



PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 03/13/2015

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

SUBJECT: Application G- 17953 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: Salem Nursery LLC County: Marion

A1. Applicant(s) seek(s) 0.30 cfs from 1 well(s) in the Willamette Basin,  
Mill Cr. - Pudding R. subbasin Quad Map: Woodburn

A2. Proposed use Irrigation (primary) Seasonality: March 1 – October 31 (245 d)

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	MARI65221	1	Alluvium	0.30	T04S/R01W-S12 NWNE	1120'S, 2550'W of NE cor S12 <sup>‡</sup>
2						
3						
4						

\* 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	175	100	90+	06/27/2014	210	0-50	0-160	160-210	100-210	400		A

Use data from application for proposed wells.

A4. **Comments:** <sup>†</sup>Well #1 was drilled in the spring of 2014 and was used for both short-term and long-term aquifer testing during the summer of 2014 to investigate whether a SW to GW transfer could be issued. "SWL" and "SWL Date" reported in A3 are from the last static measurement made during this investigation by OWRD staff.

<sup>‡</sup>This location reflects the metes and bounds established by OWRD staff during site visits in spring 2014 and not what is listed on the application map. The location established by OWRD staff is deemed more accurate than what is provided on the application

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: OAR 690-502-0240 states that "groundwater in unconfined alluvium within 1/4 mile of the banks of a stream or surface water source is presumed to be in hydraulic connection with the surface water source, unless the applicant or appropriator provides satisfactory information or demonstration to the contrary." The applicants well is within 1/4 mile of the Pudding R. and produces from an unconfined aquifer – therefore it is presumed to be in hydraulic connection (see Section C)

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) 7c (7-year annual); "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 applicants well (MARI 65221 – well log attached) is located on a bench above the Pudding River (Figure 1) that is made up of low-permeability silt and clay (Willamette Silt Unit) from land surface to approximately 100 ft. Below these fine-grained sediments are approximately 100 ft of more-permeable sands, gravels, and silts (Willamette Aquifer) which themselves overlie more clay. The applicants well is open to and produces from the permeable coarse sediments between 100 and 200 ft bls according to the well log. Although overlain by clayey material the coarse-grained aquifer does not appear to be confined based on comparison between water bearing zone and static water level, likely due the its proximity to the edge of the bench and Pudding River (the likely discharge source) which cuts through much of the upper clay unit and possibly into the coarse-grained alluvium underneath (Conlon et al., 2005).

Water level data from wells in the area of the applicant’s well (Figure 2) show stable water levels over time, which suggests groundwater is not over-appropriated at this time.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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	Alluvial material of the Willamette Aquifer	<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"/>

**Basis for aquifer confinement evaluation:** The driller's log for the applicant's well (MARI 65221) shows SWL only 18 ft above the first water bearing zone (WBZ) which is located at 100 ft and subsequent measurements made in the summer of 2014 by OWRD staff showed SWLs closer to 100 ft, which implies unconfined 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	1	Pudding River	85	82	342	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	2	Mill Creek	85	85	400	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

**Basis for aquifer hydraulic connection evaluation:** The well is less than ¼ mile from the Pudding River at the confluence of Mill Cr. and the Pudding River and is producing from an unconfined aquifer. Measured SWL in the well are coincident with river elevations. Additionally, OAR 690-09-040 requires all wells less than ¼ mi from surface water to be assumed to be in hydraulic connection with surface water.

**Water Availability Basin the well(s) are located within:** Mill Cr > Pudding R-at mouth (ID# 30200901) but impacts will also be to Pudding R > Molalla R – at mouth (ID# 69998). The well is located in the Mill Cr. WAB but near the confluence of Mill Cr. and the Pudding River so impacts will be to both surface water features.

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?
1	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IS73532A	36	<input type="checkbox"/>	67.9	<input type="checkbox"/>	~10%	<input checked="" type="checkbox"/>
1	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None	-	<input type="checkbox"/>	1.88	<input checked="" type="checkbox"/>	~10%	<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"/>

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:** The presence of a low-permeability streambed clogging layer (typical of low-gradient rivers such as the Pudding) and the low transmissivity of the aquifer (estimated from pumping test performed on the applicant's well) reduces the efficiency of hydraulic connection at short time frames (i.e., 30 days) (Figure 3). However, the Pudding River at near the confluence with Mill Cr. is the likely discharge source of the aquifer the applicant's well is producing from so long-term impacts to the Pudding River or Mill Cr. are expected and should be mitigated for.

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													
(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:** Section C4a does not apply on this application

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

C6. **SW / GW Remarks and Conditions** The applicant's well produces from an unconfined aquifer that is assumed to be hydraulically connected to the Pudding River at the confluence of the Pudding River and Mill Creek. This assumption is based on the well being less than ¼ mile from the river and producing from an unconfined aquifer (see OAR 690-502-0240 and 690-09-0040). Additionally, SWL in the well is coincident with stage elevation of the Pudding River and the river is the likely discharge source of the aquifer and so long-term use of the well will influence flows in the Pudding River. Pumping test data obtained from the applicant's well during the summer of 2014 by OWRD staff did not show influence of a river boundary but those tests were of short durations (4-5 hrs) and the WL in the well nearly fully recovered between successive pumping cycles. Water Availability Tables (see below) show that there is no water available in the Pudding River during the months of use requested by the applicant and so it is the recommendation that the permit not be issued unless surface water rights on the Pudding River and/or Mill Cr. are canceled to mitigate the impacts. The applicant states on the application that it is willing to offer cancellation of existing surface water rights to mitigate interference. Certificates 42317 (POA: Pudding R.) and 51036 (POA: Mill Cr.) are listed as primary surface water rights that cover the proposed POU requested under this application.

Have rights of 0.1 cfs from Mill Cr. & 0.2 cfs on Pudding, both PDAs same location at confluence

**References Used:**

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102.

Conlon and others, 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S Geological Survey Scientific Investigations Report 2005-5168

**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

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
PUDDING R > MOLALLA R - AT MOUTH						
Watershed ID #:	69998	Basin: WILLAMETTE			Exceedance Level:	80
Time:	2:28 PM				Date:	03/12/2015
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	1,120.00	130.00	990.00	0.00	80.00	910.00
FEB	1,260.00	120.00	1,140.00	0.00	80.00	1,060.00
MAR	1,080.00	91.00	989.00	0.00	80.00	909.00
APR	834.00	64.40	770.00	0.00	80.00	690.00
MAY	448.00	60.40	388.00	0.00	80.00	308.00
JUN	231.00	82.50	148.00	0.00	60.00	88.50
JUL	111.00	127.00	-16.10	0.00	50.00	-66.10
AUG	71.60	105.00	-33.30	0.00	40.00	-73.30
SEP	67.90	61.40	6.48	0.00	40.00	-33.50
OCT	91.50	16.90	74.60	0.00	60.00	14.60
NOV	364.00	54.50	309.00	0.00	80.00	229.00
DEC	1,010.00	124.00	886.00	0.00	80.00	806.00
ANN	748,000	62,600	686,000	0	48,900	642,000

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
MILL CR > PUDDING R - AT MOUTH						
Watershed ID #:	30200901	Basin: WILLAMETTE			Exceedance Level:	80
Time:	2:29 PM				Date:	03/12/2015
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	39.20	10.40	28.80	0.00	0.00	28.80
FEB	53.90	10.50	43.40	0.00	0.00	43.40
MAR	38.40	10.10	28.30	0.00	0.00	28.30
APR	27.60	7.62	20.00	0.00	0.00	20.00
MAY	13.70	6.17	7.53	0.00	0.00	7.53
JUN	8.72	7.46	1.26	0.00	0.00	1.26
JUL	3.79	11.00	-7.25	0.00	0.00	-7.25
AUG	2.09	9.06	-6.97	0.00	0.00	-6.97
SEP	1.88	5.15	-3.27	0.00	0.00	-3.27
OCT	2.39	1.77	0.62	0.00	0.00	0.62
NOV	6.05	7.78	-1.73	0.00	0.00	-1.73
DEC	25.90	10.20	15.70	0.00	0.00	15.70
ANN	30,000	5,860	25,000	0	0	25,000

Figure 1: Application Review Map

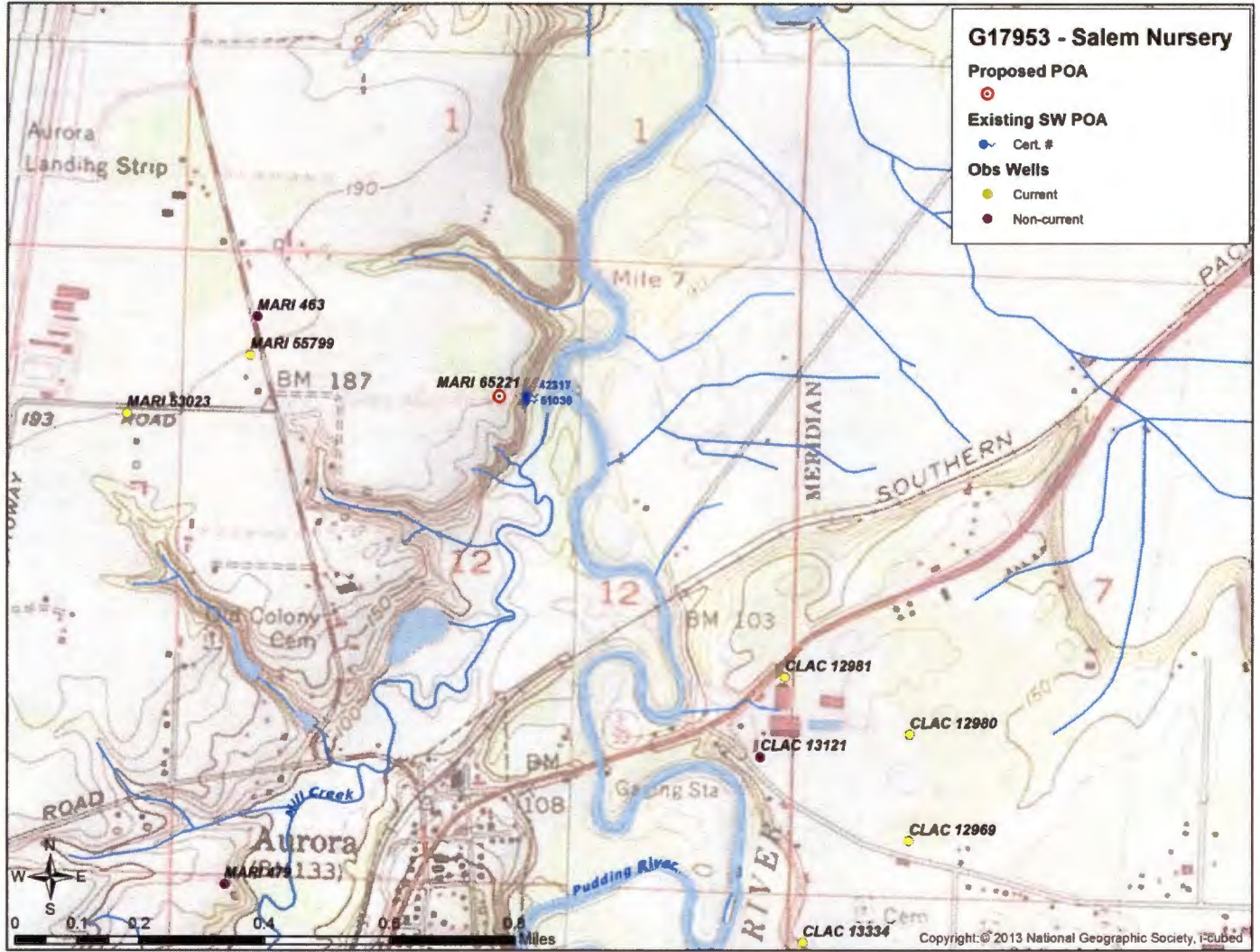




Figure 2: Water level data from nearby wells; all wells are within one 1 mi<sup>2</sup> section surrounding proposed POA

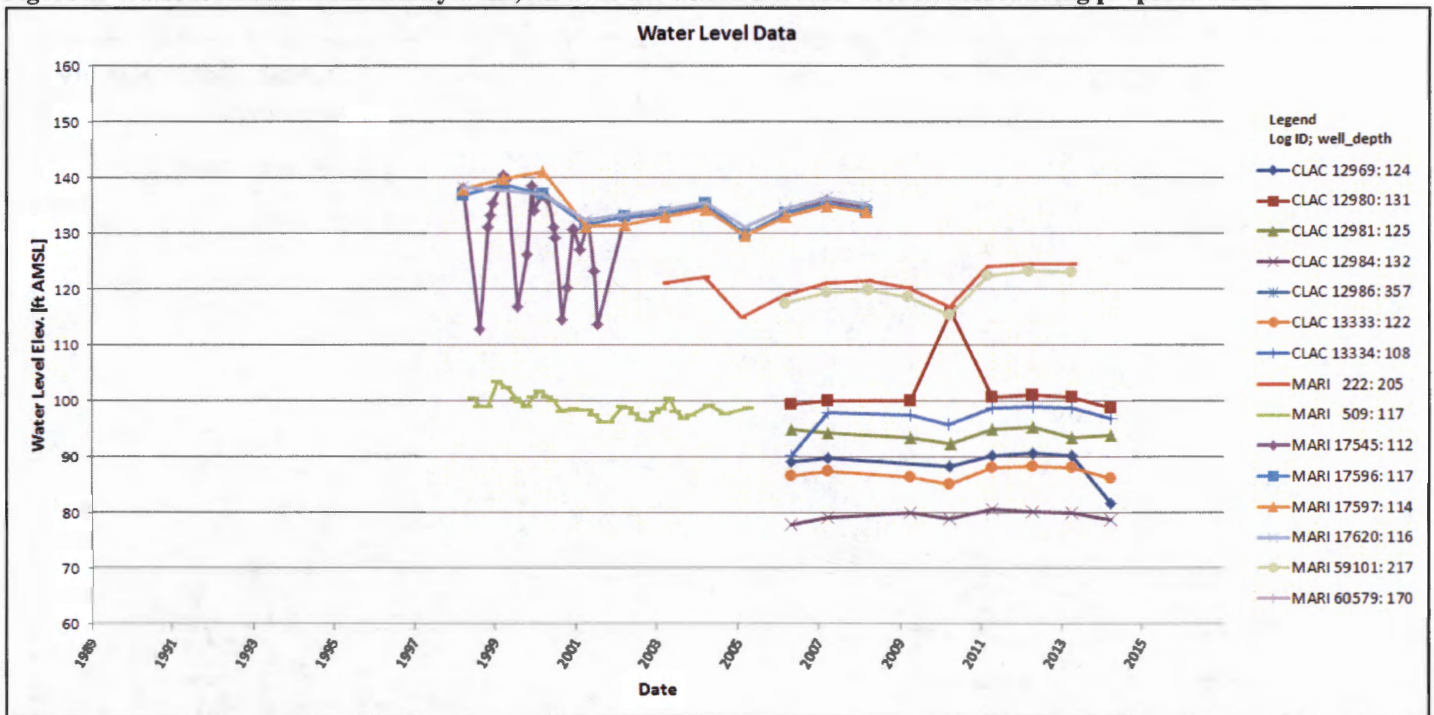
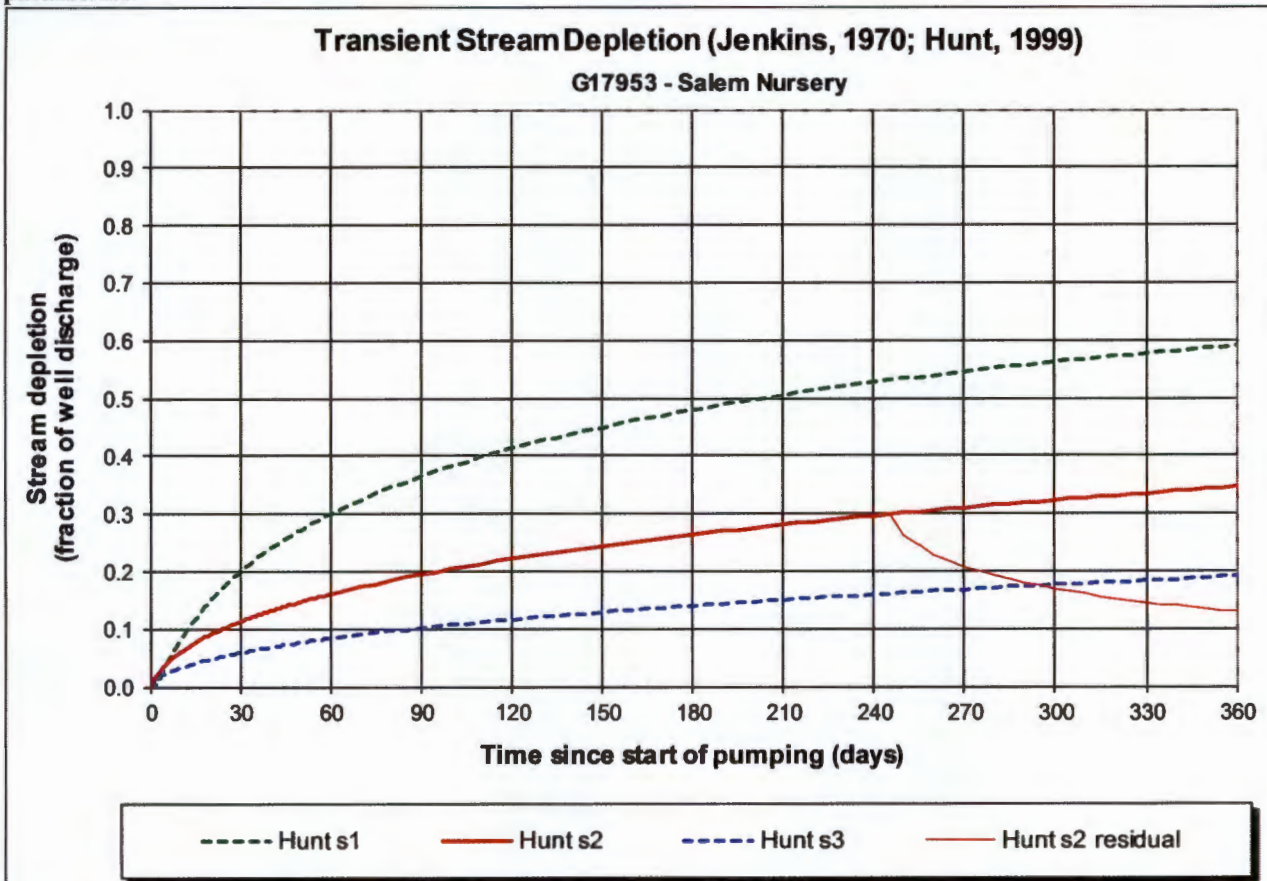


Figure 3: Hunt (1999) analysis of stream depletion caused by pumping; scenario 2 represents the best estimate of hydrologic parameters.



Output for Hunt Stream Depletion, Scenerio 2 (s2): Time pump on = 245 days

Days	30	60	90	120	150	180	210	240	270	300	330	360
Qw, cfs	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
Hunt SD %	11%	16%	19%	22%	24%	26%	28%	30%	21%	17%	15%	13%
Hunt SD cfs	0.034	0.048	0.058	0.066	0.073	0.079	0.084	0.089	0.062	0.051	0.044	0.039

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.3	0.3	0.3	cfs
Distance to stream	a	350	350	350	ft
Aquifer hydraulic conductivity	K	1	10	50	ft/day
Aquifer thickness	b	120	120	120	ft
Aquifer transmissivity	T	120	1200	6000	ft*ft/day
Aquifer storage coefficient	S	0.01	0.01	0.01	
Stream width	ws	100	100	100	ft
Streambed hydraulic conductivity	Ks	0.005	0.005	0.005	ft/day
Streambed thickness	bs	3	3	3	ft
Streambed conductance	sbc	0.167	0.167	0.167	ft/day
Stream depletion factor (Jenkins)	sdf	10.208	1.021	0.204	days
Streambed factor (Hunt)	sbf	0.486	0.049	0.010	

STATE OF OREGON  
WATER SUPPLY WELL REPORT  
(as required by ORS 537.765 & OAR 690-205-0210)

MARI 65221

WELL I.D. LABEL# I 114791  
START CARD # 1022841  
ORIGINAL LOG #

5/9/2014

(1) LAND OWNER

Owner Well I.D. \_\_\_\_\_  
First Name \_\_\_\_\_ Last Name \_\_\_\_\_  
Company SALEM NURSERY  
Address 5050 SE STARK RD  
City PORTLAND State OR Zip 97215

(2) TYPE OF WORK

New Well  Deepening  Conversion  
 Alteration (complete 2a & 10)  Abandonment (complete 5a)

(2a) PRE-ALTERATION

Casing: Dia + From To Gauge Stl Plstc Wld Tbrd  
Material From To Amt sacks/lbs  
Seal: \_\_\_\_\_

(3) DRILL METHOD

Rotary Air  Rotary Mud  Cable  Auger  Cable Mud  
 Reverse Rotary  Other \_\_\_\_\_

(4) PROPOSED USE

Domestic  Irrigation  Community  
 Industrial/ Commercial  Livestock  Dewatering  
 Thermal  Injection  Other \_\_\_\_\_

(5) BORE HOLE CONSTRUCTION

Special Standard  (Attach copy)

Depth of Completed Well 210.00 ft.

BORE HOLE			SEAL				sacks/
Dia	From	To	Material	From	To	Amt	lbs
16	0	50	Cement	0	50	3200	P
8	50	210					

How was seal placed: Method  A  B  C  D  E:  
 Other \_\_\_\_\_

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_

Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

Explosives used:  Yes Type \_\_\_\_\_ Amount \_\_\_\_\_

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount \_\_\_\_\_ Actual Amount \_\_\_\_\_

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Tbrd
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8	<input checked="" type="checkbox"/>	2.5	210	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6	<input type="checkbox"/>	0	160	200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Shoe  Inside  Outside  Other Location of shoe(s) 210

Temp casing  Yes Dia 12 From 0 To 50

(7) PERFORATIONS/SCREENS

Perforations Method Mills knife

Screens Type Alloy machine works Material Stainless sttel

Perf/	Casing/	Screen	Dia	From	To	Scr/slot	Slot	# of	Tele/
Screen	Liner					width	length	slots	pipe size
Perf	Casing		8	102	137	.25	2	365	
Perf	Casing		8	160	170	.25	2	260	
Perf	Casing		8	180	200	.25	2	360	
Screen	Liner		7.75	160	210	.1			

(8) WELL TESTS: Minimum testing time is 1 hour

Pump  Bailer  Air  Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
400		210	2

Temperature 58 °F Lab analysis  Yes By \_\_\_\_\_

Water quality concerns?  Yes (describe below) TDS amount

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County MARION Twp 4.00 S N/S Range 1.00 W E/W WM  
Sec 12 NW 1/4 of the SE 1/4 Tax Lot 100  
Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_  
Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD  
Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD  
 Street address of well  Nearest address

22256 AIRPORT RD

(10) STATIC WATER LEVEL

Date	SWL(psi)	+ SWL(ft)
Existing Well / Pre-Alteration		
Completed Well 5/9/2014		82

Flowing Artesian?  Dry Hole?

WATER BEARING ZONES

Depth water was first found 100.00

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
4/21/2014	100	137	140		82
4/21/2014	160	170	150		82
4/22/2014	180	200	110		82

(11) WELL LOG

Ground Elevation \_\_\_\_\_

Material	From	To
Top soil	0	2
Brown silty clay	2	100
Sand & gravel	100	137
Black sand	137	140
Gray clay	140	160
Multi colored sand	160	170
Gray clay	170	180
Sandstone	180	200
Blue clay	200	210

Date Started 4/18/2014 Complete 5/8/2014

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, 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.

License Number \_\_\_\_\_ Date \_\_\_\_\_

Signed \_\_\_\_\_

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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.

License Number 1771 Date 5/9/2014

Signed GEORGE YOUNGBERG (E-filed)

Contact Info (optional) Youngberg pump & well drilling ph.503-630-3970