

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-19023
Date: August 3, 2021

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

Applicant's Well #1 (No Well Report): There is no well report associated with this well that shows how it was originally constructed to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

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

Groundwater Application Review Summary Form

Application # G- 19023

GW Reviewer Jen Woody Date Review Completed: 7/23/2021

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

7/23/2021

TO: Application G- 19023

FROM: GW: Jen Woody
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

NO

YES Use the Scenic Waterway Condition (Condition 7J)

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

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 7/23/2021
 FROM: Groundwater Section Jen Woody
 Reviewer's Name
 SUBJECT: Application G- 19023 Supersedes review of n/a
 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: Susan Maule County: POLK

- A1. Applicant(s) seek(s) 0.446 cfs from up to 5 well(s) in the Willamette Basin,
 _____ subbasin
- A2. Proposed use Nursery or Irrigation Seasonality: year-round or irrigation season, respectively
- 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	Unknown/NLOG*	1	alluvial	200	9S/4W-12 NE ¼ SW ¼	1975' N, 2620' E fr SW cor S 12
2	proposed	2	alluvial	200	9S/4W-12 NE ¼ SW ¼	2575' N, 2385' E fr SW cor S 12
3	proposed	3	alluvial	200	9S/4W-12 NE ¼ SW ¼	1415' N, 2065' E fr SW cor S 12
4	proposed	4	alluvial	200	9S/4W-12 NE ¼ SW ¼	1405' N, 2570' E fr SW cor S 12
5	proposed	5	alluvial	200	9S/4W-12 NE ¼ SW ¼	1875' N, 2060' E fr SW cor S 12

* 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	164		12.5**	1/30/1991	36							
2	164				50							
3	164				50							
4	164				50							
5	164				50							

Use data from application for proposed wells.

A4. **Comments:** *POLK 3832 is identified in the application as well 1. However, that well log was previously tied to application G-15615, located to the west of the subject property. The narrative in this application explains that Well 1 was drilled after the taxlot was divided and after POLK 300 was drilled (1991 is drill date for POLK 300, 1967 is deepening date for POLK 3832). A Logid could not be confirmed by this review.
 No proposed well construction details beyond depth were provided in the application.
 **water level information is from POLK 300 well log.

A5. **Provisions of the** Willamette 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: The proposed wells are less than ¼ mile and hydraulically connected to an unnamed lake, therefore OAR 690-502-0240 rules are activated.

A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: none
 Comments: N/A

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) 7e, medium water use reporting condition;
 - 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 alluvial aquifer 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:** Not enough information is available to determine if the aquifer is over appropriated as prescribed in OAR 690-310-130.

The proposed well location is within the Holocene floodplain of the Willamette River. The floodplain is underlain by approximately 50 feet of unconsolidated sediments which overlie low-permeability bedrock. Local wells produce from the floodplain aquifer which has a saturated thickness that ranges from 30-45 feet. The water table fluctuates 10-15 feet during the year, largely in response to changes in the state of the Willamette River.

The proposed wells are all in close proximity to POLK 300, a well located on the adjacent taxlot. Drawdown from proposed pumping at Well 1, located approximately 150 feet northwest of POLK 300, is estimated between 1 and 2 feet after 240 days of pumping at the maximum requested rate (see Figure 5). POLK 300 is 46 feet deep with 34 feet of water during the annual high per the well log. An additional 2 feet of drawdown will not prevent access to the usual rates and volumes of groundwater.

Nearby water level data are sparse, but show general stability at the current level of use.

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"/>
2	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer confinement evaluation: Aquifer tests in this aquifer report storativity values on the order of 0.10, indicating the aquifer is unconfined (Conlon et al., 2005).

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	Unnamed lake	151.5	150	600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	1	Unnamed lake	151.5	150	350	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	1	Unnamed lake	151.5	150	825	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	1	Unnamed lake	151.5	150	1010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	1	Unnamed lake	151.5	150	300	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	2	Willamette River	151.5	150	2650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Willamette River	151.5	150	3250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	2	Willamette River	151.5	150	2220	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	2	Willamette River	151.5	150	2080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	2	Willamette River	151.5	150	2700	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The aquifer is continuous between the subject wells and the listed surface water. Published water table maps indicate that groundwater flows toward and discharges to the Willamette River (Conlon et al., 2005).

Water Availability Basin the well(s) are located within: Watershed ID #183: Willamette River > Columbia River- AB MILL CR AT GAGE 14191000

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 checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
3	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
4	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>

5	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	MF183A	1300	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>	MF183A	1300	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input type="checkbox"/>
3	2	<input type="checkbox"/>	<input type="checkbox"/>	MF183A	1300	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input type="checkbox"/>
4	2	<input type="checkbox"/>	<input type="checkbox"/>	MF183A	1300	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input type="checkbox"/>
5	2	<input type="checkbox"/>	<input type="checkbox"/>	MF183A	1300	<input type="checkbox"/>	3620	<input type="checkbox"/>	<25%	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 Logid: no well log found

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:** POLK 3832 was tied to Well 1 in this application. However, a previous application review cites POLK 3832 on a different taxlot. Ownership records with Polk County show POLK 3832 aligns with previous owners of that other taxlot. This review concludes POLK 3832 is not the correct well log, and unfortunately a well log could not be identified for this location.

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

Figure 1. Water Availability Tables

Water Availability Analysis Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MILL CR AT GAGE 14191000
WILLAMETTE BASIN

Water Availability as of 7/22/2021

Watershed ID #: 183 ([Map](#))

Exceedance Level:80%

Date: 7/22/2021

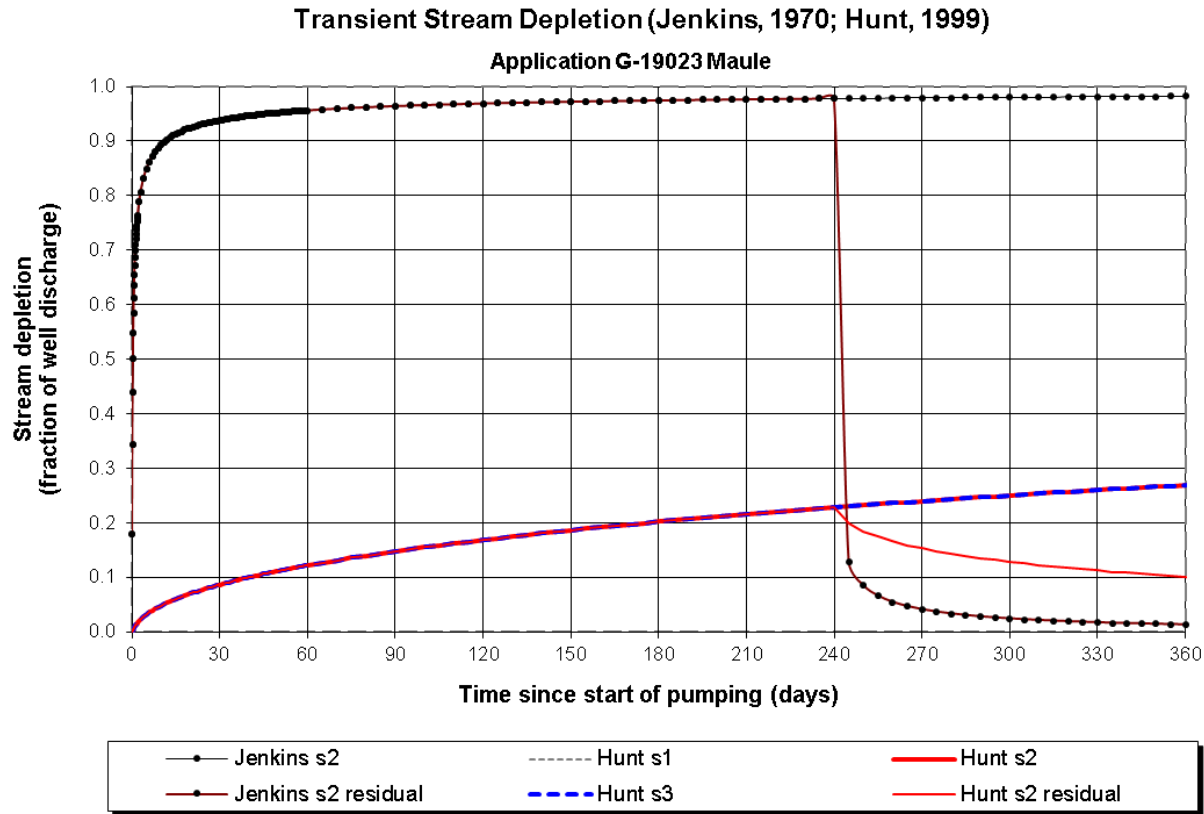
Time: 1:39 PM

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	18,400.00	2,240.00	16,200.00	0.00	1,300.00	14,900.00
FEB	20,100.00	7,430.00	12,700.00	0.00	1,300.00	11,400.00
MAR	19,600.00	7,220.00	12,400.00	0.00	1,300.00	11,100.00
APR	18,000.00	6,870.00	11,100.00	0.00	1,300.00	9,830.00
MAY	15,500.00	4,170.00	11,300.00	0.00	1,300.00	10,000.00
JUN	8,310.00	1,690.00	6,620.00	0.00	1,300.00	5,320.00
JUL	4,710.00	1,450.00	3,260.00	0.00	1,300.00	1,960.00
AUG	3,620.00	1,330.00	2,290.00	0.00	1,300.00	990.00
SEP	3,680.00	1,150.00	2,530.00	0.00	1,300.00	1,230.00
OCT	4,650.00	745.00	3,910.00	0.00	1,300.00	2,610.00
NOV	9,400.00	854.00	8,550.00	0.00	1,300.00	7,250.00
DEC	16,700.00	915.00	15,800.00	0.00	1,300.00	14,500.00
ANN	13,500,000.00	2,160,000.00	11,300,000.00	0.00	942,000.00	10,400,000.00

Figure 4. Stream Depletion for the well closest to surface water; most conservative stream depletion estimate is less than 25% at 30 days.

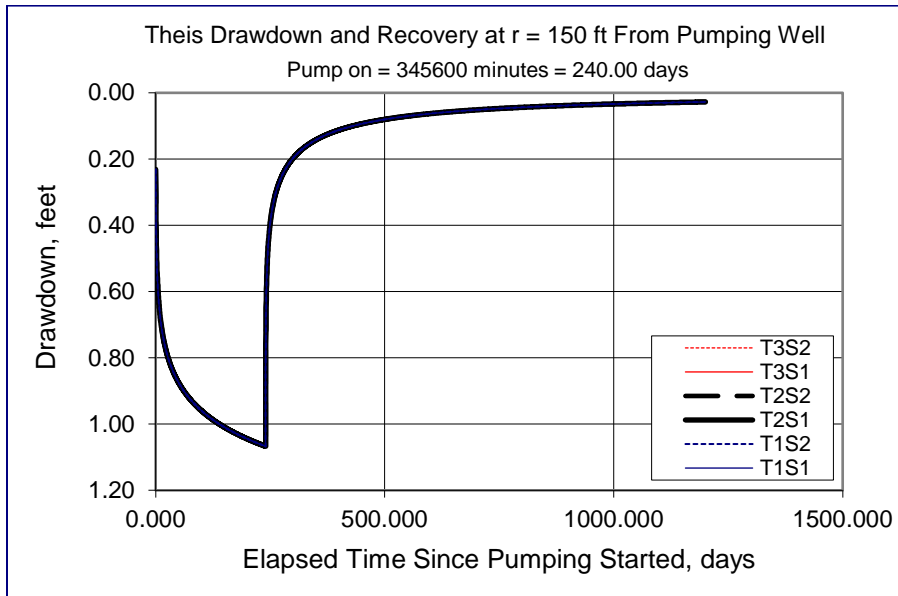


Output for Hunt Stream Depletion, Scenerio 2 (s2): Time pump on = 240 days

Days	30	60	90	120	150	180	210	240	270	300	330	360
Qw, cfs	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446
Jenk SD s2 %	93.83	95.63	96.43	96.91	97.24	97.48	97.66	97.82	4.11	2.41	1.70	1.31
Jen SD s2 cfs	0.418	0.427	0.430	0.432	0.434	0.435	0.436	0.436	0.018	0.011	0.008	0.006
Hunt SD s2 %	8.64	12.20	14.78	16.86	18.63	20.18	21.56	22.81	15.32	12.82	11.22	10.06
Hunt SD s2 cfs	0.039	0.054	0.066	0.075	0.083	0.090	0.096	0.102	0.068	0.057	0.050	0.045

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.446	0.446	0.446	cfs
Distance to stream	a	300	300	300	ft
Aquifer hydraulic conductivity	K	500	500	500	ft/day
Aquifer thickness	b	50	50	50	ft
Aquifer transmissivity	T	25000	25000	25000	ft*ft/day
Aquifer storage coefficient	S	0.1	0.1	0.1	
Stream width	ws	5	5	5	ft
Streambed hydraulic conductivity	Ks	1	1	1	ft/day
Streambed thickness	bs	3	3	3	ft

Figure 5. Well interference estimate between proposed well 1 and POLK 300, located on the adjacent taxlot



Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units
Total pumping time	t		240		d
Radial distance from pumped well:	r		150		ft
Pumping rate	Q		0.446		cfs
Hydraulic conductivity	K	500	500	500	ft/day
Aquifer thickness	b		50		ft
Storativity	S_1		0.1		
	S_2		0.1		
Transmissivity Conversions	T_f2pd	25000	25000	25000	ft ² /day
	T_ft2pm	17.361111	17.361111	17.361111	ft ² /min
	T_gpdpft	187000	187000	187000	gpd/ft