Form 113
12/07

Ident No. 31-12471

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

NOTICE OF DIVERSION AS AN ALTERNATIVE TO INSTREAM STOCKWATER USE

(To provide notice of intent to divert surface water from a stream or riparian area to troughs or tanks as an alternative to instream use for the watering of livestock)

1. Name of right holder Jonathan Alvarez Phone 208-716-3935

   Mailing address 524 E 850 N, Firth, ID, 83236 Email jonathanalvarez02@gmail.com

2. Source of water supply Modoc Creek tributary to Beaver creek

3. Point of Diversion:

   a) Is this notice based on an existing recorded instream stockwater right? If yes, provide the water right number _____

   If no, describe the beginning and ending points for the instream stockwater use:

   Beginning point is in Gov't. Lot -, SW 1/4 SW 1/4 NE 1/4,

   Section 19, Township 14N Range 36E, B.M.,

   Clark County.

   Ending point is in Gov't. Lot -, NE 1/4 SW 1/4 SE 1/4,

   Section 19, Township 14N Range 36E, B.M.,

   Clark County.

   b) Alternate point of diversion is in Gov't. Lot -, SW1/4 SW 1/4 SE1/4,

   Section 19, Township 14N Range 36E, B.M.,

   Clark County.

4. Description of diversion and delivery system:

   a) Describe the type of diversion Passive Check-Structure

b) Describe the delivery system Water will be diverted into a cistern. From the cistern a solar powered pump will push the water to a holding tank. Gravity will deliver the water to six float-controlled water troughs. Excess water will flow from the top of the tank back to the point of diversion

c) Describe the number, type and total capacity of troughs or tanks

6X2000 gallon 12.5' repurpose tire trough, 1X140000gallon holding tank. System

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d) Describe the automatic shutoff or flow control mechanism or means of returning unused water to the source Water will fill the tank, when tank is at capacity the water will be return to the point of diversion by means of underground pipeline

e) Describe how the system is designed to allow measurement of the rate of diversion

Flow rate will be based on the pump curve. Will be about 9gpm

5. Describe the place of use by placing an X in the appropriate 40-acre tract(s) below:

TWP	RGE	SEC	NE				NW				SW				SE			
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE
14N	36E	30	X	X	X	X												
14N	36E	29							X		X							
	FROM	MAP																

6. Priority date claimed or established 6/1/1890

7. Rate of diversion 0.04 cfs

8. Season of use: from June to November

9. a) Who owns the property at the point of diversion? Jonathan Alvarez

b) Who owns the property at the place of use? Jonathan Alvarez

10. When will construction occur? June 2020

11. Comments (include number and type of stock) Please see attached document

12. Map of project required - Attach an 8½"x11" map clearly identifying the location of the instream stockwater use and the locations of the alternative point(s) of diversion and stock trough(s). A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.

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I hereby assert the following:

a) Diversion is from a surface water source to which the livestock would otherwise have access. The land where the watering tanks or troughs will be located is land from which the livestock had access to the source of water from which diversion is being made.

b) The diversion of water out of the stream as described in this notice is for watering livestock and will not injure other water rights.

c) I will not alter the bed and banks of the source as the term is defined in section 42-3802, Idaho Code. I understand that I may place an inlet conduit into the source in a manner that does not require excavation or obstruction of the stream channel, unless the director of the department of water resources approves a stream channel alteration permit for additional work.

d) I understand that upon determination of interference with other water rights, the Director may order curtailment of diversion or use of water under this notice or may require the diversion and delivery system to be modified to prevent injury.

e) I will not divert more than 13,000 gallons per day for livestock watering from this diversion, and I will not use more than one point of diversion under this notice.

f) I am authorized to make the changes described in this notice and that if the notice involves a federal grazing allotment, the permitee consents to the changes described in this notice.

g) I understand that any willful misrepresentation on this notice will void any right to divert water for livestock under this notice.

Dated this 12 day of February, 20 20

Right Holder or Authorized Representative

FOR DEPARTMENT USE

Received by CA Date 2/13/2020 Preliminary check by _____

Fee: $ 25 Receipted by CA Receipt No. E045630 Date 2/13/2020

Water District No. _____ Entered into data base _____ By _____

Currently I am watering 60 head of mother black angus cattle out of Modoc Creek in a season long continuous grazing system that runs from June 1 to November 1. I am planning to increase my herd to 100 head for the same period of time.

I am making this application in plans to divert water to watering facilities and reduce the amount of time that cattle are drinking out of the creek to 1 month each year and continue to use the water throughout the summer while staying off the creek. The spring I have under the current water right has dried up; I have provided picture in this packet taken by the NRCS engineer.

I attempting to partner with the NRCS to do this project and they are interested in improving the water quality of Modoc Creek. Watering the cattle off site for the majority of the grazing system will reduce the amount of sedimentation from soil erosion and nutrient loading from cattle usage of the creek. The current watering facility design is incapable of pumping more then the allowable amount of water from the diversion. Additionally, in this packet the purposed pump documentation and the PVWatts: Monthly PV performance Data for the area are provided.

Thank you for taking the time to review my application. I am available at 1-208-716-3935 or jonathanalvarez02@gmail.com if you have any additional questions or require further details about the diversion and it components

LORENTZ

PS2-1800 HR-14H

Solar Submersible Pump System for 4" wells

System Overview

Head	max. 120 m
Flow rate	max. 2,7 m³/h

Technical Data

Controller PS2-1800

- Controlling and monitoring
- Control inputs for dry running protection, remote control etc.
- Protected against reverse polarity, overload and overtemperature
- Integrated MPPT (Maximum Power Point Tracking)
- Battery operation: Integrated low voltage disconnect
- Integrated Sun Sensor

Power	max. 1,8 kW
Input voltage	max. 200 V
Optimum Vmp**	> 102 V
Motor current	max. 14 A
Efficiency	max. 98 %
Ambient temp.	-40...50 °C
Enclosure class	IP68

Motor ECDRIVE 1200-HR / ECDRIVE 1800-HR

- Maintenance-free brushless DC motor
- Water filled
- Premium materials, stainless steel: AISI 304/316
- No electronics in the motor

Rated power	1,7 kW
Efficiency	max. 92 %
Motor speed	900...3 300 rpm
Insulation class	F
Enclosure class	IP68
Submersion	max. 150 m

Pump End PE HR-14H***

- Non-return valve
- Premium materials, stainless steel: AISI 304/316
- Optional: dry running protection
- Helical rotor pump

Pump Unit PU1800 HR-14H (Motor, Pump End)

Borehole diameter	min. 4,0 in
Water temperature	max. 50 °C

Standards

CE 2006/42/EC, 2004/108/EC, 2006/95/EC

IEC/EN 61702:1995

The logos shown reflect the approvals that have been granted for this product family. Products are ordered and supplied with the approvals specific to the market requirements.

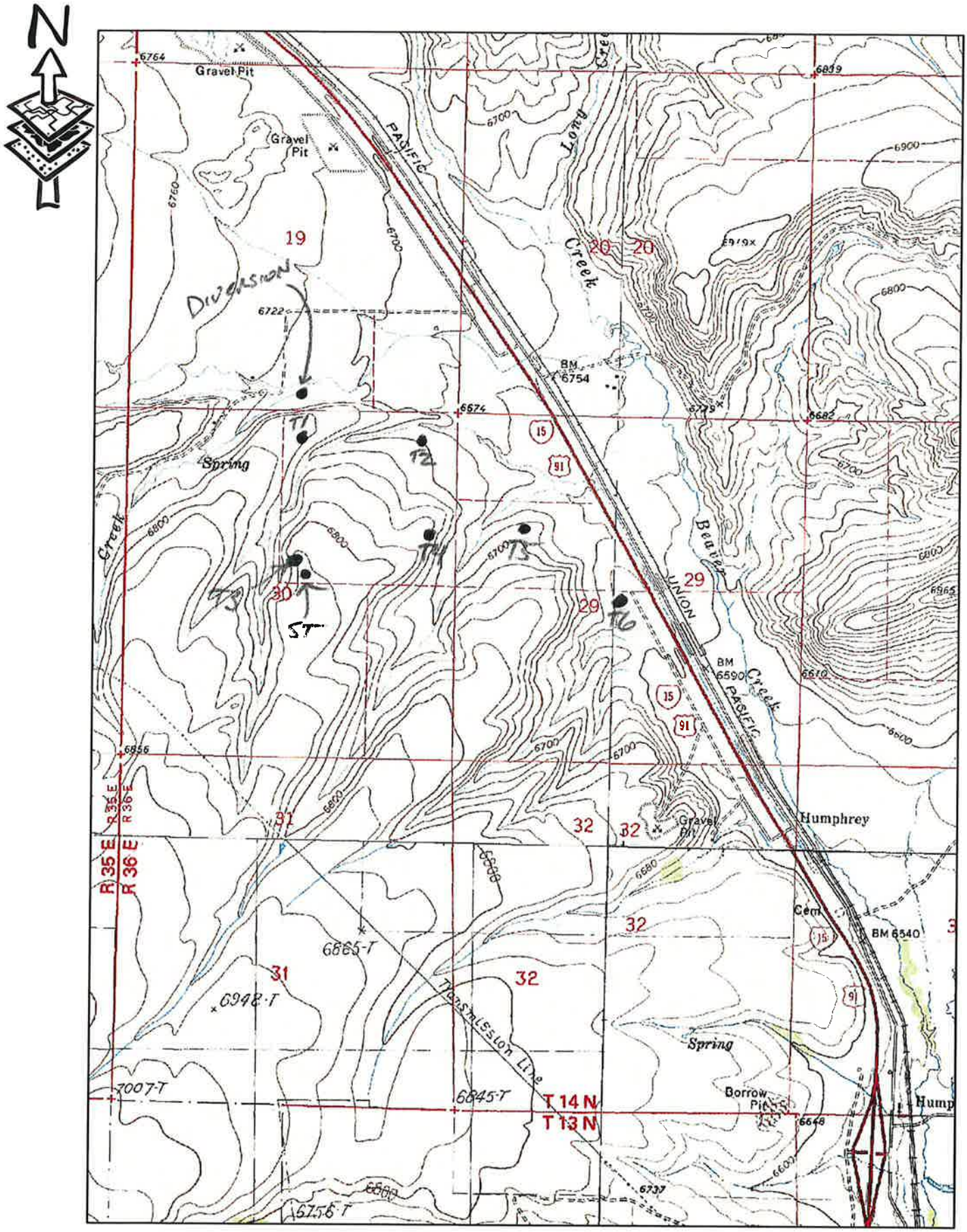
**Vmp: MPP-voltage under Standard Test Conditions (STC): 1000 W/m² solar irradiance, 25 °C cell temperature

***Specify temperature range on order

BERNT LORENTZ GmbH & Co. KG
Siebenstuecken 24, 24558 Henstedt-Ulzburg,
Germany, Tel +49 (0)4193 8806-700, www.lorentz.de

Sun. Water. Life.

LIVESTOCK WATERING SYSTEM LOCATION MAP



0 1,800 3,600 7,200 Feet

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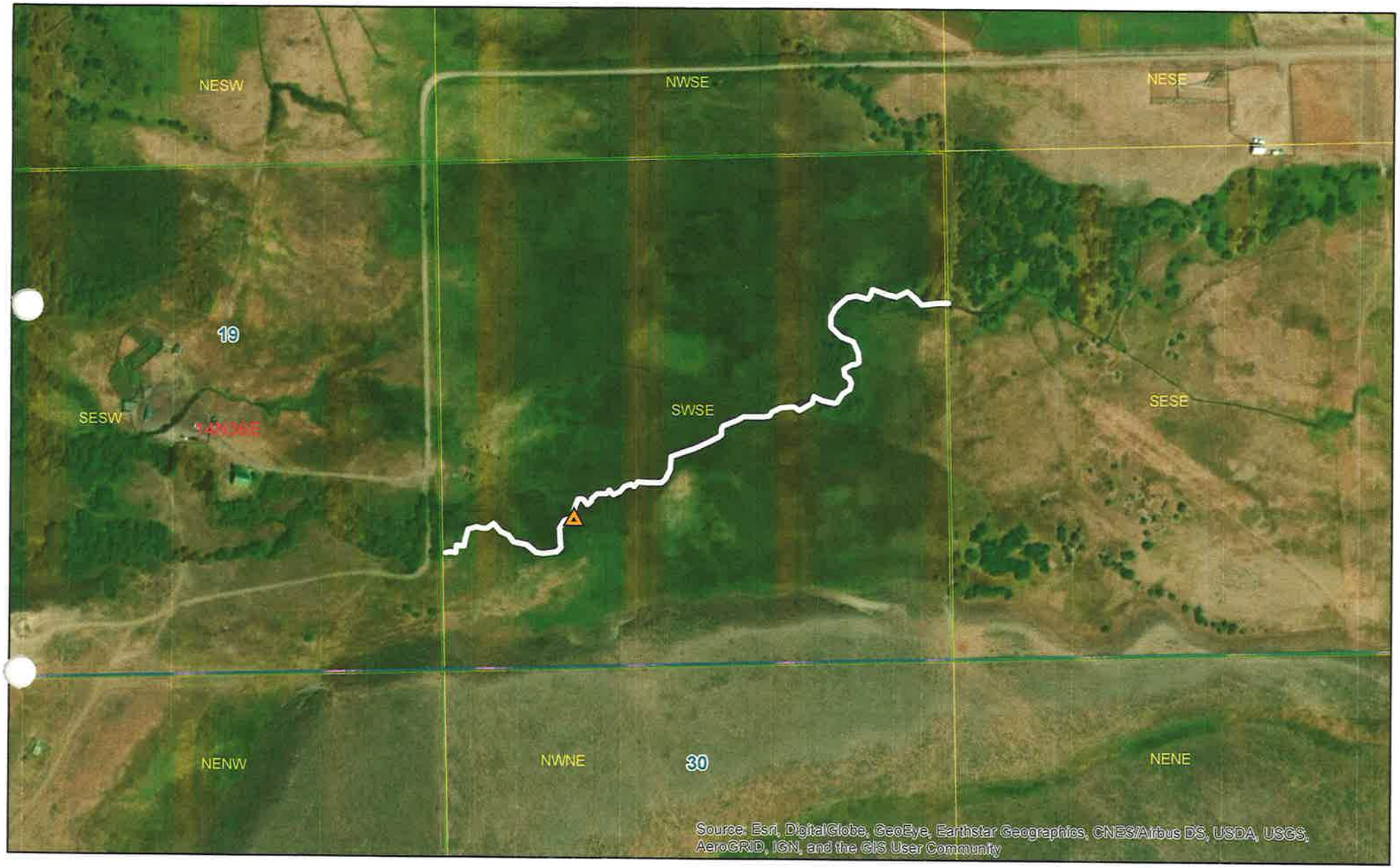

Point of Diversion

Instream Stockwater Use

0 250 500 1,000 Feet

N

PVWatts: Monthly PV Performance Data

Requested Location:	LIDY HOT SPRINGS, IDAHO
Location:	Lat, Lon: 44.13, -112.54
Lat (deg N):	44.13
Long (deg W):	112.54
Elev (m):	1550.550049
DC System Size (kW):	2.2
Module Type:	Standard
Array Type:	1-Axis Tracking
Array Tilt (deg):	0
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2
Ground Coverage Ratio:	0.4
Average Cost of Electricity Purchased from Utility ($/kWh):	0.104
Capacity Factor (%)	19.1

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)	Value ($)
1	115.1230469	2.00515556	62.15982437	121.2552185	11.94
2	136.8731842	2.63894248	73.89038849	143.7427216	14.19
3	304.2420044	5.34436274	165.6752472	317.2182312	31.55
4	393.8528442	7.30881596	219.2644806	410.4835205	40.84
5	442.7418213	8.31812191	257.8617859	461.4930725	45.91
6	476.7991028	9.58131409	287.4394226	496.6506653	49.44
7	515.1799316	10.27598763	318.555603	536.5222168	53.42
8	442.9820862	8.90448475	276.039032	461.0993347	45.94
9	361.6954956	7.15712023	214.7136078	376.6310425	37.51
10	242.2361603	4.41053486	136.7265778	252.6588593	25.12
11	158.9242401	2.83800292	85.14009094	166.1842041	16.48
12	95.98009491	1.65220249	51.21827698	101.4260712	9.95
Total	3686.630013	70.43504562	2148.684338	3845.365158	382.29

PVWatts: Monthly PV Performance Data

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Location:	Lat, Lon: 44.13, -112.54
Lat (deg N):	44.13
Long (deg W):	112.54
Elev (m):	1550.550049
DC System Size (kW):	2.2
Module Type:	Standard
Array Type:	1-Axis Tracking
Array Tilt (deg):	44
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2
Ground Coverage Ratio:	0.4
Average Cost of Electricity Purchased from Utility ($/kWh):	0.104
Capacity Factor (%)	21.2

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)	Value ($)
1	190.9440155	3.38586473	104.9618073	200.4105988	19.8
2	186.257843	3.69163728	103.3658447	196.137558	19.31
3	355.9515076	6.44140863	199.68367	375.8689575	36.91
4	401.2537231	7.57864571	227.359375	422.1655273	41.61
5	411.3945923	7.73549414	239.8003235	429.0791016	42.66
6	426.4936829	8.54584599	256.3753662	444.4708557	44.23
7	478.4286499	9.53220749	295.4984436	498.4110718	49.61
8	446.2273865	9.03238678	280.0039978	464.6850891	46.27
9	418.4007263	8.45423889	253.6271668	436.1708984	43.39
10	336.1635437	6.2540369	193.8751373	350.3852539	34.86
11	257.9769898	4.65218019	139.5653992	269.1383362	26.75
12	169.3674011	2.91360354	90.32170868	177.5778198	17.56
Total	4078.860062	78.21755027	2384.43824	4264.501068	422.96

PVWatts: Monthly PV Performance Data

Requested Location:	LIDY HOT SPRINGS, IDAHO
Location:	Lat, Lon: 44.13, -112.54
Lat (deg N):	44.13
Long (deg W):	112.54
Elev (m):	1550.550049
DC System Size (kW):	2.2
Module Type:	Standard
Array Type:	1-Axis Tracking
Array Tilt (deg):	59
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2
Ground Coverage Ratio:	0.4
Average Cost of Electricity Purchased from Utility ($/kWh):	0.104
Capacity Factor (%)	20.5

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)	Value ($)
1	196.6031494	3.53902912	109.7098999	207.95047	20.39
2	186.5534668	3.72327662	104.2517471	197.2619629	19.35
3	349.2446289	6.28475904	194.8275299	367.2707825	36.22
4	385.7382202	7.19014168	215.7042542	403.1009522	40
5	383.1759033	7.14238453	221.4139252	399.5919495	39.74
6	388.6044617	7.72543764	231.7631226	404.9595032	40.3
7	439.9562683	8.69680023	269.6007996	458.2559815	45.62
8	423.9777527	8.51206112	263.8739014	441.3895569	43.97
9	410.9236755	8.26936722	248.0810089	428.0597839	42.61
10	339.604126	6.32908249	196.2015533	354.0046387	35.22
11	265.7841492	4.83312798	144.9938355	278.3023682	27.56
12	176.2463989	3.0636909	94.97441864	185.4893951	18.28
Total	3946.412201	75.30915857	2295.395996	4125.637344	409.26