Groundwater Application Review Summary Form

Application # G- 87644

GW Reviewer Francis Brown **Date Review Completed:** April 25, 2019

Summary of GW Availability and Injury Review:

[X] 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.

N/A 4/25/19

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).

WATER RESOURCES DEPARTMENT

MEMO April 25, 2019

TO: **Application G-** 18641

FROM: **GW:** Travis Brown
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☒ YES
The source of appropriation is within or above a Scenic Waterway
☐ NO

☒ YES
Use the Scenic Waterway condition (Condition 7J)
☐ NO

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☒ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is *unable to make a Preponderance of Evidence finding.*

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18644

Date: April 30, 2019

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

Applicant's Well #1 (CLAC 15683): 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 annular seal is not adequate. In order to meet minimum well construction standards, the well must be resealed to a minimum depth of at least 55 feet below ground surface.

My recommendation is that the Department **not issue a permit** for Applicant's Well #1 (CLAC 15683) 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.

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

Applicant's Well #2 (CLAC 15718): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

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

Applicant's Well #4 (CLAC 66430 and CLAC 66671 the deepening of CLAC 66430): Based on a review of the Well Report, Applicant's Well #4 seems to protect the groundwater resource.

The construction of Applicant's Well #4 may not satisfy hydraulic connection issue

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JUL 07 1987

WATER RESOURCES DEPT.
SALEM, OREGON

CLAC 015683

35/4E-5 cx

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

Well Number

(1) OWNER:

Name Commonwealth Property Management Serv. Co.

Address 3718 S. W. Condor, Suite 110

City Portland State Oregon Zip 97201

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

☐ Rotary Air ☐ Rotary Mud ☒ Cable

☐ Other

(4) PROPOSED USE:

☐ Domestic ☒ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Construction approval Yes ☐ No ☒ Depth of Completed Well 211 ft.

Explosives used Yes ☐ No ☒ Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10 inch	0	30	Cement	0	30	18 sacks
6-inch	30	211				

How was seal placed: Method ☐ A ☐ B ☒ 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-inch	+1	172	.250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	5-inch	206	211	.250	☒	☐	☒	☐
Liner:	5-inch	164	187	.250	☒	☐	☒	☐
	5-inch	192	201	.250	☒	☐	☒	☐

Final location of shoe(s) 172 feet

PERFORATIONS/SCREENS:

☐ Perforations Method

☒ Screens Type 304 Material Stainless

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
7	192	12			5-inch	☐	☐
201	206	16			5-inch	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
30 gpm	11 feet		1 hr.
50 gpm	20 feet		3 hours
60 gpm	29 feet		8 hours

Temperature of water 53° Depth Artesian Flow Found

Was a water analysis done? ☐ Yes By whom

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other Surface

Depth of strata: 3-25 feet

(9) LOCATION OF WELL by legal description:

County Clackamas Latitude Longitude

Township 3-South N or S, Range 4-East E or W, WM.

Section 5 NE ¼ SW ¼

Tax Lot Lot Block Subdivision

Street Address of Well (or nearest address) Eagle Crest Mobile Park, Eagle Creek, Oregon 97022

(10) STATIC WATER LEVEL:

143 ft. below land surface. Date 6-10-87

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 187 feet

From	To	Estimated Flow Rate	SWL
187 feet	192 feet	20 gpm	143
201 feet	206 feet	40 gpm	143

(12) WELL LOG:

Ground elevation

Material	From	To	SWL
Clay	0	3	
Cemented gravel & boulders	3	25	11
Cemented gravel	25	50	
Clay; brown	50	54	
Clay; grey	54	79	
Clay; sandy, grey	79	88	
Clay; blue	88	109	
Clay; grey	109	164	
Clay; blue	164	172	
Clay; sandy, grey	172	180	
Clay; grey	180	187	
Sand; coarse, grey	187	192	143
Clay; grey	192	201	
Sand & pea gravel	201	206	143
Clay; grey	206	211	

STEINMAN BROS. DRILLING CO.
Phone: (503) 654-2890
Well # 16-87

Date started 5-29-87 Completed 6-11-87

(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.

Driller's Well #16-87 WWC Number

Signed Date

Oregon Water Well Constructor's Lic. #1

(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 Ronald F. McConnell WWC Number 16-87

Ronald F. McConnell - Owner Date 7-3-87

dba Steinman Bros. Drilling Co.

WHITE COPIES - WATER RESOURCES DEPARTMENT YELLOW COPY - CONSTRUCTOR PINK COPY - CUSTOMER 9809C 10/86

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

SKYLES DRILLING, INC.
503-656-2683

WELL ID # L 99536
START CARD # W200620
Page 2

(1) OWNER: Well Number: 02
Name Siecor, LLC/Eagle Crest Mobile Home Properties,LLC
Address P.O. Box 1170
City Mulino State OR Zip 97042

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

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

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☐ No Depth of Completed Well ft.
Explosives used ☐ Yes ☐ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds

How was seal placed: Method ☐ A ☐ B ☐ 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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☐ Outside ☐ None
Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☐ Perforations Method
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

Yield gal/min	Drawdown	Drill stem at	Time

Temperature of Water Depth Artesian Flow found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Clackamas Latitude Longitude
Township 3SOUTH N or S. Range 4EAST E or W. of WM.
Section 05 NE 1/4 SW 1/4
Tax lot 4300 Lot Block Subdivision
Street Address of Well (or nearest address) 25800 SE Eagle Creek Rd, Eagle Creek, OR

(10) STATIC WATER LEVEL:
ft. below land surface. Date
Artesian pressure lb. per square inch. Date

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

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Lava, gray	348	354	
Lava, gray & brown	354	358	
Lava, gray & brown fractured	358		
w/claystone, multicolored		364	178
Lava, brown & gray fractured	364	376	178
Lava, multicolored fractured	376	384	178
Lava, gray & brown fractured	384	396	178
Lava, gray & brown fractured	396		
w/claystone, mc		405	178
Lava, multicolored	405	415	178
Lava, gray & brown fractured	415	434	178
Lava, gray fractured	434	462	178
Claystone, fractured w/clay, mc	462	473	178
Lava, gray fractured	473	483	178

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SALEM, OREGON

Date started 9/23/2009 Completed 10/7/2009

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Signed WWC Number 1715
Date 11-9-09
Skyles Drilling, Inc.

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
Signed Steven C. Bland WWC Number 1592
Date 11-9-09
Skyles Drilling, Inc.

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CLAC 66671

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

SKYLES DRILLING, INC.
503-656-2683

WELL ID # L 99536
START CARD # W204792

(1) OWNER: Well Number: 02
Name Siecor, LLC/Eagle Crest Mobile Home Properties
Address P.O. Box 1170
City Mulino State OR Zip 97042

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

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

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 702 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
8	483	740	Unchanged			

How was seal placed: Method ☐A ☐B ☐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:	8	+2	317	.250	☒	☐	☒	☐
	Existng				☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4.5	2	702	SDR26	☐	☒	☐	☒
					☐	☐	☐	☐

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

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Saw
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
541	561	1/8x3	72			☐	☒
661	681	1/8x3	72			☐	☒
						☐	☐
						☐	☐
						☐	☐

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

Yield gal/min	Drawdown	Drill stem at	Time
12		738	3 hrs.
12		598	1 hr.

Temperature of Water 60.4 Depth Artesian Flow found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

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SALEM, OREGON

(9) LOCATION OF WELL by legal description:
County Clackamas Latitude Longitude
Township 3SOUTH N or S. Range 4EAST E or W. of WM.
Section 05 NE 1/4 SW 1/4
Tax lot 4300 Lot Block Subdivision
Street Address of Well (or nearest address) 25800 SE Eagle Creek Rd, Eagle Creek, OR

(10) STATIC WATER LEVEL:
200 ft. below land surface. Date 2/1/2010
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found N/A

From	To	Estimated Flow Rate	SWL
Before	Deepening	12	200
After	Deepening	12	200

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Lava, gray fractured	483	487	
Lava, gray & red porous	487	508	
Lava, gray & red fractured & porous	508	514	
Lava, gray, brown & red fractured & porous	514	532	
Lava, multicolored fractured	532	550	
Lava, gray, brown & red fractured	550	556	
Lava, gray & red w/claystone, brown soft & fractured	556	567	
Claystone, gray & brown fractured	567	576	
Claystone fractured w/clay, mc	576	586	
Clay, dark gray gritty	586	593	
Clay, gray & red w/seams of claystone, red fractured	593	601	
Basalt, weathered	601	631	
Basalt, gray & black fractured @times	631	713	
Clay, red	713	726	
Basalt, gray	726	740	
Hole caved to 702'			

Date started 1/19/2010 Completed 1/28/2010

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1884
Signed Date 2-3-10
Skyles Drilling, Inc.

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1592
Signed Steven T. Bland Date 2-3-10
Skyles Drilling, Inc.

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NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

CLAC 015718

State Well No. 3S/4E-5

State Permit No.

(1) OWNER:
Name AMHP INC
Address 25115 N.W. Cornell, Hillsboro 97123

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☑ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☑
6" Diam. from +2 ft. to 70 ft. Gage .250
5" Diam. from 62 ft. to 212 ft. Gage .188
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☑ Yes ☐ No.
Type of perforator used Torch
Size of perforations 1/4 in. by 12 in.
60 perforations from 172 ft. to 212 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☑ No.
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
a pump test made? ☐ Yes ☑ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Air test 40 gal./min. with 109 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement + 5% Bentonite
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 14 sacks
How was cement grout placed? pumped
Was a drive shoe used? ☑ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☑ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Clackamas Driller's well number
¼ ¼ Section 5 T. 3S R. 4E W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 76 ft.
Static level 90 ft. below land surface. Date 8-5-80
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 212 ft. Depth of completed well 212 ft.
Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Brn Sandy Clay	0	6	
Cemented Gravel	6	62	
Blue Clay w/Sand Seams	62	172	
Blue Sandstone	172	192	
Brn Sandstone	192	212	

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Work started 8-4 1980 Completed 8-5 1980
Date well drilling machine moved off of well 8-5 1980

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Don Feakin (Drilling Machine Operator) Date 8-8, 1980
Drilling Machine Operator's License No. 1217

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Turner Drilling Co (Person, firm or corporation) (Type or print)
Address Rt 1 Box 522, Portland, 97231
[Signed] Don Feakin (Water Well Contractor)
Contractor's License No. 715 Date 8-8, 1980

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

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

SKYLES DRILLING, INC.
503-656-2683

Amended #5

Clac 66430

WELL ID # L 99536

START CARD # W200620

(1) OWNER:

Well Number: 02

Name Siecor, LLC/Eagle Crest Mobile Home Properties,LLC

Address P.O. Box 1170

City Mulino State OR Zip 97042

(2) TYPE OF WORK:

[X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:

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

[X] Other Holte

(4) PROPOSED USE:

Domestic [X] Community [ ] Industrial [ ] Irrigation

Thermal [ ] Injection [ ] Livestock [ ] Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval [ ] Yes [X] No Depth of Completed Well 483 ft.

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

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
12	0	59	Bentonite	9	0	3 Sacks
9.5	59	307	Cement w/ 5%	59		
10	307	317	Bentonite		9	13 Sacks
8	317	483	Cement	317	307	5 Sacks

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

[X] Other Poured Bentonite

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:	8	+2	317	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:	6	305	483	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]

Drive Shoe used [ ] Inside [ ] Outside [X] None

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

[X] Perforations Method Torch

[ ] Screens Type _____ Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
444		1/8x				[ ]	[ ]
	462	12	30			[ ]	[X]
473		1/8x				[ ]	[ ]
	482	12	20			[ ]	[X]
						[ ]	[ ]

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

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

Yield gal/min	Drawdown	Drill stem at	Time
75		480	3 hrs.

Temperature of Water 60.4 Depth Artesian Flow found

Was a water analysis done? [ ] Yes By whom

Did any strata contain water not suitable for intended use? [ ] No

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

Depth of strata:

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SALEM, OREGON

(9) LOCATION OF WELL by legal description:

County Clackamas Latitude Longitude

Township 3SOUTH N or S. Range 4EAST E or W. of WM.

Section 05 NE 1/4 SW 1/4

Tax lot 4300 Lot Block Subdivision

Street Address of Well (or nearest address) 25800 SE Eagle Creek Rd, Eagle Creek, OR

(10) STATIC WATER LEVEL:

178 ft. below land surface. Date 10/7/2009

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 14'

From	To	Estimated Flow Rate	SWL
14	50	1	14
187/201	192/207	1/1	N/A
272	285	12	52
358	483	75	178

(12) WELL LOG:

Ground elevation

Material	From	To	SWL
Clay, brown	0	4	
Gravel, medium to large dirty	4	50	
Clay, brown	50	52	
Clay, gray	52	77	
Clay, gray sandy	77	91	
Clay, blue	91	100	
Clay, gray crumbly	100	114	
Clay, gray	114	167	
Clay, bluish-gray sandy	167	187	
Sand, coarse w/pumice	187	192	
Claystone w/clay, gray	192	201	
Sand, coarse	201	207	
Clay, gray & blue w/some claystone	207	229	
Clay, gray	229	262	
Clay, brown	262	272	
Clay, gray w/seams of sand, coarse	272	285	
Lava, multicolored fractured & porous w/claystone, mc	285	299	
Lava, multicolored	299	307	
Lava, gray	307	326	
Lava, multicolored	326	335	
Lava, gray & brown	335	348	
Continued on next page			

Date started 9/23/2009 Completed 10/7/2009

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed _____ WWC Number 1715

Skyles Drilling, Inc. Date 11-9-09

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed _____ WWC Number 1592

Skyles Drilling, Inc. Date 11-9-09

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PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 4/25/2019

FROM: Groundwater Section Travis Brown
Reviewer's Name

SUBJECT: Application G- 18644 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: SieCor, LLC County: Clackamas

A1. Applicant(s) seek(s) 0.134 cfs from 5 well(s) in the Willamette River Basin, Clackamas River subbasin

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	CLAC 15683	1	Alluvium	[a]	3S/4E-5 NE-SW	Application: 1650' N, 2420' E fr SW cor S 5[b] OWRD: 1770' N, 2410' E fr SW cor S 5
2	CLAC 15718	2	Alluvium	[a]	3S/4E-5 NW-SE	Application: 1550' N, 2720' E fr SW cor S 5[b] OWRD: 1670' N, 2720' E fr SW cor S 5
3	CLAC 66430 (new) CLAC 66671 (dpn)	4	Basalt (Rhododendron)	[a]	3S/4E-5 NE-SW	Application: 1660' N, 2390' E fr SW cor S 5[c] OWRD: 1840' N, 2420' E fr SW cor S 5
4	Proposed	5[d]	Alluvium[d]	[a]	3S/4E-5 NE-SW	Application: 1660' N, 1830' E fr SW cor S 5[b] OWRD:1780' N, 1830' E fr SW cor S 5
5	Proposed	5[d]	Basalt[d]			
6	Proposed	6[d]	Alluvium[d]	[a]	3S/4E-5 NE-SW	Application: 1800' N, 2490' E fr SW cor S 5[b] OWRD: 1920' N, 2490' E fr SW cor S 5
7	Proposed	6[d]	Basalt[d]			

* 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	391[e]	187	143	6/10/1987	211	0-30	+1-172 (6")	164-211 (5")	187-192 (Scrn) 201-206 (Scrn)	60	29	Pump (8 hr)
2	393[e]	76	90	8/5/1980	212	0-18	+2-70 (6") 62-212 (5")		172-212 (Perf)	40	102	Air (1 hr)
3	391[e]	14[f]	178[f]-200[f]	2/1/2010[f]	702[f]	0-9 9-59 307-317[f]	+2-317 (8")[f]	305-483 (6")[f] 2-702 (4.5")[g]	541-561 (Perf) 661-681 (Perf)	12		Air (3 hr)
4	386[e]				285[h]	0-80[h]	+2-285[h]		150-290[h]			
5	386[e]				500[h]	0-300[h]	+2-500[h]		350-500[h]			
6	392[e]				285[h]	0-80[h]	+2-285[h]		150-290[h]			
7	392[e]				500[h]	0-300[h]	+2-500[h]		350-500[h]			

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are located in the Clackamas River Basin ~1.5 miles southeast of the unincorporated community of Eagle Creek, Oregon. The requested allocation is intended to ultimately supply up to 170 mobile homes (~650 residents) within a ~22.8 acre service area with up to 96.78 acre feet/year at ~0.134 cfs (60 gpm) for quasi-municipal uses. However, at present, the system supplies only 85 mobile homes (~325 residents) within a ~11.0 acre service area with up to 40 acre feet/year at ~0.067 cfs (30 gpm). Expansion of the site is dependent upon extension of sewer service from the City of Estacada to the mobile home park, which appears to not yet have been approved.

[a] Well-specific rates were not indicated in the Groundwater Application.

[b] There appears to be an angular discrepancy between the Public Land Survey System (PLSS) projection used by the Department and the projection used for the Application map: the SW corner of Section 5 in the Application map is ~120 ft north of its Department-projected location, while the SE corner of Section 5 is only ~65 ft north of the Department-projected location. There are consequent discrepancies between the proposed POA location "metes-and-

bounds" descriptions provided in the Application and the corresponding measurements using the locations drawn on the Application map relative to the Department PLSS projection (see metes-and-bounds column in Table A3, above). To evaluate potential effects due to pumping, this review uses the POA locations as drawn on the Application map (except POA 3, see "c" below) rather than the written metes-and-bounds descriptions in the Application. If the applicant chooses to correct the metes-and-bounds location descriptions for the proposed POA to coincide with the Department projection, an additional or revised groundwater review would *not* be required *for this particular application.*

[c] There is a discrepancy in the location of POA 3 (Well 4/CLAC 66430). A well inspection conducted by Department staff on October 8, 2009 identified the location of CLAC 66430 at latitude 45.33637, longitude -122.34355, ~65 ft north-northeast of the location indicated on the Application map (see Well Location Map, attached). This review uses the well inspection location for CLAC 66430 to evaluate potential effects of pumping POA 3 (Well 4/CLAC 66430) (metes-and-bounds description in Table A3, above).

[d] In Sections 3 and 10 of the Groundwater Application, the applicant has stated that the proposed wells (Applicant Well # 5 and 6) will be completed in either the alluvial or "basalt" aquifer based on the yield observed at time of drilling. The completed wells must comply with the Oregon water well construction standards (OAR 690-200 and 690-210) for the applicable aquifer type.

[e] Land surface elevation at existing and proposed well locations (WatershedSciences, 2009; USGS, 2013).

[f] Water Well Report CLAC 66430 (new – original); [g] Water Well Report CLAC 66671 (deepening).

[h] Proposed well construction.

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 proposed POA are greater than ¼-mile from the nearest stream or surface water source and appear to produce groundwater from confined alluvial or basalt aquifers; therefore, per OAR 690-502-0240, the relevant Willamette Basin rules (OAR 690-502-0040 & 690-502-0140) do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **Not Applicable**
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 basalt 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) **7a (water-use monitoring plan), 7j (Scenic Waterway), medium water use reporting;**
   ii. ☒ The permit should be conditioned as indicated in item 2 below.
   iii. ☒ The permit should contain special condition(s) as indicated in item 3 below;

B2. a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;

c. ☒ **Condition** to allow groundwater production only from the **alluvial** groundwater reservoir between approximately **0** ft. and **300** 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. **Special Conditions:**

1. Production from the alluvial POA shall be limited to a total maximum rate of 30.0 gpm (~0.067 cfs).
2. A dedicated water-level measuring tube shall be installed in each permitted well. The measuring tube shall meet the standards described in OAR 690-215-0060. When requested, access to the wells shall be provided to Department staff in order to make water-level measurements.
3. The applicant shall collect and submit to the Department monthly static water level measurements as detailed in Condition 7a. The applicant should coordinate with the Department Hydrogeologists regarding the specific details of the water-use monitoring plan.

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 local aquifer systems.

The proposed POA 3/5/7 produce or would produce water from a separate aquifer from the alluvial aquifer from which POA 1/2/4/6 produce or would produce, which appears to be the primary water source for the current use. It has been recommended under B(2)(c) that the permit be conditioned to allow groundwater production only from the alluvial aquifer. Use of POA 3/5/7 as proposed is not allowed under a permit so conditioned.

Alluvial Aquifer: POA 1 (CLAC 15683) and 2 (CLAC 15718) are reportedly completed to depths of 211 and 212 ft below land surface (bls), respectively. According to their water well reports, both wells produce water from relatively thin layers of sand or sandstone between ~172 to 212 ft bls. The shallow alluvial material in this area has been classified as part of either the Troutdale Formation (Fmn) (Tolan, 2003) or Sandy River Mudstone (Trimble, 1963; Leonard and Collins, 1983; McFarland and Morgan, 1996). Hydrostratigraphically, the predominantly fine grained sediments in this area have been assigned to the Willamette confining unit of Woodward et al. (1998), estimated at 200-400 ft thick in the area of interest, and to the Lower Sedimentary Unit (LSU) of Conlon et al., (2005). These sediments unconformably overlie volcanic mudflow deposits, andesitic lava flows, breccia, and tuff assigned to the Rhododendron Fmn (Trimble, 1963; Tolan, 2003).

Water level data is sparse around the alluvial POA. The nearest observation wells with applicable data (CLAC 54178, 56492, and 56693) are between ~7,800 to 9,300 ft away, across Eagle Creek to the north. Although some of these wells (CLAC 54178 and 56492) do show declines of ~10-15 ft over roughly a decade of relatively recent measurements (see attached "Hydrograph – Alluvial"), the fact that these wells are all used as pumping wells for a nursery operation limits their utility in assessing whether there is more widespread decline in the alluvial aquifer. Furthermore, the thin-bedded nature of the productive sands and gravels in this area means that they may have limited lateral continuity. However, there is substantial anecdotal evidence to warrant concern regarding the capacity of the alluvial aquifer in this area. Several recent well complaints have been submitted to the District 20 Watermaster by nearby well owners. The applicant has also stated on Form M (Quasi-Municipal Water Supplies) of the Application that "The existing wells do not provide sufficient water to meet demand in mid-June through mid-September." The applicant has proposed installing additional wells to try to meet this demand, but it is uncertain that installing additional alluvial wells (e.g. POA 4/6) will alleviate the supply gap, particularly given the potential effects of well-to-well interference. As such, it is recommended that the permit be conditioned as detailed in B(1)(d)(ii) and B(3) Special Conditions 1 through 3, above.

The nearest groundwater right to the proposed POA is Certificate 28042*/CLAC 15738, ~330 ft west of the proposed POA 4/5 location. According to its water well report, CLAC 15738 is completed into the alluvial aquifer to a depth of 275 ft bls (cased to 195 ft bls with open hole below) and produces water from a ~10-foot thick layer of gravel between 190 and 200 ft bls, with caving shale below. The water level in CLAC 15738 was reported at 90 ft bls (~294 ft above mean sea level [msl]) in February 1956, indicating there was ~110 ft of available drawdown at the time.

To assess potential interference with CLAC 15738 due to pumping of the proposed alluvial POA (1, 2, and 4), a drawdown analysis was conducted using the Theis (1935) method. Using aquifer hydraulic parameters from nearby pumping tests (CLAC 10930, 54178, and 56492) and regional studies (McFarland and Morgan, 1996), intereference with CLAC 15738 is not anticipated to deprive Certificate 28042* of its customary use of groundwater (see Theis Drawdown analyses, attached).

Rhododendron Fmn Volcanic Aquifer: Per the water well reports for CLAC 66430/CLAC 66671, POA 3 is reportedly completed into (possibly andesitic) lava and basalt from a depth of ~317 ft bls to 702 ft bls (elevation 75 ft above to 320 ft below msl). As part of a geologic analysis of cuttings from well CLAC 59817, located ~3,500 ft southwest of CLAC 66430,

Tolan (2003) assigned this lava and basalt to the Rhododendron Fmn, as mapped by Trimble (1963). POA 5/7 as proposed would also be constructed to produce from water-bearing zones in the Rhododendron Fmn. Static water levels for POA 3 (CLAC 66430) and CLAC 59817 (see attached "Hydrograph – Volcanic") indicate that water-bearing zones in the Rhododendron Fmn are part of a different aquifer than the alluvial aquifer exploited by POA 1 and 2. Limited data is available regarding water levels in the Rhododendron Fmn. Only two water levels are available for POA 3 (CLAC 66430/CLAC 66437), and the nearest observation well with an extended period of record (CLAC 59817) appears to be completed in both the Rhododendron Fmn and the Columbia River Basalt Group (CRBG), meaning it may not be representative of the Rhododendron Fmn exclusively. However, reported water levels in both wells show substantial declines over short periods of time: ~22 ft over ~4 months for CLAC 66430/CLAC 66437 and an average of ~118 ft over ~15 years for CLAC 59817. Given the available information, it would appear that current withdrawals may be close to or already exceeding the capacity of the groundwater resource in the Rhododendron Fmn; therefore, additional appropriations from POA 3/5/7 – as proposed in this application – will not likely be available within the capacity of the resource. As such, it is recommended that the permit be conditioned to allow production only from the alluvial aquifer as detailed in B(2)(c), above, and that POA 3/5/7 not be authorized.

Given the limited information available, however, the applicant may be able to collect additional data from the Rhododendron Fmn, complementary to the water-use monitoring plan (Condition 7a) recommended for the alluvial POA, which could potentially demonstrate that there is available capacity for use within the Rhododendron Fmn at some future date.

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

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Alluvium**	☒	☐
2	**Alluvium**	☒	☐
3	**Rhododendron Fmn**	☒	☐
4	**Alluvium**	☒	☐
5	**Rhododendron Fmn**	☒	☐
6	**Alluvium**	☒	☐
7	**Rhododendron Fmn**	☒	☐

Basis for aquifer confinement evaluation: **Alluvial wells (POA 1/2/4/6):** Reported static water levels in POA 1 (CLAC 15683) and POA 2 (CLAC 15718) are above the noted water-bearing zones of sand/sandstone and within the depth range of the overlying fine-grained sediments. Reports for nearby alluvial water wells also generally note static water levels above the identified water-bearing zones and within overlying fine-grained sediment, indicating confined conditions.

Rhododendron Fmn Wells (POA 3/5/7): Reported static water levels in POA 3 (CLAC 66430) and in nearby CLAC 59817 are above the noted water-bearing zones in the lava flows and basalts of the Rhododendron Fmn. The reported static water levels are within the depth range of overlying fine-grained sediments noted in the logs for CLAC 66430 and CLAC 59817, indicating 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	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	Eagle Creek*	240-250[a]	245-340[b]	1,660	☒	☐	☐	☐	☒
1	2	Currin Creek*	240-250[a]	245-380[b]	1,970	☒	☐	☐	☐	☒
2	1	Eagle Creek*	240-250[a]	245-340[b]	1,650	☒	☐	☐	☐	☒
2	2	Currin Creek*	240-250[a]	245-380[b]	2,125	☒	☐	☐	☐	☒
3	1	Eagle Creek	190-215[a]	245-340[b]	1,670	☐	☒	☐	☐	☒
3	2	Currin Creek	190-215[a]	245-380[b]	1,960	☐	☒	☐	☐	☒
4	1	Eagle Creek*	240-250[a]	245-340[b]	1,895	☒	☐	☐	☐	☒
4	2	Currin Creek*	240-250[a]	245-380[b]	1,650	☒	☐	☐	☐	☒
5	1	Eagle Creek	190-215[a]	245-340[b]	1,895	☐	☒	☐	☐	☒
5	2	Currin Creek	190-215[a]	245-380[b]	1,650	☐	☒	☐	☐	☒
6	1	Eagle Creek*	240-250[a]	245-340[b]	1,515	☒	☐	☐	☐	☒

6	2	Currin Creek*	240-250[a]	245-380[b]	2,140	☒	☐	☐	☐	☒
7	1	Eagle Creek	190-215[a]	245-340[b]	1,515	☐	☒	☐	☐	☒
7	2	Currin Creek	190-215[a]	245-380[b]	2,140	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Alluvial POA 1/2/4/6, SW 1/2: The estimated groundwater elevations in existing POA 1 (CLAC 15683) and 2 (CLAC 15718) are within the range of estimated surface water elevations for SW 1 (Eagle Creek, tributary to the Clackamas River) and SW 2 (Currin Creek, tributary to Eagle Creek), which indicates hydraulic connection between the shallow alluvial aquifer and local surface water. The depletion of local streams will be attenuated by the low vertical hydraulic conductivity (permeability) of the silt and other fine-grained sediments between the stream beds and the deeper, water-bearing sands and gravels.

*Both SW 1 (Eagle Creek) and SW 2 (Currin Creek) are above the Clackamas River State Scenic Waterway. Due to the hydraulic connection between SW 1/2 and the alluvial aquifer in this area, the relevant State Scenic Waterway provisions apply to the proposed use.

Rhododendron Fmn POA 3/5/7, SW 1/2: According to its water well report, CLAC 66430 is continuously cased and sealed into lava at ~317 ft bgs (elevation of 74 ft above msl), which is at least 170 ft below the local stream elevations for SW 1 (Eagle Creek) and SW 2 (Currin Creek). These streams do not appear to have incised into the Rhododendron Fmn. Furthermore, the reported static water levels for CLAC 66430 are at least 30 feet below the estimated surface water elevations in SW 1 and SW 2. Therefore, there appears to be no effective hydraulic connection between local surface water and the Rhododendron Fmn aquifer which supplies or could supply the POA.

[a] Calculated based on the land surface elevations at the well location and reported static water levels in nearest applicable wells.

[b] Surface water elevations were estimated as land surface elevations along stream reaches within 1 mile of the proposed POA.

Water Availability Basin the well(s) are located within: SW 1-2: EAGLE CR > CLACKAMAS R – AT MOUTH

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	☐	☐	MF96A	40.0	☐	16.20	☐	<25%	☐
1	2	☐	☐			☐	16.20	☐	<25%	☐
2	1	☐	☐	MF96A	40.0	☐	16.20	☐	<25%	☐
2	2	☐	☐			☐	16.20	☐	<25%	☐
4	1	☐	☐	MF96A	40.0	☐	16.20	☐	<25%	☐
4	2	☐	☐			☐	16.20	☐	<25%	☐
6	1	☐	☐	MF96A	40.0	☐	16.20	☐	<25%	☐
6	2	☐	☐			☐	16.20	☐	<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: **C3a:** Potential depletion of (interference with) SW 1 (Eagle Creek) and SW 2 (Currin Creek) was estimated using the Hunt 2003 model. Hydraulic parameters used for the model were derived from regional data or studies of the hydrogeologic regime (Pumping Test Reports; OWRD Well Log Query Report; Conlon et al., 2003, 2005; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al, 1998) or are within a typical range of values for the parameter within the hydrogeologic regime (Freeze and Cherry, 1979; Domenico and Mifflin, 1965). See attached "Stream Depletion Analysis" for the specific parameters used in the analysis. The Hunt 2003 model was only quantitatively evaluated for POA 6 and SW 1, because the only parameter anticipated to change between the various other alluvial POA and SWs is the distance between the POA and SW; since the

distance from well to stream for all other POA-SW combinations is greater than the distance between POA 6 and SW 1 (1,515 ft), the POA-SW interference for all other combinations should be less than that for POA 6 and SW 1.

The Hunt 2003 analytical model results indicate that depletion of (interference with) SW 1 due to pumping of POA 6 is anticipated to be much less than 25 percent of the well discharge at 30 days of continuous pumping. The depletion of (interference with) SW 1 and SW 2 due to pumping of the other alluvial POA is likewise anticipated to be much less than 25 percent of the well discharge at 30 days of continuous pumping. This is most likely due to the substantial thickness of fine-grained sediments underlying SW 1 and SW 2.

C3b: Not applicable.

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

Non-Distributed Wells Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
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: The proposed POA are close to the CLACKAMAS R > WILLAMETTE R – AT MOUTH Water Availability Basin (WAB). One percent of the 80 percent exceedance flow for this WAB would equal 8.22 cfs, which is substantially greater than the requested allocation. Likewise, 1 percent of the applicable instream flow requirement (MF80A) would equal 4.00 cfs, which is also substantially greater than the requested allocation. Therefore, there does not appear to be a potential for substantial interference with this particular surface water source.

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:**

C1 (OAR 690-09-0040(1)): The proposed POA 1/2/4/6 produce groundwater from a confined alluvial aquifer. The proposed POA 3/5/7 produce groundwater from a confined basalt aquifer.

C2 (OAR 690-08-0040(2)(3)): POA 1/2/4/6 are determined to be hydraulically connected to SW 1 (Eagle Creek) and SW 2 (Currin Creek), which are above the Clackamas River State Scenic Waterway. POA 3/5/7 are determined not to be hydraulically connected to SW 1 or SW 2.

C3a (OAR 390-09-0040(4)): POA 1/2/4/6 are within 1 mile of SW 1 and SW 2. However, the potential for substantial interference (PSI) is *not* assumed for these POA.

References Used:

Application File: G-18644

Transfer Request: T-10322

Pumping Test Files: CLAC 10930, 54178, 56492

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Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

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

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

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Hood to Coast 2009, Portland, OR, May 27.

D. WELL CONSTRUCTION, OAR 690-200

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

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

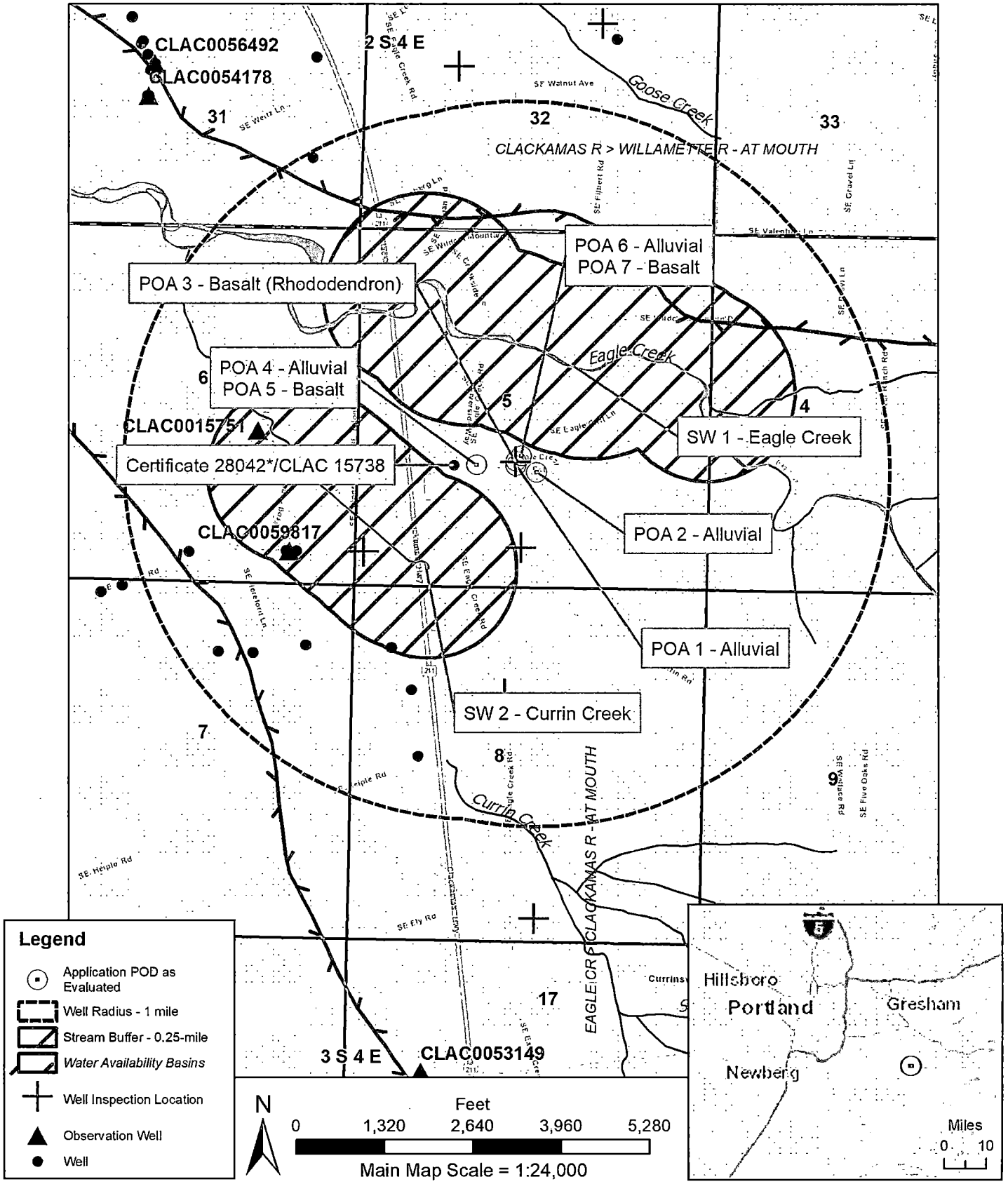
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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

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

Well Location Map

G-18644 SieCor, LLC



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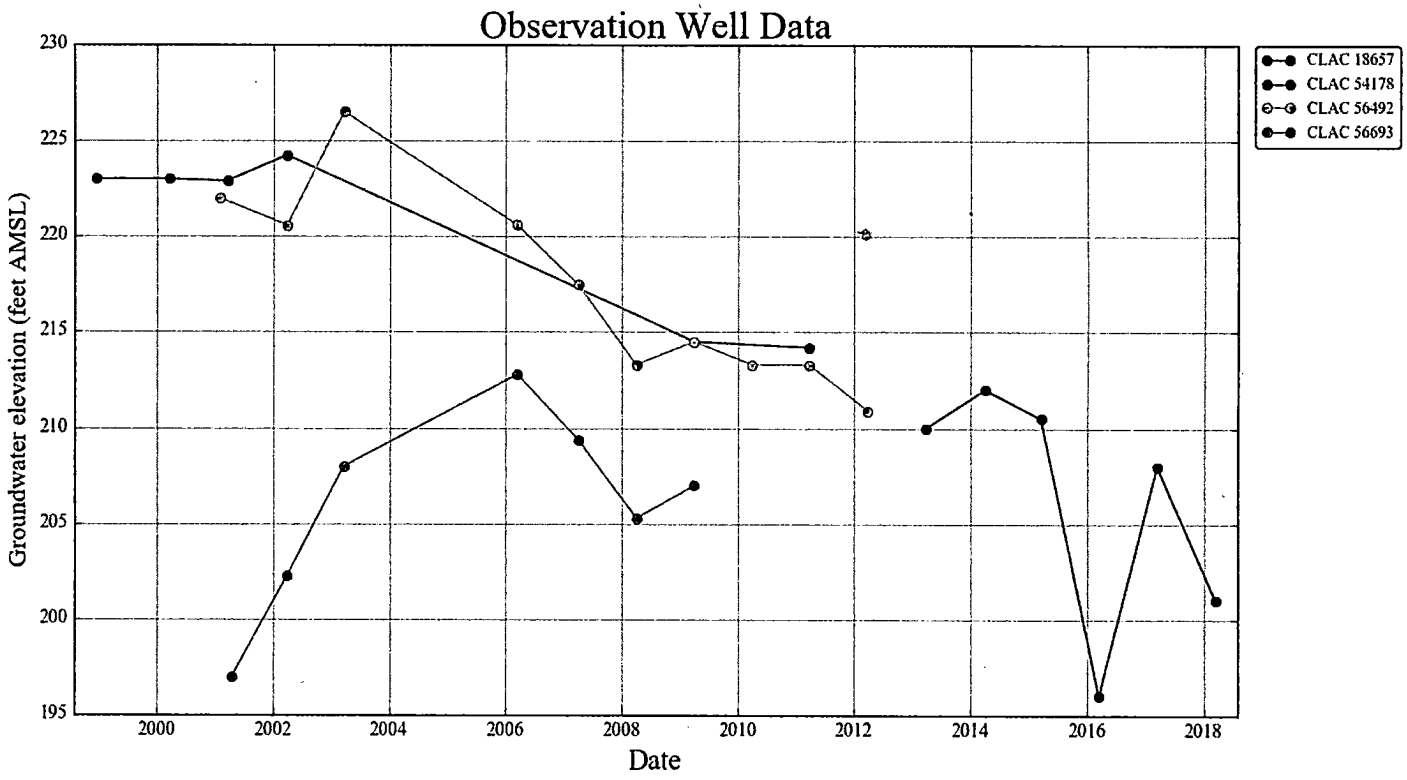
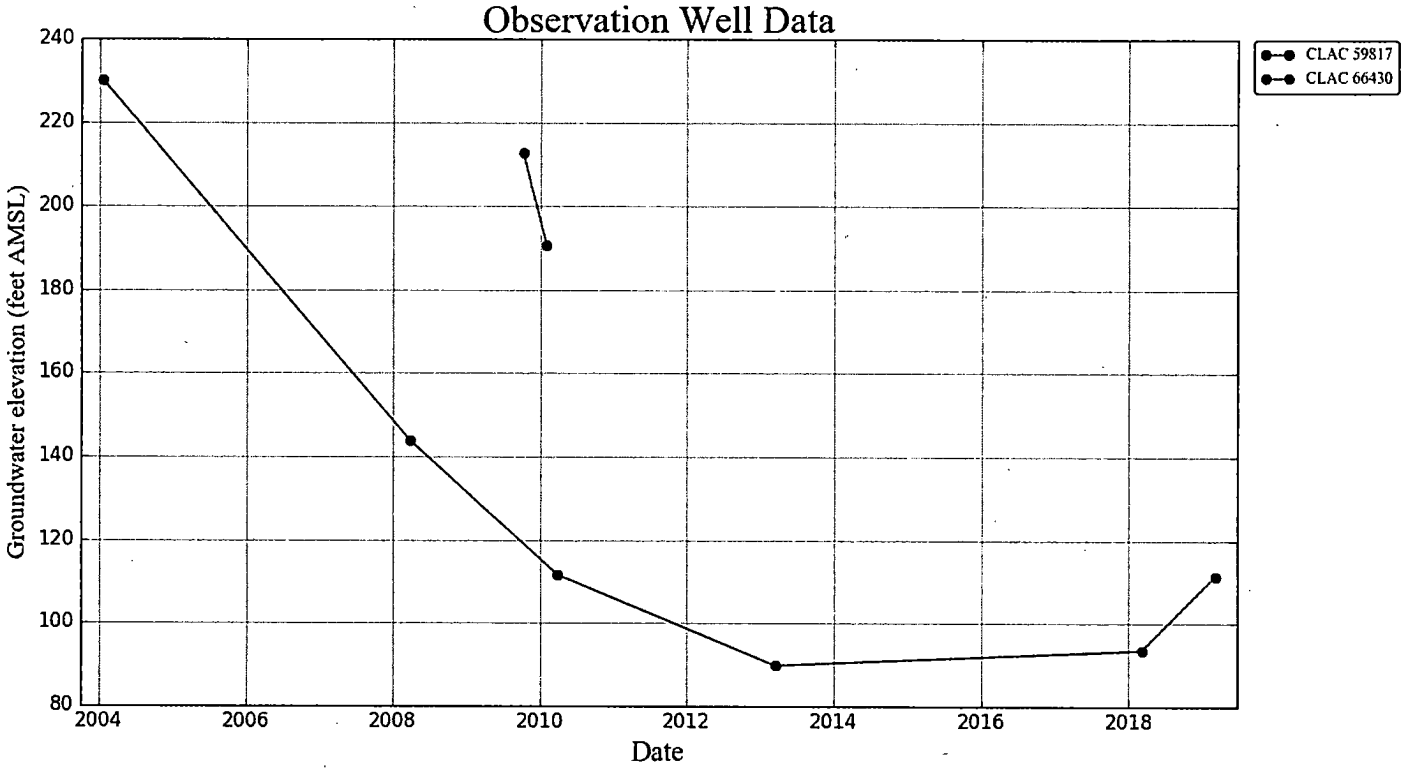
Hydrograph – Alluvial



Hydrograph – Volcanic



Water Availability Tables

Water Availability Analysis
Detailed Reports

EAGLE CR > CLACKAMAS R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 3/5/2019

Watershed ID #: 96 (Map)
Date: 3/5/2019

Exceedance Level: 80%
Time: 11:00 AM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	233.00	0.59	232.00	0.00	125.00	107.00
FEB	235.00	0.57	234.00	0.00	125.00	109.00
MAR	241.00	0.54	240.00	0.00	125.00	115.00
APR	279.00	0.60	278.00	0.00	125.00	153.00
MAY	271.00	1.23	270.00	0.00	125.00	145.00
JUN	132.00	1.70	130.00	0.00	100.00	30.30
JUL	54.50	2.94	51.60	0.00	100.00	-48.40
AUG	22.20	2.24	20.00	0.00	40.00	-20.00
SEP	16.20	1.00	15.20	0.00	40.00	-24.80
OCT	19.60	0.53	19.10	0.00	40.00	-20.90
NOV	74.90	0.53	74.40	0.00	125.00	-50.60
DEC	245.00	0.61	244.00	0.00	125.00	119.00
ANN	197,000.00	793.00	196,000.00	0.00	72,000.00	129,000.00

Water Availability Analysis
Detailed Reports

CLACKAMAS R > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 3/5/2019

Watershed ID #: 80 (Map)
Date: 3/5/2019

Exceedance Level: 80%
Time: 11:01 AM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	2,670.00	326.00	2,340.00	0.00	1,000.00	1,340.00
FEB	2,900.00	361.00	2,540.00	0.00	1,000.00	1,540.00
MAR	2,800.00	330.00	2,470.00	0.00	1,000.00	1,470.00
APR	3,010.00	399.00	2,610.00	0.00	1,000.00	1,610.00
MAY	2,740.00	398.00	2,340.00	0.00	1,000.00	1,340.00
JUN	1,620.00	309.00	1,310.00	0.00	1,000.00	311.00
JUL	980.00	309.00	671.00	0.00	1,000.00	-329.00
AUG	822.00	294.00	528.00	0.00	890.00	-362.00
SEP	833.00	283.00	550.00	0.00	890.00	-340.00
OCT	882.00	276.00	606.00	0.00	1,000.00	-394.00
NOV	1,630.00	323.00	1,310.00	0.00	1,000.00	307.00
DEC	2,650.00	328.00	2,320.00	0.00	1,000.00	1,320.00
ANN	2,110,000.00	237,000.00	1,870,000.00	0.00	711,000.00	1,200,000.00

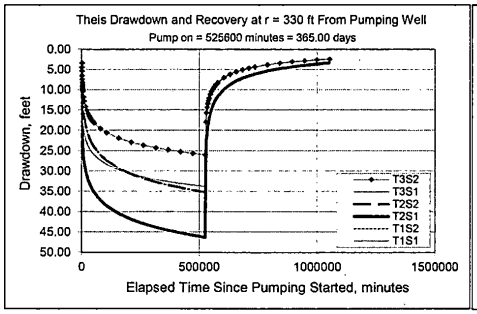
Theis Time-Drawdown Worksheet v.3.00

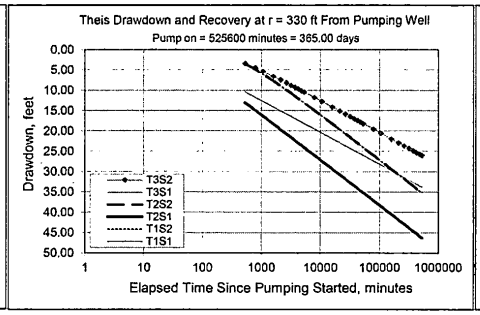
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

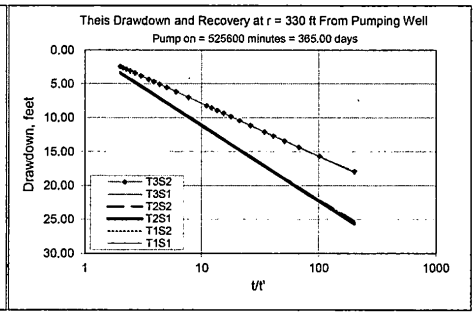
Written by Karl C. Wozniak September 1992. Last modified December 30, 2014

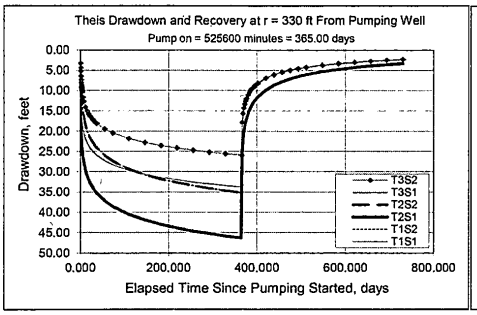
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		330.00		ft	Q conversions
Pumping rate	Q		60.0		gpm	60.00 gpm
Hydraulic conductivity	K	19	19	27	ft/day	0.13 cfs
Aquifer thickness	b		10		ft	8.02 cfm
Storativity	S_1		0.000010			11,550.80 cfd
	S_2		0.00100			0.27 af/d
Transmissivity Conversions	T_f2pd	190	190	270	ft2/day	
	T_ft2pm	0.1319	0.1319	0.1875	ft2/min	
	T_gpdpft	1,421	1,421	2,020	gpd/ft	

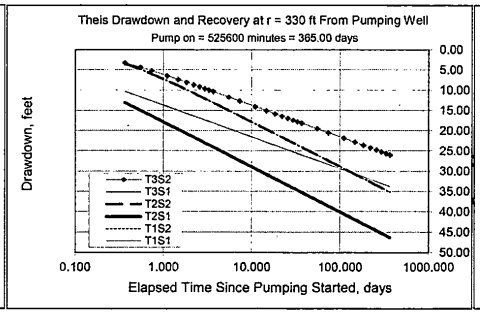
Use the Recalculate button if recalculation is set to manual

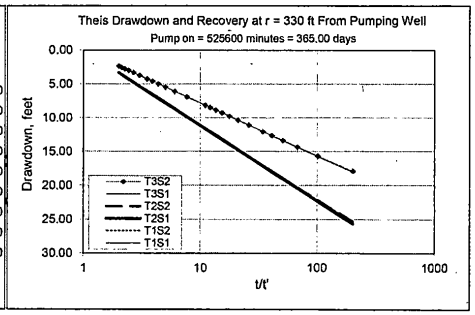












Date: 4/25/2019

G-18644 **Theis Drawdown Analysis – Low Yield Scenario**

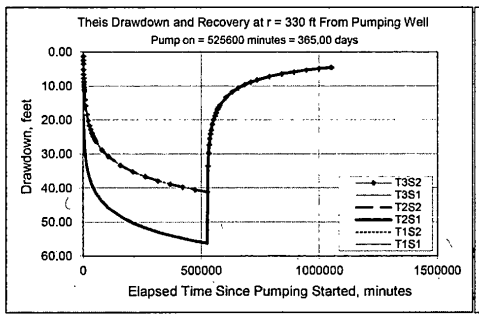
Theis Time-Drawdown Worksheet v.3.00

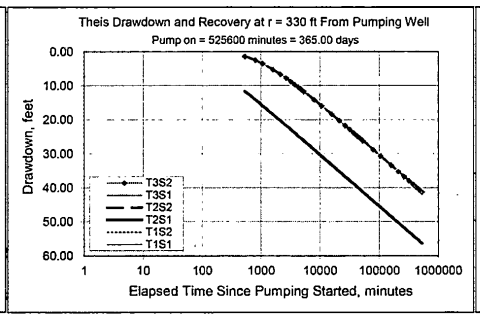
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

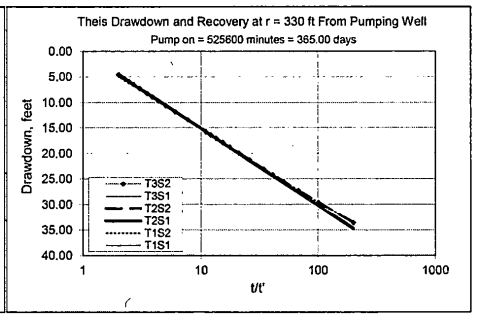
Written by Karl C. Wozniak September 1992. Last modified December 30, 2014

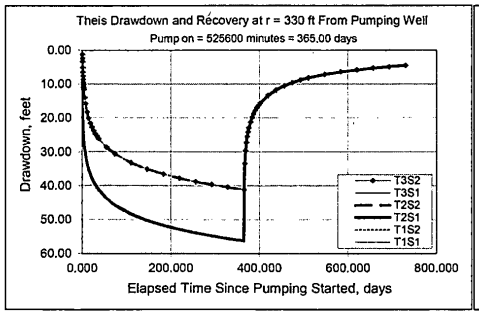
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		330.00		ft	**Q conversions**
Pumping rate	Q		30.00		gpm	30.00 gpm
Hydraulic conductivity	K	[redacted]	[redacted]	[redacted]	ft/day	0.07 cfs
Aquifer thickness	b		10		ft	4.01 cfm
Storativity	S_1		0.000010			5,775.40 cfd
	S_2		0.100,100			0.13 af/d
Transmissivity Conversions	T_f2pd	70	70	70	ft2/day	
	T_ft2pm	0.0486	0.0486	0.0486	ft2/min	
	T_gpdpft	524	524	524	gpd/ft	

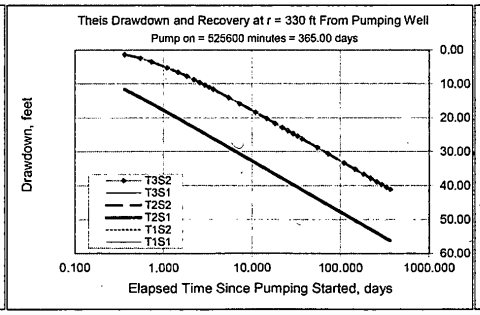
Use the Recalculate button if recalculation is set to manual

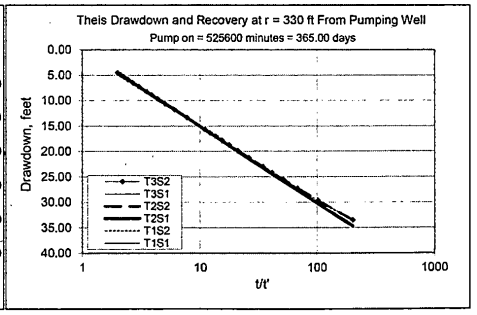












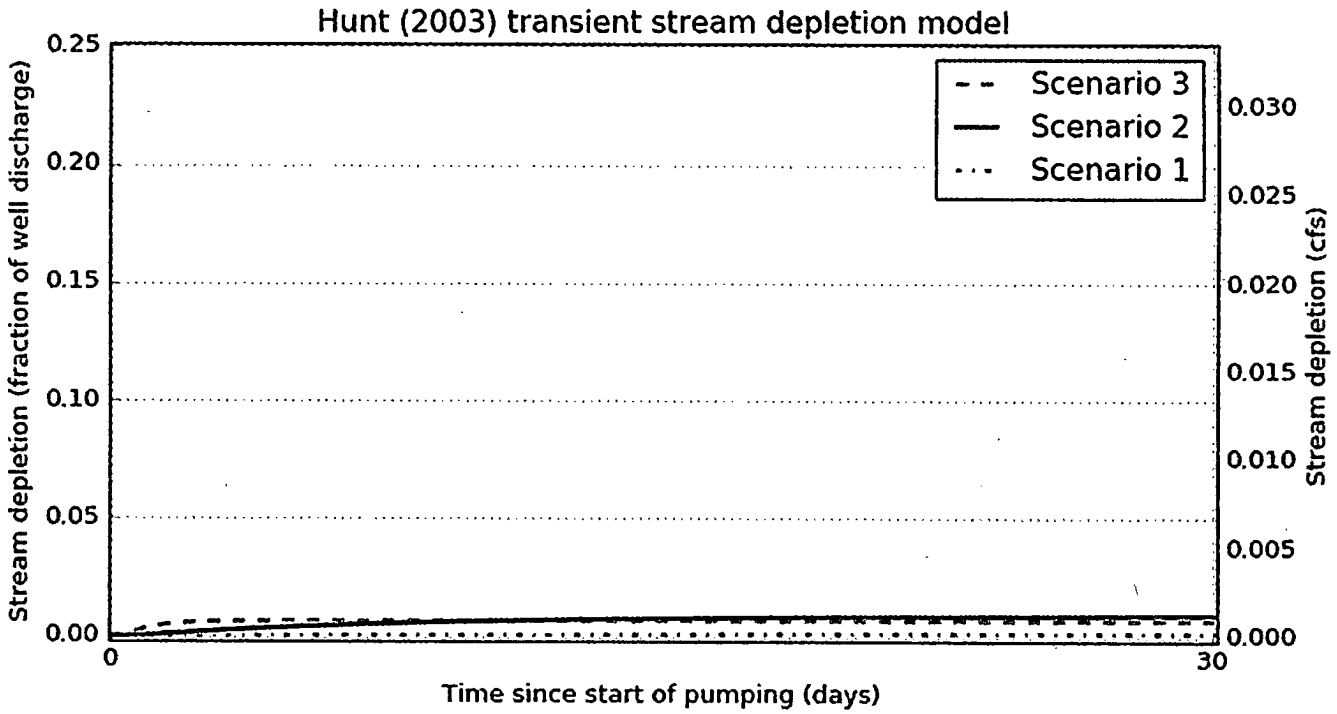
Stream Depletion Analysis

Application type:	G
Application number:	18644
Well number:	6
Stream Number:	1
Pumping rate (cfs):	0.1336
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1515.0	1515.0	1515.0	ft
Aquifer transmissivity	T	270.0	190.0	70.0	ft2/day
Aquifer storativity	S	0.001	0.0004	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.005	0.01	ft/day
Aquitard saturated thickness	ba	205.0	125.0	75.0	ft
Aquitard thickness below stream	babs	205.0	125.0	75.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	80	80	80	ft

Stream depletion for Scenario 2:

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



WATER WELL REPORT
STATE OF OREGON

DESC 2069

RECEIVED
NOV 3 1980
WATER RESOURCES DEPT
SALEM, OREGON

State Well No. 14S/12E-8aC

State Permit No. .....

(1) OWNER:
Name Bill K. Glover
Address 2889 SW 23rd
City Redmond 97756 State Ore

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary Air ☒ Driven ☐
Rotary Mud ☐ Dug ☐
Cable ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐
Thermal: ☐ Withdrawal ☐ Reinjection ☐

(5) CASING INSTALLED:
Steel ☒ Plastic ☐
Threaded ☐ Welded ☒
3" Diam. from +1 ft. to 19 ft. Gauge .250
" Diam. from ..... ft. to ..... ft. Gauge .....

LINER INSTALLED:
6" Diam. from 0 ft. to 327 ft. Gauge .188

(6) PERFORATIONS:
Perforated? ☐ Yes ☒ No
Type of perforator used
Size of perforations in. by in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.

WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
Test 12 gal./min. with drill stem at 325 ft. 1 hrs.
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 54 Depth artesian flow encountered ..... ft.

(9) CONSTRUCTION:
Special standards: Yes ☐ No ☒
Well seal—Material used cement
Well sealed from land surface to 19 ft.
Diameter of well bore to bottom of seal 12 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 9 sacks
How was cement grout placed? pumped from 19 to 0
Was pump installed? no Type ..... HP ..... Depth ..... ft.
Was a drive shoe used? ☐ Yes ☒ No Plugs ..... Size: location ..... ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

(10) LOCATION OF WELL:
County Deschutes Driller's well number
SW ¼ NE ¼ Section 8 T. 14S R. 12E W.M.
Tax Lot # Lot Blk Subdivision
Address at well location: 300' E & 500' N of center ¼ corner Sec 8

(11) WATER LEVEL: Completed well.
Depth at which water was first found 305 ft.
Static level 304 ft. below land surface. Date 10/14/80
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 340 ft. Depth of completed well 335 ft.
Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
redish brn tuft	0	27	
lt tan tuft	27	49	
lt gray congl fine	49	71	
brn congl fine	71	97	
white pumice	97	103	
med gravel caving	103	114	
gray basalt	114	158	
med gravel caving	158	167	
gray basalt w/crevices	167	185	
5 yds concrete 63-185			
gravel caving	185	204	
gray basalt brkn	204	220	
no return-2 yds 187-246	220	252	
gray basalt	252	289	
redish brn basalt	289	299	
voids no return-2 yds-291/308	299	305	
gravel caving (WB)	305	328	304
gray basalt (WB)	328	335	
gravel ? caving	335	340	

Work started 10/4 19 80 Completed 10/14 19 80
Date well drilling machine moved off of well 10/14 19 80

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] John W. Johnson (Drilling Machine Operator) Date 10/15 19 80
Drilling Machine Operator's License No. 1039

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Johnson Well Drilling (Person, firm or corporation) (Type or print)
Address 3626 NW Coyner Redmond, Ore
[Signed] John W. Johnson (Water Well Contractor)
Contractor's License No. 595 Date 10/15, 19 80

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

SP*12658-690