

Approved:



# MEMO

**To:** Kristopher Byrd, Well Construction Section Manager  
**From:** Tommy Laird, Well Construction Program Coordinator  
**Subject:** Review of Water Right Application G-19309  
**Date:** June 8, 2023

The attached application was forwarded to the Well Construction Section by the Groundwater Section. Phillip Marcy reviewed the application. Please see Phillip's Groundwater Review and the Well Report.

Applicant's Well #1 (MALH 52101): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

STATE OF OREGON  
WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

WELL I.D. # L 53139  
START CARD # 145290

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER: Name Presbyterian Community Care Center Well Number \_\_\_\_\_  
Address 1085 W Oregon St.  
City Ontario State OR Zip 97914

(9) LOCATION OF WELL by legal description:  
County Malheur Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Township 18 N or S Range 47 E or W. WM.  
Section 3 SW 1/4 SW 1/4  
Tax Lot 800 Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Street Address of Well (or nearest address) 1085 W Oregon St.

(2) TYPE OF WORK  
 New Well  Deepening  Alteration (repair/recondition)  Abandonment

(3) DRILL METHOD:  
 Rotary Air  Rotary Mud  Cable  Auger  
 Other \_\_\_\_\_

(4) PROPOSED USE:  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  Other \_\_\_\_\_

(5) BORE HOLE CONSTRUCTION:  
Special Construction approval  Yes  No Depth of Completed Well 39 1/2  
Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE		SEAL		Sacks or pounds	
Diameter	From To	Material	From To		
12"	0 18	Bentonite	0 18	70	sacks
8"	18 45				

How was seal placed: Method  A  B  C  D  E  
 Other Poured in  
Backfill placed from 0 ft. to 19 ft. Material Bentonite  
Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 8"	0	19 1/2	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Drive Shoe used  Inside  Outside  None  
Final location of shoe(s) 38 1/2

(7) PERFORATIONS/SCREENS  
 Perforations Method Air Perforator  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
26	38	1/4	144	8"		<input checked="" type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour

Yield gal/min	Drawdown	Drill stem at	Time
40	5	38	1 hr.

Temperature of water 58 Depth Artesian Flow Found \_\_\_\_\_  
Was a water analysis done?  Yes By whom \_\_\_\_\_  
Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
Depth of strata: \_\_\_\_\_

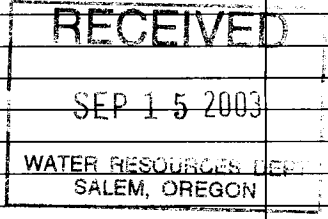
(10) STATIC WATER LEVEL:  
20 ft. below land surface. Date 9-4-03  
Artesian pressure \_\_\_\_\_ lb. per square inch Date \_\_\_\_\_

(11) WATER BEARING ZONES:  
Depth at which water was first found 20'

From	To	Estimated Flow Rate	SWL
20	40	40	20

(12) WELL LOG:  
Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Brown Sandy Clay	0	20	0
Sand & Gravel	20	40	20'



Date started 9-4-03 Completed 9-4-03

(unbonded) Water Well Constructor Certification:  
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.  
Signed \_\_\_\_\_ Date \_\_\_\_\_ WWC Number \_\_\_\_\_

(bonded) Water Well Constructor Certification:  
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.  
Signed [Signature] Date 9-10-03 WWC Number 1697

# Groundwater Application Review Summary Form

Application # G- 19309

GW Reviewer Phillip I. Marcy Date Review Completed: 04/18/2023

## 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 18, 2023**

**TO:**            **Application G- 19309**

**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



**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 \_\_\_\_\_ 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:** The proposed groundwater appropriation is located in an area of little non-exempt groundwater development within the City of Ontario and away from large-scale irrigation projects. Therefore, there is little groundwater data available and no evidence of over-appropriation.

The proposed pumping rate of 0.03 CFS (13.46 GPM) is unlikely to cause excessive drawdown in any neighboring well that fully penetrates the alluvial aquifer. Considering that the existing POA well (Well 1) penetrates 20' of saturated gravel aquifer, and conditions appear to be unconfined at this location, a Theis calculation of drawdown at 500' from this well predicts less than 1.40' after 365 days of continuous pumping, using a range of conductivity values widely accepted for gravels.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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	Alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** The submitted log for Well 1 (MALH 52101) indicates that the static water level does not rise above the level where groundwater was first encountered. In addition, there does not appear to be a widespread low permeability unit overlying the gravel aquifer to provide local confinement.

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	Snake River	2135	2140	1350	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** There is no barrier to prevent groundwater movement between the proposed aquifer and local surface water sources, except a thin deposit of fine-grained sediments within the stream channels themselves.

**Water Availability Basin the well(s) are located within:** The proposed wells are located in an area with no WAB, near the Snake River.

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?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	<input type="checkbox"/>	<input type="checkbox"/>	NA	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	18.6%	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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 #	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

**Comments:** The proposed POA well lies greater than ¼ mile from nearby surface water sources and is anticipated to have less than 25% of groundwater pumped resulting from depletion of surface water after 30 days of continuous pumping. Using model parameters from the interference assessment in section B in the model of Hunt (1999), which includes a thin streambed clogging layer, it is anticipated that stream depletion will account for 18.6% of groundwater pumped after 30 days.

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.

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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:
  - i.  The permit should contain condition #(s) \_\_\_\_\_;
  - ii.  The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The proposed use is not anticipated to cause substantial interference with local surface water sources.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**References Used:** \_\_\_\_\_

Theis, C.V., 1941, The effect of a well on the flow of a nearby stream: Am. Geophys. Union Trans., v. 22, pt.3, p. 734-738.  
 \_\_\_\_\_  
Gannett, M.W., 1990, Hydrogeology of the Ontario Area, Malheur County, Oregon: State of Oregon Water Resources Department, Ground Water Report No. 34.  
 \_\_\_\_\_  
Local well logs, GWIS water level database.  
 \_\_\_\_\_  
Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102.  
 \_\_\_\_\_

**D. WELL CONSTRUCTION, OAR 690-200**

D1. Well #: \_\_\_\_\_ Logid: \_\_\_\_\_

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

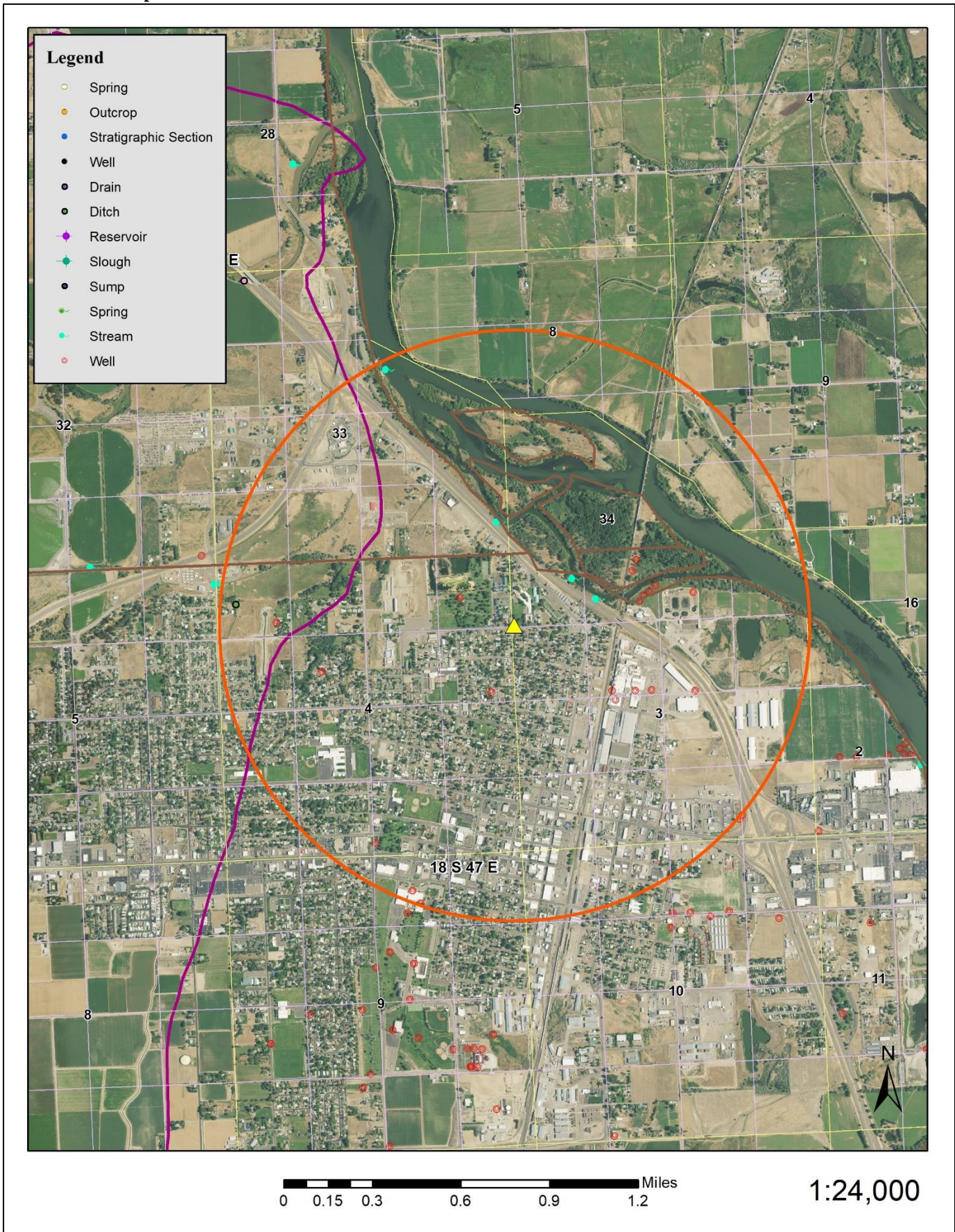
- a.  review of the well log;
- b.  field inspection by \_\_\_\_\_;
- c.  report of CWRE \_\_\_\_\_;
- d.  other: (specify) \_\_\_\_\_

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.**

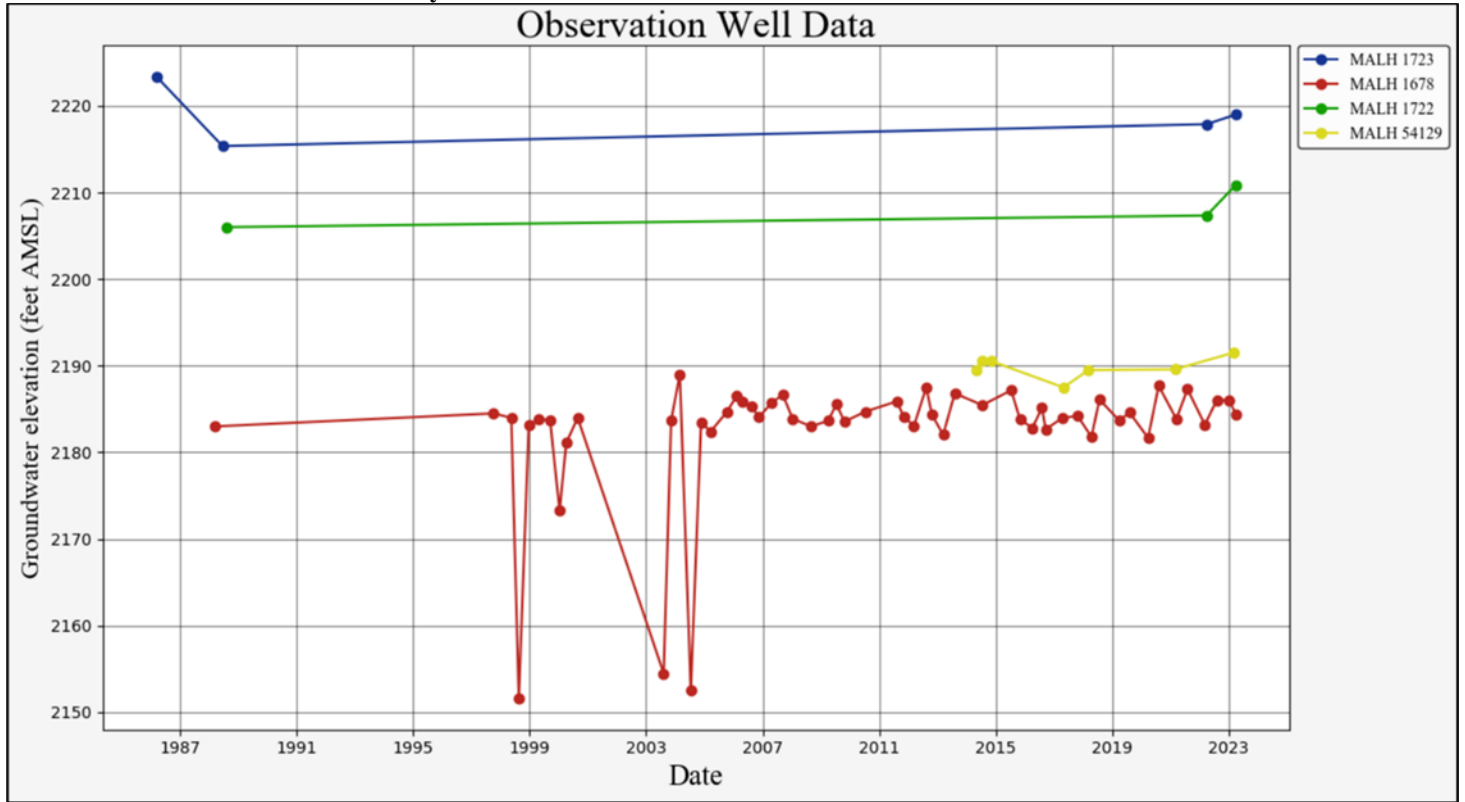
\_\_\_\_\_

Well Location Map





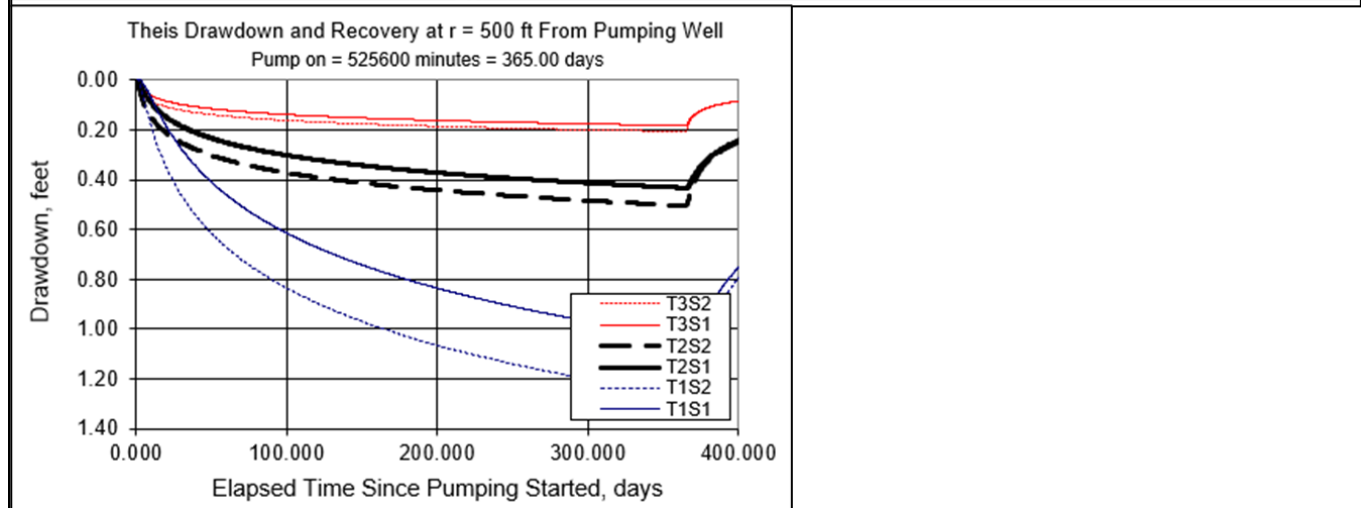
Water-Level Measurements in Nearby Wells



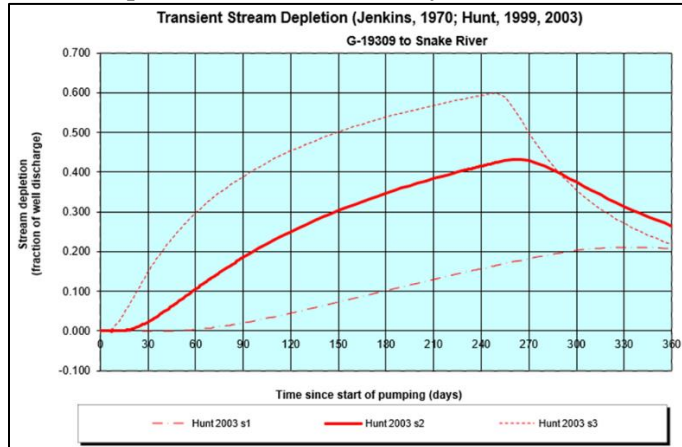
Water levels from wells upgradient of the proposed POA well do not suggest that the proposed source aquifer is over-appropriated.

This 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		500		ft	<b>Q conversions</b>
Pumping rate	Q		0.03		cfs	13.46 gpm
Hydraulic conductivity	K	30	100	300	ft/day	0.03 cfs
Aquifer thickness	b		20		ft	1.80 cfm
Storativity	S_1		0.1			2,592.00 cfd
	S_2		0.05			0.06 af/d
<b>Transmissivity Conversions</b>	T_f2pd	600	2000	6000	ft <sup>2</sup> /day	<input type="button" value="Recalculate"/>
	T_ft2pm	0.41666667	1.38888889	4.16666667	ft <sup>2</sup> /min	
	T_gpdft	4488	14960	44880	gpd/ft	



**Stream Depletion (Hunt) Model Analysis**



Output for Stream Depletion, Scenario 2 (s2):												
Days	30	60	90	120	150	180	210	240	270	300	330	360
JSD	21.8%	38.4%	47.7%	53.8%	58.2%	61.5%	64.1%	66.3%	50.4%	33.4%	24.6%	19.3%
HSD 1999	18.6%	34.8%	44.3%	50.6%	55.1%	58.6%	61.4%	63.7%	50.8%	34.5%	25.7%	#####
HSD 2003	2.28%	10.53%	18.50%	25.04%	30.35%	34.72%	38.39%	41.51%	42.93%	37.49%	31.40%	26.49%
Qw, cfs	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
HSD 99, cfs	0.006	0.010	0.013	0.015	0.017	0.018	0.018	0.019	0.015	0.010	0.008	#####
HSD 03, cfs	0.001	0.003	0.006	0.008	0.009	0.010	0.012	0.012	0.013	0.011	0.009	0.008

Input data					
Parameter	Scenario 1	Scenario 2	Scenario 3	Unit	Description
Plot Title: G-19309 to Snake River					
Qw		0.03		cfs	Net steady pumping rate of well
tpon		245		days	Time pump on (pumping duration)
a	1350	1350	1350	ft	Perpendicular distance from well to stream
d		40		ft	Well depth
K	30	100	300	ft/day	Aquifer hydraulic conductivity
b	20	20	20	ft	Aquifer saturated thickness
S	0.1	0.1	0.1		Aquifer storativity or specific yield
Kva	1	1	1	ft/day	Aquitarde vertical hydraulic conductivity
ba	1	1	1	ft	Aquitarde saturated thickness
babs	1	1	1	ft	Aquitarde thickness below stream
n	0.2	0.2	0.2		Aquitarde porosity
ws	40	40	40	ft	Stream width

Parameter	Scenario 1	Scenario 2	Scenario 3	Units	
Qw	0.03	0.03	0.03	cfs	
T	600	2,000	6,000	ft <sup>2</sup> /day	= K*b
T	4,488	14,960	44,880	gpd/ft	= K*b
sbc	40.000000	40.000000	40.000000	ft/day	= Ks*ws/bs
sdf	303.750000	91.125000	30.375000	days	= (a <sup>2</sup> *S)/(T)
sbf	90.000000	27.000000	9.000000		= sbc*a/T
t'	0.003292	0.010974	0.032922	1/days	= T/(a <sup>2</sup> *S) input #1 for Hunt's Q_4 function
K'	#####	911.250000	303.750000		= (Ks/bs)*a <sup>2</sup> /T input #2 for Hunt's Q_4 function
epsilon'	0.500000	0.500000	0.500000		= S/n input #3 for Hunt's Q_4 function
lamda'	90.000000	27.000000	9.000000		= sbc*a/T input #4 for Hunt's Q_4 function