

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 31-11878Exam Date: 2/27/2015

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y N
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other < >

2. Current Owner: Name: Thomas and Lisa Cunningham
Owner of Record Correct? X Y N
Address of Record Correct? Y N
If No: Address

3. Beneficial Use Fees have been paid: X Y N Receipt No: C0

4. SOURCE TRIBUTARY
Ground water

Method of Determination: GIS and permit shapesChange in Source: Y X N**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: There are no water rights overlapping the place of use for this water right.

2. Other water rights with the same point of diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: There are no water rights overlapping this point of diversion**C. DIVERSION AND DELIVERY SYSTEM****1. LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Spring		SE	SE	SE	18	13N	36E	B.M.	Clark

Method of Determination: GIS and Permit Maps. The ESRI map showed 2 locations near a pond/boggy area that appeared to have solar panels. I assumed those were the points of diversion, but both diversions were in the same 10 acre tract, which would require a licensing amendment. Therefore, I contacted the applicant to ensure that I had the proper location and the proper number of spring diversions. The owner responded by saying that only the west point of diversion was being used. Where there is only one point of diversion, there would be no need to amend the permit.

Change in POD? X N Amendment Required? X N

2. **PLACE OF USE:** Use: Domestic

TWP B	RGE	Sec	NE				NW				SW				SE				Total s
			NE	N W	S W	SE	NE	N W	SW	SE	NE	N W	S W	SE	NE	N W	S W	SE	
13N	36E	18																D	
13N	36E	19	D																
Total Acres =																			

Method of Determination: GIS and Permit ApplicationChange in POU? X N Amendment Required? X N Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

 X 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
West Spring	Unknown	Unknown	Unknown	Unknown	Unknown

*Code to correspond with No. on map and aerial photo

Please Note: This is an in-house exam, so no field exam was performed. We relied on the information supplied by the owner in the permit to determine the Horsepower of the pump.

D. FLOW MEASUREMENTS

1.Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: The pump Horsepower was not known. I have never worked on a solar pump before, so I didn't know what the capabilities of them were. I found solar pumps on line that can divert up to 0.12 cfs or 52 gpm, so I assume that they have the capacity with two solar pumps to divert the 0.04 cfs for the permit..

E. FLOW CALCULATIONS

Yes Additional Computation Sheets Attached

Measured Method:

This is an in-office field exam, so I was not able to determine the Horsepower of the pump. The permit states that this pump was a solar pump, and I don't have any experience in solar pumps. Therefore, I looked solar pumps up on the internet and found a wide variety of pumps, with the majority of them limited to small diversion rates. However, these pumps were mainly for water features. Further research found that there are a fairly small number of solar pumps that can provide water for irrigation and domestic uses. These larger solar pumps all generally had a basic diversion rate capacity of 200 L/hr or 52 gpm. I doubt that the 52 gpm is under pressure, but the maximum allowable rate is approximately 1/3 of the maximum rate supplied by the pumps. With this analysis, I feel the diversion rate of 0.04 cfs is reasonable and that the solar pumps that are available for domestic and irrigation uses are capable of delivering this amount of water. Please see the attached pump information sheet with this permit

Per pump Info Sheet = 0.12 cfs**Permit allowed = 0.04 cfs**

The permit allows a maximum diversion rate of 0.04 cfs, which sounds reasonable of a solar pump under pressure. I am recommending a diversion rate of 0.04 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\quad} \times 3.5 = \underline{\quad}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{X 214} \times 1.9835 = \underline{\quad}$$

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

2. Volume Calculations for Other Uses:

This permit has a condition that limits the daily diversion volume to 13,000 gallons per day. This diversion rate can provide the 13,000 gallons per day limitation in the permit. Therefore, the 13,000 gallon per day condition should be carried onto the license and no other volume limitations should be included on the license.

G. PURPOSE OF USEIrrigation 1/2 acre N # Stock Domestic # of Homes 1

Other: < >

Change in Purpose of Use? Y X NIf Yes: From Use To Use Amount CFS AFA **H. NARRATIVE/REMARKS/COMMENTS**

The permit allowed a diversion rate of 0.04 cfs and 13,000 gpd for a domestic use for a single home and up to 1/2 acre of yard irrigation. The 2013 aerial photos clearly show a home and 2 shops or out buildings for this property. The irrigation of up to a 1/2 acre is a little more difficult to determine, but there does appear to be some possible irrigation around the out buildings.

The points of diversion were randomly placed on the map, but they did not seem to match up with any vegetation that would appear to be associated with a spring. In the 2011 ESRI photos, there does appear to be two spots on the aerial photo that seems to be small well houses or solar panels near or around a pond/boggy area. I moved the points of diversion to those two locations, and then sent a map to the owner to determine the number of springs and/or locations of the springs. The owner stated that the west diversion point was the only diversion being used. Therefore, we have a good location for the point of diversion.

I retained all of the conditions except for two in the licensing process. The condition regarding the development period was removed, and condition 071 was changed to 187 at licensing per Department standards.

Have conditions of permit approval been met? X Yes No

I. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Domestic	01/01 to 12/31	0.04 CFS	
<u>Totals:</u>		0.04 CFS	

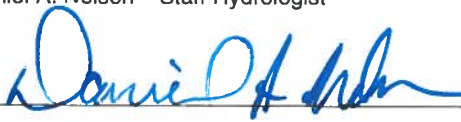
2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None

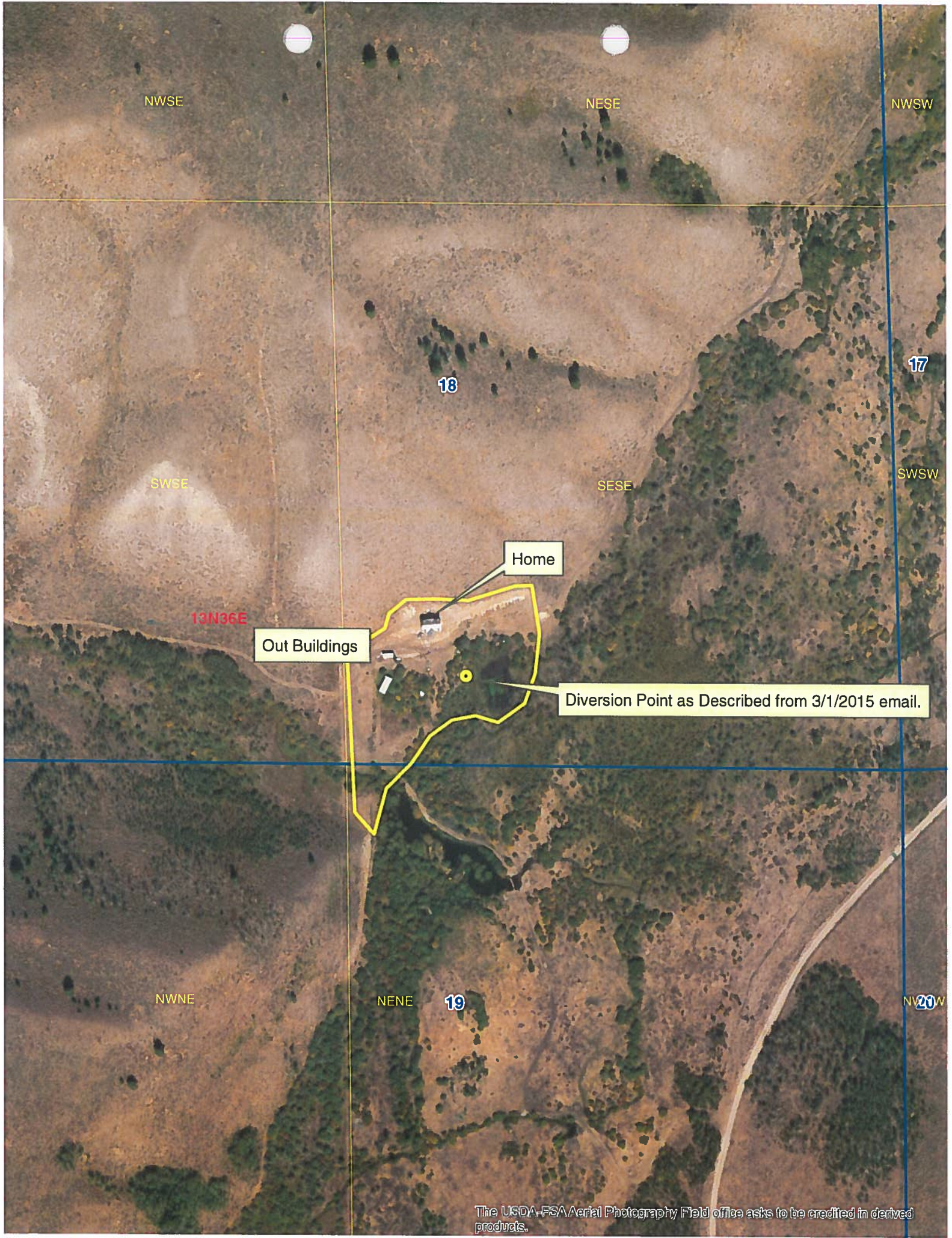
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ None

Other: < >

J. AUTHENTICATION Daniel A. Nelson – Staff Hydrologist

Field Examiner's Name  Date 3-2-15

Reviewer _____ Date _____



NWSE

NESE

NWSW

SWSE

SESE

SWSW

NWNE

NENE

NW2W

18

17

19

20

13N36E

Home

Out Buildings

Diversion Point as Described from 3/1/2015 email.

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Large power solar water pumping system for irrigation

FOB Price	US \$450 - 3,000 / Set Get Latest Price
Min Order Quantity	1 Set/Sets
Supply Ability	800 Set/Sets per Month
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Payment Terms	L/C, T/T, Western Union

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Quick Details

Place of Origin	Henan China (Mainland)	Brand Name	Nanbei	Model Number	3SD series
Theory	solar water pump	Structure	Gear Pump	Usage	Water
Power	solar water pump	Standard or Nonstandard	Standard	Fuel	solar power
Pressure	High Pressure	Application	solar water pumping sy ...	Widely used	solar water pumping sy ...

Packaging & Delivery

Packaging Detail: Export standard packaging for solar water pumping system for irrigation

Delivery Detail: Delivery in 3-10 days

Specifications

solar water pumping system for irrigation

1.competitive price

2.24 hour operation

3.Solar energized,good service

Large power solar water pumping system for irrigation



Widely used for agriculture irrigation dc solar water pump:

1. village or family water supply
2. drinking water and livestock watering
3. garden/courtyard irrigation
4. natatorium/swimming pool
5. water supply for bivouac or camping car
6. water supply for remote ares
7. Solar Water Circulating System

Advantage of solar water well pump:

1. Auto-operation, labor free
2. Suitable to all kinds of pumps, including three-phase AC pumps, single-phase AC pumps and DC pumps
3. Wide range of input voltage, suitable to different PV modules
4. Modular design, easy to maintain
5. Solar and mains power hybrid, 24 hour operation

Solar photovoltaic series dc water pump 5 sd blg flow:

Model of pump	Power (W)	Matching compone (V)	Max.lift head (M)	Flow(L/min)
5SD-15	240	20or24	15	0-200
5SD-30	480	20 or 24	30	0-200
5SD-45	720	20or24	45	0-200
5SD-60	960	20or24	60	0-200
5SD-75	1200	20or24	75	0-180
5SD-90	1440	20or24	90	0-200

Communicate with Supplier:



Ms. sarah tang:
What can I do for you?

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1 request, multiple quotations
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$$200 \text{ L/min} =$$

$$200 \times 0.0005886 = 0.12 \text{ cfs}$$

$$200 \times 0.26417 = 52.8 \text{ pm}$$

5SD-105	1680	20or24	105	0-200
Water inlet(mm)	Water outlet(mm)	IP Grade	Dimension(mm)	
120	52	IP68	127*127*570	
120	52	IP68	127*127*890	
120	52	IP68	127*127*1210	
120	52	IP68	127*127*1530	
120	52	IP68	127*127*1850	
120	52	IP68	127*127*2170	
120	52	IP68	127*127*2490	

Solar photovoltaic (pv) ac pump 4 sd small flow (2 t/h)

Water pump inverter (KW)	Three-phase ac pumps (KW)	Input voltage (V)	Output voltage (V)	Max.lift head (m)	Max Flow (ton/h)	Water inlet (mm)	Water outlet (mm)	IP Grade	Dimension (mm)
0.37	0.37	155/311/540	110/220/380	56	3.3	100	32	68	φ100*1200
0.55	0.55	155/311/540	110/220/380	77	3.3	100	32	68	φ100*1225
0.75	0.75	155/311/540	110/220/380	105	3.3	100	32	68	φ100*1250
1.1	1.1	155/311/540	110/220/380	147	3.3	100	32	68	φ100*1275
1.5	1.5	155/311/540	110/220/380	196	3.3	100	32	68	φ100*1300
2.2	2.2	155/311/540	110/220/380	280	3.3	100	32	68	φ100*1325
3	3	155/311/540	110/220/380	364	3.3	100	32	68	φ100*1350
4	4	155/311/540	110/220/380	448	3.3	100	32	68	φ100*1375

More pictures about solar water well pump:



Idaho Department of Water Resources Receipt

Receipt ID: C099874

Payment Amount \$50.00 Date Received 1/30/2015 11:40 AM Region STATE
Payment Type Check Check Number 1318
Payer Valcarce, Diane S.
Comments Statement of Completion for water right permit no. 31-11848

Fee Details

Amount	Description	PCA	Fund	Fund Detail	Subsidiary	Object
\$50.00	BENEFICIAL USE	56104	0229	21		1155



Signature Line (Department Representative)

Nelson, Dan

From: ROBERT VALCARCE [savagge@msn.com]
Sent: Sunday, March 01, 2015 7:24 PM
To: Nelson, Dan
Subject: Re: Water Right Permit 31-11848

It is one spring and it is the west one.

Sent from Windows Mail

From: Nelson, Dan
Sent: Friday, February 27, 2015 9:33 AM
To: rob

Dear Ms. Savage Valcarce and Mr. Valcarce;

We have received the Proof of Beneficial Use form you submitted on January 30, 2015. In reviewing your proof of permit, aerial photos, and beneficial use statement, I believe we can license the permit with the information submitted without going out to your property to verify the water use. If you want us to come to the property, we can do that, but it will need to be scheduled at a later time. With the size of your use and the information you have already submitted, I don't think this is necessary unless you want us to come out to verify the actual use. However, I would like to confirm some information with you if possible to make sure we are correctly licensing your water right.

The permit states that you may be diverting water from two springs and have two separate pumping units, but I wanted to make sure before I moved forward with licensing. I am not positive if you are pumping water from one or two springs, so if you could let me know if the number of springs you are using, I would really appreciate it. I also have some concerns about the exact location of the point where you are diverting or pulling water from the spring or springs. I have attached a map that shows the locations of two possible points where I think that you could be diverting the water. I want to make sure that I get the location of the spring or springs reasonably close. I would like to ask if you could review the attached map and verify the locations where you pulling water from the spring or springs. If you could review the attached map and send me back a confirmation of the spring or springs and their location on the map, I would really appreciate it.

If you have any information on the pump or pumps you used or have any pictures, those would also be useful. However, they are not necessary to license the water right. This information is not necessary to license your permit, but the information would be helpful if you have the information on hand. If you don't have this information, please don't worry about it, we can license the water right without it.

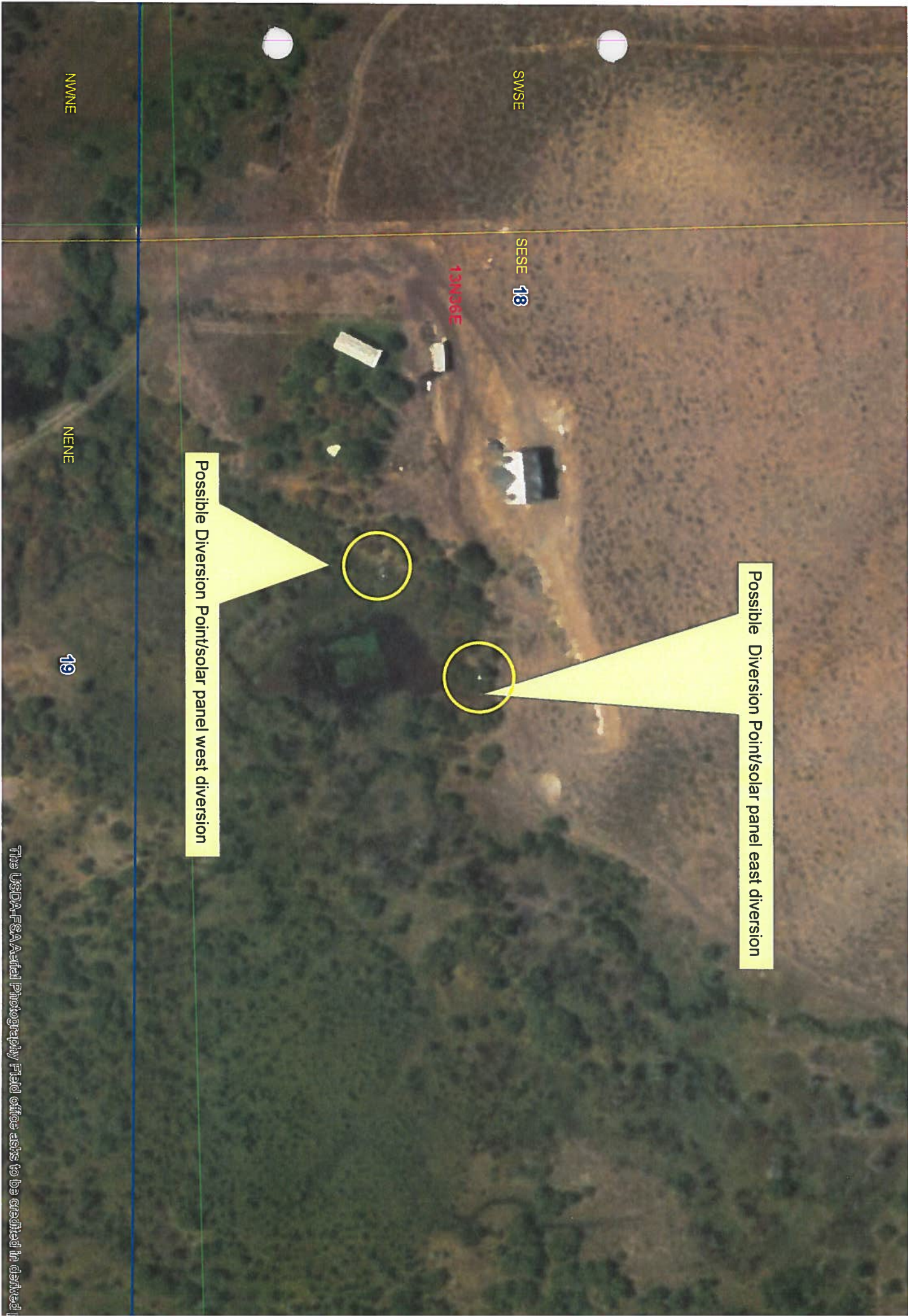
If you are not sure of the pump or diversion locations, I can license this water right with points shown on the map. If you contact me within the next 14 days to help me locate the spring or springs, I can update my recommendation to license your permit. If I don't hear from you within the next 14 days, I will continue with the licensing of the permit on the assumption that the locations I found on the map are correct, and that you diverting water from two springs.

If you have any questions, please don't hesitate to contact me. I have included my telephone number and email below. If you do prefer for someone from our office to come out and personally inspect your system, then we can do that also. However, as I said above, it would take some time for someone to schedule an appointment in your area.

Thank you for your time and effort.

Respectfully,

Daniel Nelson
Staff Hydrologist
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)



Possible Diversion Point/solar panel east diversion

Possible Diversion Point/solar panel west diversion

SWSE

SESE 18

13N06E

NWNE

NENE

19