Groundwater Application Review Summary Form

Application # G- 19402

GW Reviewer Gabriela Ferreira Date Review Completed: January 12, 2024

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 **_January 12, 2024_**

TO: **Application** G-**_19402_**

FROM: **GW: _Gabriela Ferreira_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☒ **NO** The source of appropriation is hydraulically connected to a State Scenic 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 January 12, 2024
FROM: Groundwater Section Gabriela Ferreira
Reviewer's Name
SUBJECT: Application G- **19402** 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: **Jason Kraxberger** County: **Clackamas**

A1. Applicant(s) seek(s) 0.52 cfs from 2 well(s) in the Willamette Basin, _____ subbasin

A2. Proposed use Irrigation (41.8 acres) Seasonality: March 1 – October 31

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	PROPOSED	Well 1	Alluvial	0.52	4S/1E – 23	850' S, 1955' E fr NW cor S 23
2	CLAC 12433	Well 2	Alluvial	0.96[a]	4S/1E – 23	550' S, 1220' E fr NW cor S 23[b]

* 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	235[a]	TBD	TBD	TBD	200	30	200	TBD	TBD	TBD	TBD	TBD
2	235[a]	11	55	4/3/1981	193	25	0 – 163	153 – 193	170 – 183	164	38.25	Pump

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is approximately 3 miles northwest of Molalla. Applicant proposes irrigation use on 41.8 acres by one well already constructed (CLAC 12433) and one well to be constructed.
[a] Proposed POA CLAC 12433 is also an authorized POA under Certificate 84815 for 0.44 cfs; the combined maximum instantaneous rate for CLAC 12433 would therefore be 0.96 cfs (~430 gpm), with a combined maximum annual volume of 154.5 acre-feet .
[b] The metes and bounds described in Certificate 84815 for CLAC 12433 are 604 feet south and 1014 feet east from NW corner of Section 23. The correct metes and bounds should be provided for this proposed POA.
[a] Land surface elevation from LIDAR at the proposed well location (OLC, 2016)

A5. ☐ **Provisions of the** _____ 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 is greater than ¼-mile from the nearest perennial surface water source and will develop a confined aquifer; therefore, per OAR 690-502-0160 the relevant Willamette Basin rules (OAR 690-502-0050) do not apply.

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

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, Static Water Level Condition**;

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:** The proposed POAs are located in the central Willamette Valley and will produce from water-bearing sand and gravel layers within the Willamette Aquifer and the Willamette Confining Unit. The proposed POAs are located on the northern margin of the the Molalla alluvial fan, approximately 50 ft thick and comprising the Willamette Aquifer. The underlying Willamette Confining Unit is approximately 800 feet thick (Gannett and Caldwell, 1998). Bedrock (Columbia River Basalt Group) is encountered at depths greater than 800 feet. The majority of wells in the immediate vicinity draw water from the Willamette Aquifer or upper Willamette Confining unit (see attached well statistics).

Within approximately one mile of the proposed POA locations, there are about 30 water rights, typically irrigation and nursery use wells completed in the alluvial aquifer system, with several more exempt (domestic) wells also likely in the area. Reported maximum yields in the nearby alluvial wells (mostly domestic) typically range up to 200 gpm, with a few wells reporting 500 – 2500 gpm. Well deepenings are not prevalent. The pump test for proposed POA CLAC 12433 reported a yield of 164 gpm, which is less than half of the proposed maximum rate (430 gpm).

Eleven wells with sufficient water level data for evaluation were identified within approximately 2 miles of the proposed POAs, ranging in total depth from 150 to 300 feet bls. Reported water level elevations for these wells range from about 120 feet above mean sea level (amsl) to 220 feet amsl. Water level data for these wells are generally stable over the time period available (1997 through present) with variability up to 15 feet. Nearly 20 feet of decline is observed in water levels from two well (CLAC 59046 and CLAC 55589) from 2014 – 2021 although the time period coincides with drought conditions and is not long enough to be conclusive.

No nearby wells fully penetrate the 800-850 ft deep alluvial system in this area, and thus potential injury to nearby groundwater users was not assessed for this review.

However, permit condition 7N is recommended to assess potential future injury concerns, and as a means to monitor long-term groundwater conditions in this area.

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**	☒	☐

Basis for aquifer confinement evaluation: Nearby wells completed in the Willamette Aquifer or Willamette Confining Unit report SWLs above the water-bearing zone(s), indicating a confined aquifer or series of aquifers. The reported water bearing zone for Well 2 (CLAC 12433) is between 171 and 186 feet bls with a reported static water level of 55 feet bls. Several fine-grained sediment layers are reported overlying water-bearing zones.

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[1]	SW Elev ft msl[2]	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Dove Creek**	**180 - 190**	**220 – 175**	**1,430**	☒	☐	☐	☐	☒
2	**1**	**Dove Creek**	**180 – 190**	**220 - 175**	**1,440**	☒	☐	☐	☐	☒
1	**2**	**Gribble Creek**	**180 – 190**	**220 – 200**	**3,830**	☒	☐	☐	☐	☒
2	**2**	**Gribble Creek**	**180 - 190**	**220 – 200**	**2,600**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: [1] Estimated groundwater elevation is based on Gannett and Caldwell (1998) and reported static water level in Well 2 (CLAC 12433).

[2] Estimated surface water elevation and distance is provided for the nearest perennial reach for each surface water body (OLC, 2016; USGS 2014).

Because the estimated groundwater elevations for the POAs are coincident with or slightly above the estimated elevation ranges for the listed surface water sources, the aquifer system proposed to be accessed by the POA is efficiently hydraulically connected to those stream reaches.

Water Availability Basin the well(s) are located within:
SW 1, 2: Molalla River > Willamette River – at mouth (WID # 69796)

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**	☐	☐			☐	**134.00**	☐	**<< 25%**	☐
2	**1**	☐	☐			☐	**134.00**	☐	**<< 25%**	☐
1	**2**	☐	☐			☐	**134.00**	☐	**<< 25%**	☐
2	**2**	☐	☐			☐	**134.00**	☐	**<< 25%**	☐

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	Instream Water	Qw > 1%	80% Natural	Qw > 1% of 80%	Interference @ 30 days	Potential for Subst.

				Right ID	Right Q (cfs)	ISWR?	Flow (cfs)	Natural Flow?	(%)	Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: C3a: The Hunt 2003 analytical stream depletion model was used to estimate 30-day interference at SW 1 (Dove Creek) caused by pumping Well 2 to estimate the maximum anticipated interference, based on proximity and similar hydrologic conditions. Model parameters are derived from nearby pumping tests and published values (Freeze and Cherry, 1979). Model results indicate that interference is expected to be much less than 25% of the maximum allocated pumping rate at 30 days. The model was not applied to the other scenarios because they are farther from respective streams or have a reduced pumping rate, and thus, given a similar hydrogeologic setting, the estimated 30-day stream depletion percentages would be even less than that estimated for the Well 2/SW 1 scenario.

C3b: Not applicable.

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:

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-19402

Water well reports: CLAC 12432, CLAC 12433, CLAC 12469, CLAC 12530, CLAC 13135, CLAC 13140, CLAC 52078, CLAC 55589, CLAC 57287, CLAC 59046, CLAC 61795, CLAC 67736

Pumping well reports CLAC 12292, CLAC 12432, CLAC 12433, CLAC 18731, CLAC 53921, CLAC 56080

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.

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

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

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.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

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

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** 1 **Logid:** CLAC 12344

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

Water Availability Analysis
Detailed Reports

MOLALLA R > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 9/29/2023

Watershed ID #: 69796 (Map)
Date: 9/29/2023

Exceedance Level: 80%
Time: 9:57 AM

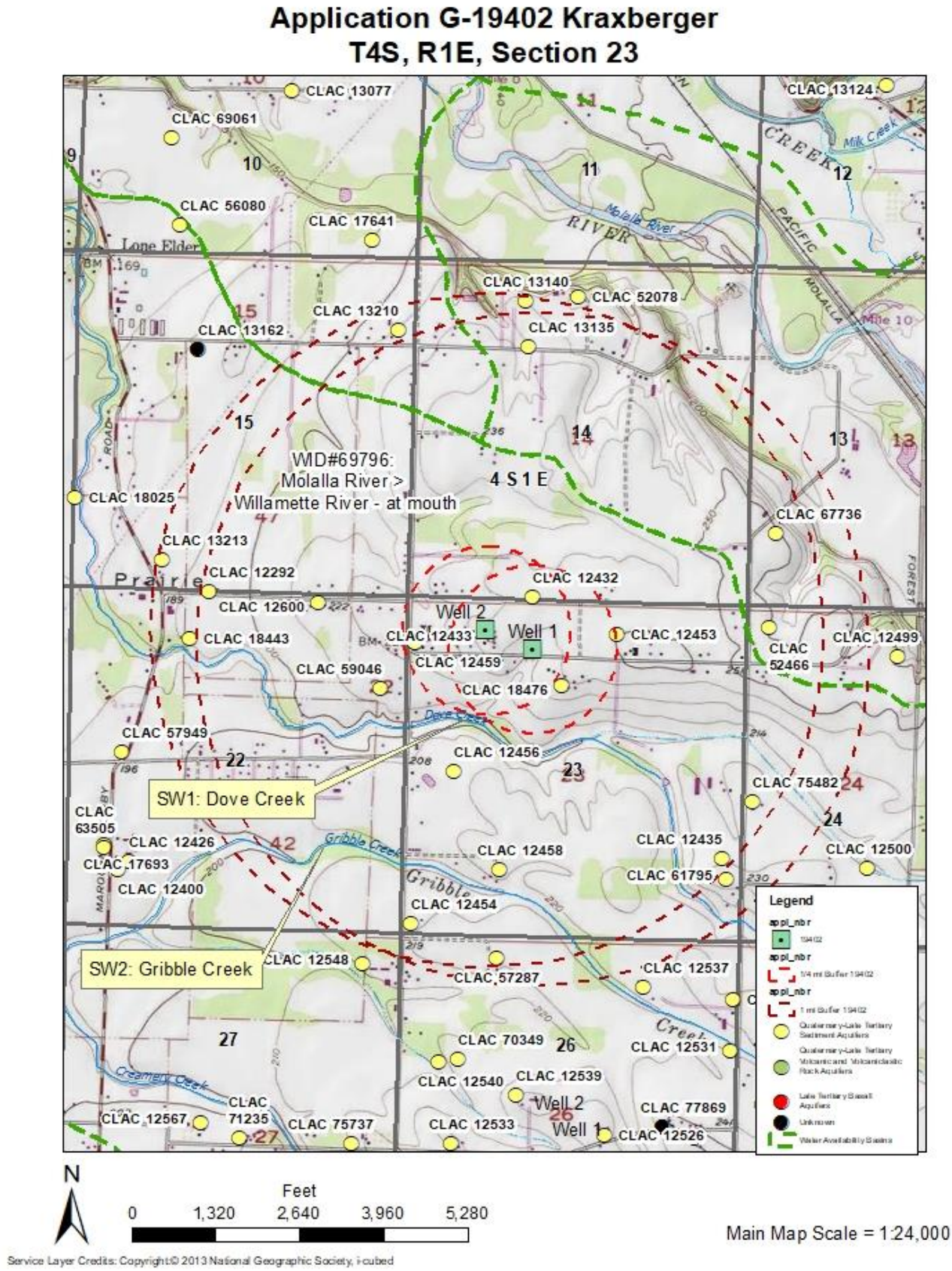
Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

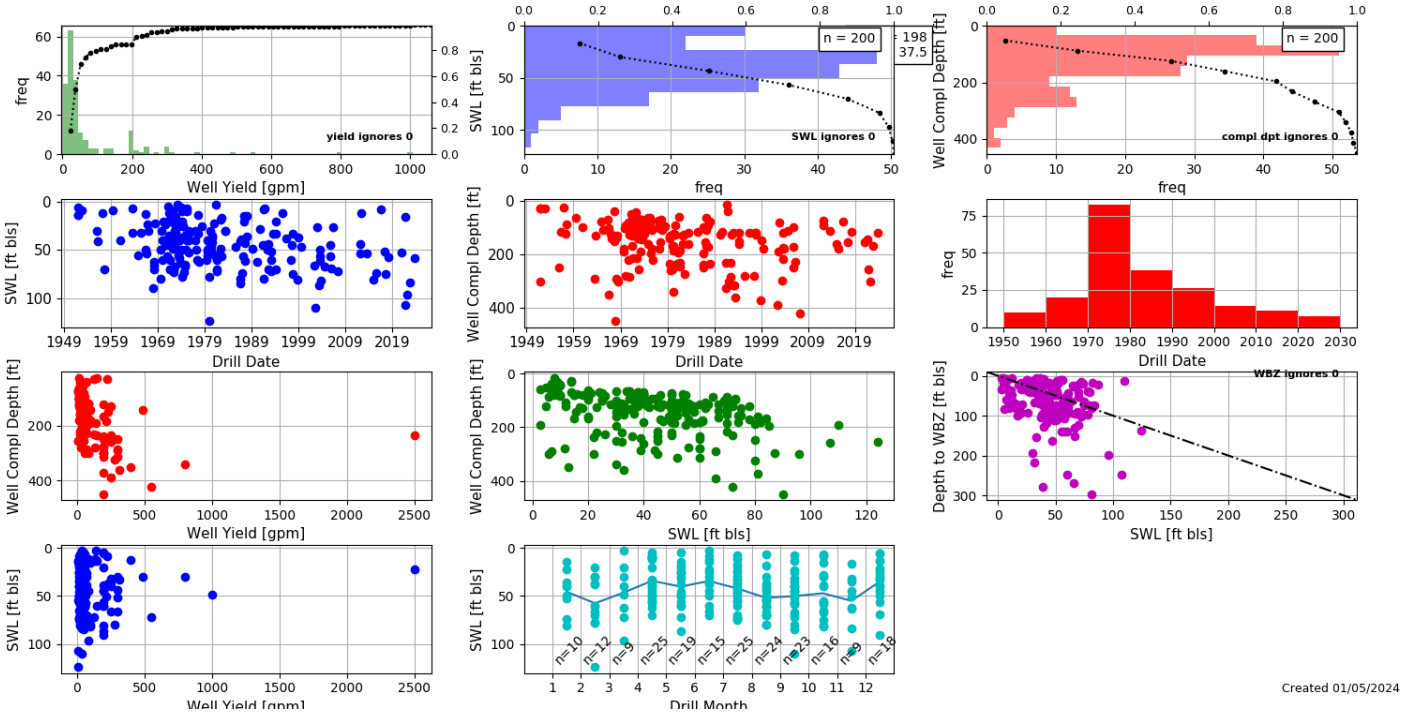
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	1,870.00	155.00	1,720.00	0.00	500.00	1,220.00
FEB	2,010.00	145.00	1,870.00	0.00	500.00	1,370.00
MAR	1,830.00	113.00	1,720.00	0.00	500.00	1,220.00
APR	1,530.00	86.90	1,440.00	0.00	500.00	943.00
MAY	927.00	98.30	829.00	0.00	500.00	329.00
JUN	431.00	121.00	310.00	0.00	500.00	-190.00
JUL	204.00	186.00	17.60	0.00	200.00	-182.00
AUG	139.00	157.00	-17.60	0.00	100.00	-118.00
SEP	134.00	83.30	50.70	0.00	150.00	-99.30
OCT	188.00	39.90	148.00	0.00	450.00	-302.00
NOV	637.00	79.90	557.00	0.00	500.00	57.10
DEC	1,700.00	150.00	1,550.00	0.00	500.00	1,050.00
ANN	1,320,000.00	85,400.00	1,240,000.00	0.00	295,000.00	966,000.00

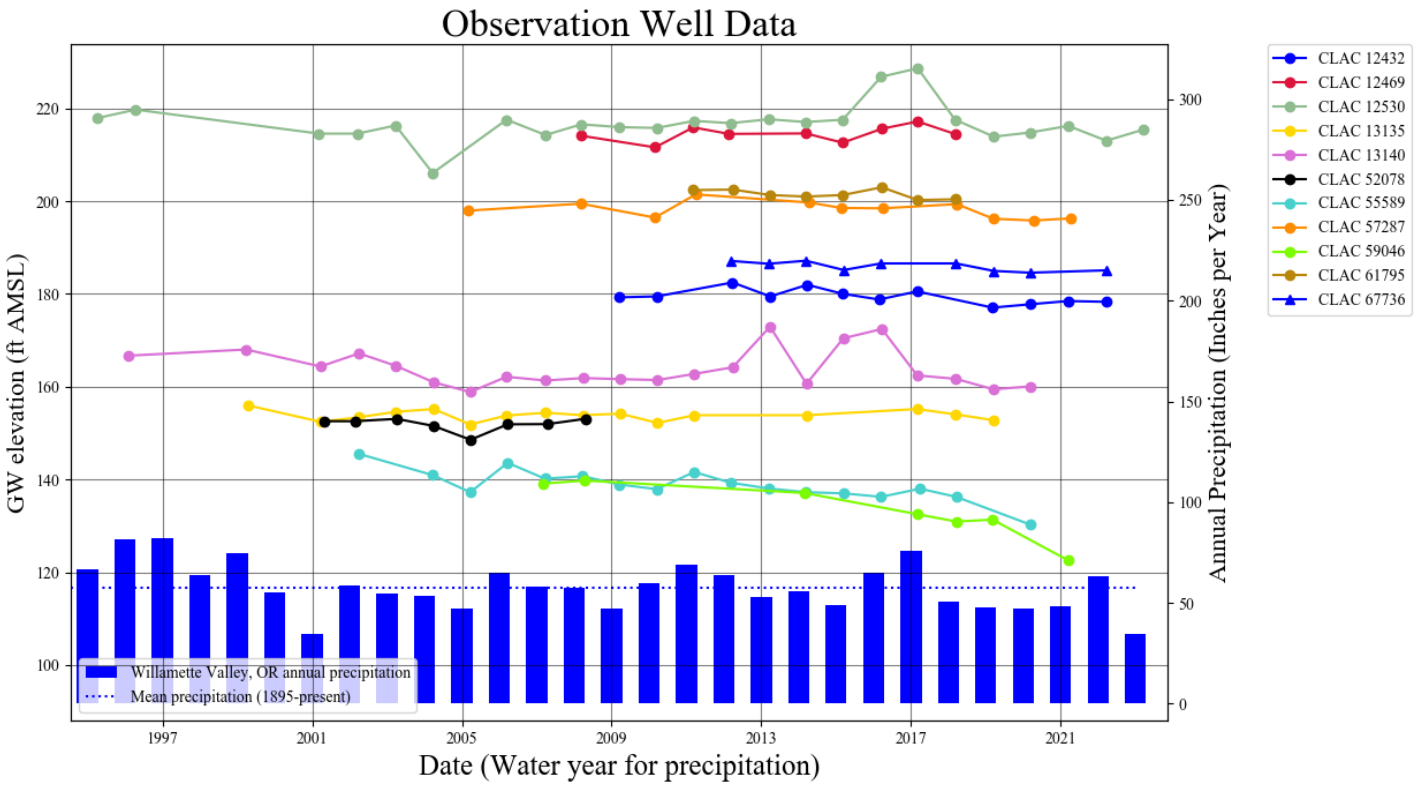
Well Location Map



Well Statistics



Water-Level Measurements in Nearby Wells



Stream Depletion (Hunt) Model Analysis

Application type:	G
Application number:	19402
Well number:	2
Stream Number:	1
Pumping rate (cfs):	0.96
Pumping duration (days):	104
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1440	1440	1440	ft
Aquifer transmissivity	T	250	420	600	ft2/day
Aquifer storativity	S	0.001	0.001	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	7	7	7	ft
Aquitard thickness below stream	babs	3	3	3	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	7	10	12	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	0	1	1	0	0	0	1	1	1	1	1	1	1
Depletion (cfs)	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01