

Groundwater Application Review Summary Form

Application # G- 18717

GW Reviewer Travis Brown, Dennis Orlewski Date Review Completed: 1/31/19

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.

21 1/31/19

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).

OK
KHQ

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator,
Subject: Review of Water Right Application G-18717
Date: March 15, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Travis Brown and Dennis Orłowski reviewed the application. Please see Travis's and Dennis's Groundwater Review and the Well Log.

Applicant's Well #1 (CLAC 17036): Based on a review of the well report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The well report indicates that cement, bentonite, and cuttings were used for the annular seal. Cuttings are not an approved annular seal material. In addition, the annular seal does not extend far enough below land surface. In order to meet minimum well construction standards, the well must be recased and resealed to a minimum depth of 228 feet below land surface with an approved grout.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (CLAC 17036) unless it is brought into compliance with minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301
(503) 986-0900
www.wrd.state.or.us

Application for Well ID Number

RECEIVED BY OWNER

Do not complete if the well already has a Well Identification Number.

NOV 17 2014

I. OWNER INFORMATION

SALIM, OR

Current Owner Name (please print): Debra Schroeder

Mailing Address: 23254 South Ridge Road

City, State, Zip: Beavercreek, OR 97004

Mail Well ID Tag to: ☐ SAME AS ABOVE ☒ In Care Of (C/O)

Name & Address: Paragon Equity Partners c/o Ryann Blair 7145 N Greeley Ave.

City, State, Zip: Portland, OR 97217

II. WELL LOCATION INFORMATION (Please fill out as completely as possible)

Township: 3S (North / South) Range: 3E (East / West) Section: 32

Tax Lot: 202 County Clackamas 1/4 1/4

GPS Coordinates: _____

Street Address of Well, City: 23254 South Ridge Road Beavercreek, OR 97004

If the property had a different street address in the past: _____

III. GENERAL WELL INFORMATION (Please fill out as completely as possible)

Use of Well (domestic, irrigation, commercial, industrial, monitoring): Domestic

Date Well Constructed (or property built): _____ Total Well Depth: _____ Casing Diameter: 6"

Owner at time the well was constructed (if known): _____

Other Information: 239 foot static water level.

SUBMITTED BY (please print): Always Pure Water - Michael Klobes

PHONE: 503-668-9287 EMAIL &/or FAX: info@always-pure.com

Send application to: Oregon Water Resources Department 725 Summer St NE, Suite A, Salem, Oregon 97301; or fax to (503) 986-0902. Applications are processed in the order they are received, and Well ID Numbers are mailed within 4-5 business days.

For Official Use Only by the Oregon Water Resources Department:

Received Date:

11-17-14

Well Log Number:

CLAC 17036

Well Identification #:

L-117403

CLAC 17036

BELL Ladeena K

From: Always Pure <alwayspureh2o@gmail.com>
Sent: Wednesday, November 19, 2014 8:08 AM
To: BELL Ladeena K
Subject: Re: WELL: 23254 S Ridge Rd

Ladeena,

This does match what I saw on site! Thank you for your research.

Thank you.

Michael Klobes

On Nov 18, 2014, at 10:01 AM, BELL Ladeena K <ladeena.k.bell@state.or.us> wrote:

Michael,

I received the app for Well ID number, did some research and came up with a possible log.

Would you please look at the attached well log and tell me if you think this matches what you saw on-site?

Thank you!

Ladeena Bell

Well ID Specialist / WCC Support

Well Construction & Compliance Section
Oregon Water Resources Dept
725 Summer St NE Ste A Salem, OR 97301
503-986-0854

<CLAC_17036.pdf>

CLAC 17036

BELL Ladeena K

From: Ferris, Craig <craigfer@co.clackamas.or.us>
Sent: Tuesday, November 18, 2014 10:31 AM
To: 'BELL Ladeena K'
Subject: RE: Inquiry: Previous/Original Owner

The Sifford's purchased the property by an assignment of contract signed on March 3, 1972. Deed 72-7958.
I don't see any other property in their name at that time.

Craig Ferris Cartographer 3
Clackamas County Assessment and Tax
150 Beaver Creek Road
Oregon City, Oregon 97045
503-655-8671 Ext 7650

From: BELL Ladeena K [<mailto:ladeena.k.bell@state.or.us>]
Sent: Tuesday, November 18, 2014 9:55 AM
To: Ferris, Craig
Subject: RE: Inquiry: Previous/Original Owner

Wow, that's quite a list!
Thank you.

Is there any way to see if Richard Sifford owned other property in that same TRS, in 1971? If so, then the well log I found may not be for this well.

The log I found is from December of 1971, but according to the list you gave, he didn't officially buy the property until 1972.

If it was early 1972, I suppose he could have had an agreement with the owners, and commissioned a driller just prior to taking possession....

What date is actually on the deed from Armstrong/Donaldson to Sifford?

I appreciate any help you can give me!

Ladeena Bell

Well ID Specialist / WCC Support

Well Construction & Compliance Section
Oregon Water Resources Dept
725 Summer St NE Ste A Salem, OR 97301
503-986-0854

From: Ferris, Craig [<mailto:craigfer@co.clackamas.or.us>]
Sent: Monday, November 17, 2014 5:37 PM
To: 'ladeena.k.bell@state.or.us'
Subject: RE: Inquiry: Previous/Original Owner

This property was created in 1971 by Dell M. Scribner with a contract to Obed Armstrong & Iris Joy Donaldson
Richard Dean & Barbara Ann Sifford in 1972
David D & Betty J. Hickey in 1976
Steven E. & Joyce M. Wilder in 1977

CLAC 17036

BELL Ladeena K

From: Ferris, Craig <craigfer@co.clackamas.or.us>
Sent: Monday, November 17, 2014 5:37 PM
To: 'ladeena.k.bell@state.or.us'
Subject: RE: Inquiry: Previous/Original Owner

This property was created in 1971 by Dell M. Scribner with a contract to Obed Armstrong & iris Joy Donaldson
Richard Dean & Barbara Ann Sifford in 1972
David D & Betty J. Hickey in 1976
Steven E. & Joyce M. Wilder in 1977
Linda Ahlquist, Lloyd Piper, & Fern Piper in 1989
Linda K. & David E. Yarno in 1994
Fern A. Piper in 2001
David F. Coffey & Debra J. Schroeder in 2001

Craig Ferris Cartographer 3
Clackamas County Assessment and Tax
150 Beavercreek Road
Oregon City, Oregon 97045
503-655-8671 Ext 7650

Debra J. Schroeder in 2006 to Present

From: Wyman, Jeanette
Sent: Monday, November 17, 2014 4:19 PM
To: Ferris, Craig
Subject: FW: Inquiry: Previous/Original Owner

From: BELL Ladeena K [<mailto:ladeena.k.bell@state.or.us>]
Sent: Monday, November 17, 2014 4:09 PM
To: Property Tax Information
Subject: Inquiry: Previous/Original Owner

I'm trying to find a well log in our system, and need previous and/ or original owner names.
Please tell me who has owned the following property:

23254 S Ridge Rd in Beavercreek.
3 South 3 East, Section 32, tax lot 202

There's no "built" date on your website, so I'm not even sure what timeframe to inquire about.
I found a possible well log in our database, from 1971.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section

Date January 31, 2019

FROM: Groundwater Section

Travis Brown, Dennis Orlowski

Reviewer's Name

SUBJECT: Application G- 18717

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: Richard W. ToddCounty: Clackamas

A1. Applicant(s) seek(s) 0.100 cfs from 1 well(s) in the Willamette River Basin,
Main Stem Willamette River / Clackamas River^a subbasin

A2. Proposed use Nursery (14.5 acres) Seasonality: Year round (Jan 1 – Dec 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	CLAC 17036 ^b	1	Alluvium	0.100	3S/3E-32 SE-NE	1360' S, 450' E fr NE cor S 32

* 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	966 ^c	180 ^d	238 ^d	12/14/1971 ^d	445 ^d	0-160 ^d	0-241 (6") ^d 238-298 (5 9/16")		237-297 (Perf) ^d	11 ^d	12 ^d	Pump

Use data from application for proposed wells.

A4. **Comments:** The requested POA/POU is located approximately 3.75 miles southeast of the unincorporated community of Beavercreek, Oregon.

^a The requested POA is within 200 ft of the hydrologic divide between the WILLAMETTE R > COLUMBIA R – AT MOUTH (Abernethy Creek) Water Availability Basin (WAB) and the CLEAR CREEK > CLACKAMAS R – AT MOUTH (Mosier Creek) WAB. WABs are determined based on topographical features for assessing surface water flow; groundwater flow does not always follow topography. Therefore, this application has been evaluated against the provisions of both the Main Stem Willamette River (OAR 590-502-0050) and Clackamas River (OAR 690-502-0140) Subbasin rules (see A5).

^b The requested POA Logid is identified as "MULT 17036" in both the provided Water Rights Application Map and Section 3 of the Application for a Permit to Use Groundwater. However, the location indicated on the Water Rights Application Map corresponds to the location identified for CLAC 17036. In the well specific table for Section 3, the POA Logid is referred to as "CLAC 17036". Therefore, it has been assumed that CLAC 17036 is the correct Logid for the requested POA.

^c Land surface elevation at CLAC 17036 (Watershed Sciences, 2009; USGS, 2013; WSI, 2015).

^d Values from Water Well Report for CLAC 17036. **The reported well yield is less than 1/4 of the requested allocation (45 gpm or 0.100 cfs).**

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 requested POA produces groundwater from a confined aquifer; therefore, per OAR 690-502-0240, the relevant Willamette Basin rules do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction. Name of administrative area: Not Applicable

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 (annual measurement condition) and 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 _____ 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 POA/POU is on a local upland of Miocene- to Pleistocene-aged volcanoclastic and terrestrial sediments (Troutdale Formation [Fmn] and Sandy River Mudstone) capped by Pliocene- to Pleistocene-aged lavas of the Boring Lava flow which emanated from Highland Butte approximately 2.3 miles to the south (Leonard and Collins, 1983). Leonard and Collins (1983) note that the Boring Lava flows in this area filled in an ancestral drainage in the southern part of T3S, R3E and that flows can be at least 300 ft thick in that area. The Martin Creek, Abernethy Creek and Mosier Creek drainages have since eroded through the Boring Lava cap and into the underlying Troutdale Fmn and Sandy River Mudstone.

According to the Water Well Report for CLAC 17036 (the requested POA), the applicant's well appears to produce water from an approximately 20 ft thick layer of water-bearing gravel between 248 and 268 ft below land surface (bls) (elevations of approximately 718 ft to 698 ft above mean sea level [msl]), although water-bearing sandy clay was noted as extending from a depth of approximately 180 to 204 ft bls (elevations of approximately 786 ft to 762 ft above msl) (see Well Construction & Lithology, attached). This sandy clay was not sealed off and therefore may be in hydraulic communication with CLAC 17036 via the borehole annulus.

Available groundwater level data around the proposed POA is sparse. The nearest observation well (CLAC 64823) is greater than 13,000 ft (~2.5 miles) away to the north of the POA, on the opposite side of another unnamed drainage which has incised into the Sandy River Mudstone. Other observation wells are at a similar remove from the POA. While some of these wells do show moderate (CLAC 64823) to substantial (CLAC 57020) declines over their periods of record (see Water-Level Trends in Nearby Wells, attached), there is insufficient data within the area of interest to determine whether groundwater levels at the POA have declined or will decline in the future. As such, should a permit be granted for this application, measurement condition 7N (annual water measurement in March) and medium water-use reporting are recommended to assess the potential for long term declines.

It should be noted that the requested allocation of 45 gpm (0.100 cfs) is greater than 4 times the reported yield (11 gpm [0.02 cfs]) for the POA. Either modification (deepening) of the existing well or the installation of additional wells may be necessary to supply the requested the allocation.

Groundwater for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding the extent of the local alluvial aquifer system, local rates of recharge, and the current quantity of groundwater withdrawals from the local aquifer system.

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: The water well report for CLAC 17036 as well as two nearby domestic wells (CLAC 17048 and CLAC 56695) indicate water-bearing zones from as shallow as 78 ft bls to as deep as 326 ft bls. Reported static water levels in the three water wells were generally above the applicable water-bearing zones, so the aquifer appears to be predominantly confined in this area.

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	Mosier Creek*	735-720 ^a	880-605 ^b	995	☒	☐	☐	☐	☒
1	2	Martin Creek	735-720 ^a	835-630 ^b	1,225	☒	☐	☐	☐	☒
1	3	Abernethy Creek	735-720 ^a	690-435 ^b	3,590	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Estimated groundwater elevations for the POA are within or above the range of estimated surface water elevations in nearby streams. Furthermore, the identified perennial stream reaches within 1-mile of the POA have incised into the underlying Troutdale Formation and Sandy River Mudstone beneath the elevation of the water-bearing zones identified in CLAC 17036 (approximately 786-762 ft and 718-698 ft above msl). This evidence is sufficient to conclude there is hydraulic connection between the water-bearing zones penetrated by CLAC 17036 and nearby surface water bodies.

***Mosier Creek is above the Clackamas River State Scenic Waterway. Due to the hydraulic connection between Mosier Creek and the alluvial aquifer in this area, the relevant State Scenic Waterway provisions apply to the proposed use.**

^a Groundwater elevation estimated from well surface elevations and reported static water levels for CLAC 17036.

^b Surface water elevations estimated from land surface elevations along applicable stream reaches (Watershed Sciences, 2009; USGS, 2013; WSI, 2015).

Water Availability Basin the well(s) are located within: SW1: CLEAR CREEK > CLACKAMAS R – AT MOUTH
SW2-3: WILLAMETTE R > COLUMBIA 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 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	☒	☐	N/A	N/A	☐	5.65	☒	*	☒
1	2	☒	☐	N/A	N/A	☐	4,890	☐	*	☒
1	3	☐	☐	N/A	N/A	☐	4,890	☐	*	☐

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: CLAC 17036 is within ¼-mile (1,320 ft) of both SW 1 (Mosier Creek) and SW 2 (Martin Creek), to which it is hydraulically connected. Therefore, per OAR 690-09-0040(4)(a), the requested POA is assumed to have the potential to cause substantial interference with these surface water sources. NOTE: No part of the proposed place of use (Clackamas County Tax Lot No. 202) is greater than ¼-mile from a hydraulically-connected surface water (see “Well Location Map”, attached). There does not appear to be an alternative location within the requested place of use which would not be assumed to have the potential to cause substantial interference between the alluvial aquifer and nearby surface water.

Furthermore, the maximum requested rate of appropriation (0.100 cfs) is greater than one percent (0.0565 cfs) of the discharge that is equaled or exceeded 80 percent of the time (5.65 cfs) as estimated for SW 1 (Mosier Creek). Therefore, per OAR 690-09-0040(4)(c), the requested POA and allocation are assumed to have the potential to cause substantial interference with SW 1 (Mosier Creek).

*There is insufficient information regarding hydrogeologic parameters of the local aquifer and stream systems to make sound, quantifiable estimates of potential interference with SW 1, SW 2, or SW 3.

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
1	1	* %	* %	* %	* %	* %	* %	* %	* %	* %	* %	* %	* %
Well Q as CFS		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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: * SW 1 has been referenced here because, although it is *within* 1 mile of the stream system, it is above the Clackamas River State Scenic Waterway. However, there is insufficient available information regarding hydrogeologic parameters of the local aquifer and stream systems to make sound, quantifiable estimates of potential interference between groundwater and surface water. Therefore, per ORS 390.835, 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.

The POA is within the WILLAMETTE R > COLUMBIA R – AT MOUTH Water Availability Basin (WAB). One percent of the 80 percent exceedance flow for this WAB would equal 48.9 cfs, which is greater than the requested allocation of 0.100 cfs.

Therefore, there does not appear to be a potential for significant impact on streams within this WAB greater than 1 mile from the POA.

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:
- ☒ The permit contain condition #(s) 7j (Scenic Waterway Condition);
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:**

C1 (OAR 690-09-0040(1)): The requested POA (CLAC 17036) produces groundwater from a confined alluvial aquifer.

C2 (OAR 690-08-0040(2)(3)): The POA (CLAC 17036) is determined to be hydraulically connected to SW 1 (Mosier Creek), SW 2 (Martin Creek), and SW 3 (Abernethy Creek). **The POA is hydraulically connected to a surface water source (SW 1, Mosier Creek) that is above the Clackamas River State Scenic Waterway.**

C3a (OAR 390-09-0040(4)): **The POA (CLAC 17036) is within ¼-mile of SW1 and SW2, and the potential for substantial interference is assumed on that basis. The requested allocation (0.100 cfs) for the POA is greater than one percent (0.0565 cfs) of the discharge that is equaled or exceeded 80 percent of the time (5.65 cfs) as estimated for SW 1, and the potential for substantial interference is also assumed on that basis.**

References Used:

Application File: G-18717

Well Construction Reports: CLAC 17036, CLAC 17048 and CLAC 56695

Conlon, T.D., Lee, K.K., and Risley, J.R., 2003, Heat tracing in streams in the central Willamette Basin, Oregon, in Stonestrom, D.A. and Constantz, Jim, eds., Heat as a tool for studying the movement of groundwater near streams: U.S. Geological Survey Circular 1260, chapter 5, p. 29-34.

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.

Domenico, P.A. and Mifflin, 1965, Water from low-permeability sediments and land subsidence: Water Resource Research, v. 1, no. 4, p. 563-576.

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, 2003.

Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

Leonard, A.R., and Collins, C.A., 1983, Ground water in the northern part of Clackamas County, Oregon: Oregon Water Resources Department Ground Water Report 29. 85 p.

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

United States Geological Survey, 2017, *Redland quadrangle, Oregon* [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, Virginia.

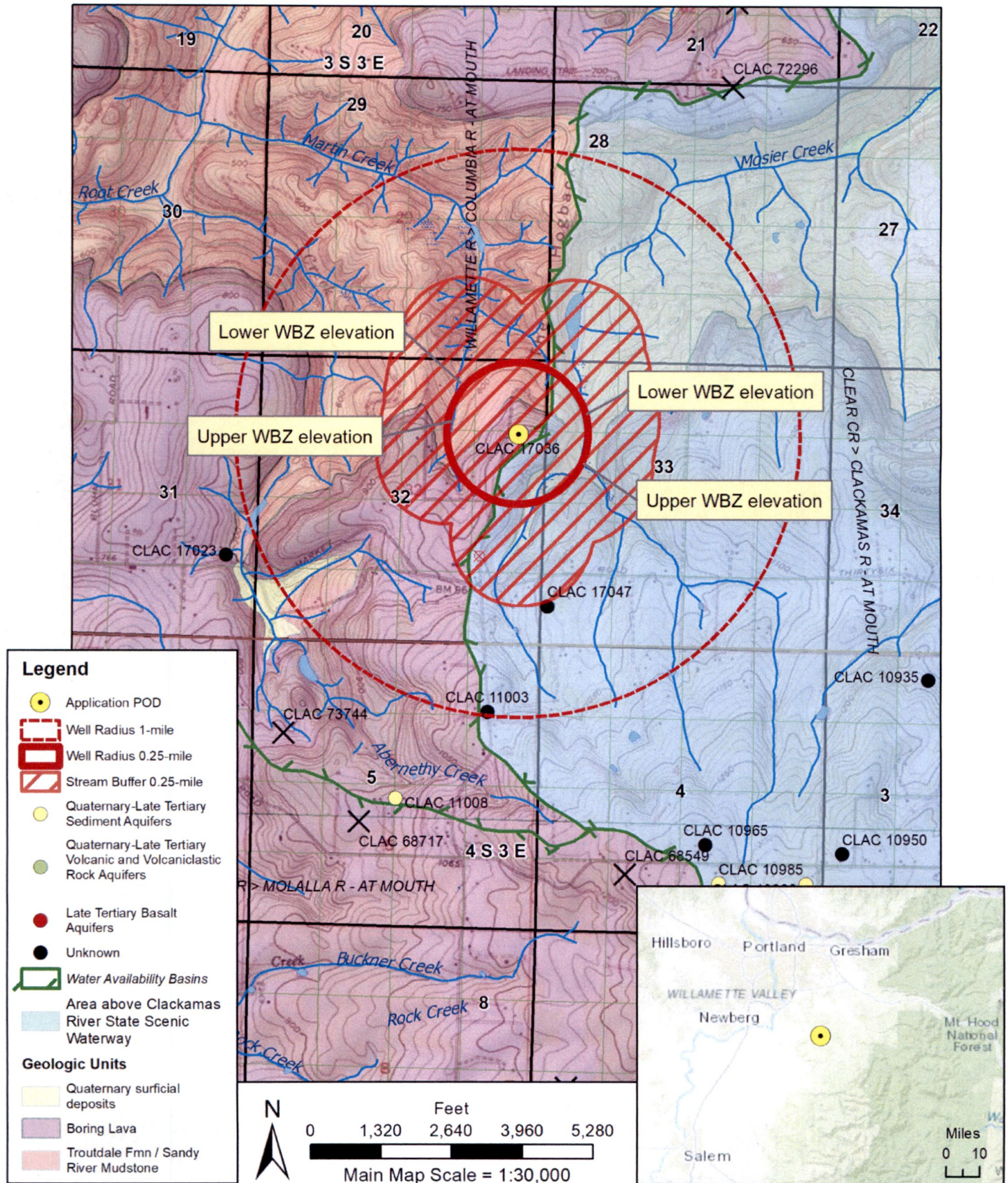
WSI, 2015, OLC Metro 2014: Final Delivery, Portland, OR, May 8.

D. WELL CONSTRUCTION, OAR 690-200

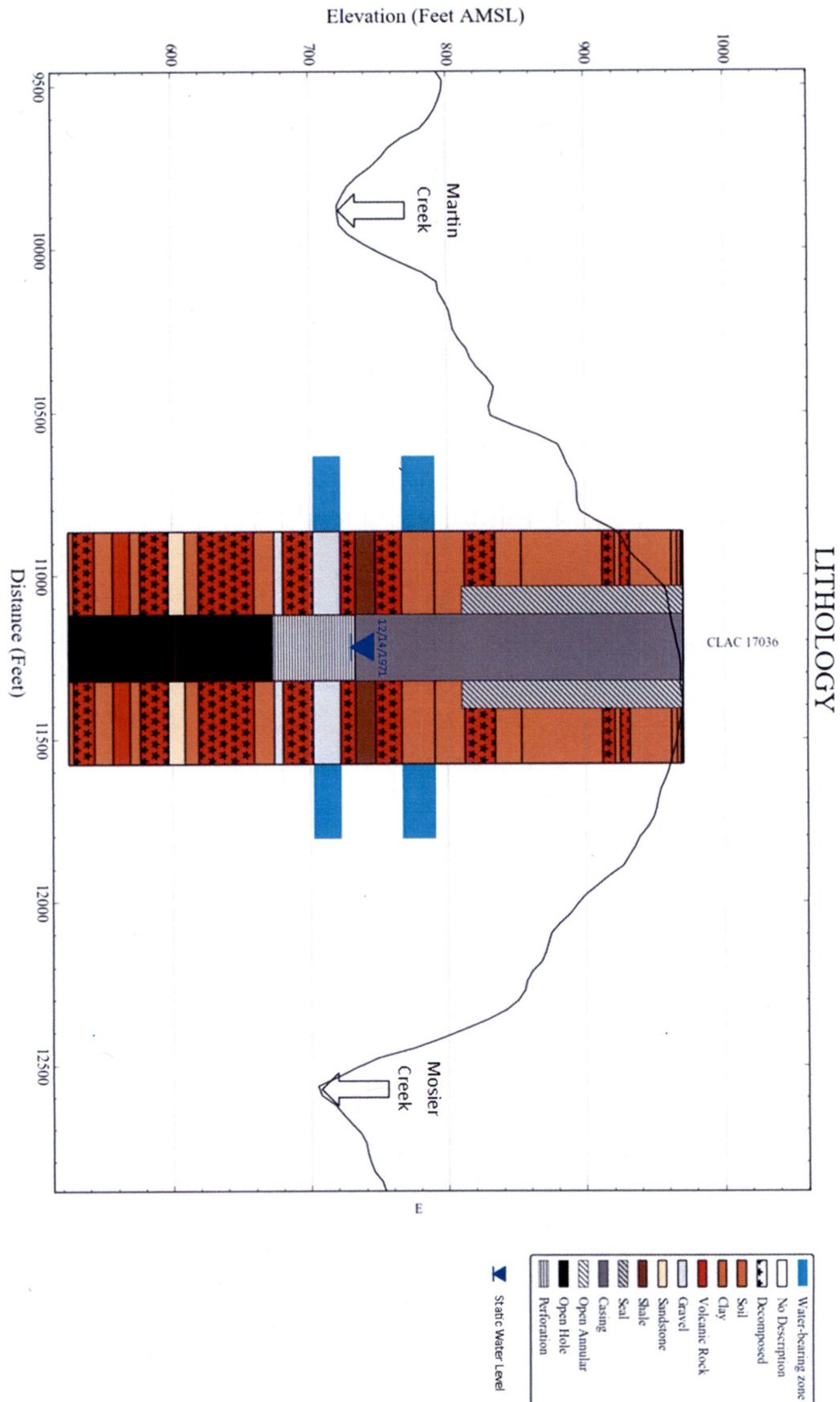
- D1. **Well #:** _____ **Logid:** _____
- D2. **THE WELL does not appear to meet current well construction standards based upon:**
- a. ☐ review of the well log;
 - b. ☐ field inspection by _____;
 - c. ☐ report of CWRE _____;
 - d. ☐ other: (specify) _____
- D3. **THE WELL construction deficiency or 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

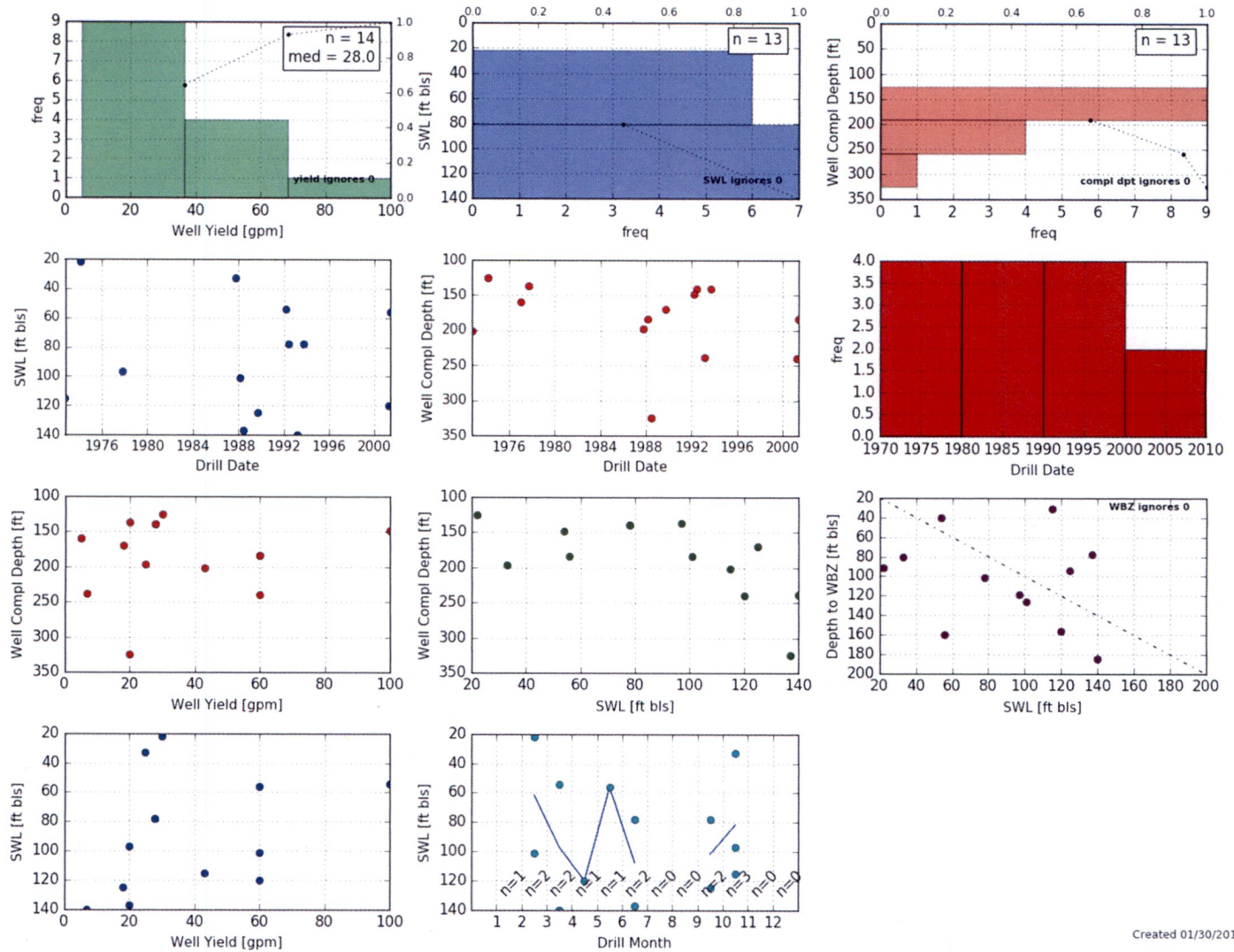
G-18717 Todd / DeTerra



WELL CONSTRUCTION & LITHOLOGY – POA 1 (CLAC 17036)

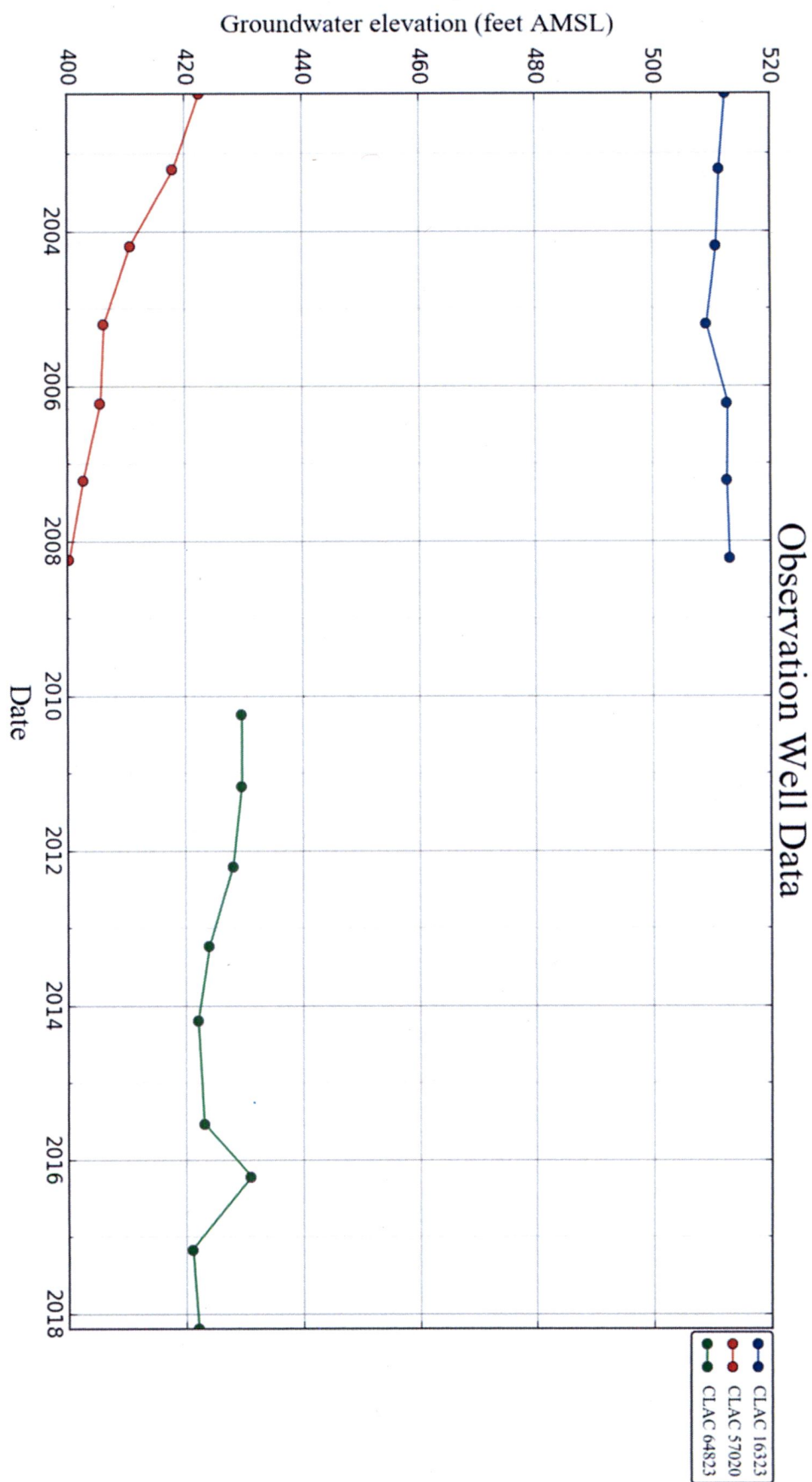


OWRD Well Log Query – Statistics for Reported Wells in Adjacent Quarter-Quarters



Created 01/30/2019

Water-Level Trends in Nearby Wells



Water Availability Tables

Water Availability Analysis Detailed Reports

CLEAR CR > CLACKAMAS R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 1/25/2019

Watershed ID #: 82 ([Map](#))

Exceedance Level: 80%

Date: 1/25/2019

Time: 1:40 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	126.00	1.29	125.00	0.00	0.00	125.00
FEB	128.00	1.19	127.00	0.00	0.00	127.00
MAR	128.00	0.85	127.00	0.00	0.00	127.00
APR	131.00	1.00	130.00	0.00	0.00	130.00
MAY	111.00	2.71	108.00	0.00	0.00	108.00
JUN	48.10	3.76	44.30	0.00	40.00	4.34
JUL	19.00	6.47	12.50	0.00	40.00	-27.50
AUG	8.02	5.29	2.73	0.00	20.00	-17.30
SEP	5.65	2.28	3.37	0.00	20.00	-16.60
OCT	6.23	0.92	5.31	0.00	0.00	5.31
NOV	21.50	0.85	20.60	0.00	0.00	20.60
DEC	103.00	1.36	102.00	0.00	0.00	102.00
ANN	99,100.00	1,700.00	97,400.00	0.00	7,260.00	93,300.00

Water Availability Analysis Detailed Reports

WILLAMETTE R > COLUMBIA R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 1/25/2019

Watershed ID #: 181 ([Map](#))

Exceedance Level: 80%

Date: 1/25/2019

Time: 1:35 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	27,500.00	2,800.00	24,700.00	0.00	1,500.00	23,200.00
FEB	30,000.00	8,070.00	21,900.00	0.00	1,500.00	20,400.00
MAR	28,500.00	7,620.00	20,900.00	0.00	1,500.00	19,400.00
APR	25,400.00	7,230.00	18,200.00	0.00	1,500.00	16,700.00
MAY	20,700.00	4,440.00	16,300.00	0.00	1,500.00	14,800.00
JUN	11,000.00	2,340.00	8,660.00	0.00	1,500.00	7,160.00
JUL	6,280.00	2,290.00	3,990.00	0.00	1,500.00	2,490.00
AUG	4,890.00	2,050.00	2,840.00	0.00	1,500.00	1,340.00
SEP	4,930.00	1,680.00	3,250.00	0.00	1,500.00	1,750.00
OCT	5,990.00	713.00	5,280.00	0.00	1,500.00	3,780.00
NOV	12,700.00	1,060.00	11,600.00	0.00	1,500.00	10,100.00
DEC	24,800.00	1,450.00	23,400.00	0.00	1,500.00	21,900.00
ANN	19,700,000.00	2,500,000.00	17,200,000.00	0.00	1,090,000.00	16,100,000.00