

Groundwater Application Review Summary Form

Application # G- 19352

GW Reviewer Phillip I. Marcy Date Review Completed: 10/06/2023

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).

WATER RESOURCES DEPARTMENT

MEMO

October 6, 2023

TO: **Application G- 19352**

FROM: **GW: Phillip I. Marcy**
 (Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic
 NO Waterway or its tributaries

YES
 NO Use the Scenic Waterway Condition (Condition 7J)

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 [Enter] 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 Date 10/06/2023
FROM: Groundwater Section Phillip I. Marcy Reviewer's Name
SUBJECT: Application G- 19352 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: Phillip I. Marcy County: Linn

A1. Applicant(s) seek(s) 0.31 cfs from 2 well(s) in the Willamette Basin,
subbasin

A2. Proposed use Nursery Uses (11.5 acres) / Primary Irrigation (1.8 acres)
Seasonality: Year-round (nursery) / March 1st - October 31st (245 days)

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

Table with 7 columns: 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

* Alluvium, CRB, Bedrock

Table with 13 columns: 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

Use data from application for proposed wells.

A4. Comments: The applicant proposes to use one existing well (LINN 10407) and construct one new well to produce groundwater for year-round nursery use on 11.5 acres and seasonal primary irrigation of 1.8 acres. The proposed well construction is similar to that of the existing well and is clearly designed to produce from the same water-bearing horizons.

A5. [X] Provisions of the Willamette Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water [] are, or [X] are not, activated by this application. (Not all basin rules contain such provisions.)

Comments: The proposed POA wells are not located within 1/4 mile of a perennial surface water source, therefore the pertinent basin rules do not apply.

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) 7N; 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 applicant’s proposed well is in an area underlain by thick alluvial fan deposits referred to as the Lebanon Fan by Woodward et al., (1998). These deposits are composed of coarse to fine sediments that reach > 140 ft thick and are considered to be a very productive aquifer system within the Willamette Valley. Locally, the aquifer appears to be greater than 200 feet thick and is confined by 10-20 feet of silt and clay (Willamette Silt). The thickness of these deposits and their overall high transmissivity suggest little concern of negative impacts from the proposed use.

Available water level data are sparse, and display seasonal fluctuation within the aquifer system, but do not indicate or suggest long-term groundwater elevation declines in the area of the proposed use (see attached hydrograph).

The closest proximity senior water right (Claim GR-2446) is located 1,060’ south of proposed POA 2. At this distance, a Theis drawdown calculation utilizing typical values for sands and gravels and a bulk aquifer thickness of 100’ anticipate less than 20’ of drawdown after one year of pumping at the proposed rate.

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	Sands & Gravels	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Sands & Gravels	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Information from nearby well logs indicates static water levels are typically somewhat higher than the elevation of respective water-bearing zones. The confining Willamette Silt is, in places, incised by local drainages, producing local confinement that likely varies by location and well construction. Considering the proposed well depth, the POA wells are likely to produce from semi-confined zones at depth within the alluvial aquifer system.

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
						<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: This section does not apply, as there are no surface water sources within one mile of the proposed POA locations.

Water Availability Basin the well(s) are located within: CALAPOOIA R > WILLAMETTE R - AB MOUTH

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

SW #	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: This section does not apply.

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													
(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: Based upon the distance to surface water from the proposed POA locations, the thickness and storage properties of the aquifer, and the relatively low pumping rate, the proposed use is not anticipated to substantially interfere with hydraulically connected local surface water.

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: _____

Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. *Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-B.

Gannett, M. W. and R. R. Caldwell. 1998. *Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-A.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: *Journal of Hydrologic Engineering*, January/February, 2003.

Local well logs, submitted pump tests, GWIS water level database

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:** _____

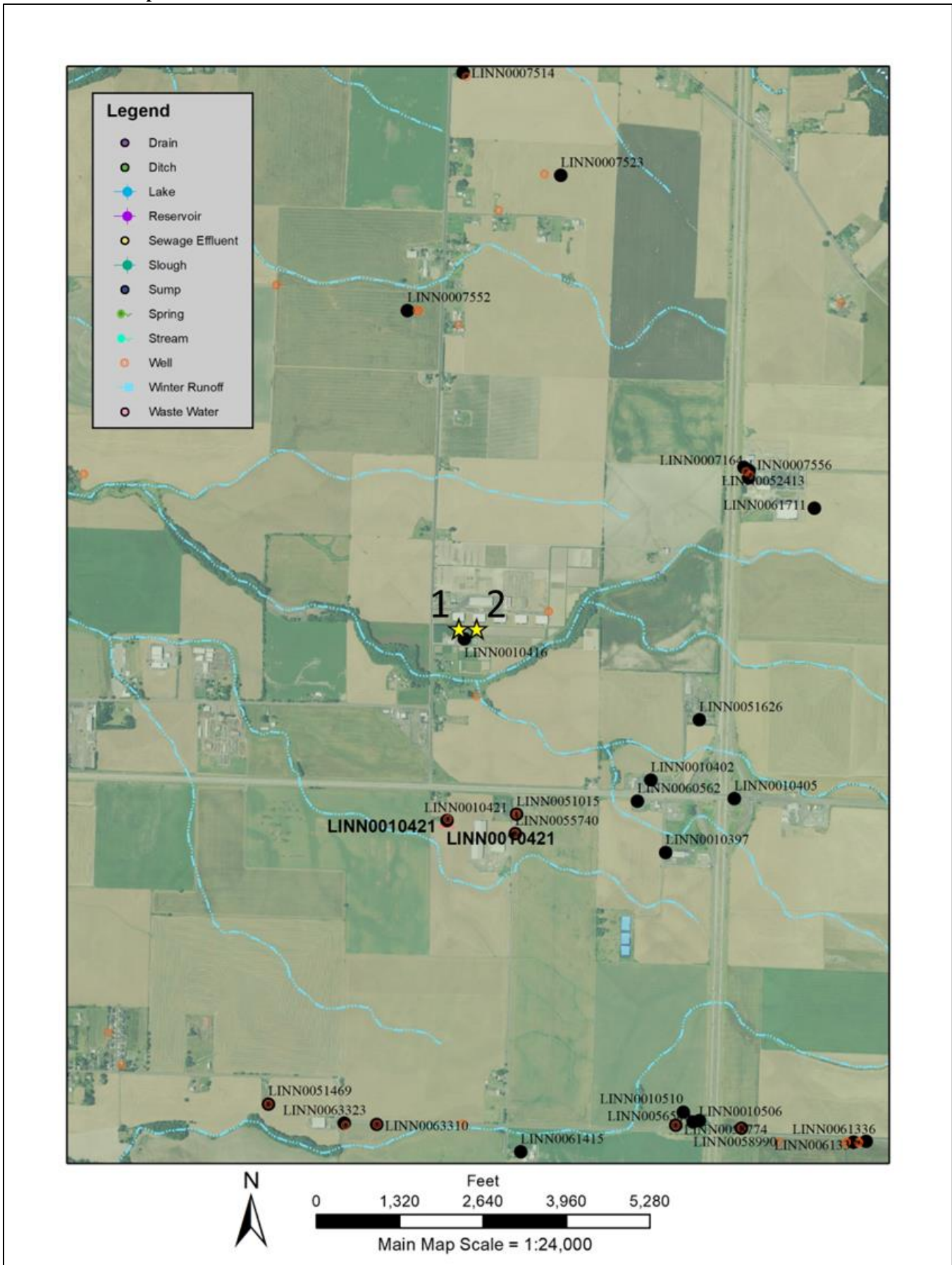
D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

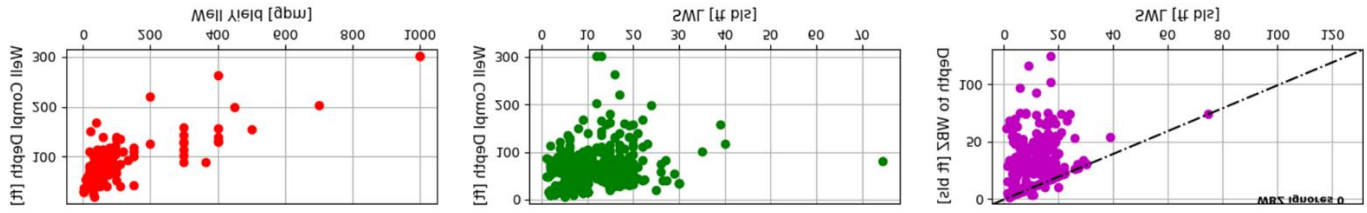
CALAPOOIA R > WILLAMETTE R - AB MOUTH						
Watershed ID #: 76		Basin: WILLAMETTE			Exceedance Level: 80	
Time: 8:33 AM					Date: 10/06/2023	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	592.00	4.75	587.00	0.00	20.00	567.00
FEB	650.00	4.68	645.00	0.00	20.00	625.00
MAR	575.00	3.50	571.00	0.00	20.00	551.00
APR	423.00	3.18	420.00	0.00	20.00	400.00
MAY	234.00	19.60	214.00	0.00	20.00	194.00
JUN	111.00	15.40	95.60	0.00	20.00	75.60
JUL	49.00	23.90	25.10	0.00	20.00	5.10
AUG	26.00	17.20	8.77	0.00	20.00	-11.20
SEP	22.70	8.89	13.80	0.00	20.00	-6.19
OCT	29.60	2.83	26.80	0.00	20.00	6.77
NOV	133.00	3.34	130.00	0.00	20.00	110.00
DEC	499.00	4.70	494.00	0.00	20.00	474.00
ANN	404,000	6,800	397,000	0	14,500	383,000

CALAPOOIA R > WILLAMETTE R - AB MOUTH													
Watershed ID #: 76		Basin: WILLAMETTE										Date: 10/06/2023	
Time: 8:37 AM													
Application Number	Status	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly values are in cfs.													
MF76A	CERTIFICATE	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
MAXIMUM		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

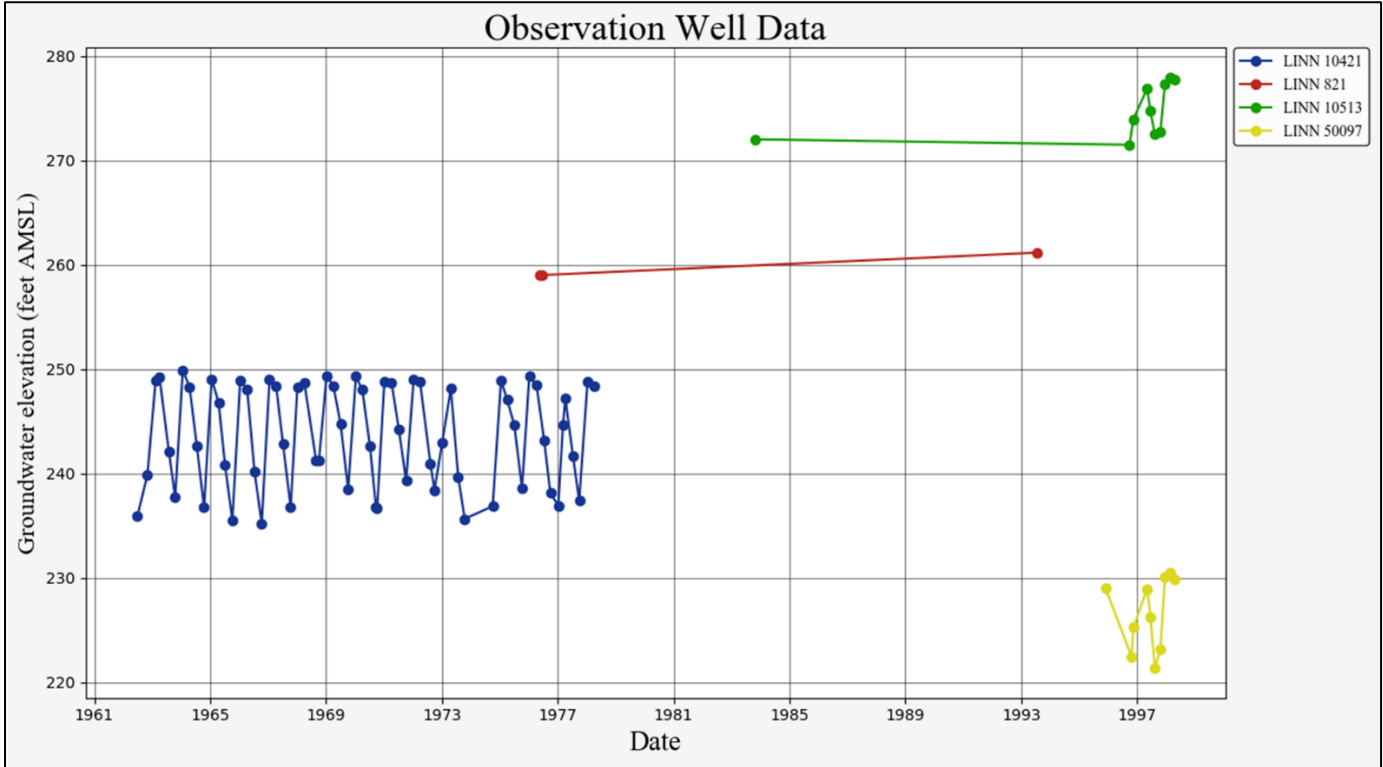
Well Location Map



Well Statistics



Water-Level Measurements in Nearby Wells



This Interference Analysis

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units
Total pumping time	t		365		d
Radial distance from pumped well:	r		1060		ft
Pumping rate	Q		0.31		cfs
Hydraulic conductivity	K	5	10	20	ft/day
Aquifer thickness	b		100		ft
Storativity	S 1		0.01		
	S 2		0.005		
Transmissivity Conversions	T f2pd	500	1000	2000	ft ² /day
	T ft2pm	0.34722222	0.69444444	1.38888889	ft ² /min
	T gpdpft	3740	7480	14960	gpd/ft

