

Groundwater Application Review Summary Form

Application # G- 18602

GW Reviewer Joe Kemper Date Review Completed: 2/19/2019

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.

✓ 3/8/19

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).

MEMO

2/19, 2019

FROM: GW: Joe Kemper
(Reviewer's Name)

☐ YES

NO

☐ YES

NO

☐ 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.

DISTRIBUTION OF INTERFERENCE

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

[illegible]

MEMO

OK.
KJO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator,
Subject: Review of Water Right Application G-18602
Date: March 22, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Joe Kemper reviewed the application. Please see Joe's Groundwater Review.

Applicant's Well # 1 (DOUG 58102): Based on a review of the Well Report, Applicant's Well # 1 appears 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 & OAR 690-205-0210)

DOUG 58102

WELL I.D. LABEL# L 124505
START CARD # 213937
ORIGINAL LOG #

(1) LAND OWNER Owner Well I.D. _____
First Name James Last Name Wood
Company _____
Address 5830 Henderer Rd.
City Eliot State OR Zip 97436

(2) TYPE OF WORK ☒ New Well ☐ Deepening ☐ Conversion
☐ Alteration (complete 2a & 10) ☐ Abandonment (complete 5a)

(2a) PRE-ALTERATION
Dia + From To Gauge Stil Plstc Wld Thrd
Casing: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Material From To Amt sacks/lbs
Seal: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(3) DRILL METHOD
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other _____

(4) PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Community
☐ Industrial/ Commercial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION Special Standard ☐ (Attach copy)
Depth of Completed Well 240 ft.

BORE HOLE
Dia From To Material SEAL To Amt sacks/lbs
10" 0 38 Bentonite 0 38 16 SCKS
6" 38 240 17 SCKS
Calculated _____

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Paired and Tamped
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____
Explosives used: ☐ Yes Type _____ Amount _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount Pounds Actual Amount Pounds

(6) CASING/LINER
Casing Liner Dia + From To Gauge Stil Plstc Wld Thrd
☒ ☐ 6" + 1 1/2 38 1/2 250 ☒ ☐ ☐ ☐
☐ ☐ 4" - 2 240 340 ☐ ☐ ☐ ☐
Shoe ☐ Inside ☒ Outside ☐ Other Location of shoe(s) 38 1/2
Temp casing ☐ Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method SKILL SAW
Screens Type _____ Material _____
☒ Casing/Screen ☐ Screen
Dia From To Seren/slot Slot # of Tele/
green ☒ 4" 60 240 1/4 8 160 pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)
1 GPM 80 240 1 hr.
may fluctuate
Temperature 57° °F Lab analysis ☐ Yes By _____
Water quality concerns? ☐ Yes (describe below) TDS amount 332
From To Description Amount Units

(9) LOCATION OF WELL (legal description)
County Douglas Twp 22 NS Range 8 E/W M
Sec 29 1/4 of the _____ 1/4 Tax Lot 300
Tax Map Number _____ Lot _____
Lat _____ " or 43.63289 DMS or DD
Long _____ " or 123.66936 DMS or DD
☒ Street address of well ☐ Nearest address

5830 Henderer Rd. Eliot, OR.

(10) STATIC WATER LEVEL
Date SWL(psi) + SWL(ft)
Existing Well / Pre-Alteration _____
Completed Well 5-25-17 60
Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 141
SWL Date From To Est Flow SWL(psi) + SWL(ft)
5-25-17 141 142 3 GPM. 60
5-25-17 210 212 4 GPM. 60

(11) WELL LOG Ground Elevation _____
Material From To
Clay - yellow 0 16
Clay - Sandy 16 21
Clay - Sandy - Gravel 21 29
Sandstone - med 29 56
" - Broken 56 57
" - med-soft 57 110
" - med-Hard 110 141
" - Fract. 141 142
" - med-Hard 142 210
" - Fract. 210 212
Sandstone - w/ seams 212 240
of marine Basalt

Date Started 5-24-17 Completed 5-25-17

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

Signed _____
Date JUN 19 2017

(bonded) Water Well Constructor Certification **SALEM, OR**
I accept responsibility for the construction, deepening, 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.
License Number 11686 Date 6-14-17
Signed Todd Moore
Contact Info (optional) 580-5660

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 2/19/2019
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 18602 Supersedes review of NA
 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: James Wood; Tuckaway Vineyard County: Douglas

A1. Applicant(s) seek(s) 0.068 cfs from 1 well(s) in the Umpqua Basin,
Umpqua subbasin

A2. Proposed use Irrigation (5.4 acres) Seasonality: Year Round

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	DOUG 58102	1	Bedrock	0.068	22S/8W-19 NE-NE	2940' N, 1415' E fr CS 1/16 cor S29
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	129	141	60	5/25/2017	240	0-38	0-38	0-240	60-240	7	180	air

Use data from application for proposed wells.

A4. **Comments:** _____

A5. ☒ **Provisions of the** Umpqua (OAR 690-516) 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: These rules contain no such provisions.

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) 7C (7-yr SWL); Medium 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 are limited water level data in the aquifer and vicinity of the applicant's proposed POA so Capacity of the Resource cannot be determined and water-level reporting conditions in B1(d) are recommended. There are no groundwater rights within 1 mile of the applicant's proposed POA, and it is unlikely that the applicant's use would result in injury to this or other permitted water rights given the low requested rate and low transmissivity of the aquifer in the area. However, standard interference conditions should be applied.

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	Fractured Bedrock of Tyee Formation	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: In fractured-bedrock aquifer systems, the primary movement of water is through discrete but connected fracture sets. These fractures generally extend to near the surface, and so water within these fractures is likely under atmospheric pressure (unconfined) despite an overall low storage coefficient for the aquifer system as a whole and static water levels often reported above water-bearing zones on driller's logs (see Figure 3).

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	Umpqua River	69	58	815	☐	☐	☒	☒	☐
1	2	Sawyer Creek	69	68	250	☐	☐	☒	☒	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: OAR 690-009 dictates that wells accessing unconfined aquifers within a ¼ mile of a surface water source are assumed to be hydraulically connected. Additionally, observed groundwater elevations are above or coincident with adjacent stream elevations, indicating that water can flow between the aquifer and surface water sources.

Water Availability Basin the well(s) are located within: UMPQUA R > PACIFIC OCEAN - AB LITTLE MILL CR

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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	☒	☐	IS73350A	1000	☐	1020	☐	>25%	☒
1	2	☒	☐	na	na	☐		☐	>25%	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: Interference at 30 days was estimated using the Hunt (1999) stream-depletion model with parameter values in the range reasonably expected for fractured bedrock aquifers in the region.

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													
(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: Streams beyond one mile were not evaluated for PSI.

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 applicant's well is assumed to be hydraulically connected to the Umpqua River and Sawyer Creek because it is in an unconfined aquifer system and within ¼ mile of the stream (OAR 690-009). Additionally, modeling has shown that stream depletion after 30 days of pumping at the proposed rate is greater than 25%. Thus, the proposed use/rate is assumed to have the Potential for Substantial Interference (PSI) as per OAR 690-009.

References Used:

Baldwin, E.M. 1961. *Geologic map of the lower Umpqua River area, Oregon*. United States Geology Survey. Oil and Gas Investigations Map OM-204.

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

Oregon Department of Geology and Mineral Industries, *Geologic Map of Oregon*. <http://www.oregongeology.org/geologicmap/>

OWRD Groundwater Information System (GWIS) – Accessed 02/14/2019

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.

Figure 1. Water Availability Tables

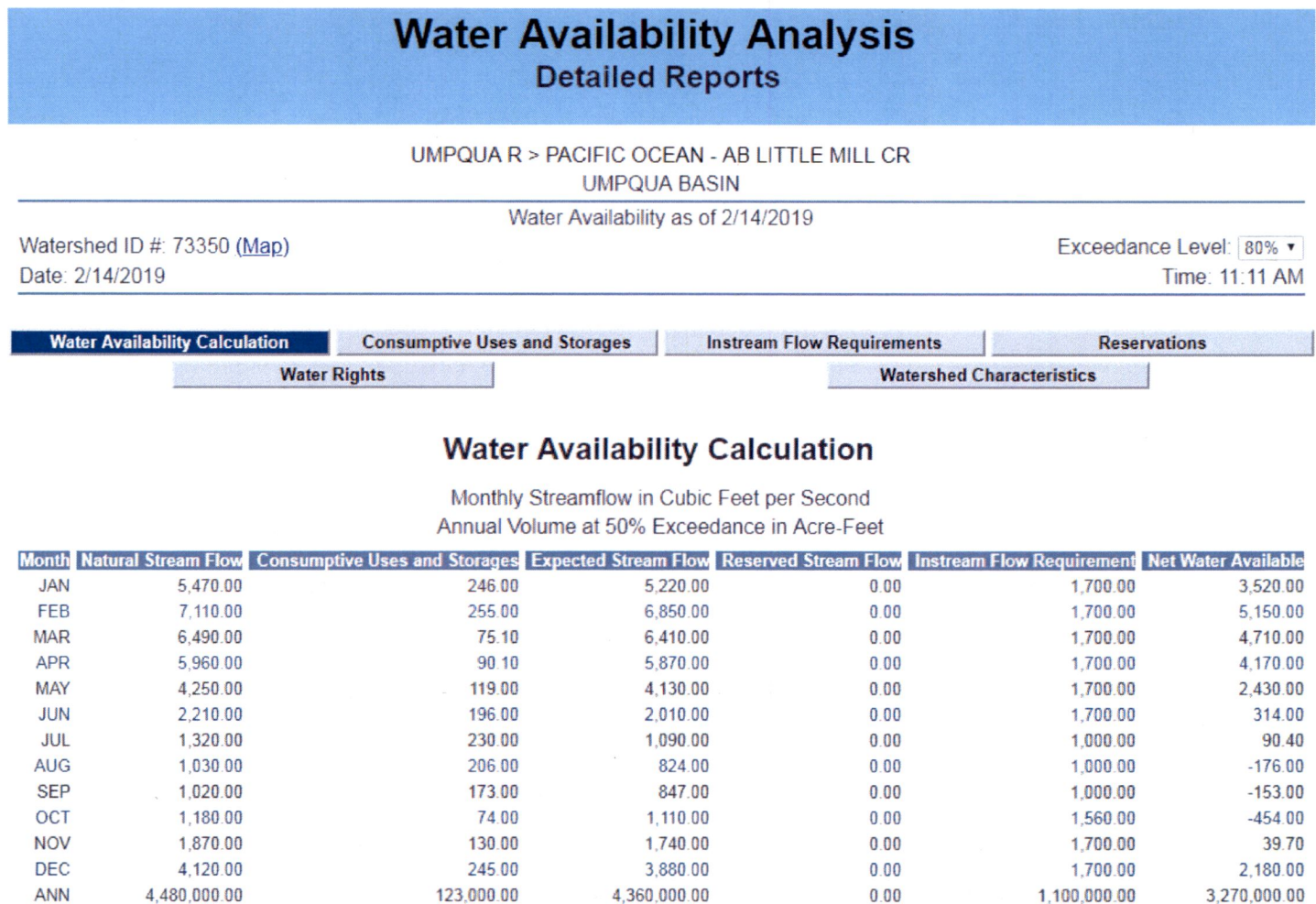


Figure 2. Well Location Map

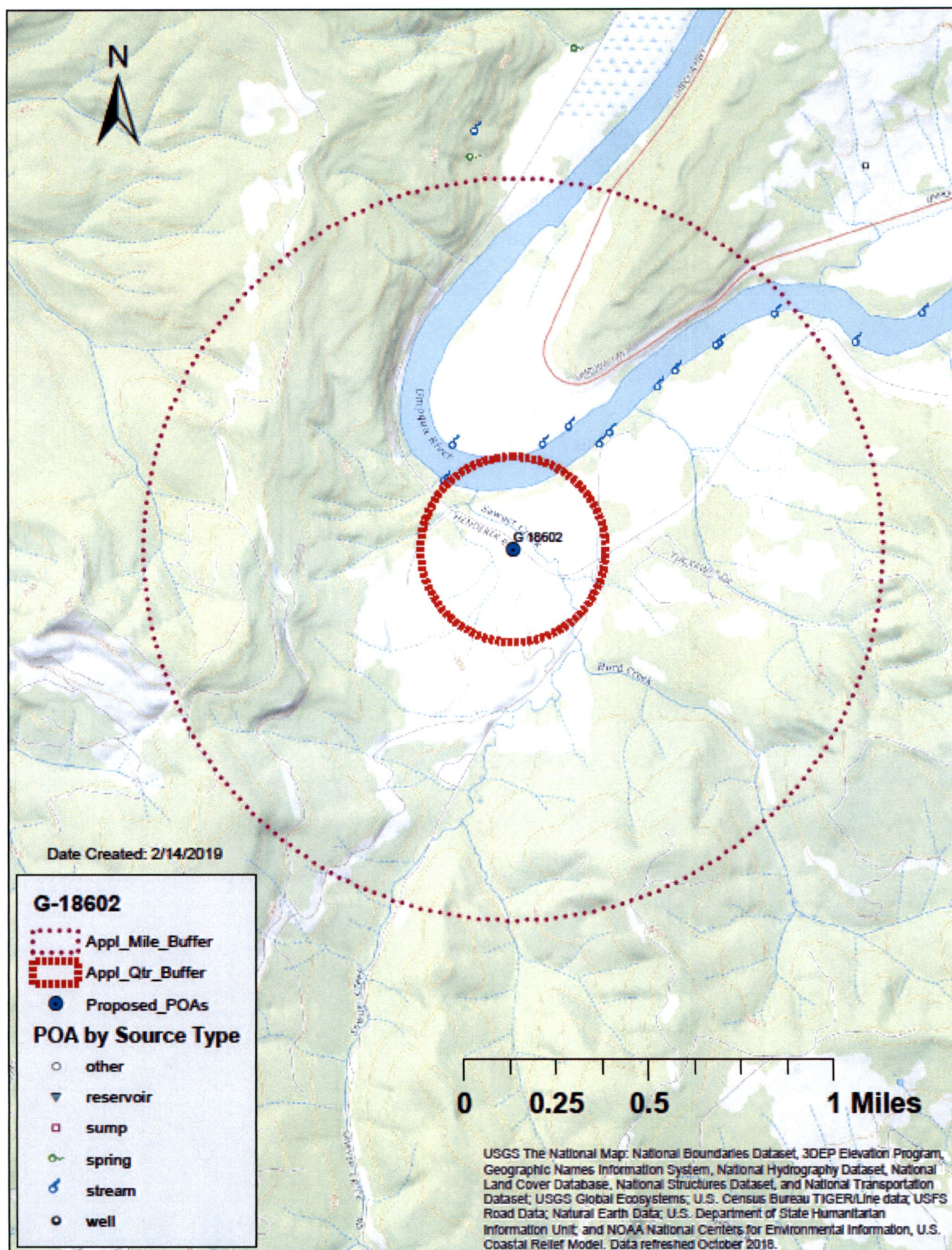
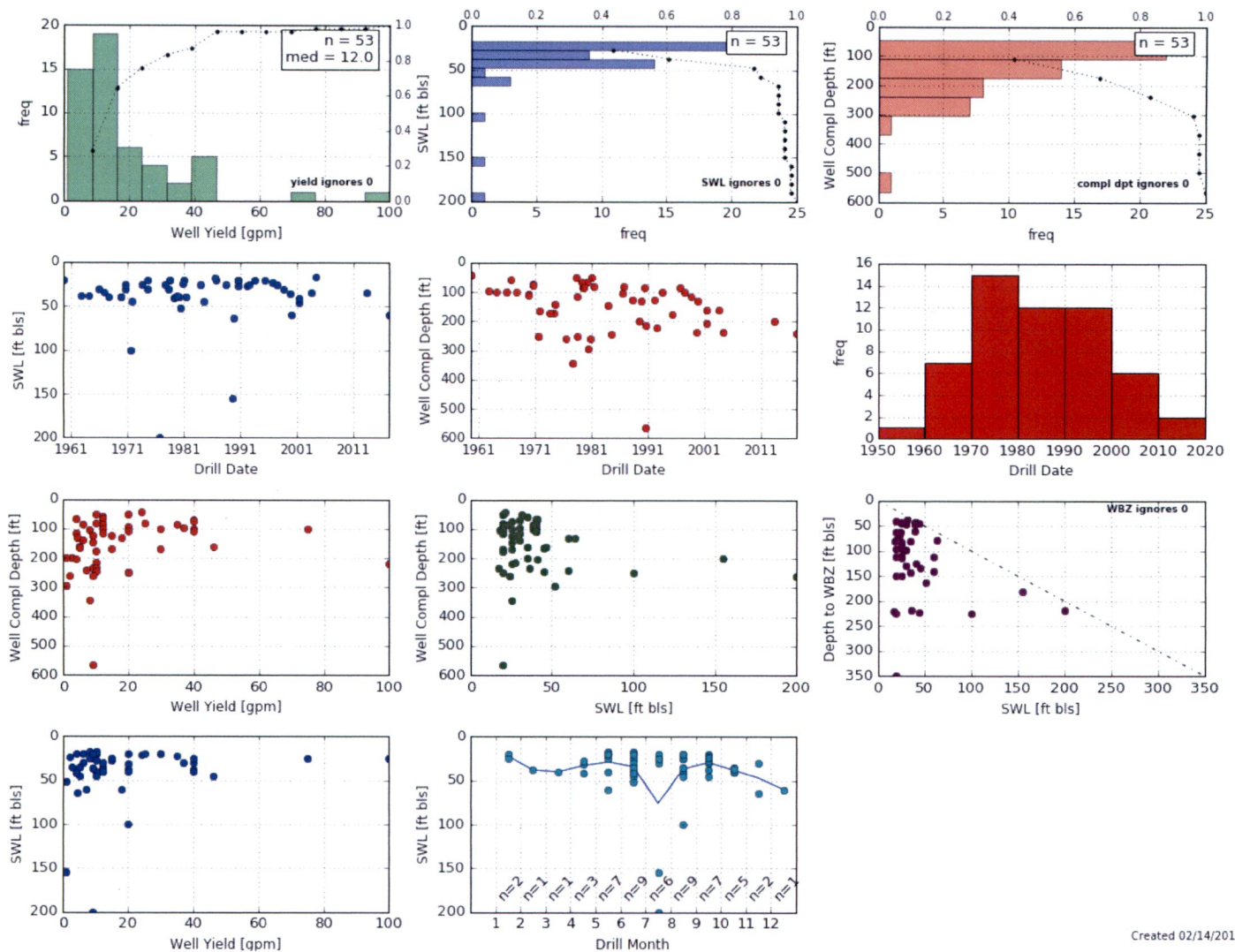


Figure 3. Well Logs for Wells in TRS 22S/8W Sections 19 to 21 & 28 to 30



Created 02/14/2019

Figure 4. Stream Depletion Model (Hunt, 1999)

Application type:	G
Application number:	18602
Well number:	1
Stream Number:	4
Pumping rate (cfs):	0.068
Pumping duration (days):	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	250	250	250	ft
Aquifer transmissivity	T	100	500	1000	ft ² /day
Aquifer storativity	S	0.01	0.001	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		1	1	1	
Aquitard thickness below stream	babs	10	7.5	5	ft
Not used		1	1	1	
Stream width	ws	10	15	20	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	19	30	39	45	49	52	55	57	59	60	62	63	64
Depletion (cfs)	0.01	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

