

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 22-7649

1. Owner JKC Farms; RGC Farms; Juniper View LLCs; Judd and Susan Crapo Phone No. (208) 624-3293
Current address 726 North 2100 East St Anthony, ID 83445
2. Examiner's name Randy Johnson EXAM DATE May 11, 2016
3. Accompanied by Judd Crapo Email juddcrapo@aol.com
Address 2417 E 482 N St Anthony ID 83445
Relationship to permit holder Manager / Leasee Phone No. 208 313 6311
4. Source Groundwater tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use See attached list.
2. Other water rights with the same source and point of diversion See attached list.

C. DIVERSION AND DELIVERY SYSTEM

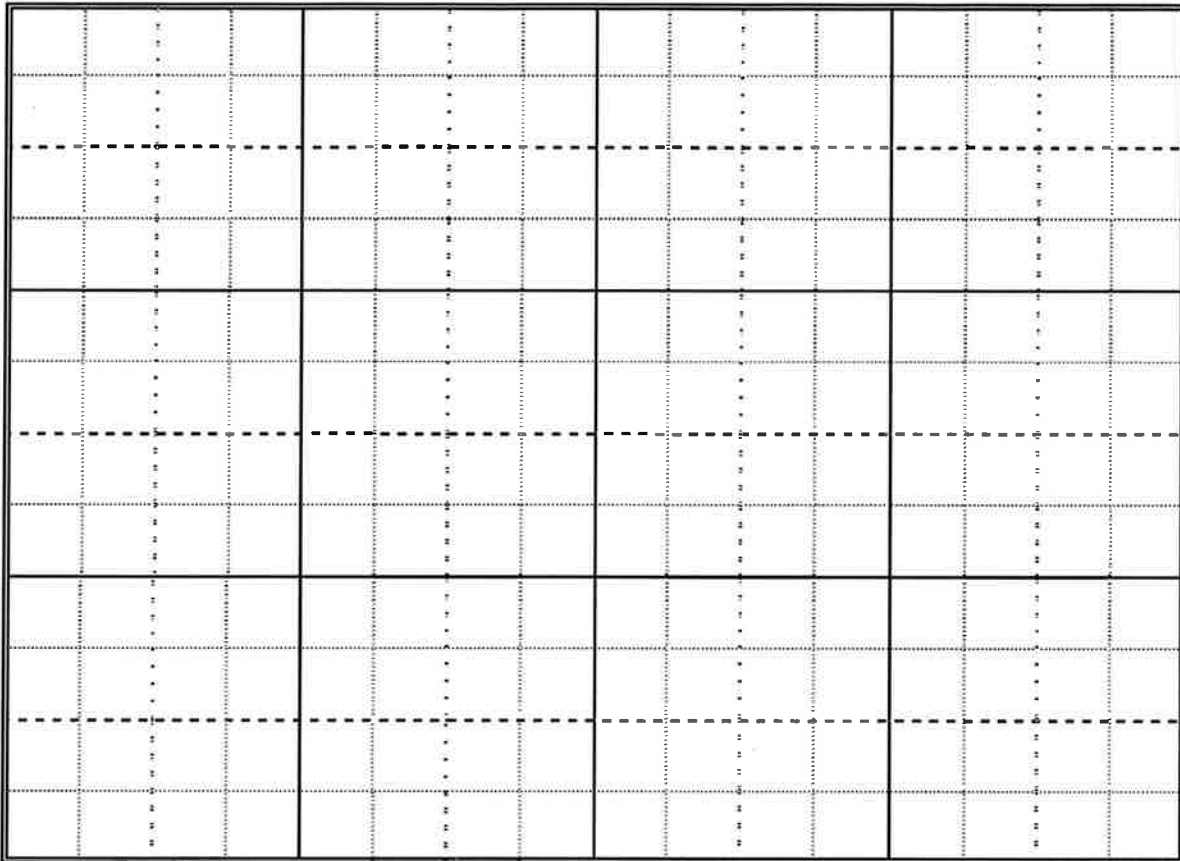
1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
		NW	SW	SE	13	7N	41E	Fremont	Hansen Well; IDWR records
		NW	NE	SW	13	7N	41E	Fremont	Jorgensen Well; IDWR records.

2. Place(s) of Use: Method of determination IDWR Water Right Reports and aerial photo

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
7N	41E	13					39	39	39	39	39	39	39	39					312
7N	41E	14	39	12	15	32									12			11	121
																			433

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.



Scale: 1" = _____

- ☐ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ 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
Hansen Well	Westinghouse	450	35-77	Johnston	10"
Hansen Well -Booster	GE	200	OPJ204005	Johnston	10"
Jorgensen (240) Well	Not identified	350	87-02015	Aurora	10"

*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
Flow Meter	Ultrasonic	Spirax	Sarco UTM10			

2. **Measurements:** _____

See attached May 18, 2016 letter and Well Evaluation and Site Visit & Test Summary.

E. NARRATIVE/REMARKS/COMMENTS

The following conditions were observed / reported during the flow measurement for Hansen Well:

1. The main well pump was turned on
2. Enough lines were opened that pressure at the well did not exceed 30 psi.
3. The booster pump was not operated because of the potential affect on measurement accuracy due to turbulence from this pump being introduced close to the measurement location.

As shown in the attached pump test report, measured flow rate was 5.08 cfs

The 2001 beneficial use report estimated a booster pump capacity of $7.32 - 5.18 = 2.14$ cfs

It is therefore assumed that the pump rate for this well pump and booster = 7.22 cfs

Jorgensen (240) Well description as reported in 2001 field examination

750' well, 62' casing, 350 HP electric motor, static water level 220'. Turbine bowl pump setting 500' below surface.

The following conditions were observed / reported during the flow measurement for Jorgensen (240) Well:

1. The main well pump was turned on
2. Enough lines were opened that pressure at the well did not exceed 10 psi.

As shown in the attached pump test report, measured flow rate was 4.02 cfs

Therefore the total pump capacity associated with the wells used to develop this permit is $7.22 \text{ cfs} + 4.02 \text{ cfs} = 11.24$ cfs. There are 8.24 cfs of water rights already authorized to be diverted from one or both wells. Accordingly, 3 cfs of 22-7649 was developed during the development period.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

The condition required a port or other device specified by IDWR, and none has been specified up to this point.

However, the permit holder intends to comply with the recent ground water well measurement device order and will have authorized diversion measurement equipment installed prior to the 2018 irrigation season.

F. FLOW CALCULATIONS

☒ Additional computation sheets attached

Measured Method:

See attached field evaluation report and 22-7489 field exam from 2001.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 282 \times 3.5 = 987$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 11.24 \times 214 \times 1.9835 = 4,771.0$$

$$V = \text{Smaller of } V_{L.R.} \text{ and } V_{D.R.} = \underline{987}$$

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion	Annual Volume
	From	To	Q (cfs)	V (afa)
IRRIGATION	4/1	10/31	3.0	987
		Totals:	3.0	987

2. Recommended Amendments

- ☒ Change P.D. as reflected on page 1 ☐ Add P.D. as reflected on page 1 ☐ None
☒ Change P.U. as reflected on page 1 ☐ Add P.U. as reflected on page 1 ☐ Other

I. AUTHENTICATION

Field Examiner's Signature

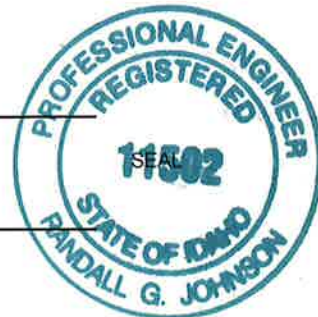
Kalmyk

Date _____

4/4/17

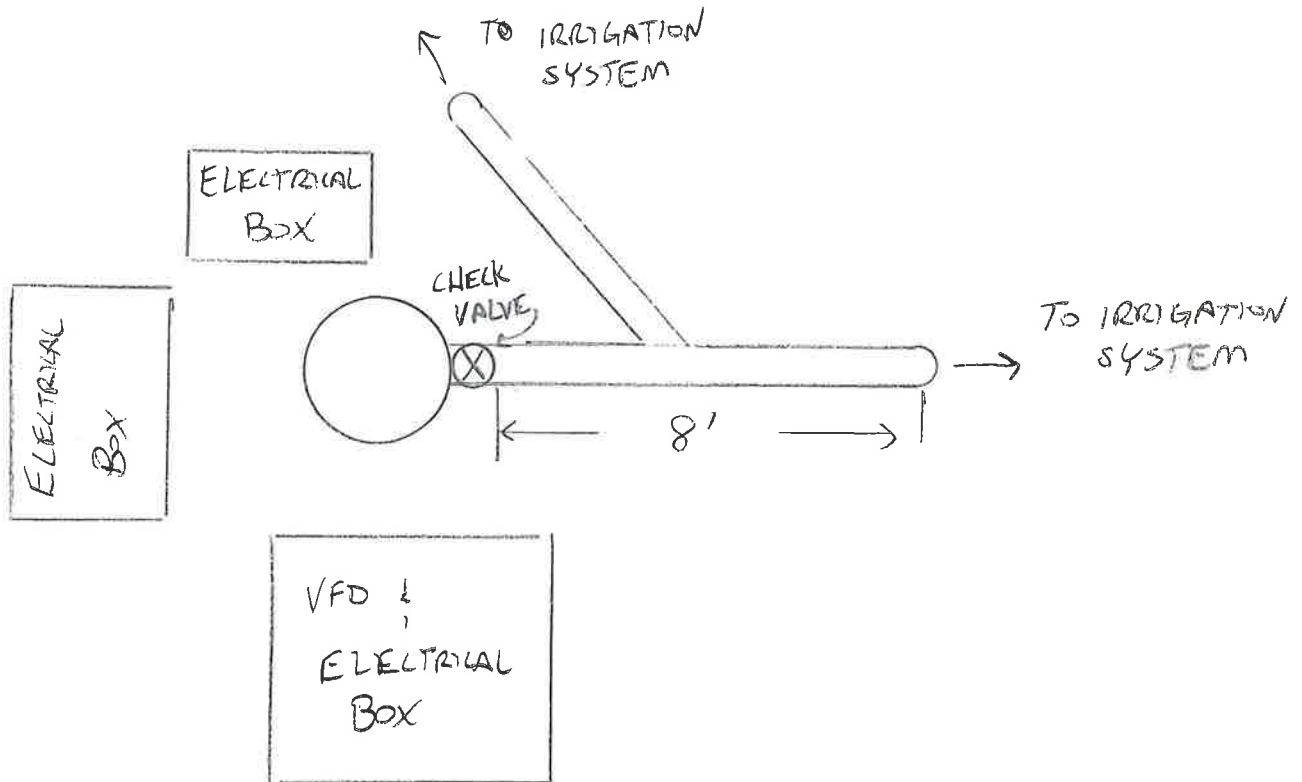
Reviewer

Date _____



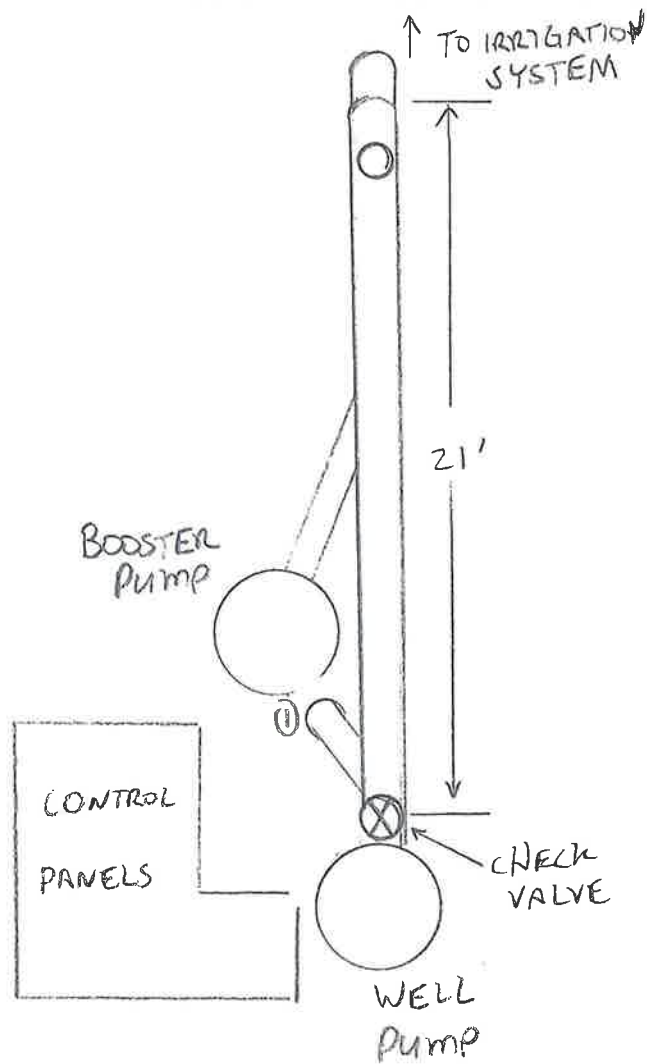
Owner / Project RIVERSIDE FARMS	By RJ	Date 3/7/17	Project No. 01-17-0955
Feature JORGENSEN WELL	Chk'd By	Date	Sht of

N ↑



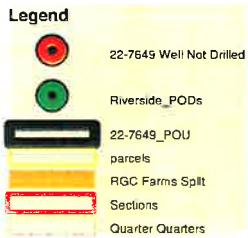
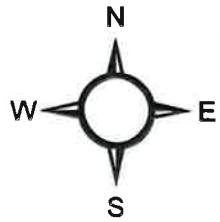
Owner / Project RIVERSIDE FARMS	By RJ	Date 3/7/17	Project No. 01-16-0955
Feature HANSEN WELL	Chk'd By	Date	Sht of

N ↑



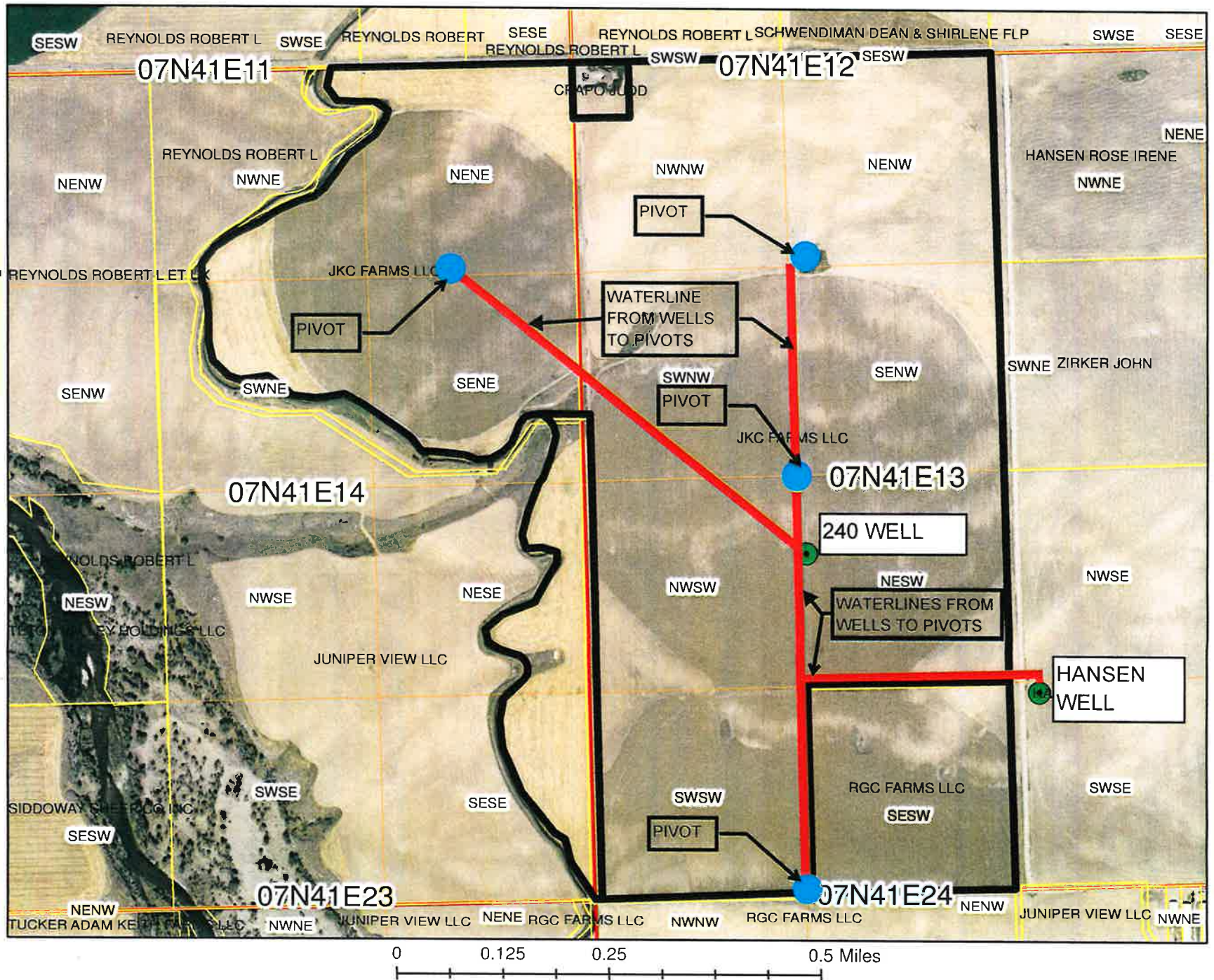
Note
① DISCHARGE TO
TO BOOSTER
PUMP CAN

LICENSING OF 22-7649



RED ARROWS POINT TO ASSUMED PIVOT LOCATIONS

Prepared by
Robert L. Harris
2015 NAIP Aerial





May 18, 2016

Riverside Farm
1908 E 500 N
St. Anthony, Idaho 83445

RE: Riverside Farms Well Test

FA Project No. 01-16-0955-106-0001

Dear Sirs,

To support Riverside Farms' evaluation of potential water production from a set of 5 wells, Forsgren Associates was engaged to complete well flow testing on May 11, 2016. The following table summarizes test results. See the attached test summary sheet for additional information

Well Name	Discharge Pipe Outside Diameter (in)	System Pressure (psi)	Measured Flow Rate	
			(gpm)	(cfs)
Hansen	12.076	30	2281	5.08
No. 2 or 240	10.051	10	1804	4.02
Estimated Total Flow Hansen Well and Well No. 2			4,085	9.10
No. 8	8.064	10	1030	2.29
No. 5	10.28	22	1846	4.11
No. 4	10.165	(Not Available)	440	0.98
Estimated Total Flow Wells 8, 5, & 4			3,316	7.38
Estimated Total Flow All Wells			7,401	16.48

There is potential to show additional water production capacity at the Hansen and No. 5 Wells because the tests were completed at 20-30 psi system pressure. However, operating conditions may be such that the gain in production is small.

In addition, there may be potential to increase water production at Well No. 4. During the test, the well was able to produce 780 gpm for a very short period of time before flows dropped off and flow meter signal was lost. This may indicate that the pump was drawing down the water surface and pumping air. The ultrasonic flow meter can't register a signal if the flow includes entrained air.

Please let me know if you need additional information.

Sincerely,

Randall G. Johnson, P.E.
Forsgren Associates, Inc.

Attachment: Well Evaluation Site Visit & Test Summary

Well Evaluation Site Visit & Test Summary

Project Information:

Date of Visit: 5-11-16

Project Name: Riverside Farms Well Assessment	Forsgren Project No.: 01-16-0955-0106	Owner: Riverside Farms
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Photographs:	☒ Yes	☐ No
Photo log No.	Description	
1	Hansen Well	
2	Well 8	
3	Well 5	
4	Well 4	
5	Well 2 [240]	

Ambient Conditions:	Snow	Rain	Cloudy	Clear
Weather:	☐	☐	☐	☒
Temperature:				
Wind:	N ☐	S ☐	E ☐	W ☐

Personnel On Site	Company	Name	Duration	Comments
1		Judd Crapo	7am-12pm	Operated pumps and pivots to regulate pressure
1	Forsgren	Randy Johnson	7am-12pm	Completed flow measurements

Observations:

Well Name	Pipe Length (ft)(1)	Test Location (ft d/s)(2)	OD (in)(3)	WT (in)(4)	Spacing (in)(5)	Flow Rate (gpm)(6)	Pressure (psi)(7)
Hansen (8)	21	14	12.076	0.375	9.875	2281	30
No. 8 (9)	25.8	17.1	8.064	0.322	6.68	1030	10
No. 5 (10)	9.3	6.8	10.28	0.365	8.67	1846	22
No. 4 (11)	8.7	8.7	10.165	0.365	8.60	440(11)	NR(11)
No. 2 or 240 (12)	8	4	10.051	0.365	8.29	1804	10

Notes:

- (1) Measured length from check valve to the fitting or end of pipe where it enters the ground.
- (2) Test location represents distance downstream from the check valve on the pump discharge. Where above ground pipe length did not allow for optimal 10Dia u/s and 5Dia d/s straight pipe distance, test location selected to best approximate this optimal configuration.
- (3) OD = outside diameter
- (4) WT = Wall Thickness
- (5) Spacing = optimal distance to set between the ultrasonic meter probes.
- (6) Flow rate as measured by the Spirax Sarco UTM10 flow meter.
- (7) Pressure read from pressure gage on pipe in the test section.
- (8) The Hansen Well configuration includes a pipe from the main well with a booster pump that ties into the pump near the downstream end of the exposed pipe. The booster pump did not operate during the flow test. Various pivots were turned on to maximize pumping. Test pressure was 30 psi. If water could be pumped to a lower elevation and system pressure reduced, it is likely that the pump would produce more water. The quantity of additional water may be small since operation at 30 psi is likely near maximum for the pump.
- (9) The Well 8 configuration includes a pipe from the main well that ties into a pipe manifold that allows water to be pumped to multiple pivots. There is no other pump at the site. Various pivots were turned on to maximize pumping. The test pressure was at approximately 5-10 psi. It is unlikely that the well will produce significantly more flow than observed during the test.
- (10) The Well 5 configuration includes a pipe from the main well with a booster pump that ties into the pump near the downstream end of the exposed pipe. The booster pump did not operate during the flow test. Various pivots were turned on to maximize pumping. The well may be able to produce more water since

minimum test pressure was 22 psi.

(11) The Well 4 configuration includes a pipe from the main well that ties into a pipe manifold that allows water to be pumped to multiple pivots. There is no other pump at the site. The Pipe Length reported for No. 4: is from check valve to where the pipe goes underground. There is no evidence of an elbow at this location. Test was taken as far from the well as possible without excavating the pipe. The test suggested the potential for additional pumping capacity at this location but additional investigation and/or pump modification would be required to make this flow available. During the test, flows were initially measured at 780 gpm. After a few minutes, the flow rate dropped to 440 gpm, within a few more minutes the flow meter reported lost signal. This suggests the potential for entrained air in the water since ultrasonic meters typically can't read flow when that occurs. This suggests that shortly after startup, the dynamic water surface at the well is drawn down low enough that the pump begins to entrain air. Further investigation or pump modification might allow for pump operation at the higher flow rate. No pressure reading was recorded because there was not a pressure gage available in the test section.

(12) The Well 2 [240] configuration includes a pipe from the main well that ties into a pipe manifold that allows water to be pumped to multiple pivots. There is no other pump at the site. Various pivots were turned on to maximize pumping. The test pressure was at approximately 10 psi so it is unlikely that the well will produce significantly more flow than observed during the test.

Randy Johnson

Distribution: ☐ File ☐ PM ☐ Resident ☐ Owner ☐ Contractor ☐ Other



Photo 1 – Hansen Well



Photo 2 Well 8



Photo 3 – Well 5

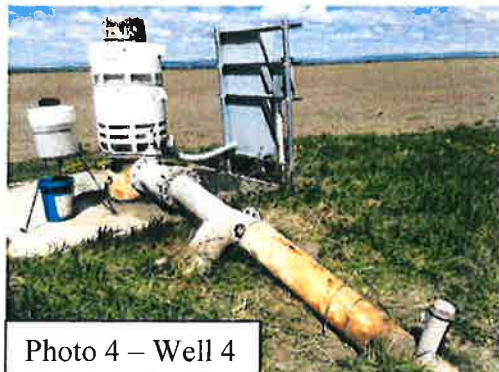


Photo 4 – Well 4



Photo 5 – Well 2

Project Information:

Date of Visit: 7-10-17

Project Name:	Riverside Farms Hansen Well and Booster Pump Assessment	Forsgren Project No.:	01-16-0955-0106	Owner:	Riverside Farms
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Photographs:	☒ Yes	☐ No
Photo log No.	Description	
1	Hansen Well	

Ambient Conditions:	Snow	Rain	Cloudy	Clear
Weather:	☐	☐	☐	☒
Temperature:				75
Wind:	N ☐	S ☐	E ☐	W ☐

Personnel On Site	Company	Name	Duration	Comments
1		Judd Crapo	7am-9am	Operated pumps and pivots
1	Forsgren	Randy Johnson	7am-11am	Completed flow measurements

Observations:

Well Name	Pipe Length (ft)(1)	Test Location (ft d/s)(2)	OD (in)(3)	WT (in)(4)	Spacing (in)(5)	Flow Rate (gpm)(6)	Pressure (psi)(7)
Hansen (8)	7	5	12.06	0.223	10.74	3308	30-60

Notes:

- (1) Measured length from booster pump wye connection to 45 degree elbow just before pipe enters the ground.
- (2) Test location represents distance downstream from the booster pump wye on the main line. Above ground pipe length did not allow for optimal 10Dia u/s and 5Dia d/s straight pipe distance. Test location selected to best approximate this optimal configuration.
- (3) OD = Outside Diameter
- (4) WT = Wall Thickness. Measured using a Dwyer ultrasonic thickness gage
- (5) Spacing = optimal distance to set between the ultrasonic meter probes.
- (6) Flow rate as measured by the Badger Meter Dynasonics DXNP-AHS-NN flow meter. Serial # 112619
- (7) Pressure read from pressure gage on pipe in the test section. During initial testing pressure was at 30 psi. Checked pressure again at end of testing and it was fluctuating between 45-60 psi.
- (8) The well configuration includes a pipe from the main well with a booster pump that ties into the pump near the downstream end of the exposed pipe. The booster pump was operating during the flow test. Various pivots were turned on to maximize pumping.



Photo 1 – Hansen Well

Randy Johnson

Distribution:	☐ File	☐ PM	☐ Resident	☐ Owner	☐ Contractor	☐ Other
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STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 22-7489

1. Owner: Irene Hansen

Phone No.

Current Address:

Current Address: 241 N 2300 E, St Anthony, ID 83445

2. Accompanied by: Judd Crapo

EXAM DATE: 0-13-2001

Address:

Address: 2417 E 482 N St Anthony ID 83415 Phone No (208) 624-3293

Phone No. (208) 624-3293

Relationship to Permit Holder:

Relationship to Permit Holder: Manager / Leasee

3. Source:

Ground water

tributary to

B. OVERLAP REVIEW

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

No

2. Other water rights with the same point of diversion:

Yes - 80 acres 47 acres 13 acres 80 acres

22-7207A, 7207B, 13602

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

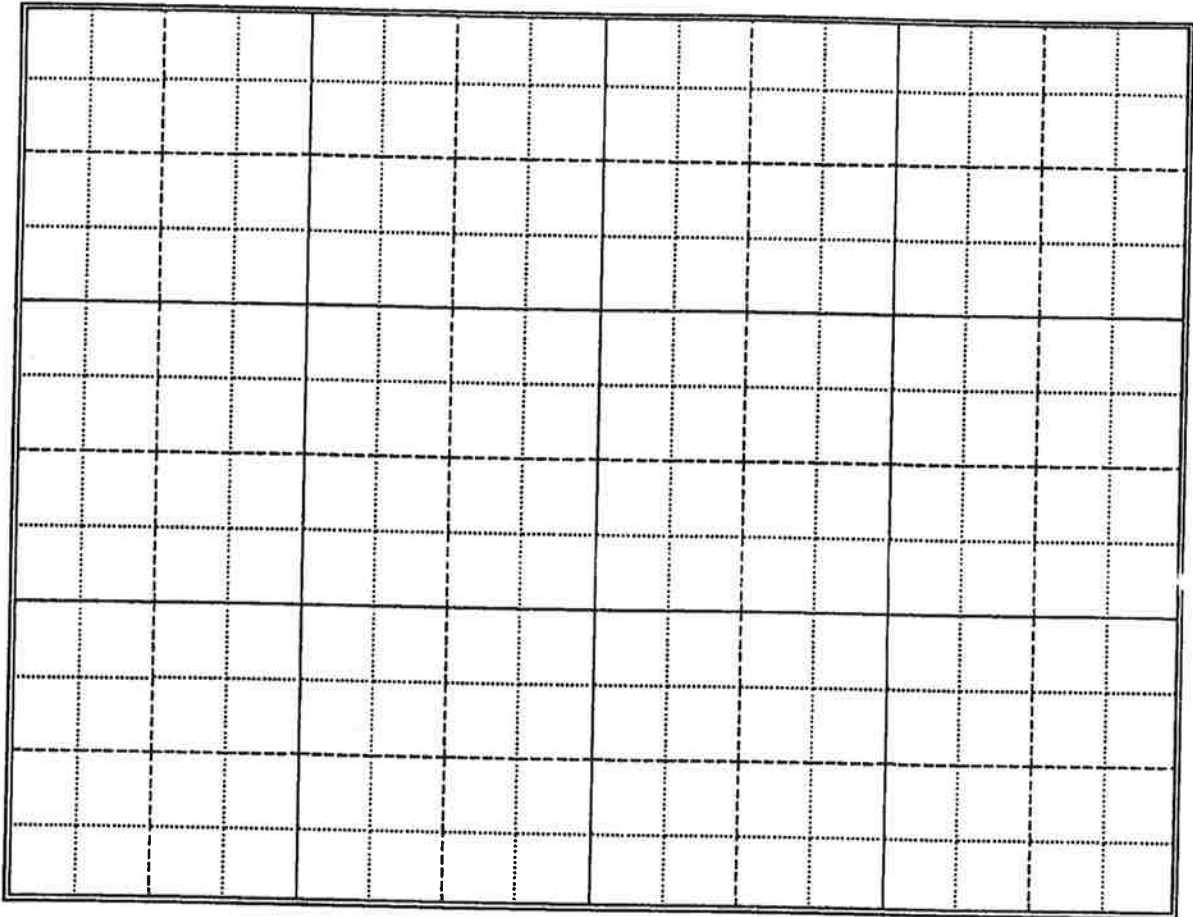
[illegible]

2. Place(s) of Use:

Indicate Method of Determination

[illegible]

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.



Scale: 1" = _____

____ Copy of USGS Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

____ 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
	Westinghouse	450	35-77	Johnson	
Booster	GE	200	0PJ204005		

*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: highest fuji reading observed by 2300 Gpm

Southwest view



POD aa-7489 looking west



LOG NAME: **22-7489**
START: 08-13-2001 09:20
END: 08-13-2001 09:25
INTERVAL: 00:01:00

08-13-2001 09:20:00
+6.866E+0 ft/s
+2.324E+3 gal/m
+5.179E+0 ft³/s
+TOTAL 0000000 gal
-TOTAL 0000000 gal
NORMAL

08-13-2001 09:21:00
+6.752E+0 ft/s
+2.286E+3 gal/m
+5.093E+0 ft³/s
+TOTAL 0002269 gal
-TOTAL 0000000 gal
NORMAL

08-13-2001 09:22:00
+6.859E+0 ft/s
+2.322E+3 gal/m
+5.173E+0 ft³/s
+TOTAL 0004578 gal
-TOTAL 0000000 gal
NORMAL

08-13-2001 09:23:00
+6.774E+0 ft/s
+2.293E+3 gal/m
+5.110E+0 ft³/s
+TOTAL 0006876 gal
-TOTAL 0000000 gal
NORMAL

08-13-2001 09:24:00
+6.857E+0 ft/s
+2.321E+3 gal/m
+5.172E+0 ft³/s
+TOTAL 0009177 gal
-TOTAL 0000000 gal
NORMAL

08-13-2001 09:25:00
+6.791E+0 ft/s
+2.299E+3 gal/m
+5.122E+0 ft³/s
+TOTAL 0011470 gal
-TOTAL 0000000 gal
NORMAL

$$Q_{\text{MAX}} = \underline{2324} \text{ gpm} = \underline{5.18} \text{ cfs}$$

$$Q_{\text{MIN}} = \underline{2286} \text{ gpm} = \underline{5.09} \text{ cfs}$$

$$Q_{\text{AVG}} = \underline{2307.5} \text{ gpm} = \underline{5.14} \text{ cfs}$$

22-07489

Measurement without booster

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 22-7489

Reviewer:

Date of Review: 5/28/2013

P/D No.:

PUMP HORSEPOWER
BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

	without booster	with booster	
	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	450	450	0
BOOSTER HORSEPOWER	0	200	0
PUMPING LEVEL	420	420	0
DISCHARGE PRESSURE	50	55	0
RATE OF FLOW (cfs)	5.18	7.32	#DIV/0!

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.
No Friction

Examiners Notes:

E. NARRATIVE/REMARKS/COMMENTS

System was running 2 pivots. Tudd said the pivots take 1200 gpm each. This matched closely with the flow reading.

There are other parcels that this well waters see areas outlined in yellow

Water is thermal, it is roughly 118° Fahrenheit

The system has a booster pump, but it hasn't been run this year. When it is run, it will increase the system flow 1000 gpm.

Tudd sold the power on it this year.

Crapos have run the farm for many years. Irene Hansen is a widow.

NOTE: Theoretical CFS WITH BOOSTER 7.32 CFS

ORIGINAL LICENSE 22-7207 = 4.1 CFS

WELL COULD PRODUCE AN ADDITIONAL 3.22 CFS with booster.

THIS ADDITIONAL 77 ACRES = 1.54 CFS

Have conditions of permit approval been met? ☒ yes ☐ no

F. FLOW CALCULATIONS

Measured Method:

____ Additional Computation Sheets Attached

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 77 \times 3.5 = 269.5$$
$$V_{D.R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 1.54(1.9835)(214) =$$
$$V = \text{Smaller of } V_{I.R} \text{ and } V_{D.R} = 269.5$$

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Irr	4/1	10/31	1.54	269.5
Totals:			1.54	269.5

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

I. AUTHENTICATION

Field Examiner's Name Steve Mueller Date 8-13-01

Reviewer DAVE CARLSON Date 5/28/2013

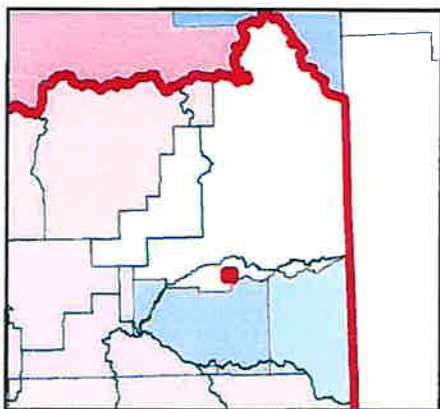
SEAL



Idaho Department of Water Resources

**Water Right
22-7489
(IRRIGATION)**

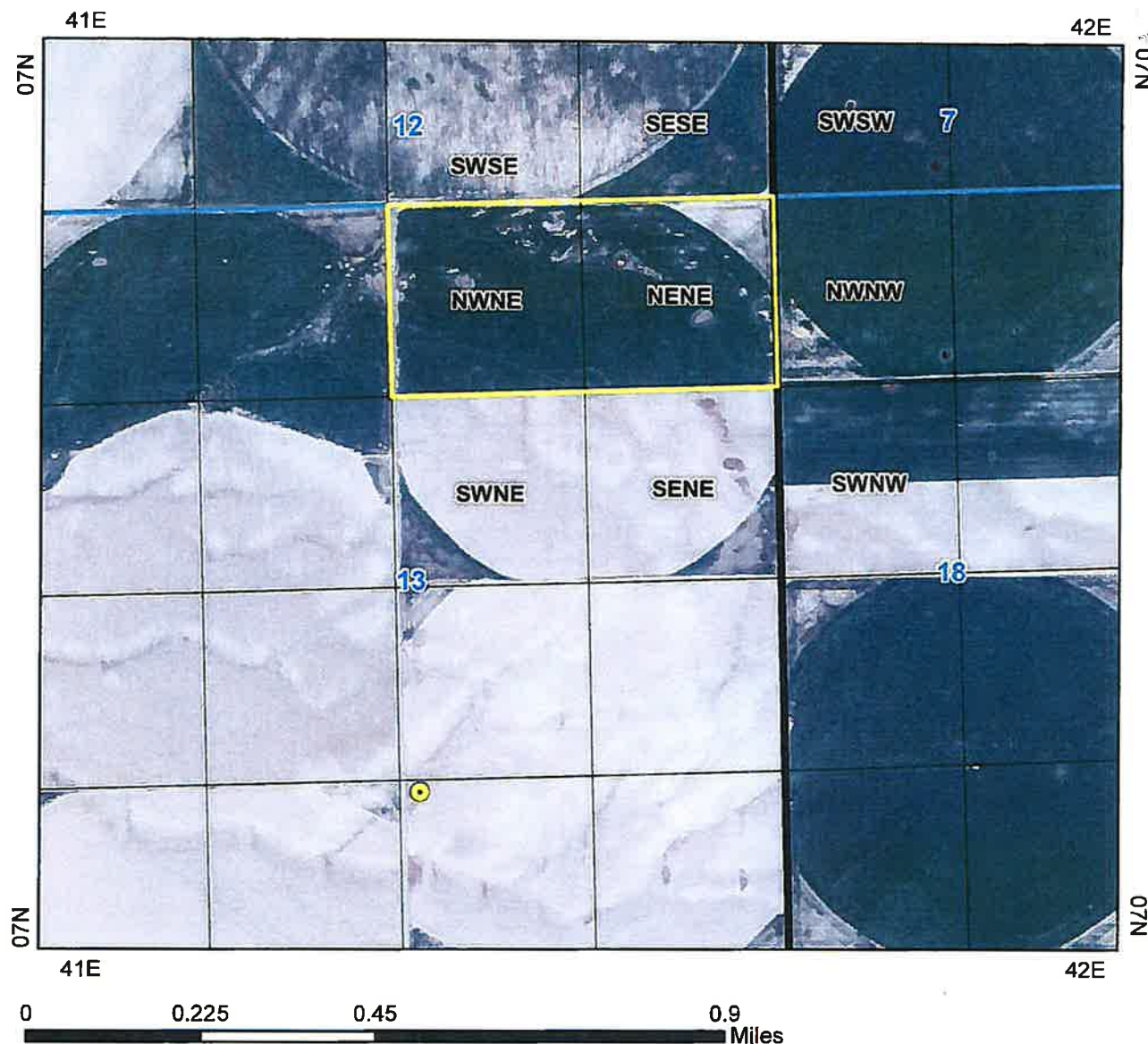
- Point of Diversion
- Place of Use
- State Outline
- Townships
- PLS Sections
- Quarter Quarters



**Fremont County
IDWR Basin 22**

Prepared by Carlson, Dave

2009 Aerial Photography



THEORETICAL HORSEPOWER EQUATION WORKSHEET

Water Right No.: Hansen Well
 Reviewer: James Cefalo
 Date of Review: 8/25/2018

	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	450	450	450
BOOSTER HORSEPOWER	0	100	200
PUMPING LEVEL	424	424	424
DISCHARGE PRESSURE	50	50	50
RATE OF FLOW (cfs)	5.14	6.28	7.42

Calculations based on the formula: $Q = 8.8 * (\text{Efficiency}) * \text{hp}$
 $\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}$

Assumptions: 70% Efficiency
 No Friction

Notes: Scenario 1 reflects measurement completed by examiner on August 13, 2001.
 License review for Permit 22-7649 should be based on 100 hp booster pump.
 $6.28 \text{ cfs} - 4.10 \text{ cfs (existing rights 22-7207A and 22-7207B)} - 1.54 \text{ cfs (existing right 22-7489)} = 0.64 \text{ cfs}$
 Scenario 3 is the theoretical yield if the Hansen Well were operated with existing pumps.