

Approved:



MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application LL-1872
Date: January 4, 2022

The attached application was forwarded to the Well Construction and Compliance Section by the Groundwater Section. Mike Thoma reviewed the application. Please see Mike's Groundwater Review and the Well Reports.

Applicant's Well #1 (DESC 58167): 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.

Applicant's Well #2 (DESC 53193/58039): Based on a review of the Well Reports, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Applicant's Well #2 may not satisfy hydraulic connection issues.

Applicant's Well #3 (DESC 53194): Based on a review of the Well Report, Applicant's Well #3 seems to protect the groundwater resource.

The construction of Applicant's Well #3 may not satisfy hydraulic connection issues.

STATE OF OREGON

WATER SUPPLY WELL REPORT

(as required by ORS 537.765 & OAR 690-205-0210)

08-12-2007

WELL LABEL # L 91141

START CARD # 1001485

(1) LAND OWNER Owner Well I.D. First Name RON Last Name REMUND Company Address PO BOX 760 City SISTERS State OR Zip 97759

(2) TYPE OF WORK [X] New Well [] Deepening [] Conversion [] Alteration (repair/recondition) [] Abandonment

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

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

(5) BORE HOLE CONSTRUCTION Special Standard [] (Attach copy) Depth of Completed Well 844.00 ft.

Table with columns: Dia, From, To, Material, SEAL, Amt, lbs. Rows include Cement, 0, 96, 77, S.

How was seal placed: Method [] A [] B [X] C [] D [] E [] Other Backfill placed from 0 ft. to 96 ft. Material Cement Filter pack from 9.5 ft. to 670 ft. Material Explosives used: [] Yes Type Amount

(6) CASING/LINER Casing Liner Dia + From To Gauge Sxl Plstc Wld Thrd Shoe [X] Inside [] Outside [] Other Location of shoe(s) Temp casing [] Yes Dia From To

(7) PERFORATIONS/SCREENS Perforations Method Air Perf Screens Type Material

Table with columns: Perf/ Screen Liner, Casing/ Dia, Screen Dia, Scrn/slot width, Slot length, # of slots, Tele/ pipe size. Row: 8, 780, 840, .125, 2, 1,620

(8) WELL TESTS: Minimum testing time is 1 hour [X] Pump [] Bailer [] Air [] Flowing Artesian Yield gal/min 250 Drawdown 4 Drill stem/Pump depth 800 Duration (hr) 6

Table with columns: From, To, Description, Amount, Units. Row: 53, Lab analysis [] Yes By

(9) LOCATION OF WELL (legal description) County Deschutes Twp 14.00 S N/S Range 11.00 E E/W WM Sec 17 SW 1/4 of the SW 1/4 Tax Lot 2017 Tax Map Number Lot Lat Long MT WEIW RD

(10) STATIC WATER LEVEL Date SWL(psi) + SWL(ft) Existing Well / Predeepening Completed Well 08-01-2007 520 Flowing Artesian? [] Dry Hole? []

WATER BEARING ZONES Depth water was first found 616 Table with columns: SWL Date, From, To, Est Flow, SWL(psi), SWL(ft). Rows: 07-28-2007, 08-28-2007, 08-29-2007

(11) WELL LOG Ground Elevation Material From To Sand Pumice Lava Broken 0 5 Cinders 5 20 Lava Gray 20 46 Cinders Red 46 56 Conglomerate Gravels Brown 56 75 Basalt Clay Seams Gray 75 90 Basalt Clay Seams Brown 90 150 Basalt 150 185 Gravels Sand 185 205 Conglomerate 205 255 Basalt 255 260 Lava Crevices 260 275 Lava 275 305 Sandstone Brown 305 345 Cinders Lava Broken Red 345 365 Gravels Sand 365 385 Clay Brown 385 420 Lost Circ 420 430 Clay Red Brown 430 460

Date Started 07-13-2007 Completed 08-01-2007

(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. License Number 758 Date 08-12-2007 Electronically Filed Signed THOMAS R PECK (E-filed)

(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. License Number 1720 Date 08-12-2007 Electronically Filed Signed JACK ABBAS (E-filed) Contact Info (optional)

(5) BORE HOLE CONSTRUCTION

BORE HOLE			SEAL			sacks/lbs	
Dia	From	To	Material	From	To	Amt	

FILTER PACK

From	To	Material	Size

(6) CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			
○ ○						○ ○			

(7) PERFORATIONS/SCREENS

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size

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

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

Water Quality Concerns

From	To	Description	Amount	Units

(10) STATIC WATER LEVEL

Water Bearing Zones

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(11) WELL LOG

Material	From	To
Sandstone	460	485
Basalt	485	495
Lava Broken Layers	495	520
Conglomerate	520	555
Lava Clay Seams	555	590
Crevice Hard	590	616
Lava Broken Caving	616	628
Soft	628	655
Hard	655	680
Cinders Red Lava	680	686
Lava Gray	686	700
Sandstone	700	739
Basalt Clay Seams	739	754
Cinders Basalt Black	754	788
Lava Hard	788	799
Cinders Lava Red	799	807
Basalt Vesicular	807	844

Comments/Remarks

2 yards sand grout 120 feet - 185 feet
 4 1/2 yards sand grout 190 feet - 430 feet
 2 yards sand grout 435 feet - 480 feet
 4 yards sand grout 370 feet - 440 feet
 3 yards sand grout 440 feet - 500 feet
 4 yards sand grout 400 feet - 530 feet

STATE OF OREGON
Water Supply Well Report

(as required by ORS 537.765)

DESC53193

Received Date:

Well ID Tag # L **42966**

Start Card # **128830**

Instructions for completing this report are on the last page of this form.

(1) Owner Well Number: _____
 Name: **RON REMUND**
 Street: **PO BOX 760**
 City: **SISTERS** State: **OR** Zip Code: **97759**

(2) Type of Work
 New Alter (Recondition) Alter (Repair)
 Deepening Abandonment

(3) Drill Method
 Rotary Air Rotary Mud Cable Auger
 Other: _____

(4) Proposed Use
 Domestic Community Industrial Irrigation Injection
 Livestock Thermal Other: _____

(5) Bore Hole Construction
 Special Standards: Depth of completed well: **605.00 ft.**
 Explosives Used: Amount: _____ Type: _____

Diameter	Hole		Mtrl	Seal		Sacks/lbs
	From	To		From	To	
12.00	0.00	78.00	CE	0.00	78.00	4512
8.00	78.00	605.00				

 How was seal placed? **C** Other: _____
 Back fill placed from: _____ Material: _____
 Filter pack from: _____ Size: _____

(6) Casing / Liner

Csng/ Liner	Diameter	From	To	Gauge	Mtrl	Weld	Thrd	Shoe at	Shoe used
C	8.00	2.00	78.00	.250	S	X			
L	6.00	-5.00	600.00	.188	S	X			

(7) Perforation / Screens
 Perforations: _____ Csng/ _____

Mtrl	From	To	Width	Height	#Slots	Dia.	t/pSize	Lnr	Method
S	585.00	605.00	0.13	3.00	216	6.00		L	MACHINE

 Screens: _____

Mtrl	From	To	S Size	#Slots	Dia.	t/pSize	Type	Gauge

(8) Well Tests (Minimum testing time is one hour)

Type	Yield	Units	Drawdown	Stem at	Duration
A	10.00	G		600.00	1.00

 Temperature of Water: **53 F**
 Was water analysis done? Depth of artesian flow: _____
 by whom? _____
 Did any strata contain water unsuitable for use? Too Little Salty
 Muddy Odor Colored other: _____
 Depth of strata: _____

(9) Location of Hole by legal description
 County: **DESC** Latitude: _____ Longitude: _____
 Township: **14.00 S** Range: **11.00 E**
 Section: **17 SWSW** Lot: _____ Block: _____
 Tax Lot: **2017** Subdivision: _____
 Street Address of Well (or nearest address):
MNT VIEW RD
 MAP, with location identified, must be attached.

(10) Static Water Level
 Feet below land surface: **498.0** Date: **07 / 14 / 2000**
 Artesian Pressure: _____ Date: _____

(11) Water Bearing Zones
 Depth at which water was first found: **590.00 ft.**

From	To	est Flow	swl
590.00	605.00	10.00	498

(12) Well Log Ground Elevation: _____

Material	From	To	swl
LOAM BROKEN LAVA	0.00	3.00	
LAVA BROWN	3.00	10.00	
LAVA GRAY FRAC LAYERS	10.00	42.00	
CINDERS RED	42.00	51.00	
LAVA RED	51.00	70.00	
SANDSTONE	70.00	88.00	
SAND BRN FINE GRAVELS	88.00	104.00	
SANDSTONE	104.00	175.00	
LAVA BROWN	175.00	235.00	
SANDSTONE CONGLOMERATE	235.00	260.00	
LAVA BROWN GRAY LAYERS	260.00	335.00	
LAVA RED/CINDERS	335.00	350.00	
LAVA BROWN	350.00	475.00	
LAVA GRAY	475.00	525.00	
LAVA SOFT	525.00	540.00	
SANDSTONE CINDERS	540.00	588.00	
LAVA/BASALT BROKEN	588.00	605.00	498

 Date Started: **07 / 12 / 2000** Date Completed: **07 / 14 / 2000**

(unbonded) Water Well Constructor Certification:
 I certify that the work I perform 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 the best knowledge and belief.
 Signed by: **THOMAS R PECK** WWC #: **758**

(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.
 Signed by: **JACK ABBAS** WWC #: **1720**
ABBAS WELL DRILLING CO Phone: **541-548-2787**

Amendment
STATE OF OREGON

DESC 58039

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

06-05-2007

WELL LABEL # L 42966

START CARD # 1001144

(1) LAND OWNER
Owner Well I.D. _____
First Name RON Last Name REMUND
Company _____
Address PO BOX 760
City SISTERS State OR Zip 97759

(2) TYPE OF WORK New Well Deepening Conversion
 Alteration (repair/recondition) Abandonment

(3) DRILL METHOD
 Rotary Air Rotary Mud Cable Auger Cable Mud
 Reverse Rotary Other _____

(4) PROPOSED USE Domestic Irrigation Community
 Industrial/ Commercial Livestock Dewatering
 Thermal Injection Other _____

(5) BORE HOLE CONSTRUCTION Special Standard (Attach copy)
Depth of Completed Well 690.00 ft.

BORE HOLE SEAL

Dia	From	To	Material	From	To	Amt	sacks/ lbs
6	605	690					

How was seal placed: Method A B C D E
 Other _____

Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____
Explosives used: Yes Type _____ Amount _____

(6) CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

Shoe Inside Outside Other _____ Location of shoe(s) _____
Temp casing Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method _____
Screens Type _____ Material _____

Perf/ Screen	Casing/ Liner	Screen	Dia	From	To	Scr/slot width	Slot length	# of slots	Teel/ pipe size

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

Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
20		690	1

Temperature 53 °F Lab analysis Yes By _____
Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County Deschutes Twp 14.00 S N/S Range 11.00 E E/W WM
Sec 17 SW 1/4 of the SW 1/4 Tax Lot 2017
Tax Map Number _____ Lot _____
Lat ° 0 ' " or _____ DMS or DD
Long ° 0 ' " or _____ DMS or DD
 Street address of well Nearest address

MNT VEIWRD

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+ SWL(ft)
Completed Well	06-04-2007		496
			498

Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
06-04-2007	605	690	20		498

(11) WELL LOG

Ground Elevation _____

Material	From	To
LAVA BASALT BROKEN	605	615
FRACTURED BASALT	615	627
BROWN CONGLOMERATE	627	642
RED SANDSTONE CONGLOMERATE	642	664
FRACTURED BASALT GRAY	664	690

RECEIVED
APR 22 2008
WATER RESOURCES DEPT
SALEM, OREGON

Date Started 06-04-2007 Completed 06-04-2007

(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 1852 Date 06-05-2007
Electronically Filed
Signed JEB W ABBAS (E-filed)

(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 1720 Date 06-05-2007
Electronically Filed
Signed JACK ABBAS (E-filed)
Contact Info (optional)

STATE OF OREGON
Water Supply Well Report

(as required by ORS 537.765)

Amendment DESC 53194

DESC

Received Date:

Well ID Tag # L 42967

Start Card # 126831

Instructions for completing this report are on the last page of this form.

(1) Owner

Name: RON REMUND

Well Number:

Street: PO BOX 760
City: SISTERS State: OR Zip Code: 87758

(2) Type of Work

New Alter (Recondition) Alter (Repair)
 Deepening Abandonment

(3) Drill Method

Rotary Air Rotary Mud Cable Auger
Other:

(4) Proposed Use

Domestic Community Industrial Irrigation Injection
 Livestock Thermal Other:

(5) Bore Hole Construction

Special Standards: Depth of completed well: 621.00 ft.
 Explosives Used: Amount: Type

Diameter	Hole		Mtrl	Seal		Sacks/lbs
	From	To		From	To	
12	0	138	CE	0	138	\$700
8	138	626				

How was seal placed? C Other:

Back fill placed from:

Material:

Filler pack from:

Size:

(6) Casing / Liner

Casing/ Liner	Diameter	From	To	Gauge	Mtrl	Weld	Thrd	Shoe Used
C	8	2	138	.250	S	X		
L	8	4	626	.188	S	X		

(7) Perforation / Screens

Perforations:

Mtrl	From	To	Width	Height	#Slots	Dia.	VpSize	Casing/ Lnr	Method
S	888	626	0.125	3.00	432	6		L	MACHINE

Screens:

Mtrl	From	To	S Size	#Slots	Dia.	VpSize	Type	Gauge
------	------	----	--------	--------	------	--------	------	-------

(8) Well Tests (Minimum testing time is one hour)

Type	Yield	Units	Drawdown	Stem at	Duration
A	2000	G		620	1.00

Temperature of Water: 63.00 F

Was water analysis done? Depth of artesian by whom?

Did any strata contain water unsuitable for use? Too Little Seep

Muddy Odor Colored other:

Depth of strata:

(9) Location of Hole by legal description

County: DESC Latitude: Longitude
Township: 14.00 S Range: 11.00 E
Section: 17 SWSW Lot: Block:

Tax Lot: 2017 Subdivision:

Street Address of Well (or nearest address):

MINT VIEW RD

MAP, with location identified, must be attached.

(10) Static Water Level

Feet below land surface: 601.00 Date: 07 / 20 / 2000

Artesian Pressure: Date:

(11) Water Bearing Zones

Depth at which water was first found: \$99.00 ft.

From To est Flow gpm

570 625 2061m 501

(12) Well Log

Ground Elevation:

Material	From	To	swl
BROKEN LAVA LOAM	0	3	
LAVA BROWN FRAC LAYERS	43	3	
RED LAVA/CINDERS	43	56	
SANDSTONE	56	96	
LAVA BROWN GRAY LAYERS	96	190	
LAVA BROWN	190	220	
SANDSTONE BROWN	220	228	
LAVA BROWN	228	345	
LAVA RED/CINDERS	346	460	
LAVA HARD	480	480	
LAVA BROWN	480	609	
LAVA/BASALT	508	642	
LAVA RED	542	651	
SANDSTONE	561	686	
LAVA/BASALT BROKEN	586	626	601

Date Started: 07 / 17 / 2000

Date Completed: 07 / 20 / 2000

(unbonded) Water Well Constructor Certification:

I certify that the work I perform 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 the best knowledge and belief.
Signed by: THOMAS R PECK M/WC # 788

(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.
Signed by: JACK ABBAS M/WC # 1720

ABBAS WELL DRILLING CO

Phone: 641-448-2787

RECEIVED
SEP 5 2000
WATER RESOURCES
SALEM, OREGON

STATE OF OREGON
Water Supply Well Report

DESC

(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

(1) Owner

Well Number

Name: RON REMUND

Street: PO BOX 780

City: BISTERS

State OR Zip Code: 87759

(2) Type of Work

- New Alter (Recondition) Alter (Repair)
 Deepening Abandonment

(3) Drill Method

- Rotary Air Rotary Mud Cable Auger
 Other:

(4) Proposed Use

- Domestic Community Industrial Irrigation Injection
 Livestock Thermal Other:

(5) Bore Hole Construction

- Special Standards: Depth of completed well 821.00 ft.
 Explosives Used: Amount: Type:

Diameter	Hole		Mtrl	Seal		Sacks/ft
	From	To		From	To	
12	0	138	CE	0	138	5700
8	138	828				

How was seal placed? C Other:

Back fill placed from:

Material:

Filter pack from:

Size:

(6) Casing / Liner

Casing/ Liner	Diameter	From	To	Gauge	Mtrl	Weld	Thrd	Shoe at used	Shoe
C	8	2	138	.280	S	X			
L	8	4	828	.188	S	X			

(7) Perforation / Screens

Perforations:									
Mtrl	From	To	Width	Height	#Slots	Die	tp/Size	Casing/ Liner	Method
S	588	625	0.125	3.00	432	8		L	MACHINE

Screens:									
Mtrl	From	To	S Size	#Slots	Die	tp/Size	Type	Gauge	

(8) Well Tests (Minimum testing time is one hour)

Type	Yield	Units	Drawdown	Stem at	Duration
A	40.00	G	620		1.00

Temperature of Water: 53.00 F

Was water analysis done? Depth of artesian flow:

by whom?

Did any strata contain water unsuitable for use? Too Little Salty Muddy Odor Colored other:

Depth of strata:

(9) Location of Hole by legal description

County DESC Latitude: Longitude:
 Township: 14.00 S Range: 11.00 E
 Section: 17 SWSW Lot: Block:
 Tax Lot: 2017 Subdivision:
 Street Address of Well (or nearest address):
 MNT VIEW RD
 MAP, with location identified, must be attached.

(10) Static Water Level

Feet below land surface: 681.00 Date: 07 / 20 / 2000
 Artesian Pressure: Date:

(11) Water Bearing Zones

Depth at which water was first found: 590.00 ft.
 From To net Flow gpm

(12) Well Log

Material	Ground Elevation:		
	From	To	gpm
BROKEN LAVA LOAM	0	3	
LAVA BROWN FRAC LAYERS	43	3	
RED LAVA/CINDERS	43	55	
SANDSTONE	55	95	
LAVA BROWN GRAY LAYERS	95	190	
LAVA BROWN	190	220	
SANDSTONE BROWN	220	228	
LAVA BROWN	228	348	
LAVA RED/CINDERS	348	480	
LAVA HARD	460	490	
LAVA BROWN	490	509	
LAVA/BASALT	509	542	
LAVA RED	542	551	
SANDSTONE	551	585	
LAVA/BASALT BROKEN	635	628	501

Date Started: 07 / 17 / 2000

Date Completed: 07 / 20 / 2000

(unbonded) Water Well Constructor Certification:

I certify that the work I perform 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 the best knowledge and belief.

Signed by: THOMAS R PECK

MWC # 768

(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.

Signed by: JACK ABBAS

MWC # 1720

ABBAS WELL DRILLING CO

Phone 541-648-2787

Groundwater Application Review Summary Form

Application # LL- 1872

GW Reviewer M. Thoma

Date Review Completed: 11/15/2021

Summary of GW Availability and Injury Review:

Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO

11/15/2021

TO: Application LL- 1872

FROM: GW: M. Thoma
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference & General/Local Surface Water Evaluation for Deschutes Ground Water Study Area

The source of appropriation is within or above the Deschutes Scenic Waterway

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of the Deschutes Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

The proposed use of groundwater will have a localized impact to surface water in the [River Name] River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 11/15/2021
 FROM: Groundwater Section M. Thoma
 Reviewer's Name
 SUBJECT: Application LL- 1872 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: Avion Water Co. Inc. County: Deschutes

A1. Applicant(s) seek(s) 0.67 cfs from 3 well(s) in the Deschutes Basin,
Whychus Cr. subbasin

A2. Proposed use Quasi-Municipal Seasonality: Year-round (58 acre-feet per year)

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	DESC0058167	1	Bedrock	0.67	14.00S-11.00E-17-SW SW	1120 FEET NORTH AND 650 FEET EAST FROM SW CORNER, SECTION 17
2	DESC0053193 DESC0058039(d)	2	Bedrock	0.67	14.00S-11.00E-17-SW SW	950 FEET NORTH AND 695 FEET EAST FROM SW CORNER, SECTION 17
3	DESC0053194	3	Bedrock	0.67	14.00S-11.00E-17-SW SW	925 FEET NORTH AND 630 FEET EAST FROM SW CORNER, SECTION 17

* 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	3100	616	520	08/01/2007	844	0-96	+2-98	0-844	780-804	250	4	P
2	3100	590	498	7/14/2000	690	0-78	+2-78	-5-600	585-605	10	-	A
3	3100	590	501	7/20/2000	621	0-138	+2-138	-5-626	585-625	200	-	A

Use data from application for proposed wells.

A4. **Comments:** _____

A5. **Provisions of the** Deschutes (690-505) 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 POAs are within the Deschutes Ground Water Study Area as defined in OAR 690-505.

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) 7C (7-yr SWL); 7J (Scenic Waterway); 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:** The applicant's proposed POAs would be producing from the Deschutes Fm. aquifer system near Whychus Cr between the town of Sister, OR and the confluence of Whychus Creek and the Deschutes River (T13S/R12E-7). Water levels in this area are several hundred feet below land surface and represent a water table and groundwater flowpaths that are disconnected from surface water locally. Studies have shown that groundwater moves northeast across the region from the recharge zones in the Cascades toward discharge zones near the confluence of Whychus Creek and the Deschutes River as well as along the Crooked River. Groundwater elevations along the regional flowpaths are coincident with surface water elevations in the areas near Sisters, and again near the discharge zones, implying local hydraulic connection in those areas, but are substantially deeper than surface water elevations between these areas, suggesting no local hydraulic connection in the middle of the groundwater flow path (e.g., see Figure 18 of Gannett and others, 2001. Given this lack of local hydraulic connection in the vicinity of the proposed use, groundwater withdrawals in the area of the proposed POAs would have an impact on water levels locally and along the entire flowpath, and also have the potential to reduce long-term discharge to surface water. Impacts to surface water are addressed in the Deschutes Basin Rule (OAR 690-505) which would require mitigation for the proposed use.

Several wells to the east of the proposed POAs (referred to as the "Deep Canyon Wells Area" in Map 1) are showing declining groundwater levels since the 1990s (see attached hydrographs). Studies by the USGS and OWRD have attributed these long-term declines to 1) long-term climate change, 2) groundwater pumping (see Map 2), and 3) canal lining causing reduced recharge. The nearest well exhibiting this trend is approximately five miles to the east of the proposed POAs, within a cluster of wells in that area showing the same trends. There are no applicable water level data between the proposed POAs and this cluster, or to the northeast between the proposed POAs and the regional discharge area near the confluence of

Whychus Creek and the Deschutes River. Wells to the southwest, near Sisters, show water level changes that more-closely match short-term climate variation (multi-year to decadal). There is little long-term water level data in the immediate vicinity of the proposed POAs so this review assumes water level trends are intermediate to those observed in the Sisters and Deep Canyon wells areas, representing a transition between those two zones.

The wells in the Deep Canyon area showing long-term water level declines are located generally down-gradient of the proposed POAs and thus farther from recharge zones for the region. Pumping under the proposed right would reduce groundwater flow toward the cluster and would contribute to the observed declines by capturing groundwater from along flowpaths that are providing lateral recharge to this area. (Lateral recharge being the main source of groundwater to the Deep Canyon area because of the disconnection between groundwater and surface water locally, and the large distance from the regional Cascade recharge zone.) Notwithstanding that there is a presumed likelihood of the proposed use to have a negative impact on groundwater levels (and thus senior groundwater rights) in the region, there is insufficient water level data near the proposed POAs to definitively conclude that the wells are not tracking short-term climate variation (as in the Sisters Area) and that recharge would be sufficient, during the period of use of this Limited License, to buffer the impacts of pumping under the proposed use as to not cause significant impact to the wells, and existing senior user, in the Dry Canyon area. Thus, it cannot be determined how the proposed use will affect the capacity of the resources and permit conditions listed in Section B(d) are recommended.

Special Condition:

Prior to use under this Limited License, each POA shall be equipped with a method for measuring static water level and a reference water level must be provided to the Department. This can include an airline, measuring tube, or any other construction or equipment that allows access to report static water level measurements. The chosen water level measuring method shall be maintained in proper working order as to allow static water level measurements for the duration of the Limited License.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

Analysis in Section C is omitted in leu of the Deschutes Mitigation Rules (OAR 690-505). If OAR 690-505 rules are not activated by this application, a full Division 9 analysis would be required.

References Used:

Gannett, M. W. and Lite, K. E., 2004, Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon, USGS Water Resources Investigation Report 2003-4195, 84 p., <https://pubs.er.usgs.gov/publication/wri034195>

Gannett, M. W. and Lite, K. E., 2013, Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon, USGS Scientific Investigations Report 2013-5092, 34p., <https://pubs.er.usgs.gov/publication/sir20135092>

Gannett, M. W., Lite Jr, K. E., Morgan, D. S., and Collins, C. A., 2001, Ground-Water Hydrology of the Upper Deschutes Basin, Oregon, USGS Water-Resources Investigations Report 00-4162, 74 p., <https://pubs.usgs.gov/wri/wri004162/pdf/WRIR004162.pdf> 1

Gannett, M.W., Lite, K.E., Jr., Risley, J.C., Pischel, E.M., and La Marche, J.L., 2017, Simulation of groundwater and surface-water flow in the upper Deschutes Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2017-5097, 68 p., <https://doi.org/10.3133/sir20175097>.

Lite, K. E. and Gannett, M. W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon. USGS Water-Resources Investigation Report 02-4015, 44 p., <https://pubs.er.usgs.gov/publication/wri024015>

Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M. and Smith, G. A., 2004, Geologic Map of the Bend 30-x-60-Minute Quadrangle, Central Oregon. U. S. Geological Survey Geologic Investigations Series Map I-2683. 49p., <https://pubs.usgs.gov/imap/i2683/>

D. WELL CONSTRUCTION, OAR 690-200

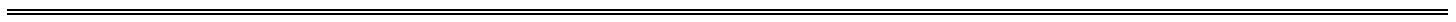
D1. Well #: _____ Logid: _____

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) _____

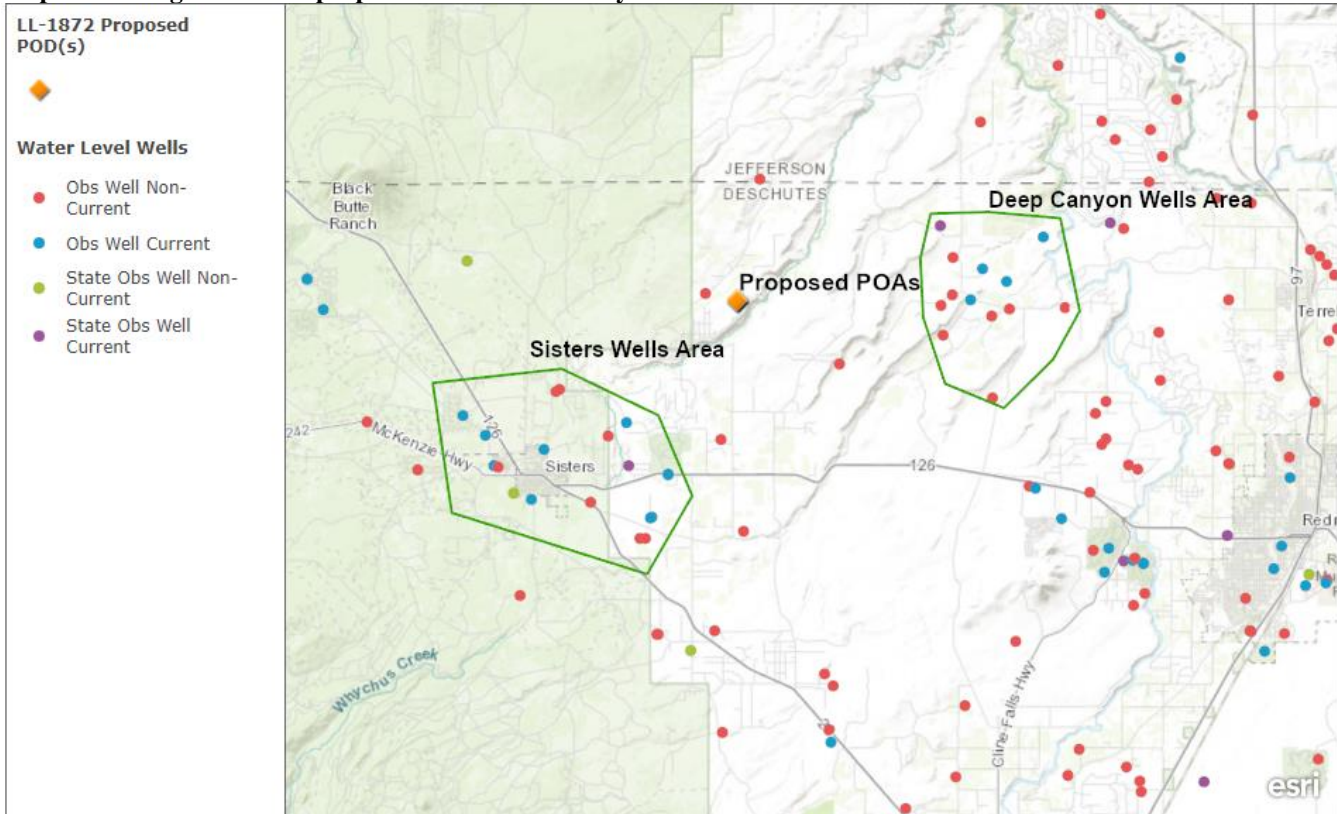
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

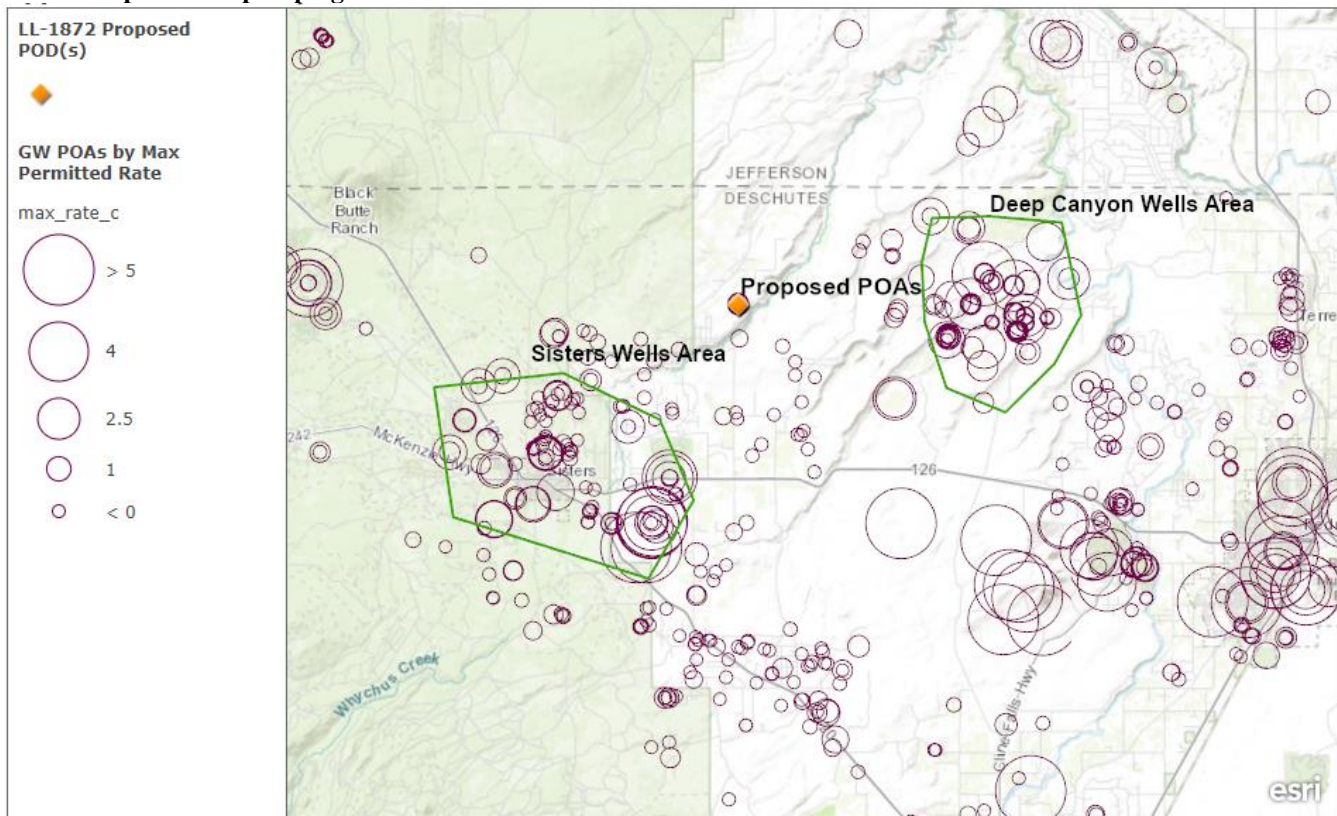


Well Location Maps

Map 1: showing location of proposed POAs and nearby water level wells

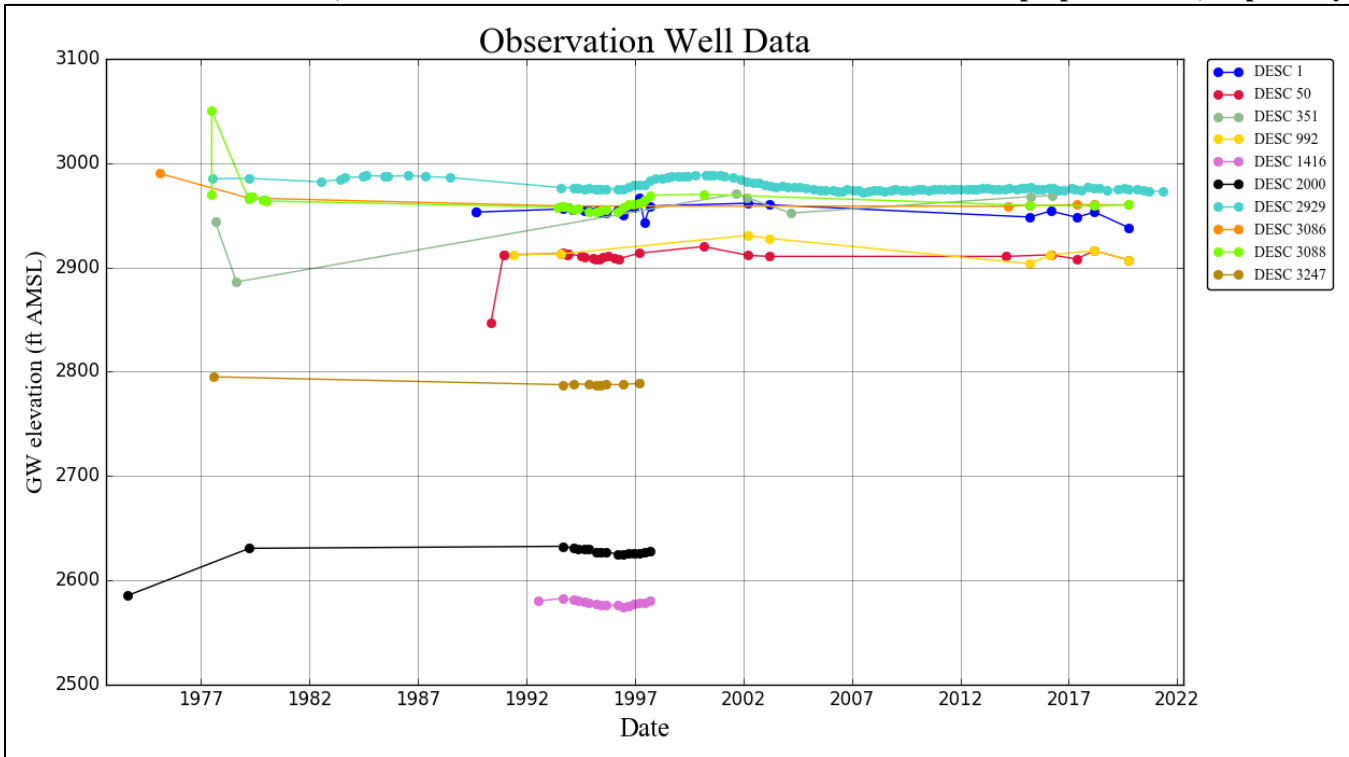


Map 2: showing location of proposed POAs, water level well area outlines, and existing groundwater POAs as circles scaled to maximum permitted pumping rate



Water-Level Measurements in Nearby Wells

Hydrograph of wells in the vicinity of Sisters, OR which is near the regional recharge area; water levels are correlated with short-term climate variations; DESC 2000 and DESC 1416 are 0.8 and 2.9 miles from the proposed POAs, respectively.



Hydrograph of wells in the vicinity of Deep Canyon which is between the regional recharge area and discharge area where groundwater levels are hundreds of feet below land surface and the groundwater system is disconnected from the surface water system; water levels are responding to long-term climate change, groundwater pumping, and canal lining (Gannett and Lite, 2013); DESC 2000 and DESC 1416 are 0.8 and 2.9 miles from the proposed POAs, respectively

