

MEMO

August 12, 2015

FROM: GW: Michael J Thoma
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES

The source of appropriation is within or above a Scenic Waterway

☒ 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 _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/12/2015

FROM: Groundwater Section Michael J. Thoma
Reviewer's Name

SUBJECT: Application G- 18110 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: Koos Seed Co. County: Linn

A1. Applicant(s) seek(s) 1.47 cfs from 5 well(s) in the Willamette Basin,
Calapooia subbasin

A2. Proposed use Irrigation (117.4 ac - Primary) 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	1.47 ^a	12S/03W-10 SWNW	20' N, 790' E of W ¼ corner S10
2	Proposed	1	Alluvium		12S/03W-10 SWNW	0' N, 1150' E of W ¼ corner S10
3	Proposed	1	Alluvium		12S/03W-10 SENW	10' S, 1490' E of W ¼ corner S10
4	Proposed	1	Alluvium		12S/03W-10 SENW	40' S, 2190' E of W ¼ corner S10
5	Proposed	1	Alluvium		12S/03W-10 SENW	50' S, 2550' E of W ¼ corner S10

* 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	275		5-15 ^b		40-140 ^c							
2	275		5-15 ^b		40-140 ^c							
3	275		5-15 ^b		40-140 ^c							
4	275		5-15 ^b		40-140 ^c							
5	275		5-15 ^b		40-140 ^c							

Use data from application for proposed wells.

A4. **Comments:** ^a The applicant requests the full rate of 1.47 cfs from any combination of the five proposed wells.

^b All five wells are proposed. SWL is estimated from well logs for nearby wells.

^c Well Depth is proposed in the range of 40-140 ft. So long as the actual completed depth is within the proposed range it will not significantly change the findings of this review.

A5. ☒ **Provisions of the** Willamette (OAR 690-502) 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: There are no perennial surface water sources within ¼ mile of the proposed POAs

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) "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:** The proposed POAs are in an area underlain by > 100 ft of productive sands and gravels which are part of the Willamette Aquifer as described by Gannett and Caldwell (1998) (Figure 1). These productive coarse materials thin to the east and south but are fairly extensive in the subject area. The aquifer overlain by a thin layer of the Willamette Silt Unit and is generally confined to semi-confined with increasing confinement with depth. Water levels are generally within a few feet of the land surface – as reported on driller's well logs and nearby reported water levels (see Figure 2). Nearby water level data from wells LINN 58990 and LINN 58774 show stable trends over the past several years, suggesting additional development of the groundwater resource can be supported. Additionally, irrigation and domestic use of groundwater is fairly low in the subject area so additional use can likely be supported without severe consequences (i.e., drastically declining water levels, significant well-to-well interference).
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

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 of Willamette Aquifer	☒	☐
2	Alluvium of Willamette Aquifer	☒	☐
3	Alluvium of Willamette Aquifer	☒	☐
4	Alluvium of Willamette Aquifer	☒	☐
5	Alluvium of Willamette Aquifer	☒	☐

Basis for aquifer confinement evaluation: Water levels reported on drillers' logs for the area show SWL higher than reported First Water zones, implying confined conditions.

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
1,2,3,4,5	1	Calapooia River	270	245	> 3 mi	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The nearest perennial surface water source to the proposed POAs is the Calapooia River which is > 3 miles to the southwest. Published groundwater flow maps by Gannett and Caldwell (1998) show groundwater flows toward and discharges to the Calapooia River. However, given the distance to the river and nature of the aquifer (> 100 ft thick, high-transmissivity), estimated impacts to the river do not rise to the level for consideration of PSI under current Division 9 standards. Therefore, no further evaluation was done for PSI.

Water Availability Basin the well(s) are located within: Calapooia R > Willamette R – AB Mouth (ID# 76)

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?
<i>There are no perennial surface water sources within 1 mile of the proposed POAs</i>										

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?
<i>There are no perennial surface water sources within 1 mile of the proposed POAs</i>										

Comments: _____

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.

Table C4a and comments section have been omitted from this review because the hydraulic connection inefficient enough that analysis of PSI was not considered – See Section C2.

(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: _____

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:

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

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.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 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.**

Figure 1: Well Location Map

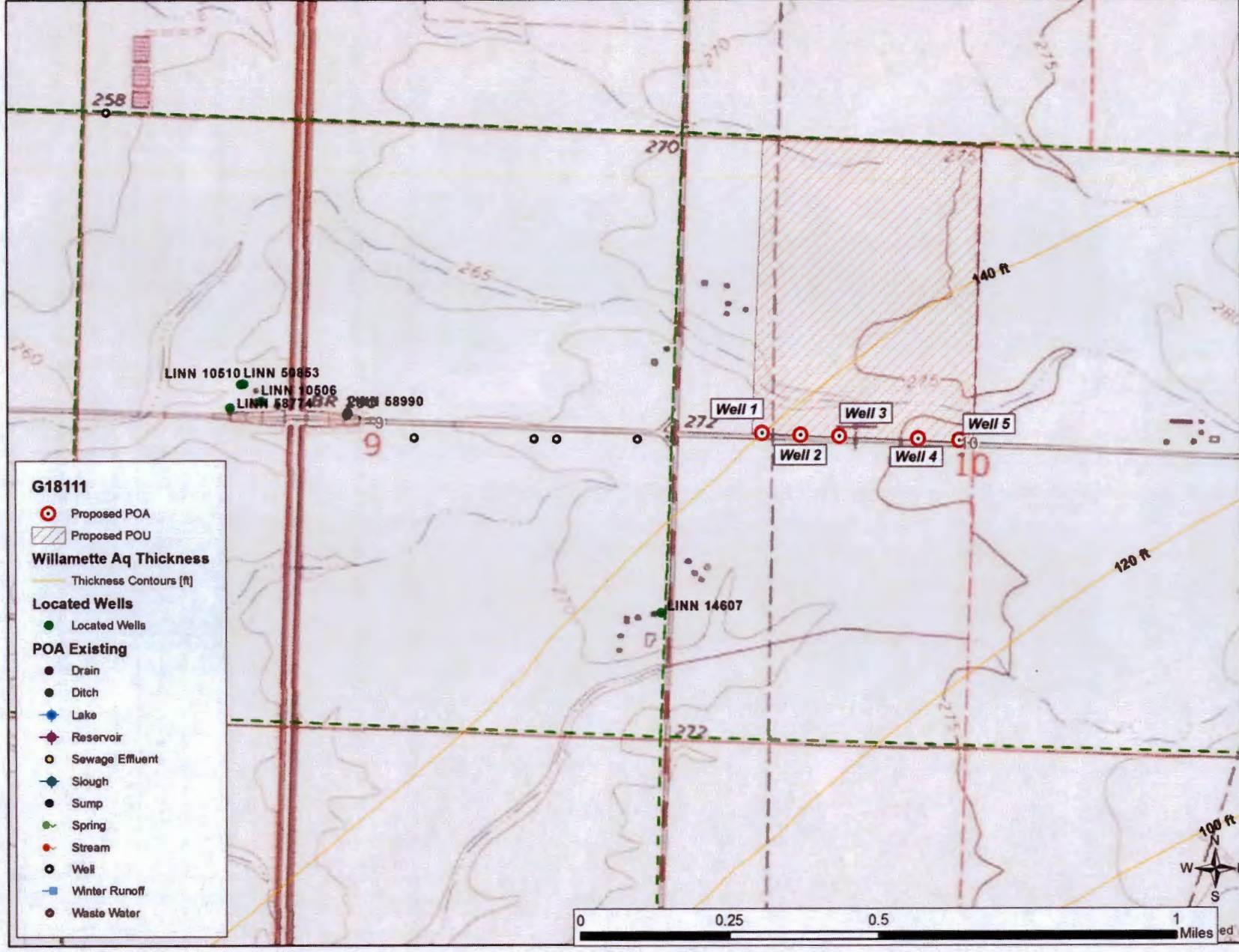


Figure 2: Water-Level Trends in Nearby Wells