A. GENERAL INFORMATION

Permit No: 96-9517 Exam Date: 08/15/2019

- 1. Current Owner: VERN SEVERTSON 6960 MT CARROL ST DALTON GARDENS ID 83815 OR SHARON SEVERTSON 6960 MT CARROLL ST DALTON GARDENS ID 83815
- Accompanied by: Sharon Severtson Phone No: (208) 755-8209 Address: Same as above Relationship to permit Holder: Permit Holder

3. SOURCE: PACK RIVER Tributary LAKE PEND OREILLE

Method of Determination: Arcmap and DRG

B. OVERLAP REVIEW

| Other water rights w | vith the same place of use: | YES Overlap | |
|--|-----------------------------|----------------|---------|
| Water Right No. | Source | Purpose of Use | Basis |
| 96-8663 | JERU CREEK | DOMESTIC | LICENSE |
| | | | |

Comments: WR 96-8663 uses water for domestic purposes out of Jeru Creek, prior to its flow into Pack River, and is not an overlap concern.

| Other water rights v | with the same point-of-diversion: | <u>NO</u> Overlap | |
|--|-----------------------------------|-------------------|-------|
| Water Right No. | Source | Purpose of Use | Basis |
| | | | |
| | | | |

Comments:

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

PACK RIVER NE¼ SE¼, Sec. 21, Twp 60N, Rge 02W, B.M. BOUNDARY County

Method of Determination: Arcmap and GPS. POD is a pump in river located at -116º35.770, 48º32.108.

PLACE OF USE: IRRIGATION

| Two | Dee | Soc | | N | E | | | N\ | N | | | SV | V | | | S | Ξ | | Totals |
|-----|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|--------|
| rwp | Ring | Sec | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | |
| 60N | 02W | 21 | | | | | | | | | | | | | 0.8 | | | | 0.8 |
| Te | | | 0 0 | | | | | | | | | | | | | | | | |

Total Acres: 0.8

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PLACE OF USE: WILDLIFE STORAGE

| | Soc | 1 | N | E | | | N\ | N | | | S | N | | | S | E | | Totals |
|-----------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
| I wp King | Sec | NE | NW | SW | SE | |
| 60N 02W | 21 | | | | | | | | | | | | | Х | | | | |

Method of Determination: Arcmap and Field Exam.

3.

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

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

 Well or Diversion ID No.*
 Motor Make
 Hp
 Motor Serial No.
 Pump Make
 Pump Serial No. or Discharge Size

 PORTABLE GENERATOR DRIVEN PUMP
 UNKOWN
 Image: Size
 Image: Size
 Image: Size

D. FLOW MEASUREMENTS

| Measurement Equipment | Туре | Make | Model No. | Serial No. | Size | Calib. Date |
|--------------------------|------|------|-----------|------------|------|-------------|
| | | | | | | |

2. Measurements:

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Applicant used 2ea portable generators to divert water both from the same POD. 5 gallon bucket tests were performed to determine diversion rates in gpm as listed below:

Red generator for DIVERSION TO STORAGE = (5 gal / 4.5 sec) x 60 sec = 66.7 gpm = 0.15 cfs.

Blue generator for IRRIGATION = 2 consecutive tests performed, and average used to determine diversion rate

- Test 1 = (5 gal / 39.5 sec) x 60 sec = 7.6 gpm
- Test 2 = (5 gal / 40.1 sec) x 60 sec = 7.5 gpm

Average diversion rate from blue generator = (7.6 gpm + 7.5 gpm) / 2 = 7.55 gpm = 0.02 cfs.

DIVERSION TO STORAGE rate for license = 0.15 cfs, and IRRIGATION diversion rate for license = 0.02 cfs.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

V_{IR} = (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 = 0.02 x 214 days x 1.9835 = 8.5 af V = Smaller of V_{LR} and $V_{D,R}$ = 2.4 af

This is a surface water right, so no volume will be included on the water right license.

2. Volume Calculations for Other Uses:

See attached Pond Analysis Worksheet

G. NARRATIVE/REMARKS/COMMENTS

Field exam was performed with the applicant, Sharon Severtson, and showed water being drawn from the Pack River to fill a small pond for wildlife storage and for irrigation purposes. Applicant had 1 generator driven pump (red generator) for diversion to storage, and a smaller generator driven pump (blue generator) for irrigation purposes. Applicant had applied for only 1 point of diversion, and they only operated 1 pump at a time from the same POD location. As a result, the alternating use of each generator does not constitute two PODs because they are portable in nature, and not a permanent structure.

During field exam, 5 gallon bucket tests were performed to determine diversion rates for each pump. 5 gallon bucket tests were performed to determine diversion rates in gpm as listed below:

- Red generator for DIVERSION TO STORAGE = (5 gal / 4.5 sec) x 60 sec = 66.7 gpm = 0.15 cfs.
- Blue generator for IRRIGATION = 2 consecutive tests performed, and average used to determine diversion rate
 - Test 1 = (5 gal / 39.5 sec) x 60 sec = 7.6 gpm
 - o Test 2 = (5 gal / 40.1 sec) x 60 sec = 7.5 gpm
 - Average diversion rate from blue generator = (7.6 gpm + 7.5 gpm) / 2 = 7.55 gpm = 0.02 cfs.

At time of 5 gallon bucket tests, the applicant was running 2 tripod sprinklers, so the average of the two was taken to determine the diversion rate for irrigation. The bucket tests used hoses held over sprinkler nozzles to capture water from sprinkler, and routed into a 5 gal bucket with help from the applicant. As only one pump is used at any given time by applicant, and the larger pumps diversion rate equals 0.15 cfs, the Maximum Diversion Rate of 0.15 cfs will be applied to license.

The irrigation POU was identified during field exam, and traced out using arcmap equaling 0.8 acres. An above ground sprinkler system using hoses and upright tripod sprinklers were used to keep green spaces around cabin for fire protection purposes. As the applicant uses the Pack River as the water source, this is a surface water right, and no volume diversion will be included on the water right license for the irrigation component. At time of field exam, applicant stated there was no usage of pond water for irrigation, and as such both IRRIGATION STORAGE and IRRIGATION FROM STORAGE components were removed from the license.

The Wildlife Storage POU was identified as a small pond without a dam. Arcmap was used to trace out surface area = to 0.045 acres. This value was rounded to 0.1 acres to conform to department significant figures (Application Process No.6, department administrative memo). The current department Pond Analysis Worksheet was completed, and the pond has a max depth of 8 feet, an average depth of 3.2 feet, an estimated seepage loss of 7.3 af, and an estimated evaporation loss of 0.1 af. As there is no diversion volume for wildlife storage, the applicant is authorized to store up to 2.6 af, but there will be no Maximum diversion volume applied to license.

At the time of application and permitting, the older version of the department pond analysis sheet did not factor in soil types when estimating seepage, and only 1 generic rate was used. As a result, the older form did not account for the soil composition for this pond, which is situated along-side the river. A pond with subsurface layers of gravel that are highly porous in composition directly influences greater seepage from the pond. The current pond analysis sheet is much more sophisticated, and accounts for soil composition related to seepage loss.

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The permit requires a fish screen, and at time of field exam it was verified that it had been installed.

Condition 26A and 082 were removed from license. Condition 219 and 220 were updated to reflect current pond analysis worksheet values. Condition 227 was updated to more accurately describe minimum flow requirements and USGS gauging station data. WR 96-8663 overlaps this water right POU, but is used for domestic purposes out of nearby Jeru creek before flowing into the Pack River, and is not a concern for overlap.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS

1. Recommended Amounts

| Beneficial Use | Period of Use | Rate of Diversion | Annual Volume |
|----------------------|----------------|-------------------|---------------|
| IRRIGATION | 04/01 to 10/31 | 0.02 CFS | |
| WILDLIFE STORAGE | 01/01 to 12/31 | | 2.6 AF |
| DIVERSION TO STORAGE | 01/01 to 12/31 | 0.15 CFS | |

| 10110 01 0 2.071 | Totals: | 0.15 CFS | 2.6 AF |
|------------------|---------|----------|--------|
|------------------|---------|----------|--------|

2. Recommended Amendments

| Change P.D. as reflected above | Add P.D. as reflected above | _X_ | None |
|--------------------------------|-----------------------------|-----|------|
| Change P.U. as reflected above | Add P.U. as reflected above | х | None |

| I. | AUTHENTICATION | Luke Bates - Water Resource Agent | | | | | |
|----|-----------------------|-----------------------------------|-------|---|-------|-------|--|
| | Field Examiner's Name | - Fulis | Date_ | L | 1/30 | (2020 | |
| | Reviewer | 2B) | Date_ | 4 | 128/2 | pry | |





Total Storage Calculations

| FILE NUMBER | 96-9517 |
|-------------|------------|
| REVIEWER | Luke Bates |
| DATE | 4/14/2020 |

Total Volume

Required

(AF)

7.7

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.) | 0.1 | "Surface Area" is automatically carried over from the "Seepage Loss" sheet. |
|--|-----|--|
| Average Pond Depth (FT.) | 3.2 | "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) | 0.3 | 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) | 7.3 | The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet. |
| Estimated Evaporation Loss (AF) | 0.1 | The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet. |

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.







POD AND FISH SCREEN



PUMP



POD – GENERATOR DRIVEN PUMP



POU STORAGE



DIVERSION TO STORAGE PIPE



IRRIGATION PUMP



IRRIGATION POU









POU - SPRINKLER HEAD



IRRIGATION POU



IRRIGATION POU

