

MEMO

OK
HJ

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator,
Subject: Review of Water Right Application G-18759
Date: April 11, 2019

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

Kurth Well #1 (CLAC 68175): Based on a review of the Well Report, Kurth Well #1 appears to protect the groundwater resource.

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

Kurth Well #2 (CLAC 72023): Based on a review of the Well Report, Kurth Well #2 appears to protect the groundwater resource.

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

White Well #1 (CLAC 62437): Based on a review of the Well Report, White Well #1 appears to protect the groundwater resource.

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

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

(WELL I.D.)# L 72471
(START CARD) # 168792

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

(1) OWNER: Well Number 1
Name Elsinore Development Group LLC
Address 19480 SW 97th Ave
City Tualatin State OR Zip 97062

(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 96 ft.
Explosives used Yes No Type _____ Amount _____

HOLE			SEAL			Sacks or pounds
Diameter	From	To	Material	From	To	
14	0	18	cement	0	18	30sks
10	18	122				

How was seal placed: Method A B C D E
 Other _____
Backfill placed from 96 ft. to 122 ft. Material slough
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 10	+1.6	97.8	.250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) 97

(7) PERFORATIONS/SCREENS:

Perforations Method Mills Knife
 Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
69	76	3/8x3	72			<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
100	38		1 hr.
100	48		9 hr

Temperature of water -55F Depth Artesian Flow Found _____
Was a water analysis done? Yes By whom _____
Did any strata contain water not suitable for intended use? No Little
 Salty Muddy Odor Colored Other _____
Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County Clackamas Latitude _____ Longitude _____
Township 3 S Range 1 W WM.
Section 28 SW 1/4 SW 1/4
Tax Lot 1201 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) near 24884 Butteville Rd NE

(10) STATIC WATER LEVEL:
3 ft. below land surface. Date 5/22/06
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 41

From	To	Estimated Flow Rate	SWL
41	43	10+/-	3+/-
53	56	10+/-	3+/-
70	75	see (8)	3+/-

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
top soil, brown	0	2	
Clay, brown, soft	2	8	
Clay, grey, soft	8	18	
Clay, grey, soft, silty-sandy	18	41	
Gravel, 1" - & sand, med-coarse	41	43	
Clay, blue-grey, soft, sandy	43	53	
Gravel, 1.5" - & clay, grey, med, sandy	53	56	
Clay, blue-grey, med & some hard	56	64	
Clay, green, med, sandy w/some gravel, sm	64	69	
Clay, grey, hard	69	70	
Gravel, 2" - & sand, med-crse	70	75	
Clay, grey & brown, med	75	81	
Clay, blue, med w/some gravel, 1" -	81	85	
Clay, grey & brown, med	85	104	
Clay, grey, med-soft	104	108	
Clay, grey, med-soft	108	122	

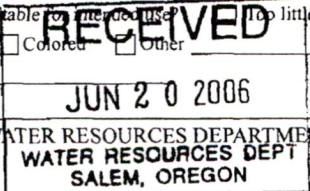
Date started 4/17/06 Completed 5/22/06

(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 1367
Date 6/19/06

(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 649
Date 6/19/06



CLAC 72023

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

WELL I.D. LABEL# 120676
START CARD # 1028642
ORIGINAL LOG #

(1) LAND OWNER Owner Well I.D. 5601
 First Name _____ Last Name _____
 Company Mayfield Farm
 Address 9955 SW Potano St.
 City Tualatin State OR Zip 97062

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

(2a) PRE-ALTERATION
 Dia + From To Gauge Stl Plstc Wld Thrd
 Casing:
 Material From To Amt sacks/lbs
 Seal: _____

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

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

(5) BORE HOLE CONSTRUCTION Special Standard (Attach copy)
 Depth of Completed Well 170 ft.

BORE HOLE			SEAL			sacks/
Dia	From	To	Material	From	To	Amt lbs
18	0	30	Cement	1	30	31 S
16	30	120			Calculated	25
10	120	170	Bentonite	0	1	2 S
					Calculated	1.5

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

Backfill placed from _____ ft. to _____ ft. Material _____
 Filter pack from 30 ft. to 120 ft. Material Silica sand Size 10/20

Explosives used: Yes Type _____ Amount 270 sacks

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

(6) CASING/LINER
 Casing Liner Dia + From To Gauge Stl Plstc Wld Thrd

<input checked="" type="checkbox"/>	<input type="checkbox"/>	12	<input checked="" type="checkbox"/>	2	52	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	12	<input type="checkbox"/>	112	120	250	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

 Shoe Inside Outside Other Location of shoe(s) _____
 Temp casing Yes Dia 16 From 0 To 120

(7) PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Type V wire Material Stainless

Perf/S	Casing/Screen	Liner	Dia	From	To	Scr/slot width	Slot length	# of slots	Tele/pipe size
Screen			12	52	72		.035		
Screen			12	72	112		.04		

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

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1,100	70		4

 Temperature 52 °F Lab analysis Yes By _____
 Water quality concerns? Yes (describe below) TDS amount 170

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
 County CLACKAMAS Twp 3 S N/S Range 1 W E/W WM
 Sec 28 SW 1/4 of the SE 1/4 Tax Lot 1300
 Tax Map Number _____ Lot _____
 Lat _____ " or _____ DMS or DD
 Long _____ " or _____ DMS or DD
 Street address of well Nearest address
24902 NE Butteville Rd. - Aurora, OR 97002

(10) STATIC WATER LEVEL

Existing Well / Pre-Alteration	Date	SWL(psi)	+ SWL(ft)
Completed Well	02-03-2016		<input checked="" type="checkbox"/> 4

 Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found 30

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
01-12-2016	50	110	1,200		<input checked="" type="checkbox"/> 4
01-13-2016	30	50	20		<input checked="" type="checkbox"/> 4

(11) WELL LOG Ground Elevation _____

Material	From	To
Topsoil	0	2
Brown clay	2	10
Blue gray clay with silt	10	30
Blue clay with fine sand	30	50
Blue clay with strips of sand & gravel	50	70
Black sand & gravel	70	110
Brown clay	110	135
Brown clay with cemented sand	135	170

RECEIVED BY OWRD

JONES DRILLING CO., INC.
29400 SANTIAM HWY.
LEBANON, OR 97355
541-367-2560 541-451-2686
1-800-915-8388

FEB 12 2016
SALEM, OR

Date Started 01-12-2016 Completed 02-03-2016

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

License Number 1888 Date 02-10-2016
 Signed _____

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

License Number 1684 Date 02-10-2016
 Signed _____
 Contact Info (optional) jonesdrilling@hotmail.com

CLAC 68175

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

WELL LABEL # L 100768
 START CARD # 201161

(1) LAND OWNER Owner Well I.D. _____
 First Name _____ Last Name _____
 Company Mayfield Farm, LLC
 Address 9955 SW Potano
 City Tualatin State OR Zip 97062

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

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

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

(5) BORE HOLE CONSTRUCTION Special Standard Attach copy)
 Depth of Completed Well 116 ft.

BORE HOLE			SEAL			sacks/ lbs	
Dia	From	To	Material	From	To	Amt	
16	0	51	Cement	0	51	22	S
12	51	116					

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

Backfill placed from 51 ft. to 52 ft. Material chip bent. & sand
 Filter pack from 38 ft. to 116 ft. Material CSSI Size 20/40
 Explosives used: Yes Type _____ Amount _____

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12		1	52	.375	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8		2	71	.25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8		105	116	.25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Shoe Inside Outside Other Location of shoe(s) 52
 Temp casing Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Type v-wire wrap Material 304SS

Perf/S	Casing/Screen	Screen	From	To	Scrns/slot width	Slot length	# of slots	Tele/ pipe size
Screen		8	71	105	.04			PS

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
 Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)

95	12		3
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Temperature 54 °F Lab analysis Yes By _____
 Water quality concerns? Yes (describe below)

From	To	Description

(9) LOCATION OF WELL (legal description)
 County CLACKAM Twp 3 S N/S Range 1 W E/W WM
 Sec 28 SW 1/4 of the SE 1/4 Tax Lot 1400
 Tax Map Number 31W28D Lot _____
 Lat _____ " or _____ DMS or DD
 Long _____ " or _____ DMS or DD
 Street address of well Nearest address

25000 Butteville Rd NE, Aurora, OR 97002

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+ SWL(ft)
Completed Well	08-19-2011		3

Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found 69

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
08-19-2011	69	104	300		3

(11) WELL LOG Ground Elevation _____

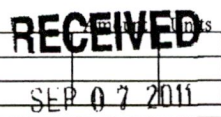
Material	From	To
Top soil	0	3
Clay, brown, medium	3	8
Clay, blue-grey, medium-soft	8	22
Clay, blue-grey, soft, silty	22	43
Gravel, 1/2" - & sand, blk, fine & clay, grey-grn, soft	43	46
Clay, green-grey-brown, med. w/some cementation	46	60
Clay, green w/brn, med w/cem. & occ. gravel, 3/8"	60	69
Gravel, 3" - & sand, greenish black, fine-medium	69	82
Gravel, 3" - & sand, greenish black, medium	82	91
Gravel, 3" - & sand, black, medium	91	104
Clay, green-grey w/brown, some cem. & grvl, 1/4"	104	108
Clay, brown, med, some cem. & grvl, 1/8"	108	116

Two pack sizes used:
 10x20 38 80+
 8x12 80+ 116

Date Started 07-11-2011 Completed 08-19-2011

(unbonded) Water Well Constructor Certification
 I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
 License Number 1860 Date 09-07-2011
 Password: (if filing electronically) _____
 Signed Susan J...

(bonded) Water Well Constructor Certification
 I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
 License Number 649 Date 09-07-2011
 Password: (if filing electronically) _____
 Signed Stephen J. Schmidt
 Contact Info (optional) _____



Groundwater Application Review Summary Form

Application # G- 18759

GW Reviewer Travis Brown, Dennis Orłowski Date Review Completed: 3/22/2019

Summary of GW Availability and Injury Review:

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

Summary of Potential for Substantial Interference Review:

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

Summary of Well Construction Assessment:

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

✓
SI 3/28/19

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 3/22/2019
 FROM: Groundwater Section Travis Brown, Dennis Orlowski
 Reviewer's Name
 SUBJECT: Application G- 18759 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: Mayfield Farm, LLC County: CLACKAMAS

- A1. Applicant(s) seek(s) 0.37 cfs from 3 well(s) in the Willamette River Basin,
 _____ subbasin
- A2. Proposed use Irrigation Seasonality: March 1 – October 31
- A3. Well and aquifer data (**attach and number logs for existing wells; mark proposed wells as such under logid**):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	CLAC 68175	Kurth Well 1	Alluvium	0.37 ^a	3S/1W-28 SW-SE	665' N, 1770' W fr SE cor S 28 ^b
2	CLAC 72023	Kurth Well 2	Alluvium	0.37 ^a	3S/1W-28 SW-SE	685' N, 1600' W fr SE cor S 28 ^b
3	CLAC 62437	White Well 1	Alluvium	0.37 ^a	3S/1W-28 SW-SW	30' N, 1200' E fr SW cor S 28 ^b

* 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	96	69	3	8/19/2011	116	0-51	1-52	2-71 105-116	71-105	95	12	Pump
2	96	30	4	2/3/2016	170	0-30	0-52 112-120		52-112	1,100	70	Pump
3	99	41	2.40	3/7/2016	122	0-18	0-97.8		69-76	100	48	Pump

Use data from application for proposed wells.

- A4. **Comments:** The proposed POA/POU are located in the mainstem Willamette River Basin ~1.3-1.8 miles southwest of the City of Wilsonville, Oregon. The proposed use is for irrigation of ~29.5 acres of grass pasture.

^a Application does not specify well-specific rate. Evaluation based on total maximum rate requested (0.37 cfs / ~166 gpm).

^b There appears to be a ~70-95 ft (angular) discrepancy between the Public Land Survey System (PLSS) projection used in the Application map and that used by the Department. Metes-and-bounds location descriptions from the Application are listed in the table above. All proposed POA appear to be already certificated as POA for other water rights; therefore, it is not anticipated that the metes-and-bounds location descriptions for these locations are likely to change. If such a change did occur, however, a revised groundwater review would *not* be required for the new locations.

- 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 further than ¼-mile from the nearest surface water source (Willamette River); 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: N/A
 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-years of measurement), 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 _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;
- d. **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

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

B3. **Groundwater availability remarks:** **Groundwater for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding rates of recharge and the current quantity of groundwater withdrawals from the aquifer system.**

The proposed POA are completed in the younger alluvium of the Willamette River floodplain. The proposed POA produce water from saturated sands and gravels between ~30 and ~110 ft below land surface (bls). Due to the POA's proximity to the Willamette River, it is presumed that water levels in the alluvial aquifer in this area will be strongly influenced by the seasonal discharge of the Willamette River. Water levels measured annually in POA 3/CLAC 62437 since 2008 do not indicate a declining trend overall (see Hydrograph – CLAC 62437, attached).

It is recommended that the permit conditions detailed in B1(d)(i) above – which are already required for these POA per Permit G-17974 – be applied to future use of these POA as requested by this application.

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Alluvium	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Alluvium	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Reported static water levels were within 5 ft of land surface and above the noted water-bearing zones in all 3 POA. Greater than 25 ft of fine-grained sediments (clay/silt) were noted overlying the water-bearing zones in all 3 POA. Bulk well statistics for nearby water wells completed in the alluvium also indicate water levels above noted water-bearing zones. Therefore, based on the available evidence, the alluvial aquifer in this area appears to be confined.

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?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Willamette River	~93-97	60-65	2,040	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Willamette River	~93-97	60-65	2,050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	1	Willamette River	~93-97	60-65	2,175	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Groundwater elevations reported in the proposed POA are above the surface water elevation in SW 1 (Willamette River), indicating that local groundwater is discharging to surface water. Bathymetric data on the Willamette River also indicates that the river has incised beneath the elevation of the shallowest water-bearing zones noted on the well logs for the proposed POA (USGS, 2002). Therefore, the hydraulic connection between the local alluvial aquifer and the Willamette River is anticipated to be very efficient.

Water Availability Basin the well(s) are located within: SW 1: WILLAMETTE R > COLUMBIA R – AB MOLALLA R

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	<input type="checkbox"/>	<input type="checkbox"/>	MF182A	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25 %	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	MF182A	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25 %	<input type="checkbox"/>
3	1	<input type="checkbox"/>	<input type="checkbox"/>	MF182A	1,500	<input type="checkbox"/>	3,830	<input type="checkbox"/>	<25 %	<input type="checkbox"/>

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.

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?
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: C3a: Potential depletion of SW 1 (Willamette River) due to pumping of the proposed POA was estimated using the Hunt 2003 analytical 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 – SW 1" for the specific parameters used in the analysis.

Based on the preponderance of evidence, the Hunt 2003 analytical model results indicate that depletion of (interference with) SW 1 due to pumping of the proposed POA is anticipated to be less than 25 percent of the well discharge at 30 days of continuous pumping.

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: Not Applicable

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:** None

References Used:

Application File: G-18759

Transfer Files: T-12073, T-12490

Pumping Test Files: CLAC 8661, MARI 154, MARI 160, MARI 163

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Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

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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.

Tolan, T.L., 2003, Geologic log for CLAC 59817 (NWIS Site ID: 451937122205201), U.S. Geological Survey, November 21.

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United States Geological Survey, 2002, Willamette River Bathymetric Survey. https://or.water.usgs.gov/projs_dir/will_tmdl/main_stem_bth.html. Accessed March 14, 2019.

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

United States Geological Survey, 2017, *Sherwood 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:**

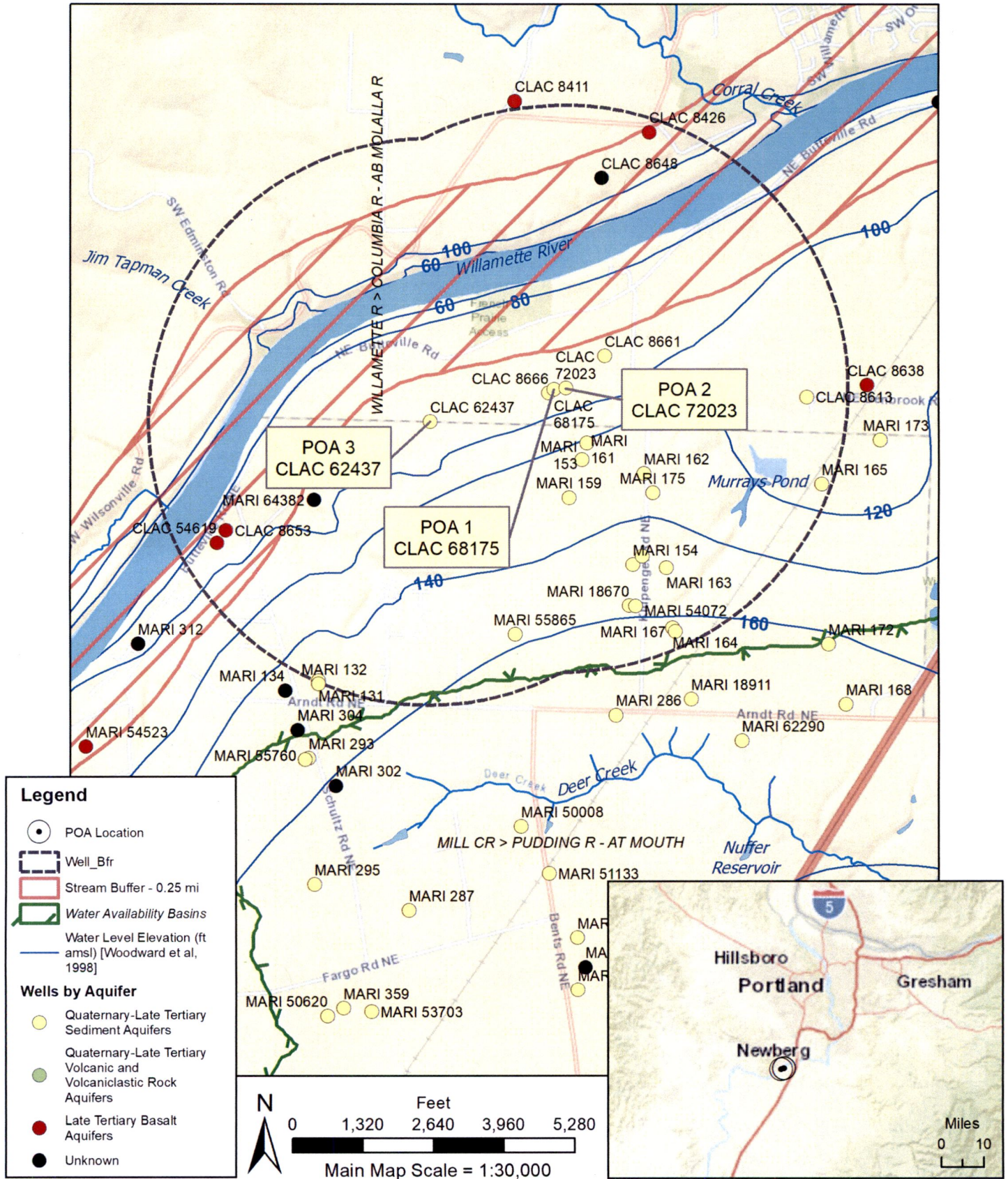
- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

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.**

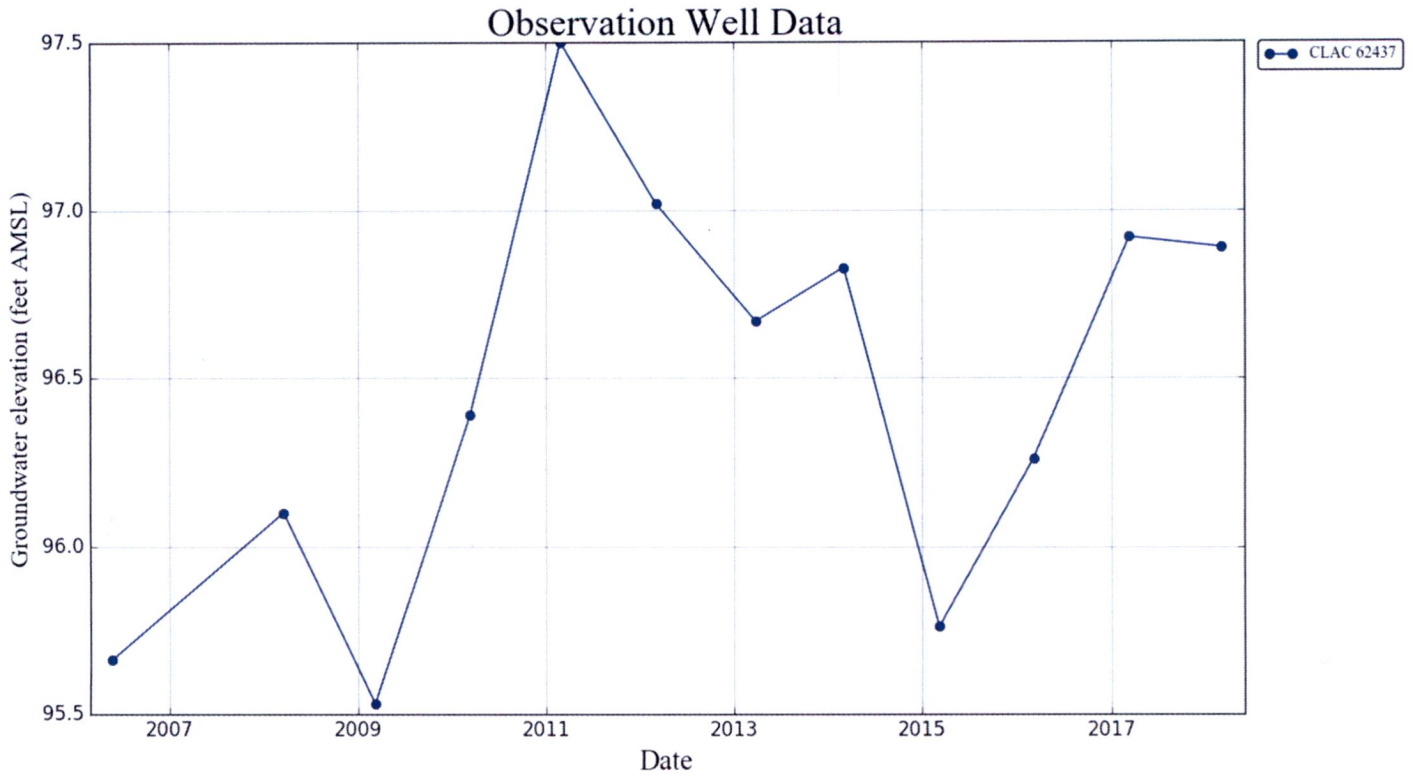
Well Location Map

G-18759 Mayfield Farm, LLC

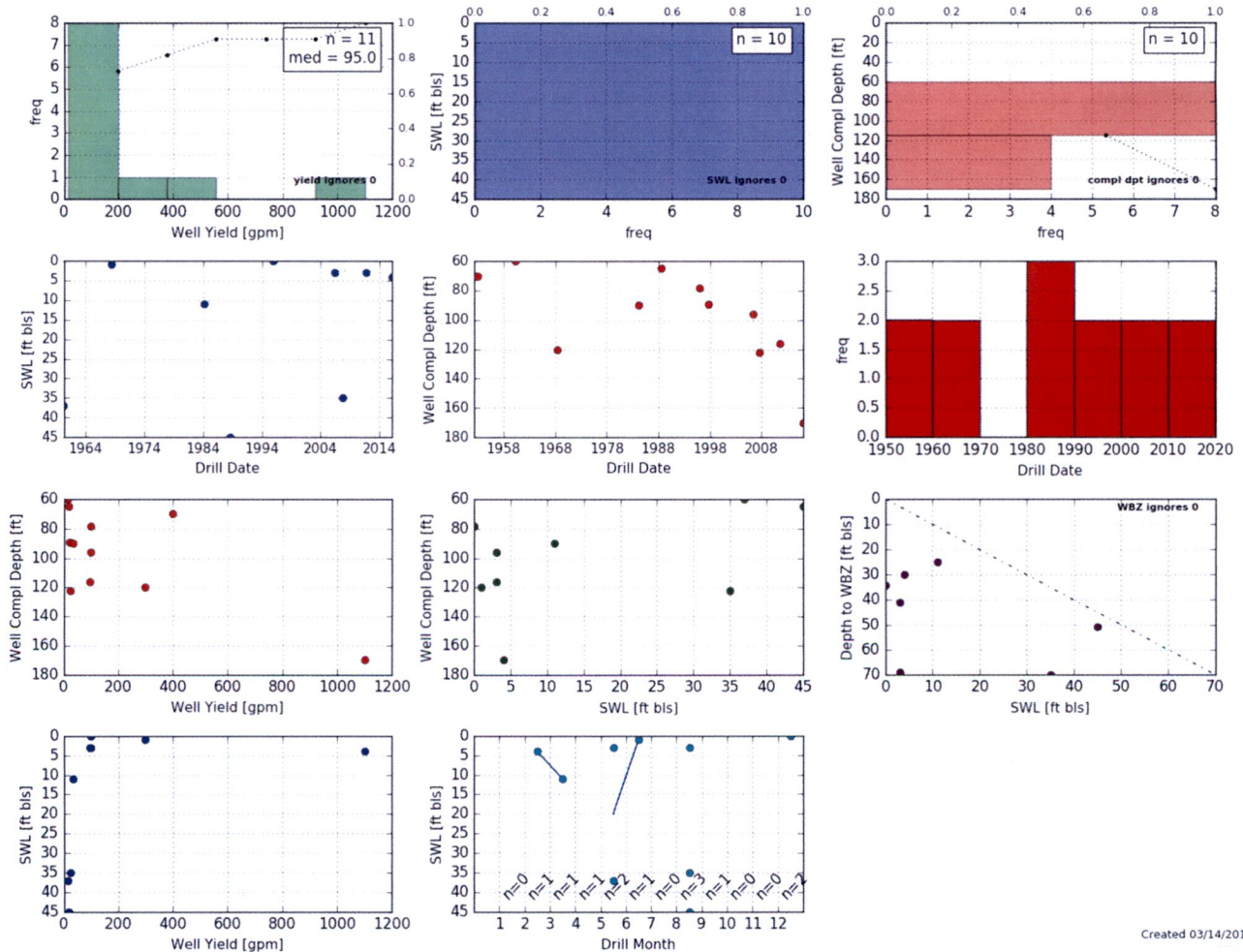


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Hydrographs



Well Statistics



Water Availability Tables

Water Availability Analysis

Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MOLALLA R
WILLAMETTE BASIN

Water Availability as of 3/14/2019

Watershed ID #: 182 ([Map](#))

Exceedance Level: 80%

Date: 3/14/2019

Time: 10:29 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	21,400.00	2,290.00	19,100.00	0.00	1,500.00	17,600.00
FEB	23,200.00	7,470.00	15,700.00	0.00	1,500.00	14,200.00
MAR	22,400.00	7,250.00	15,200.00	0.00	1,500.00	13,700.00
APR	19,900.00	6,900.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,240.00	12,400.00	0.00	1,500.00	10,900.00
JUN	8,740.00	1,980.00	6,760.00	0.00	1,500.00	5,260.00
JUL	4,980.00	1,810.00	3,170.00	0.00	1,500.00	1,670.00
AUG	3,830.00	1,650.00	2,180.00	0.00	1,500.00	681.00
SEP	3,890.00	1,390.00	2,500.00	0.00	1,500.00	996.00
OCT	4,850.00	747.00	4,100.00	0.00	1,500.00	2,600.00
NOV	10,200.00	879.00	9,320.00	0.00	1,500.00	7,820.00
DEC	19,300.00	961.00	18,300.00	0.00	1,500.00	16,800.00
ANN	15,200,000.00	2,250,000.00	13,000,000.00	0.00	1,090,000.00	11,900,000.00

Stream Depletion Analysis – SW1

Application type:	G
Application number:	18759
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.37
Pumping duration (days):	245
Pumping start month number (3=March):	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	2040	2040	2040	ft
Aquifer transmissivity	T	3700	4250	4500	ft ² /day
Aquifer storativity	S	0.009	0.003	0.0009	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	20	35	50	ft
Aquitard thickness below stream	babs	3.0	3.0	3.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	650	650	650	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300		
Depletion (%)	22	17	15	24	27	30	33	35	37	39	41	19	18
Depletion (cfs)	0.08	0.06	0.06	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.15	0.07	0.07

