

Groundwater Application Review Summary Form

Application # G- 19161

GW Reviewer Jen Woody Date Review Completed: 3/24/2023

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

3/24/2023

TO: Application G- 19161

FROM: GW: Jen Woody
(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 [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 3/24/2023
 FROM: Groundwater Section Jen Woody
 Reviewer's Name
 SUBJECT: Application G- 19161 Supersedes review of 9/15/2021
 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: Su Vang and Tong Moua County: Yamhill

A1. Applicant(s) seek(s) 0.119 cfs up to 23.75 AF from 2 well(s) in the Willamette Basin,
Yamhill subbasin

A2. Proposed use irrigation Seasonality: March 1 through 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	1	Bedrock	0.119	T4S/R3W-6 SW ¼ NE ¼	1045' N, 725'E fr NE cor DLC 39
2	proposed	2	Bedrock	0.119	T4S/R3W-6 SE ¼ NE ¼	1030'N, 1130'E fr NE cor DLC 39
3						
4						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	240		35*		200	0-30	0-200		TBD			
2	230		35*		200	0-30	0-200		TBD			

Use data from application for proposed wells.

A4. **Comments:** *Nearby well logs for 100-250' deep marine sedimentary rock wells report water levels at approximately 35 feet below land surface (YAMH 58650, YAMH 55873).

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 wells produce from a confined aquifer so the pertinent basin rules (OAR 690-502-0240) 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) 7C, medium water use reporting 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 marine sedimentary rock aquifer 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 subject property lies at the margin between the overlying Columbia River Basalt Group (CRBG) aquifer system and the underlying low-yield bedrock aquifer system. The low-yield bedrock aquifer is composed of older marine sedimentary and volcanic rocks whereas the CRBG aquifer system is composed of younger basalt flows. The low-yield bedrock aquifer system generally has low porosity, low permeability, and low well yield. Most of the available pore space in this unit is likely to occur in fractures where groundwater is confined by the low-permeability matrix.

The proposed POAs (Wells) are completed in the low-yield bedrock aquifer; median yield in this section is 10 gallons per minute. Nearby, long-term water level data are sparse. Well density in the bedrock aquifer is relatively low (36 new well logs in the section. Although the likely anisotropy of the aquifer makes it difficult to predict the potential for interference with existing wells, the general low yield of the aquifer indicates that it would be prudent to include water-level monitoring and water-use monitoring conditions. **Special Condition: For the same reasons, a condition is recommended to limit the maximum duty to 1 acre foot per acre per year and a requirement to use drip, or equally efficient, irrigation methods if a permit is issued (see OAR 690-502-0040(7)).**

Section B1a of this review was updated according to the Iverson (2023) memo. There are insufficient time series data from the targeted aquifer to reach a finding about over appropriation. Therefore the reviewer finds B1a “cannot be determined”.

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	Marine sedimentary rock aquifer	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Marine sedimentary rock aquifer	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Nearby well logs in the marine sedimentary rock aquifer report static water levels that rise tens of feet above the first water bearing zone, indicating the aquifer is confined.

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Unnamed tributary to Henry Cr	205	190-220	800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Unnamed tributary to Henry Cr	195	190-220	400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Water levels in local wells in the bedrock uplands (above stream levels) show hydraulic heads that are above or coincident with local stream levels. This is consistent with general observations and published reports in the Willamette basin that indicate that the water table in the low-yield bedrock aquifer system generally mimics topography and discharges to local streams (see Conlon et al., 2005).

Water Availability Basin the well(s) are located within: Watershed ID 188:Yamhill R > Willamette R –AB Palmer Cr

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 type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	56.30	<input type="checkbox"/>	*	<input checked="" type="checkbox"/>
2	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	56.30	<input type="checkbox"/>	*	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<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: The proposed wells are hydraulically connected to and less than ¼ mile from a spring and tributary to Henry Creek, which triggers the assumption of PSI as defined in OAR 690-09-040.

*Interference @ 30 days was not calculated in Table C3a because of the lack of a readily available suitable model for fractured bedrock aquifer systems and a lack of knowledge about likely anisotropy in the low-yield bedrock aquifer system.

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: n/a

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:** PSI, as defined in OAR 690-09-040, is triggered by the proposed use.

References Used: 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: U.S. Geological Survey Scientific Investigations Report 2005-5168.

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

Iverson, J., February 6, 2023, OWRD Memorandum: Clarification of current policy for determining over-appropriation in section B1a of the Public Interest Review for Groundwater Applications.

O'Connor, J.E., Sarna-Wojcicki, A., Wozniak, K.C., Polette, D.J., and Fleck, R.J., 2001: U.S. Geological Survey Professional Paper 1620.

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, 82p.

U.S. Geological Survey Topographic maps, Dayton, Dundee, Carlton and McMinnville Quadrangles.

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

Water Availability Analysis Detailed Reports

YAMHILL R > WILLAMETTE R - AB PALMER CR WILLAMETTE BASIN

Water Availability as of 9/13/2021

Watershed ID #: 188 [\(Map\)](#)

Exceedance Level:80%

Date: 9/13/2021

Time: 3:24 PM

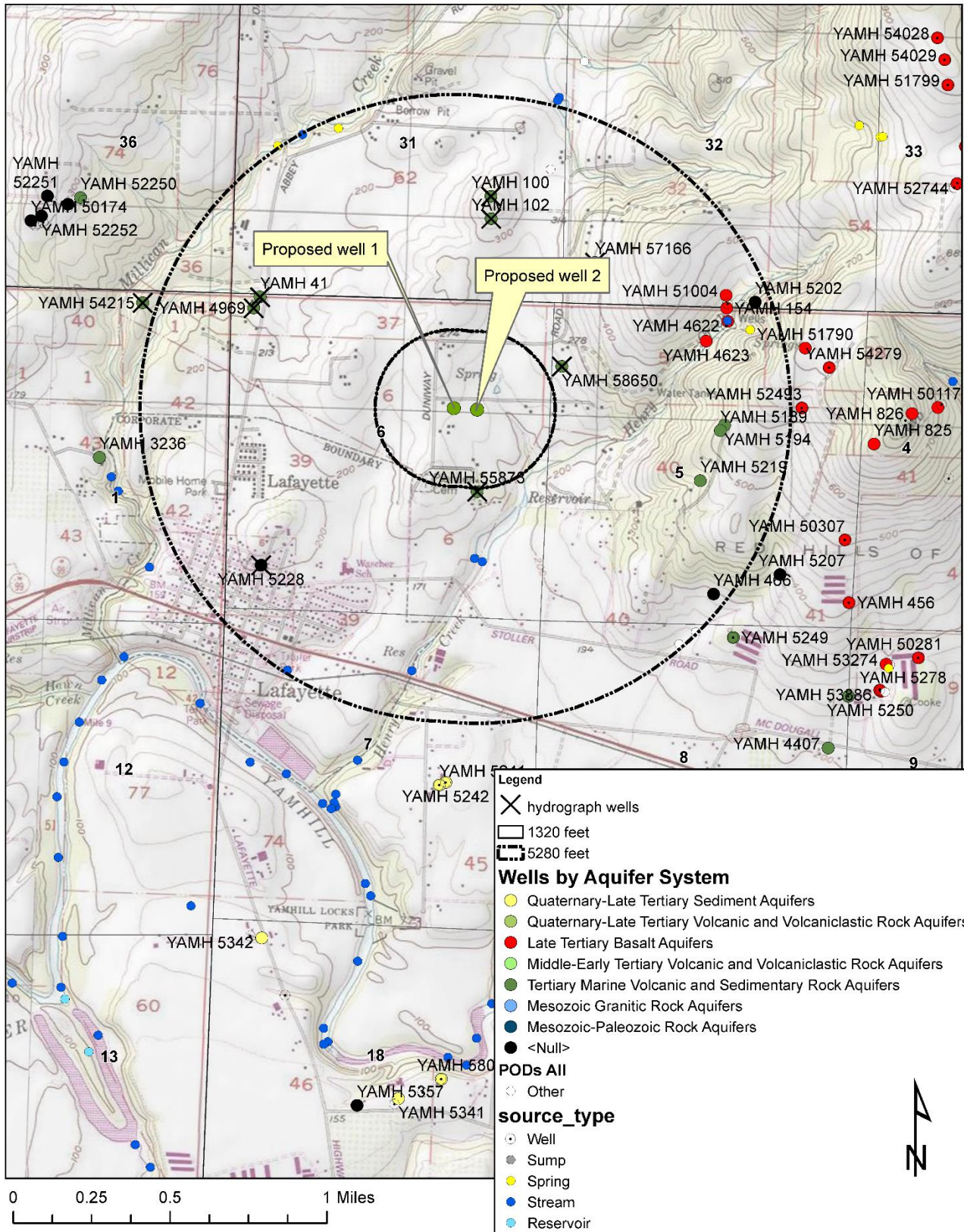
Water Availability Calculation

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

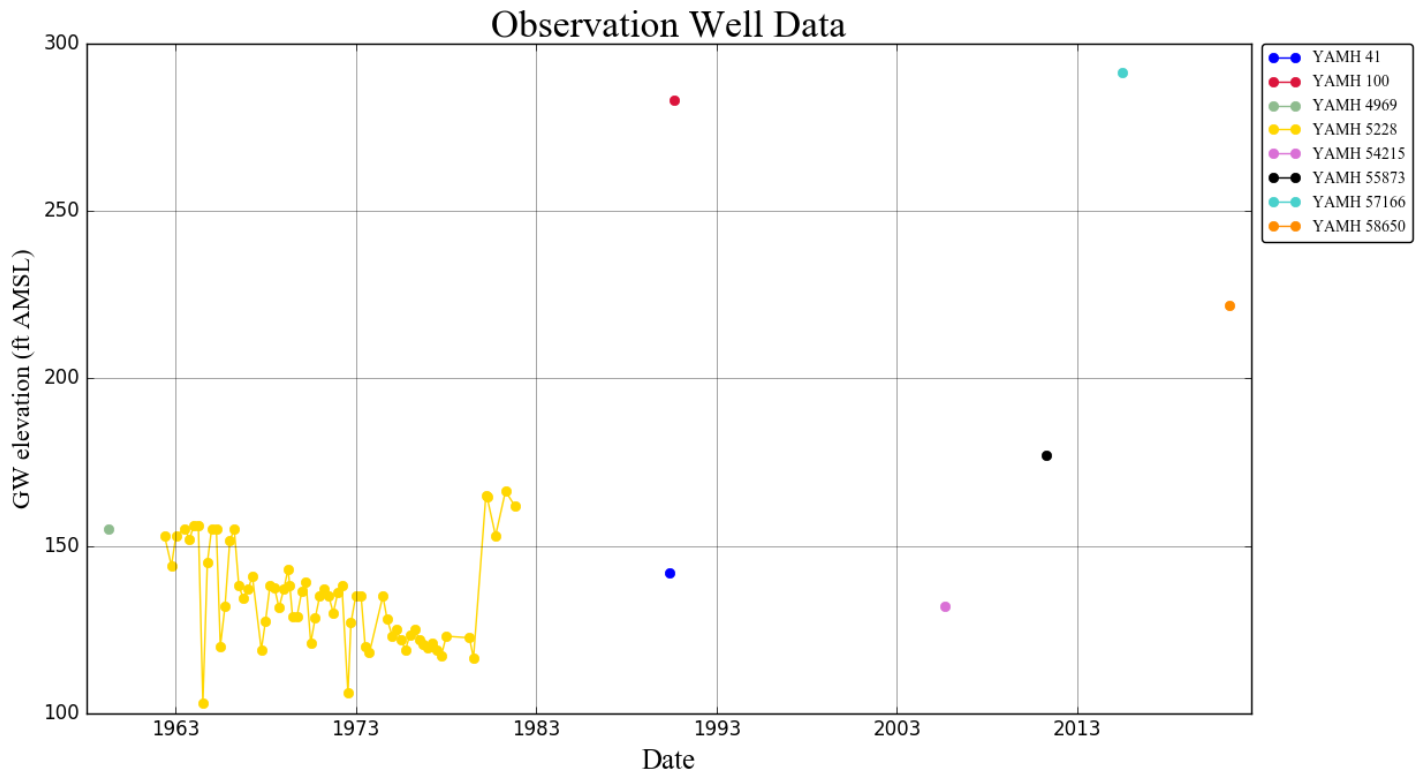
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	1,780.00	59.20	1,720.00	0.00	31.00	1,690.00
FEB	2,010.00	57.10	1,950.00	0.00	31.00	1,920.00
MAR	1,710.00	35.20	1,670.00	0.00	31.00	1,640.00
APR	1,030.00	42.20	988.00	0.00	31.00	957.00
MAY	512.00	56.80	455.00	0.00	31.00	424.00
JUN	229.00	76.10	153.00	0.00	31.00	122.00
JUL	107.00	96.60	10.40	0.00	31.00	-20.60
AUG	66.60	85.50	-18.90	0.00	31.00	-49.90
SEP	56.30	54.50	1.84	0.00	31.00	-29.20
OCT	72.70	15.20	57.50	0.00	31.00	26.50
NOV	465.00	31.50	434.00	0.00	31.00	403.00
DEC	1,640.00	56.10	1,580.00	0.00	31.00	1,550.00
ANN	1,150,000.00	40,200.00	1,100,000.00	0.00	22,500.00	1,080,000.00

Well Location Map

G-19161 Vang and Moua: 4S/3W-Section 6



Water-Level Measurements in Nearby Wells



Water level data, updated 3/24/2023, reveals no additional information:

