Approved: Jacob

## Мемо

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Travis Kelly, Well Construction Compliance Coordinator

Subject: Review of Water Right Application G-19196

Date: January 5, 2022

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 and the Well Report.

Applicant's Well #2 (WASH 57621): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Applicant's Well #2 may not satisfy hydraulic connection issues.

	WASH	57621				
RECEIV	EU					
STATE OF OREGON	กกา		PAGE 1 (	OF 2 .	-	
STATE OF OREGON WATER SUPPLY WELL REPORT SEP 1 1 20 (as required by ORS 537.765)	001		WELL I.D. #			
(as required by ORS 537.765) WATER RESOURCE Instructions for completing this report are SALTANASORES	S DEPT.		START CAR	D # <u>13932(</u>	)	
				1 decemination .		
Name TEUFEL NURSERY #2		(9) LOCATION O CountyWASHIN Township	GTON Latitude		ongitude	
Address 12345 NW BARNES RD.		Township 1N	N or S Ran	ge	E or W.	WM.
City PORTLAND State OR	<sub>Zip</sub> 97229	Section15	<u> </u>	SW	1/4	
(2) TYPE OF WORK	_	Tax Lot 1600	LotBlo	xkS	ubdivision _	
X New Well Deepening Alteration (repair/recondition)	Abandonment	Street Address of V	Well (or nearest addre	ss) <u>35600 1</u>	W ZION	CHURCH R
(3) DRILL METHOD:						
X Rotary Air X Rotary Mud Cable Auger		(10) STATIC WAT 68ft. b			Date <b>0<u>9</u>/</b>	06/01
(4) PROPOSED USE:		Artesian pressure _		r square inch	Date	•
$\Box$ Domestic $\Box$ Community $\Box$ Industrial X Irrigation		(11) WATER BEAL				
Thermal Injection Livestock Other				1022		
(5) BORE HOLE CONSTRUCTION:		Depth at which water	was first found			
Special Construction approval  Yes X No Depth of Complet Explosives used Yes X No TypeAmount	ted Well <u>1099</u> t.	From 1022	то 1035	Estimated I		SWL
HOLE SEAL		1035	1035	100 0	11 11	68
	s or pounds	1035	1090	200+		68
<u>14-3/4 0 960 Cem/Bent 0 60 55</u> Cement 800 960 100			1090	200+		
Cement         800         960         100           10         960         1050	JSKS					· · · ·
8-3/4 1050-1090		(12) WELL LOG:				
How was seal placed: Method $\Box A \Box B \boxtimes C$	DXD □E		Ind Elevation			
Other ft. to ft. Material		Mate	rial	From	То	SWL
Gravel placed fromft. toft. Size of grave		Brown clay		0	19	511
(6) CASING/LINER:		Soft silty g	rav clav	19	66	+
Diameter From To Gauge Steel Plastic Wel	lded Threaded	Sticky gray		66	72	
Casing: $10'' + 1 - 960 - 250$ X $\Box$		Brown clay		72	79	
		Sticky gray/			358	
		Med.to coarse		358	367	+
Liner:		Soft gray cla Sticky blue-o		<u>367</u> 450	450 590	<u>+</u>
		Soft dk.gray		590	622	+
Drive Shoe used [] Inside [] Outside [] None Final location of shoe(s) 10" shoe @ 960!		Sticky blue-		622	818	
(7) PERFORATIONS/SCREENS:		Firm brn.deco		818	832	
Perforations Method		Sticky brn/re			928	
Screens Type Material		Decomp.brown		928	938	+
Stot Tele/pipe From To size Number Diameter size Ca	asing Liner	Firm gray-bll occ.soft in		938	960	<u>+</u>
		Gray-blk.basa		ac. 960	1022	+
		Brown basalt			1035	68
		color basa				11
		Blk./gray-bl	.basalt,ha	rd 1035	1050	68
(8) WELL TESTS: Minimum testing time is 1 hour		Date started 05/24	<u>1/01</u> Con	mpleted <u>09/0</u>	6/01	
🗌 Pump 🔲 Bailer 🛣 Air	Flowing Artesian	(unbonded) Water Well				
Yield gal/min Drawdown Drill stem at	Time	I certify that the work ment of this well is in co	I performed on the mpliance with Orego	construction, alter	ration, or aba ell constructi	andon-
400+ 475	l hr.	standards. Materials used	and information rep	ported above are tr	ue to the bes	t of my
375-380 275	2 hrs.	knowledge and belief.		WWC Nun	nber	
		Signed	· · · · · · · · · · · · · · · · · · ·	C	Date	
Temperature of water66°F Depth Artesian Flow Found	I	(bonded) Water Well Co				
Was a water analysis done? X Yes By whom <u>AMJ</u>	[	I accept responsibilit performed on this well du	y for the construction	n, alteration, or al	bove All wa	work rk
Did any strata contain water not suitable for intended use?	🗆 Too little	performed during this tin	ne is in compliance v	vith Oregon water	supply well	
Salty Muddy Odor Other Other		construction standards. T		he best of my kno WWC Nun		pelief.
Depin 01 suata.		Signed	<u>~</u>		$\frac{1200}{200}$	5/01

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#### WASH 57621

#### STATE OF OREGON

#### WATER SUPPLY WELL REPORT

Address				SERY #2 ARNES RI		mber	
City		PORTI			DR	Zip	97229
(2) TYF							
				eration (repai	r/recondit	ion) 🗌 Aba	indonment
( <b>3) DRI</b> 🛛 Rotary				Cable 🗌 A	uger		
Other.							
(4) PRC				dustrial 🕅	Irrigatio		
				ivestock			
(5) BOI	RE HO	LE CC	NSTRUC	CTION:			
				s 🖾 No Dej			
Explosiv	es used HOLE	∐ Yes	_ <b>X</b> No Тур	e SEAL	A	nount	
Diameter		То	Materia		То	Sacks or p	ounds
	ļ				ļ		, und b
low was	seal pla	ced:	Method		I  B □	C D	Ε
Other.							
			ft. to			al	
-			ft. to	ft.	Size of	gravel	
	ING/L Diameter			auge Steel	Plastic	Welded	Threaded
asing:			1 1				
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		+		🗆			
		<u> </u>	1 1	🖸			
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iner:				[]			
Prive Sho	e used	 Inside	e 🗌 Outsie	de 🗌 None			
Prive Sho inal loca	e used tion of s	Inside	e 🗌 Outsid	de 🗌 None			-
Drive Sho inal loca 7) PER	be used attion of s	□ Inside hoe(s) _ ΓΙΟΝS	e 🗌 Outsid	de 🗌 None			-
Drive Sho inal loca 7) <b>PER</b>	be used ation of s FORA' foration	□ Inside hoe(s) _ ΓΙΟΝS	e 🗌 Outsid	de 🗌 None			
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Drive Sho inal loca 7) <b>PER</b>	be used ation of s FORA' foration	□ Inside hoe(s) _ <b>ΓΙΟΝS</b> s	CREEN	de 🗌 None		erial	Liner
Drive Sho inal loca 7) PER □ Per □ Scr	be used ation of s FORA' foration reens	Inside hoe(s)_ FIONS s Slot	COULSIG	de 🗌 None	Mat Mat	erial	
Drive Sho inal loca 7) PER □ Per □ Scr	be used ation of s FORA' foration reens	Inside hoe(s)_ FIONS s Slot	COULSIG	de 🗌 None	Mat Mat	cerial be 	
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Prive Sho inal loca 7) PER Per Scr From 8) WEL	ve used tion of s FORA' foration reens To L TES	□ Inside hoe(s) _ ΓΙΟΝS s Slot size	e Outsid	Diameter	Mat Tele/pip size	erial e Casing 	
Prive Sho inal loca 7) PER □ Per □ Scr From	ve used stion of s FORA' foration reens To L TES p	□ Inside hoe(s) _ ΓΙΟΝS s Slot size TS: M □ Ba	e Outsid	Diameter	Mat Tele/pip size 	erial e Casing     Dur Flow  Artes	
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Prive Sho inal loca 7) PER Per Scr From 8) WEL 8) WEL 9 Pum Yield g: emperatu	re used stion of s FORA' foration reens To JL TES	□ Inside choe(s) _ FIONS s Slot size TS: M □ Ba Dra tter	e Outsid	Diameter	Mat Tele/pip size  e is 1 ho m at	cerial Casing	Liner Liner
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#### PAGE 2 OF 2

WELL I.D. # L	50495
START CARD	¥ 139320

County WZ	ASHINGTO	ELL by legal de MLatitude N or S Range _  NE1/4	-	Longitude	. WM.	
Tax Lot	1600_Lot_	1/4 Block				RI
	ft. below		uare inch		/06/01	

#### (11) WATER BEARING ZONES:

Depth at which water was first found \_\_\_\_\_1022

From	То	Estimated Flow Rate	SWL	
			-	
			<u> </u>	

(12) WELL LOG:

Ground Elevation \_

Material	From	То	SWL
Black basalt, occ.brkn.	1050	1070	68
streaks			**
Brown basalt, inter.brk	n 1070	1080	68
Black basalt, broken	1080	1088	11
Gray-black basalt, hard	1088	1090	68
RECEIVED			
SEP 1 1 2001			
ATER RESOURCES DEPT. SALEM, OREGON			
Date started 05/24/01 Cor	npleted 09/	06/01	

#### (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.

WWC Number	
Date	

Date \_09/06

01

#### 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. WWC Number 1266

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### **Groundwater Application Review Summary Form**

Application # G- <u>19196</u>

GW Reviewer <u>Jen Woody</u> Date Review Completed: <u>11/19/2021</u>

#### 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

#### \_11/19/2021\_

TO: Application G- 19196

FROM: GW: <u>Jen Woody</u> (Reviewer's Name)

#### **SUBJECT: Scenic Waterway Interference Evaluation**

- □ YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries
- □ 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 <u>[Enter]</u> 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: FROM:			ights Sec water Sec	tion tion		Jen Woo	odv		Date		11/19/2	<u>021</u>		
						Review	ver's Nam							
SUBJE	CT:	Applica	tion G- $1$	<u>19196</u>		Supersede	s reviev	<i>v</i> of	n/a					
											L	Date of Revi	ew(s)	
OAR 69 welfare, to determ	0-310-13 safety and nine whet	0 (1) The d health d her the p	Departme as describe resumption	<i>ed in ORS 5</i> n is establis	esume that 37.525. De hed. OAR	<i>a proposed</i> epartment s 690-310-14	<i>d ground</i> staff rev 40 allow	iew g /s the	er use will er groundwater e proposed u gency polic	applic: se be n	ations un nodified	der OAR or condit	690-310 ioned to r	-140 neet
A. <u>GEN</u>	NERAL 1	INFOR	MATION	<u>I</u> : Apj	plicant's N	ame: T	<u>eufel N</u>	urse	ry Inc.		Co	ounty:	Washingt	on
A1.									Willamette					Basin,
	<u> </u>	ialatin R	iver			subbas	sin							
A2.	Proposed	use	nursei	ry		Seaso	nality:	yea	r round					
A3.	Well and	aquifer o	lata ( <b>attac</b>	h and num	ber logs f	or existing	wells;	nark	x proposed v	wells a	s such u	nder logi	<b>d</b> ):	
Well	Logic	1	Applicant's	Propose	d Aquifer*	Propo			Location			n, metes a		
1	WASH 57		<u>Well #</u> 2	-	RBG	Rate(0			(T/R-S QQ-Q /3W-15 NE <sup>1</sup> / <sub>4</sub> S			<u>N, 1200' E</u>		
2												,		~ ~~
3														
* Alluviu	m, CRB, B	edrock		1							1			
	Well	First			Well	Seal	Casii	ıσ	Liner	Perf	orations	Well	Draw	
Well	Well Elev	First Water	SWL ft bls	SWL Date	Well Depth	Seal Interval	Casin Interv		Liner Intervals		orations Screens	Well Yield	Draw Down	Test Type
	Elev ft msl	Water ft bls	ft bls	Date	Depth (ft)	Interval (ft)	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
Well	Elev	Water			Depth	Interval	Interv	als	Intervals	Or S	Screens	Yield	Down	
	Elev ft msl	Water ft bls	ft bls	Date	Depth (ft)	Interval (ft) 0-60, 800-	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
1	Elev ft msl 175	Water ft bls 1022	ft bls 68	Date 9/06/2001	Depth (ft)	Interval (ft) 0-60, 800-	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
1	Elev ft msl 175	Water ft bls 1022	ft bls	Date 9/06/2001	Depth (ft)	Interval (ft) 0-60, 800-	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
1	Elev ft msl 175	Water ft bls 1022	ft bls 68	Date 9/06/2001	Depth (ft)	Interval (ft) 0-60, 800-	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
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1 Use data	Elev ft msl 175 from applie	Water ft bls 1022	ft bls 68	Date 9/06/2001	Depth (ft)	Interval (ft) 0-60, 800-	Interv (ft)	als	Intervals (ft)	Or S	Screens (ft)	Yield (gpm)	Down (ft)	Туре
1 Use data 2 A4.	Elev ft msl 175 from applie Commer	Water ft bls 1022 cation for	ft bls 68 proposed w	Date 9/06/2001 ells.	Depth (ft) 1090	Interval (ft) 0-60, 800- 960	Interv (ft) 0-96	als 0	Intervals (ft) n/a	Ors	Screens (ft) n/a	Yield (gpm) 400	Down (ft) unk	Type air
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#### B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

- B1. **Based upon available data**, I have determined that <u>groundwater</u>\* for the proposed use:
  - a. is over appropriated, is not over appropriated, *or* is 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.  $\square$  will not or  $\square$  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.  $\square$  The permit should contain condition #(s) **7I, Large water use reporting**
    - ii.  $\square$  The permit should be conditioned as indicated in item 2 below.
    - iii.  $\Box$  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 <u>a single aquifer in the Columbia River</u> <u>Basalt Group</u> and <u>ft. below land surface;</u>
  - 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 applicant's proposed wells will produce from one or more water-bearing zones in the Columbia River Basalt Group (CRBG), a series of lava flows with a composite thickness that ranges from 600 to 700 feet in this area (Conlon et al., 2005). Basalt at this location is overlain by over 1000 feet of sediments. Each basalt flow is characterized by a series of internal features, including a thin rubble zone at the contact between flows and a thick, dense, low porosity and low permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed and flow bottom are collectively referred to as an interflow zone. Unconfined groundwater occurs near the weathered top of the basalts, but most water occurs in interflow zones at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which generally results in tabular aquifers with unique water level heads (Reidel et al., 2002).

Groundwater for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding rates of recharge and the current quantity of groundwater withdrawals from the aquifer system. However, <u>l</u>ong term groundwater-level trends at other deep basalt wells (greater than 1000 feet) in the Tualatin Subbasin have declined approximately 15 feet since 1988 (see Figure 3). This magnitude of decline activates standard Willamette Valley Basalt water level decline triggers, indicating groundwater is not available from this aquifer for new appropriation. Based on similar water level elevations, recent Aquifer Storage and Recovery testing by the City of Cornelius (at WASH 73617) affects the same aquifer this application is proposing to use. Upward trends in 2019-2020 may be in part related to ASR testing. The

universally low storativity of CRBG aquifers limit their potential productivity, both in rate and total volume. If this permit is issued, water level monitoring and reporting conditions are recommended to protect the resource and other users.

#### 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	Columbia River Basalt Group Aquifer	$\boxtimes$	

Basis for aquifer confinement evaluation: The reported static water level rises hundreds of feet above the first water-bearing zone, indicating a confined aquifer.

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 <sup>1</sup>/<sub>4</sub> 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? YES NO ASSUMED		Subst. In	Potential for Subst. Interfer. Assumed? YES NO	

**Basis for aquifer hydraulic connection evaluation:** <u>Water-bearing zones are reported in the confined interflow zones of the CRBG.</u> In this location, there are over 1000 feet of sediments overlying the basalts. The well is cased and sealed through the sediments, into the basalts. Because the well is sealed to hundreds of feet below the streambed, there is no effective hydraulic connection between the well and surface water within one mile.

Water Availability Basin the well(s) are located within: <u>Watershed ID# 30201013</u> <u>TUALATIN R > WILLAMETTE R - AT</u> GAGE 14206500

C3a. **690-09-040** (4): Evaluation of stream impacts for <u>each well</u> 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?

C3b. **690-09-040 (4):** Evaluation of stream impacts <u>by total appropriation</u> 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: <u>N/A see comments in Section C2.</u>

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-Di	istributed	Wells											
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	2 as CFS												
Interfer	ence CFS												
Distrib	uted Well	s											
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	0
Well Q as CFS													
Interfer	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	0
Well Q	2 as CFS												
Interfer	ence CFS												
$(\mathbf{A}) = \mathbf{T}\mathbf{a}$	otal Interf.												
(B) = 80	% Nat. Q												
(C) = 1 % Nat. Q													
$(\mathbf{D}) = 1$	$(\Lambda) > (C)$		~	~	1			1	1			1	
(D) = (A) > (C)		w Ori		W 0/	W 0.4	W Di	w Ar	W		w O(	v O(	<b>v</b>	w .
$(E) = (A / B) \times 100$		%	%	%	%	%	%	%	%	%	%	%	%

(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: <u>N/A</u>

;

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

#### C6. SW / GW Remarks and Conditions: none

References Used:

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

Reidel, S.P., Johnson, V.G., and Spane, F.A., 2002, Natural gas storage in basalt aquifers of the Columbia Basin, Pacific Northwest USA—A guide to site characterization: Richland, Wash., Pacific Northwest National Laboratory, 277 p.

US Geological Survey Topographic Map, Forest Grove Quadrangle.

OWRD water level database, includes reported water levels, accessed 11/18/2021.

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

D1.	Well #:	Logid:
D2.	<ul> <li>a. □ review of the well log;</li> <li>b. □ field inspection by</li> <li>c. □ report of CWRE</li> <li>d. □ other: (specify)</li> </ul>	current well construction standards based upon: ; ;
D3.		or other comment is described as follows:
D4.	<b>Route to the Well Construction and</b>	Compliance Section for a review of existing well construction.

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#### Figure 1. Water Availability Tables

# Water Availability Analysis Detailed Reports

TUALATIN R > WILLAMETTE R - AT GAGE 14206500 WILLAMETTE BASIN

Water Availability as of 11/17/2021

Watershed ID #: 30201013 (Map)

Exceedance Level:80%

Date: 11/17/2021

Time: 2:27 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	1,090.00	389.00	701.00	0.00	100.00	601.00
FEB	1,420.00	450.00	970.00	0.00	100.00	870.00
MAR	1,140.00	333.00	807.00	0.00	100.00	707.00
APR	676.00	273.00	403.00	0.00	100.00	303.00
MAY	332.00	141.00	191.00	0.00	100.00	90.90
JUN	179.00	151.00	27.80	0.00	100.00	-72.20
JUL	80.90	183.00	-102.00	0.00	100.00	-202.00
AUG	44.30	142.00	-97.20	0.00	100.00	-197.00
SEP	54.20	121.00	-66.90	0.00	94.50	-161.00
OCT	69.40	58.10	11.30	0.00	100.00	-88.70
NOV	160.00	187.00	-26.70	0.00	100.00	-127.00
DEC	758.00	378.00	380.00	0.00	100.00	280.00
ANN	751,000.00	169,000.00	592,000.00	0.00	72,100.00	542,000.00

#### Figure 2. Well Location Map





