Groundwater Application Review Summary Form

Application # G- 18884

GW Reviewer Travis Brown **Date Review Completed:** 2/5/2020

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:

[X] 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 February 5, 2020

TO: **Application G-** 18884

FROM: **GW:** Travis Brouse
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES
The source of appropriation is within or above a Scenic Waterway
☒ 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 Date 2/5/2020
FROM: Groundwater Section Travis Brown
Reviewer's Name
SUBJECT: Application G- 18884 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: Kuenzi Family Farm, LLC County: MARION

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Willamette Basin, Pudding-Molalla subbasin

A2. Proposed use Irrigation (3.5 ac; 8.75 af/yr) 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 3"**	**Alluvium**	**0.04**	**7S/1W-7 NE-NW**	**Written: 3010' S, 45' E fr NW cor DLC 51 Map: 2985' S, 105' W fr NW cor DLC 51**

* 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	~206[b]				150	0-25	0-150		TBD			

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is ~3 miles southwest of the City of Silverton, Oregon.

[a] There is a ~150 ft discrepancy between the proposed POA location marked on the Application Map and the written metes-and-bounds location. The metes-and-bounds for the proposed POA location marked on the Application Map is provided in Table A3, above (using the Department Donation Land Claim projection and a copy of the Application Map georeferenced to county tax lot boundaries and physical features [roads and railroads]). This review uses the Map-based proposed POA location as the most accurate. Should the Applicant choose to revise the application to use the Map-based metes-and-bounds coordinates, a re-review should not be necessary.

[b] Ground surface elevation at proposed POA location estimated from LIDAR (Watershed Sciences, 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: The proposed POA will be completed in a confined aquifer based on the proposed construction; therefore, 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) 7e (reference level measurement), medium 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.

The proposed POA would produce water from saturated sands and gravels attributed to the "Willamette Aquifer" of Gannett and Caldwell (1998). The coarser basin fill sediments are overlain by up to 60 ft of fine-grained deposits from glacial-outburst (Missoula) floods of the late Pleistocene (Gannett and Caldwell, 1998).

The nearest known groundwater use to the proposed POA is MARI 6130, the sole authorized POA under **Certificate 27110*** for up to 26.6 acres of irrigation at a maximum rate of 0.33 cfs. MARI 6130 is ~620 ft east of the proposed POA. According to its well log, MARI 6130 is ~140 ft in total depth. The estimated static water level in this area is typically between ~165-180 ft mean sea level (msl), which at this location would equate to ~50-35 ft bls, respectively. Therefore, the available drawdown in MARI 6130 is anticipated to be at least 90 ft. At the requested rate (0.04 cfs or ~18 gpm) for the proposed POA, the proposed use is not anticipated to prevent MARI 6130 or a similarly configured well from withdrawing water to which it is legally entitled.

Hydrographs from this area do not indicate widespread or persistent declines sufficient to merit concern regarding the capacity of the groundwater resource in relation to the proposed use. However, the conditions specified in B1(d)(i) and B2(c), above, are recommended for any permit issued pursuant to this application.

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	**Alluvium**	☒	☐

Basis for aquifer confinement evaluation: Nearby well logs completed to similar depths indicate water levels above the applicable water-bearing zone; therefore, the aquifer appears to be 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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	**Unnamed tributary to Pudding River**	~165-180	~164-170	~4,220	☒	☐	☐	☐	☒
1	2	**Unnamed tributary to Pudding River / Bye Reservoir**	~165-180	~168	~4,480	☒	☐	☐	☐	☒
1	3	**Pudding River**	~165-180	~157-162	~4,870	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Estimated surface water elevations within 1 mile of the proposed POA are within or below the range of estimated groundwater elevations in the proposed POA. Furthermore, the estimated elevation of SW 3 (Pudding River) is approximately coincident with the uppermost noted water-bearing zones in nearby well logs MARI 6130 and MARI 17590 (see attached Cross Section). Based on the available evidence, the proposed POA would be hydraulically connected to SW 1-3.

Water Availability Basin the well(s) are located within: PUDDING R > MOLALLA R – AB HOWELL PRAIRIE

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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	☐	☐			☐	**22.70**	☐	**<25%**	☐
1	2	☐	☐			☐	**22.70**	☐	**<25%**	☐
1	3	☐	☐	**IS73536**	**1.8**	☒	**22.70**	☐	**<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 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: **The total requested rate (0.04 cfs) exceeds 1 percent (0.018 cfs) of the applicable instream water right (IS-73536, 1.8 cfs from 9/1-9/30). Therefore, per OAR 690-009-0040(c), the proposed use is assumed to have the Potential for Substantial Interference (PSI).**

Interference with SW 1-3 due to the proposed use was not estimated quantitatively. However, based on the radial distance of SW 1-3 from the proposed POA and the substantial projected thickness of fine-grained sediments between the water-bearing zone(s)

to be tapped by the proposed POA and nearby streambeds (see attached Cross Section), interference with surface water is not anticipated to exceed 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: 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:** _____

References Used:

Application File: G-18884

Certificate: 27110*

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.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.

United States Geological Survey, 2013, National Elevation Dataset (NED) [DEM geospatial data]. 1/9th arc-second, updated 2013.

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, [ ] 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.

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.

WSI, 2013, OLC Clackamol, Portland, OR, September 30.

D. WELL CONSTRUCTION, OAR 690-200

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

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

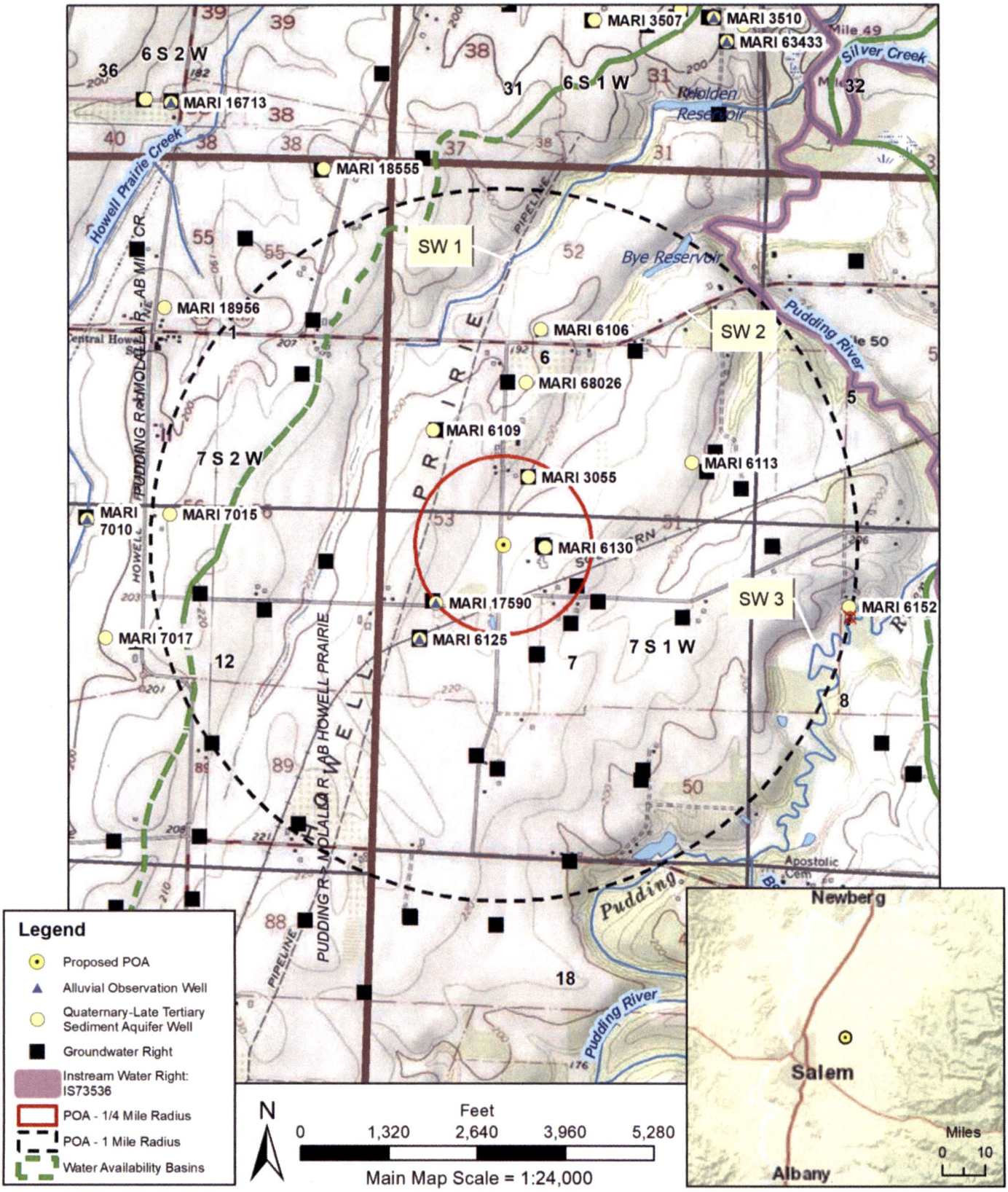
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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

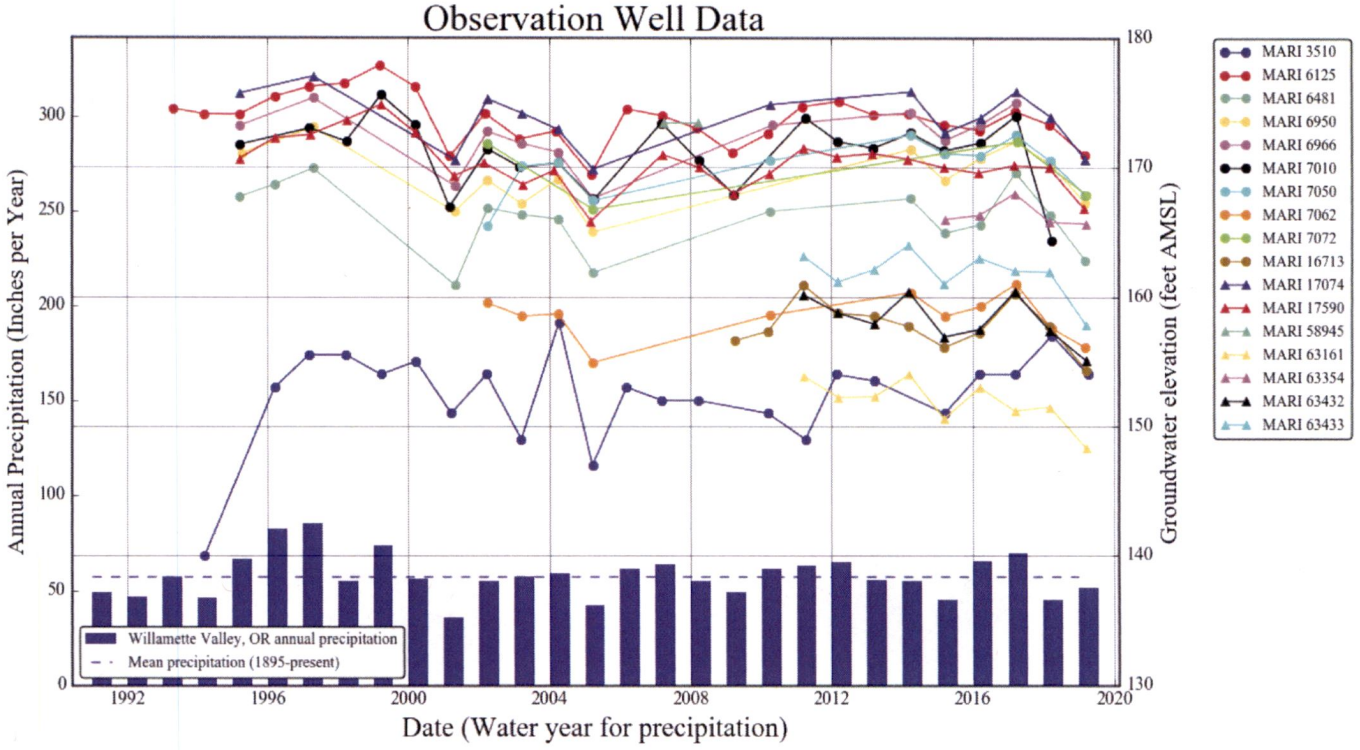
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

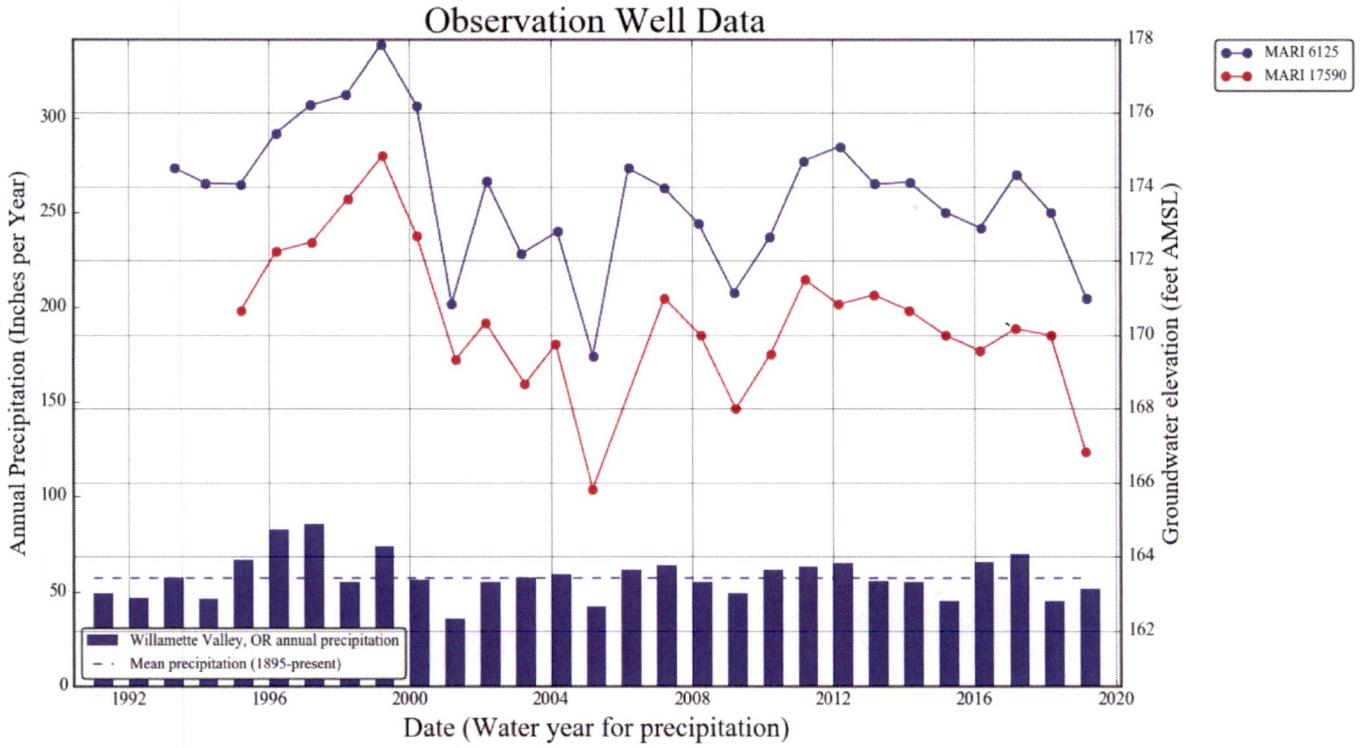
Well Location Map

G-18884 Kuenzi Family Farm, LLC

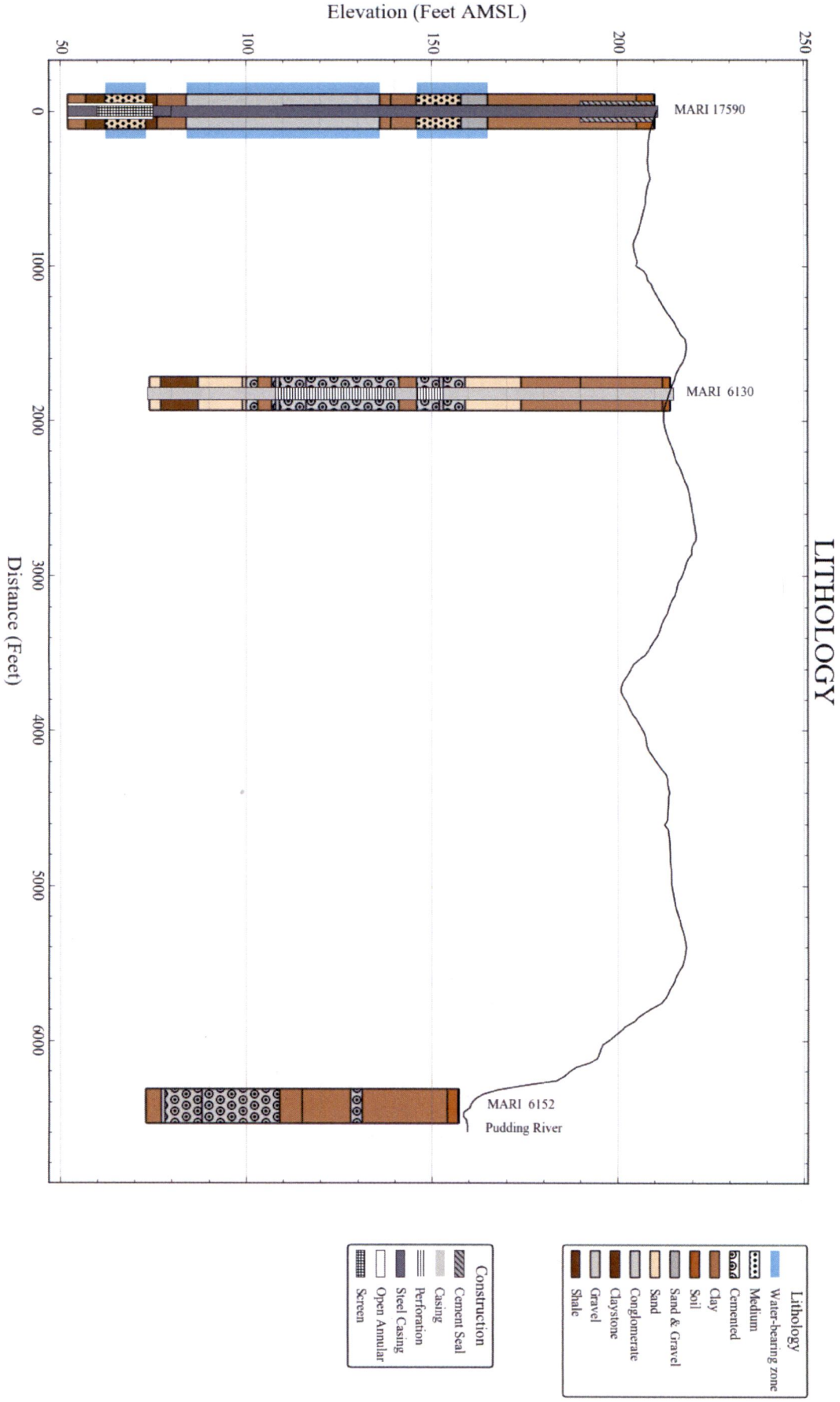


Hydrographs





Cross Section



Water Availability Tables

Water Availability Analysis
Detailed Reports

PUDDING R > MOLALLA R - AB HOWELL PRAIRIE
WILLAMETTE BASIN

Water Availability as of 2/5/2020

Watershed ID #: 152 (Map)
Date: 2/5/2020

Exceedance Level: 80%
Time: 12:50 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	603.00	69.80	533.00	0.00	10.00	523.00
FEB	649.00	60.90	588.00	0.00	10.00	578.00
MAR	587.00	39.90	547.00	0.00	10.00	537.00
APR	451.00	21.20	430.00	0.00	10.00	420.00
MAY	235.00	14.10	221.00	0.00	10.00	211.00
JUN	111.00	28.80	82.20	0.00	10.00	72.20
JUL	43.60	44.30	-0.68	0.00	10.00	-10.70
AUG	24.70	36.70	-12.00	0.00	10.00	-22.00
SEP	22.70	21.90	0.84	0.00	10.00	-9.16
OCT	38.90	3.96	34.90	0.00	10.00	24.90
NOV	233.00	18.60	214.00	0.00	10.00	204.00
DEC	608.00	63.80	544.00	0.00	10.00	534.00
ANN	385,000.00	25,600.00	360,000.00	0.00	7,240.00	353,000.00

Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF152A	CERTIFICATE	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
IS73535A	CERTIFICATE	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
IS73536A	CERTIFICATE	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	1.80	5.00	5.00	5.00
Maximum		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00