

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

A. GENERAL INFORMATIONPermit No: 65-23512

Exam Date: August 14, 2020

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y ___ N
- a. Irrigation of 5 acres or less
- b. Storage of up to 14.6 AF for stockwater purposes only
- c. Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
- d. Other
2. Current Owner: Name: Vincent and Therese Lombardo
- Owner of Record Correct? X Y ___ N
- Address of Record Correct? X Y ___ N

3. Fees have been paid: X Y ___ N Receipt No: C109103

4. **SOURCE****TRIBUTARY**

Groundwater

N/A

Method of Determination: Well Drillers Report

Change in Source:

___ Y X N**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: ___ NONE

Water Right No.	Source	Purpose of Use	Basis
65-265	Groundwater	Domestic	Decree

Comments: Well log data shows 2 wells on the property. The driller's report for well 432087 lists the well as a domestic well and is likely for water right 65-265. A copy of the driller's report for 433277 was enclosed with the statement of completion for 65-23512 and is listed as an irrigation well.

2. Other water rights with the same point of diversion: X NONE

Water Right No.	Source	Purpose of Use	Basis

Comments: No overlap, two separate wells on the property.

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

Source	Govt. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.		County
Ground water			SW	NE	1	06N	03W	B.M.	Gem
								B.M.	
								B.M.	

Method of Determination: Well driller's report, GIS examination

Change in POD? ___ Y X N Amendment Required? ___ Y X N

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

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	03W	1				3													3
		Lot #																	
Total Acres =																			3

Method of Determination: Determination was based on what was determined to have been irrigated based on aerial imagery and remote sensing – NDVI analysis using the Climate Engine online tool

Change in POU? ____Y ____X ____N Amendment Required? ____Y ____X ____N

3. ____ 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).

____X____ 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
D0063722					

*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: None taken

E. FLOW CALCULATIONS

____Additional Computation Sheets Attached

Irrigation recommendation is for 3 acres based on GIS analysis. The permit authorized 0.03 cfs per acre in accordance with Application Processing memo 17. Therefore the recommended rate was calculated as follows:

3 acres x 0.03 cfs/acre = 0.09 cfs

Measured Method:

No flow measurements taken. Review is consistent with IDAPA 37.03.02.035.01(r). Direct measurement is not required.

Measurement = None taken

Permit allowed = 0.12 cfs

License recommend for 0.09 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3 \text{ ac} \times 4.5 \text{ ac-ft/acre} = 13.5 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.09 \text{ cfs} \times 260 \text{ day} \times 1.9835 = 46.4 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 13.5 \text{ af}$$

2. Volume Calculations for Other Uses:

G. PURPOSE OF USEIrrigation X Y N # Stock _____ Domestic # of Homes _____

Other: _____

Change in Purpose of Use? Y X N

Method of Determination: Extension request attachments, proof statement and GIS examination

If Yes: From Use _____ To Use _____ Amount _____ CFS _____ AFA _____

H. NARRATIVE/REMARKS/COMMENTS

Permit 65-23512 was issued on November 7, 2012, with a Proof Due date of November 1, 2013. An extension of time request was filed in 2013, and was granted for an additional 4 years of development, pushing the Proof Due date out to November 1, 2017 and fulfilling the full extent of the 5 year development period as allowed by Idaho code §42-204. A second extension of time request was submitted in 2017 and included statements and attachments explaining the installation of a sprinkler system, but that more work needed to be completed to prepare the pasture for planting and subsequent irrigation. That request was granted for 5 years, per Idaho code §42-204(3)(f) and extended the Proof Due date out to November 1, 2022. A statement of completion for proof of beneficial use was received by the Department on August 3, 2020.

Initial visual inspection of Sentinel and Landsat maximum NDVI calculations for the growing seasons from 2016 through 2020, using the Climate Engine online tool, did not show any definitive differences at the place of use (POU) between the earlier years, before irrigation was to have started, and the more recent years (2018-2020). The second extension of time request was filed in 2017 and stated that weeds had to be cleared before planting of pasture grass and irrigation could occur, and that it was likely to happen by the following year (2018).

The graphing function of Climate Engine was used to outline the POU and calculate both mean and max NDVI for the time period of May 1 to August 12 for the years 2016-2020. The time period of May 1 to August 12 was selected to both capture as much of peak irrigation season as possible, while also capturing as much data as was available leading up to the submittal of the proof of beneficial use. In reviewing these graphs (attached) a few things were very evident. On the mean NDVI graph, mean NDVI for the years 2016-2018 were very low, below 0.3, and dipped to the lowest in 2018 to below 0.26. The mean then rose sharply in 2019, and even more so in 2020, to about 0.32 and 0.42 respectively. When reviewing the max NDVI graph for the same time periods, again 2016-2018 were much lower, again bottoming out in 2018 at about 0.36 max NDVI, and then raising sharply in 2019 and 2020 to about 0.54 and 0.56 max NDVI, respectfully.

The sharp dip in both mean and max NDVI in 2018 would correlate with the statements on the 2017 extension request, explaining how weeds were going to be cleared and pasture grass planted during the 2018 season. If weeds were cleared, and the pasture grasses were still getting established in that year, it would be expected that NDVI readings would be much lower, as there was likely very little vegetation growing on the POU that season. The higher NDVI readings in 2019

and 2020 would subsequently correlate with those pasture grasses becoming established and irrigated, and although a Max NDVI of 0.6 is commonly considered the minimum cutoff to represent irrigated vegetation, readings of 0.54 (2019) and 0.56 (2020) closely approached that value and would also be explained by the fact that the grasses were likely still establishing in these early years after planting.

Conditions 004, 121 and R69 should all remain on the license. 046 should be removed.

Have conditions of permit approval been met? ☒ Yes ☐ No

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	3/1 – 11/15	0.09 CFS	13.5 AF
	<u>Totals:</u>	0.09 CFS	13.5 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 ☒ None

Other: None

J. AUTHENTICATION: Scott Storms, Water resource Agent, Senior

Field Examiner's Name

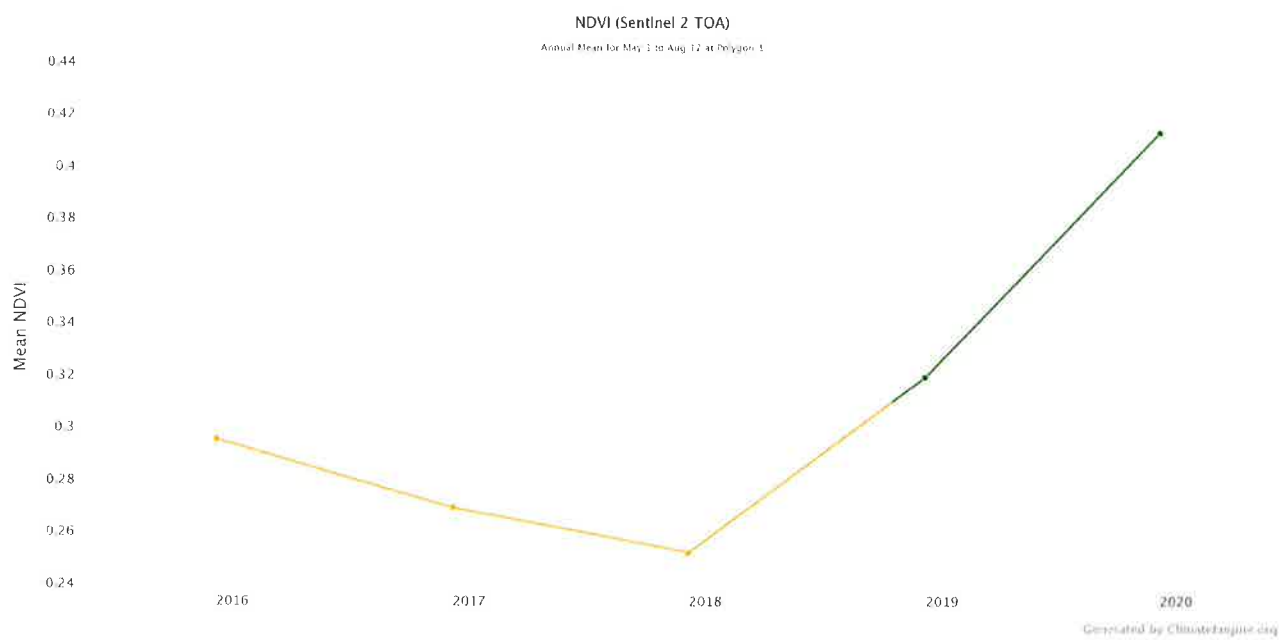
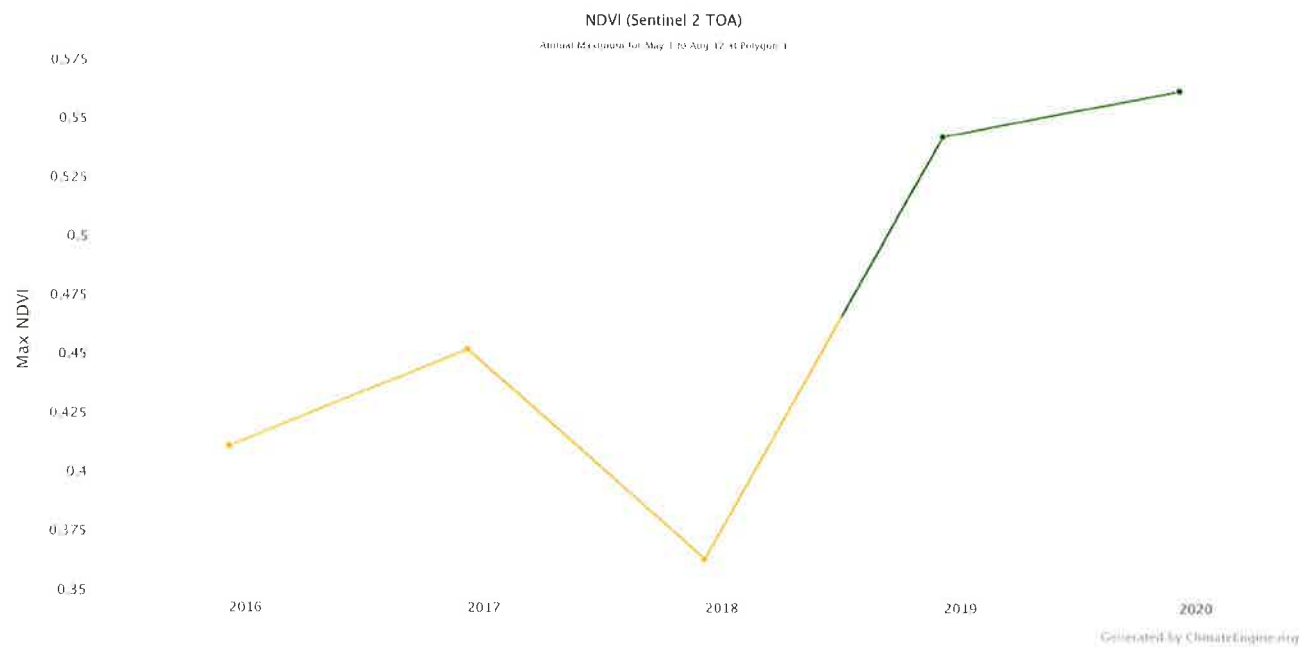
Date

8/18/2020

Reviewer

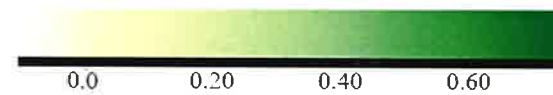
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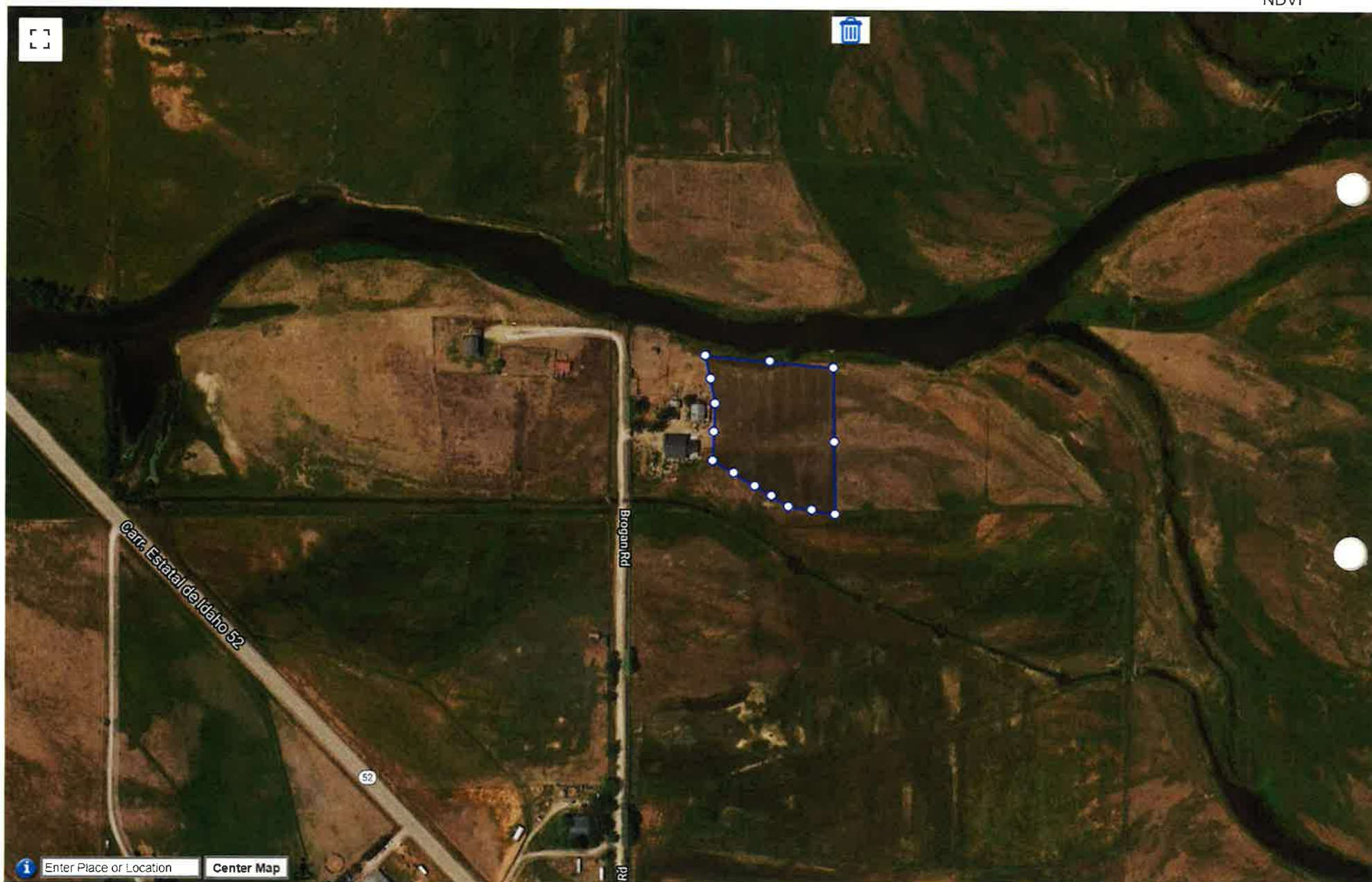


NDVI (Sentinel 2 TOA)

2020-07-15 to 2020-08-12, Maximum



NDVI



Lombardo 65-23512

