

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date 3/15/2009
 FROM: Ground Water/Hydrology Section Donn Miller
Reviewer's Name
 SUBJECT: Application G- 17167 Supersedes review of none
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 ground water 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: Sam Farr, S and F Land and Cattle County: Lake

A1. Applicant(s) seek(s) 2.80 cfs from one well(s) in the Goose and Summer Lakes Basin,
Warner Basin subbasin Quad Map: Calderwood Reservoir

A2. Proposed use: Supplemental Irrigation Seasonality: 3/1 to 10/31

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well 1	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	To be built	1	Not specified	2.8	39S/25E-S19 nw sw	860'S, 100'E fr West Qtr cor S19
2						
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	4485	--	E5	---	300+/-	0-20	0-250	---	"100"	-	-	-

Use data from application for proposed wells.

A4. **Comments: LAKE 2722 was about one mile to the south. From that log, I have estimated the SWL. The materials log on that report shows good water-producing sands at 190'-690' below land surface. This review seeks to case and seal the well deeper than proposed. See item C5.**

A5. Provisions of the Goose and Summer Lakes Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water are, or are not, activated by this application. (Not all basin rules contain such provisions.)
 Comments: OAR 690-513-0040(2)(k)(C) is relevant. If a well at the in this section is within 1000' of Twentymile Creek or a tributary and develops an unconfined aquifer, irrigation is not a classified use. The proposed well location is not within 1000 feet of the creek or a trib.

A6. Well(s) # _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: NA
 Comments: NA

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. Based upon available data, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) _____;
 - 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the _____ ground water 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 Ground Water 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. Ground water availability remarks: The water levels in the observation well (#382) at Adel are rather steady, reflecting climate. The well is about 3.5 miles to the west of the proposed well site. The entire area displays valley wells with water levels at 10 feet or less. In some instances, well reports shows modestly flowing conditions with shut-in heads about 2 feet above land surface.

A nearby application, G-16426, was given condition 7E. I've considered it for this application but think that long-term declines are quite unlikely.

C. GROUND WATER/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 checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: I am re-structuring the construction proposal so as to prompt confined aquifer development. Currently, the proposed construction seeks only a 20 feet seal which strongly appears inadequate to develop a confined aquifer. Based on data from area wells, there is good reason to think that a deep case and seal will produce flowing conditions, a good confined aquifer indication. The confinement may be localized.

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 trib Twentymile Ck	4485	4482	5800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The proposed well construction condition will require casing and seal into a relatively thick clay layer, limiting hydraulic connection with the local reach of Deep Creek. However, hydraulic connection with downstream reaches and the lakes is very likely because clay layers in this depositional environment are not likely to be areally extensive.

Water Availability Basin the well(s) are located within: Twentymile Creek>Crump Lake @ the 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?
NA		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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?
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	24.4%	22.9%	0.0%	1.3%	4.3 %	7.9%	11.5%	15.0%	18.3%	21.2%	23.9%	25.1%
Well Q as CFS		0.0	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	0.0	0.0
Interference CFS		.681	.638	.001	.037	.119	.219	.322	.419	.509	.592	.666	.699
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NA		%	%	%	%	%	%	%	%	%	%	%	%
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.		.681	.638	.001	.037	.119	.219	.322	.419	.509	.592	.666	.699
(B) = 80 % Nat. Q		10.4	13.7	33.30	38.50	46.80	15.10	4.21	3.12	3.94	4.78	6.88	8.95
(C) = 1 % Nat. Q		.104	.137	.333	.385	.468	.151	.0421	.0312	.0394	.0478	.0688	.0895

(D) = (A) > (C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100	6.5%	4.7%	0.0%	0.1%	0.3%	1.5%	7.6%	13.4%	12.9%	12.4%	9.7%	7.8%

(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: NOTE: The numbers in C4a are for an unconfined aquifer that is in hydraulic connection with Twentymile Creek. The well construction, as proposed, would result in the use of the table results. HOWEVER, the well construction is modified in C5 with the use of condition 7K so that a confined aquifer is developed. That will result in the well not being hydraulically connected to the nearby creek.

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 ground water use under this permit can be regulated if it is found to substantially interfere with surface water:
 i. The permit should contain condition #(s) 7K: 190 feet, an unconfined aquifer;
 ii. The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** For permitting purposes, it is important for this proposed use to develop a confined aquifer and not be connected to Twentymile Creek nearby. The proposed well is more than one mile from the creek but the natural flow is very small and 1% interference is easily exceeded. That results in the potential for substantial interference finding. It is puzzling to look at the water availability table and the topographic map for this setting. The map does not show that Twentymile Creek reaches Crump Lake yet there is a reference to the mouth. Oh well, maybe on a good year.

I spoke to Mr Farr's grandson on the phone tonight and said that there will likely be special well construction provisions that need to be followed. With that, I urged him not to drill the well until he has a permit and has had an opportunity to study it. The grandson said that he would pass that along.

References Used: Local well reports, State Observation Well #382, USGS WRI 87-4058, Geologic Map of the Adel Quadrangle by Walker, OWRD Goose and Summer Lakes Basin Report (1989), Review of file G-16426

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

D2. THE WELL does not 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:

- a. constitutes a health threat under Division 200 rules;
- b. commingles water from more than one ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water reservoirs;
- e. other: (specify) _____

D4. THE WELL construction deficiency is described as follows: _____

D5. THE WELL a. was, or was not constructed according to the standards in effect at the time of original construction or most recent modification.

b. I don't know if it met standards at the time of construction.

D6. Route to the Enforcement Section. I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. Well construction deficiency has been corrected by the following actions: _____

_____, 200____.
(Enforcement Section Signature)

D8. Route to Water Rights Section (attach well reconstruction logs to this page).
