Groundwater Application Review Summary Form

Application # G- LL-1783

GW Reviewer Ben Scandella, Jon Woody **Date Review Completed:** 6/7/2019

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.

✓ JS 6/10/19

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).

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Limited License Application LL-1783

Date: June 20, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Ben Scandella and Jen Woody reviewed the application. Please see Ben and Jen's review and the Well Logs.

Applicant's Well #1 (YAMH 704): 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 casing seal depth is inadequate. In order to meet minimum well construction standards, the well should be cased and sealed to a minimum depth of 38 feet below land surface.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (YAMH 704) unless it is brought into compliance with current 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.

Applicant's Well #2 (YAMH 57912): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Applicants Well #2 may not satisfy hydraulic connection issues.

Applicant's Well #3 (YAMH 57913): Based on a review of the Well Report, Applicant's Well #3 seems to protect the groundwater resource.

The construction of Applicants Well #3 may not satisfy hydraulic connection issues.

Bringing Applicant's Well #3 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

#16

APR 17 1991 YAMH 704

YAMH 704

L-127717

3S/3W/19ac

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

WATER RESOURCES DEPT.
SALEM, OREGON

(START CARD) # 17468

(1) OWNER: Well Number: 91-291

Name: MR & Mrs Cleefil

Address: 10280 Oak Spring Farms Rd

City: Carlton State: OR Zip: 97111

(2) TYPE OF WORK:

[X] New Well [ ] Deepen [ ] Recondition [ ] Abandon

(3) DRILL METHOD

[ ] Rotary Air [ ] Rotary Mud [X] Cable

[ ] Other

(4) PROPOSED USE:

[X] Domestic [ ] Community [ ] Industrial [ ] Irrigation

[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes [ ] No [X] Depth of Completed Well 120 ft.

Explosives used Yes [ ] No [X] Type ______ Amount ______

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10	0	33	Cement	0	33	17
6	33	120				

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E

[ ] Other

Backfill placed from ______ ft. to ______ ft. Material ______

Gravel placed from ______ ft. to ______ ft. Size of gravel ______

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	39	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:	4"	5	120		[ ]	[X]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]

Final location of shoe(s) —

(7) PERFORATIONS/SCREENS:

[X] Perforations Method SKILL Saw

[ ] Screens Type ______ Material ______

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
110	120	6"	24	1/16		[ ]	[X]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

(8) WELL TESTS: Minimum testing time is 1 hour

[ ] Pump [X] Bailer [ ] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
30	90		1 hr.

Temperature of water 51 Depth Artesian Flow Found ______

Was a water analysis done? no [ ] Yes By whom ______

Did any strata contain water not suitable for intended use? no [ ] Too little

[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other ______

Depth of strata: ______

(9) LOCATION OF WELL by legal description:

County Yamhill Latitude ______ Longitude ______

Township 3S N or S, Range 3W E or W, WM.

Section 19 SW ¼ NE ¼

Tax Lot ______ Lot ______ Block ______ Subdivision ______

Street Address of Well (or nearest address) Same

(10) STATIC WATER LEVEL:

2 ft. below land surface. Date 3/25/91

Artesian pressure ______ lb. per square inch. Date ______

(11) WATER BEARING ZONES:

Depth at which water was first found ______

From	To	Estimated Flow Rate	SWL
110	120	30	2

(12) WELL LOG: Ground elevation 450

Material	From	To	SWL
~~Clay~~			
Topsoil	0	1	
Clay Red	1	4	
Clay Tan	4	33	
Sandstone Gray	33	120	2

RECEIVED
MAR 26 2018
OWRD

Date started 3/23/91 Completed 3/25/91

(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 well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number ______

Signed ______ Date ______

(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 well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 703

Signed Tom Bryant Date 3/25/91

YAMH 704

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

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

I. OWNER INFORMATION

Current Owner Name *(please print)*: Daniel & Sandi Wilkens

Mailing Address: 10280 NE Oak Springs Farm Rd.

City, State, Zip: Carlton, OR 97111

~~Mail Well ID Tag to:~~ [x] SAME AS ABOVE [ ] In Care Of (C/O)

Name & Address: Using tag from Blue Water Drilling inventory

City, State, Zip:

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

Township: 3 (North / South) Range: 3 (East / West) Section: 19 SE 1/4 of the SW 1/4

Tax Lot (usually last 3-5 numbers of Tax Map #): R33~~20~~19 - 300 County Yamhill

GPS Coordinates:

Street Address of Well, City: 10280 NE Oak Springs Farm Rd, Carlton

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

III. GENERAL WELL INFORMATION *(Please fill out as completely as possible, AND attach copy of Well Log, if available)*

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

Date Well Constructed (or property built): 3/25/91 Total Well Depth: 120 Casing Diameter: 6

Owner at time the well was constructed (if known): Cloepfil Well Log # (if known): YAMH 704

Other Information:

SUBMITTED BY *(please print)*: David Paysinger WWC #1438

PHONE: 5038687878 **EMAIL &/or FAX:** bluewaterdrilling@gmail.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:	Well Log Number:	Well Identification #:
	L127717	

RECEIVED
MAR 26 2018
OWRD

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

YAMH 57913
4/23/2018

WELL I.D. LABEL# L 127722
START CARD # 1038436
ORIGINAL LOG #

(1) LAND OWNER
Owner Well I.D. 3126 (#3)
First Name DANIEL AND SANDI Last Name WILKINS
Company
Address 10501 NE ABBEY RD. CARLTON
City CARLTON State OR Zip 97111

(2) TYPE OF WORK
[X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD
[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE
[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION
Special Standard [ ] (Attach copy)
Depth of Completed Well 222.00 ft.

BORE HOLE

Dia	From	To
10	0	38
6	38	222

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite Chips	0	38	21	S
		Calculated	18	
		Calculated		

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other POUR/PROBE/HYDRATE
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: [ ] Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●	○	6	X	2	38	.25	●	○	X	
○	●	4		4	104	sch40	○	●		X
○	○						○	○		
○	○						○	○		
○	○						○	○		

Shoe [ ] Inside [X] Outside [ ] Other Location of shoe(s) 38
Temp casing [X] Yes Dia 10 From + [X] 1 To 19

(7) PERFORATIONS/SCREENS
Perforations Method
Screens Type machine slotted Material PVC

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Screen	Liner	4	104	222	.032			4

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

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
21		220	1
21		210	3

Temperature 54 °F Lab analysis [ ] Yes By
Water quality concerns? [ ] Yes (describe below) TDS amount 76 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County YAMHILL Twp 3.00 S N/S Range 3.00 W E/W WM
Sec 19 SE 1/4 of the SW 1/4 Tax Lot 300
Tax Map Number Lot
Lat ° ' " or 45.28838911 DMS or DD
Long ° ' " or -123.10557648 DMS or DD
◉ Street address of well ○ Nearest address
10501 NE ABBEY RD. CARLTON, CARLTON, OR 97111

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	4/20/2018			24

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 131.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
4/20/2018	131	209	21			24

(11) WELL LOG
Ground Elevation

Material	From	To
Top Soil	0	2
Clay, Red/Brown	2	7
Claystone, gray/brown	7	13
Sandstone, Weathered brown	13	19
Sandstone, gray fine	19	50
Sandstone, medium hard coarse gray	50	93
Sandstone, hard gray fine to med coarse	93	106
Sandstone, same w/occ claystone layers	106	131
Sandstone, LT/DK gray layers, hard	131	209
Clay, Light gray soft	209	222

Date Started 4/20/2018 Completed 4/20/2018

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, 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.
License Number Date
Signed

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, 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.
License Number 1438 Date 4/23/2018
Signed DAVID PAYSINGER (E-filed)
Contact Info (optional) bluewaterdrilling.com || 503.868.7878

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

YAMH 57913

4/23/2018

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

LOCATION OF WELL

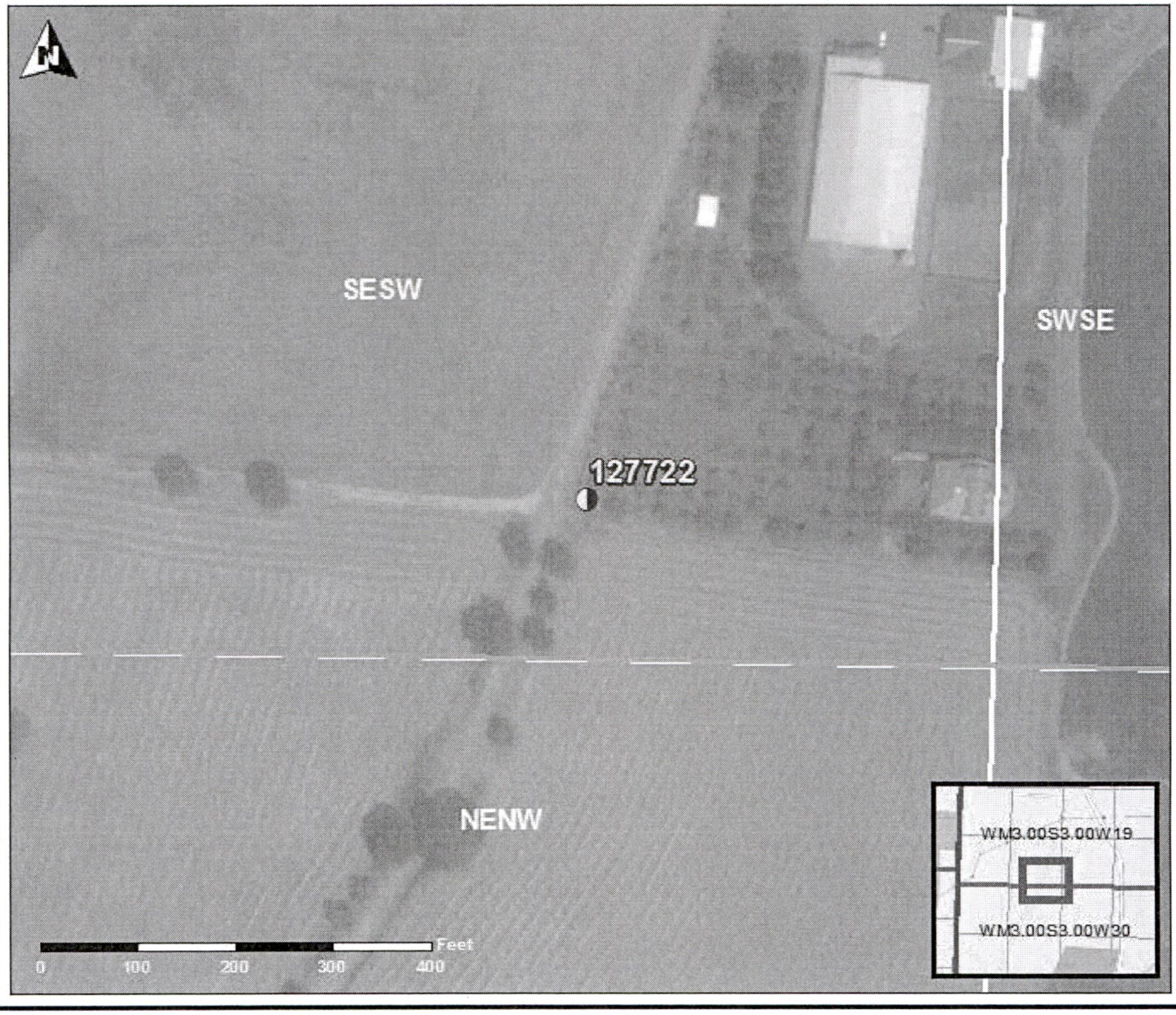
Latitude: 45.2883891063 Datum: WGS84
Longitude: -123.10557648089
Township/Range/Section/Quarter-Quarter Section:
WM 3S 3W 19 SESW
Address of Well:
10501 NE ABBEY RD. CARLTON, CARLTON, OR 97111

Well Label: 127722

Printed: April 23, 2018

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor



STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

YAMH 57912

4/23/2018

WELL I.D. LABEL# L 127721
START CARD # 1038414
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D. 3125 (#2)
First Name DANIEL AND SANDI Last Name WILKINS
Company
Address 10280 NE OAK SPRINGS FARM RD
City CARLTON State OR Zip 97111

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD

[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE

[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION

Special Standard [ ] (Attach copy)
Depth of Completed Well 222.00 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/lbs
10	0	76	Bentonite Chips	0	76	39	S
6	76	222			Calculated	35	
					Calculated		

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other POUR/PROBE/HYDRATE
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: [ ] Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●		6	[X]	1.5	76.5	.25	●		[X]	
	●	4	[ ]	2	122	sch40		●		[X]
			[ ]						[ ]	
			[ ]						[ ]	
			[ ]						[ ]	

Shoe [ ] Inside [X] Outside [ ] Other Location of shoe(s) 76.5
Temp casing [X] Yes Dia 10 From +[X] 1 To 19

(7) PERFORATIONS/SCREENS

Perforations Method
Screens Type machine slotted Material PVC

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Screen	Liner	4	122	222	.032			4

(8) WELL TESTS: Minimum testing time is 1 hour

[ ] Pump [ ] Bailer [●] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
51		220	1
51		205	3

Temperature 54 °F Lab analysis [ ] Yes By
Water quality concerns? [ ] Yes (describe below) TDS amount 58 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County YAMHILL Twp 3.00 S N/S Range 3.00 W E/W WM
Sec 19 SE 1/4 of the SW 1/4 Tax Lot 300
Tax Map Number Lot
Lat ° ' " or 45.28926469 DMS or DD
Long ° ' " or -123.10517281 DMS or DD
(●) Street address of well ( ) Nearest address
10501 NE ABBEY RD. CARLTON

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	4/19/2018			14.5

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 29.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
4/18/2018	29	31	1			29
4/19/2018	111	211	51			14.5

(11) WELL LOG

Ground Elevation

Material	From	To
Top Soil	0	3
Clay, Red/Brown	3	16
Sandstone, wx brown/red decay	16	23
Sandstone/coarse compacted sand, gray	23	29
Clay, Dark red w/brown sandstone	29	45
Sandstone, gray fine	45	111
Sandstone/Siltstone gray, many layers	111	135
Sandstone, blue/green/gray coarse	135	211
Clay, Light gray marine	211	222

Date Started 4/18/2018 Completed 4/19/2018

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, 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.

License Number Date

Signed

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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.

License Number 1438 Date 4/23/2018

Signed DAVID PAYSINGER (E-filed)

Contact Info (optional) bluewaterdrilling.com || 503.868.7878

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

YAMH 57912

4/23/2018

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

LOCATION OF WELL

Latitude: 45.2892646852 Datum: WGS84
Longitude: -123.10517280844
Township/Range/Section/Quarter-Quarter Section:
WM 3S 3W 19 SESW
Address of Well:
10501 NE ABBEY RD. CARLTON

Well Label: 127721

Printed: April 21, 2018

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/7/2019

FROM: Groundwater Section Benjamin Scandella, Jen Woody
Reviewer's Name

SUBJECT: Application LL-1783 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: **EMILY EVERETT; SANDAN, LLC** County: **YAMHILL**

A1. Applicant(s) seek(s) 0.067 cfs (30 gpm) from 3 well(s) in the Willamette Basin, Chehalem Creek subbasin

A2. Proposed use IRRIGATION OF VINEYARD Seasonality: JANUARY 1 THROUGH DECEMBER 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 704	1	Bedrock	0.067	3S/3W-19 SE-SW	660' N, 2950' W fr SE cor S 19
2	YAMH 57912	2	Bedrock	0.067	3S/3W-19 SE-SW	490' N, 3015' W fr SE cor S 19
3	YAMH 57913	3	Bedrock	0.067	3S/3W-19 SE-SW	160' N, 32770' W fr SE cor S 19
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	375	110	2	3/25/1991	120	0-33	+1-39	5-120	110-120	30	90	Bail
2	385	29	14.5	4/19/2018	222	0-76	+1.5-76.5	2-122	122-222	51	N/A	Air
3	390	131	24	4/20/2018	222	0-38	+2-38	4-104	104-222	21	N/A	Air

Use data from application for proposed wells.

A4. **Comments:** The applicant's wells are located on the southern edge of the Chehalem Valley, about 3 miles north of Lafayette. The applicants requested a total annual volume of 2.5 acre-feet, which would be reached after 19 days of continuous pumping at the requested rate. This review assumes that the total annual volume does not exceed 2.5 acre-feet.

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 applicant's well will produce from a confined aquifer, so the pertinent basin rules (690-502-0240) do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
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) **7N (Annual Measurement), 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 _____ 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 subject wells are all completed in the low-yield bedrock aquifer system, which is composed of Tertiary marine sedimentary and volcanic rocks. This system generally has low porosity, low permeability, and low well yield. Most of the available pore space in this unit is likely to occur in fractures where groundwater is confined by the low-permeability matrix (Conlon, 2005; Woodward *et al.*, 1998). The applicant is requesting a rate of 30 gpm, which is high relative to typical well yields in the area but may be achieved with the combination of 3 proposed wells.

Limited water-level data show no evidence of long-term declines. Well density in the bedrock aquifer is relatively low, so impacts to other wells should be minor. However, there is a permitted spring with a certificated water right (Certificate 11154) within 1,700 ft of the subject wells and at an elevation consistent with their water levels. Analytic modeling using the Theis (1941) drawdown model with relevant parameters (Conlon, 2005; Domenico and Mifflin, 1965; Freeze and Cherry, 1979) suggests that pumping at the proposed rate for 19 days from the farthest well (Well #1, YAMH 704) would likely cause nearly 10 ft of drawdown at the spring (see figure below). Furthermore, the stream that originates at this spring is listed in the National Hydrography Dataset but not on the U.S. Geological Survey Quad map (revised 1993), suggesting that the spring is vulnerable to being dried up during some portion of the year (Geological Survey (U.S.), 2017). Therefore, the proposed use is likely to injure the spring right by causing a senior user not to receive their entitled water. Another permitted spring right exists within ~2,300 ft of the subject wells (Certificate 61841) and may also be injured by the proposed use. If the rate was reduced to 0.0039 cfs (1.75 gpm), the expected drawdown at the spring would be limited to less than 1 ft, such that injury would not be found (see figure below). In case a permit is issued, the conditions noted in B1(d) will enable monitoring for the protection of existing users against injury.

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	**Bedrock**	☒	☐
2	**Bedrock**	☒	☐
3	**Bedrock**	☒	☐

Basis for aquifer confinement evaluation: General experience indicates that the low-yield bedrock aquifer is typically confined. Also, the well logs for all 3 wells show static water levels significantly above the top of the water-bearing zones accessed by the wells, and such observations are consistent with confined conditions.

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	Dist-ance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Unnamed trib. Chehalem Cr**	**370**	**220-250**	**1930**	☒	☐	☐	☐	☒
1	**2**	**Unnamed trib. Hawn Cr**	**370**	**182-230**	**3000**	☒	☐	☐	☐	☒
1	**3**	**Unnamed trib. Millican Cr**	**370**	**175-310**	**3700**	☒	☐	☐	☐	☒
2	**1**	**Unnamed trib. Chehalem Cr**	**370**	**220-250**	**2090**	☒	☐	☐	☐	☒
2	**2**	**Unnamed trib. Hawn Cr**	**370**	**182-230**	**2800**	☒	☐	☐	☐	☒
2	**3**	**Unnamed trib. Millican Cr**	**370**	**175-310**	**3600**	☒	☐	☐	☐	☒
3	**1**	**Unnamed trib. Chehalem Cr**	**365**	**220-250**	**2400**	☒	☐	☐	☐	☒
3	**2**	**Unnamed trib. Hawn Cr**	**365**	**182-230**	**2600**	☒	☐	☐	☐	☒
3	**3**	**Unnamed trib. Millican Cr**	**365**	**175-310**	**3600**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Surface water elevations reflect the range of elevations within 1 mile of any of the proposed POAs. Water-table maps, where they exist in the marine sedimentary aquifer system, generally show flow paths that converge on local perennial streams. Groundwater elevations at the subject wells are coincident or above nearby springs and surface water, and therefore likely discharge to springs and provide base flow to streams. Therefore, all 3 wells are likely connected to all 3 surface water sources.

Water Availability Basin the well(s) are located within: Chehalem Cr. > Willamette R. (WID 30200707); YAMHILL R > WILLAMETTE R - AB PALMER CR (WID 188)

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	☐	☐			☐	0.39	☒	<25%	☒
1	2	☐	☐			☐	56.30	☐	<25%	☐
1	3	☐	☐			☐	56.30	☐	<25%	☐
2	1	☐	☐			☐	0.39	☒	<25%	☒
2	2	☐	☐			☐	56.30	☐	<25%	☐
2	3	☐	☐			☐	56.30	☐	<25%	☐
2	1	☐	☐			☐	0.39	☒	<25%	☒
3	2	☐	☐			☐	56.30	☐	<25%	☐
3	3	☐	☐			☐	56.30	☐	<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 requested rate exceeds 1% of the 80% Natural Flow in the Chehalem Creek WAB, so PSI was assumed for all the wells to SW #1. The finding of PSI would be reversed if the rate was set at or below 0.0039 cfs (1.8 gpm). Alternatively, the applicant could drill a new well on the property at a location outside of the Chehalem WAB, but such a well would necessarily be closer to the certificated spring (Cert 11154) such that the rate would need to be reduced somewhat to avoid injuring the spring.

At the requested rate of 30 gpm, the requested total annual volume of 2.5 AF would be reached after about 19 days. Modeling the impact of this maximum-depletion scenario on the combination of stream and well with the shortest separating distance (Well #1, YAMH 704, with SW #1), the total interference was significantly below 25% at 30 days (see figure below). There is some uncertainty introduced by applying a porous media model to an aquifer that is composed of fractured marine sedimentary rocks.

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:

Conlon, T.D., 2005. Ground-Water Hydrology of the Willamette Basin, Oregon. Reston, Va.: U.S. Dept. of the Interior, U.S. Geological Survey. http://purl.access.gpo.gov/GPO/LPS100769. Accessed 7 Jun 2018.

Domenico, P.A. and M.D. Mifflin, 1965. Water from Low-Permeability Sediments and Land Subsidence. Water Resources Research 1:563–576.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater. Prentice-Hall, Englewood Cliffs, N.J.

Geological Survey (U.S.), 2017. National Hydrography Dataset.

Woodward, D.G., M.W. Gannett, and J.J. Vaccaro, 1998. Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington. U.S. G.P.O. ; For sale by U.S. Geological Survey, Information Services, Washington : Denver, CO.

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 10/19/2004 for
CHEHALEM CR > WILLAMETTE R - AT MOUTH

Watershed ID #: 30200707 Basin: WILLAMETTE Exceedance Level: 80
Time: 15:19 Date: 10/19/2004

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	3.11	0.00	97.90	0.00	0.00	97.90
2	115.00	2.97	0.00	112.00	0.00	0.00	112.00
3	80.60	2.20	0.00	78.40	0.00	0.00	78.40
4	33.00	1.31	0.00	31.70	0.00	0.00	31.70
5	14.90	1.87	0.00	13.00	0.00	0.00	13.00
6	8.48	3.14	0.00	5.34	0.00	0.00	5.34
7	2.13	4.69	0.00	-2.56	0.00	0.00	-2.56
8	0.59	3.87	0.00	-3.28	0.00	0.00	-3.28
9	0.39	2.26	0.00	-1.87	0.00	0.00	-1.87
10	3.05	0.61	0.00	2.44	0.00	0.00	2.44
11	11.50	0.90	0.00	10.60	0.00	0.00	10.60
12	66.20	2.44	0.00	63.80	0.00	0.00	63.80
Stor	48900	1770	0	47300	0	0	47300

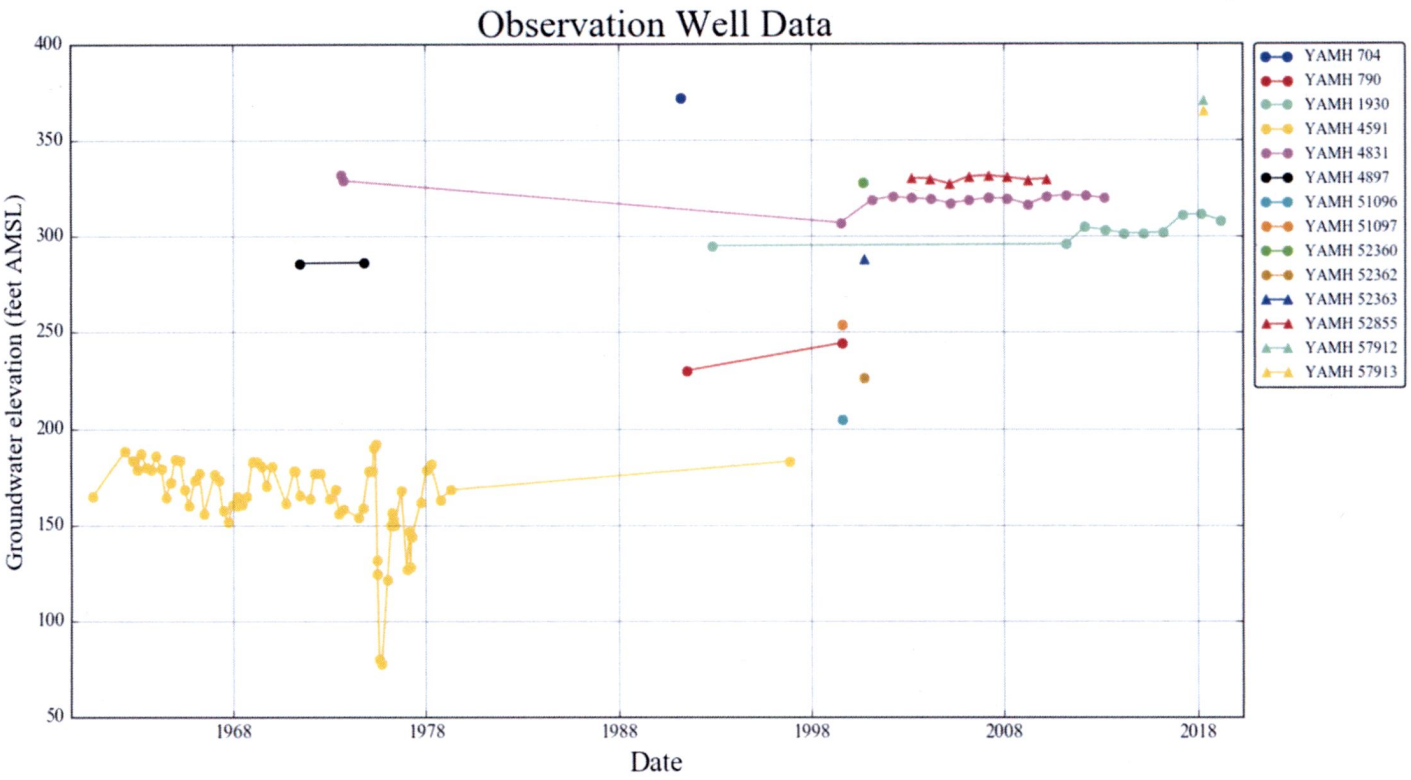
DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

YAMHILL R > WILLAMETTE R - AB PALMER CR

Watershed ID #: 188 Basin: WILLAMETTE Exceedance Level: 80
Time: 3:09 PM Date: 06/03/2019

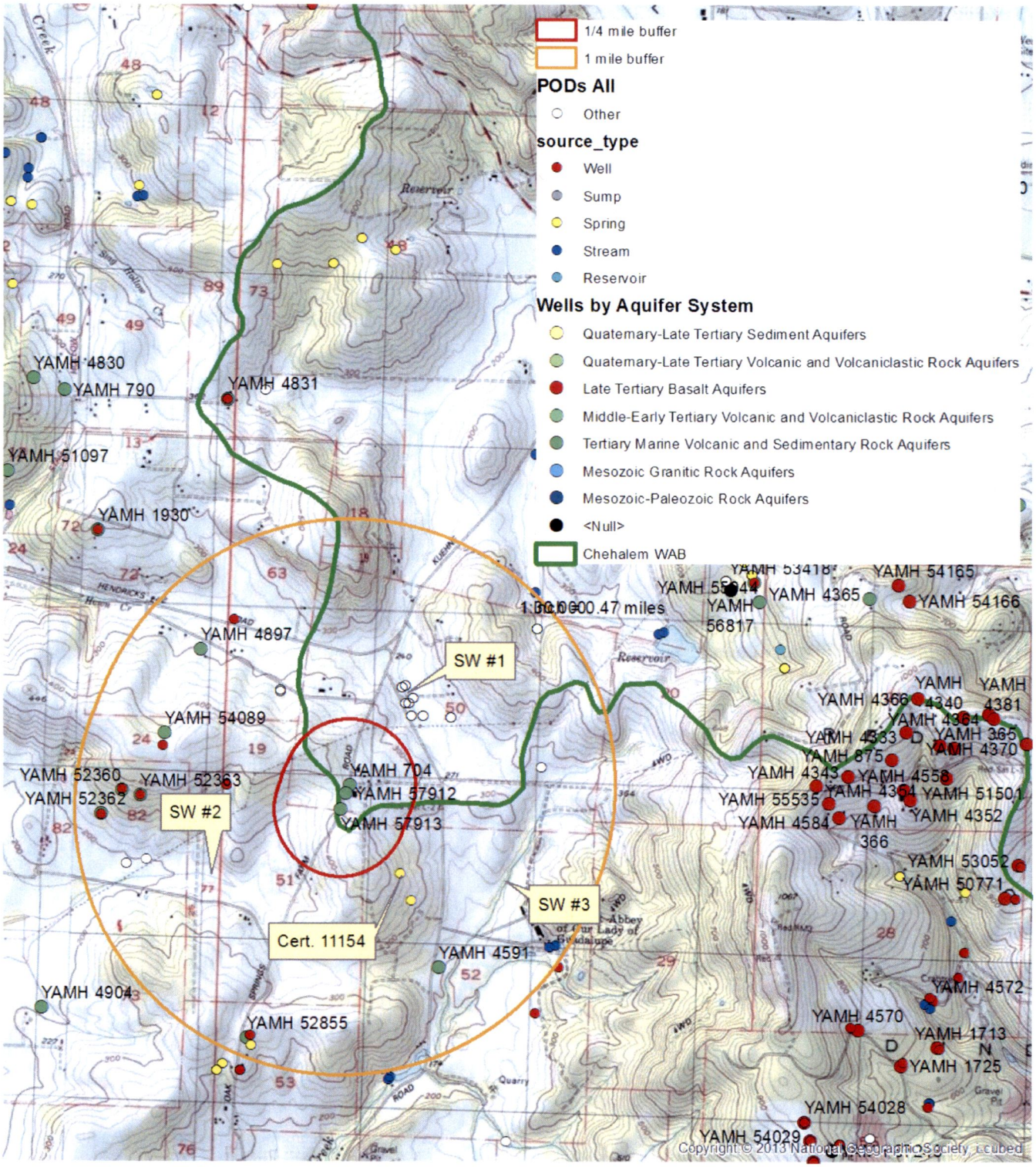
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
		Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.				
JAN	1,780.00	57.80	1,720.00	0.00	31.00	1,690.00
FEB	2,010.00	55.80	1,950.00	0.00	31.00	1,920.00
MAR	1,710.00	34.10	1,680.00	0.00	31.00	1,640.00
APR	1,030.00	41.40	989.00	0.00	31.00	958.00
MAY	512.00	56.00	456.00	0.00	31.00	425.00
JUN	229.00	75.20	154.00	0.00	31.00	123.00
JUL	107.00	95.50	11.50	0.00	31.00	-19.50
AUG	66.60	84.50	-17.90	0.00	31.00	-48.90
SEP	56.30	53.80	2.45	0.00	31.00	-28.50
OCT	72.70	14.90	57.80	0.00	31.00	26.80
NOV	465.00	31.10	434.00	0.00	31.00	403.00
DEC	1,640.00	54.90	1,590.00	0.00	31.00	1,550.00
ANN	1,150,000	39,600	1,110,000	0	22,500	1,090,000

Water-Level Trends in Nearby Wells



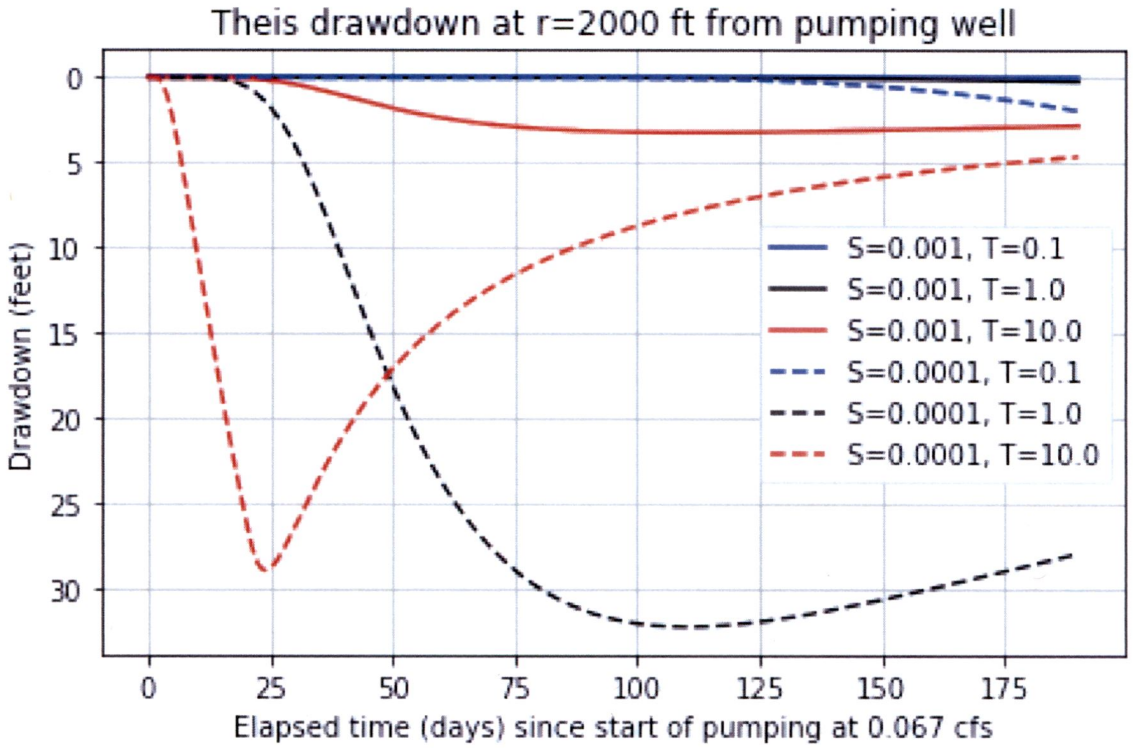
Well Location Map

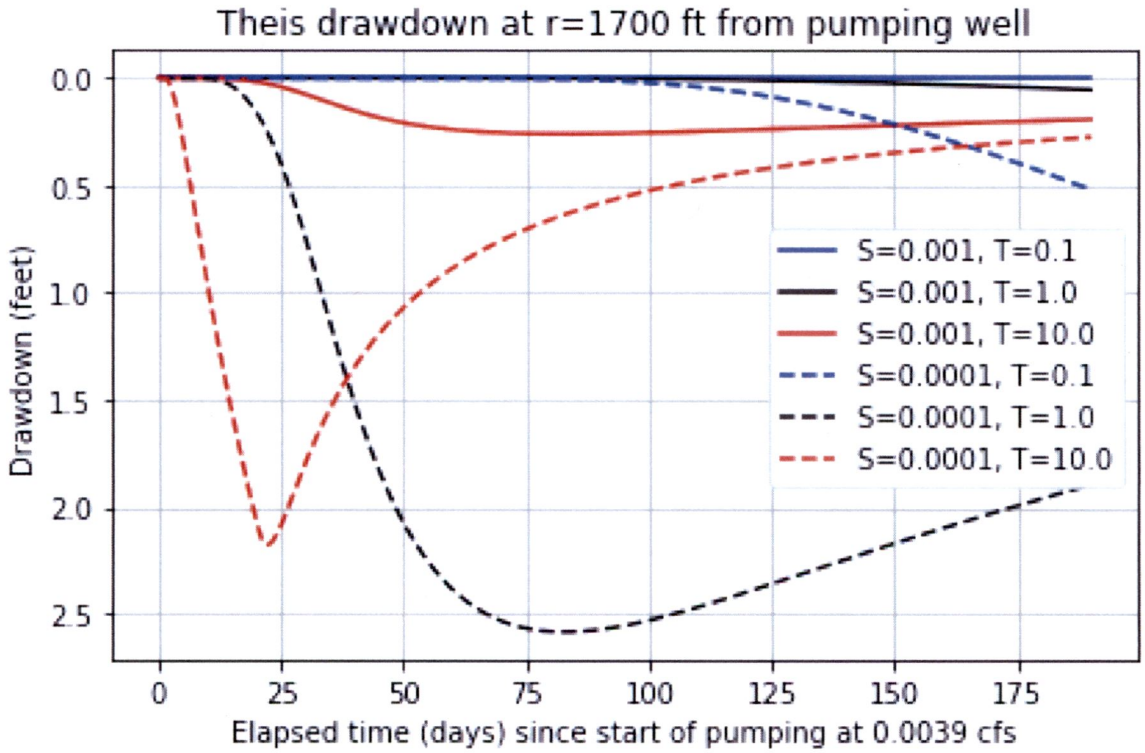
LL-1783 (Sandan, LLC) 3S/3W-19



Spring injury modeling results

Pump on for 19 days, then off for the remainder of the modeling period. The top figure shows pumping at the requested rate of 0.067 cfs from Well #1 (YAMH 704, the most distant well), and the bottom figure shows pumping at 0.0039 cfs from Well #3, (YAMH57913, the closest well).





Stream depletion modeling results (Well #1 and SW #1, the shortest distance and worst-case scenario)

Application type:	LL
Application number:	1783
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.067
Pumping duration (days):	19.0
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1930.0	1930.0	1930.0	ft
Aquifer transmissivity	T	0.1	1.0	10.0	ft2/day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.01	0.1	ft/day
Not used		20.0	20.0	20.0	
Aquitard thickness below stream	babs	4.0	3.0	2.0	ft
Not used		0.2	0.2	0.2	
Stream width	ws	5.0	5.0	5.0	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	0	1	1	0	0	0	0	0	1	1	1	1	1
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00