# Groundwater Application Review Summary Form

**Application # G- 19426**

**GW Reviewer Steve Ahlquist Date Review Completed: 11/27/2024**

**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** **_November 27, 2024_**

**TO:** **Application** G-**_19426_**

**FROM:** **GW:** **_Steve Ahlquist_**
(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 11/27/2024
FROM: Groundwater Section Steve Ahlquist
Reviewer's Name
SUBJECT: Application G- **19426** 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: **Kraemer Farms LLC** County: **Marion**

A1. Applicant(s) seek(s) 0.65 cfs from 2 well(s) in the Willamette Basin, Molalla-Pudding subbasin

A2. Proposed use Irrigation (69.7 acres; 130 acre-feet) Seasonality: March 1 – October 31

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

| POA Well | Logid | Applicant's Well # | Proposed Aquifer* | Proposed Rate(cfs) | Location (T/R-S QQ-Q) | Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36 |
|---|---|---|---|---|---|---|
| 1 | MARI 17225 | Well 1 | CRB | 0.65 | T6S/R1E-29 NE-NE | 200' S, 1125'W fr NE cor S 29[b] |
| 2 | PROP 538 | Well 2 | CRB | 0.65 | T6S/R1E-29 NW-NE | 200' S, 2090'W fr NE cor S 29[b] |

* Alluvium, CRB, Bedrock

| POA Well | Well Depth (ft) | Seal Interval (ft) | Casing Intervals (ft) | Liner Intervals (ft) | Perforations Or Screens (ft) | Well Yield (gpm) | Drawdown (ft) | Test Type |
|---|---|---|---|---|---|---|---|---|
| 1 | 262 | 0-61 | -1-61 | -1-262 | 182-262 | 45 | - | Air |
| 2 | 300[a] | 0-65 [a] | 0-65 [a] | TBD | TBD | TBD | TBD | TBD |

| POA Well | Land Surface Elevation at Well (ft amsl) | Depth of First Water (ft bls) | SWL (ft bls) | SWL Date | Reference Level (ft bls) | Reference Level Date |
|---|---|---|---|---|---|---|
| 1 | 555 | 182 | 132 | 4/3/1991 | TBD | TBD |
| 2 | 434 | TBD | TBD | TBD | TBD | TBD |

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to irrigate 69.7 acres at a total maximum rate of 0.65 cfs and a total annual volume of 130 af/year. The proposed POAs are located approximately 2 miles southwest of Scotts Mills, Oregon.
[a]Proposed well construction details from application.
[b]There are minor discrepancies between the metes and bounds location descriptions and the locations depicted on the application map. The metes and bounds location descriptions provided in the application are used for this review.

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 application proposes use of confined aquifers of the Columbia River Basalt Group; therefore the pertinent rules (OAR 690-502-240) do not apply.

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area:
Comments: The proposed POAs would obtain water from a Columbia River Basalt Group aquifer. The POAs are located just outside (within 250 ft) of the southern boundary of the Mt Angel Groundwater Limited Area which classifies groundwater from basalt aquifers for exempt use only.

## 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) **7RLN(annual measurements); 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 **Columbia River Basalt Group** 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 will produce from a water-bearing zone(s) (WBZ) within the Columbia River Basalt Group (CRBG). Aquifers in CRBG are typically thin interflow zones between lava flows and are confined by thicker flow interiors that have low porosity and low permeability (Conlon et al. 2005, Gannet and Caldwell 1998). The Grande Ronde Basalt Formation of the CRBG is exposed at the surface in the area of the proposed use and is overlain by thin alluvial deposits near streams. Geologic mapping in the area indicates the proposed POAs would likely obtain water from interflow zones within the Winter Water and/or Ortley/Umtanum members of the Grande Ronde Formation (Tolan and Beeson 1999). The basalts are locally broken into several fault-bounded blocks. The degree to which these faults impede horizontal flow or enhance vertical flow of groundwater is unknown. However, any significant vertical offset of thin interflow zones is likely to produce some degree of isolation between equivalent water-bearing zones in different fault blocks. Well logs for nearby wells completed in the CRBG aquifers indicate multiple WBZs, ranging in depth from 50 to 600 ft bls (120 to 373 ft msl), and ranging in thickness from 4 to 80 ft.

Nearby well records indicate a median reported yield of 36 gpm and a maximum reported yield of 600 gpm (see attached Well Statistics). The well log for MARI 17225 (proposed POA Well 1) indicates a well yield of 45 gpm. The proposed rate of 0.65 cfs (292 gpm) is in the upper range of reported yields for the area and may be achievable but will likely require multiple wells.

Groundwater level data in this area (within 1.5 miles) is limited to 7 wells that obtain water from the CRBG aquifer. Hydrographs for these wells indicate that water levels are declining (see attached Water-Level Measurements in Nearby Wells). Permits issued for nearby POAs which obtain water from a CRBG aquifer contain the standard condition requiring curtailment of pumping when water levels have declined 15 ft or more; any permit pursuant to this application would be conditioned similarly. MARI 50902 is the closest well with a long-term water level record and likely obtains water from the

same WBZ as the proposed POAs. Water levels in MARI 50902 have declined more than 18 feet between March 1997 and March 2024. Water level records for several other wells in the area (e.g. MARI 5654, MARI 5663, MARI 18762) show declines that are approaching or are greater than 15 ft. The proposed use would contribute to declines and would result in permit conditions being triggered on new and existing water rights and subsequent regulation. **This would preclude the perpetual use of the aquifer so the proposed use will not likely be available within the capacity of the resource.**

The OWRD well report records indicate there are at least 12 water wells within ¼-mile of the proposed POAs, all without precise locations. The nearest residence that is likely supplied by an exempt domestic well is located on Tax Lot 300, approximately 300 ft south of proposed Well 2. Well logs submitted for this area (T6S R1E S29 NW-NE) indicate domestic wells likely obtain water from the same WBZ as the proposed POAs. Potential interference with nearby domestic wells was quantitatively estimated using a Theis (1935) distance-drawdown model. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2005). It was assumed that proposed Well 2 will be pumped continuously at the maximum requested rate of 0.65 cfs until reaching the full duty (130 af) at 100 days. Results of the Theis analysis indicate that the proposed use would likely result in greater than 15 ft of drawdown after 26 days of pumping. **Based on the anticipated interference at nearby domestic wells, groundwater for the proposed use will not likely be available within the capacity of the resource.**

**Special Conditions:**

To protect senior users and the groundwater resource, the following Special Conditions are recommended:

1. Each basalt well shall be cased and continuously sealed from land surface to a depth of at least 150 ft bls to limit hydraulic connection to nearby streams.

2. Any well authorized as a Point of Appropriation (POA) under this or subsequent permits shall be open to a single aquifer of the Columbia River Basalt Group and shall meet the applicable well construction standards (OAR 690-200 and OAR 690-210). The open interval in each well shall be no greater than 100 feet unless a single aquifer completion can be demonstrated to the satisfaction of the Department Hydrogeologists, using evidence from a video log, a downhole flowmeter, water chemistry and temperature data, or other downhole geophysical methods. These methods shall characterize the nature of the basalt rock and assess whether water is moving in the borehole. Any discernable movement of water within the well bore when the well is not being pumped shall be assumed as evidence of the presence of multiple aquifers in the open interval. Single aquifer completion for any well with an open interval greater than 100 ft should be demonstrated to the satisfaction of the Department Hydrogeologists prior to authorization as a POA under this or subsequent permits.

   If, during well construction or repair, it becomes apparent that the well can be constructed to eliminate aquifer commingling or interference with hydraulically connected streams in a manner other than specified in this permit, the permittee can contact the Department Hydrogeologist for this permit or the Ground Water/Hydrology Section Manager to request approval of such construction. The request shall be in writing and shall include a rough well log and a proposed construction design for approval by the Department. The request can be approved only if it is received and reviewed prior to placement of any new permanent casing and sealing material. If the request is made after casing and seal are placed, the requested modification will not be approved. If approved, the new well depth and construction specifications will be incorporated into any certificate issued for this permit.

3. For any well constructed under this or subsequent permits, a dedicated water-level measuring tube shall be installed in each well. The measuring tube shall meet the standards described in OAR 690-215-0060. When requested, access to the wells shall be provided to Department staff in order to make water-level measurements.

4. For any wells constructed or deepened under this or subsequent permits, the applicant shall coordinate with the driller to ensure that drill cuttings are collected at 10 ft intervals and at changes in formation in each well. A split of each sampled interval shall be provided to the Department.

5. If any geologic and hydrogeologic reports are completed for the permittee during the development of permitted wells, including geophysical well logs and borehole video logs, then copies of the reports shall be provided to the Department. Except for borehole video logs, two paper copies or a single electronic copy shall be provided of each report. Digital tables of any data shall be provided upon request.

## 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** | **Columbia River Basalt Group** | ☒ | ☐ |
| **2** | **Columbia River Basalt Group** | ☒ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |

**Basis for aquifer confinement evaluation:** In general, aquifers within the Columbia River Basalt are thin interflow zones between lava flows and are confined by the thicker flow interiors that have low porosity and low permeability. Static water levels reported for MARI 17225 and nearby wells are above the WBZs indicated on well logs, indicating the wells obtain water from 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? YES | NO | ASSUMED | Potential for Subst. Interfer. Assumed? YES | NO |
|---|---|---|---|---|---|---|---|---|---|---|
| **1** | **1** | **Abiqua Creek** | **423** [a] | **314 -414** [c] | **970** | ☒ | ☐ | ☐ | ☐ | ☒ |
| **2** | **1** | **Abiqua Creek** | **~405** [b] | **307-406** [c] | **490** | ☒ | ☐ | ☐ | ☐ | ☒ |
| **1** | **2** | **Powers Creek** | **423** [a] | **402-416** [c] | **4360** | ☐ | ☒ | ☐ | ☐ | ☒ |
| **2** | **2** | **Powers Creek** | **~405** [b] | **402-408** [c] | **4850** | ☐ | ☒ | ☐ | ☐ | ☒ |
| **1** | **3** | **Davis Creek** | **423** [a] | **322-394** [c] | **4424** | ☐ | ☒ | ☐ | ☐ | ☒ |
| **2** | **3** | **Davis Creek** | **~405** [b] | **322-407** [c] | **3530** | ☐ | ☒ | ☐ | ☐ | ☒ |

**Basis for aquifer hydraulic connection evaluation:** Groundwater elevations measured in MARI 17225 and nearby wells accessing similar WBZs (e.g. MARI 17959 and MARI 5703) are above surface water elevations of Abiqua Creek, indicating groundwater within the WBZs accessed by these wells likely discharges to surface water. Geologic mapping of the area indicates local streams have incised into the Winter Water member of the Grande Ronde Formation (Tolan and Besson 1999). Abiqua Creek has incised below the elevation of the top of the WBZ (293-373 ft msl) reported on the well log for the proposed POA (MARI 17225). Based on a preponderance of the evidence presented above, the proposed POAs are hydraulically connected to Abiqua Creek.

Geologic mapping and cross sections prepared for the area shows that the basalt members penetrated by the proposed POAs do not extend continuously across the Mt. Angel fault to Davis Creek (Tolan and Besson 1999). It is unknown if the WBZs targeted by the proposed POAs extend to Powers Creek. However, Abiqua Creek is much closer than Davis Creek and Powers Creek to the proposed POAs and streamflow depletion of Abiqua Creek will attenuate potential streamflow depletion of the more distant streams. The available evidence suggests that the proposed POAs do not have a meaningful hydraulic connection with Davis Creek and Powers Creek.

[a] Calculated from static water level reported on MARI 17225 well log.

[b] Interpolated from static water levels measured at nearby wells (MARI 5703, MARI 17959, MARI 17225).

[c] Surface water elevations estimated from land surface elevations (LIDAR) along stream reaches within 1 mile of POAs.

**Water Availability Basin the well(s) are located within:** WID #71: ABIQUA CR >PUDDING R>AT 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 ? |
|---|---|---|---|---|---|---|---|---|---|---|
| **1** | **1** | ☒ | ☐ | **IS89623** | **75** | ☐ | **9.13** | ☒ | **See comment** | ☒ |
| **2** | **1** | ☒ | ☐ | **IS89623** | **75** | ☐ | **9.13** | ☒ | **See comment** | ☒ |

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

| | SW # | | Qw > 5 cfs? | Instream Water Right ID | Instream Water Right Q (cfs) | Qw > 1% ISWR? | 80% Natural Flow (cfs) | Qw > 1% of 80% Natural Flow? | Interference @ 30 days (%) | Potential for Subst. Interfer. Assumed? |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ☐ | | | ☐ | | ☐ | | ☐ |
| | | | ☐ | | | ☐ | | ☐ | | ☐ |

**Comments:** C3a: The proposed POAs (Well 1/MARI 17225 and Well 2) are less than 1 mile from a hydraulically connected surface water source (Abiqua Creek,). **The requested rate of appropriation is greater than 1% of the minimum natural stream flow (0.0913 cfs for September) that is exceeded 80% of the time (see attached Water Availability Table). Per OAR 690-009-0040(c), PSI with SW#1.**

There is no model readily available for accurately estimating stream interference for this basalt aquifer system. Stream interference at 30 days was not calculated for Table C3a.

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:** NA – Streams located greater than 1 mile from the proposed POAs were not evaluated for interference.

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 is assumed per OAR 690-09-0040(4)(c) because the requested rate of appropriation (0.65 cfs) is greater than 1% of the 80% exceedance natural streamflow. If the requested rate of appropriation is reduced to 0.09 cfs (40 gpm), PSI would no longer be assumed.**

**References Used:**

Application File: G-19426

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.

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.

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.

Tolan, Terry, Beeson, Marvin, Wheeler, K. L., 1999, Geologic Map of the Scotts Mills, Silverton, and Stayton Northeast 7.5 Minute Quadrangles, Northwest Oregon: A Digital Database: U. S. Geological Survey Open-File Report 99-141, 11 pp., https://pubs.usgs.gov/of/1999/0141/.

## D. WELL CONSTRUCTION, OAR 690-200

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

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

a. ☐ review of the well log;

b. ☐ field inspection by _____;

c. ☐ report of CWRE _____;

d. ☐ other: (specify) _____

_____

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

_____

_____

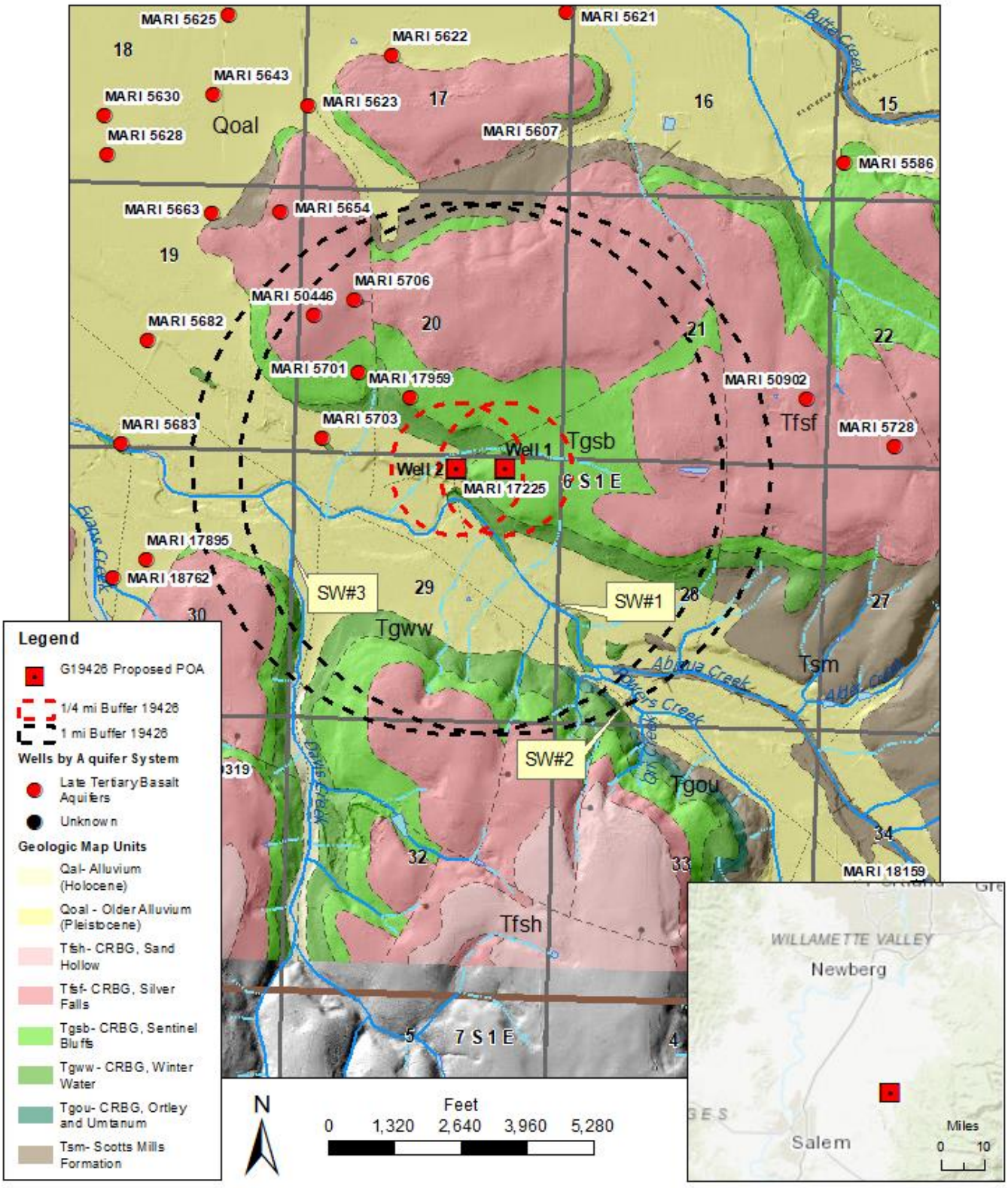
_____

_____

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

**Well Location Map**

# G19426 Kraemer Farms LLC




Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

**Water Availability Tables**

ABIQUA CR > PUDDING R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 8/21/2024

Watershed ID #: 71 (Map)
Date: 8/21/2024

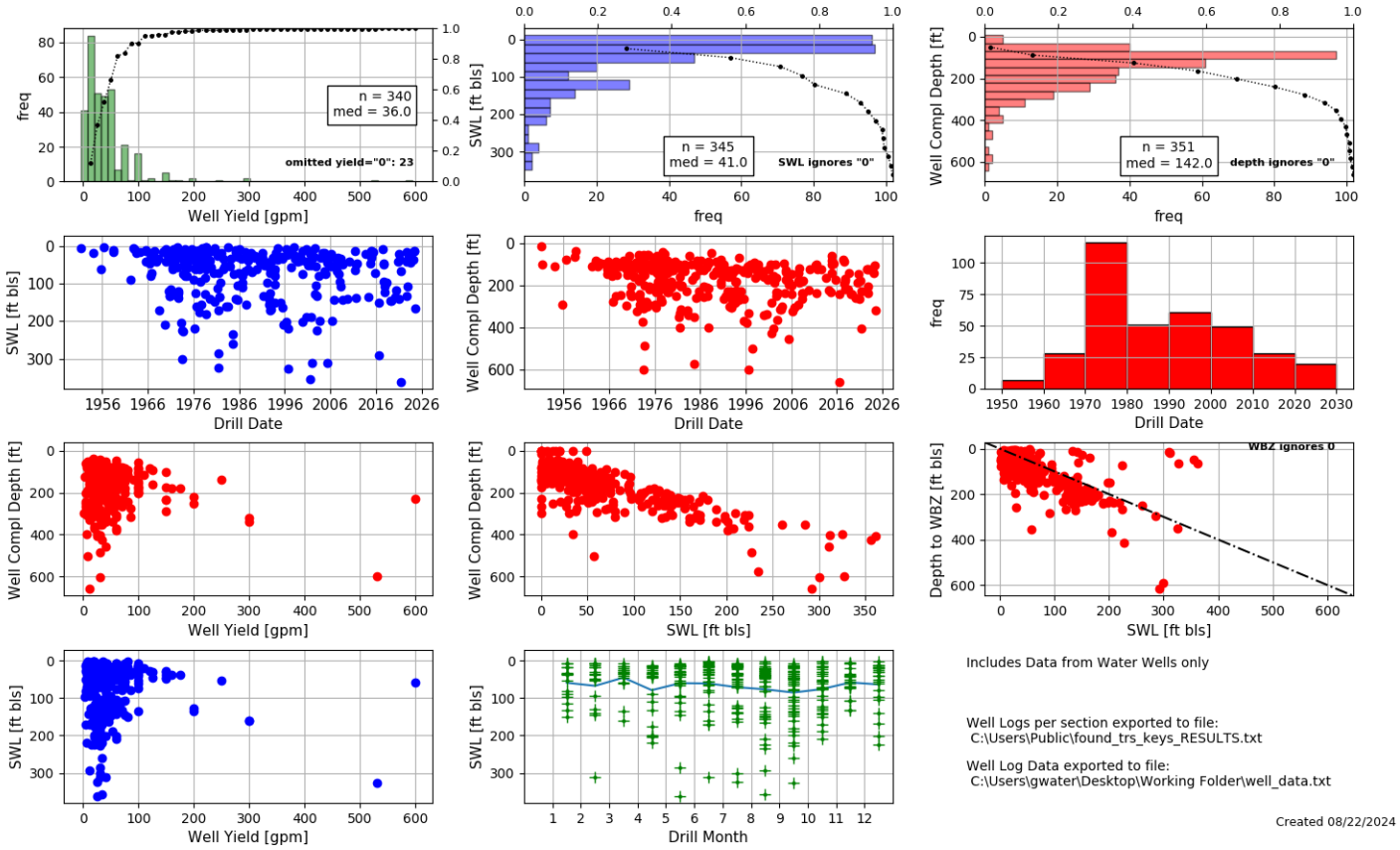
Exceedance Level: 80%
Time: 11:51 AM

## Water Availability Calculation

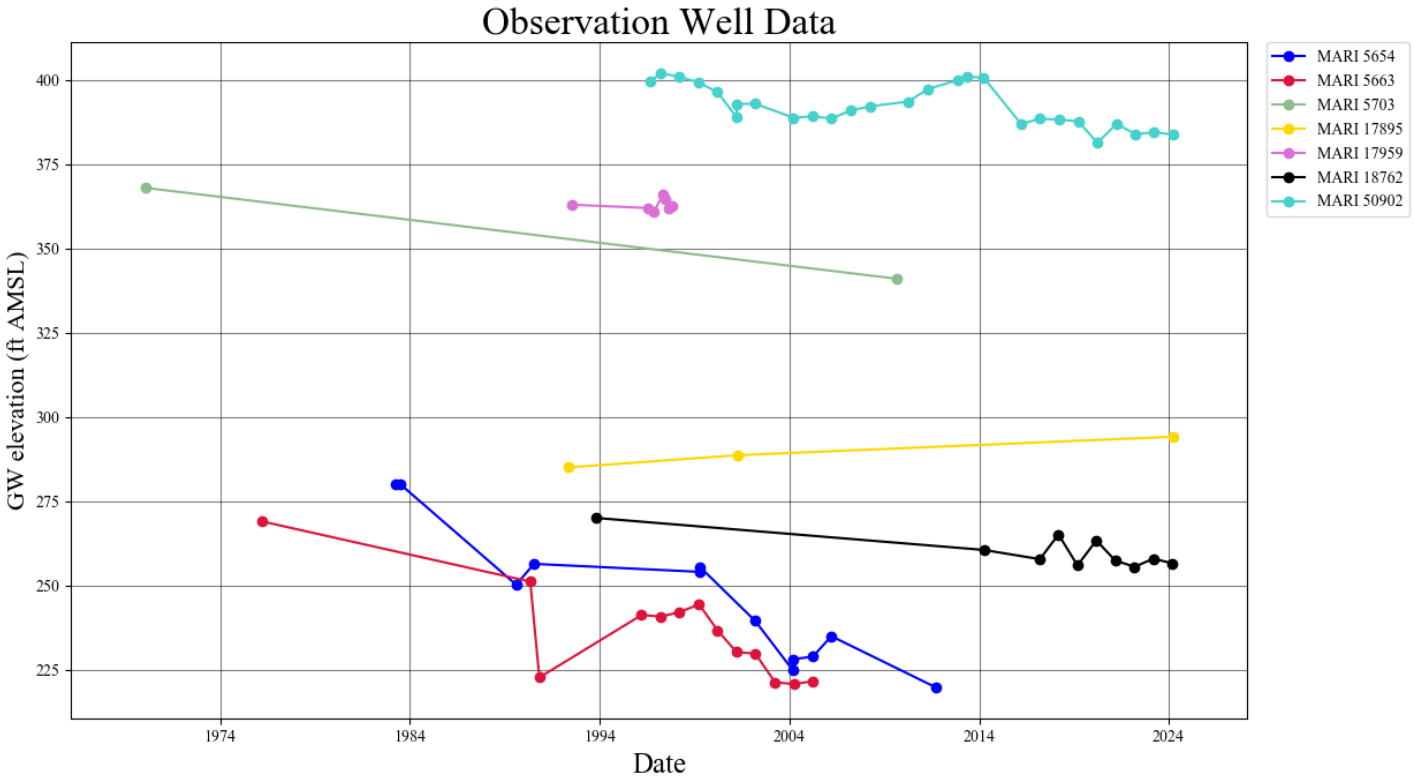
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

| Month | Natural Stream Flow | Consumptive Uses and Storages | Expected Stream Flow | Reserved Stream Flow | Instream Flow Requirement | Net Water Available |
|---|---|---|---|---|---|---|
| JAN | 255.00 | 5.43 | 250.00 | 0.00 | 75.00 | 175.00 |
| FEB | 278.00 | 5.31 | 273.00 | 0.00 | 75.00 | 198.00 |
| MAR | 255.00 | 3.89 | 251.00 | 0.00 | 75.00 | 176.00 |
| APR | 204.00 | 4.36 | 200.00 | 0.00 | 75.00 | 125.00 |
| MAY | 110.00 | 6.19 | 104.00 | 0.00 | 75.00 | 28.80 |
| JUN | 52.20 | 13.70 | 38.50 | 0.00 | 60.00 | -21.50 |
| JUL | 18.90 | 20.20 | -1.25 | 0.00 | 25.00 | -26.30 |
| AUG | 9.98 | 17.00 | -6.99 | 0.00 | 15.00 | -22.00 |
| SEP | 9.13 | 10.80 | -1.71 | 0.00 | 15.00 | -16.70 |
| OCT | 16.80 | 2.16 | 14.60 | 0.00 | 60.00 | -45.40 |
| NOV | 108.00 | 2.19 | 106.00 | 0.00 | 75.00 | 30.80 |
| DEC | 274.00 | 5.38 | 269.00 | 0.00 | 75.00 | 194.00 |
| ANN | 168,000.00 | 5,850.00 | 162,000.00 | 0.00 | 42,200.00 | 124,000.00 |

**Well Statistics for T6S R1E Secs 19,20,21,27,28,29**



**Water-Level Measurements in Nearby Wells**




**Theis Interference Analysis – Well 2 to Neighboring Domestic Wells**

**Theis Time-Drawdown Worksheet** v.5.00

Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

| Input Data: | Var Name | Scenario 1 | Scenario 2 | Scenario 3 | Units | |
|---|---|---|---|---|---|---|
| Total pumping time | t | | 100 | | d | |
| Radial distance from pumped well: | r | | 300 | | ft | Q conversions |
| Pumping rate | Q | | 0.65 | | cfs | 291.72 gpm |
| Hydraulic conductivity | K | 9 | 48 | 180 | ft/day | 0.65 cfs |
| Aquifer thickness | b | | 50 | | ft | 39.00 cfm |
| Storativity | S_1 | | 0.0002 | | | 56,160.00 cfd |
| | S_2 | | 0.0005 | | | 1.29 af/d |
| **Transmissivity Conversions** | T_f2pd | 450 | 2400 | 9000 | ft2/day | |
| | T_ft2pm | 0.3125 | 1.666667 | 6.25 | ft2/min | Recalculate |
| | T_gpdpft | 3366 | 17952 | 67320 | gpd/ft | |

Use the Recalculate button if recalculation is set to manual