

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

A. GENERAL INFORMATIONExam Date: 8/3/2023

1. Does this qualify for an in-office field exam (IDAPA 37.03.02.035.01.r)? Y X 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: Kevin and Katherine Smith

Owner of Record Correct? N
 Address of Record Correct? N
 If No Explain: N/A

3. Beneficial Use Fees have been paid: X Y N Receipt No: C116577

4. Source: Groundwater Tributary: N/A

Method of Determination:
 Change in Source: Y X N

B. OVERLAP REVIEW

1. Other water rights with the same place of use: X No Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: There are municipal water rights, issued to the city of Kuna that overlap the place of use. However, because they are municipal rights there would not be overlap. There is also an irrigation water right to the south of the proposed POU, 63-12289, but it does not overlap with the proposed POU.

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

Water Right No.	Source	Purpose of Use	Basis
N/A			

Comments: N/A

C. DIVERSION AND DELIVERY SYSTEM

1. Location of Point(s) of Diversion:

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Groundwater			NW	SW	10	01N	01E	B.M.	Ada
								B.M.	
								B.M.	

Method of Determination: GIS, Tax Parcel Data and a GPS point taken during field examination.

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

2. Place of 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	
01N	01E	10										4.6							4.6
		Lot #																	N/A
Total Acres =																			4.6

Method of Determination: GIS, Tax Parcel Data, 2022 Google Earth Imagery, and photographs taken during field examination.

Change in POU? Y X N Amendment Required? Y X N

 X 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

3. Diversion Id No.*	Motor Make	HP	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D933865	Grundfos	5	35S50-19-BP	Grundfos	

*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
N/A						

2. Measurement Comments: A pump horsepower of 5 was determined during field examination and from photographs taken during the exam. Therefore, a diversion rate calculation is possible. Since the permit holder installed a K-Line system a diversion rate should be determined by comparing pump flow to K-line flow specifications given the discharge pressure, nozzle size and number of K-pods used simultaneously.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method: Since a pump horsepower of 5 and a lift of 290 ft was determined a diversion rate calculation is possible. According to the calculation the system can handle 0.08 cfs average between 30, 40, and 50 psi. The discharge pressure could not be determined because a pressure gauge was not present on the system.

The K-line sprinkler nozzles installed have specific gpm values according to the nozzle size and discharge pressure determined through a table found on K-line's website and attached to this report. However, since the discharge pressure could not be determined, the flow rate at 30, 40, and 50 psi was used to determine a diversion rate. It was confirmed in the field that the permit holder had Gold R33LP nozzles installed. The permit holder explained that because of system limitations he could only use 8 K-pods simultaneously. The recommended flow rate was determined by comparing, within reason of system capabilities, pump flow and determined K-Line system flow. I am recommending a 0.07 cfs diversion rate.

Diversion Rate Calculation (Theoretical)

$$Q = (5 \text{ hp}) (8.8) (0.70 \text{ efficiency}) / (290 \text{ ft}) + (2.31) * (\text{average between 30, 40, and 50 psi}) = 0.08 \text{ cfs}$$

Measurement = 0.08 cfs

Permit allowed = 0.16 cfs

Table 1. Flow measurement taken from K-Line's website table for different nozzle sizes at different discharge pressures. The permit holder installed #18 Gold R33LP nozzles. Diversion rate, in cfs, was determined by dividing the total flow in gpm for all 8 pods by 448.83 gpm.

Pressure	At 30 psi	At 40 psi	At 50 psi
Flow In GPM with 8 K-Pods	25.6 gpm	28.8 gpm	32.8 gpm
Diversion Rate in CFS	0.057 cfs	0.064 cfs	0.073 cfs
Likely Flow rate based on pump specifications and sprinkler output.			0.07 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (4.6 \text{ acres}) \times (4.5 \text{ af/acre}) = 20.7 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (0.07 \text{ cfs}) \times (260) \times (1.9835 \text{ af/day}) = 36.1 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 20.7 \text{ af}$$

G. PURPOSE OF USE

Irrigation X Y N # Stock N/A Domestic # of Homes N/A

Other: < >

Change in Purpose of Use? Y X N

Method of Determination: GIS, Tax Parcel Data, 2022 Google Earth Aerial Imagery, and observations/photographs taken during field examination.

If Yes: From Use To Use Amount CFS AFA

H. NARRATIVE/REMARKS/COMMENTS

This permit does not qualify for an in-office examination. According to Tax Parcel Data the property was developed in 1996. The permit authorizes the irrigation of 8 acres diverting from groundwater. A field exam was scheduled and conducted on August 3rd, 2023, at around 10:00 am MST and took roughly an hour to complete. Before the field exam 2022 Google Earth Aerial Imagery indicated that 4.6 acres of irrigation occurred after subtracting non-irrigated areas including a roping arena and animal pens in the southeast of the POU. The irrigation of 4.6 acres was confirmed by the permit holder and observation during the field exam.

A well was drilled in March of 2022 and a Grundfos 5 hp electric pump was installed connected to a pressure tank via a 1-1/4 in steel pipe. From the tank underground lines proceed to the irrigated area and emerge as two risers, one near the middle of the irrigated area containing 2 spigots and another to the northwest with one. Out of each spigot a 1-3/4 in plastic line connects to groups of two, five, and six K-pods.

The recommended diversion rate was based off both pump and sprinkler system specifications and how they would affect each other. A pump horsepower of 5 hp was determined through observation and photographs taken of the pump system. Therefore, a diversion rate calculation was possible. Also known as a theoretical calculation, it determines flow assuming 70% efficiency of a system given a lift in ft, horsepower, and discharge pressure. According to the calculation the system could handle 0.08 cfs over the average of 30, 40, or 50 psi discharge pressures.

The K-line system discharge rate, in CFS, is dependent on how many K-pods are used simultaneously, the nozzle size and discharge pressure in psi. The permit holder confirmed 8 pods could be used simultaneously consisting of a 6 pod, and 2 pod line. A 5-pod line was used separately. The nozzle type and size, #18 Gold R33LP was determined through a table found on K-line's website. The permit holder provided documentation that the pump delivers 35 gpm or 0.078 cfs. This is close to the diversion rate calculation. Flow would likely be constricted by the K-pod nozzles and flow would likely be closer to 0.07 cfs.

Municipal water rights held by the City of Kuna did overlap with the POU, and the permit holder confirmed they did use city water for in-house use, yard irrigation, and stockwatering. However, since they are municipal water rights they would not overlap and there is no need to be limited with this permit. All of the conditions have been met and it has been confirmed a beneficial use was developed within authorization on the permit. Therefore, I am recommending a 0.07 cfs diversion rate and 20.7 af diversion volume.

Conditions R65, 01M, X59, and X60 should remain on the license. Condition 121 should be changed to 103 as the standard with licensing. Condition 046 should be removed because the permit holder complied with the drilling permit requirements of the Department. Condition 073 should be removed because the point of diversion is not currently within a geothermal groundwater management area? This is a requirement for the condition to be added to a permit according to the usage description for the condition. Condition 26A should be removed as standard with licensing. All other conditions should be removed as standard with licensing. * IFG water is present in area so condition should remain on license

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	03/01-11/15	0.07 CFS	20.7 AF
	<u>Totals:</u>	0.07 CFS	20.7 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: < >

J. AUTHENTICATION Skyler Cheever – Water Resource Agent

Field Examiner's  Date 8/28/2023

Reviewer  Date 12/1/25

Field Exam Map

Map showing the GPS determined point of diversion (yellow point) and observed irrigated place of use (orange outline).



2022 Google Earth Imagery

Imagery confirmed where each of the spigots, K-Pod line locations and confirmed 1.1 acres of irrigation.



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 63-34340
 Examiner: Skyler C.
 Date of Field Exam: 8/3/2023

	Option 1	OPTION 2	OPTION 3	
P/D No.:				
PUMP HORSEPOWER	5	5	5	
BOOSTER HORSEPOWER	0		0	
PUMPING LEVEL	290	290	290	
DISCHARGE PRESSURE	30	40	50	
FRICTION	0	0	0	
RATE OF FLOW (cfs)	0.09	0.08	0.08	AVE
(gpm)	38.5	36.2	34.1	0.08

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.

Examiners Notes:

Lift was taken from well log. Hp was found during site visit. A standard psi for domestic use of 40 to 60 psi was used to estimate the pressure against the pump.

		U.S. UNITS (FLOW IN GPM)										METRIC UNITS (FLOW IN LPH)									
PLATE	NOZZLE	MODEL & RADIUS IN FEET	PSI										MODEL & RADIUS IN METERS	BAR							
			25	30	35	40	45	50	55	60	65	1.75		2.0	2.5	2.75	3.0	3.5	4.0	4.5	
 #18 Gold	 Gold (9/64")	R33LP 39-47	2.9	3.2	3.4	3.6	3.9	4.1	—	—	—	R33LP 12.0-13.0 m	660	703	786	825	863	931	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 13.0-14.0 m	—	—	—	—	—	—	—	—	
 #20 Brown	 Brown (5/32")	R33LP 40-47	3.5	3.9	4.2	4.5	4.7	5.0	—	—	—	R33LP 12.0-12.75 m	806	859	962	1009	1055	1144	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 12.75-13.75 m	—	—	—	—	—	—	—	—	
 #22 Gray	 Gray (11/64")	R33LP 42-47	4.2	4.6	5.0	5.4	5.7	6.0	—	—	—	R33LP 12.75-13.75 m	971	1036	1159	1217	1273	1376	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 14.0-14.25 m	—	—	—	—	—	—	—	—	
 #24 Green	 Green (3/16")	R33LP 43-47	5.0	5.5	6.0	6.4	6.8	7.2	—	—	—	R33LP 13.0-14.0 m	1147	1226	1376	1446	1514	1640	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 14.0-14.25 m	—	—	—	—	—	—	—	—	
 #26 Maroon	 Maroon (13/64")	R33LP 43-47	5.9	6.5	7.0	7.6	8.0	8.4	—	—	—	R33LP 13.25-14.5 m	1352	1449	1629	1712	1790	1931	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 15.0-15.25 m	—	—	—	—	—	—	—	—	
 #28 Blue	 Blue (7/32")	R33LP 45-47	7.0	7.6	8.2	8.8	9.4	9.9	—	—	—	R33LP 13.75-14.25 m	1590	1699	1905	2002	2095	2270	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 15.5-16.0 m	—	—	—	—	—	—	—	—	
 #20 Brown	 Brown (5/32")	R33LP 40-47	3.5	3.9	4.2	4.5	4.7	5.0	—	—	—	R33LP 12.0-12.75 m	806	859	962	1009	1055	1144	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 12.75-13.75 m	—	—	—	—	—	—	—	—	
 #22 Gray	5.0 33FC Flow Control	R33LP 42-47	4.2	4.6	5.0	5.4	5.7	6.0	—	—	—	R33LP 12.75-13.75 m	971	1036	1159	1217	1273	1376	—	—	
		R33 47-52	—	—	—	—	—	—	—	—	—	R33 14.0-14.25 m	—	—	—	—	—	—	—	—	

Flow and radius data highlighted in gray for a particular plate/nozzle combination indicates that the pressure is outside the recommended range for uniformity-sensitive applications. The absence of data for a particular model/plate/nozzle combination indicates the pressure is outside the recommended range. Measured indoors in no wind with plates mounted 18 inches (0.46 meters) above collection cups. GPM = gallons per minute. LPH = liters per hour.

R33 & R33LP with Flow Control! Nozzle Nominal flow rates:
~~5.0 33FC Nozzle = 5 GPM (1136 LPH)~~
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Call factory for further performance details.

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Call factory for further performance details.

Field Exam 63-34340 System Diagram



Legend

0 55 110 220 330 Feet

- Point of Diversion
- Place of Use
- Riser
- K-Pod's
- Township/Range
- Sections
- QQ



Photographs taken during Field Exam for Permit 63-34340 on August 3rd, 2023



Figure 1. Photograph of the point of diversion and diversion system.



Figure 2. Photograph of pump control box with pump specifications.



Figure 3. Photograph of pump specifications found to the right on the pump control panel.



Figure 4. Photograph of variable speed specifications for the pump, found at the bottom of the pump control panel.



Figure 5. Photograph of the external well casing. Could not see the tag number because an additional casing was added on over the original casing.



Figure 6. Photograph of pressure tank found the rear right from the well casing and control panel.



Figure 7. Photograph of one of the K-pod sprinklers (one of 8 run at one time).



Figure 8. Photograph of K-pod nozzle (#18 Gold R33LP at 50 psi= 4.1 gpm per nozzle).



Figure 8. Photograph of riser in which two lines of k-pods consisting of 2 and 6 pods are connected and controlled by. Another riser to the south is used for another 5 pods but the permit holder could not use all 13 pods at the same time because the system could not handle it.



Figure 9. Photograph of K-line system and a portion of the irrigated acres.

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D

Drilling Permit No. 63-34 340 (WRA)
Water right or injection well # _____

2. OWNER:

Name Kevin + Katherine Smith
Address 18110 S. Cloverdale
City Kuna State ID Zip 83634

3. WELL LOCATION:

Twp. 1 North ☒ or South ☐ Rge. 1 East ☒ or West ☐
Sec. 10 1/4 1/4 1/4 1/4Gov't Lot _____ County ADA
Lat. 43 ° 26.152 (Deg. and Decimal minutes)
Long. 116 ° 19.937 (Deg. and Decimal minutes)
Address of Well Site 18110 S. Cloverdale
City Kuna
(Give at least name of road - Distance to Hood or Landmark)
Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lb or ft)	Placement method/procedure
<u>780610</u>	<u>0</u>	<u>38</u>	<u>10.50</u>	<u>Dry pour</u>

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
<u>6"</u>	<u>12</u>	<u>38</u>	<u>40</u>	<u>STAL</u>	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 38

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____
Manufactured screen ☐ Y ☒ N Type _____
Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____
Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) NC Static water level (ft) 182
Water temp. (°F) _____ Bottom hole temp. (°F) _____
Describe access port Turtle

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
<u>NC</u>	<u>NC</u>	<u>30</u>

Test method:

Pump ☐ Bailor ☐ Air ☒ Flowing artesian ☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
<u>10</u>	<u>0</u>	<u>1</u>	<u>SOIL</u>		
	<u>1</u>	<u>6</u>	<u>Hard pan</u>		
	<u>6</u>	<u>9</u>	<u>Rocks, lava</u>		
	<u>9</u>	<u>16</u>	<u>Hard pan</u>		
	<u>16</u>	<u>88</u>	<u>Lava</u>		
	<u>6</u>	<u>33</u>	<u>Broken lava</u>		
	<u>110</u>	<u>230</u>	<u>Lava w/ cracks</u>		
	<u>230</u>	<u>280</u>	<u>Lava</u>		
	<u>280</u>	<u>320</u>	<u>Medium soft lava</u>	☒	

RECEIVED

MAY 13 2022

WATER RESOURCES
WESTERN REGIONCompleted Depth (Measurable): 320Date Started: 3-23-22 Date Completed: 3-30-22

14. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name J. m. s. Well Drilling Co. No. 623*Principal Driller [Signature] Date 3-30-22

*Driller _____ Date _____

*Operator II _____ Date _____

Operator I _____ Date _____

*Signature of Principal Driller and rig operator are required.