Groundwater Application Review Summary Form

Application # G- 18768

GW Reviewer Joe Kemper **Date Review Completed:** 8/20/2019

Summary of GW Availability and Injury Review:

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

Summary of Potential for Substantial Interference Review:

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

Summary of Well Construction Assessment:

[ ] The well does not appear to meet current well construction standards per Section D of the attached review form. ✓ Route through Well Construction and Compliance Section. JK 8/20/19

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 August 20, 2019

TO: **Application G-** 18768

FROM: **GW:** Joe Kemper
(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-18768

Date: September 6, 2019

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

Applicant's Well #1 (CURR 1433): Based on a review of the Well Report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The Well Report does not indicate the amount of cement grout used to fill the annular seal. In order to meet the minimum construction standards, the annular space of the well must be re-drilled and resealed with an approved grout.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (CURR 1433) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 (CURR 1433) into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

Applicant's Well #2 (CURR 50232): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

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

Applicant's Well #3 (CURR 1627): Based on a review of the Well Report, Applicant's Well #3 seems to protect the groundwater resource.

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

Applicant's Wells #4 (CURR 979): Based on a review of the Well Report, Applicant's Well #4 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The well report indicates that the top terminal height of the well casing is at land surface. In order to meet minimum well construction standards, the permanent casing must be extended to at least twelve inches above the finished ground surface or pump house floor, and a minimum of twelve inches above the local surface runoff level.

My recommendation is that the Department **not issue** a permit for Applicant's Well #4 (CURR 979) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #4 (CURR 979) into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

14

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

CURR 1433

RECEIVED
JUL - 1 1992
WATER RESOURCES DEPT
SALEM, OREGON

31S/15W/32aa

(START CARD) # 33107

(1) OWNER: Well Number:
Name Robert McKenzie
Address 92619 Airport Rd
City Sides State OR Zip 97476

(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:
Special Construction approval Yes ☐ No ☑ Depth of Completed Well 60 ft.
Explosives used Yes ☐ No ☑ Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
9	0	20	cement	20	0	
6 1/2	20	60				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from 20 ft. to 60 ft. Size of gravel pea gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	4 1/2	+2	40	SDR26	☐	☐	☑	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

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

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
40	60	.010			4 1/2	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

Yield gal/min	Drawdown	Drill stem at	Time
30	5'		1 hr.

Temperature of water 52° 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 Curry Latitude Longitude
Township 31 N or S Range 15 E or W WM.
Section 32 NE ¼ NE ¼
Tax Lot 100 Lot Block Subdivision
Street Address of Well (or nearest address) Airport Rd

(10) STATIC WATER LEVEL:
18 ft. below land surface. Date 6/4/92
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 12'

From	To	Estimated Flow Rate	SWL
38	60	30 tgpm	18

(12) WELL LOG: Ground elevation

Material	From	To	SWL
Brown sandy clay	0	8	
Brown Fine Sand	8	24	
Blue Fine Sand	24	38	
Blue course sand	38	60	18

Date started 6/4/92 Completed 6/5/92

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

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1361
Signed Kim Murray Date 6/28/92

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 3/88

CURRY 50232

RECEIVED
SEP 24 1997
WATER RESOURCES DEPT
SALEM, OREGON

STATE OF OREGON
WATER SUPPLY WELL REPORT (as required by ORS 537.765)
WELL I.D.# L06731
(START CARD) # 90327
Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number
Name ROBERT MCKENZIE
Address PO Box 362
City PORT ORFORD State OR Zip 97465

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

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

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [X] No Depth of Completed Well 104 ft.
Explosives used [ ] Yes [X] No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	20	BENTONITE	0	20	13
6"	20	104				

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other POURED DRY
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"	+2	84	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
[ ] Perforations Method
[X] Screens Type TELE Material STAINLESS

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
84	94	.010	10	5 3/4	6"	[X]	[ ]
94	99	.020	5'	5 3/4	6"	[X]	[ ]
99	104	.030	5'	5 3/4	6"	[X]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

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

Yield gal/min	Drawdown	Drill stem at	Time
60		104	1 hr.

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? [X] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other
Depth of strata: 12-64'

(9) LOCATION OF WELL by legal description:
County CURRY Latitude Longitude
Township 31 N or [X] S Range 15 E or [X] W WM.
Section 32 NW 1/4 NE 1/4
Tax Lot 200 Lot Block Subdivision
Street Address of Well (or nearest address) 92935 AIRPORT RD SIXES OR

(10) STATIC WATER LEVEL:
17' ft. below land surface. Date 9-2-97
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 12'

From	To	Estimated Flow Rate	SWL
12	64	30	12
69	104	60	17'

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
ROAD FILL	0	6	
BROWN SAND	6	18	12
BLACK CLAY W/WOOD+GRAVEL	18	23	12
BROWN SAND	23	64	12
BLACK CLAY	64	69	
BROWN SAND	69	82	17
BLACK SAND	82	90	17
BLACK SAND W/GRAVEL	90	97	17
BLACK SAND W/GRAVEL + SHELLS	97	104	17

Date started 8-28-97 Completed 9-2-97

(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
Signed Date

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1604
Signed Date 9-21-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

RECEIVED
APR 19 1994
WATER RESOURCES DEPT
SALEM, OREGON

Clerk 1627

31S/15W/32

(START CARD) # 63539

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number
Name McKenzie Cranberries Inc.
Address 92619 Airport Road
City Sixes State Or Zip 97476

(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 100 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
14"	0	100	Cement	0	20	12

How was seal placed: Method ☐ A ☒ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from 99 ft. to 20 ft. Size of gravel ¼"

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	8"	+1	69	.250	☒	☐	☒	☐
	8"	89	99	.250	☒	☐	☐	☐
Liner:					☐	☐	☐	☐

Final location of shoe(s)

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

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
69'	89'	1200	8"x20'			☐	☐

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

Yield gal/min	Drawdown	Drill stem at	Time
20		94	1 hr.

Temperature of water 50 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 Curry Latitude Longitude
Township 31S N or S Range 15W E or W. WM.
Section 32 1/4 1/4
Tax Lot 100 Lot Block Subdivision
Street Address of Well (or nearest address) 92619 Airport Road

(10) STATIC WATER LEVEL:
11 ft. below land surface. Date 3/16/94
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 44'

From	To	Estimated Flow Rate	SWL
44'	100'	20	11

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Blow Sand & Clay	0	18	
Brown Hardpan	18	20	
Blow Sand & Clay	20	44	
Black Sand	44	100	11xx
8" Casing from +1 to 69' -	8"x20'x1200	slot	
Stainless well screen from	69' to 89'		
8" Casing from 89' to 99'			
Gravel pack from 99' to 20' - ¼"	Gravel		
Approx. 5 yd.			

Date started 3/25/94 Completed 3/26/94

(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 709
Signed G. L. Meyer Well Drilling Date 4/16/94

(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 709
Signed G. L. Meyer Well Drilling Date 4/16/94

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

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.

CURR 000979

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

State Well No. 31s/15w-32bd

State Permit No.

(1) OWNER:
Name Bob McKenzie
Address Box 187
Port Orford Ore97465

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

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
[ ] Jetted [ ]
[ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [X] Test Well [ ] Other [ ]

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
8 " Diam. from 0 ft. to 25'-2" ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? [ ] Yes [X] 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? [X] Yes [ ] No
Manufacturer's Name Johnson
Type Stainless steel Model No. telescope
Diam. 8 Slot size .050 Set from 24'-3" ft. to 30'-4" ft.
Diam. 8 Slot size .010 Set from 30'-4" ft. to 35'-4" ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
r test 30 gal./min. with 5 ft. drawdown after 1 hrs.
sian flow g.p.m.
Temperature of water 52 Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 18 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 12 sacks
How was cement grout placed? Pumped via tremie pipe

Was a drive shoe used? [ ] Yes [X] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Curry Driller's well number
SE ¼ NW ¼ Section 32 T. 31S R. 15W W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 18 ft.
Static level 9'-6" ft. below land surface. Date 4-7-80
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 0
Depth drilled 73 ft. Depth of completed well 35½ 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
Sandy soil brown	0	4	
Sand medium tan	4	14	
Clay dark brown with wood	14	18	
Gravel fine blue	18	30½	
Sand medium brown	30½	38	
Sand very fine brown	38	50	
Silt blue	50	64	
Silt with shell blue	64	67	
Claystone gray	67	---	

Back filled from 35 to 67 feet with clean pea gravel, before setting sand screen.

RECEIVED
APR 23 1980
WATER RESOURCES DEPT
SALEM, OREGON

Work started 4-2 1980 Completed 4-7 1980
Date well drilling machine moved off of well 4-7 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] Andrew Miller (Drilling Machine Operator) Date 4-9, 1980
Drilling Machine Operator's License No. 469

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 Bill Miller Well Drilling (Person, firm or corporation) (Type or print)
Address Route 1, Box 1115 Bandon, Ore 97411
[Signed] Andrew Miller (Water Well Contractor)
Contractor's License No. 600 Date 4-9, 1980

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/20/2019

FROM: Groundwater Section Joe Kemper
Reviewer's Name

SUBJECT: Application G- 18768 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: **McKenzie Cranberries Inc.** County: **Curry**

A1. Applicant(s) seek(s) 1.07 cfs from 4 well(s) in the South Coast Basin, Sixes River subbasin

A2. Proposed use Cranberry 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	CURR 1433	1	Sediment*	0.267	31S/15W-32 NW-NE	55' S, 1285' W fr NE cor, S32
2	CURR 50232	2	Sediment*	0.267	31S/15W-32 NW-NE	605' S, 1285' W fr NE cor, S32
3	CURR 1627	3	Sediment*	0.267	31S/15W-32 NW-NE	548' S, 2540' W fr NE cor, S32
4	CURR 979	4	Sediment*	0.267	31S/15W-29 SE-SW	672' N, 2550' W fr NE cor, S32

* 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	176	12	18	6/4/1992	60	0-20	0-40	na	40-60	30	5	Pump
2	177	12	17	9/2/1997	104	0-20	0-84	na	84-104	60	-	Air
3	177	44	11	3/16/1994	100	0-20	0-99	na	69-89	20	-	Air
4	176	18	9.5	4/7/1980	73	0-18	0-25	na	324-35	30	5	Bailer

Use data from application for proposed wells.

A4. **Comments:** The applicant's wells access an aquifer system hosted in the unconsolidated sediments of the Pleistocene-aged Pioneer terrace. These wells may penetrate the upper extent of the Miocene-aged sandstone of Floras Lake (Wiley et al., 2014), but this poorly indurated sandstone likely has an effective hydraulic connection with the overlying sediments. These wells are assumed to access a single cohesive aquifer system.

A5. ☒ **Provisions of the** South Coast (OAR 690-517) 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: There are no such provisions.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: _____

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

a. ☐ **is** over appropriated, ☒ **is not** over appropriated, *or* ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;

c. ☐ **will not** *or* ☐ **will** likely to be available within the capacity of the groundwater resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:
   i. ☒ The permit should contain condition #(s) **7C (7-yr); Large Water-Use Reporting**;
   ii. ☐ The permit should be conditioned as indicated in item 2 below.
   iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

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

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

c. ☐ **Condition** to allow groundwater production only from the _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;

d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

B3. **Groundwater availability remarks:** The applicant's wells access an aquifer system hosted in the unconsolidated sediments of the Pleistocene-aged Pioneer terrace. These wells may penetrate the upper extent of the Miocene-aged sandstone of Floras Lake (Wiley et al., 2014), but this poorly indurated sandstone likely has an effective hydraulic connection with the overlying sediments. These wells are assumed to access a single cohesive aquifer system.

Water levels in wells are typically shallow (typically between 5-20 feet bls) with seasonal fluctuations between 5 and 25 feet. Water level records in adjacent wells show no clear evidence for systemic declines (see Figure 3). There are several valid POAs within 500-1000 feet of the applicant's wells, but the potential for significant interference is relatively low in this unconfined, moderately transmissive aquifer system. Additionally, Department is not currently aware of interference/injury complaints in this area.

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	**Sediments of the Pioneer Terrace**	☐	☒
2	**Sediments of the Pioneer Terrace**	☐	☒
3	**Sediments of the Pioneer Terrace**	☐	☒
4	**Sediments of the Pioneer Terrace**	☐	☒

Basis for aquifer confinement evaluation: The Pioneer Terrace consists of unconsolidated sediments, primarily sands with some gravel and silt. Despite some indications of local confinement (increased yield with depth, reported SWLs higher than "first water" on well logs), the aquifer system as a whole is unconfined.

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**	**Boulder Creek**	**153.5**	**65**	**4750**	☒	☐	☐	☐	☒
2	**1**	**Boulder Creek**	**160.5**	**65**	**5150**	☒	☐	☐	☐	☒
1	**2**	**Unnamed trib. to Floras Lake**	**153.5**	**99**	**4625**	☒	☐	☐	☐	☒
2	**2**	**Unnamed trib. to Floras Lake**	**160.5**	**99**	**5150**	☒	☐	☐	☐	☒
3	**2**	**Unnamed trib. to Floras Lake**	**166**	**99**	**4850**	☒	☐	☐	☐	☒
4	**2**	**Unnamed trib. to Floras Lake**	**166.5**	**99**	**3650**	☒	☐	☐	☐	☒
1	**3**	**Unnamed trib. to Sixes River**	**153.5**	**150**	**4860**	☒	☐	☐	☐	☒
2	**3**	**Unnamed trib. to Sixes River**	**160.5**	**150**	**4450**	☒	☐	☐	☐	☒
3	**3**	**Unnamed trib. to Sixes River**	**166**	**150**	**3730**	☒	☐	☐	☐	☒
4	**3**	**Unnamed trib. to Sixes River**	**166.5**	**150**	**4830**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Water levels in wells are higher than adjacent streams that have incised into terrace sediments. This indicates that groundwater is flowing towards and discharging to surface water.

Water Availability Basin the well(s) are located within: Wells 1 & 2 are located within BOULDER CR > FLORAS L - AT MOUTH; wells 3 & 4 are located within UNN STR > FLORAS L - AT MOUTH (#31730608). These WABs and SIXES R > PACIFIC OCEAN - AT MOUTH are considered for Division 9 analysis.

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**	☐	☐	**na**	**na**	☐	**0.34**	☒	**<25%**	☒
2	**1**	☐	☐	**na**	**na**	☐	**0.34**	☒	**<25%**	☒
1	**2**	☐	☐	**na**	**na**	☐	**0.04**	☒	**<25%**	☒
2	**2**	☐	☐	**na**	**na**	☐	**0.04**	☒	**<25%**	☒
3	**2**	☐	☐	**na**	**na**	☐	**0.04**	☒	**<25%**	☒
4	**2**	☐	☐	**na**	**na**	☐	**0.04**	☒	**<25%**	☒
1	**3**	☐	☐	**na**	**na**	☐	**17.7**	☐	**<25%**	☐
2	**3**	☐	☐	**na**	**na**	☐	**17.7**	☐	**<25%**	☐

3	3	☐	☐	na	na	☐	17.7	☐	<25%	☐
4	3	☐	☐	na	na	☐	17.7	☐	<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?
	1		☐	na	na	☐	0.34	☒	<25%	☒
	2		☐	na	na	☐	0.04	☒	<25%	☒
	3		☐	na	na	☐	17.7	☐	<25%	☐
			☐			☐		☐		☐

Comments: Interference with surface water is estimated using the Hunt (1999) stream depletion model using a parameter range representative of the local geology. Results are presented in Figure 4.

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												
(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: No streams beyond 1 mile were evaluated for PSI as section C3a is a more rigorous analysis.

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:** The applicant's proposed POAs would produce from an aquifer that has been determined to be hydraulically connected to surface water sources. The proposed cumulative and POA-specific rates are greater than the adopted minimum streamflow in two pertinent WABs. As a result, the proposed use/rates are assumed to have the Potential for Substantial Interference (PSI) as per OAR 690-009.

References Used:

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

OWRD Groundwater Site Information System Database – Accessed 8/20/2019.

Theis, C. V., 1935, Relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage : Am. Geophys. Union Trans., pt. 2, p. 519-524 ; dupl. as U.S . Geol. Survey Ground Water Note 5, 1952

Wiley, T., McClaughry, J., Ma, L., Mickelson, K., Niewendorp, C., Stimely, L., Rivas, J. (2014). Geologic map of the southern Oregon coast between Port Orford and Bandon, Curry and Coos Counties, Oregon (No. O-14-01). DOGAMI.

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.**

Figure 1. Water Availability Tables

Water Availability Analysis
Detailed Reports

SIXES R > PACIFIC OCEAN - AT MOUTH
SOUTH COAST BASIN

Water Availability as of 8/15/2019

Watershed ID #: 70877 (Map)
Date: 8/15/2019

Exceedance Level: 80%
Time: 9:22 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	290.00	6.14	284.00	0.00	325.00	-41.10
FEB	433.00	6.58	426.00	0.00	325.00	101.00
MAR	395.00	6.36	389.00	0.00	325.00	63.60
APR	262.00	4.85	257.00	0.00	325.00	-67.80
MAY	115.00	2.37	113.00	0.00	322.00	-209.00
JUN	51.20	3.93	47.30	0.00	190.00	-143.00
JUL	30.60	5.73	24.90	0.00	125.00	-100.00
AUG	21.20	4.54	16.70	0.00	104.00	-87.30
SEP	17.00	2.82	14.20	0.00	74.90	-60.70
OCT	17.70	1.71	16.00	0.00	215.00	-199.00
NOV	83.60	2.28	81.30	0.00	325.00	-244.00
DEC	293.00	6.29	287.00	0.00	325.00	-38.30
ANN	265,000.00	3,230.00	262,000.00	0.00	180,000.00	121,000.00

Water Availability Analysis
Detailed Reports

UNN STR > FLORAS L - AT MOUTH
SOUTH COAST BASIN

Water Availability as of 8/15/2019

Watershed ID #: 31730608 (Map)
Date: 8/15/2019

Exceedance Level: 80%
Time: 9:20 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	1.38	1.51	-0.13	0.00	0.00	-0.13
FEB	2.23	1.64	0.59	0.00	0.00	0.59
MAR	1.89	1.47	0.42	0.00	0.00	0.42
APR	1.02	1.15	-0.13	0.00	0.00	-0.13
MAY	0.36	1.09	-0.73	0.00	0.00	-0.73
JUN	0.15	0.26	-0.11	0.00	0.00	-0.11
JUL	0.09	0.41	-0.32	0.00	0.00	-0.32
AUG	0.06	0.33	-0.27	0.00	0.00	-0.27
SEP	0.04	1.14	-1.10	0.00	0.00	-1.10
OCT	0.04	1.01	-0.97	0.00	0.00	-0.97
NOV	0.23	1.04	-0.81	0.00	0.00	-0.81
DEC	1.18	1.50	-0.32	0.00	0.00	-0.32
ANN	1,320.00	756.00	739.00	0.00	0.00	739.00

Water Availability Analysis
Detailed Reports

BOULDER CR > FLORAS L - AT MOUTH
SOUTH COAST BASIN

Water Availability as of 8/15/2019

Watershed ID #: 31730607 (Map)
Date: 8/15/2019

Exceedance Level: 80%
Time: 9:22 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	6.06	1.86	4.20	0.00	0.00	4.20
FEB	9.57	2.25	7.32	0.00	0.00	7.32
MAR	8.27	1.51	6.76	0.00	0.00	6.76
APR	4.66	0.91	3.75	0.00	0.00	3.75
MAY	1.72	0.43	1.29	0.00	0.00	1.29
JUN	0.86	0.27	0.59	0.00	0.00	0.59
JUL	0.61	0.42	0.19	0.00	0.00	0.19
AUG	0.46	0.34	0.12	0.00	0.00	0.12
SEP	0.35	0.26	0.09	0.00	0.00	0.09
OCT	0.34	0.13	0.21	0.00	0.00	0.21
NOV	1.63	0.45	1.18	0.00	0.00	1.18
DEC	5.49	1.72	3.77	0.00	0.00	3.77
ANN	5,890.00	633.00	5,250.00	0.00	0.00	5,250.00

Figure 2. Well Location Map

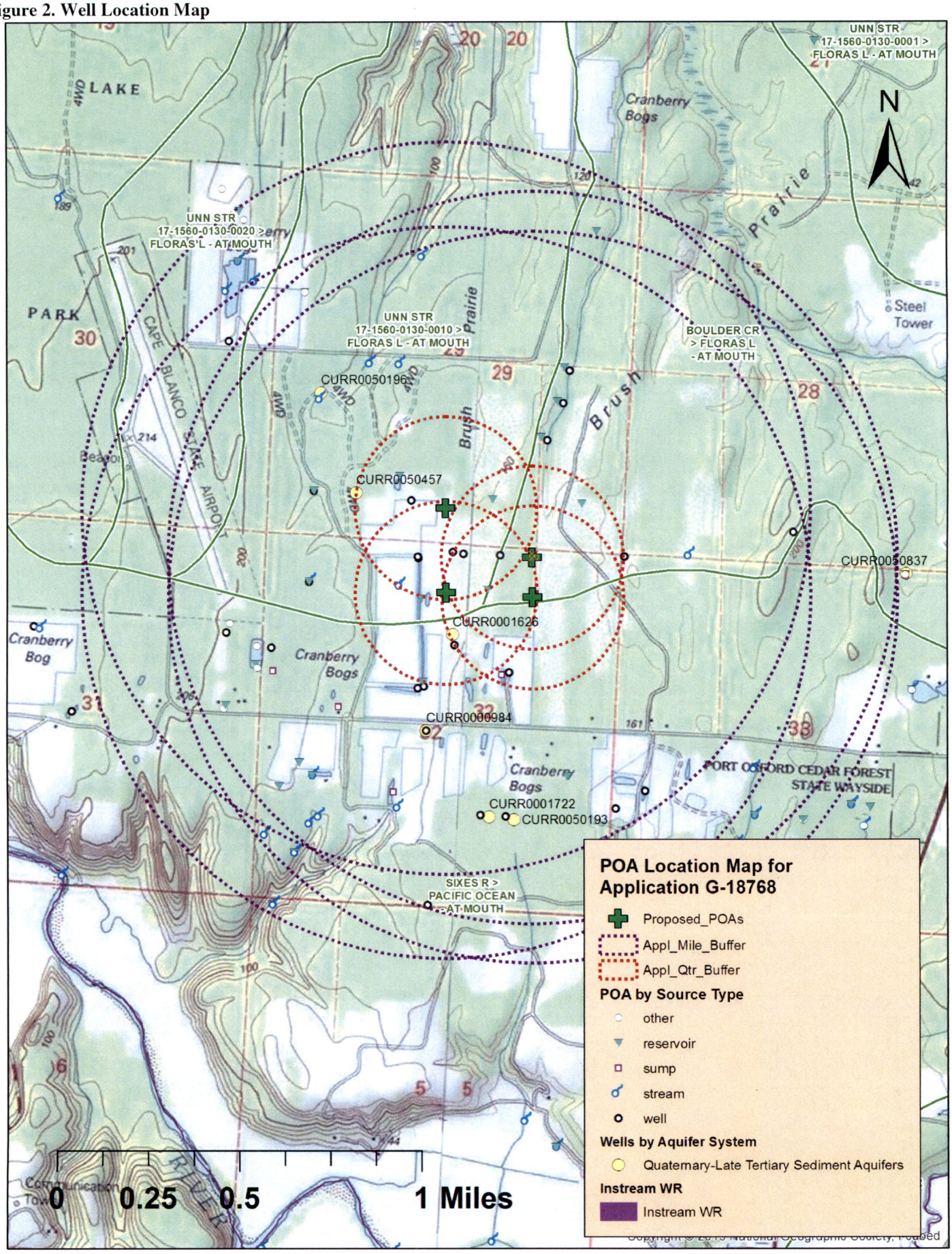

Figure 3. Water-Level Trends in Nearby Wells

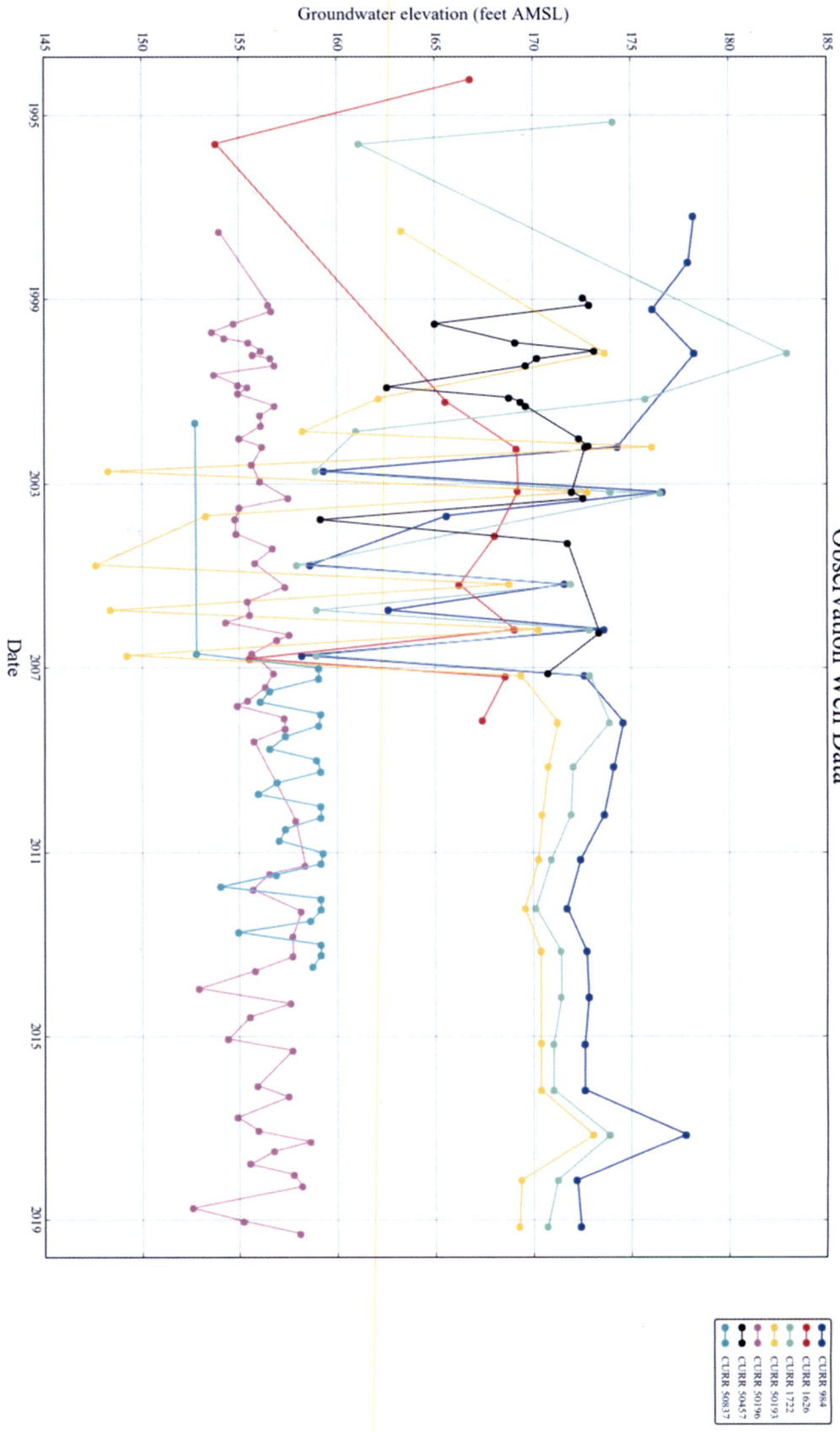

Figure 4. Stream Depletion Model Parameters and Results (Hunt, 1999)

Application type:	G
Application number:	18768
Well number:	4
Stream Number:	2
Pumping rate (cfs):	0.267
Pumping duration (days):	244
Pumping start month number (3=March)	3

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3650	3650	3650	ft
Aquifer transmissivity	T	100	1000	5000	ft2/day
Aquifer storativity	S	0.1	0.05	.01	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		1	1	1	
Aquitard thickness below stream	babs	10	5	3	ft
Not used		1	1	1	
Stream width	ws	10	25	50	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	0	6	6	0	0	0	1	2	2	3	4	5	5
Depletion (cfs)	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01