Groundwater Application Review Summary Form

Application # G- 18608

GW Reviewer Aurora Bouchier Date Review Completed: 3/20/2018

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).

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18608

Date: September 14, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Aurora Bouchier reviewed the application. Please see Aurora's Groundwater Review and the Well Logs.

Applicant's Well SCCE #1 (DESC 58167): Based on a review of the Well Report, Applicant's Well SCCE #1 appears to protect the groundwater resource.

The construction of Applicants Well SCCE #1 may not satisfy hydraulic connection issues.

Applicant's Well SCCE #2 (DESC 53193 and the well's deepening, DESC 58039): Based on a review of the Well Reports, Applicant's Well SCCE #2 and the wells' deepening appears to protect the groundwater resource.

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

Applicant's Well SCCE #3 (DESC 53194 and the well's deepening, DESC 59678): Based on a review of the Well Reports, Applicant's Well SCCE #3 and the wells' deepening appears to protect the groundwater resource.

Based on a review of the Well Report, Applicant's Well SCCE #3 appears to protect the groundwater resource.

STATE OF OREGON

Water Supply Well Report

(as required by ORS 537.765)

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

DESC53193

Received Date:

Well ID Tag # L 42966

Start Card # 128830

(1) Owner

Well Number:

Name: RON REMUND

Street: PO BOX 760

City: SISTERS State:OR Zip Code: 97759

(2) Type of Work

[X] New [ ] Alter (Recondition) [ ] Alter (Repair)

[ ] Deepening [ ] Abandonment

(3) Drill Method

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

Other:

(4) Proposed Use

[X] 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:

Hole			Seal			
Diameter	From	To	Mtrl	From	To	Sacks/lbs
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:

Mtrl	From	To	Width	Height	#Slots	Dia.	t/pSize	Csng/ 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 responsibilty for the constuction, 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

DESC 58167
08-12-2007

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

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

☒ 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/ Commericial ☐ Livestock ☐ Dewatering ☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)

Depth of Completed Well 844.00 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
14	0	96	Cement	0	96	77	S
10	96	670					
9.5	670	844					

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
◉	○	10	☒	2	98	.250	◉	○	☒	☐
○	◉	8	☐	0	804	.188	◉	○	☒	☐
○	◉	8	☐	804	844	.250	◉	○	☒	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐

Shoe ☒ Inside ☐ Outside ☐ Other Location of shoe(s)

Temp casing ☐ Yes Dia From To

(7) PERFORATIONS/SCREENS

Perforations Method Air Perf

Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	8	780	840	.125	2	1,620	

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

◉ Pump ○ Bailer ○ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
250	4	800	6

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 ° ' " or 44.35235000 DMS or DD

Long ° ' " or -121.45120000 DMS or DD

○ Street address of well ○ Nearest address

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

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
07-28-2007	616	628	50		☐	520
08-28-2007	680	686	100		☐	520
08-29-2007	739	844	300		☐	520
					☐	
					☐	

(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. Materials used and information reported above are true to the best of my knowledge and belief.

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. 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 08-12-2007

Electronically Filed

Signed JACK ABBAS (E-filed)

Contact Info (optional)

ORIGINAL - WATER RESOURCES DEPARTMENT

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

Form Version: 0.88

WATER SUPPLY WELL REPORT - continuation page

DESC 58167
08-12-2007

WELL I.D. # L 91141

START CARD # 1001485

(5) BORE HOLE CONSTRUCTION

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

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
Crevices 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

Amendment DESC 53194

STATE OF OREGON

Water Supply Well Report

(as required by ORS 537.765)

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

DESC

Received Date:

Well ID Tag # L 42967

Start Card # 129831

(1) Owner

Well Number:

Name: RON REMUND

Street: PO BOX 760

City: SISTERS State: OR Zip Code: 97759

(2) Type of Work

[X] New [ ] Alter (Recondition) [ ] Alter (Repair)

[ ] Deepening [ ] Abandonment

(3) Drill Method

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

Other:

(4) Proposed Use

[X] 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

Hole Diameter	From	To	Seal Mtrl	From	To	Sacks/lbs
12	0	138	CE	0	138	5700
8	138	625				

How was seal placed? C Other:

Back fill placed from: Material:

Filter pack from: Size:

(6) Casing / Liner

Casng/ Liner	Diameter	From	To	Gauge	Mtrl	Weld	Thrd	Shoe at	Shoe used
C	8	2	138	.250	S	X			
L	6	-5	626	.188	S	X			

(7) Perforation / Screens

Perforations:

Mtrl	From	To	Width	Height	#Slots	Dia.	UpSize	Casng/ Lnr	Method
S	585	625	0.125	3.00	432	6		L	MACHINE

Screens:

Mtrl	From	To	S Size	#Slots	Dia.	UpSize	Type	Gauge

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

Type	Yield	Units	Drawdown	Stem at	Duration
A	30+	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? [X] Too Little [ ] Salty

[ ] Muddy [ ] Odor [ ] Colored other:

Depth of strata:

RECEIVED
SEP 15 2000
WATER RESOURCES DEPT
SALEM, OREGON

(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 501.00 Date: 07 / 20 / 2000

Artesian Pressure: Date:

(11) Water Bearing Zones

Depth at which water was first found: 590.00 ft.

From	To	est Flow	swl
590	625	20 GPM	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	55	
SANDSTONE	55	95	
LAVA BROWN GRAY LAYERS	95	190	
LAVA BROWN	190	220	
SANDSTOEN BROWN	220	228	
LAVA BROWN	228	345	
LAVA RED/CINDERS	345	460	
LAVA HARD	460	490	
LAVA BROWN	490	509	
LAVA/BASALT	509	542	
LAVA RED	542	551	
SANDSTONE	551	585	
LAVA/BASALT BROKEN	585	625	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 # 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 MWC #: 1720

ABBAS WELL DRILLING CO Phone: 541-548-2787

STATE OF OREGON

Water Supply Well Report

(as required by ORS 537.765)

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

DESC 53194

DESC

Received Date.

Well ID Tag # L

Start Card # 128831

(1) Owner

Well Number

Name: RON REMUND

Street: PO BOX 760

City: SISTERS State: OR Zip Code: 97759

(2) Type of Work

[X] New [ ] Alter (Reconditon) [ ] Alter (Repair)

[ ] Deepening [ ] Abandonment

(3) Drill Method

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

Other:

(4) Proposed Use

[X] 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:

Hole Diameter	From	To	Seal Mtrl	From	To	Sacks/lbs
12	0	138	CE	0	138	6700
8	138	625				

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 al	Shoe used
C	8	2	138	.250	S	X			
L	6	-5	625	.188	S	X			

(7) Perforation / Screens

Perforations:

Mtrl	From	To	Width	Height	#Slots	Dia.	tpSize	Csng/ Lnr	Method
S	585	625	0.125	3.00	432	6		L	MACHINE

Screens:

Mtrl	From	To	S Size	#Slots	Dia.	tpSize	Type	Gauge

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

Type	Yield	Units	Drawdown	Stem al	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: 501.00 Date. 07 / 20 / 2000

Artesian Pressure: Date:

(11) Water Bearing Zones

Depth at which water was first found: 590.00 ft.

From	To	est Flow	swl

(12) Well Log

Ground Elevation:

Material	From	To	swl
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	
SANDSTOEN BROWN	220	228	
LAVA BROWN	228	345	
LAVA RED/CINDERS	345	460	
LAVA HARD	460	490	
LAVA BROWN	490	509	
LAVA/BASALT	509	542	
LAVA RED	542	551	
SANDSTONE	551	585	
LAVA/BASALT BROKEN	585	625	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 # 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 MWC #: 1720

ABBAS WELL DRILLING CO Phone 541-548-2787

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

DESC 59678
5/7/2013

WELL I.D. LABEL# L	42967
START CARD #	1019198
ORIGINAL LOG #	DESCHUTES 53194

(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 (complete 2a & 10) ☐ Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:	8	☒	2	138	.250	◉	○	☒	☐

	Material	From	To	Amt	sacks/lbs
Seal:	Cement	0	138	5700	Pounds

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other

(4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community
☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)
Depth of Completed Well 750.00 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/lbs
8	0	750					

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other DID NOT DISTURB
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	☐	2	750	.188	◉	○	☒	☐

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

(7) PERFORATIONS/SCREENS

Perforations Method MACHINE
Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	6	710	750	.125	3	456	

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

○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
200		750	2

Temperature 54 °F Lab analysis ☐ Yes By
Water quality concerns? ☐ Yes (describe below) TDS amount

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 ° ' " or DMS or DD
Long ° ' " or DMS or DD
○ Street address of well ◉ Nearest address
MT VIEW RD

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration	4/25/2013		☐	525
Completed Well	5/2/2013		☐	525

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 626.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
4/29/2013	626	750	200		☐	525

(11) WELL LOG

Ground Elevation

Material	From	To
NONE	0	626
LAVA BASALT BROKEN	626	705
SANDSTONE	705	725
BASALT BROKEN	725	750

Date Started 4/25/2013 Complete 5/2/2013

(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 758 Date 5/7/2013

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. 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 5/7/2013

Signed JACK ABBAS (E-filed)

Contact Info (optional)

ORIGINAL - WATER RESOURCES DEPARTMENT

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

Memorandum

March 20, 2018

TO: Application G-18608

FROM: Aurora Bouchier, Hydrogeologist

SUBJECT Sealing depth for POA

I believe the existing seal for DESC 58167 (96-ft), DESC 53193 (78-ft), and DESC 53194 (138-ft) provide sufficient protection for the Deschutes Formation groundwater resource at this location. The water-bearing zone in this area was approximately 2600 feet ~~below land surface~~ in elevation in 2000. The thick unsaturated zone at the location of this area is typical of the groundwater flow system in the Deschutes Formation. In general, the Deschutes Formation acts as an unconfined aquifer with a majority of wells producing from it displaying static water levels at or below the zone at which water was first encountered (according to the drillers' well logs). The Deschutes Formation is comprised of a variety of volcanic and sedimentary deposits. Many of these deposits were restricted to ancestral canyons and other short-lived topographic lows. As a result, many of the layers have limited geographic distribution which results in heterogeneous strata at any given location. Throughout the Deschutes Formation, the local heterogeneities can create locally confined conditions.

9/18/2018 ACB

In my opinion, a deeper seal in this well would not change the potential inter-borehole flow dynamics, nor would it alter the hydrologic response of the well to water level changes in the aquifer. Therefore, I believe deeper seals in DESC 58167, DESC 53193, and DESC 53194 are not required to meet the public interest presumption applied to the associated water right.

Print Form

WATER RESOURCES DEPARTMENT

MEMO Date: 3/20/2018

TO: Application: G-18608

FROM: GW: Aurora Bouchier
(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 ground water 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 ground water will have a localized impact to surface water in the _____ 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 March 20, 2018
FROM: Groundwater Section Aurora C Bouchier
Reviewer's Name
SUBJECT: Application G- 18608 Supersedes review of na
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 Company, LLC** County: **Deschutes**

A1. Applicant(s) seek(s) 0.67 cfs from 3 well(s) in the Deschutes Basin, Whychus Creek **(General Zone)** subbasin (Henkle Butte quad)

A2. Proposed use Quasi-municipal Seasonality: year round

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	DESC 58167	SCCE Well 1	Deschutes Fm	0.67	14S/11E-17 SW-SW	1120' N, 650' E fr SW cor S 17
2	DESC 53193/58037	SCCE Well 2	Deschutes Fm	0.67	14S/11E-17 SW-SW	950' N, 695' E fr SW cor S 17
			Fm	0.67	14S/11E-17 SW-SW	925' N, 630' E fr SW cor S 17

↑ Dese 58037 is incorrect. Should be 58039 -KB.

ll th)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
4	0-96	-2-98	0-844	780-840	250	4	P
0	0-78	-2-78	5-600	585-605	10	NA	A
0	0-138	-2-138	2-750	710-750	20*	NA	A

water-bearing zones within the Deschutes Fm. Groundwater flow is toward the pproximately 8 miles away along the Deschutes River. Water levels in the wells ce water source (Whychus Creek).

*Deepening log DESC 59678 lists a yield of 200 gpm based on a two hour air test.

A5. ☒ **Provisions of the** Deschutes 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 wells are located within the USGS Groundwater Study Area and are subject to the relevant rules (OAR 690-505-0500 – 0620).

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**;
   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 nearest relevant State Observation wells are DESC 1957 (located approximately 5 miles to the northeast) and DESC 3479 (located approximately X miles to the southeast). DESC 1957 has been monitored periodically since 1978 through present and shows a fairly steady decline of about 9 feet since 1998. DESC 3479 was monitored periodically from 1979 through 1997 and appears to be in a similar water pressure zone (possibly as a result of faulting in the area) as the applicant's wells.

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
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: _____

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: _____

Water Availability Basin the well(s) are located within: _____

C3a. **690-09-040 (4):** Evaluation of stream impacts for <u>each well</u> 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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

C3b. **690-09-040 (4):** Evaluation of stream impacts <u>by total appropriation</u> 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: ______________________________

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

(A) = Total Interf.												
(B) = 80 % Nat. Q												
(C) = 1 % Nat. Q												
(D) = (A) > (C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100	%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation:

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:

i. ☐ The permit should contain condition #(s) ;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

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

References Used:

Application files: G-18608, and nearby G-16574 and G-118274.

Gannett, M.W. and Lite, K.E., Jr. 2004. Simulation of regional ground-water flow in the Upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report WRI 2003-4195.

Gannett, M.W. and Lite, K.E., Jr. 2013. Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon: U.S. Geological Survey Scientific Investigations Report 2013-5092.

Gannett, M.W., Lite, K.E., Jr., Morgan, D.S., and Collins, C.A. 2001. Ground-water hydrology of the upper Deschutes basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report WRI 2000-4162.

Lite, K.E., Jr. and Gannett, M.W. 2002. Geologic framework of the regional ground-water flow system in the upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report WRI 2002-4015.

OWRD well log and water level database.

D. WELL CONSTRUCTION, OAR 690-200

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

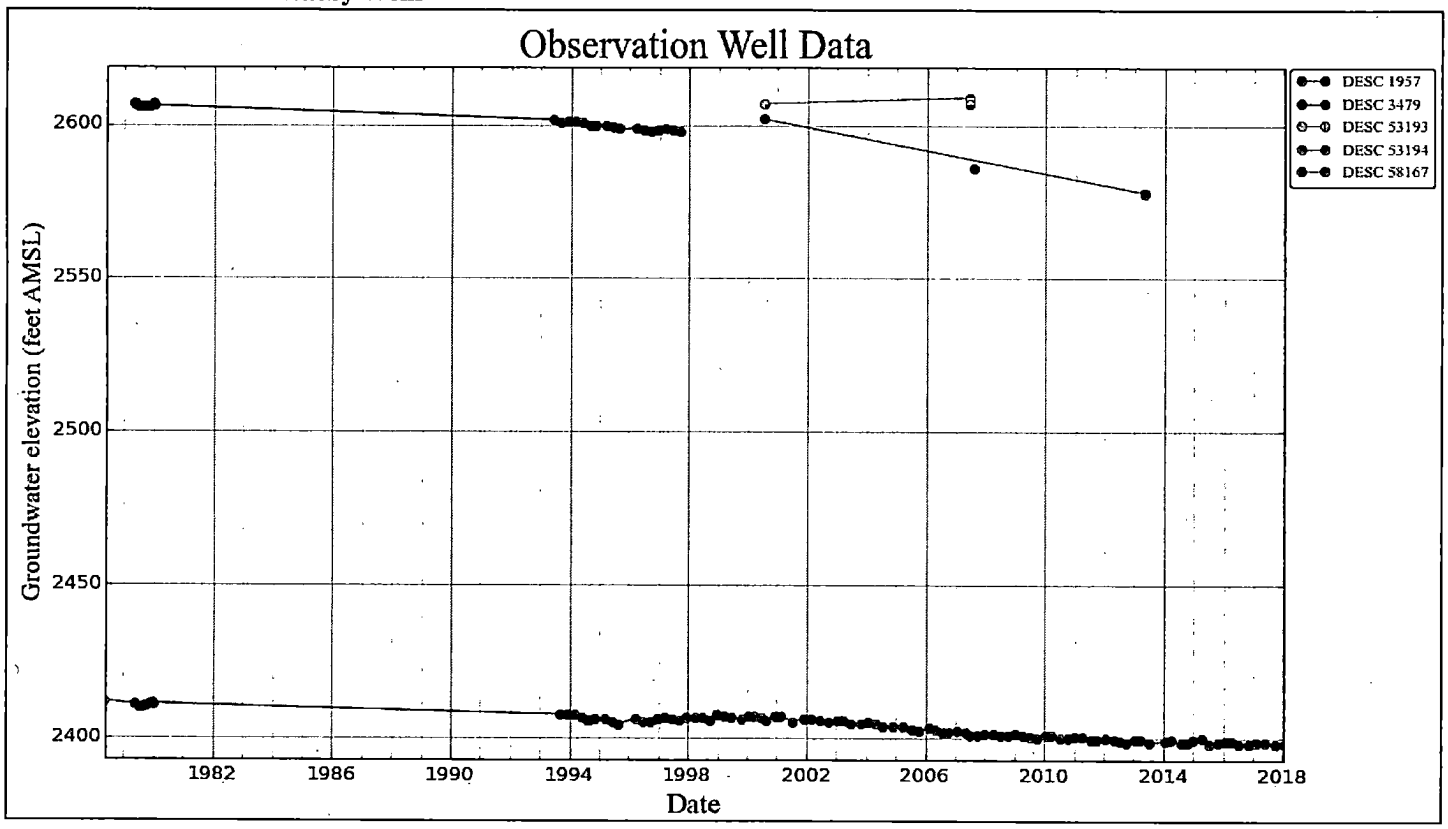
D2. **THE WELL does not appear to meet current well construction standards based upon:**

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-Level Trends in Nearby Wells



Well Location Map