Groundwater Application Review Summary Form

Application # G- 18858

GW Reviewer Travis Broam **Date Review Completed:** 10/1/2019

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.

✓ JT 10/7/19

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 October 1, 2019

TO: **Application G-** 18858

FROM: **GW:** Travis Brown
(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.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18858

Date: October 10, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Travis Brown reviewed the application. Please see Travis's Groundwater Review and the Well Logs.

Applicant's Well #1 (MARI 13914): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

Applicant's Well #2 (MARI 52488): 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.

Applicant's Well #3 (MARI 52792): Based on a review of the Well Report, Applicant's Well #3 seems to protect the groundwater resource.

The construction of Applicant's Well #3 may not satisfy hydraulic connection issue

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
MAR 20 1979
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

MAR 13 1979

State Well No. 9S/2W-4qc
State Permit No.

(1) OWNER:
Name Earl Bear
Address 9256 Marion Rd SE
Turner

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

CASING INSTALLED:
Threaded ☐ Welded ☒
2 " Diam. from 1 ft. to 146 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? ☒ Yes ☐ No
Type of perforator used Mills
Size of perforations 3/8 in. by 3 in.
432 perforations from 66 ft. to 86 ft.
360 perforations from 115 ft. to 134 ft.
perforations from ft. to ft.

RECEIVED
APR 13 1979
WATER RESOURCES DEPT.
SALEM, OREGON

(7) SCREENS:
Well screens installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom?
Yield: 500 gal./min. with 99 ft. drawdown after hrs.
" " "
" " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used cement grout
Well sealed from land surface to 20 ft.
Diameter of well bore to bottom of seal 16 in.
Diameter of well bore below seal 12 in.
Number of sacks of cement used in well seal 12 sacks
How was cement grout placed? pumped
Was a drive shoe used? ☒ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Marion Driller's well number
SW ¼ NE ¼ Section 4 T. 9S R. 2W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 66 ft.
Static level 1 ft. below land surface. Date Feb 23, 79
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 0
Depth drilled 146 ft. Depth of completed well 146 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
clay brown	0	4'	
cemented gravels med-brown	4'	43'	
gravel large med-sand	43'	52'	
sand brown	52'	55'	
cemented gravels med	55'	63'	
tight gravels	63'	66'	
gravels fine-med sand	66'	78'	2'
grave med-large	78'	82'	2'
tight gravels	82'	86'	
cemented gravels	86'	90'	
sand brown	90'	100'	
gravels large-med	100'	108'	
brown clay	108'	110'	
gravels med-large	110'	120'	
" fine-med	120'	126'	
tight gravels	126'	129'	
gravels fine-med	129'	134'	3'
gravels cobble-boulder brown & yellow clay	134'	146'	

Work started Jan 30 19 79 Completed Feb 22 19 79
Date well drilling machine moved off of well Feb 22 19 79

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Thomas R Peck (Drilling Machine Operator) Date Feb 23, 19 79
Drilling Machine Operator's License No. 924

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name COLA WELL DRILLING (Person, firm or corporation) (Type or print)
Address 4510 DALLAS RD. N.W. SALEM, OR 97304
[Signed] Lowell H Berndt (Water Well Contractor)
Contractor's License No. 619 Date 2-23, 19 79

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

MARI
52488

OCT 27 1997

WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

(START CARD) # 99066

(1) OWNER: Well Number L16249

Name John Reamey

Address P.O. box 349

City Turner State Ore Zip 97392

(2) TYPE OF WORK

☑ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☑ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☑ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☑ No Depth of Completed Well 81½ ft.

Explosives used ☐ Yes ☐ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	20.5'	cement	6	20.5'	7
6"	20.5	95'	bentonite	0	6	11

How was seal placed: Method ☐ A ☐ B ☑ C ☐ D ☐ E

☐ Other Temporary Casing Used

Backfill placed from ft. to ft. Material

Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	+2	78	.250	☑	☐	☑	☐
Liner:					☐	☐	☐	☐

Final location of shoe(s) 78'

(7) PERFORATIONS/SCREENS:

☐ Perforations Method

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☑ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
100-115 gpm	76	80	1 hr.

Temperature of water 53° Depth Artesian Flow Found

Was a water analysis done? ☐ Yes By whom

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other

Depth of strata:

(9) LOCATION OF WELL by legal description:

County Marion Latitude Longitude

Township 9 N or (S) Range 2 E or (W) WM.

Section 4 SW 1/4 NE 1/4

Tax Lot 61436 Lot Block Subdivision

Street Address of Well (or nearest address) 9256 Marion Rd

Turner, Ore 97392

(10) STATIC WATER LEVEL:

4 ft. below land surface. Date 10-7-97

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 6'

From	To	Estimated Flow Rate	SWL
6	15		—
78	85	100 - 115 gpm	4

(12) WELL LOG:

Ground Elevation

Material	From	To	SWL
Topsoil	0	3	—
brown Clay w/ Gravel	3	5	—
Sandy brown loam w/ Gravely	5	7	—
brown Gravel w/ brown Sand	7	95	4
Dickerson Well Drilling, Inc.			
(503) 623-2664			

Date started 10-4-97 Completed 10-7-97

(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

Signed Date

(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 1571

Signed William A Blair Date 10-7-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

RECEIVED
JAN 23 1998
WATER RESOURCES DEPT.
SALEM, OREGON

Mari 52792

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

(START CARD) # 99082

Well Number L21574

(1) OWNER:
Name John Remy
Address P.O. box J 348
City Turner State Oregon Zip 97392

(2) TYPE OF WORK
[x] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:
[x] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger
[ ] Other

(4) PROPOSED USE:
[x] Domestic [ ] Community [ ] Industrial [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Livestock [ ] Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [ ] No Depth of Completed Well 100 ft.
Explosives used [ ] Yes [x] No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	21	cement	7	21	6
			bentonite	0	7	8
6"	21	100				

(Temporary Surface Casing to 21 feet)

How was seal placed: Method [x] A [ ] B [ ] C [ ] D [ ] E
[ ] Other bentonite poured dry
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	+1.5	98.5	.250	[x]	[ ]	[x]	[ ]
Liner:								

Final location of shoe(s) 99'

(7) PERFORATIONS/SCREENS:
[ ] Perforations Method
[ ] Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						[ ]	[ ]

(8) WELL TESTS: Minimum testing time is 1 hour
[ ] Pump [ ] Bailer [x] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
140-150gpm	87'	90'	1 hr.

Temperature of water 53° Depth Artesian Flow Found
Was a water analysis done? NY [ ] Yes By whom
Did any strata contain water not suitable for intended use? [ ] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other
Depth of strata: possible Iron.

(9) LOCATION OF WELL by legal description:
County Marion Latitude Longitude
Township 9 N or (S) Range 2 E or (W) WM.
Section 4 SW 1/4 NE 1/4
Tax Lot 61436-900 Lot Block Subdivision
Street Address of Well (or nearest address) 9256 Marion Rd across from Bear Lane to the East

(10) STATIC WATER LEVEL:
3 ft. below land surface. Date 1-9-98
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 5'

From	To	Estimated Flow Rate	SWL
78	100	140-150gpm	3
85	10	5	—
17	20	15	—
50	60	30-50	—

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Black Topsoil w/ gravel	0	1	—
Brown Sand + Large Gravel	1	26	—
Large Gravel + Brown Sand	26	50	—
Black + Brown Gravel w/ Brown Sand	50	60	—
Brown Sand w/ small gravel	60	85	—
Brown Gravel w/ Sand	85	92	3
Brown Sand w/ Gravel	92	100	3
Dickerson Well Drilling, Inc			
ph # (503) 623-2664			

Date started 1-6-98 Completed 1-9-98

(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
Signed Date

(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 1571
Signed William A. Blair Date 1-9-98

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 10/01/2019
FROM: Groundwater Section Travis Brown
Reviewer's Name
SUBJECT: Application G- 18858 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: **Jon D. Remy, Jr.** County: **MARION**

A1. Applicant(s) seek(s) 2.39 cfs from 3 well(s) in the Willamette Basin, Main Stem Willamette subbasin

A2. Proposed use Nursery Use (95.9 acres) Seasonality: Year-round

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	MARI 13914	1	Alluvium	2.39	9S/2W-4 NW-NE	1180'S, 2160' W fr NE cor S4
2	MARI 52488	2	Alluvium	2.39	9S/2W-4 SW-NE	1400'S, 2390'W fr NE cor S4
3	MARI 52792	3	Alluvium	2.39	9S/2W-4 SW-NE	1310'S, 1680'W fr NE cor S4

* 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	~313	66	1	2/23/1979	146	0-20	1-146 (12")		66-86 (Perf) 115-134 (Perf)	500	99	Pump
2	~317	6	4	10/7/1997	95	0-20.5	+2-78 (6")			100-115	76	Air-1 hr
3	~318	5	3	1/9/1998	100	0-21	+1.5-98.5 (6")			140-150	87	Air-1 hr

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are located ~1 mile south of the City of Turner, Oregon. The proposed total annual volume of use is 480 af/year. **NOTE: Based on the acreage of the proposed POU [95.9 acres] and the containerized plant Nursery Use duty of 5 ft, the maximum allowable use should be 479.5 af/year.**

The sum of the reported well yields (~765 gpm or ~1.705 cfs) for the proposed POA is ~0.685 cfs less than the requested rate (2.39 cfs). It is unclear how the applicant plans to achieve the requested rate using only the proposed POA.

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 proposed POA are greater than ¼-mile from the nearest surface water source; therefore, per OAR 690-009-0240, the relevant basin rules do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **N/A**
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 (annual measurement condition), 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 **alluvial** 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: 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.**

The proposed POA are completed in unconfined sands and gravels considered part of the regional Willamette Aquifer (Gannett and Caldwell, 1998). The sediments are derived from the alluvial Stayton Fan which emanated from the North Santiam River drainage and filled the Stayton Subbasin (Gannett and Caldwell, 1998). Groundwater flow in this area of the subbasin aquifer is generally toward Mill Creek and the Turner Gap cut between the Salem and Waldo Hills by Mill Creek (Woodward et al., 1998).

Water level observations from this area are very limited. The nearest observation well completed in the alluvial system with recent data is over 7 miles to the southeast of the proposed POA/POU. That observation well, LINN 50629, does not show persistent declines, but its remoteness from the proposed POA/POU limits its applicability to this review. Bulk statistics were reviewed from water well reports for wells completed in the alluvial system within the same and adjacent sections as the proposed POA/POU (see attached Well Statistics). These bulk statistics indicate a slight decline in reported initial static water levels over time, though not significant enough to trigger concern regarding the capacity of the groundwater resource. The thickness of coarse-grained sediments deposited near the surface as part of the alluvial Stayton Fan should allow relatively high rates of recharge; as such, any potential declines in the alluvial aquifer system would likely be only seasonal in nature.

The nearest-known neighboring groundwater user to the proposed POA is MARI 60103, a domestic well registered to Dave Lawton. The exact location of MARI 60103 is not known, only that the well is within the bounds of Marion County tax lot 1200. As a domestic well, it is assumed that MARI 60103 is in close proximity to the buildings at the south end of tax lot 1200. The assumed location of MARI 60103 is ~900 ft northwest of proposed POA 2 (MARI 52488). Based on the unconfined nature of the aquifer and the distance between the proposed POA and MARI 60103, the proposed use is not anticipated to prevent MARI 60103 or similarly-located groundwater users from appropriating water to which they are legally entitled.

The conditions specified in B(1)(d)(i) and B(2)(c) are recommended for any permit issued pursuant to this application to protect senior groundwater users and the capacity of 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	**Alluvial**	☐	☒
2	**Alluvial**	☐	☒
3	**Alluvial**	☐	☒

Basis for aquifer confinement evaluation: Based on review of well logs for the proposed POA and nearby water wells, there does not appear to be sufficient fine-grained material overlying water-bearing zones to constitute a confining unit. Furthermore, for proposed POA 2 (MARI 52488) and 3 (MARI 52792), the reported initial static water levels are near or within noted water-bearing zones. Based on the available evidence, the alluvial aquifer appears to be unconfined in this area.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Mill Creek**	**~312**	**~290**	**~5,320**	☒	☐	☐	☐	☒
2	**1**	**Mill Creek**	**~313**	**~290**	**~5,440**	☒	☐	☐	☐	☒
3	**1**	**Mill Creek**	**~315**	**~290**	**~5,510**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The reported initial static water levels for the proposed POA are above the estimated surface water elevation for the nearest reach of SW 1 (Mill Creek). Additionally, water table mapping in this area shows groundwater flowing toward and discharging into SW 1 (Mill Creek) (Woodward et al., 1998). Based on the available evidence, the alluvial aquifer system is hydraulically connected to SW 1 (Mill Creek).

Water Availability Basin the well(s) are located within: MILL CR > WILLAMETTE R – AT MOUTH (WID #30200701)

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: No surface water sources were identified within 1 mile of the proposed POA.

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**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**	**<<1 %**
Well Q as CFS		**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***	**0.664***
Interference CFS		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
(B) = 80 % Nat. Q		**236**	**224**	**206**	**155**	**78.3**	**40.7**	**20.6**	**16.3**	**17.2**	**20.3**	**59.3**	**167**
(C) = 1 % Nat. Q		**2.36**	**2.24**	**2.06**	**1.55**	**0.783**	**0.407**	**0.206**	**0.163**	**0.172**	**0.203**	**0.593**	**0.167**
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**	**<1 %**

(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: The Hunt (1999) analytical model was used to assess the potential depletion of SW 1 (Mill Creek) due to the proposed use. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports, Conlon et al., 2003, 2005; Hampton, 1972; Helm and Leonard, 1977; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al., 1998) or are within a typical range of values for the given parameter within the hydrogeologic regime (Freeze and Cherry, 1979; Domenico and Mifflin, 1965). *The pumping rate used in the analysis was pro-rated based on the total allowable allocation (479.5 af/year) and the total number of days in the pumping period (365 days).

Results indicate that depletion of SW 1 (Mill Creek) due to the proposed use is likely to be negligible within the first year after pumping begins (see attached Stream Depletion Analysis). This is attributed primarily to the unconfined nature of the aquifer and the significant distance between the proposed POA and SW 1 (Mill 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 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:** _____

References Used:

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D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

D2. **THE WELL does not appear to meet current well construction standards based upon:**

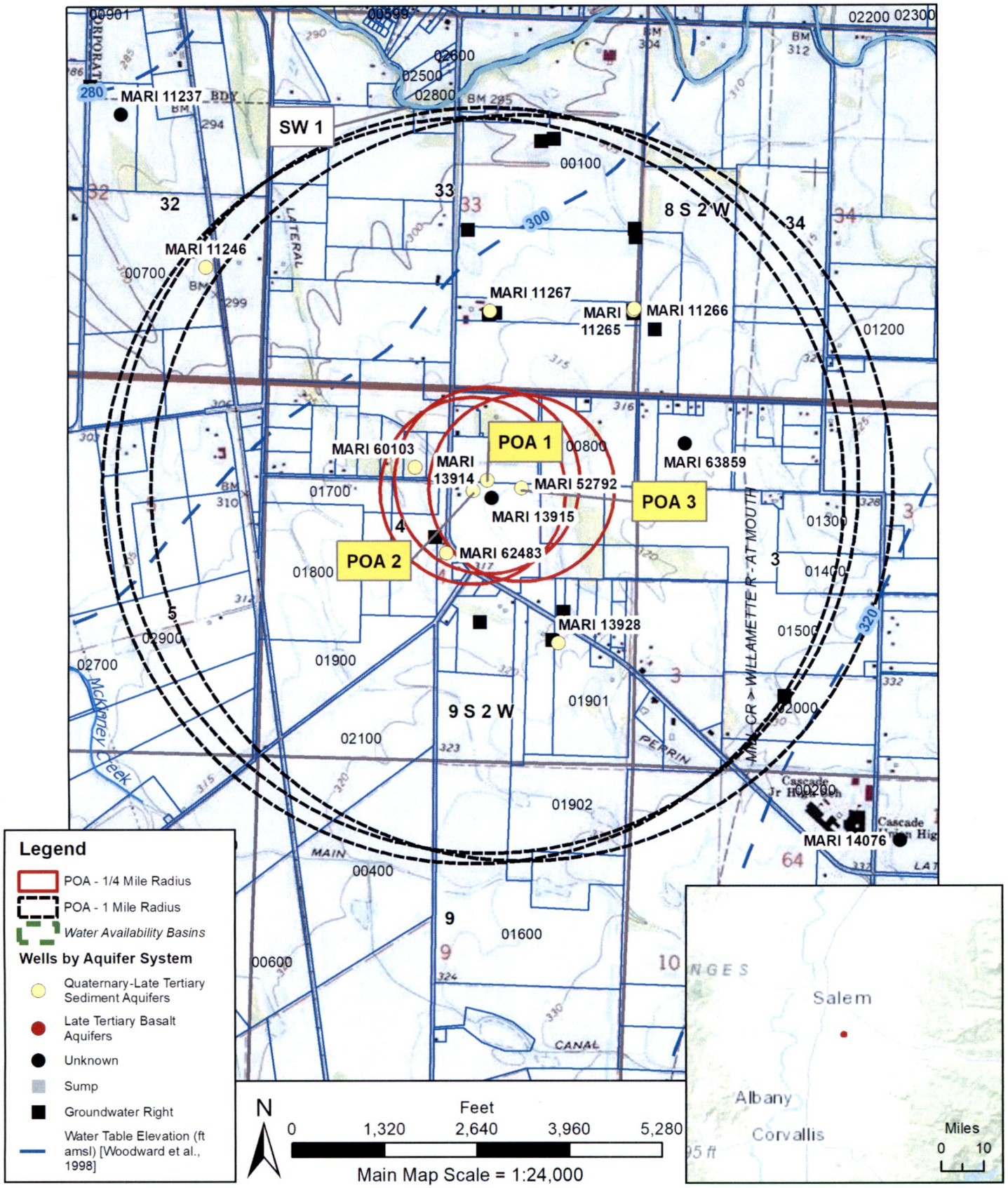
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** _____

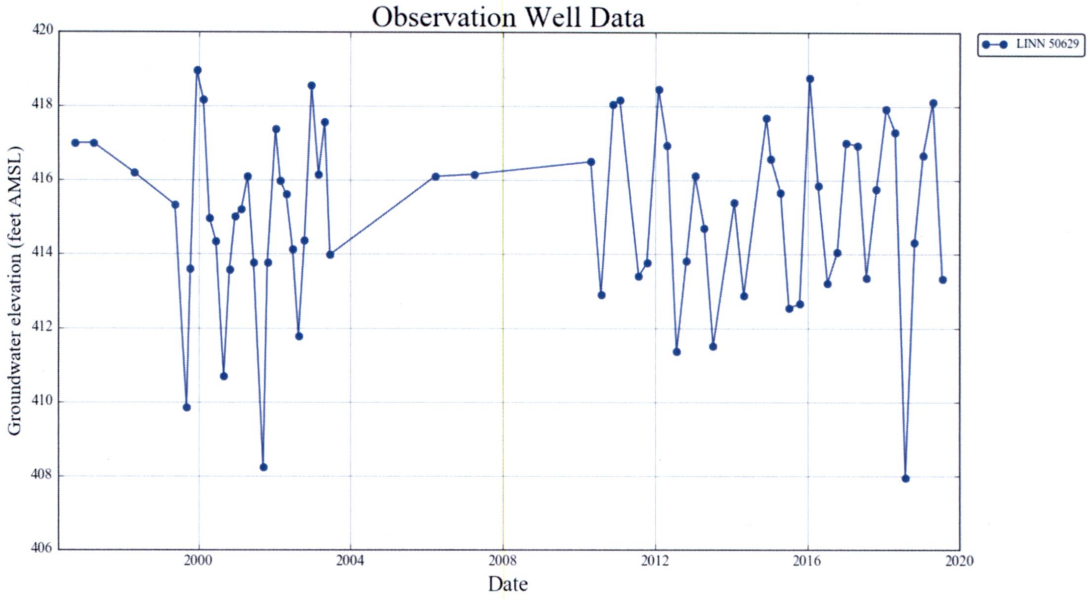
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map

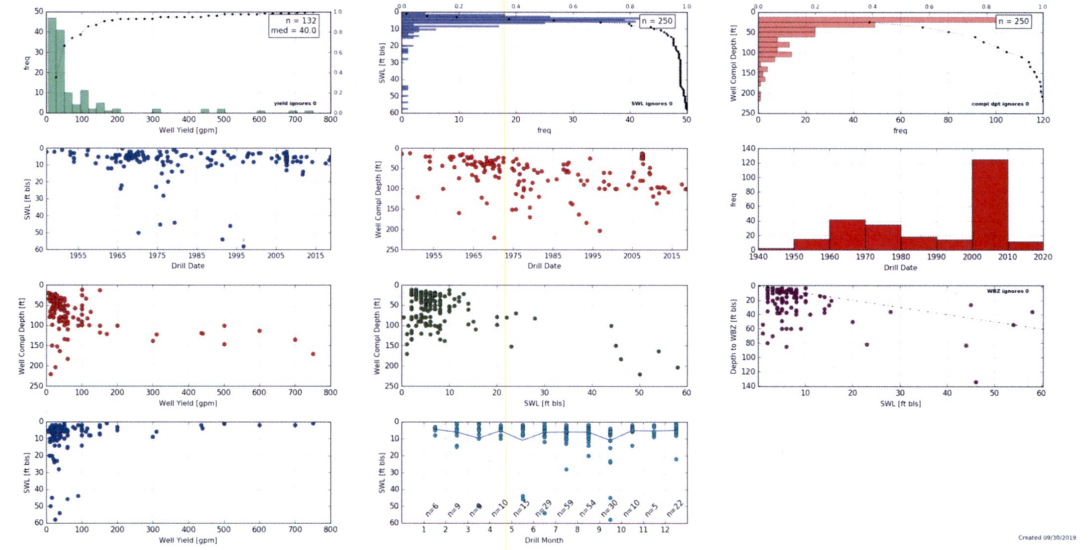
G-18858 Remy



Hydrographs



Well Statistics



Water Availability Tables

Water Availability Analysis
Detailed Reports

MILL CR > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 9/24/2019

Watershed ID #: 30200701 (Map)
Date: 9/24/2019

Exceedance Level: 80%
Time: 12:15 PM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

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	236.00	69.90	166.00	0.00	0.00	166.00
FEB	224.00	67.80	156.00	0.00	0.00	156.00
MAR	206.00	67.60	138.00	0.00	0.00	138.00
APR	155.00	67.50	87.50	0.00	0.00	87.50
MAY	78.30	67.90	10.40	0.00	0.00	10.40
JUN	40.70	66.10	-25.40	0.00	0.00	-25.40
JUL	20.60	64.80	-44.20	0.00	0.00	-44.20
AUG	16.30	70.00	-53.70	0.00	0.00	-53.70
SEP	17.20	69.00	-51.80	0.00	0.00	-51.80
OCT	20.30	66.90	-46.60	0.00	0.00	-46.60
NOV	59.30	67.00	-7.72	0.00	0.00	-7.72
DEC	167.00	69.00	98.00	0.00	0.00	98.00
ANN	135,000.00	49,100.00	96,200.00	0.00	0.00	96,200.00

Stream Depletion Analysis

Application type:	G
Application number:	18858
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.664
Pumping duration (days):	365
Pumping start month number (3=March)	1

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	5320	5320	5320	ft
Aquifer transmissivity	T	370	370	370	ft2/day
Aquifer storativity	S	0.19	0.18	0.17	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		0	0	0	
Aquitard thickness below stream	babs	3.0	3.0	3.0	ft
Not used		0	0	0	
Stream width	ws	30	30	30	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	0	0	0	0	0	0	0	0	0	0	0	0	0
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00