WATER RESOURCES DEPARTMENT

MEMO **June 11**, 2020

TO: **Application** G-**18965**

FROM: **GW:** **Jen Woody**
(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 _____ 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

Groundwater Application Review Summary Form

Application # G- 18965

GW Reviewer Jen Woody **Date Review Completed:** 6/11/2020

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:

☐ 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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/11/2020
FROM: Groundwater Section Jen Woody
Reviewer's Name
SUBJECT: Application G- 18965 Supersedes review of n/a
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: **Alan Akins** County: **Yamhill**

A1. Applicant(s) seek(s) 0.00223 cfs up to 0.94 AF from 1 well(s) in the Willamette Basin, Chehalem subbasin

A2. Proposed use irrigation Seasonality: April 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	YAMH 53204	1	Siltstone	0.00223	3S/3W-13 NE ¼ NW ¼	1230' E, 193' S fr NW cor S 13
2						
3						
4						
5						

* 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	155	219	62	10/16/2002	255	0-114	0-118.5	4-255	215-255	5		air

Use data from application for proposed wells.

A4. **Comments:** For the purpose of this review, the land surface elevation is read off the topographic map, so that it references a datum consistent with that associated with stream bed elevations.

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 well produces from a confined aquifer, therefore the pertinent rules (OAR 690-502-240) to not apply.

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

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** 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 site is characterized by low-yielding fractured marine sedimentary rock aquifers. A survey of well logs in T3S/R3W-Sections 11, 12, 13 and 14 produced 212 new well logs, with reported yields ranging from 0 to 160 gpm. The median yield is 12 gpm and most logs report sandstone, claystone and/or shale. This is typical of the low-yield bedrock hydrogeologic unit described at this location by Conlon et al. (2005). The marine sedimentary aquifers generally exhibit long-term, climate-related water level fluctuations. Water level data from nearby wells in this aquifer are sparse. The resource cannot be appropriated to be over-appropriated based on the limited time-series data; YAMH 53835 is the only well within 1 mile with multiple measurements and the trend is unclear (see Figure 3). The marine sedimentary aquifers generally exhibit long-term, climate-related water level fluctuations. Given the small (1 gpm) rate and total volume (less than 1 acre-foot) requested, it is unlikely the proposed use will injure other groundwater users. In the event this permit is issued, water use and water level monitoring conditions are recommended to address uncertainty about resource sustainability.

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**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: According to the well log, the static water level rises more than 100 feet above the reported water bearing zone. This indicates 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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Chehalem Creek**	**93**	**90**	**5900**	☒	☐	☐	☐	☒
1	**2**	**Unnamed tributary to Chehalem Creek**	**93**	**135-155**	**1900-2900**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water-table maps, where they exist, generally show flow paths that converge on local perennial streams. The water level at the subject well is above or coincident with perennial reaches of Chehalem Creek at a distance greater than 1 mile. Groundwater from the uplands likely discharges to surface water down-gradient, providing baseflow or spring flow to sustain nearby perennial reaches of the creek.
The water level at the well is below the unnamed tributary to Chehalem Creek, therefore it is not found to be hydraulically connected to SW #2.

Water Availability Basin the well(s) are located within: Watershed ID #30200707: Chehalem>Willamette R

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**	☐	☐	**n/a**	**n/a**	☐	**0.39**	☐	*	☐
		☐	☐			☐		☐		☐

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 water level at the subject well is below nearby creek bed elevations within ¼ mile, and the requested rate is less than 1% of the 80% natural flow, therefore PSI as defined in 690-09-040 is not triggered.

*Interference at 30 days is not calculated because there is no appropriate model to estimate stream depletion from a well pumping in fractured siltstone and shale at this location.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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:** While the well is hydraulically connected to nearby creeks, it does not trigger the potential for substantial interference as defined in 690-09-040(4).

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.

US Geological Survey Topographic Map, Dundee Quadrangle.

OWRD water level and well log databases, includes reported water levels.

Woodward, D.G., and others, 1998. Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington. USGS Professional Paper 1424-B.

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

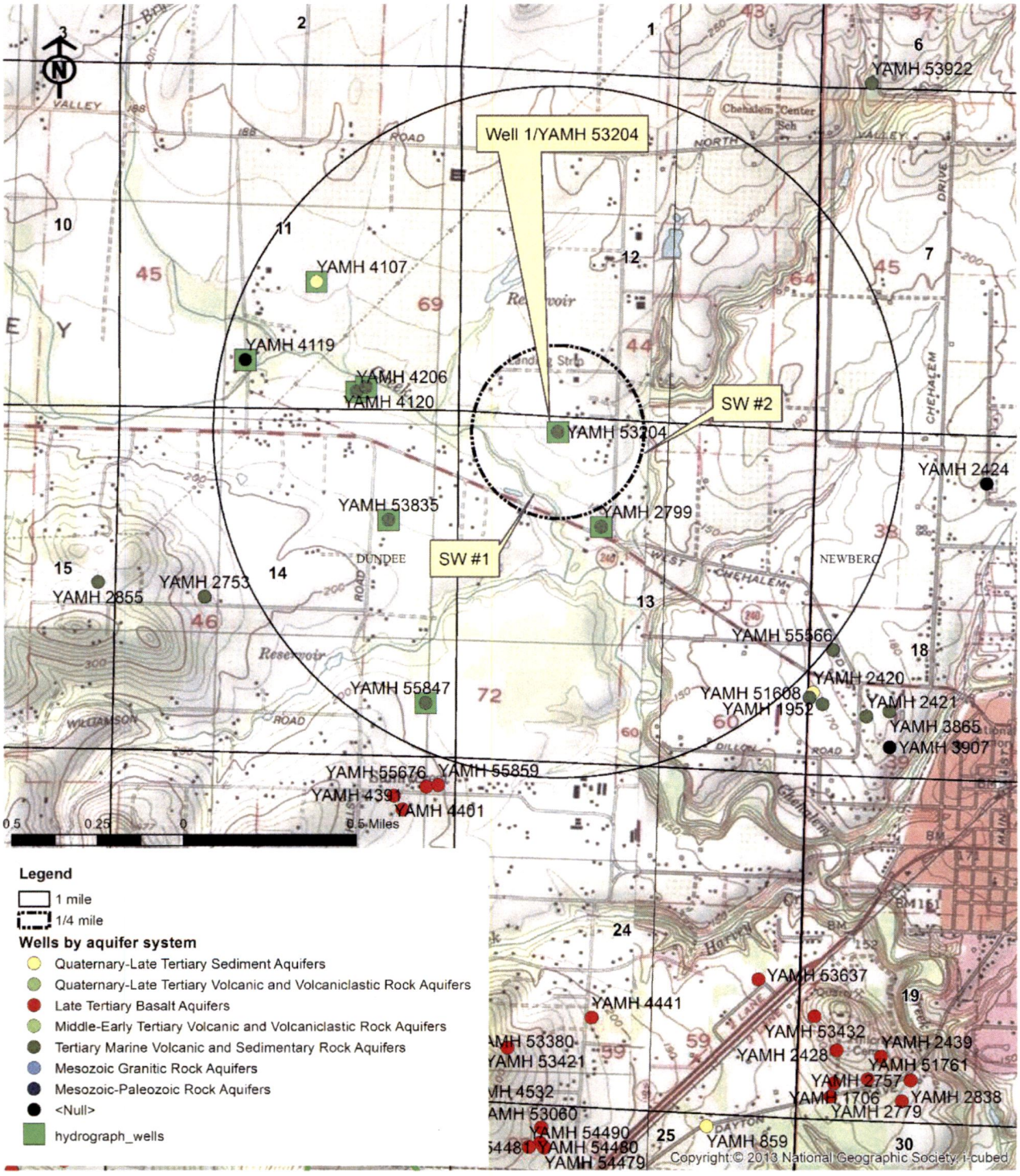
DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION
Water Availability as of 1/7/2020 for
CHEHALEM CR > WILLAMETTE R - AT MOUTH

Watershed ID #: 30200707 Basin: WILLAMETTE Exceedance Level: 80
Time: 12:00 Date: 01/07/2020

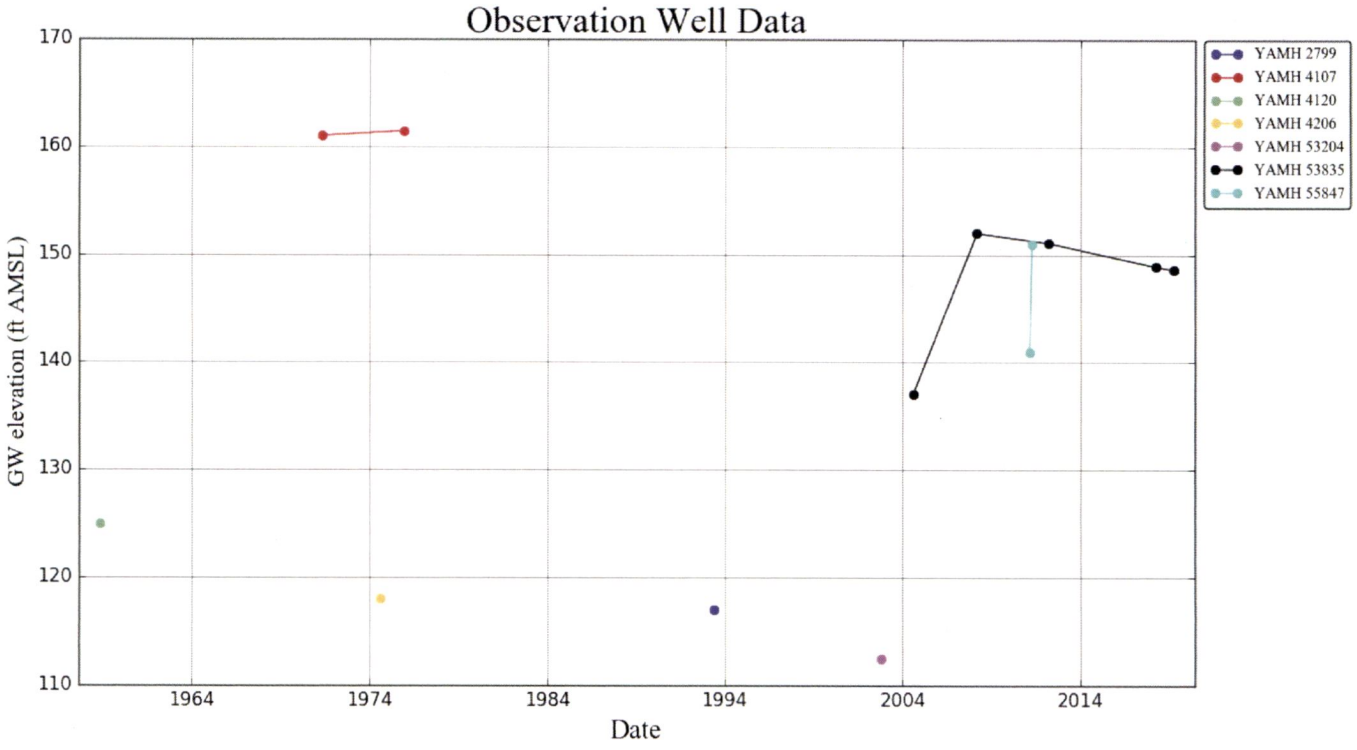
Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	101.00	3.77	0.00	97.23	0.00	0.00	97.23
2	115.00	3.55	0.00	111.45	0.00	0.00	111.45
3	80.60	2.72	0.00	77.88	0.00	0.00	77.88
4	33.00	1.78	0.00	31.22	0.00	0.00	31.22
5	14.90	2.50	0.00	12.40	0.00	0.00	12.40
6	8.48	3.88	0.00	4.60	0.00	0.00	4.60
7	2.13	5.20	0.00	-3.07	0.00	0.00	-3.07
8	0.59	4.28	0.00	-3.69	0.00	0.00	-3.69
9	0.39	2.47	0.00	-2.08	0.00	0.00	-2.08
10	3.05	0.65	0.00	2.40	0.00	0.00	2.40
11	11.50	1.31	0.00	10.19	0.00	0.00	10.19
12	66.20	3.15	0.00	63.06	0.00	0.00	63.06
Stor	48900	2130	0	46770	0	0	46770

Well Location Map

G-18965 Akins
3S/3W- Section 13



Water-Level Trends in Nearby Wells



Approved: 

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Travis Kelly, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18965

Date: June 15, 2020

The attached application was forwarded to the Well Construction and Compliance Section by the Groundwater Section. Jen Woody reviewed the application. Please see Jen's Groundwater Review and the Well Report.

Applicant's Well #1 (YAMH 53204): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

YAMH 53204

STATE OF OREGON **Arrow 02-042**
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

WELL ID # L 61576
START CARD # 145107

(1) LAND OWNER:
Well Number: _____
Name: Albert and Idella Gaibler
Address: 14035 NE Tangen Road
City: Newberg State: Or Zip: 97132

(2) TYPE OF WORK: (repair/recondition)
☒New Well ☐Deepening ☐Alteration ☐Abandonment

(3) DRILL METHOD:
☒Rotary Air ☐Rotary Mud ☐Cable ☐Auger
☐Other: _____

(4) PROPOSED USE:
☒Domestic ☐Community ☐Industrial ☐Irrigation
☐Thermal ☐Injection ☐Livestock ☐Other _____

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐Yes ☒No
Depth of Completed Well 255
Explosives Used ☐Yes ☒No Type _____ Amount _____

HOLE Diameter	From	To	Material	SEAL From	To	sacks or pounds
10	0	114	bent chp	0	3	1 bag
6	114	261	cement	3	114	28 bags

How was seal placed: Method ☐A ☐B ☒C ☐D ☐E
☒ Other bent chips poured and probed
Backfill placed from 255 to 261 Material 8-12 sand
Gravel placed from 195 to 261 Size of gravel 8-12 sand

(6) CASING/LINER:
CASING:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
6	+1.5	118.5	.250	☒	☐	☒	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐

LINER:

4	4	255	160	☐	☒	☒	☐
				☐	☐	☐	☐

Drive Shoe used ☐ Inside ☒ Outside ☐ None
Final location of Shoe(s): 118.5

(7) PERFORATIONS/SCREENS:
☐Perforations Method: _____
☒Screen Type: slotted Material: plastic

From	To	Slot Size	No.	Diameter	Tele/pipe size	Casing	Liner
215	255	.20		4	pipe	☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐Pump ☐Bailer ☒Air ☐Flowing Artesian

Yield gpm	Drawdown	Drill Stem at	Time
5		220	1 hr.

Temperature of water 56 Depth Artesian Flow Found _____
Was a water analysis done? ____ By whom: _____
Did any strata contain water not suitable for intended use? (explain)
_____
Depth of Strata: _____

ARROW DRILLING 503-538-4422

(9) LOCATION OF WELL by legal description:
County: Yamhill Latitude: _____ Longitude: _____
Township: 3S Range: 3W
Section: 13 NE ¼ NW ¼
Tax Lot: 5000 Lot: _____ Block: _____ Subdivision: _____
Street Address of Well (or nearest address) same
_____

(10) STATIC WATER LEVEL:
62 Ft. below land surface Date 10-16-02
Artesian pressure _____ lb. per sq. in. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 219

From	To	Est. Flow Rate	SWL
219	239	5	62

(12) WELL LOG: Ground Elevation: _____

Material	From	To	SWL
top soil	0	1	
clay brown	1	14	
siltstone soft	14	24	
clay brown sticky	24	57	
clay reddish brown soft	57	74	
clay gray with silt soft	74	90	
clay greenish blue sticky	90	109	
shale blue med	109	116	
shale gray med	116	178	
siltstone gray med	178	186	
shale blue med	186	207	
siltstone with shale conglomerate	207	237	62
shale blue	232	261	62

RECEIVED
DEC 0 3 2002
WATER RESOURCES DEPT.
SALEM, OREGON

Date Started: 10/14/01 Completed: 10/16/02

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration,, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 806
Signed _____ Date 11/5/02

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1483
Signed John R. Stu Date 11/5/02

ORIGINAL - Water Resources Department FIRST COPY - Constructor SECOND COPY - Customer