

Groundwater Application Review Summary Form

Application # G- 18961

GW Reviewer Travis Brown Date Review Completed: 6/25/2020

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.

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).

RECEIVED
AUG 26 1959

M 171 2540
G 1604

5/2w-19L(1)

File Original and
First Copy with the
STATE ENGINEER,
SALEM, OREGON

STATE ENGINEER WATER WELL REPORT
SALEM, OREGON STATE OF OREGON

State Well No. _____
State Permit No. _____

(1) OWNER:

Name Vasili Sisolov
Address R1 Hurvats Cr.

(2) LOCATION OF WELL:

County _____ Owner's number, if any—
1/4 Section T. R. W.M.
Bearing and distance from section or subdivision corner

(3) TYPE OF WORK (check):

New Well Deepening Reconditioning Abandon
If abandonment, describe material and procedure in Item 11.

PROPOSED USE (check):

Domestic Industrial Municipal
Irrigation Test Well Other

(5) TYPE OF WELL:

Rotary Driven
Cable Jetted
Dug Bored

(6) CASING INSTALLED:

8" Diam. from top ft. to bottom ft. Gage
" Diam. from _____ ft. to _____ ft. Gage _____
" Diam. from _____ ft. to _____ ft. Gage _____

(7) PERFORATIONS:

Perforated? Yes No
Type of perforator used mills
SIZE of perforations 3/8 in. by 2 in.
32 perforations from _____ ft. to _____ ft.
16 perforations from 65 ft. to 70 ft.
32 perforations from 75 ft. to 77 ft.
32 perforations from 84 ft. to 89 ft.
perforations from _____ ft. to _____ ft.

(8) SCREENS:

Well screen installed Yes No
Manufacturer's Name _____
Type _____ Model No. _____
Slot size _____ Set from _____ ft. to _____ ft.
Slot size _____ Set from _____ ft. to _____ ft.

(9) CONSTRUCTION:

Was well gravel packed? Yes No Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.
Was a surface seal provided? Yes No To what depth? 40 ft.
Material used in seal— puddled clay
Did any strata contain unusable water? Yes No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(10) WATER LEVELS:

Static level 6" ft. below land surface Date 8-19-59
Artesian pressure _____ lbs. per square inch Date _____

Log Accepted by:

[Signed] Vasili Sisolov Date Aug 20 1959
(Owner)

(11) WELL TESTS:

Drawdown is amount water level is lowered below static level
Was a pump test made? Yes No If yes, by whom? _____
Yield: gal./min. with ft. drawdown after hrs.
" 500 " 33 " 4 "
" 270 " 12 " 4 "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water, 76° Was a chemical analysis made? Yes No

(12) WELL LOG:

Diameter of well 8 inches.
Depth drilled 99 ft. Depth of completed well 89 ft.
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
<u>top dirt</u>	<u>0</u>	<u>2</u>
<u>gray sandy silt</u>	<u>2</u>	<u>35</u>
<u>black sandy shale</u>	<u>35</u>	<u>40</u>
<u>black sand</u>	<u>40</u>	<u>45</u>
<u>black interbedded shale</u>	<u>45</u>	<u>55</u>
<u>brown sand</u>	<u>55</u>	<u>65</u>
<u>brown sand & gravel</u>	<u>65</u>	<u>70</u>
<u>black sandy shale</u>	<u>70</u>	<u>75</u>
<u>black sand & gravel</u>	<u>75</u>	<u>77</u>
<u>yellow shale & gravel</u>	<u>77</u>	<u>84</u>
<u>brown sand & gravel</u>	<u>84</u>	<u>89</u>

Work started 8-10 1959 Completed 8-19 1959

(13) PUMP:

Manufacturer's Name _____
Type _____ H.P. _____

Well Driller's Statement:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME IRVING SEARS
(Person, firm, or corporation) (Type or print)

Address R1 Hurvats Cr.

Driller's well number 509

[Signed] Irving Sears
(Well Driller)

License No. 8 Date 8-19, 1959

STATE ENGINEER
Salem, Oregon

MARI. 2752

Well Record

STATE WELL NO. 5/2W-30E
COUNTY Marion
APPLICATION NO. GR-1487

GR- 1436

OWNER: F. Ralph DuRette

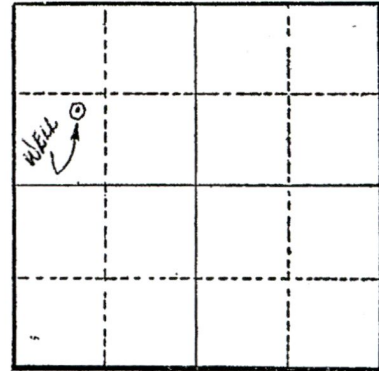
MAILING ADDRESS: Rt. 1, Box 266

LOCATION OF WELL: Owner's No.

CITY AND STATE: Gervais, Oregon

SW 1/4 NW 1/4 Sec. 30 T. 5 S., R. 2 W., W.M.

Bearing and distance from section or subdivision corner 1100' N. & 900' E. from E 1/4 cor. Sec. 25 T. 5S. R. 3W. W.M.



Section 30

Altitude at well 100'

TYPE OF WELL: Drilled Date Constructed 1949

Depth drilled 53' Depth cased 53'

CASING RECORD:
10"

FINISH:

Perforated from 35' to 53'

AQUIFERS:

Sand & gravel from 21' to 53'

WATER LEVEL:

6' (7-49)

PUMPING EQUIPMENT: Type Pacific Cent. H.P. 20
Capacity 560 G.P.M.

WELL TESTS:

Drawdown 3 ft. after 500 hours G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Irrigation Temp. °F. 19

SOURCE OF INFORMATION GR Record

DRILLER or DIGGER J. T. Miller

ADDITIONAL DATA:

Log Water Level Measurements Chemical Analysis Aquifer Test

REMARKS:

Log: Clay 0 to 9'
Sand 9' to 21'
Sand & rock 21' to 53'

Irrigation of 157 acres.

STATE ENGINEER
Salem, Oregon

MARI...²⁷⁸⁴

Well Record

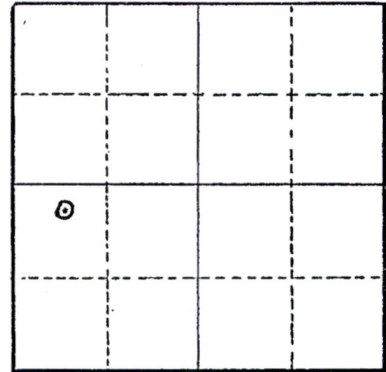
STATE WELL NO. 5/2W-30M(1)
COUNTY Marion
APPLICATION NO. GR-116

OWNER: Carter J. Keene MAILING ADDRESS:

LOCATION OF WELL: Owner's No. 1 CITY AND STATE: Gervais, Oregon

NW 1/4 SW 1/4 Sec. 30 T. 5 N. S., R. 2 W., W.M.

Bearing and distance from section or subdivision corner 750' E. & 400' S. from W 1/4 cor. Sec. 30



Section 30

Altitude at well 100' Interpolated

TYPE OF WELL: Drilled Date Constructed 1945

Depth drilled 45 Depth cased 27

CASING RECORD:

10 inch steel casing set from 0 to 45 feet

FINISH:

Perforations set from 27 to 45 feet

AQUIFERS:

Gravel 27 to 45 feet

WATER LEVEL:

8 feet below land surface Flows in winter

PUMPING EQUIPMENT: Type 3" centrifugal H.P. 40
Capacity 600 G.P.M.

WELL TESTS:

Drawdown ft. after hours G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Irrigation 109 acres Temp. °F., 19

SOURCE OF INFORMATION Registration Statement GR-116

DRILLER or DIGGER Wymore Well Drillers

ADDITIONAL DATA:

Log Water Level Measurements Chemical Analysis Aquifer Test

REMARKS:

Log: Silt 0-27 feet
Gravel 27-45 feet

WATER RESOURCES DEPARTMENT

MEMO

June 25, 2020

TO: Application G- 18961

FROM: GW: Travis Brown
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section
 FROM: Groundwater Section Travis Brown Date: 6/25/2020
 Reviewer's Name
 SUBJECT: Application G- 18961 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: Jane Stockfleth, LLC County: MARION

A1. Applicant(s) seek(s) 4.87 cfs from 4 well(s) in the Willamette Basin,
Mainstem Willamette subbasin

A2. Proposed use Nursery (194.9 ac / 974.5 af) 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 ID	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	NLOG 57903 ^a	"POA 1"	Alluvium	6.77 ^b	5S/3W-25 SE-NE	630' N, 830' W fr E ¼ cor S25
2	MARI 2754	"POA 2"	Alluvium	6.5633 ^b	5S/2W-30 NW-SW	750' E, 400' S fr W ¼ cor S30
3	MARI 2752	"POA 3"	Alluvium	6.8931 ^b	5S/2W-30 SW-NW	1400' S, 920' E fr NW cor S30
4	MARI 2540	"POA 4"	Alluvium	5.16 ^b	5S/2W-19 NE-SW	430' N, 270' E fr SW cor DLC90

* 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	~104 ^c		9'	1976	~65 ^a	Unknown ^d	Unknown (10")					
2	~101 ^c		8'	1945	45'	Unknown ^d	0-45 (10")		27-45 (Perf)	600		
3	~100 ^c		6'	1949	53'	Unknown ^d	0-53 (10")		35-53 (Perf)	560		
4	~143 ^c		7'	1959	89'	0-40'	0-89 (8")		65-70 (Perf) 75-77 (Perf) 84-89 (Perf)	500	33	Pump (4 hr)

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are ~4 miles west of Gervais, Oregon.

^a No log could be identified for this well. A site has been created in the Ground Water Information System (GWIS) with the Logid NLOG 57903. Construction information is based on the application.

^b All of the proposed POA have overlapping water rights. The proposed POA 1 is also the only authorized POA under Certificates 33555 and 48059. The proposed POA 2 is also the only authorized POA under Claim GR-116. The proposed POA 3 is also the only authorized POA under Certificate 48060 and Claim 1487. The proposed POA 4 is also the only authorized POA under Certificate 34521. The table above reflects the maximum combined rate of appropriation for each proposed POA under current certificates and claims plus the rate requested in this application.

^c Ground elevation at proposed POA location estimated from LIDAR (WatershedSciences, 2009)

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: Although some of the proposed POA (1, 2, and 4) are within ¼ mile of a surface water source, all of the proposed POA appear to be completed in at least a weakly-confined aquifer. Per OAR 690-502-0240, 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), 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.

Proposed POA 1-3 are located in the low elevation recent floodplain of the Willamette River and appear at least weakly-confined by a ~10-30 ft thick layer of fine-grained sediment near land surface based on their associated logs (with the exception of proposed POA 1, which does not have a well log) (O'Connor et al., 2001); in particular, the log for proposed POA 2 notes that it can "flow" (become artesian) in winter, indicating some level of confinement. The fine-grained sediments are underlain by more than 40 ft of sand and gravel. Reliable, long term water level data is unavailable for the floodplain aquifer. However, proposed POA 1-3 are anticipated to have an efficient hydraulic connection to the Willamette River, which has incised through the overlying confining layer. As such, long term declines are not anticipated to be a concern for the alluvial aquifer in this area.

The nearest neighboring groundwater right to proposed POA 1-3 is MARI 2522, an authorized POA under Certificate 57084. MARI 2522 is ~720 ft southeast of proposed POA 3 and is near the eastern edge of the recent floodplain. To estimate the effect of the proposed use on MARI 2522, an interference analysis was conducted using the Theis (1935) equation for drawdown in a confined aquifer. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2003, 2005; 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 (Domenico and Mifflin, 1965; Freeze and Cherry, 1979; Halford and Kuniansky, 2002). Standard condition 7n stipulates that if interference with a neighboring senior

groundwater right exceeds 25 ft, pumping of the proposed wells would need to be curtailed. Results of the analysis indicate that, at the maximum combined rate for POA 3 (6.8931), interference with **MARI 2522** is very likely to exceed 25 ft within ~12 days of continuous pumping. At the requested rate (4.87 cfs), interference with **MARI 2522** is very likely to exceed 25 ft within ~49 days of continuous pumping. At the reported/assumed yields for proposed POA 1-3 (which collectively are not enough to achieve the requested rate), cumulative interference with **MARI 2522** is still likely to exceed 25 ft within ~66 days (see attached Drawdown Analysis). **Therefore, the proposed use will not likely be available in the amounts requested without injury to prior groundwater rights.**

Proposed POA 4 is completed on a high terrace of older deposits from the Missoula Floods and is confined by the fine-grained sediments of the Willamette Silt (Gannett and Caldwell, 1998; O'Connor et al., 2001). Geologic mapping in this area estimates the Willamette Silt as between 80-100 ft thick and the underlying sands and gravels of the Willamette Aquifer as ~40 ft thick (Gannett and Caldwell, 1998). However, the log for **MARI 2540** indicates interbedded fine- and coarse-grained layers to its total depth of ~89 ft below land surface (bls). Nearby water level data does not indicate substantial, persistent declines in the aquifer around proposed POA 4 (see attached Hydrograph).

Based on the reported yields for POA 2-4 (~500-600 gpm or ~1.1-1.3 cfs) and assuming similar production from POA 1 (which does not have a reported yield), the proposed POA may collectively be able to produce ~5.04 cfs. As noted in Section A3 above, all of the proposed POA have overlapping rights or claims for which they are the *only* authorized POA (**Certificates 33555, 48059, 48060, and 34521; Claims GR-116 and GR-1487**). The rates of these extant rights total 5.9064 cfs, while the requested (additional) rate is 4.87 cfs. The combined requested and extant rates total 10.7764 cfs, more than double the estimated yield of the proposed POA:

POA	Water Right Rates			Well Yield	
	Requested [cfs]	Extant [cfs]	Combined [cfs]	[cfs]	[gpm]
1	4.87	1.9	6.77	1.34	
2	4.87	1.6933	6.5633	1.34	600
3	4.87	2.0231	6.8931	1.25	560
4	4.87	0.29	5.16	1.11	500
Total	4.87	5.9064	10.7764	5.04	

It is highly unlikely that the proposed POA will be able to produce groundwater in the amounts requested (i.e. an additional 4.87 cfs). Therefore, the proposed use will not likely be available within 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	Recent Floodplain Deposits of Willamette River (Alluvium)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Recent Floodplain Deposits of Willamette River (Alluvium)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Recent Floodplain Deposits of Willamette River (Alluvium)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Missoula Flood Deposits (Alluvium)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Proposed POA 1-3 are located in the low elevation recent floodplain of the Willamette River and appear at least weakly-confined by a ~10-30 ft thick layer of fine-grained sediment near land surface based on their associated logs (with the exception of proposed POA 1, which does not have a well log) (O'Connor et al., 2001); in particular, the log for proposed POA 2 notes that it can “flow” (become artesian) in winter, indicating some level of confinement. Proposed POA 4 is completed on a high terrace of older deposits from the Missoula Floods and is confined by the fine-grained sediments of the Willamette Silt (Gannett and Caldwell, 1998; O'Connor et al., 2001). The log for **MARI 2540** (proposed POA 4) indicates predominantly fine-grained sediments to ~40 ft bls, while the static water level was reported as ~0.5 ft bls. The available evidence indicates that proposed POA 4 is completed in a confined aquifer.

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
1-3	1	Unnamed tributary to Willamette River	~90-100	~90-100	~30-1,880	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	1	Unnamed tributary to Willamette River	~120-143	~90-100	~2,480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1-3	2	Unnamed tributary to Willamette River	~90-100	~106-136	~850-2,600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	2	Unnamed tributary to Willamette River	~120-143	~106-136	~110	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1-3	3	Patterson Creek / Eldridge Slough	~90-100	~85-122	~1,300-2,530	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	3	Patterson Creek / Eldridge Slough	~120-143	~85-86	~4,480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1-3	4	Willamette River	~90-100	~85-88	~1,800-3,500	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	4	Willamette River	~120-143	~85-88	~3,720	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	5	West Champoeg Creek	~120-143	~137-138	~4,130	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: SW 1-4: Estimated groundwater elevations for the proposed POA are coincident with or above estimated surface water elevation for the proposed POA. No hydraulic barriers were identified between the proposed POA and these surface waters. The available evidence suggests that the proposed POA are hydraulically connected to SW 1-4.

SW 5: Although the estimated surface water elevation for SW 5 is within the range of estimated groundwater elevations for proposed POA 4, topographic and potentiometric mapping in this area suggest that SW 5 is on the opposite side of a groundwater divide, with groundwater flow near the proposed POA 4 moving predominantly toward the recent alluvial floodplain and the mainstem Willamette River. Furthermore, SW 4 is between proposed POA 4 and SW 5 and may act as a hydraulic barrier. The available evidence suggests that proposed POA 4 is not hydraulically connected to SW 5.

Water Availability Basin the well(s) are located within: WID#182 WILLAMETTE R>COLUMBIA R – AB MOLALLA R

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 (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, 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 checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
2	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
3	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
4	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
2	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
3	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
4	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<<25%	<input checked="" type="checkbox"/>
1	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
3	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
4	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>

1	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MF182	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MF182	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
3	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MF182	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
4	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MF182	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25%	<input checked="" 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"/>

Comments: Proposed POA 1 is within ¼ mile of SW 1 & 3. Proposed POA 2 and 4 are within ¼ mile of SW 2. Per OAR 690-009-0040(a), the Potential for Substantial Interference (PSI) is assumed.

All of the proposed POA have combined rates of appropriation (extant rights plus this request) which exceed 5 cfs. Per OAR 690-009-0040(b), PSI is assumed.

Interference with various surface water sources due to the proposed use was quantitatively estimated using the Hunt (2003) analytical model. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2003, 2005; 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 (Domenico and Mifflin, 1965; Freeze and Cherry, 1979; Halford and Kuniansky, 2002). Results indicate that none of the proposed POA are anticipated to interfere with (deplete) nearby surface water sources at a rate greater than 25 percent of the rate of withdrawal within the first 30 days of continuous pumping.

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													
(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: _____

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:

Application File: G-18961

Claims: GR-116, GR-1487

Certificates: 33555, 34521, 48059, 48060

Pumping Test: MARI 2522, 2718, 2602, 2735, 2505, 17627, 18362, 2564, 2541, 2753, 2561, 2496

Conlon, T.D., Lee, K.K., and Risley, J.R., 2003, Heat tracing in streams in the central Willamette Basin, Oregon, in Stonestrom, D.A. and Constantz, Jim, eds., Heat as a tool for studying the movement of groundwater near streams: U.S. Geological Survey Circular 1260, chapter 5, p. 29-34.

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, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Domenico, P.A. and Mifflin, 1965, Water from low-permeability sediments and land subsidence: Water Resource Research, v. 1, no. 4, p. 563-576.

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

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

Halford, K.J., and Kuniansky, E.L., 2002, Documentation of Spreadsheets for the Analysis of Aquifer-Test and Slug-Test Data, Open File Report 02-197, 51 p: U. S. Geological Survey, Reston, VA.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, Vol 8, p. 12-19.

Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington, Water Supply Paper 2470-A, 58 p: U. S. Geological Survey, Reston, VA.

O'Connor, J. E., Sarna-Wojcicki, A., Wozniak, K. C., Polette, D. J., Fleck, R. J., 2001, Origin, Extent, and Thickness of Quaternary Units in the Willamette Valley, Oregon, Professional Paper 1620: U. S. Geological Survey, Reston, VA

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

United States Geological Survey, 2017, Gervais quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

United States Geological Survey, 2017, Saint Paul quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1, 2, & 3 Logid: NLOG 57903, MARI 2754, MARI 2752

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

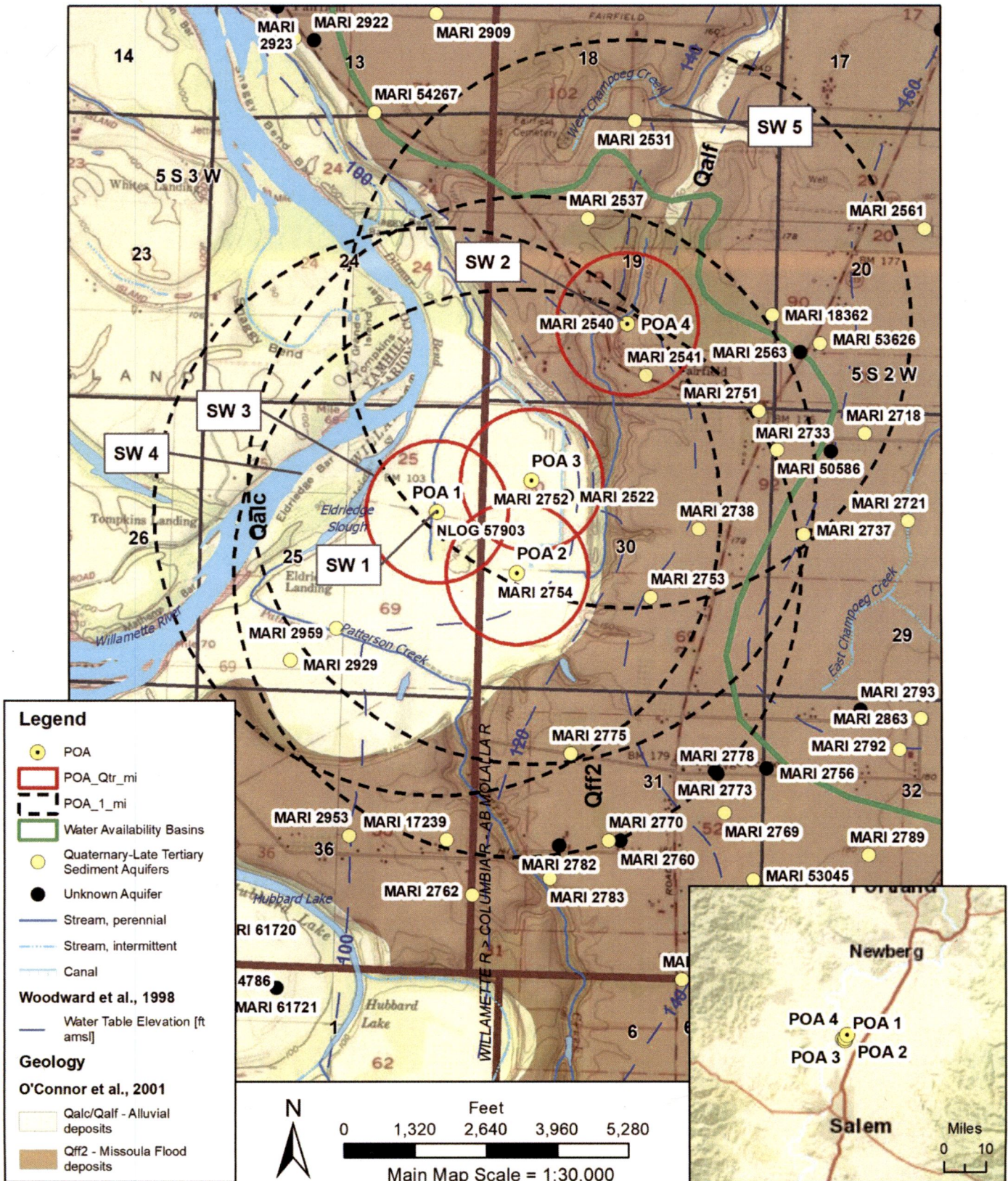
- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** Seal interval for the subject wells is unknown and has not been verified by the applicant. It is not known whether the seals for these wells meet well construction standards.

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

Well Location Map

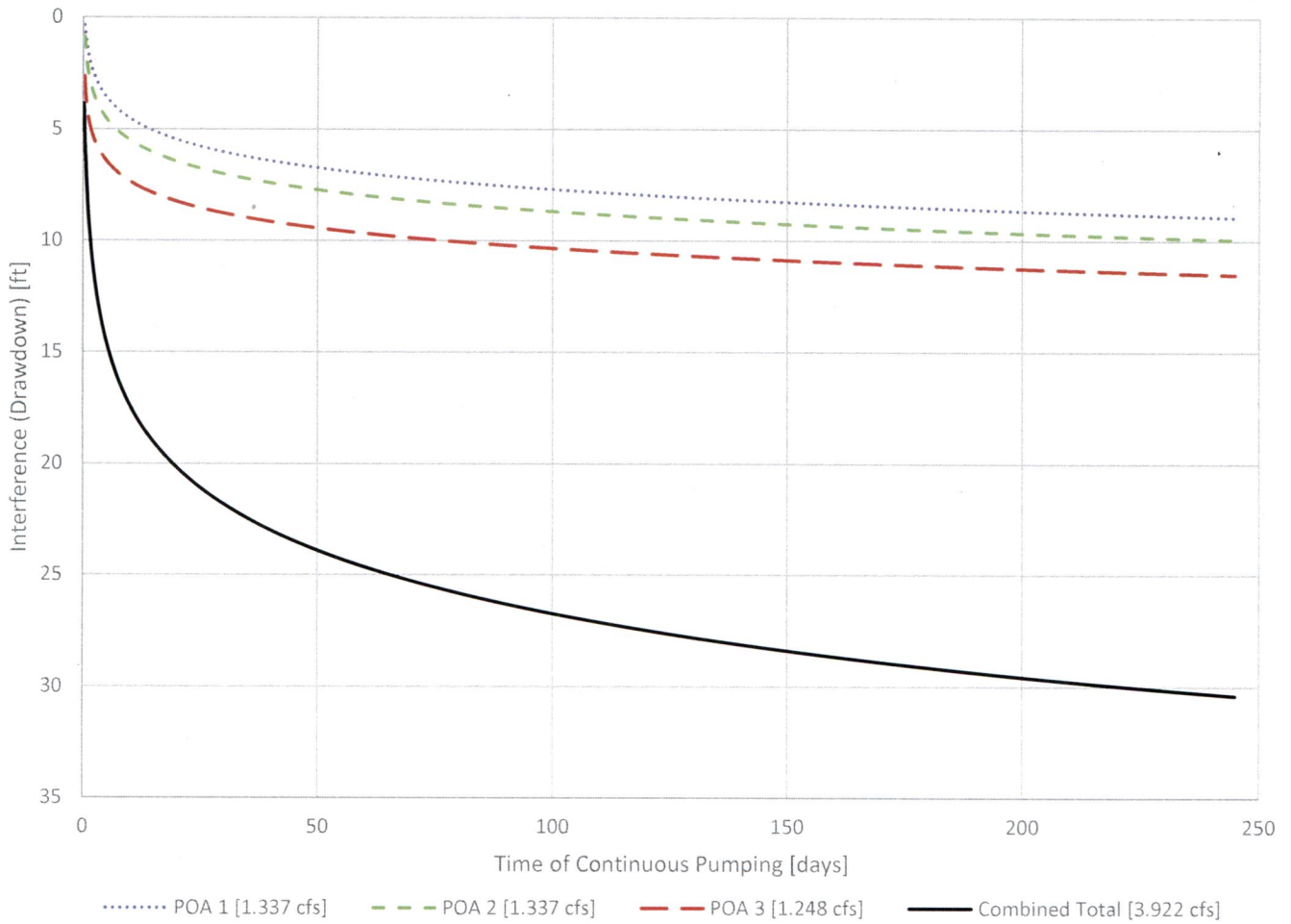
G-18961 Jane Stockfleth, LLC



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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Theis (1935) Drawdown Analysis

Interference with MARI 2522 at Reported/Assumed Well Yields

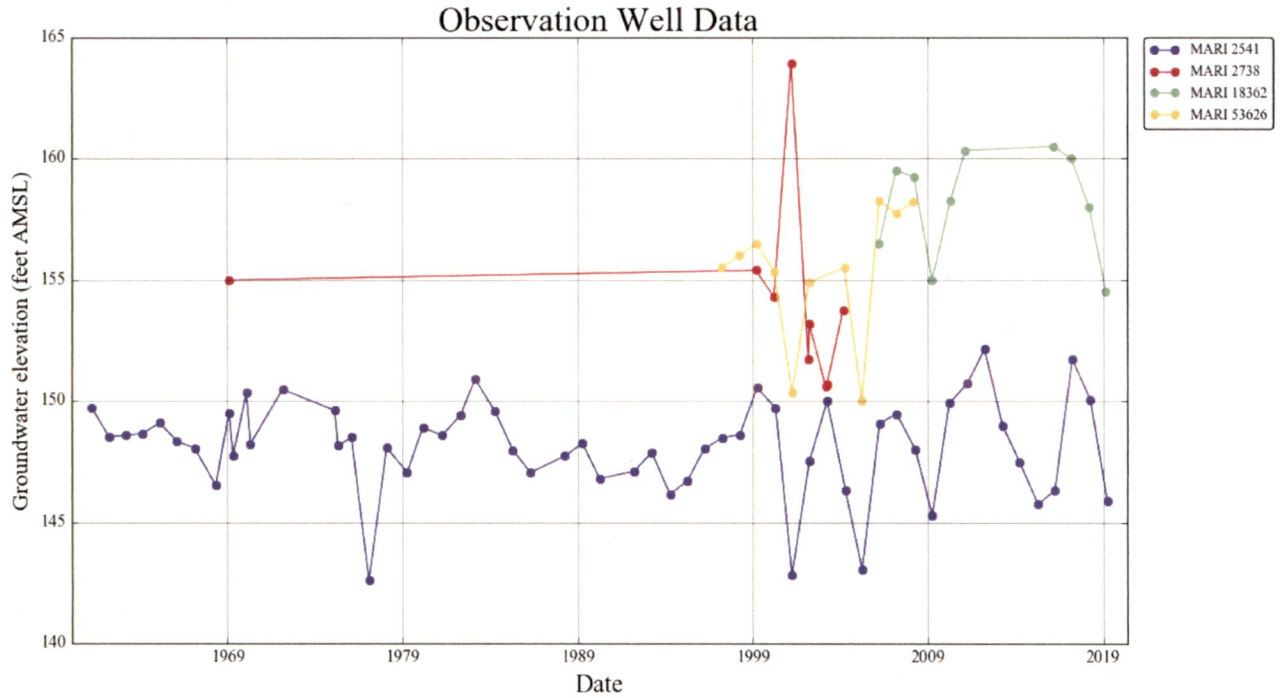


Distance from Pumped Well: POA 1 = 2,430 ft; POA 2 = 1,700 ft; POA 3 = 720 ft

Transmissivity = 6,600 ft²/day

Storativity = 0.001

Hydrograph



Water Availability Tables

**Water Availability Analysis
Detailed Reports**

WILLAMETTE R > COLUMBIA R - AB MOLALLA R
WILLAMETTE BASIN

Water Availability as of 6/23/2020

Watershed ID #: 182 ([Map](#))

Date: 6/23/2020

Exceedance Level:

Time: 12:49 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	21,400.00	2,300.00	19,100.00	0.00	1,500.00	17,600.00
FEB	23,200.00	7,480.00	15,700.00	0.00	1,500.00	14,200.00
MAR	22,400.00	7,260.00	15,100.00	0.00	1,500.00	13,600.00
APR	19,900.00	6,920.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,260.00	12,300.00	0.00	1,500.00	10,800.00
JUN	8,740.00	1,980.00	6,760.00	0.00	1,500.00	5,260.00
JUL	4,980.00	1,810.00	3,170.00	0.00	1,500.00	1,670.00
AUG	3,830.00	1,650.00	2,180.00	0.00	1,500.00	680.00
SEP	3,890.00	1,400.00	2,490.00	0.00	1,500.00	995.00
OCT	4,850.00	757.00	4,090.00	0.00	1,500.00	2,590.00
NOV	10,200.00	890.00	9,310.00	0.00	1,500.00	7,810.00
DEC	19,300.00	973.00	18,300.00	0.00	1,500.00	16,800.00
ANN	15,200,000.00	2,250,000.00	13,000,000.00	0.00	1,090,000.00	11,900,000.00

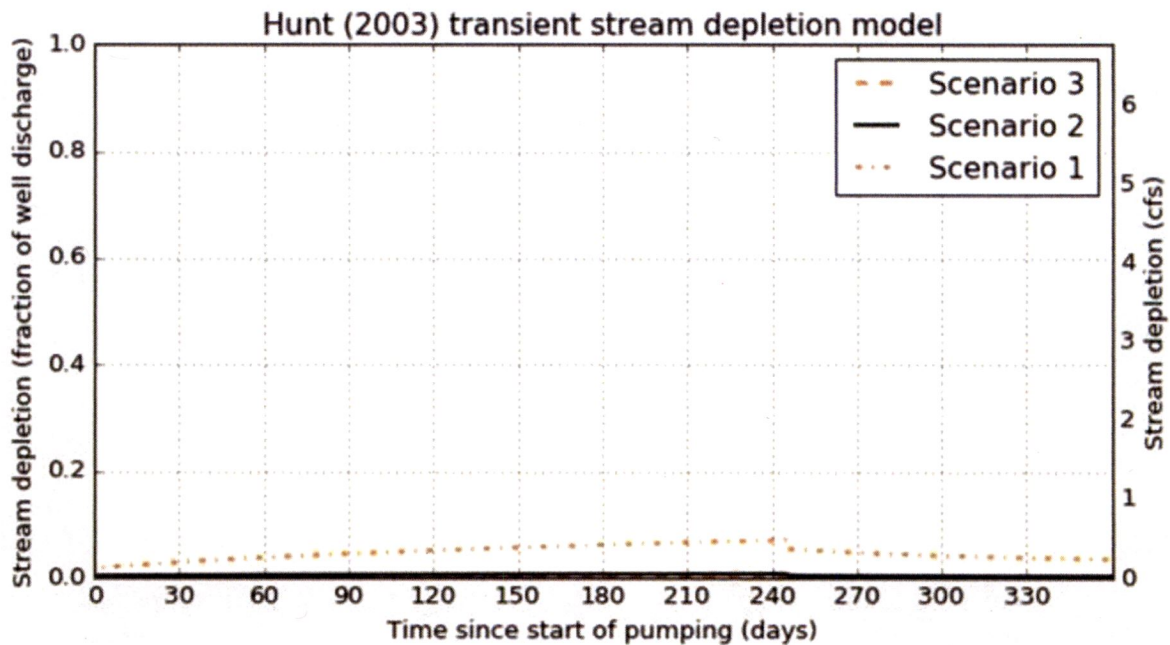
Stream Depletion Analysis: POA 1 – SW 1

Application type:	G
Application number:	18961
Well number:	1
Stream Number:	1
Pumping rate (cfs):	6.77
Pumping duration (days):	245
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	30.0	30.0	30.0	ft
Aquifer transmissivity	T	660.0	2100.0	6600.0	ft ² /day
Aquifer storativity	S	0.001	0.005	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.1	0.05	0.01	ft/day
Aquitard saturated thickness	ba	10.0	20.0	30.0	ft
Aquitard thickness below stream	babs	5.0	15.0	25.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	5.0	5.0	5.0	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	0	0	0	0	0	1	1	1	1	1	1	0	0
Depletion (cfs)	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.03	0.02



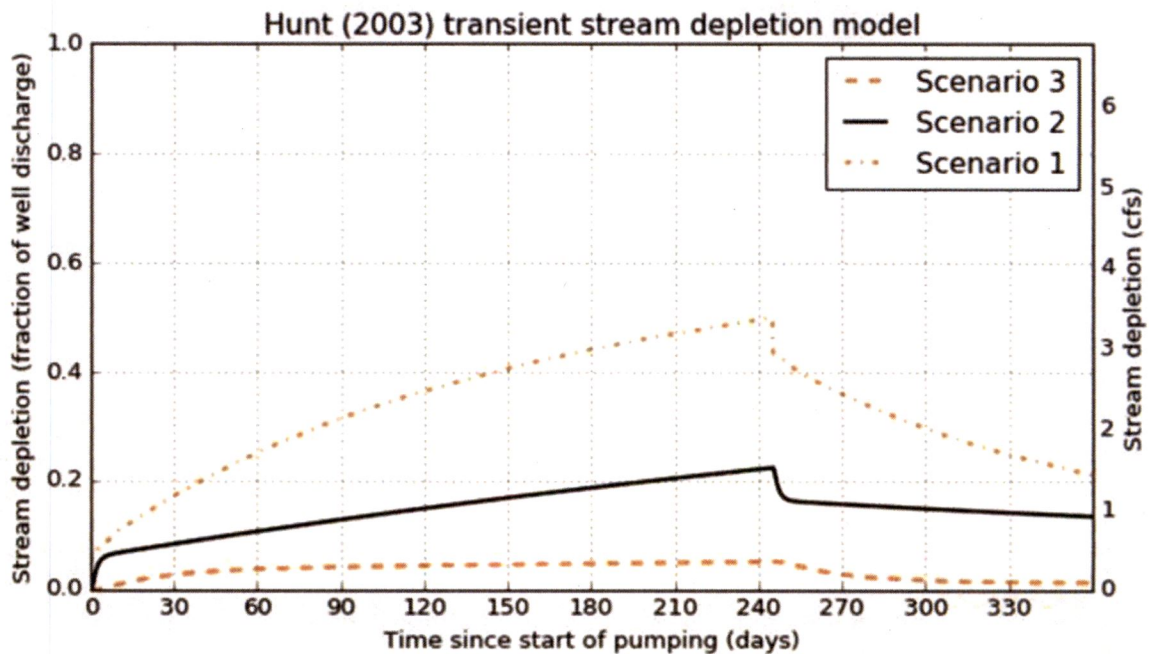
Stream Depletion Analysis: POA 1 – SW 3

Application type:	G
Application number:	18961
Well number:	1
Stream Number:	3
Pumping rate (cfs):	6.77
Pumping duration (days):	245.0
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1300.0	1300.0	1300.0	ft
Aquifer transmissivity	T	6600.0	2100.0	660.0	ft ² /day
Aquifer storativity	S	0.001	0.005	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.1	0.05	0.01	ft/day
Aquitard saturated thickness	ba	10.0	20.0	30.0	ft
Aquitard thickness below stream	babs	2.0	5.0	15.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	160.0	160.0	160.0	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	
Depletion (%)	7	14	14	8	11	13	15	17	19	21	22	16	15
Depletion (cfs)	0.46	0.96	0.92	0.57	0.73	0.87	1.01	1.15	1.27	1.39	1.50	1.07	1.01



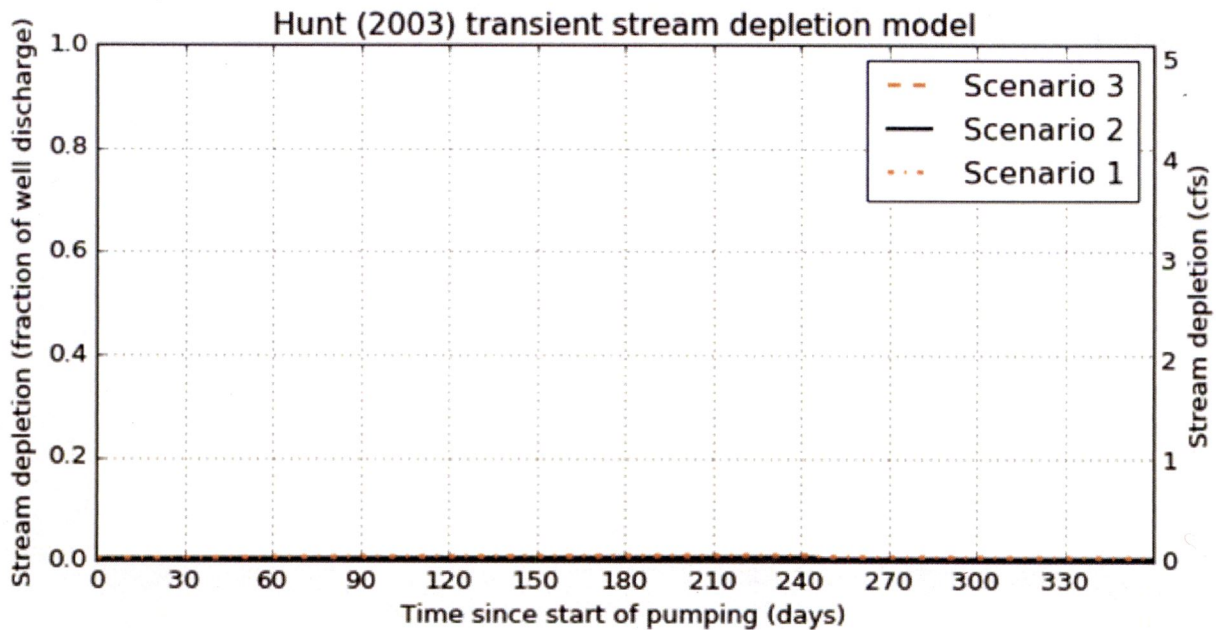
Stream Depletion Analysis: POA 4 – SW 2

Application type:	G
Application number:	18961
Well number:	4
Stream Number:	2
Pumping rate (cfs):	5.16
Pumping duration (days):	245.0
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	110.0	110.0	110.0	ft
Aquifer transmissivity	T	8000.0	2900.0	700.0	ft ² /day
Aquifer storativity	S	0.001	0.005	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.1	0.05	0.01	ft/day
Aquitard saturated thickness	ba	10.0	20.0	30.0	ft
Aquitard thickness below stream	babs	20.0	30.0	35.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	10.0	10.0	10.0	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330
Depletion (%)	0	0	0	0	1	1	1	1	1	0	0	0
Depletion (cfs)	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02



Approved:



MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18961
Date: July 7, 2020

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

Applicant's Well POA1 (No Well Report): There is no Well Report associated with this well that shows how it was originally constructed to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA1: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA1 may not satisfy hydraulic connection issues.

Applicant's Well POA2 (MARI 2754): There is no Well Report associated with this well that shows how it was originally constructed. The only information available is an informational report compiled by Water Resources Department staff. This does not confirm the construction of this well and is not adequate to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA2: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA2 may not satisfy hydraulic connection issues.

Applicant's Well POA3 (MARI 2752): There is no Well Report associated with this well that shows how it was originally constructed. The only information available is an informational report compiled by Water Resources Department staff. This does not confirm the construction of this well and is not adequate to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA3: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA3 may not satisfy hydraulic connection issues.

Applicant's Well POA4 (MARI 2540): Based on a review of the Well Report, Applicant's Well POA4 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The problem is that the Well Report does not indicate that the well head extends at least one foot above land surface. The Well Report also indicates that puddled clay was used for the annular seal. Puddled clay is not an approved seal material. The Well Report also does not indicate the volume of seal material used, or the diameter of the borehole where the seal was placed.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA4: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA4 may not satisfy hydraulic connection issues.