STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9451
Exam Date: 5/23/2013

1. Current Owner: STANLEY HATCH
183 EAGLE COVE
SANDPOINT ID 83864
(208) 263-5086

And/Or

BEVERLY HATCH
183 EAGLE COVE
SANDPOINT ID 83864
(208) 263-5086

2. Accompanied by: Beverly Hatch
Phone No: Same As Above
Address: Same As Above
Relationship to Permit Holder: Owner

3. **SOURCE**: PEND OREILLE LAKE

TRIBUTARY: PEND OREILLE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 96-7011 and 96-8953
2. Other water rights with the same point of diversion: None

C. DIVERSION AND DELIVERY SYSTEM

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

PEND OREILLE LAKE L2 SW1/4NE1/4 Sec. 8, Twp 57N, Rge 01W, B.M. BONNER County

Method of Determination: GPS and Visual Inspection

2.

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
57N 01W 8			.8														.8
			L 2														

Total Acres: 0.8

Method of Determination: GIS and Visual Inspection

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

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
Lake Pump	A.O. Smith Corp.	2	C48M2ED11C2	A.O. Smith Corp.	2 inch

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
NONE						

2. Measurements: The pump wasn't in operation at the time of the field visit. Therefore a theoretical Calculation was done.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Theoretical = 0.09 cfs

Permit allowed = 0.05 cfs

I recommend this permit be licensed for 0.05 cfs. This permit was issued with a 0.05 cfs rate for one acre. The reason given on the permit application was that the irrigation system was designed to divert 22 gpm. The irrigation system was designed to irrigate during a short period of time each day, and not for a constant rate of flow.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.}$ = (Acres Irrigated) x (Irrigation Requirement) = 0.8 acres X 3 af = 2.4 af.

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = 0.05 cfs X 214 X 1.9835 = 21.2 af

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = 2.4 af

2. Volume Calculations for Other Uses:

G. NARRATIVE/REMARKS/COMMENTS

This is a fairly simple system of a 2 Hp pump that diverts water from Pend Oreille Lake into a buried irrigation sprinkler system. The system irrigates a yard and a privacy hedge consisting of trees and hedge type bushes.

The permit allowed the diversion rate of 0.05 cfs for one acre based on the owner's statement that they designed the system to operate at 22 gpm for a shorter period of time. My investigate confirms that they operate this system at a higher rate of flow.

Oden Water Company supplies the in-house water use. This water can also be used for irrigation. The owner uses the lake water as much as possible, but there is still the possibility of the owner using the water company water if something happens to the pump. There is a condition that was placed on the permit that was carried over to the license to prevent overuse of the irrigation water for this property. The Oden Water Company water rights are 96-7011 and 96-8953.

Have conditions of permit approval been met? __X__Yes _____No

H. RECOMMENDATIONS

1. Recommended Amounts

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE	ANNUAL VOLUME
IRRIGATION	04/01 to 10/31	0.050 CFS	2.40 AF
	Totals:	0.050 CFS	2.40 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 ___Other

I. AUTHENTICATION Daniel A. Nelson – Staff Hydrologist

Field Examiner's Name Daniel A. Nelson Date 12-3-2013

Reviewer_____ Date_____

State of Idaho
Department of Water Resources

Field Exam Map

96-9451

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

Point of Diversion
Place Of Use Boundary
Townships
PLS Sections
Quarter Quarters

0 0.0125 0.025 0.05 Miles

N

T57N
R1W
S8
SWNE
Lot 2
System Diagram - 96-9451 - By Dan Nelson
This is fairly simple system of a 2 Hp pump that diverts water from Pend Oreille Lake into a buried underground sprinkler system. This system irrigates the yard and a privacy hedge along the lake. There is approximately 0.8 acres being irrigated under this water right.
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-9451
Reviewer: Dan Nelson
Date of Review: 5/23/2013

P/D No.:	Senerio 1	Senerio 2	Senerio 3	
PUMP HORSEPOWER	2	2	2	
BOOSTER HORSEPOWER	0	0	0	
PUMPING LEVEL	20	20	20	
DISCHARGE PRESSURE	40	50	60	
				AVE
RATE OF FLOW (cfs)	0.11	0.09	0.08	0.09
	49	41	35	42

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

Assumptions: %70 efficiency.
No Friction

Examiners Notes:

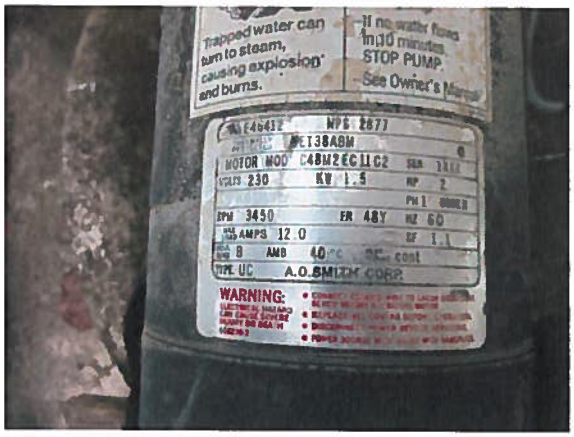
This is a 2 Hp pump that diverts irrigation water to an underground sprinkler system. The lift from the lake was between 10 feet (high water) to 20 feet (low water). The pressure against the pump was estimated at between 40 and 50 psi. The flow calculated was more than sufficient to supply the 0.2 cfs we can allow under this permit.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 5/23/2013

FILE NUMBER 96-9451

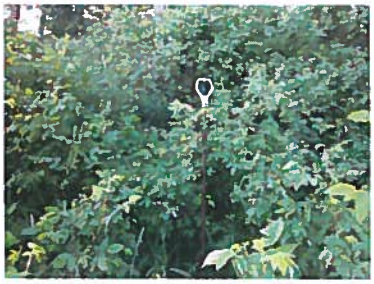
The photo above left shows the pump's intake pipe from Pend Oreille Lake. The photo above right shows the pump house and the green intake pipe coming out of the pump hours.

The photos below show the 2 Hp pump in the pump house. There is a 2 inch discharge that goes in two directions to an underground sprinkler system.



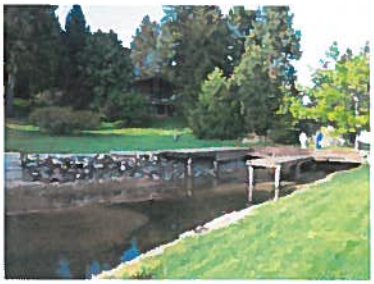
PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 5/23/2013

FILE NUMBER 96-9451



The photos above show the two different types of sprinklers. In the lawn area there are pop-up sprinklers and stand sprinklers in the privacy hedge.

The photos above show a lawn track between the security hedge and the lake. The security hedge is combination of bushes and larger trees.



The photos above show the back yard. The yard goes around the boat docks and up to the house. The photo below shows the only irrigation in front of the house. This is a small patch of irrigation between the house and the storage shed.