

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date November 14, 2018
 FROM: Groundwater Section J. Hackett
 Reviewer's Name
 SUBJECT: Application G- 18710 Supersedes review of
 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: 5 Gen Farms County: Linn

A1. Applicant(s) seek(s) 0.74 cfs from 2 well(s) in the Willamette Basin,
 _____ subbasin

A2. Proposed use Irrigation Seasonality: March 1 – October 31

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	0.74	12S/3W-3 SW-SW	1290' N, 680' E fr SW cor S 3
2	Proposed	2	Alluvium	0.74	12S/3W-3 SW-SW	1260' N, 1010' E fr SW cor S 3
3						
4						
5						

* 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	268*				140 est.	0-20	0-140		80-130			
2	270				140 est.	0-20	0-140		80-130			

Use data from application for proposed wells.

A4. **Comments:** *Elevation is estimated from USGS topographic maps for the proposed locations. The application lists 2 proposed wells that will produce from an alluvial aquifer. In this part of the Willamette Valley thin (10' – 20') Willamette Silt deposits overlie the Lebanon Fan of the Willamette Aquifer (mixed sand and gravel) which is >120' thick. Most wells in area penetrate 120' – 150' of mixed clay/sand/gravel of Willamette Aquifer.

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 applicant's proposed wells are greater than ¼ mile from the nearest surface water source, so the pertinent basin rules do not apply.

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, Large 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:** : Well density is quite low in the area, only about 29 water wells of record in sections 3, 4, 9, and 10. The water table occurs at shallow depths (generally < 10' BLS) and the total thickness of productive sands and gravels of the Lebanon alluvial fan is greater than 100 feet. There are a few wells in the township-range area that have been reporting water levels for the past >10 years (see graph) and these wells show no obvious signs of recent or past groundwater level declines. The lack of obvious declines, the low well density, and the thickness of the aquifer suggest that the aquifer can sustain further appropriation without injury to prior groundwater rights or to 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	Alluvium – Lebanon Fan	☒	☐
2	Alluvium – Lebanon Fan	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Wells are proposed, but nearby wells (e.g., LINN 58774, LINN 58990, LINN 51469) report static water levels above water-bearing zones. Water-bearing zones are sand/gravel lenses interfingering with finer-grained sediment that may be locally confined/unconfined.

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	Calapooia River	260	230	23000	☒	☐	☐	☐	☒
2	1	Calapooia River	260	230	23150	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The nearest perennial surface water source, the Calapooia River, is greater than 23000 feet from the proposed wells. PSI is unlikely at this distance.

Water Availability Basin the well(s) are located within: Calapooia R > Willamette R – AB 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 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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: There are no perennial surface water sources within 1 mile.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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: Impacts to the Calapooia River were not evaluated since general experience indicates that seasonal impacts will not reach the threshold for PSI at that distance to the river.

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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** _____

References Used: Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. Hydrogeologic framework of the Willamette Lowland Aquifer System, Oregon and Washington. USGS Professional Paper 1424-B

Gannett, M. W. and R. R. Caldwell. 1998. Geologic framework of the Willamette Lowland Aquifer System, Oregon and Washington. USGS Professional Paper 1424-A

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

CALAPOOIA R > WILLAMETTE R - AB MOUTH
WILLAMETTE BASIN

Water Availability as of 11/14/2018

Watershed ID #: 76 ([Map](#))Exceedance Level:

Date: 11/14/2018

Time: 9:31 AM

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	592.00	3.37	589.00	0.00	20.00	569.00
FEB	650.00	3.32	647.00	0.00	20.00	627.00
MAR	575.00	2.24	573.00	0.00	20.00	553.00
APR	423.00	1.95	421.00	0.00	20.00	401.00
MAY	234.00	18.30	216.00	0.00	20.00	196.00
JUN	111.00	12.80	98.20	0.00	20.00	78.20
JUL	49.00	19.60	29.40	0.00	20.00	9.42
AUG	26.00	14.10	11.90	0.00	20.00	-8.09
SEP	22.70	7.36	15.30	0.00	20.00	-4.66
OCT	29.60	1.92	27.70	0.00	20.00	7.68
NOV	133.00	2.39	131.00	0.00	20.00	111.00
DEC	499.00	3.33	496.00	0.00	20.00	476.00
ANN	404,000.00	5,500.00	398,000.00	0.00	14,500.00	384,000.00

Detailed Report of Instream Flow Requirements

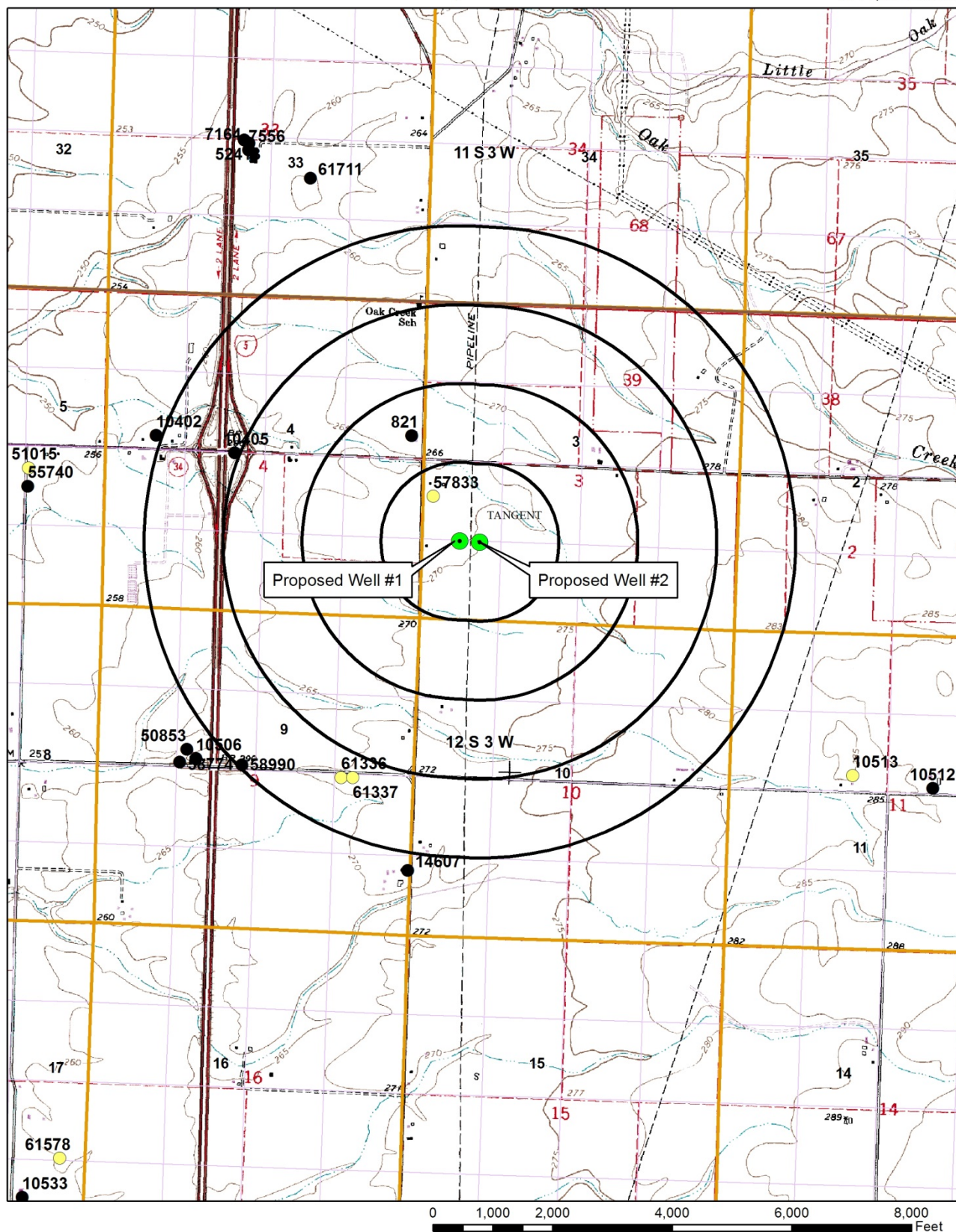
Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF76A	CERTIFICATE	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Maximum		20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00

Well Location Map

G-18710, 5 Gen Farms

1:24,000 scale



Water-Level Trends in Nearby Wells