

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 74-15895

Exam Date: 4/17/2014

1. Current Owner: JOEL AND SUSAN DYE
PO BOX 26
TENDON ID 83468
(208)756-1722

2. Accompanied by: Joel and Susan Dye
Phone No: (208) 756-1722
Address:
Relationship to Permit Holder: Same

3. **SOURCE** **TRIBUTARY**
AGENCY CREEK LEMHI RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 74-15800 (Irrigation)
2. Other water rights with the same point of diversion: None

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

AGENCY CREEK NW1/4SW1/4 Sec. 26, Twp 19N, Rge 24E, B.M. LEMHI County

Method of Determination: Site Visit, GPS (-113.585613, 44.946262)

2.

<u>PLACE OF USE:</u>			POWER																
<u>Twp</u>	<u>Rge</u>	<u>Sec</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>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>
19N	24E	26											X						

Method of Determination: Site Visit

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.

Turbine Make

Unknown, there is no manufactured markings on the unit. Inverter, Trace Engineering: Xantrex SW4024 power conversion center rated output is 4000 watts. Inverter/Charger, Trace Engineering: DR3624 rated output is 3600 watts.

D. FLOW MEASUREMENTS

1.

Measurement Equipment

<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Flow Tracker					March 2014

2. Measurements:

The entire system is underground and enclosed; there is no way to measure the amount of water entering the system. The return flow pipe for the system is underwater. Assuming that this right is 100% non-consumptive and all flow taken from the stream is return to the stream; measurements taken just upstream and just downstream of the return flow pipe would produce a valid rate of diversion. A measurement was taken approximately 12 feet upstream of the return flow pipe and a second measurement was taken approximately 8 feet downstream of the return flow pipe below a pond area. The distance measured downstream of the return flow pipe was shortened due to the possible inflow of a spring channel.

E. FLOW CALCULATIONS Additional Computation Sheets Attached

Measured Method:

Theoretical calculation: $Q = P(11.8)/He$: $Q = (17 \text{ amps}) 1.87(11.8)/11(.9)$: $Q = 22.066/9.9$: $Q = 2.23 \text{ cfs}$
 $P = QHe/11.8$: $P = 2.23 \text{ cfs} \cdot 11 \cdot 9/11.8$: $P = 22.077/11.8$: $P = 1.87 \text{ Kw (1870 Watts)}$
Application 13' head & 1.2kw $Q = P(11.8)/He$: $Q = 1.2\text{kw} \cdot 11.8/13 \cdot 5$: $Q = 14.16/6.5$: $Q = 2.18 \text{ cfs}$

Flow calculation: Upstream discharge 7.25 cfs, downstream discharge 9.23 cfs = 1.98 cfs

Licensed cfs limited by permitted amount, as given by the applicant as 500/gal per min or 1.11 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: None

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

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

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

2. Volume Calculations for Other Uses: None

G. NARRATIVE/REMARKS/COMMENTS

The return flow pipe has butterfly valve that can be used to close and lock down the system. However, the handle is broken on the butterfly valve. The new owner does have a replacement sluice gate that will be installed on the return flow which will provide the watermaster with control of the diversion.

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>
POWER	01/01 to 12/31	1.110 CFS	
<u>Totals:</u>		1.110 CFS	

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 (Ownership Change)

I. AUTHENTICATION

Field Examiner's Name Kenneth Halber Date _____

Reviewer _____ Date _____

State of Idaho
Department of Water Resources
Permit to Appropriate Water

NO. 74-15895

Priority: November 14, 2008

Maximum Diversion Rate: 1.11 CFS

This is to certify, that DEANNA K OMLER
C/O JOEL AND SUSAN DYE And
WILLIAM E OMLER
C/O JOEL AND SUSAN DYE
PO BOX 26
TENDON ID 83463

has applied for a permit to appropriate water from:

Source: AGENCY CREEK

Tributary: LEMHI RIVER

and a permit is APPROVED for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>
POWER	01/01 to 12/31	1.11 CFS

LOCATION OF POINT(S) OF DIVERSION:

AGENCY CREEK NW ¼SW ¼ Sec. 26 Twp 19N Rge 24E, B.M. LEMHI County

PLACE OF USE: POWER

Twp	Rge	Sec	NE	NW	SW	SE	Totals
19N	24E	26			X		

CONDITIONS OF APPROVAL

1. Proof of application of water to beneficial use shall be submitted on or before **March 01, 2015**.
2. Subject to all prior water rights.
3. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 74M.
4. Prior to diversion of water under this right, the right holder shall install a lockable device, subject to the approval of the Department, in a manner that will provide the watermaster suitable control of the diversion.
5. Upon specific notification by the Department, the right holder shall install and maintain acceptable measuring device(s), including data logger(s), at the authorized point(s) of diversion, in accordance with Department specifications.
6. Use of water under this right shall be non-consumptive.
7. Prior to the diversion and use of water under this approval, the right holder shall comply with all fish screening and/or fish passage requirements of the Idaho Department of Fish and Game.

RECEIVED

FEB 12 2014

Department of Water Resources
Eastern Region

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

STATEMENT OF COMPLETION
FOR SUBMITTING PROOF OF BENEFICIAL USE

FOR OFFICE USE ONLY	
Amt. of Fee \$:	125.00
Receipt No.:	E039554
Receipt By:	KM
Date Received:	2.12.14

The Idaho Department of Water Resources considers this form a statement by the permit holder(s) that development of a water right has been **completed** and that water has been applied to beneficial use to the extent described below. **This form must be accompanied by an examination fee, when necessary, or by a completed Beneficial Use Field Report prepared by a certified water right examiner.** Please refer to the instructions and fee schedule for this form. If ownership of the permit has changed, please contact any Department office or visit the Department's website at: www.idwr.idaho.gov for an *Assignment of Permit* form. If you wish to relinquish your permit because you have not established the authorized use of the water and are not applying for an extension, please notify the Department in writing.

1. Permit No.: 74-15895 Telephone No.: _____

2. Name of Permit Holder(s): William E and Deanna K Omler

3. Mailing Address: C/O Joel and Susan Dye PO BOX 26 City: Tendoy

State: ID Zip: 83468 Email: dye1ot99@gmail.com

4. Source of Water: Agency Creek If **GROUND WATER** (well), Date Drilled: mo. _____ / yr. _____

Well Driller: _____ Drilling Permit Number: _____

5. Extent of use(s) completed (as authorized by the water right permit):

Domestic (No. of households): _____ Stockwater (No. and type of stock): _____

Irrigation (No. of acres): _____ Other: nonconsumptive use; hydroelectric (micro hydro)

6. Total rate of diversion or storage volume for which proof is submitted: 1.5 cfs OR _____ acre-feet. All water returns to the stream

7. Compliance with a measuring device requirement, lockable controlling device requirement, and/or other conditions of permit: **Refer to the approval conditions on your permit and respond accordingly. The Department will not issue a license if permit conditions are not met.**

Measuring Device: Is a measuring device required? Yes ☐ No ☒
If yes, has the measuring device been installed? Yes ☐ No ☐

Lockable Controlling Device: Is a lockable device required to control the diversion? Yes ☒ No ☐
If yes, has the lockable device been installed? Yes ☒ No ☐

Other Conditions of Permit: Do the approval conditions on your permit require you to submit additional information in connection with your proof of beneficial use? If yes, list the conditions below and attach documents with the required information.

Completed? Yes ☐ No ☒

8. Fee Enclosed: \$ 125 See fee schedule on back of the instructions for filing proof of beneficial use. Proofs filed without an appropriate fee, will be considered incomplete.

9. Person to contact to accompany the Department representative during field examination of the water system.

Name: Joel V. Dye Telephone Number: 208 756 1722

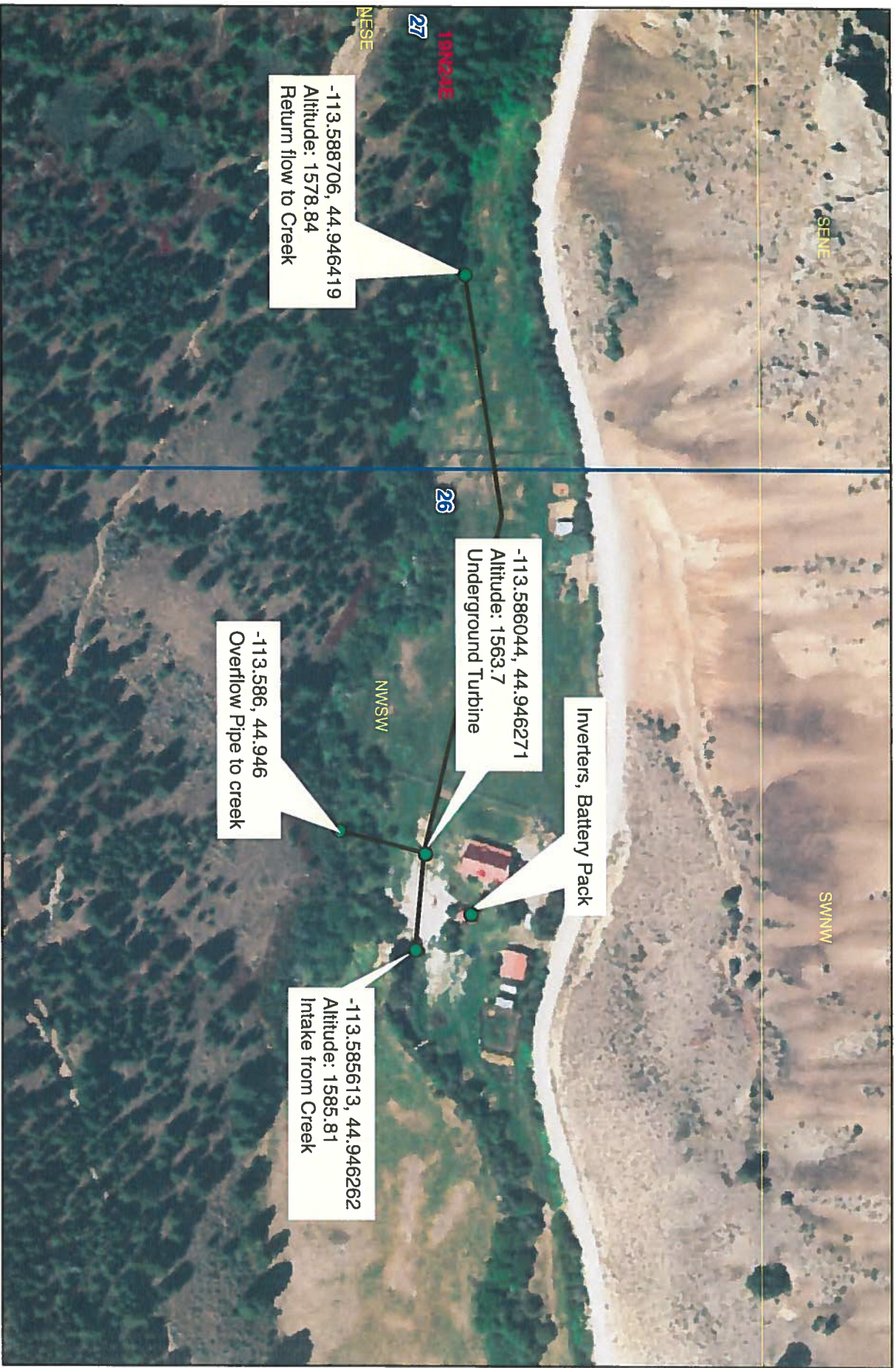
Mailing Address: P.O. Box 26 City: Tendoy

State: ID Zip: 83468 Email: dye1ot99@gmail.com

The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted and applied to a beneficial use. I understand that any undeveloped portion of the permit is relinquished to the State of Idaho.

Signature of permit holder: [Signature] Date: 2/5/14
(Include your title, if on behalf of company or organization)

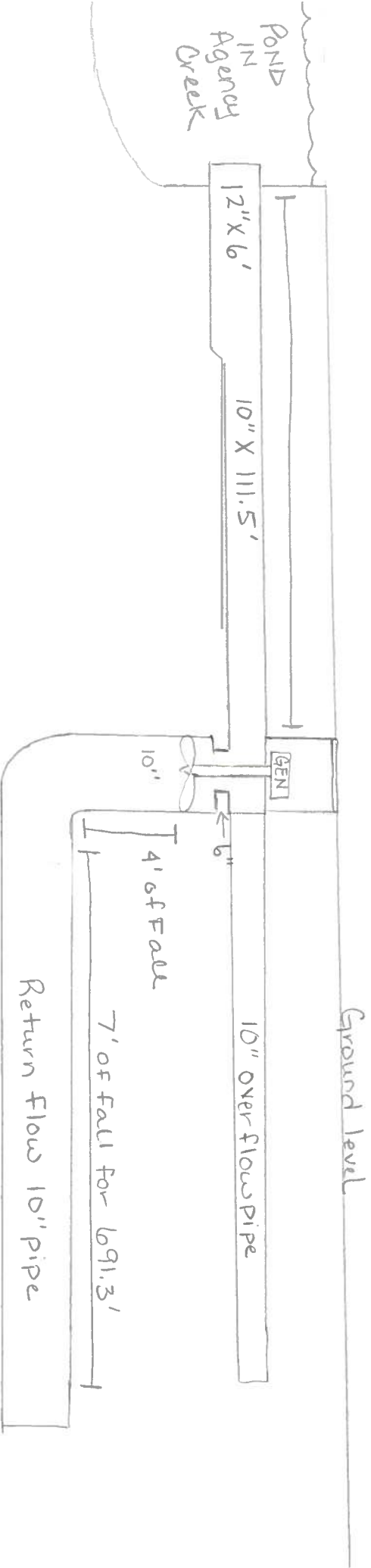
Mail to: Idaho Department of Water Resources, PO Box 83720, Boise, ID 83720-0098



74-15895 Field Inspection April 17, 2014

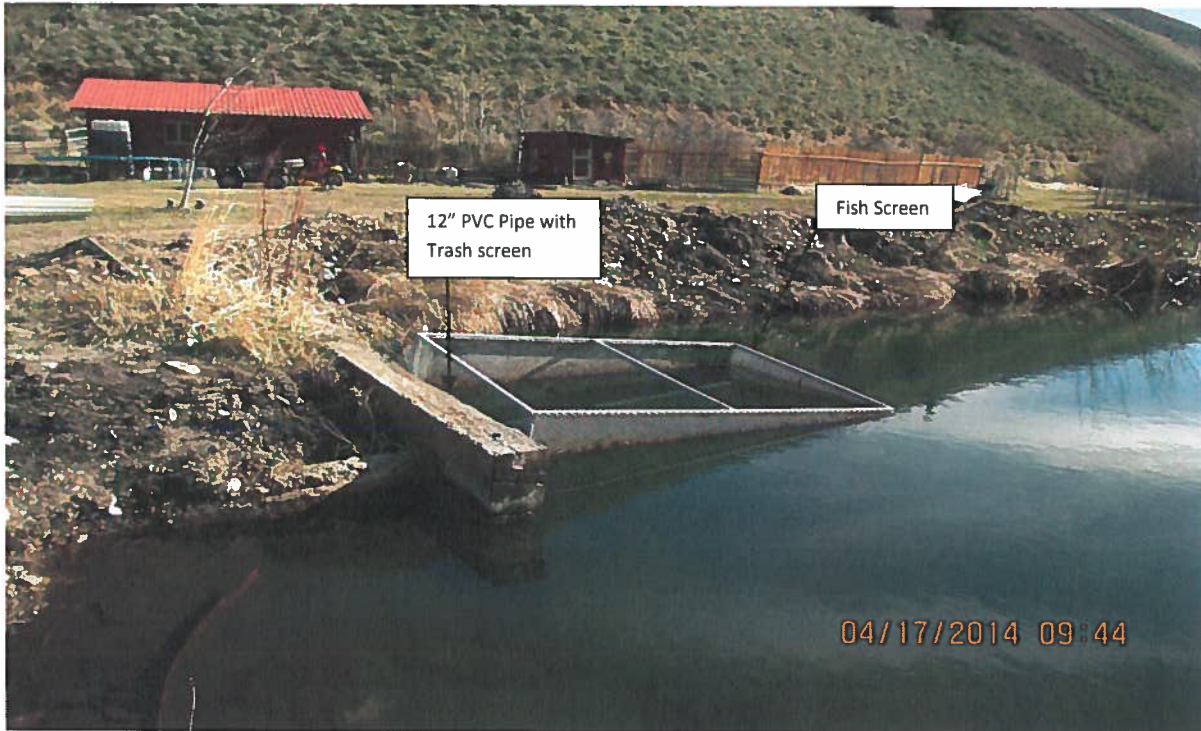
- System pipes
- Township/Range
- Sections
- QQ





74-15895, Field Exam, April 17, 2014

74-15895 – Field Inspection
April 17, 2014

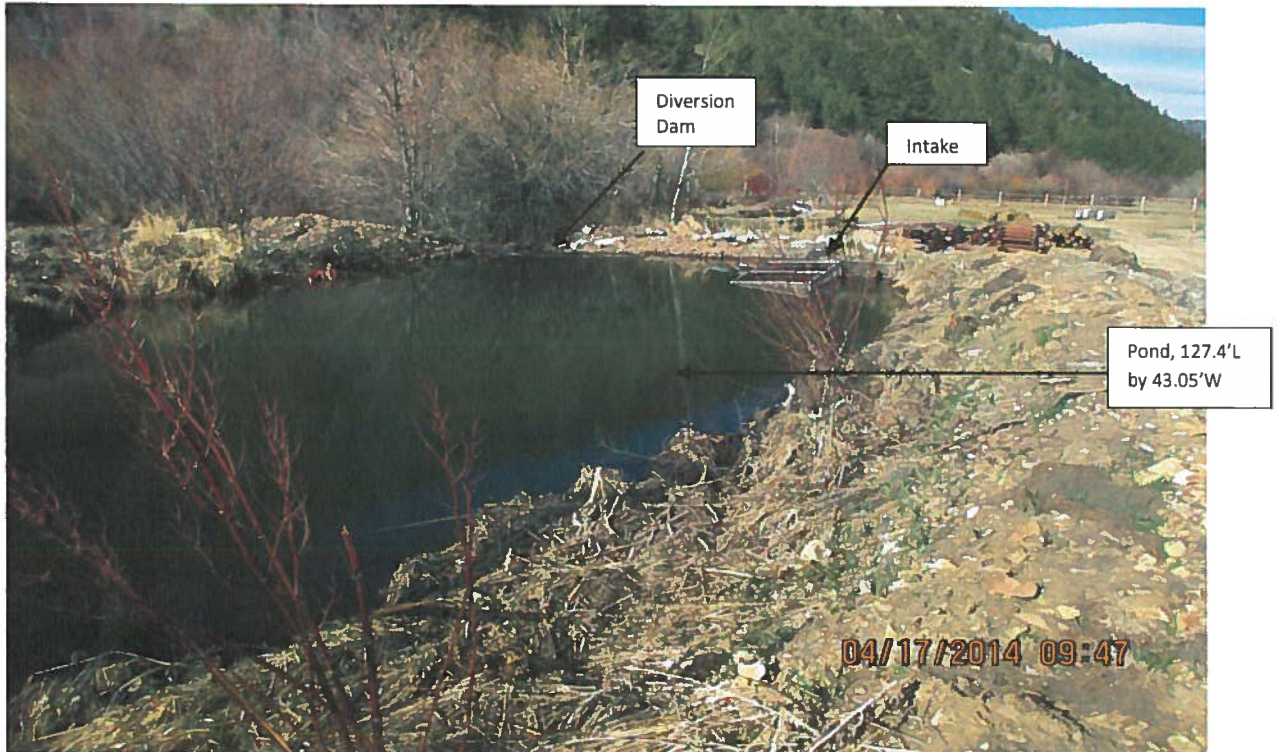


Intake from Agency Creek: -113.585613, 44.946262





Close up of the intake and trash screen





Close up of the Diversion Dam



Turbine: -113.586044, 44.946271

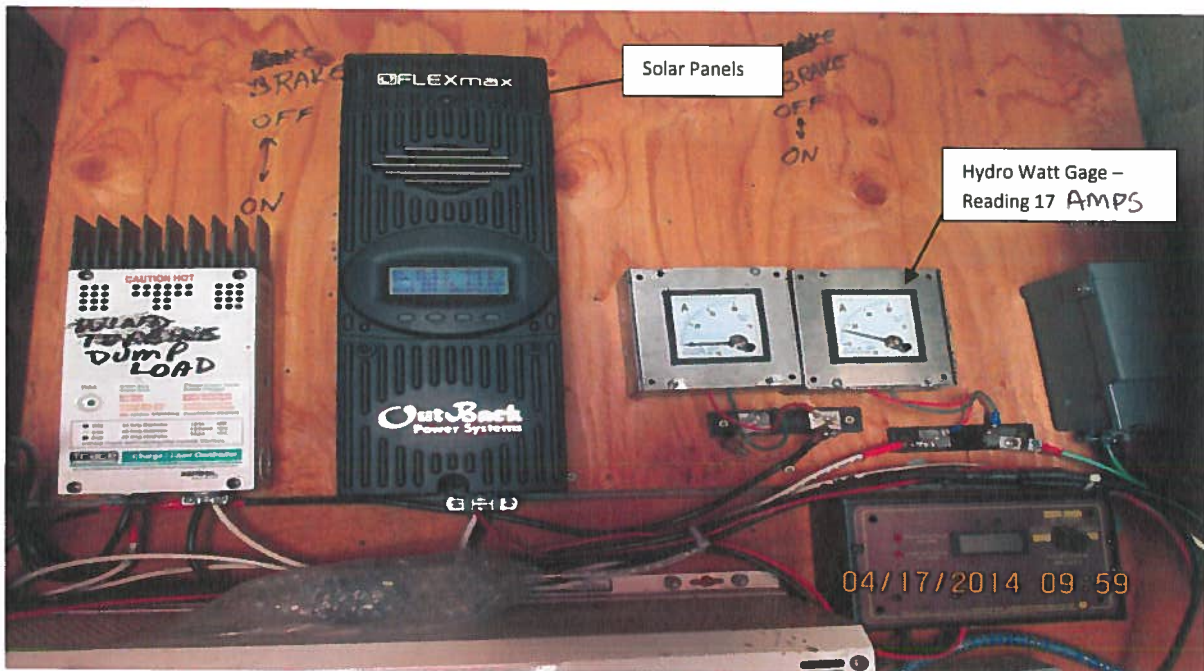


10" Overflow pipe to creek

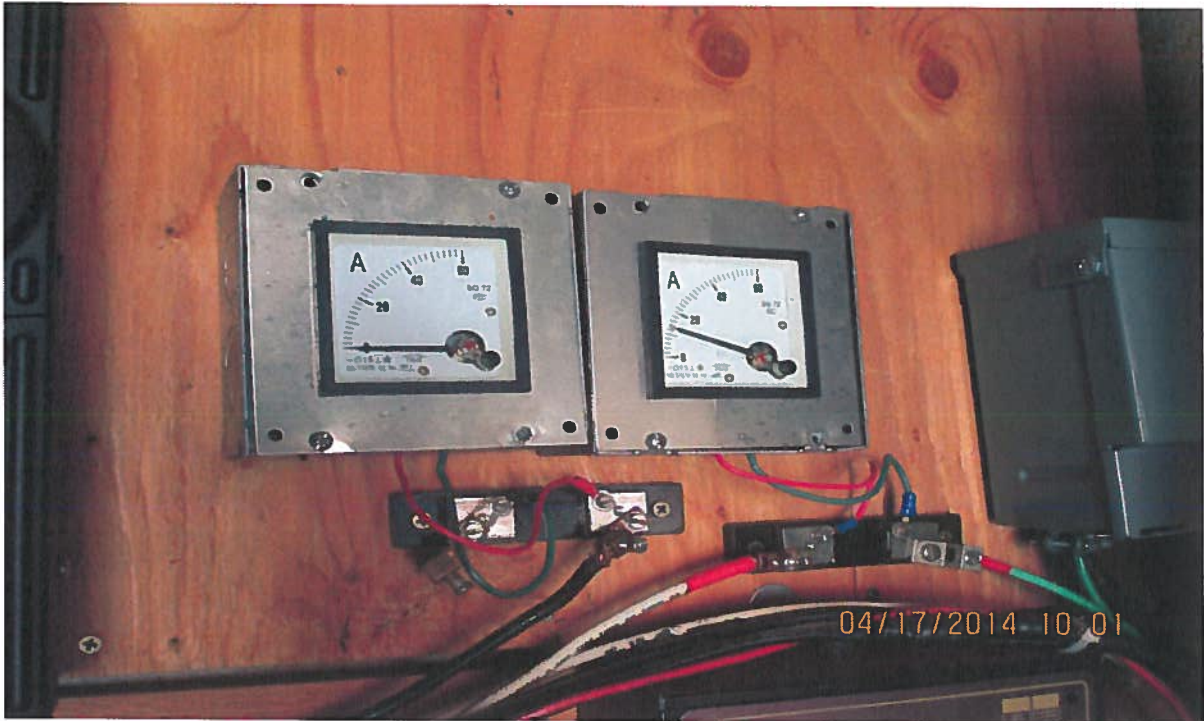




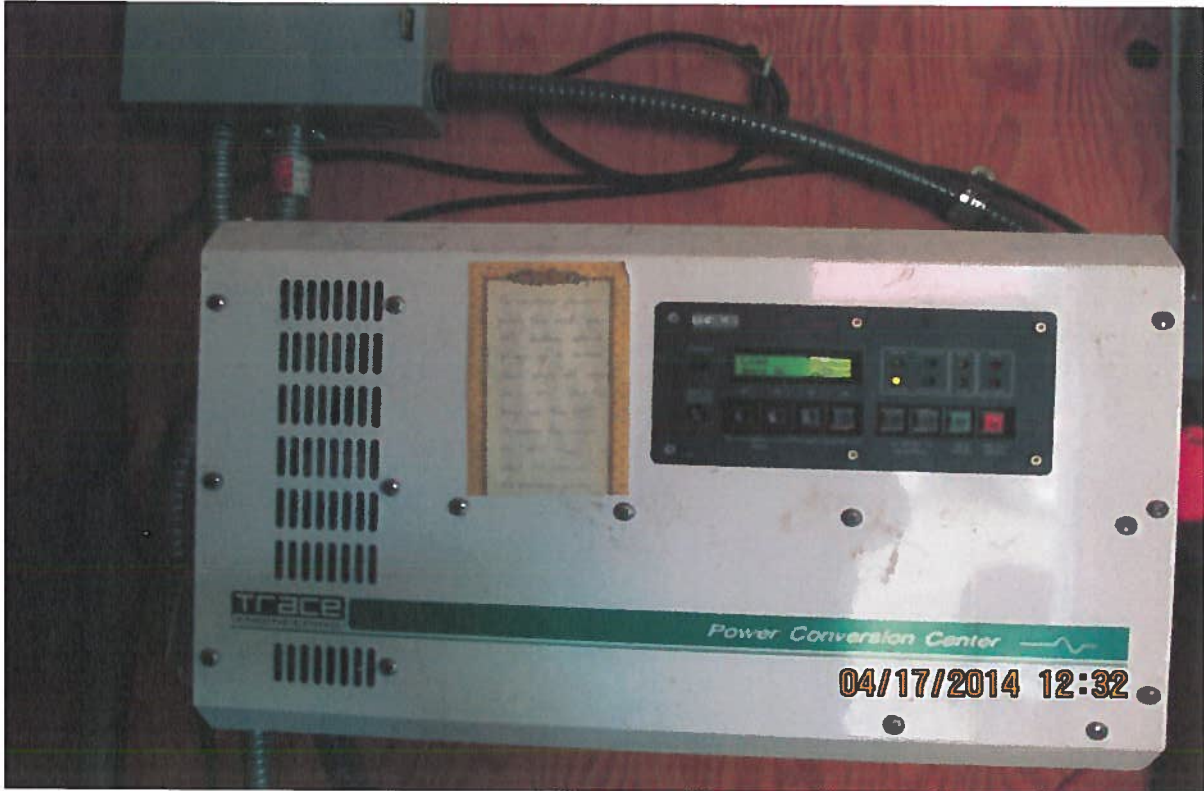
Battery Pack: 6, 2 volt batteries



Control Panel Inside building



Hydro, gages close up



Inverter #1



Inverter #2



-113.588706, 44.946419: 10" return flow pipe, with broken butterfly gate



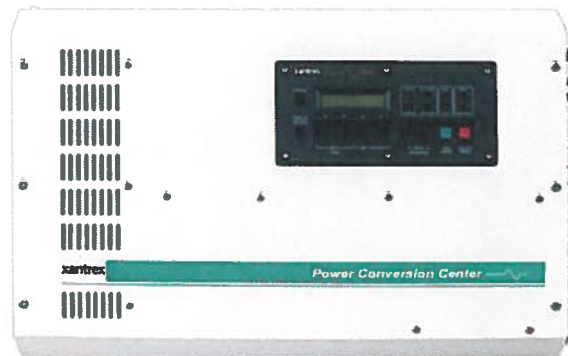
Replacement sluice gate for return flow pipe.

Specifications	DR3624
Continuous Power @ 25 degrees C	3600 watts
Maximum AC Surge Current	100 amps
Peak Efficiency	95%
Normal DC Input Voltage	24 volts
Input Voltage Range	21.6 to 31.0 volts
DC Input Current	
Search Mode	0.030 amps
Full Output	0.500 amps
Rated Power	210 amps
Waveform	modified sine wave
Voltage Regulation	+/- 5%
Frequency Regulation	+/-0.04%
Power Factor Allowed	-1 to 1
Automatic Load Sensing	5 to 100 watts
Output Voltage	120 vac / 60Hz
"E" Models	NA
"J" Models	NA
"K" Models	NA
"W" Models	NA

Series Operation for 120/240 vac	Yes, using 2 units
Automatic Transfer Relay	30 amps
"E" Models	NA
"J, K" Models	NA
Adjustable Charge Rate	0 to 70 amps
Number of Charging	8 and 2
Three Stage Charging	Yes
Battery Temp Comp Sensor	Optional
Remote Control/Status LED (RC4)	Optional
Specified Temperature Range	0 - 50 °C
Weight	45 lbs (21kg)
"E" Models	NA
Dimensions -inches	8.5" x 7.25" x 21"
Dimensions - centimeters	21.6 x 18.4 x 54.6
Mounting	Shelf or Wall

SW Inverter/Chargers

Advanced Sine Wave Power - 120 VAC/60 Hz Models



The SW Inverter/Charger is our most popular off-grid power solution. Available in 24 and 48-volt models, it provides utility-grade output power and offers high surge capacity to run most household appliances. The SW offers many programmable features including automatic generator start and stop and automatic load sensing. Its built-in, fully automatic, three-stage battery charger is designed to bring maximum charge to batteries, while using minimum generator run time and fuel.

Features

- ▶ Available in 4000 and 5500 watt models.
- ▶ Utility grade, sine wave power.
- ▶ Durable construction for long life under extreme environmental conditions.
- ▶ Three-stage battery charging (bulk, absorption, and float) and battery equalization with remote temperature sensor for increased performance.
- ▶ Programmable control module with LCD display and LED indicators.
- ▶ Low idle current (less than 1 watt) conserves energy when no loads are present.
- ▶ Soft start capability for starting heavy loads.
- ▶ Built in starting control circuits for two and three-wire generator starting systems.

Expandable & Flexible

- ▶ Parallel stacking capability for more power at the same voltage (optional equipment is required).
- ▶ Three phase configurations available in a Power Module System for industrial quality power in remote locations (optional equipment is required; only available on 48 volt models).

Xantrex Technology Inc.

Headquarters
8999 Nelson Way
Burnaby, British Columbia
Canada V5A 4B5
800 670 0707 Toll Free
604 420 1591 Fax

5916 195th Street NE
Arlington, Washington
USA 98223
360 435 8826 Telephone
360 435 2229 Fax

SW Inverter/Chargers

Advanced Sine Wave Power - 120 VAC/60 Hz Models

Electrical Specifications

Models	SW4024	SW4048	SW5548
AC Input Voltage	120 VAC	120 VAC	120 VAC
AC Input Voltage Range	80-149 VAC	80-149 VAC	80-149 VAC
AC Input Current	60 amps AC pass through 30 amps AC charging	60 amps AC pass through 30 amps AC charging	60 amps AC pass through 35 amps AC charging
Continuous Power (@ 25 °C)	4000 VA	4000 VA	5500 VA
Efficiency (Peak)	94%	95%	96%
Output Voltage (RMS)	120 VAC	120 VAC	120 VAC
Output Voltage Regulation	± 3%	± 3%	± 3%
Frequency	60 Hz	60 Hz	60 Hz
Continuous Output (@ 25 °C)	33 amps AC	33 amps AC	46 amps AC
100 mSec Surge Capability	78 amps AC	78 amps AC	78 amps AC
Automatic Transfer Relay	60 amps	60 amps	60 amps
DC Input Voltage (Nominal)	24 VDC	48 VDC	48 VDC
DC Input Voltage Range	22-33 VDC	44-66 VDC	44-66 VDC
DC Current at Rated Power	200 amps DC	100 amps DC	140 amps DC
Idle Consumption (Typ at Full Voltage)	< 16 watts	< 16 watts	< 20 watts
Search Mode Consumption	< 1 watt	< 1 watt	< 1 watt
Low Battery Protection (Enabled)	Adjustable low battery cut out and cut in (all models)		
Max. Continuous Charge Rate	110 amps DC	60 amps DC	70 amps DC
Total Harmonic Distortion	< 5%	< 5%	< 5%
Waveform	Sine wave, 34 to 52 steps per cycle		
Load Sensing (Inverter Mode)	Adjustable, 0 to over 200 watts (48 watts default)		
Power Factor (Allowed)	-1 to 1 pf	-1 to 1 pf	-1 to 1 pf

General Specifications

Specified Temperature Range	32 °F to 77 °F (0 °C to 25 °C)
Enclosure Type	Indoor, ventilated, steel chassis with powdercoat finish
Unit Weight	105 lb (48 kg)
Shipping	111 lb (50 kg)
Inverter Dimensions	15" H x 22.5" W x 9" D (38 cm H x 57 cm W x 23 cm D)
Shipping Dimensions	20" H x 27" W x 15" D (52 cm H x 69 cm W x 40 cm D)
Mounting	Wall mount
Warranty	2 years
Part Numbers	SW4024, SW4048, SW5548

Features & Options

Forced Air Cooling	Standard variable speed brushless DC fans
Three-stage charging	Standard three-stage with equalization (bulk, absorption, and float)
Control Panel	Standard built-in, two line, backlit, alphanumeric LCD with 8 LED indicators
Auto Generator Control System	Standard automatic generator control system for two and three wire start generators
Auxiliary Relays	Standard three user adjustable voltage controlled signal relays for control of loads or charging sources
Battery Temperature Sensor	BTS - standard remote battery temperature sensor for increased battery performance
Remote Control	SWRC - optional remote control and status indicator with standard 25' cable, optional 50' cable is available
Stacking Interface	SWI - optional for series stacking of two identical SW units for 120/240 VAC output
	SWI/PAR - optional for paralleling two identical SW units for twice the power output at 120 VAC/60 Hz
Conduit Box	SWCB - optional side mount conduit box for code-compliant DC wiring connections
Grid Tie Interface	GTI - optional grid tie interface - required for utility interactive operation

Regulatory Approvals

CSA Listed to UL 1741



Online Reference & Tools

[Home](#)>[Calculators](#)>[Electrical Calculators](#)> Amps to kW calculator[Tweet](#)19

Amps to kilowatts calculator

Amps (A) to kilowatts (kW) calculator.

Select current type, enter **current** in amps, **voltage** in volts, **power factor** for AC circuit and press the *Calculate* button (DC = Direct Current, AC = Alternating Current):

Select current type: DC



Enter current in amps: A

Enter voltage in volts: V

Power result in kilowatts: **1.87** kW

* Use e for scientific notation. E.g: 5e3, 4e-8, 1.45e12

[kW to amps calculator](#) ►

DC amps to kilowatts calculation

The power P in kilowatts (kW) is equal to the current I in amps (A), times the voltage V in volts (V) divided by 1000:

$$P_{(\text{kW})} = I_{(\text{A})} \times V_{(\text{V})} / 1000$$

AC single phase amps to kilowatts calculation

The power P in kilowatts (kW) is equal to the **power factor** PF times the phase current I in amps (A), times the RMS voltage V in volts (V) divided by 1000:

$$P_{(\text{kW})} = PF \times I_{(\text{A})} \times V_{(\text{V})} / 1000$$

AC three phase amps to kilowatts calculation

Calculation with line to line voltage

The power P in kilowatts (kW) is equal to square root of 3 times the **power factor** PF times the phase current I in amps (A), times the line to line RMS voltage V_{L-L} in volts (V) divided by 1000:

$$P_{(kW)} = \sqrt{3} \times PF \times I_{(A)} \times V_{L-L} (V) / 1000$$

Calculation with line to neutral voltage

The power P in kilowatts (kW) is equal to 3 times the **power factor** PF times the phase current I in amps (A), times the line to neutral RMS voltage V_{L-N} in volts (V) divided by 1000:

$$P_{(kW)} = 3 \times PF \times I_{(A)} \times V_{L-N} (V) / 1000$$

[Amps to kW calculation ►](#)

See also

- [How to convert amps to kW](#)
- [kW to amps calculator](#)
- [Amps to watts calculator](#)
- [Power factor calculator](#)
- [Ampere \(A\)](#)
- [Volt \(V\)](#)
- [Watt \(W\)](#)
- [Power factor](#)
- [Electrical calculation](#)
- [Power conversion](#)

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