

Approved:



## MEMO

**To:** Kristopher Byrd, Well Construction and Compliance Section Manager  
**From:** Travis Kelly, Well Construction Program Coordinator  
**Subject:** Review of Water Right Application G-19142  
**Date:** November 23, 2021

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

Applicant's Wells #1 through #4 (Proposed Wells): Applicant's Wells #1 through #4 are proposed wells, therefore they cannot be reviewed for construction. Construction of these proposed wells shall be completed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240. During construction of these wells, specific attention should be paid to ensure sealing requirements are met and that the wells do not commingle aquifers.

The construction of proposed Wells #1 through #4 may not satisfy hydraulic connection issues.

# Groundwater Application Review Summary Form

Application # G- 19142

GW Reviewer Phillip I. Marcy Date Review Completed: 12/18/2023

## 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**

**December 18, 2023**

**TO:**            **Application G- 19142**

**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 John Day 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
0.076	0.078	0.079	0.080	0.081	0.083	0.084	0.085	0.086	0.088	0.089	0.090

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 12/18/2023  
 FROM: Groundwater Section Phillip I. Marcy  
 Reviewer's Name  
 SUBJECT: Application G- 19142 Supersedes review of 11/01/2021  
 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: Terry Long County: Wheeler

A1. Applicant(s) seek(s) 0.89 cfs from 4 well(s) in the John Day Basin,  
 \_\_\_\_\_ subbasin

A2. Proposed use: Irrigation (60 acres); Supplemental Irrigation (37 acres) Seasonality: Year-round (365 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	Alluvium	0.134	11S/20E-10 SE-SE	625'N, 750'W fr SE cor S 10
2	Proposed	2	Alluvium	0.134	11S/20E-15 SW-NE	1900'S, 2430'W fr NE cor S 15
3	Proposed	3	Bedrock	0.134	11S/20E-15 NW-SE	2715'S, 1260'W fr NE cor S 15
4	Proposed	4	Bedrock	0.134	11S/20E-22 NW-NW	1040'S, 600'E fr NW cor S 22

\* 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	2483	NA	NA	NA	400-600	<100'	0-600	Unk	400-600	NA	NA	NA
2	2595	NA	NA	NA	400-600	<100'	0-600	Unk	400-600	NA	NA	NA
3	2628	NA	NA	NA	400-800	<100'	0-800	Unk	400-800	NA	NA	NA
4	2752	NA	NA	NA	400-800	<100'	0-800	Unk	400-800	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** This re-review is being conducted to consider the maximum rate of 0.89 CFS, instead of the rate of 0.134 CFS assessed in the previous review.

The applicant proposes to develop groundwater from four wells for primary irrigation of 60 acres (when available), supplemental irrigation of 37 acres authorized under surface water rights Cert. 88706 and 79987, T-8691. Additional uses listed are storage for fish life, fire protection, and recreation. Proposed POA well locations are in an area dominated by volcanic units of the John Day and Clarno Formations.

A5.  **Provisions of the** John Day (690-506-0040) (4); (6)(c) 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: Water in the Upper Mainstem of the John Day River and its tributary streams are classified for conditional use up to maximum limits set forth in 690-506-0040(6)(c). This applies for groundwater appropriated from Quaternary Alluvium hydraulically connected to surface waters as described in 690-506-0040(4). The application proposes to develop alluvium, but no Quaternary Alluvium is likely to be developed at the proposed locations.

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; Water Use Reporting;
  - 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:** There is very little groundwater development in nearby areas, with correspondingly little data available. The proposed construction of the POA wells and their location suggests production of groundwater will occur from either undifferentiated tuff of the John Day Formation, volcanic flows, domes, and breccias of the Clarno Formation, or some combination of both (Robinson, 1975).

Well yields in these materials are typically low, with the majority of water wells reporting less than 10 GPM. Wells in the subject TRS and surrounding sections (8-17; 20-24) report very low yields with the median being 5 GPM, and the highest being 40 GPM. Even under the most optimistic scenario where all 4 proposed wells produce at 40 GPM for a total of 160 GPM, this only amounts to 0.356 CFS, which is only 40% of the proposed rate. This also assumes that this maximum yield can be sustained over long periods of pumping, which is also unlikely. Thus, the proposed rate is not within the capacity of the resource in the area of the development.

If a permit is issued, Condition 7N and Water Use Reporting are recommended to assess the impacts of the development on the groundwater resource.

**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	John Day/Clarno Volcanics	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	John Day/Clarno Volcanics	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	John Day/Clarno Volcanics	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	John Day/Clarno Volcanics	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Basis for aquifer confinement evaluation:** Local well reports do not display significant head pressure at reported water-bearing zones, with few exceptions. This suggests that while some localized confinement may exist, the prevalence of structure and highly incised state of the local landscape likely precludes the existence of a widespread confining horizon. Furthermore, the aquifer materials themselves have low conductivity. In this scenario, movement of groundwater is probably largely controlled by the presence or absence of fractures creating secondary porosity.

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	Bear Creek	Unk	1822-2592	7000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Bear Creek	Unk	1822-2592	6150	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	1	Bear Creek	Unk	1822-2592	7525	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	1	Bear Creek	Unk	1822-2592	6230	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** The lack of data available renders groundwater elevations at proposed POA locations unpredictable. Based upon the deeply incised geology and lack of distinct confining units in the area, groundwater at the proposed sites is presumed to be hydraulically connected. Sustained discharge from the low permeability lithologies proposed for development are the source of dry season flows in nearby Bear Creek. Springs utilized for water rights to the north and east of the proposed POA locations are hundreds of feet above the production lithologies targeted and likely occur at contrasts in vertical hydraulic conductivity. Based upon this conceptual model, nearby springs are unlikely to be affected by the proposed groundwater pumping.

**Water Availability Basin the well(s) are located within:** BEAR CR > BRIDGE CR - AT MOUTH

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?
		<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"/>	<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:** This section does not apply.

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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:** \_\_\_\_\_

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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:** POA wells are hydraulically connected to Bear Creek, therefore to the John Day River, designated as a Scenic Waterway.

**If a permit is issued, the following special condition shall apply: During construction of the POA wells, cuttings shall be collected whenever possible at ten foot intervals and at significant changes in lithology. A split of each sample shall be made available to the Department, with each sample labeled with the well identification and depth below land surface.**

**References Used:** Robinson, P.T., 1975, Reconnaissance geologic map of the John Day Formation in the southwestern part of the Blue Mountains and adjacent areas, north-central Oregon. U.S. Geological Survey: Miscellaneous Investigations Series Map I-872

Application review for G-18067, Local well logs

Cuenca, R.H., Nuss, J.L., Martinez-Cob, Antonio, Katul, G.G., Gonzales, J.M., 1992, Oregon crop water use and irrigation requirements: Oregon State University Extension Service, Extension Miscellaneous 8530, 184p.

Jenkins, C.T., 1970, Computation of rate and volume of stream depletion by wells: U.S. Geol. Survey Techniques of Water-Resources Investigations of the Unites States Geological Survey, Chapter D1, Book 4, 17 p.



**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.

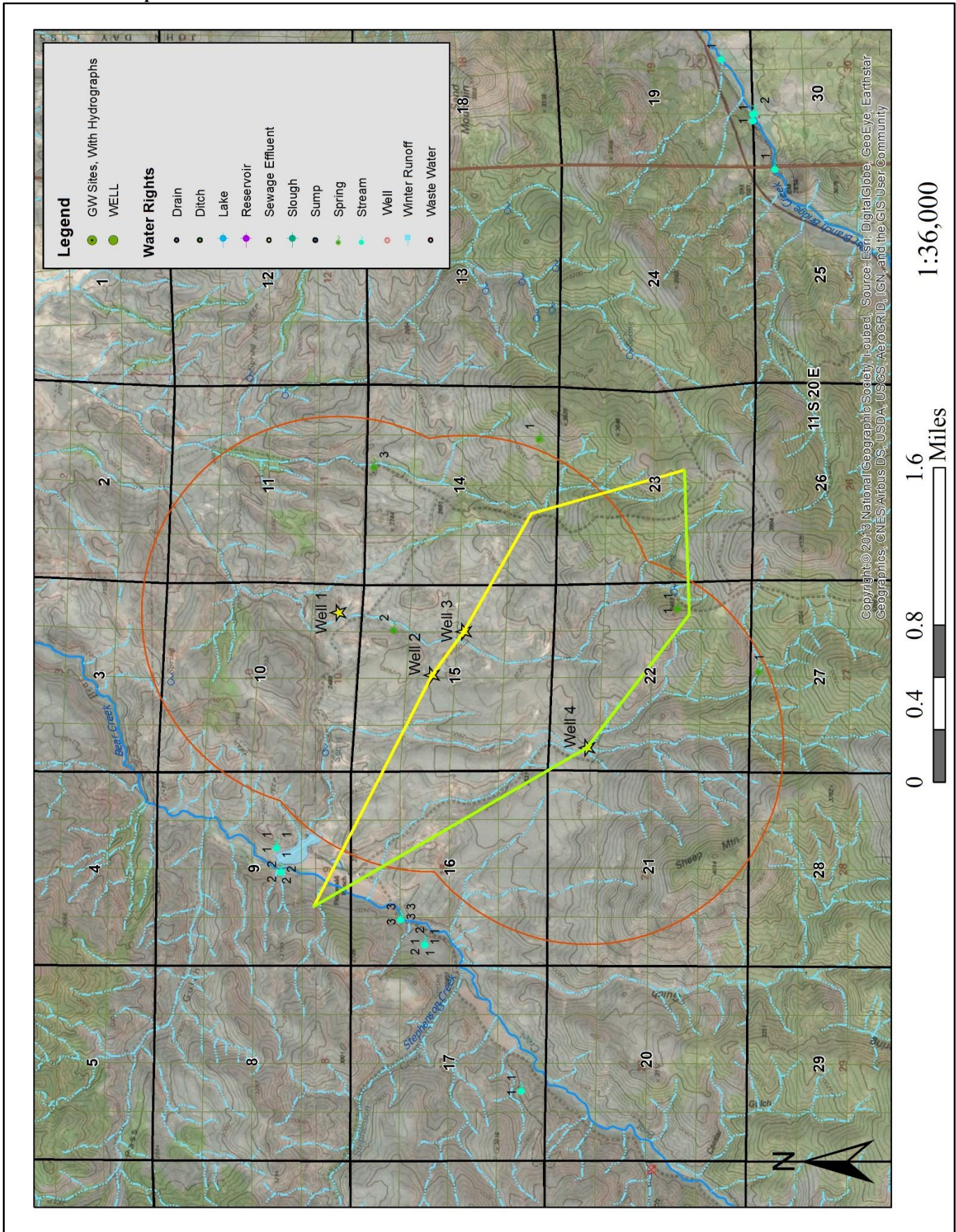
**Water Availability Tables**

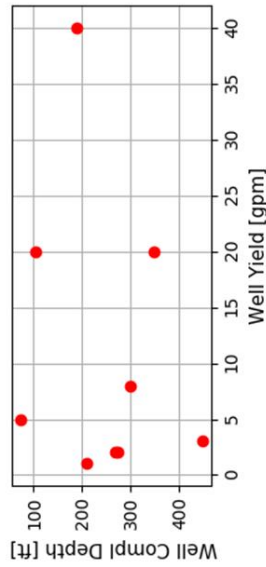
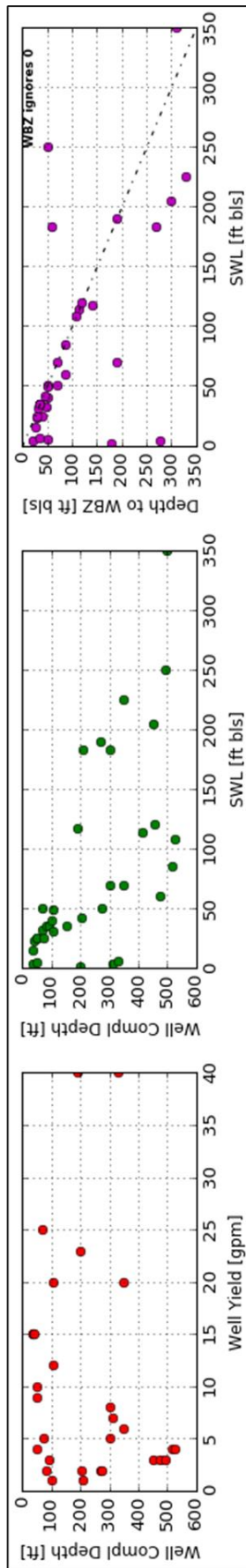
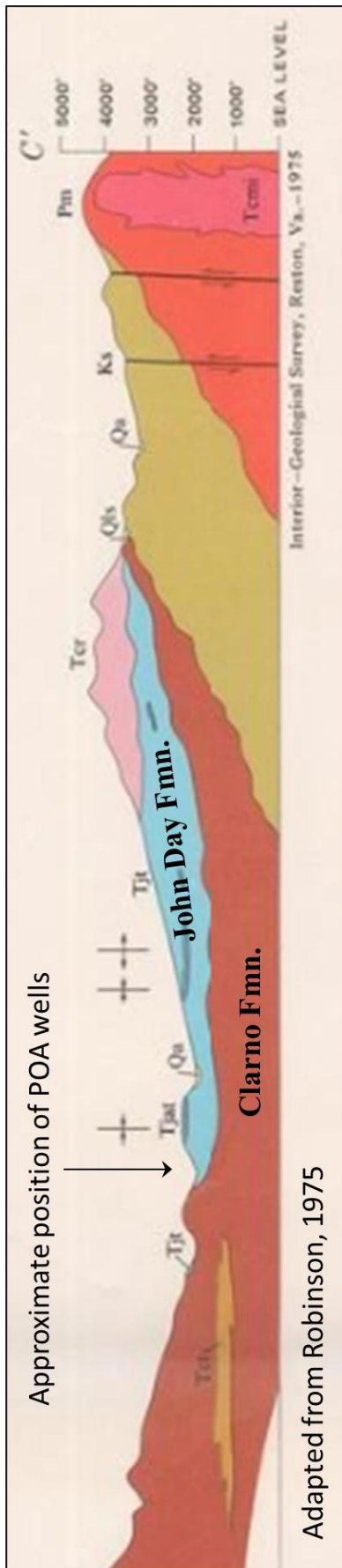
**Water Availability Calculation**

Monthly Streamflow in Cubic Feet per Second  
 Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	3.81	0.11	3.70	0.00	6.41	-2.71
FEB	6.22	0.10	6.12	0.00	6.02	0.10
MAR	6.59	0.46	6.13	0.00	9.94	-3.81
APR	11.40	1.64	9.76	0.00	15.00	-5.24
MAY	14.40	3.78	10.60	0.00	15.00	-4.38
JUN	8.97	4.17	4.80	0.00	10.00	-5.20
JUL	2.60	0.99	1.62	0.00	2.75	-1.13
AUG	1.36	0.41	0.96	0.00	1.36	-0.41
SEP	1.14	0.22	0.93	0.00	2.00	-1.08
OCT	1.79	0.12	1.68	0.00	2.02	-0.35
NOV	2.15	0.02	2.13	0.00	3.13	-1.00
DEC	2.54	0.02	2.52	0.00	4.48	-1.96
ANN	6,670.00	726.00	5,940.00	0.00	4,710.00	1,260.00

### Well Location Map





Wells in surrounding Sections:

