

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 57-11843

Exam Date: 4/13/2015

1. Current Owner: JOSEPH L PARKINSON
123 W HIGHLAND VIEW DR
BOISE ID 83702
(208)250-1033

2. Accompanied by: Nobody.

Phone No:

Address:

Relationship to Permit Holder:

3. **SOURCE****TRIBUTARY**

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 2-7431
2. Other water rights with the same point of diversion: None

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

GROUND WATER NE1/4SW1/4 Sec. 15, Twp 04S, Rge 02E, B.M. OWYHEE County

Method of Determination: PLSS map and aerial imagery using ArcMap tools.

2.

PLACE OF USE: WILDLIFE STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>Totals</u>
04S	02E	15									X								

DIVERSION TO STORAGE same as WILDLIFE STORAGE**RECREATION STORAGE same as WILDLIFE STORAGE**

Method of Determination: PLSS map and aerial imagery using ArcMap tools.

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.
☒ Aerial Photo Attached (required for irrigation of 10+ acres).
☒ 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
D0066241	Unk	5	Unk	Unk	Unk

*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

2. Measurements: Theoretical flow included in report.**E. FLOW CALCULATIONS**☒ Additional Computation Sheets AttachedMeasured Method: Theoretical

Permit	1.00 cfs
B.U. Standard Allowance	NA
B. U. Proof Fee	\$100 → 0.01 to 1.00 cfs
Measurement or Theoretical Rate	0.28 cfs
License Recommendation	0.28 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\hspace{2cm}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\hspace{2cm}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\hspace{2cm}}$$

1. Volume Calculations for Other Uses:

Total volume including seepage and evaporation totals 33.8 af.
See pond spreadsheet for details. (attached)

G. NARRATIVE/REMARKS/COMMENTS

The field exam was completed by Water Resource Agent Patrick Kelly on April 13, 2015.

The POD is within the IDWR Ground Water Management Area and carries a priority date of September 30, 2013. The permit was issued within a ground water management area while new appropriations are restricted in the area. Discussions were held with management and IDWR Allocations Bureau Chief Jeff Peppersack whether to continue licensing the right. The decision to move forward was based on the idea that there were no protests to the application, no injury has been reported since the development and the location of the well is near the GWMA boundary.

Overlap review shows water rights 2-7431 & 2-2384 for Recreation, Aesthetic, and Storage uses from Snake River and wastewater sources. The well was found to be located near the entry gate to the pond. PVC pipe runs from the pump station nearby pumping surface water into the pond. The well appears to be connected to this system with underground valves present at the pond site. Combined use limits will be added to recognize 2-7431 and 57-11843 store water in the same pond. A combined diversion of 33.8 af will be recommended.

Information about the pump was submitted by Mr. Parkinson indicating a 5 hp pump was installed. Lift was collected from the well drillers report at a static water level of 67 ft. 10 feet was added for estimated drawdown totaling 77 ft. A range of low pressures were used given the outlet is open discharge. Theoretical average flow rate is 0.28 cfs.

Aerial photography was used to measure a surface area of 2.1 acres. The IDWR dam safety inspection sheet indicated a hydraulic height of 15.2 ft. This seemed like a reasonable max depth and was used with a slope gradient of 0.4 for an average depth of 6.08 ft. This calculates a pond capacity of 12.8 ac-ft. Seepage and evaporation losses were included in the annual storage volume use. Details of this can be found in the attached pond spreadsheet.

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>
DIVERSION TO STORAGE	01/01 to 12/31	0.28 CFS	
WILDLIFE STORAGE	01/01 to 12/31		33.8 AF
RECREATION STORAGE	01/01 to 12/31		33.8 AF
<u>Totals:</u>		0.28 CFS	33.8 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

Field Examiner's Name Patrick Kelly Date 4-13-2015

Reviewer _____ Date _____

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 57-11843
 Reviewer: Patrick Kelly
 Date of Review: 4/13/2015

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	5	5	5
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	77	77	77
DISCHARGE PRESSURE	10	15	20
RATE OF FLOW (cfs)	0.31	0.28	0.25 0.28

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

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

Information about the pump was submitted by Mr. Parkinson indicating a 5 hp pump was installed. Lift was collected from the well drillers report at a static water level of 67 ft. 10 feet was added for estimated drawdown totalling 77 ft. A range of low pressures were used given the outlet is open discharge. Theoretical average flow rate is 0.28 cfs.



SNNW

SENNW

Pond POU

15

NWSW

04S02E

NESW

Well POD

SWSW

SESW 5

The USDA Forest Service Aerial Photography Field Office asks to be credited in derived products.

Total Storage Calculations

FILE NUMBER	57-11843
REVIEWER	Patrick Kelly
DATE	4/13/2015

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.)	2.1	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	6.08	"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)	12.768	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. <i>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.</i>
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). <i>Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.</i>
Estimated Seepage Loss (AF)	15.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	5.7	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	33.8	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.

Flow Rate into Pond (CFS)	0.21	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	5.05	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.08	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.04	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	38	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i>
Days Required to Fill the Pond at 13,000 Gallons per Day	-346	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i> Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.

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	57-11843
REVIEWER	Patrick Kelly
DATE	4/13/2015

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: Grand View (NWS -- 103760)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.08	31	0.00
Feb	0.59	28	16.52
March	1.62	31	50.22
April	2.87	30	86.10
May	3.50	31	108.50
June	4.28	30	128.40
July	5.05	31	156.55
August	4.18	31	129.58
September	2.82	30	84.60
October	1.81	31	56.11
November	0.48	30	14.40
December	-0.02	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 = 830.98

$$\left(\frac{830.98}{304.8} \right) \times 2.10 = 5.7 \text{ AFA}$$

Seepage Loss Calculations

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

FILE NUMBER	57-11843
REVIEWER	Patrick Kelly
DATE	4/13/2015

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	2.1	AC.
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Pond Surface Area (SQ. FT.)	91476	SQ. FT.
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My Soil Classification is	ML	
Suggested Seepage Rate (FT./DAY)	0.0200	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss
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Convert to GPD	13685	GPD
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Total Seepage Loss (AFA)	15.3	AFA
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Though sand and gravel seepage rates may actually be higher, the maximum allowable rate is 0.2 ft/day, pursuant to Administrative Memo "Seepage Loss Standards for Ponds and Reservoirs."

Suggested Seepage Rates for Different Soil Types:

GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.2 ft per day

OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = 0.02 ft per day

SC (clayey sands, sand clay mixtures) = 0.007 ft per day

CL (Low to medium plasticity clays) = 0.003 ft per day

MH, OH, PT and CH (high plasticity clays) = 0.0003 ft per day

LINED PONDS (liners can be chemical, fabric, or bentonite) = 0 ft per day

Ponds Intercepting Groundwater (excavated ponds filled by ground water) = 0 ft per day

PLEASE NOTE: The Initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at <X:\Spatial\Soils\USCS\PondSoils.lyr>. Use "0" if the pond fill relies on the water table.

IDAHO DEPARTMENT OF WATER RESOURCES

--- DAM SAFETY RECORD OF INSPECTION ---

Inspector: Sonny Hornbaker	Dam Owner: Joseph Parkinson	Hazard: Low
Pool Level: Normal Operating Level, Full	Dam Height: 18.4 ft	Hydraulic Ht: 15.2 ft
Reservoir Storage: 25 ac ft	Surface Area: 5 acx	NAT DAM ID: ID00639
Others Present: Joe Parkinson, Angie Grimm	Weather Conditions: Clear/ Warm	

PRIMARY DAM OR IMPOUNDING STRUCTURE

Type of Construction: ☒ - Earthen ☐ - Rockfill ☐ - Concrete ☐ - Timber Crib ☐ - Other:

Instrumentation: ☐ - Piezometers ☐ - Inclinometers ☐ - Seismic ☒ - Other: None

Is there another dam, dike, or hydraulic structure impounding a portion of this reservoir? ☐ - Yes ☐ - No

If "Yes", explain:

	Seepage	Erosion	Animal	Vegetation
Upstream Slope	Dry	None Observed	Isolated Burrows	Dense Grass/Weeds
Crest	Dry	None Observed	Isolated Burrows	Bare to Sparse
Downstream Slope	Dry	None Observed	Isolated Burrows	Bare to Sparse
Downstream Toe	Dry	None Observed	Isolated Burrows	Bare to Sparse
Left Abutment	Dry	None Observed	Isolated Burrows	Bare to Sparse
Right Abutment	Dry	None Observed	Isolated Burrows	Bare to Sparse

Observations and Remarks:

- Embankment appears to be well maintained, same as last inspection.

Condition Assessment

☒ - Satisfactory ☐ - Fair ☐ - Poor ☐ - Unsatisfactory ☐ - Not Rated (See Remarks)

Is this structure suitable for the continued impoundment of water? ☒ - Yes ☐ - No

If "No", explain with recommended action:

Name of Dam: Parkinson Dam	IDWR File No: 02-7431	Date: 6/4/2013
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Well (D066241) is located south of the pond. Valves from Snake River and waste water direct flow into pond.



Power box.



Pond inlet on
south shore,
facing north.



Kelly, Patrick

From: Kelly, Patrick
Sent: Wednesday, April 15, 2015 9:59 AM
To: 'Joe Parkinson'
Subject: RE: Water right 57-11843

Good morning Mr. Parkinson,

Thank you for the directions you provided. I was able to visit the pond site Monday April 13th. At the time of my visit, the well was not running so I was unable to measure a diversion rate. Please submit any as-builts you may have on the pond including depth and grade of the pond. I was able to secure the well driller's report for the well, however I will also need horsepower of the pump in place. It is possible that I do a theoretical diversion rate and volume for the license once I obtain this information. Thank you for your attention to the matter.

Sincerely,

Patrick Kelly

Water Resource Agent
Idaho Department of Water Resources
2735 Airport Way
Boise, Idaho 83705
p: 208.334.2190
f: 208.334.2348
patrick.kelly@idwr.idaho.gov

From: Joe Parkinson [<mailto:joe.parkinson@qwestoffice.net>]
Sent: Wednesday, April 08, 2015 4:37 PM
To: Kelly, Patrick; Grimm, Angie
Subject: Water right 57-11843

Kelly, For your inspection, I attach directions to my ranches. Ignore the directions to Florence Springs and follow only the directions to the Bonus Cove Ranch along the Snake River. As indicated, the directions are principally for someone meeting me at the stone house. You should go through the big green gate and as you are facing the canal, turn left (instead of right to the stone house) and go along the canal (with it on your right) a few hundred yards to the pump station where there is a bridge and turn right to cross the bridge there and continue on the road to the pond. You will find the well and controls mounted on a post adjacent to the pond.

Just so you know, the one most familiar is Angie who has visited the ranch in the past and has provide invaluable advice and assistance to me in obtaining that well right to fill the pond. Please call my cell with any questions. I would appreciate you alerting me to any issues you discover that require my attention. Otherwise, I will assume everything is in order. Regards, Joe

Joe Parkinson
123 West Highland View Drive
Boise, ID 83702
Cell: 208-250-1033; fax: 208-433-0415
joe.parkinson@qwestoffice.net