 2.5 miles east and 8 miles north of Albion. At the point of diversion is a rectangular submerged orifice measuring 9" X 48" at the head of an open channel diverting out of Marsh Creek. The Ranch Manager explained that the diversion can be closed and locked when water is not being diverted. Staff gages are mounted on the upstream and downstream sides of the submerged orifice.

From the point of diversion, water flows through an open channel that runs approximately 750 feet until it flows into the upper pond. Note that this permit is for non-consumptive flow-through purposes only; other water rights authorize storage water for the pond (see Item B – Overlap Review above).

On the day of the field exam, there was water in the ponds. The Ranch Manager explained that water is primarily diverted to the ponds during the non-irrigation season, approximately September 1 – April 30. Using aerial and satellite imagery available to the Department, I observed the place of use of the permit. Unlike the ponds authorized under permits 45-14134 and 45-14135, the ponds authorized

under this permit appear to have water in them during the summer months in most years. Note the overlapping rights do allow for year round storage and diversion to storage during the irrigation season.

At the lower end of the pond, water flows over a 5 foot wide contracted rectangular weir into an open channel which runs approximately 300 feet where it flows into the lower pond. At the lower end of the second pond is another 5 foot wide contracted rectangular weir. Below the lower pond, water flows into a large wetland/marsh area, which flows back into Marsh Creek.

During the field exam, photos were collected of the point of diversion and place of use (see attachments).

I recommend licensing both wildlife and water quality improvement uses at the permitted rate of 10.6 cfs with a 10.6 cfs total diversion rate for the period of 9/1 – 4/30 with an annual volume of 5088 ac-ft for each use with a total annual volume of 5088 ac-ft.

In reviewing the conditions on the permit, condition 029 requires the permit holder to comply with fish screening and/or passage requirements of the Idaho Department of Fish and Game (IDFG). The Department backfile shows that a letter was sent to the IDFG requesting comments and/or recommendations during the advertising of the application in June 2008. However, Department records indicate that no comments or recommendations were received from IDFG for this permit. In Basin 45, Condition 029 is typically only placed on permits at the request of IDFG. Additionally, condition 029 is not on any of the existing water rights for this system. It appears that it was placed on the permit inadvertently, and will be dropped at licensing. All other conditions on the permit will be carried forward, except for 01H which requires a lockable device, and it will be replaced by R02 as is recommended at licensing.

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>
WILDLIFE	09/01 – 04/30	10.6 CFS	5088.0
WATER QUALITY IMPROVEMENT	09/01 – 04/30	10.6 CFS	5088.0
Totals:		10.6 CFS	5088.0 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

Field Examiner's Name Allison Inouye Date 4/24/2019
Allison Inouye - Water Resource Agent, Senior

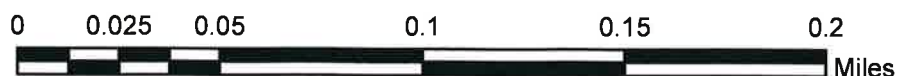
Reviewer _____ Date _____

Attachment to 45-14137 Beneficial Use Field Report: System Diagram & Map



Legend

- Township/Range
- Sections
- QQ



Field Exam 45-14137

45-14137 Attachment to Beneficial Use Field Report: Photographs



Above: POD with lockable works

Below: Top-most portion of submerged orifice opening at POD. Upstream staff gage visible at right.



45-14137 – Photographs, cont.



Above: Upstream and downstream staff gages at POD.
Below: Place of use (upper pond)



45-14137 – Photographs, cont.



Above: Upper pond outlet
Below: Place of use (lower pond)



3/5/2018

Six S Ranch Wetlands Readings

Permit 45-14137

8/1/17 1.75

8/18/18 1.8

10/27/17 1.4

11/20/17 1.5

12/8/17 1.8

1/8/18 2.1

3/5/18 2.2

Permit 45-14136

8/1/17 0

8/18/18 0

10/27/17 0

11/20/17 .5

12/8/17 .6

1/8/18 .6

3/5/18 .6

Permit 45-14135

8/1/17 1.8

8/18/17 1.7

~~10/27/17~~ 1.3

11/20/17 1.85

12/8/17 1.8

1/8/18 1.7

3/5/18 1.6

Permit 45-14134

8/1/17 1.35

8/18/17 1.35

~~10/27/17~~ 1.7

11/20/17 2.21

12/8/17 2.1

1/8/18 2.3

3/5/18 1.8