

Groundwater Application Review Summary Form

Application # G- 19267

GW Reviewer Phillip I. Marcy Date Review Completed: 04/21/2023

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☐ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO

April 21, 2023

TO: Application G- 19267

FROM: GW: Phillip I. Marcy
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic
☒ NO Waterway or its tributaries

☐ YES
☒ NO Use the Scenic Waterway Condition (Condition 7J)

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in [Enter] Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 04/21/2023
 FROM: Groundwater Section Phillip I. Marcy
 Reviewer's Name
 SUBJECT: Application G- 19267 Supersedes review of _____
 Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Richard and Carey LaFave County: Wallowa

A1. Applicant(s) seek(s) 0.05 cfs from 1 well(s) in the Grande Ronde Basin,
Imnaha subbasin

A2. Proposed use Commercial / Irrigation (3.0 acres) Seasonality: Year-round / March 1st – October 31st (245 days)

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	Proposed	1	Basalt	0.05	2N/48E-20 SW-SE	762'N, 341'E fr S ¼ cor S 20
2						
3						
4						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	1805	NA	NA	NA	TBD	TBD	TBD	Unknown	TBD	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to drill a single POA well in close proximity to the Imnaha River for Commercial and Irrigation uses. At the proposed location, the POA well will likely produce from Imnaha Basalt of the Columbia River Basalt Group (CRBG). No details of proposed well construction were provided.

A5. ☒ **Provisions of the** Grande Ronde (OAR 690-508-0050) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ **are**, or ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
 Comments: _____

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

- a. ☐ **is** over appropriated, ☒ **is not** over appropriated, or ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. ☐ **will not** or ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. ☐ **will not** or ☐ **will** likely to be available within the capacity of the groundwater resource; or
- d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. ☒ The permit should contain condition #(s) 7N;
 - ii. ☒ The permit should be conditioned as indicated in item 2 below.
 - iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2.
- a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;
 - b. ☒ **Condition** to allow groundwater production from no shallower than 40 ft. below land surface;
 - c. ☐ **Condition** to allow groundwater production only from the _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;
 - d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

- B3. **Groundwater availability remarks:** There is very little development of groundwater in the area of the proposed use, except for a handful of domestic wells. At this location, Imnaha and Grande Ronde flows appear to be fairly flat lying, with groundwater reliably available between 1700-1725' AMSL, or about 76-101' below land surface at the proposed location. The nearest located well is about 300' from the proposed well location (WALL 50154) and produces from the interval between 1689-1739' AMSL. At the given distance, using model parameters typical for basalt interflow zones, calculations of expected drawdown experienced at neighboring wells were performed using a Theis time-drawdown model. Resulting values fell between less than 2' and greater than 13' after 365 days of continuous pumping. The pumping rate used for these calculations was the annual 9AF duty, averaged over 365 days.
- _____
- _____
- _____
- _____

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Imnaha Basalt of the Columbia River Basalt Fmn.	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Groundwater in interflow zones within CRBG flow sequences are typically confined where not locally incised, which appears to be the case here. In addition, local well logs report static water levels rising far above the depth of the productive water-bearing zone.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Imnaha River	~1780	1747	200	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: At this distance, the difference between groundwater and surface water elevations is too great for units hydraulically connected at this location. If there is a location where the productive zones in local wells is incised by the Imnaha River, it does not appear to be within one mile, let alone ¼ mile of the proposed POA location.

Water Availability Basin the well(s) are located within: Imnaha R > Snake R – AB Horse Creek (#30810212)

C3a. 690-09-040 (4): Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: This section does not apply.

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: This section does not apply.

C4b. **690-09-040 (5) (b)** The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.

- C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** There is insufficient evidence for hydraulic connection, and therefore, PSI with nearby Imnaha River, given that the POA well is sealed to a sufficient depth. Therefore, the following special condition shall apply:

Special Condition: If a permit is issued, the POA well shall be constructed to produce from water-bearing zones below an elevation of 1765' AMSL, or 40' Below Land Surface to avoid hydraulic connection with the nearby Imnaha River. This will require continuous casing and seal into competent basalt overlying the water-bearing zone.

The Imnaha River at this point has surface water availability in all months of the year and the applicant may consider this if well construction proves too costly.

References Used: _____

Recon. Geologic Map of the Grangeville Quadrangle, Oregon, USGS Map I-1116, Walker, 1979.

Application review for application G-17263, Local well logs, GWIS database

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

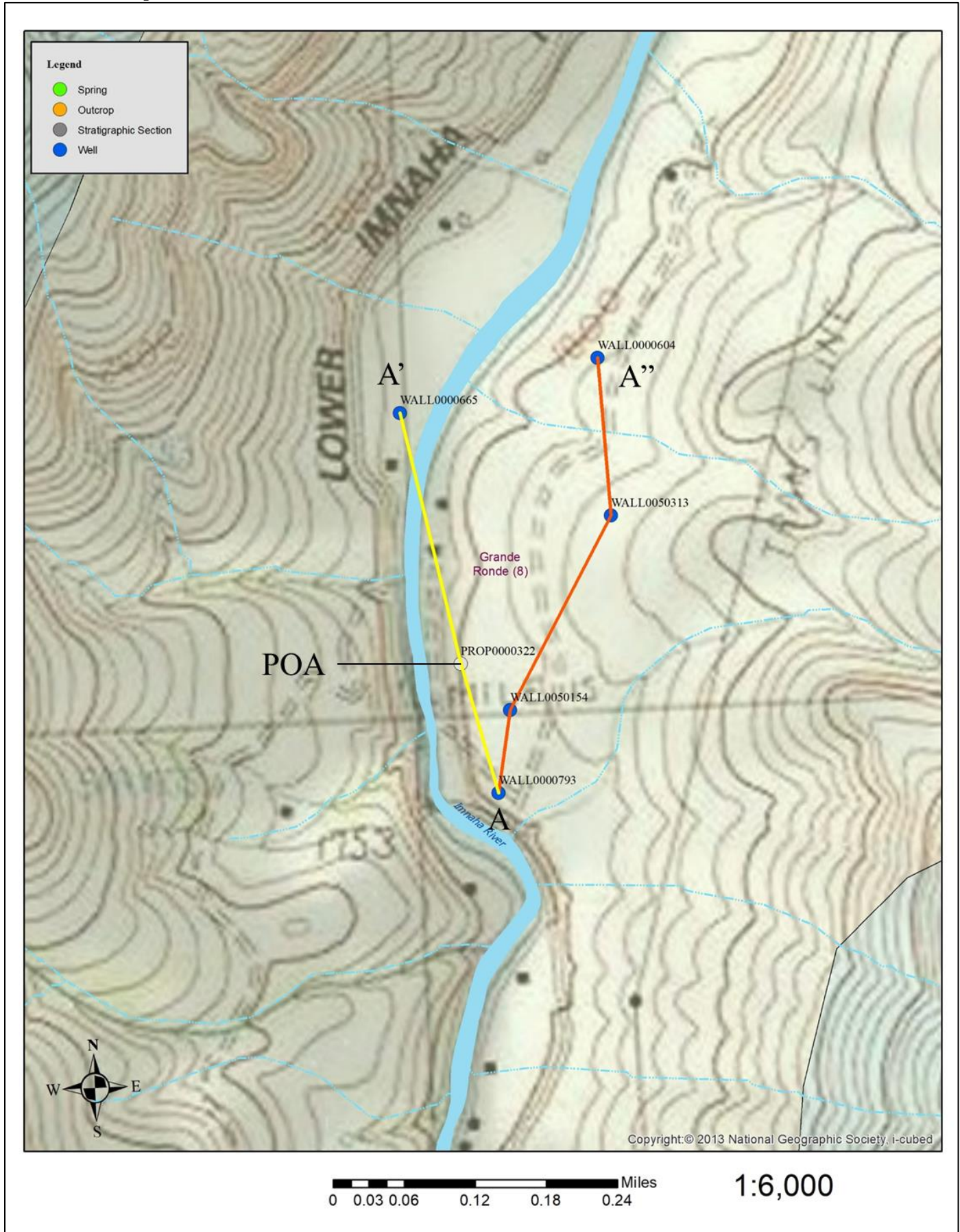
D2. THE WELL does not appear to meet current well construction standards based upon:

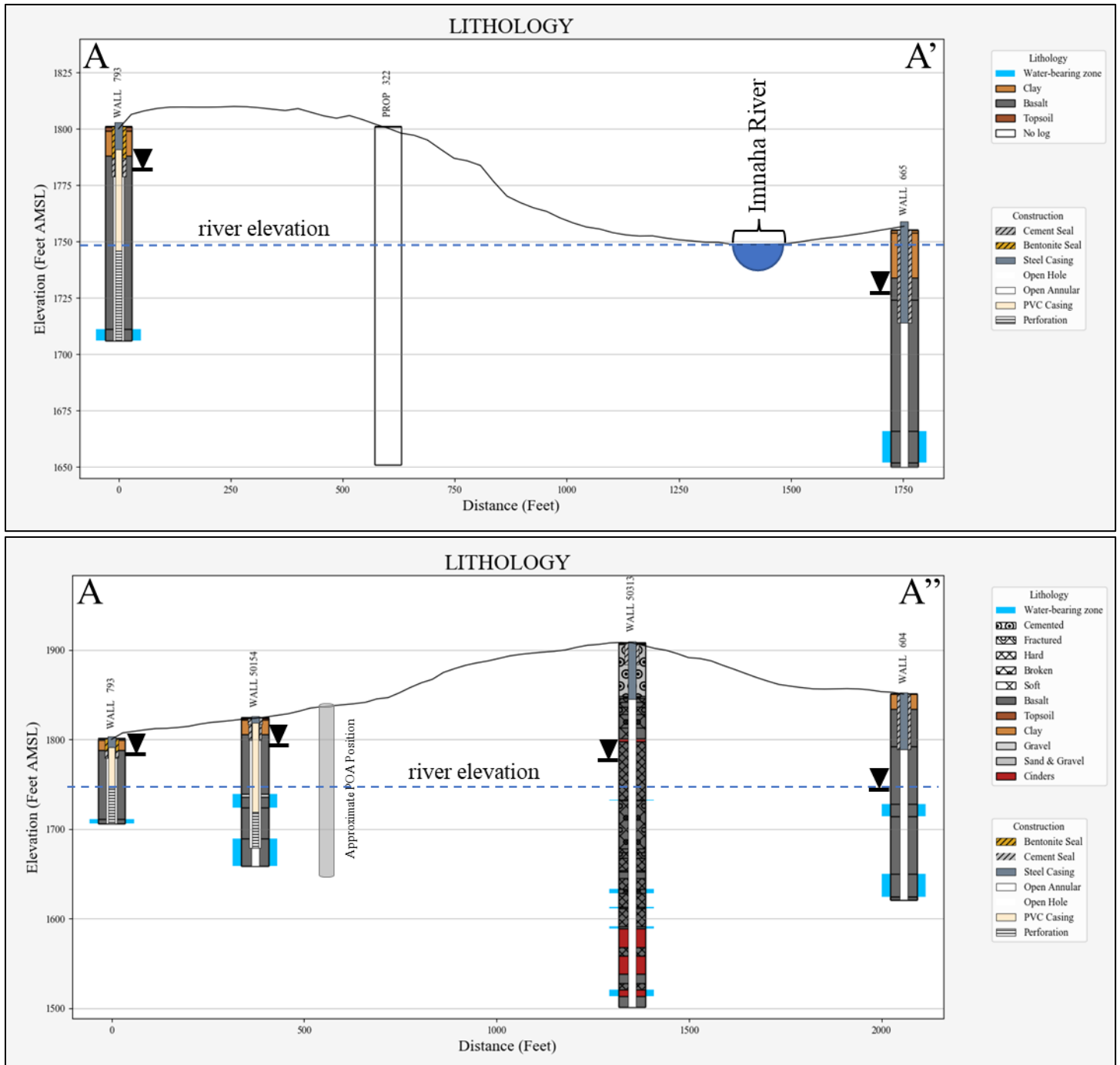
- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. THE WELL construction deficiency or other comment is described as follows: _____

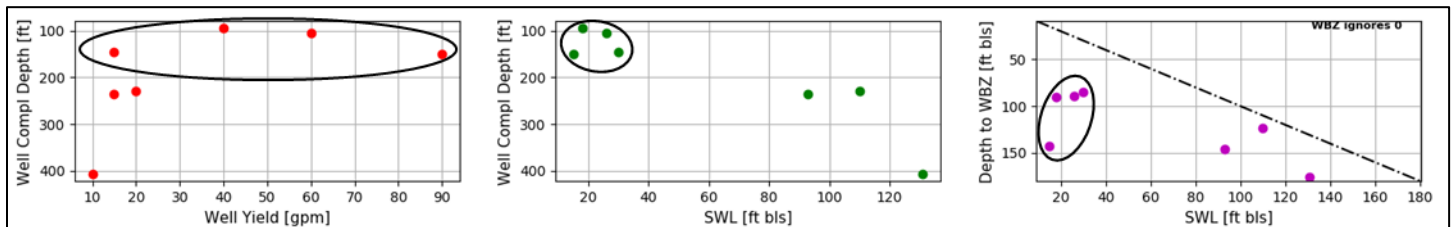
D4. ☐ Route to the Well Construction and Compliance Section for a review of existing well construction.**Water Availability Tables**

IMNAHA R > SNAKE R - AB HORSE CR						
Watershed ID #: 30810212			Basin: GRANDE RONDE		Exceedance Level: 80	
Time: 5:04 PM			Date: 04/20/2023			
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs.						
Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	134.00	4.69	129.00	0.00	0.00	129.00
FEB	154.00	4.66	149.00	0.00	0.00	149.00
MAR	233.00	14.70	218.00	0.00	0.00	218.00
APR	560.00	27.10	533.00	0.00	0.00	533.00
MAY	1,130.00	42.90	1,090.00	0.00	0.00	1,090.00
JUN	915.00	59.90	855.00	0.00	0.00	855.00
JUL	321.00	75.40	246.00	0.00	0.00	246.00
AUG	186.00	52.30	134.00	0.00	0.00	134.00
SEP	147.00	29.50	118.00	0.00	0.00	118.00
OCT	141.00	14.90	126.00	0.00	0.00	126.00
NOV	142.00	7.79	134.00	0.00	0.00	134.00
DEC	135.00	5.80	129.00	0.00	0.00	129.00
ANN	371,000	20,600	351,000	0	0	351,000

Well Location Map

Cross-Section

Cross-sections of lithologies reported on well logs suggest that in the area of the proposed POA well, heads from wells producing water from the water-bearing zone encountered between 1700'-1725' AMSL are well above the level of the nearby Innaha River. Wells in the northern part of the map area either do not encounter this zone or the characteristics of the flow sequence place it in hydraulic connection with the river, as displayed by head elevations for each well as measured by drillers.

Well Statistics

The handful of wells in the area appear to fall within two major groups in terms of head relationships with depth. The four wells circled in each chart are the shallowest, each producing from the uppermost water-bearing zone encountered in the area and have the highest static head elevations. These shallow wells also display the highest range of reported yields, and the highest mean yield when compared to deeper wells, even those open to multiple water-bearing zones.

Theis Interference Analysis

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		300		ft	Q conversions
Pumping rate	Q		0.01243		cfs	5.58 gpm
Hydraulic conductivity	K	0.5	1	5	ft/day	0.01 cfs
Aquifer thickness	b		50		ft	0.75 cfm
Storativity	S_1		0.01			1,073.95 cfd
	S_2		0.005			0.02 af/d
Transmissivity Conversions	T_f2pd	25	50	250	ft ² /day	Recalculate
	T_ft2pm	0.0173611	0.0347222	0.1736111	ft ² /min	
	T_gpdft	187	374	1870	gpd/ft	

