

Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # 6-17462

ROUTED TO: Water Rights

TOWNSHIP/
RANGE-SECTION: 3N/1W-19, 3N/2W-24

CONDITIONS ATTACHED?: [] yes [] no

REMARKS OR FURTHER INSTRUCTIONS:
see conditions on p 2.

Reviewer: J. Hackett

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date July 19, 2011

FROM: Ground Water/Hydrology Section J. Hackett
Reviewer's Name

SUBJECT: Application G- 17462 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 ground water 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: Jackson Creek Properties, LLC. County: Columbia

A1. Applicant(s) seek(s) 4.57 cfs from 3 well(s) in the Columbia Basin,
Multnomah Channel subbasin Quad Map: Sauvie Island

A2. Proposed use: Nursery 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	Proposed	1	alluvium	4.57	3N/2W-24 SW-NE	2880'N, 1770'E fr SE cor S 24
2	Proposed	2	alluvium	4.57	3N/2W-24 NW-SE	2160'N, 1640'E fr SE cor S 24
3	Proposed	3	alluvium	4.57	3N/1W-19 NW-SW	1430'N, 90'E fr SW cor S 19
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	18				150 est.	0-20 est.	+2 to 120 est.		120 to 150 est.			
2	18				150 est.	0-20 est.	+2 to 120 est.		120 to 150 est.			
3	9				150 est.	0-20 est.	+2 to 120 est.		120 to 150 est.			

Use data from application for proposed wells.

A4. Comments: _____

A5. Provisions of the Willamette Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water are, or are not, activated by this application. (Not all basin rules contain such provisions.)
 Comments: The applicant's proposed wells will produce from an unconfined aquifer and will be less than 1/4 mile from the nearest surface water source.

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

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

B1. Based upon available data, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) 7B, 7C _____;
 - 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the alluvial ground water 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 Ground Water 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. Ground water availability remarks: _____

The applicant's proposed wells are located in an area that contains coarse-grained alluvial sediments from land surface to a depth of approximately 100-200 feet. The permeable coarse-grained sediments are underlain by a sequence of mostly fine-grained alluvial sediments that are approximately 300 feet thick locally. Shallow wells in the area are strongly connected to Multnomah Channel, so water level declines are not anticipated.

C. GROUND WATER/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 type="checkbox"/>	<input checked="" type="checkbox"/>
2	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: USGS reports and driller's well reports for nearby well indicate unconfined 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?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Joy Creek	10	15-200	60	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	1	Joy Creek	10	15-200	175	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	1	Joy Creek	5	15-200	1600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Jackson Creek	10	10-100	1060	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	2	Jackson Creek	10	10-100	1700	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	2	Jackson Creek	5	10-100	3125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Multnomah Channel	10	5	3350	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Multnomah Channel	10	5	3000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	3	Multnomah Channel	5	5	1100	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Water levels in nearby wells are coincident with the elevations of local surface water sources indicating hydraulic connection between the aquifer system and area streams.

Water Availability Basin the well(s) are located within: None: Columbia River Drainage

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 checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
3	1	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input type="checkbox"/>
1	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input type="checkbox"/>
3	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<25%	<input type="checkbox"/>
1	3	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	24%	<input type="checkbox"/>
2	3	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	34%	<input checked="" type="checkbox"/>
3	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	35%	<input checked="" 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: Pumping impacts to Joy and Jackson creeks will be < 25% of the pumping rate after 30 days of pumping due to the narrow width (~10 ft) of the stream channels, whereas impacts to Multnomah Channel will be between 24 to 35 % due to the large width of the channel (~800 ft).

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		%	%	%	%	%	%	%	%	%	%	%	%

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

Basis for impact evaluation: _____

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

- C5. **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or ground water use under this permit can be regulated if it is found to substantially interfere with surface water:
- i. The permit should contain condition #(s) _____;
 - ii. The permit should contain special condition(s) as indicated in "Remarks" below;

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

References Used: USGS WSP 2470-A, USGS OFR 90-126, USGS WRIR 90-4196, area well logs

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

D2. **THE WELL does not 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:**

- a. constitutes a health threat under Division 200 rules;
- b. commingles water from more than one ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water reservoirs;
- e. other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL** a. was, or was not constructed according to the standards in effect at the time of original construction or most recent modification.

b. I don't know if it met standards at the time of construction.

D6. **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. Well construction deficiency has been corrected by the following actions: _____

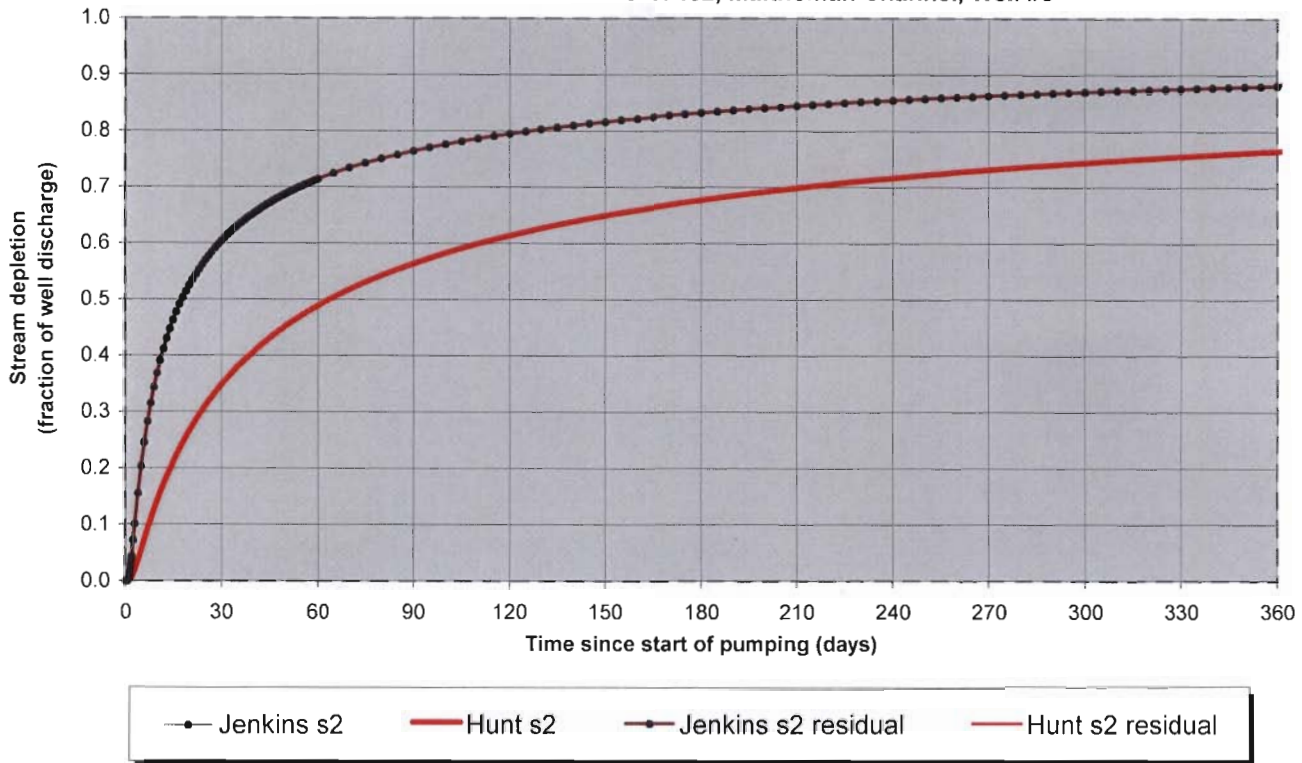
_____, 200_____
(Enforcement Section Signature)

D8. **Route to Water Rights Section (attach well reconstruction logs to this page).**

Stream Depletion Models

Transient Stream Depletion (Jenkins, 1970; Hunt, 1999)

G-17462, Multnomah Channel, Well #3



Output for Hunt Stream Depletion, Scenario 2 (s2): Time pump on = 365 days

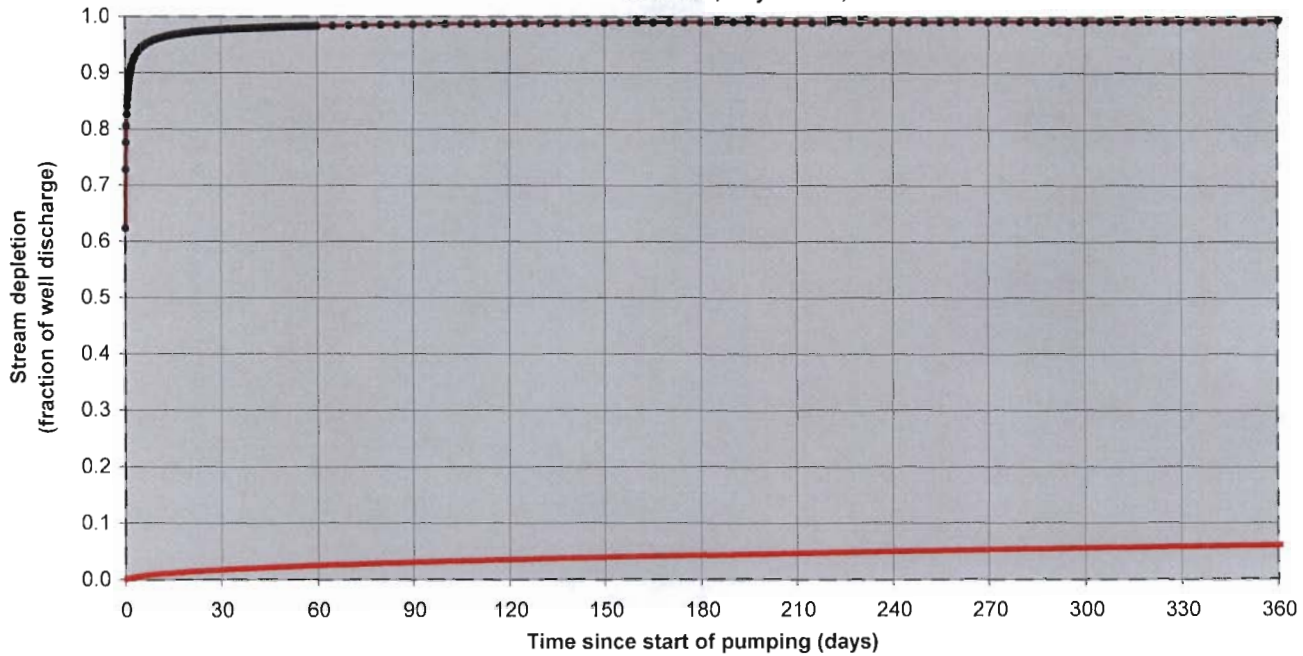
Days	30	60	90	120	150	180	210	240	270	300	330	360
Qw, cfs	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570
Jenk SD %	0.604	0.714	0.765	0.795	0.817	0.832	0.845	0.855	0.863	0.870	0.876	0.881
Jen SD cfs	2.761	3.262	3.494	3.635	3.732	3.804	3.860	3.905	3.943	3.975	4.002	4.026
Hunt SD %	0.349	0.489	0.565	0.614	0.650	0.677	0.699	0.717	0.732	0.744	0.756	0.765
Hunt SD cfs	1.595	2.234	2.580	2.806	2.969	3.094	3.193	3.275	3.343	3.402	3.453	3.498

Parameters:

		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	4.57	4.57	4.57	cfs
Distance to stream	a	1100	1100	1100	ft
Aquifer hydraulic conductivity	K	100	100	100	ft/day
Aquifer thickness	b	150	150	150	ft
Aquifer transmissivity	T	15000	15000	15000	ft*ft/day
Aquifer storage coefficient	S	0.2	0.2	0.2	
Stream width	ws	800	800	800	ft
Streambed hydraulic conductivity	Ks	1	0.1	1	ft/day
Streambed thickness	bs	3	3	3	ft
Streambed conductance	sbc	266.6666667	26.66666667	266.6666667	ft/day
Stream depletion factor (Jenkins)	sdf	16.13333333	16.13333333	16.13333333	days
Streambed factor (Hunt)	sbf	19.55555556	1.955555556	19.55555556	

Transient Stream Depletion (Jenkins, 1970; Hunt, 1999)

G-17462, Joy Creek, Well #1



Output for Hunt Stream Depletion, Scenario 2 (s2): Time pump on = 365 days

Days	30	60	90	120	150	180	210	240	270	300	330	360
Qw, cfs	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570	4.570
Jenk SD %	0.977	0.984	0.987	0.989	0.990	0.991	0.991	0.992	0.992	0.993	0.993	0.993
Jen SD cfs	4.467	4.497	4.510	4.518	4.524	4.528	4.531	4.534	4.536	4.537	4.539	4.540
Hunt SD %	0.018	0.025	0.031	0.036	0.040	0.044	0.047	0.050	0.053	0.056	0.059	0.061
Hunt SD cfs	0.082	0.116	0.142	0.164	0.183	0.200	0.216	0.230	0.244	0.257	0.269	0.280

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	4.57	4.57	4.57	cfs
Distance to stream	a	60	60	60	ft
Aquifer hydraulic conductivity	K	100	100	100	ft/day
Aquifer thickness	b	150	150	150	ft
Aquifer transmissivity	T	15000	15000	15000	ft*ft/day
Aquifer storage coefficient	S	0.2	0.2	0.2	
Stream width	ws	10	10	10	ft
Streambed hydraulic conductivity	Ks	1	0.1	1	ft/day
Streambed thickness	bs	3	3	3	ft
Streambed conductance	sbc	3.333333333	0.333333333	3.333333333	ft/day
Stream depletion factor (Jenkins)	sdf	0.048	0.048	0.048	days
Streambed factor (Hunt)	sbf	0.013333333	0.001333333	0.013333333	

Well Location Map

G-17462, Jackson Creek Properties, LLC 1:24,000

