

Groundwater Application Review Summary Form

Application # G- 18675

GW Reviewer Aurora Bouchier Date Review Completed: 11/8/2018

Summary of GW Availability and Injury Review:

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

Summary of Potential for Substantial Interference Review:

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

Summary of Well Construction Assessment:

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

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 11/8/2018
 FROM: Groundwater Section Aurora C Bouchier
 Reviewer's Name
 SUBJECT: Application G- 18675 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: Montgomery Farms, LLC County: Linn

A1. Applicant(s) seek(s) 1 cfs from 1 well(s) in the Willamette Basin,
Upper Willamette subbasin

A2. Proposed use Irrigation (79 acres) Seasonality: April - October

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	Proposed	1	Alluvial	tbd	12S/3W-29 NE-NW	3215' S, 600' W fr Center S 20
2						
3						
4						
5						

* 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	260				tbd	tbd	tbd	tbd	tbd			

Use data from application for proposed wells.

A4. **Comments:** No well construction is provided aside from the intention of producing from sands and gravels.

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 well (POA 1) is not within 1/4 mile of any perennial surface water features so pertinent basin rules (OAR 690-502-0240) do not apply.

A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: _____

Comments: _____

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

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

- a. is over appropriated, is not over appropriated, or cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. will not or will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. will not or will likely to be available within the capacity of the groundwater resource; or
- d. will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. The permit should contain condition #(s) 7N (annual measurement); 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 proposed well is located in an area that contains fine-grained sediments (Willamette Silt) from land surface to a depth of approximately 20 feet (Gannett et al., (1998). The well will be completed into alluvial fill of the Lebanon Fan (Woodward et al., 1998). The alluvial fan deposits are composed of coarse- to fine-grained sediments approximately 100 ft thick and are considered to be very productive aquifer system within the Willamette Valley. The aquifer is generally unconfined to semi-confined in the deeper zones and SWLs (both observed and reported on driller’s logs) are typically within a 10-15 ft of land surface. The proposed well is located near long term observation well LINN 10562. LINN10562 (located approximately 1-mile to the south) shows seasonal fluctuation of approximately 10 feet (see hydrograph below). There have been many new groundwater applications in this area, as well as numerous water rights which have been recently issued, not all of which appear to have begun production.

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 of Lebanon Fan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Almost all of the well logs in the area surrounding the location of the proposed well are greater than 30 feet deep. Many of the area well logs list a *Static Water Level* coincident with or a few feet above the zone at which water was first encountered, indicating unconfined to semi-confined conditions. Well logs listing deeper water bearing zones in also list *Static Water Levels* tens of feet above the water bearing zone, indicating greater confinement with depth. In general, in the Southern Willamette Valley the Willamette Silt does not act to confine the underlying aquifer (Conlon et al., 2005, page 13).

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	Calapooia River	~255	252	3,280	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: According to published groundwater elevation maps by Conlon et al. (2005) groundwater flows from this area northwest to the Calapooia River. Appropriation of water from the applicant’s proposed well would intersect water that would eventually flow into the Calapooia River. Smaller creeks in the immediate area are not perennial.

Water Availability Basin the well(s) are located within: Watershed ID: 76 [CALAPOOIA R > WILLAMETTE R – AB 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	<input type="checkbox"/>	<input type="checkbox"/>	76A	20	<input checked="" type="checkbox"/>	22.70	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<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.

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

Comments: The stream depletion from the Calapooia River was estimated using the Hunt 1999 model.

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

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)													
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

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

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

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

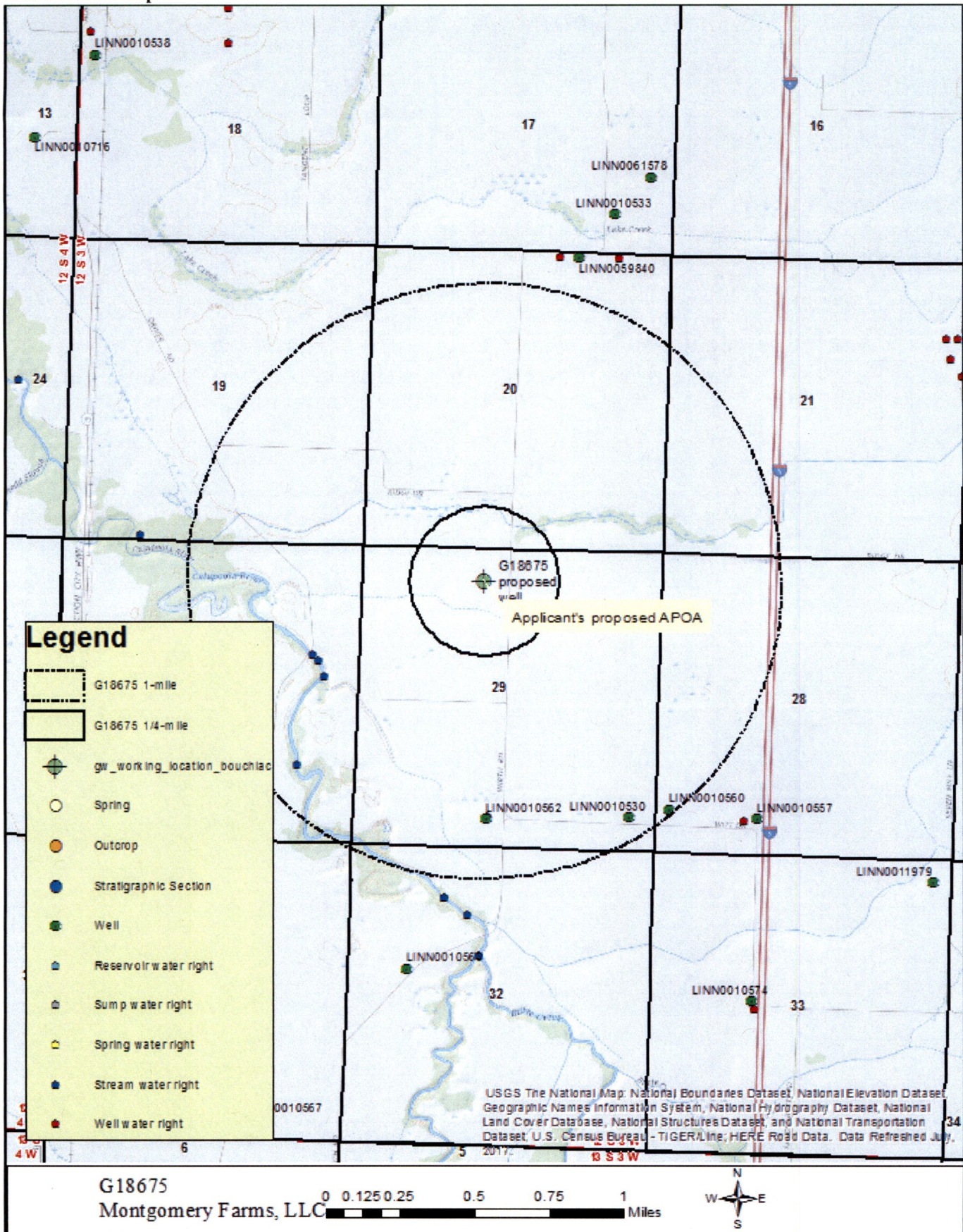
D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
Watershed ID #: 76 Time: 9:23 AM		CALAPOOIA R > WILLAMETTE R - AB MOUTH Basin: WILLAMETTE			Exceedance Level: 80 Date: 11/08/2018	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	592.00	3.37	589.00	0.00	20.00	569.00
FEB	650.00	3.32	647.00	0.00	20.00	627.00
MAR	575.00	2.24	573.00	0.00	20.00	553.00
APR	423.00	1.95	421.00	0.00	20.00	401.00
MAY	234.00	18.30	216.00	0.00	20.00	196.00
JUN	111.00	12.80	98.20	0.00	20.00	78.20
JUL	49.00	19.60	29.40	0.00	20.00	9.42
AUG	26.00	14.10	11.90	0.00	20.00	-8.09
SEP	22.70	7.36	15.30	0.00	20.00	-4.66
OCT	29.60	1.92	27.70	0.00	20.00	7.68
NOV	133.00	2.39	131.00	0.00	20.00	111.00
DEC	499.00	3.33	496.00	0.00	20.00	476.00
ANN	404,000	5,500	398,000	0	14,500	384,000

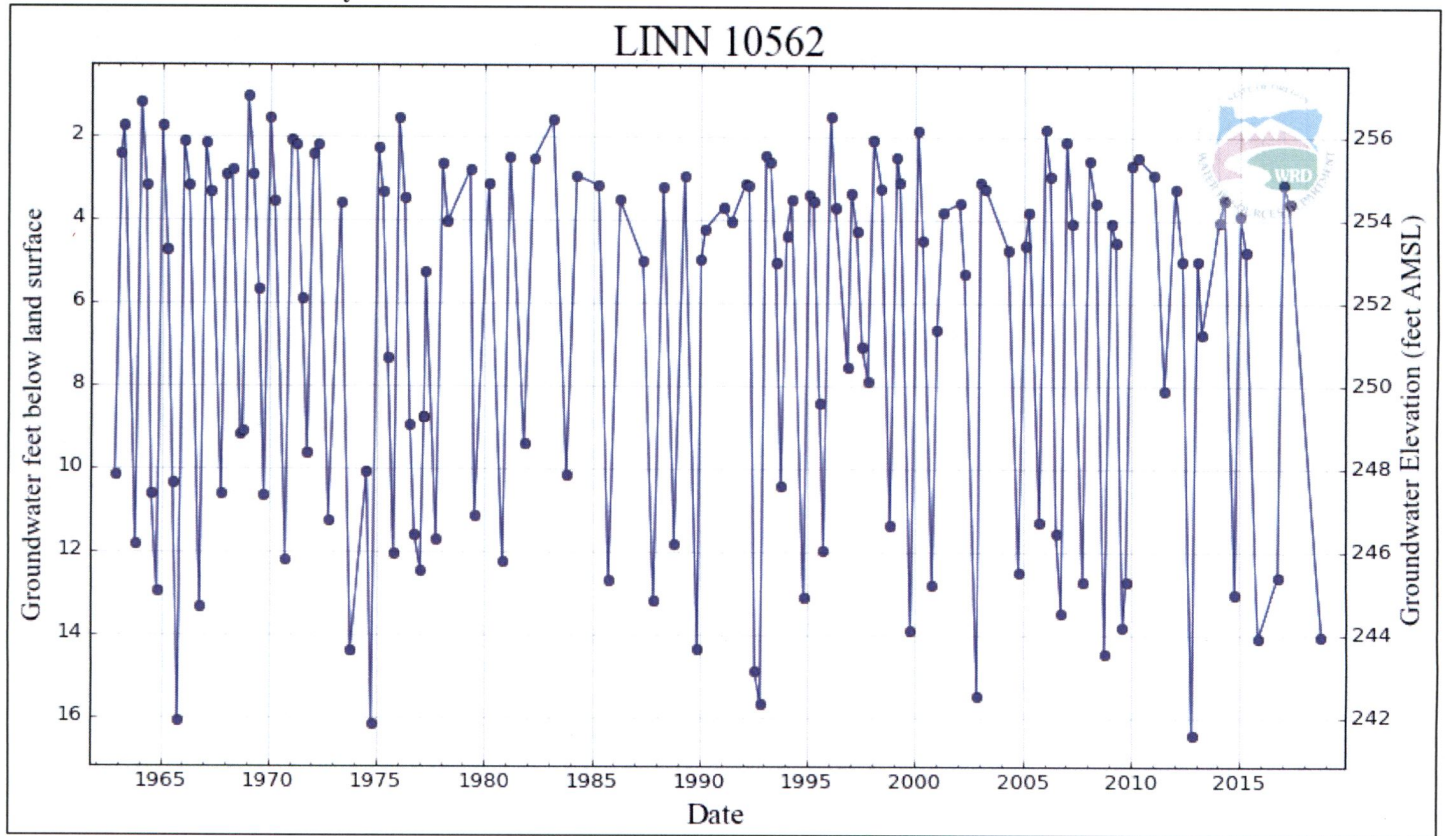
DETAILED REPORT OF INSTREAM REQUIREMENTS														
Watershed ID #: 76 Time: 10:56 AM		CALAPOOIA R > WILLAMETTE R - AB MOUTH										Basin: WILLAMETTE Date: 11/08/2018		
Application Number	Status	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Monthly values are in cfs.														
MF76A	CERTIFICATE	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.00	20.0	
MAXIMUM		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	

Well Location Map

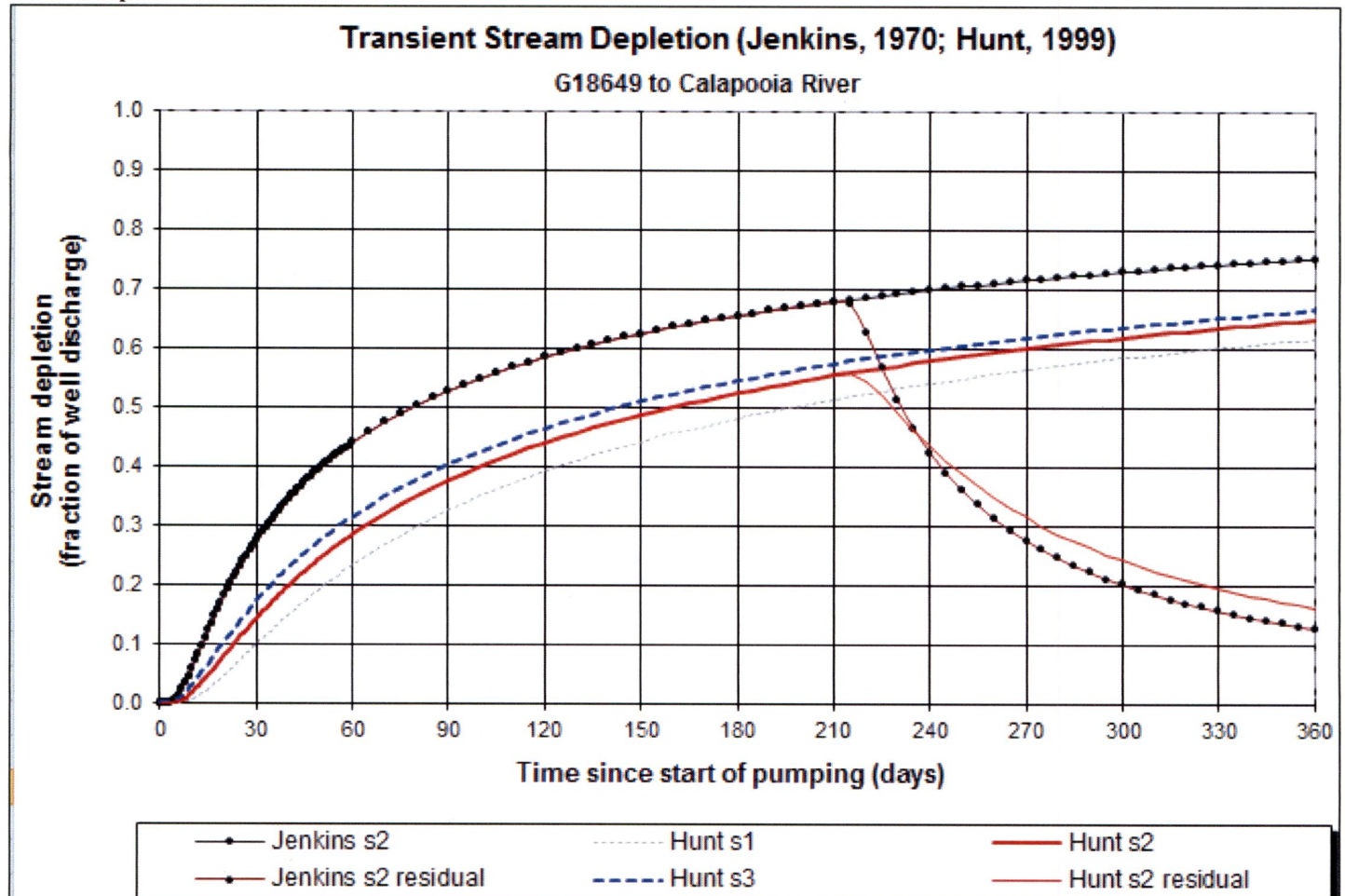


G18675
Montgomery Farms, LLC

Water-Level Trends in Nearby Wells



Stream Depletion Model Results



Output for Hunt Stream Depletion, Scenerio 2 (s2): **Time pump on = 210 days**

Days	30	60	90	120	150	180	210	240	270	300	330	360
Qw, cfs	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jenk SD s2 %	27.42	43.95	52.79	58.46	62.49	65.53	67.94	42.48	27.61	20.17	15.71	12.74
Jen SD s2 cfs	0.274	0.439	0.528	0.585	0.625	0.655	0.679	0.425	0.276	0.202	0.157	0.127
Hunt SD s2 %	14.40	28.56	37.64	43.99	48.74	52.45	55.46	43.57	31.53	24.28	19.53	16.20
Hunt SD s2 cfs	0.144	0.286	0.376	0.440	0.487	0.525	0.555	0.436	0.315	0.243	0.195	0.162

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	1	1	1	cfs
Distance to stream	a	3280	3280	3280	ft
Aquifer hydraulic conductivity	K	10	15	20	ft/day
Aquifer thickness	b	100	100	100	ft
Aquifer transmissivity	T	1000	1500	2000	ft*ft/day
Aquifer storage coefficient	S	0.01	0.01	0.01	
Stream width	ws	100	100	100	ft
Streambed hydraulic conductivity	Ks	0.1	0.1	0.1	ft/day
Streambed thickness	bs	5	5	5	ft
Streambed conductance	sbc	2	2	2	ft/day
Stream depletion factor (Jenkins)	sdf	107.584	71.72266667	53.792	days
Streambed factor (Hunt)	sbf	6.56	4.373333333	3.28	