PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO:	Water Rights Section		Date	16 April 2009
FROM:	Ground Water/Hydrology Section	Gerald H. Grondin		
		Reviewer's Name		
SUBJECT:	Application G- 17194	Supersedes review of	f	N.A.
	· · · · · · · · · · · · · · · · · · ·	1		Date of Review(s)
PUBLIC INTE	EREST PRESUMPTION; GROUND	WATER		
OAR 690-310-1	30 (1) The Department shall presume tha	t a proposed groundwater i	use will e	ensure the preservation of the public
welfare, safety a	nd health as described in ORS 537.525. De	epartment staff review groun	d water a	pplications 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. CENEDAL INFORMATION. A ----1: -----4'- NL - :-- Water Coolucion Estates Commun **n** 4

A. <u>Gf</u>	LNEKAL INFORMAT	ION: Applicar County:	it's Nam	e: Seciusio Josephi	<u>n Estates Com</u> ne	munity water System, LI	
A1.	Applicant(s) seek(s)	0.05 cfs (22 gpm)	_ from _	2	_well(s) in the	Rogue	Basin,
	Hellgate Canyor	n		_subbasin	Quad Map:	Wilderville	
A2.	Proposed use: q	uasi-municipal		Seasonality:	Year Rou	nd (365 days)	
	Proposed use: Irrig	ation (6 acres prim	ary)	Seasonality:	1 April to	31 October (214 days)	

Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid): A3.

Wel	Logid	Applicant's	Proposed	Proposed	Location	Location, metes and bounds, e.g.
1	Logia	Well #	Aquifer*	Rate(cfs)	(T/R-S QQ-Q)	2250' N, 1200' E fr NW cor S 36
1	JOSE 52972	36427	Granite	0.01	T36S/R6W-sec 6 CCA	1270' N, 1069' E fr SW cor S 6
2	JOSE 53407	38961	Granite	0.04	T36S/R6W-sec 6 CAC	1588' N, 1570' E fr SW cor S 6
3						

* 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	1160	280	50	10/12/99	300	0 – 18	+1 – 19	0 - 300	280 - 300	7	?	Α
2	1170	64	38	7/13/00	150	0 – 18	+2 - 18	None	None	18	?	Α

Use data from application for proposed wells.

A4. Comments:

> The applicant well numbers appear related to the well tag for each well. However, it appears the applicant may have transposed the number for one well. Well JOSE 52972 = well tag L-36427 and well JOSE 53407 = well tag L-38691.

A5. **Provisions of the Rogue River Program** Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water \Box are, or \Box are not, activated by this application. (Not all basin rules contain such provisions.) Comments: ______ The proposed use is in the Middle Rogue Basin of the Rogue River Program (see 690-515-0040). Surface water is classified, ground water appears not.

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

Comments:

Not Applicable

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

- **Based upon available data**, I have determined that ground water* for the proposed use: B1.
 - **is** over appropriated, **is not** over appropriated, *or* **is cannot be determined to be** over appropriated during any a. 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;
 - will not or will likely be available in the amounts requested without injury to prior water rights. * This finding b. 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 and 7N
 - 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;
- **Condition** to allow ground water production from no deeper than ft. below land surface; B2. a.
 - **Condition** to allow ground water production from no shallower than _______ ft. below land surface; b.
 - _ ground C.
 - Well reconstruction is necessary to accomplish one or more of the above conditions. The problems that are likely d. 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):

Ground water availability remarks: _____ B3.

If a permit is issued, condition with 7B and &7N.

Geologic maps and water well reports (well logs) for the proposed and neighboring wells indicate the wells obtain water from granite. The granite is likely fractured. The literature indicates higher ground water yields (up to 50 gpm) occur where the granite is deeply weathered and lower ground water yields (less than 5 gpm) occur where the granite is unweathered. The water well reports for the proposed wells and neighboring wells indicate "decomposed" (weathered) granite overlies "tombstone" (unweathered/less weathered) granite.

The driller reported yields for the proposed wells is 7 gpm for JOSE 53972 and 18 gpm for JOSE 53407.

Two nearby wells with water level data were found. Well JOSE 9451 is located about 1.1 miles south of proposed well JOSE 52972 and is completed in granite. The ground water level data is from 1988 to 1993. The graphed data show seasonal and annual trends. The seasonal trend shows seasonal fluctuations of about 8 feet (spring high vs summer low). The annual trend appears to show a climate trend (overall lower levels during drier years and overall higher levels during wetter years). Well JOSE 55124 (state observation well 248) is located about 1.2 miles northeast of proposed well JOSE 53407 and is likely completed in granite. The ground water level data is from 1980 to 1998. The graphed data show seasonal and annual trends. The seasonal trend shows seasonal fluctuations of about 3 feet before 1990 and about 5 to 10 feet after 1990 (spring high vs summer low). The annual trend clearly shows a climate trend (overall lower levels during drier years and overall higher levels during wetter years).

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	Granite		\boxtimes
2	Granite		\boxtimes

Basis for aquifer confinement evaluation:

Water well reports indicate a static water level above the first water bearing zone. This does not imply confined ground water given the ground water occurs in fractured rock. The depth where a well encounters fractures yielding water varies. Often, the various fractures are interconnected.

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 ¹/₄ 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	Pass Creek (branch head)	1110	1020	3700		
1	2	Rogue River (closest reach)	1110	840	6100		
2	1	Pass Creek (branch head)	1132	1020	4000		
2	2	Rogue River (closest reach)	1132	840	6700		

Basis for aquifer hydraulic connection evaluation:

The ground water level is based upon water well reports for proposed wells JOSE 53972 and JOSE 53407. The elevations are above Pass Creek and the Rogue River. The ground water gradient likely converges toward Pass Creek and subsequently toward the Rogue River.

The surface water elevations were based upon Wilderville quadrangle map (1:24,000 scale)

The quadrangle map blue line start (head) of Pass Creek branch is more than 0.25 miles, but less than 1.00 mile south of the proposed well sites.

Water Availability Basin the well(s) are located within: <u>ROGUE R>PACIFIC OCEAN-AB GRAVE CR</u>

Application G-<u>17194</u> continued

Date <u>16 April 2009</u>

C3a. **690-09-040** (4): Evaluation of stream impacts for <u>each well</u> 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 \boxtimes box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¹ / ₄ 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			N.A.	N.A.		N.A.		5.6%	
2	1			N.A.	N.A.		N.A.		4.3%	

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		N.A.	N.A.		N.A.		4.6%	

Comments:

Pass Creek (branch) is more than 0.25 miles and less than 1.00 mile from both proposed wells.

No surface water availability calculation for Pass Creek was found.

Hunt 1999 was used to calculate interference with Pass Creek at the end of 30 days. Doing the calculation assumes there is sufficient distance to treat the fractured rock as a porous media which may or may not be valid. Regardless, the individual and total calculated interference at the end of 30 days is less than 10 percent of the pumping rate(s). The calculation used a transmissivity of 100 ft2/day based upon specific capacity data for nearby wells, and an assumed 0.001 storage coefficient.

Date 16 April 2009

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-E	Distributed	Wells											
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	as CFS												
Interfei	ence CFS												
Distri	buted Wel	ls											
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2	29.0%	24.7%	21.3%	1.3%	7.8%	15.1%	21.3%	26.5%	30.9%	34.7%	37.1%	33.8%
Well Q	as CFS	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Interfer	ence CFS	0.003	0.002	0.002	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.003
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	as CFS												
Interfei	ence CFS												
2	2	28.1%	24.5%	21.5%	0.06%	5.3%	11.4%	17.1%	22.1%	26.4%	30.1%	33.0%	31.7%
Well Q	as CFS	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00
Interfei	rence CFS	0.011	0.010	0.009	0.000	0.002	0.005	0.007	0.009	0.011	0.012	0.013	0.013
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	as CFS												
Interfer	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	as CFS												
Interfer	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q	as CFS												
Interfer	ence CFS												
		0.014	0.010	0.011	0.000	0.002	0.000	0.000	0.010	0.014	0.015	0.015	0.016
$(\mathbf{A}) = \mathbf{T}$	otal Interf.	0.014	0.012	0.011	0.000	0.003	0.009	0.009	0.012	0.014	0.015	0.017	0.016
(B) = 80	% Nat. Q	3210	4740	4390	3830	3370	2010	1320	1160	1130	1240	1420	2620
(C) = 1	% Nat. Q	32.10	47.40	43.90	38.30	33.70	20.10	13.20	11.60	11.30	12.40	14.20	26.20
(D) = (A)	A) > (C)	No											
(E) = (A	/ B) x 100	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

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

Basis for impact evaluation:

The Rogue River is more than 1.00 mile from both proposed wells.

Hunt 1999 was used to calculate interference with the nearest reach of the Rogue River. However, the most direct connection with the river may not be the nearest reach. Doing the calculation assumes there is sufficient distance to treat the fractured rock as a porous media which may or may not be valid. Regardless, the individual and total calculated interference each month is much less than 1 percent of the pumping rate(s). The calculation used a transmissivity of 100 ft2/day based upon specific capacity data for nearby wells, and an assumed 0.001 storage coefficient.

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. \Box 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_

If a permit is issued, condition with 7B and 7N and 7J.

References Used:

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102.

McFarland, W.D. 1983. A description of aquifer units in western Oregon: U.S. Geological Survey Open File Report 82-165, 35 p., 8 plates.

Oregon Water Resources Department. 1985. Rogue River Basin Study, 292 p.

Ramp., L. and Peterson, N.V. 1979. Geology and mineral resources of Josephine County, Oregon: Oregon Department of Geology and Mineral Industries Bulletin 100, 45 p.

Robison, J.H. 1973. Availability of ground water in the Grants Pass area, Josephine County, Oregon: U.S. Geological Survey Hydrologic Investigations Atlas HA-480, 2 maps.

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

Vorhis, R.C. 1979. Transmissivity from pumped well data. Well Log, National Water Well Association newsletter, vol. 10, no. 11, Dec. 1979, pg. 50-52.

Wells, F.G. and Peck, D.L. 1961. Geologic map of the 121st meridian: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-325.

Young, R.A. 1961. Hydrogeologic evaluation of streamflow records in the Rogue River basin, Oregon: U.S. Geological Survey Open File Report 61-176, 119 p., 2 plates.

Young, R.A. 1959. Ground-water resources of the Rogue River basin, Oregon: U.S. Geological Survey unpublished report, 158 p.

USGS Quadrangel Map: Wilderville (1:24,000 scale)

Well with water level data: JOSE 55124 and JOSE 9451

Water well reports for proposed wells (JOSE 52972 and JOSE 53407) and neighbor wells

D. <u>WI</u>	LL CONSTRUCTION, OAR 690-200
D1.	Well #: 1 Logid: JOSE 52972
	Well #: 2 Logid: JOSE 53407
D2.	THE WELL does not meet current well construction standards based upon: a. review of the well log; b. field inspection by
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 #1 a. Was , <i>or</i> 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.
	THE WELL #2 a. 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	ECTION 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).**

Ground Water Application G-17194 Seclusion Estates



Ground Water Application G-17194 Seclusion Estates



ST	TE OF	OREGON	(1)		205	se	,		6429	.360	477
WATE (MIT	equired by	ORS 537.765)	REPORT	5	520	972		START CARD #	126733	3	1-1-1
Instru	ctions for	completing this	report are on	the last	page of this	form.					
(1) OW	NER:	the Wint	W	ell Num	ber		(9) LOCATION OF	VELL by legal descr	iption:	aitu da	
Address	280	Cathedr	al Driv	ve			Township 36	N or S Range	6	E or V	W. WM.
City G:	rants	B Pass	StateOre	egon	Zip9	7526	Section 6	NW 1/4	SW	1/4	
(2) TYP	EOFW		eration (repair/	econditio	an) 🗖 Aban	donment	Tax Lot 910 D	(or nearest address) 52	1 Sec.	bdivision_ Lusio	n Loor
(3) DRI	LLME VAir [THOD: Rotary Mud	Cable	Auge	*		(10) STATIC WATER	LEVEL:			
Other	DOCED	1100				-	50 ft. belo	w land surface.	D D	ate 10,	/12/99
(4) PRC	stic [Community	Industrial		rigation		(11) WATER BEARI	NG ZONES:	o incit. D	auc	
Them	Jak [Injection	Livestock		hber						
(5) BO	RE HOI	E CONSTRU	CTION: a XINo Dept	h of Con	pleted Well	300m	Depth at which water was	first found			
Explosiv	es used [Yes No 1)pe	Ar	nount		From	To	Estimated	Flow Rate	SWL
1	HOLE	7 . M.	SEAL	T -	Cashe an -	and a	280	285	7		50
10	0	18Bento	nite 0	18	7	-ends					
6	18	300					(12) WELLIOC			-	
How was	seal plac	ed: Method		в]C DD		Ground	Elevation			
K Oth	er _D	ry Poure	ed ft	Materi	al		Matoria	1	From	Te	SWI.
Gravel pl	aced from	n ft. to	î.	Size of	f gravel		Decomposed	Granite-	0	12	5
(6) CA	SING/L	INER:				-	Brown		-		-
Casine	6	From To	250 X		Welded	belease	Tombstone	Granite-	12	300	
							Black White	2	_		
-		+							1,		<u> </u>
Liner:	.4	0 300	160	X		ŏ	Amende	& Taxle	2	DI	ŧ
Final Law	ation of d	10					0 00	En Dei	10 5	Ø	\vdash
(7) PER	FORAT	TONS/SCREE	INS:	_			By: Alle	nad The	CEIVE	D	
Pe	forations	Method _	Saw	M	terial			nE			
∐ Sa	Te	Slot	er Diameter	Tele/pla	M Casher	1.845		001	1 8 19	99	
280	300	<u>1</u> X6 80	- Distriction of			ΧŪ					
					- 8			WATER	EBOURCE	ON DEPT	┝──┤
								GAL	T, unde		
					_ □			<u>.</u>			\vdash
(8) WE	LL TES	TS: Minimum	testing time	is 1 hou	ır		Date started 10/11	/99 Compl	leted 10	/12/9	9
-					Flos	wing	(unbonded) Water Well	Constructor Certificati	ion:		-
Pu Yield	qat/asin	Drawdowa	Drill ste	mat		Time	of this well is in complian	ce with Oregon water s	apply well con	struction s	tandards.
7			30	0		1 hr.	and belief.	. 0.		the state	in a
							signed Michae	Fierce	WWC Nu	Date 10	/14/9
Tempera	bure of wa	uer <u>58</u>	Depth Artesi	In Flow	Found		(bonded) Water Well Co	nstructor Certification	:		
Was a wi	stor analy	sis done?	Yes By whon table for intende	a	Too li	ittle	I accept responsibility performed on this well du	for the construction, alter ring the construction date	tes reported al	ndonment v	work vork
Salty	Mud	dy Odor [Colored	Other			construction standards. T	e is in compliance with this report is true to the b	oregon water best of my kno	supply wel	d belief.
Depth of	strata:	F	RECEIV	ED			sime Mich	of Fini	WWC Nu	mber1	251
					PIDAT C	ON C	Signed	un i nenc		Date _10	14/9
ORIGU	NAL - W	ALER RESOUR	E POTULE ANT	PIHNU	FIRST C	UPI-CC	INSTRUCTOR SECON	D COPY - CUSTOM	EK		

JOSE 52972

RECEIVED

FEB 20 2009

WATER BEBOMROES DEPT

Amended jose

×. WELLID. #1 -36429-36427

(1) OWNER: Well Number	(9) LOCATION OF WELL by legal description:	
Name Kenneth Winther	County Josephine Latitude Longitude	
Address 280 Cathedral Drive	Township 36 N or S Range 6 E or	W. WI
City Grants Pass State Oregon Zip 7526	Section 6 NW 1/4 SW 1/4	
(2) TYPE OF WORK	Tax Lot 916 Lot 217 Block Subdivision	n T
X New Well Deepening Alteration (repair/recondition) Abandonment	Street Address of Well (or nearest address) 521 Sectusto	n L
(3) DRILLMETHOD:	(10) STATIC WATER LEVEL.	
	50 ft below land surface. Data 10	/12
(4) PROPOSED USE:	Artesian pressure Ib. per square inch. Date	
Domestic Community Industrial Irrigation	(11) WATER BEARING ZONES:	
Thermal Injection Livestock Other		
(5) BORE HOLE CONSTRUCTION:	Depth at which water was first found280	
Special Construction approval Yes X No Depth of Completed Well 30 Uft.		
Explosives used Yes KNo Type Amount	From 10 Estimated Flow Rate	5
HULE SEAL	280 283 7	- 3
10 0 18Bentonite 0 18 7		
6 18 300		
	(12) WELLLOG:	
How was seal placed: Method A B C D B	Ground Elevation	_
K Other Dry Poured	Musil To Lo	
Backfill placed from R. to R. Material	Decomposed Graniter 0 12	SW
(6) CASING/LINER:	Brown	
Diameter From To Gauss Steel Plastic Walded Threaded		
Garing: 6 +1 19 250 A T A	Tombstone Granite- 12 300	
	Black White	
	1	4
Liner: <u>4 0 300160</u> X .	Amended Taxlot 5 + D	+
	1	
Final location of shoe(s) 9	BC: Highad Tuesde	-
EXPerioration Method Satu	RECEIVED	-
Screens Type Material		
Slot Tek/plps	OCT 1 8 1989	
280 300 1 X6 80 1 X		
	WATER DESOURCES DEPT	
	SALEM, OREGON	
(9) WELL TEETS, Minimum testing time is 1 hours	Distantial 10/11/09 Complete 10/12/0	9
(o) where i reals: wherean realing time is a non-	(unbonded) Water Well Constructor Certifications	,
Flowing Bailer Air Artesian	I certify that the work I performed on the construction, alteration, or alu	indona
Yield gal'min Drawdown Drill stem at Time	of this well is in compliance with Oregon water supply well construction at Materials used and information reported above are puly to the	andard
7 300 lbr.	and belief.	www.cd
	WWC Number 12	51
	Signed Illichael Theree Due 10	/14
Temperature of water 58 Depth Artesian Flow Found	(bonded) Water Well Constructor Certification:	angeo -
Was a water analysis done? Ves By whom	I accept responsibility for the construction, alteration, or abandonment to performed on this well during the construction dates reported above. All u	work
Did any strata contain water not suitable for intended use? [] Too little	performed during this time is in compliance with Oregon water supply well	1
Davity Odor Outer	Construction standards. I his report is true tothe best of my knowledge and	o cellef.
Deput of Future.	Signad Michael Liping Due to	251

JOSE 52972

(1) OWNER:	V	ell Numb		(9) LOCATION OF	WELL by legal description	iption:		
Name Kenneth Wi	nther			County OD CPI	N or S. Passa	Lon	gitude	v w
Address 280 Cathe	aral Dri	ve	7:07526	Section 6	N or S Kange NIM 1/4	SW	E or v	n. w
City Grants Pass	StateOr	egon	2407520	Tax Lot 916	Lot Block	Su	bdivision	
(2) ITTE OF WORK	Alteration (repair/	econditio	n) Abandonment	Street Address of W	ell (or nearest address) 52	1 Sec.	lusio	n 1
(3) DRILL METHOD:	The later of the later							
Rotary Air Rotary Mu	d Cable	Auger	r8	(10) STATIC WATE	ER LEVEL:			
Other				fl. be	low land surface.	L	Date 10,	/12
(4) PROPOSED USE:	1.11	_		Artesian pressure	Ib. per square	e inch. I	Date	_
Domestic Communit	/ Industrial		rigation	(II) WATER BEAF	ang zones:			
Thermal Injection	DICTION.		iner	Depth at which water w	as first found 280)		
(5) BOKE HOLE CONST	Yes X No Dept	h of Com	pleted Well 30 Oft.	Dopul a willoi water w				
Explosives used TYes XIN	Type	Ал	nount	From	To	Estimated	I Flow Rate	
HOLE	SEAL	-		280	285	7		
Diameter From To	daterial From	To	Sacks or pounds		-			_
10 0 18Ben	conite 0	18	1				1923	-+
						-		-+
6 18 300					1000 IBU			
How was seal placed: Ma	bod CIA C			(12) WELL LOG:	nd Elevation			
KI Other Dry Pou	red			Giod				
Backfill placed from f	. to ft.	Materia	<u>ل</u> ه	Mate	rial	From	To	S
Gravel placed from f	. to ft.	Size of	gravel	Decompose	d Granite-	0	12	-
(6) CASING/LINER:	na so guerras			Brown	5-	-		-
Diameter From	To Gauge Steel	Plastic	Welded Threaded			10	200	\vdash
Casing: 0 +1	3 2 3 0 A	H		Tombstone	Granite-	112	1300	+
		H	8 8	BLACK WILL				
		Ы	Ξ Ξ					
Liner: 4 0 3	00160	X	ΞĒ					
							-	1
Final location of shoe(s)	9					-		+
(7) PERFORATIONS/SCI	CEENS:				RE	CEIV	FD_	+
Perforations Metho	a <u>Saw</u>	Mat	erial				-	+
Slot	Dismates	Tele/plu	Casing Line		007	T 1 8 19	999	
280 300 AX6	0	Suc	X					
		10			WATER F	ESOURC	ES DEPT	
		-			SAL	EM, ORE	GON	
					Contra Contra	-		+
		-	_ U U			-		+
(8) WELL TESTS. Minin	um testino time	is 1 hou		Date started 10/1	1/99 Comp	leted 10	12/9	99
	ium competing		Dening	(unbonded) Water We	ell Constructor Certificat	ion:		
Pump Bailer	X Air		Artesian	I certify that the wo	rk I performed on the cons	truction, alter	ration, or ab	ando
Yield gal/min Drawdo	va Drill st	em at	Time	of this well is in compl Materials used and info	iance with Oregon water so rmation reported above an	e true to the	best of my k	cnow
7		0	1 hr.	and belief.	2.			
				Mich	1 Fiero	WWC Nu	mber 1	25
	Douth Artes	in Flow	Round	Signed	Constructor Cartification			57
Temperature of water 5 8	Yes By who	an riow i	Found	I accept responsibili	ty for the construction alt	eration. or ah	andonment	work
Did any strata contain water no	t suitable for intend	led use?	Too little	performed on this well	during the construction da	tes reported	above. All	work
Salty Muddy Odd	r Colored	Other		construction standards.	This report is true to)the	best of my kr	iowledge ar	nd bel
Depth of strata:				ni	Inv.	WWC Nu	umber	125
0 · · · · · · · · · · · · · · · · · · ·				Signed ////	Mail Then	e	Date 1	0/

-

(a) regularity ORS 537,765)	WELLID, #L
(1) OWNER: Well Mutcher	(9) LOCATION OF WELL by legal description
Addres 858 NW 6th St	Township 36 S N or & Range OB W D or W. W
Civ grants Pass Sive OR 297526	Section DB NR 1/4 BBY 1/4
(2) TYPE OF WORK	Ebeel Adores of Well (or nears) (address)
(3) DRILLMETHODI	Lower River Rd TL Z203
Roury Air Roury Mud Cable Auger	(ID) STATIC WATER LEVELI
TOUNT	Adapter provide the correcter Data 7/13/
Donestic Community Industrial Ingetion	(11) WATER BEARING ZONESI
Themal Division Liveriods Other	
(5) BORE HOLE CONSTRUCTION: Special Construction approval (7) Ym (7) No. Deoth of Completed Well 1 5 (1).	Diput is which water was first found
Explosives used (Yes (No Type Amount	Riom To Bulinaled Flow Rule
HULE SRAL	64 137 18
10 10 18 Bont 018 8 Sante	
6 18 150	
·	
How was seal placed Mathod TA TB TC TD THE	(12) WELL LOGI Glound Playalion
[X] Oribet	
Backfill placed from fl. to fl. Matchal	Material Brom To 8
(6) CABING/LINERI	Ungons 0 7
Disserier From To Gauge Siet! Plassle Welded Threaded	
Culler 6 142 18850 XX 0 XX 0	none 7 97
	Combatona-granite-
	pons 87 130
Final location of abos(s)	
(7) FERFORATIONS/ECHEENS:	
Berry Type Material	Homenologi dx 104
Prom Tr , sim (Number, Diameter , Nice Casing Linet	
	1 toto contraction
	- Sel march
(8) WELLTESTE: Minimum testing time is 1 hour	Date started _ 7/13/00 Completed _ 7/13/00
(Nowing	(unboaded) Water Well Constructor Certification:
Putto Destriction Destriction Destriction	I berring that the work I performed on the construction, eligible and of aband
18 140 11	and ballet.
	WWC Number 165
Temperature of walk 54 Depth Artested Flow Foundan #	(ballded) Water Weil Copulation Col/(Meating)
Was & water analysis done? The Dy who DECENVE	I accurate a sponsibility for the construction, alteration, or abandonnent wo
Did any strate contain water not within for intended (167)	performed during this time is for construction dates reported above. All wor
Danis Mendas Closer Closered Martin Cono	WWO Number A 7 K
NECEIVED	Spillened COC2 Cherry Date 7/1
COLLEGE -	
ORIGINAL EWATER RESIDENCES DERAMATERALE AND CONTRACTOR	UNATRICTOR SELOND COPY - CURTOMEN
ORIGINATERATER RESOLUTION DERAWATERATERATERATERATERATERATER	UNATRUCTOR RECOND COPY - CURTUMER

JOSE 53407

FEB

. 19. 2009 11:22AM QUINN'S 541-862-71	USE 53407		NO. 6	69	P. 1
STATE OF OREGON WATER SUPPLY WELL REPORT	be	WELLID. # L	3869	1	
Instructions for completing this report are on the last page of this form.		START CARD #_	131/3	4	
ana John Jones wei John Jones datus 858 NW 6th St. IN grants Pass State OR Z197526 D) TYPE OF WORK	(9) LOCATION OF V County J <u>OSEPh</u> Township <u>36</u> S Section <u>06</u> Tar Lot <u>2202</u> S	VELL by legal descr Latitude N or S Range (NE 1/4 WZZDB Block	lption: Lon 	bdivision	/. WM.
Now Well Deepening Alteration (repair/recondition) Abandonment) DRILL METHOD: Rotery Air DRotery Mud Dable Auger	Birel Adaress of Well LOWEF (19) STATIC WATER	(or nonzest address) River Rd (LEVEL:			
OUN AND THE	38 ft bele	w land surface,	Lich I	AL6 7/1	3/00
a) PROPOSED COENTIMENTIN	(11) WATER BEARI	NG ZONES:	6 Bpcn. L		
Special Construction approval Yes No Depth of Completed Well 1500	"		Relimeted	Man Data	leun
HOLE SEAL	64	137	18	FIGH AME	38
Dianniar From To Matchal From To Sacks or pounds 10 0 18 Bent 0 18 8 Sacks 6 18 150					
How was seal princed: Mathod A B C D E	(12) WELL LOGI	Elevation			
Backfill placed from fl. to fl. Material	Materi	4	From	To	SWL
Jravel placed from fL to fl. Size of gravel	Decomposed	granite.	10	7	
Blaneter From To Gauge Steel Plantic Webled Threader	uncons			1	
Cutres: 6 +2 18250 XX C	Decomposedg	ranite,	7	87	
	Fombstone-g	ranite,	87	150	38
Final location of above(s)					
7) PERFORATIONS/SCREENS:				1-1-	
Performitional Method	Homen	1001-1	ax-	10-	
From To Slot Number Diameter New Casing Line	The second				
	Bat	A	5		
	1000	\smile			
8) WELLTESTS: Minimum testing time is 1 hour	Date started 7/13 (unbonded) Water Well	200 Comp	leted _7/	13/00	
Plano Baller El Air Ariedan Yield asl/mia Drawdowa Drai stein al Time 18 140 160	I certify that the work of this well is in complia Materials used and infort and belief.	I performed on the cons nee with Oregon water s nation reported above as	truction, alter upply well or o true to the l	ation, or abi natruction a sent of my in	Indonment Iandarde. nowledge
Temperature of water 54 Depth Artesist Flow Pollades	Signed Star	in late		DH07/1	59 3/00
Was a writer analysis done? Yes By whom ECE Did Did any strate contain water not multible for intended lise? Too little Salty Mudety Odor Colored Other 2000 Depth of strates	I accept responsibility performed during this tim construction etandards.	for the construction, alt uring the construction da so is in compliance with this report is true to the	eration, or ab les reported a Oragon wate best of my kn WWC Nu	andormient boyo. All y r supply wel owledge an imber <u>67</u>	vork rork d belief, 5
ORIGINAL - WATER RESOURCES DEPARTER FEODURCES D	CONSTRUCTOR SECON	ND COPY - CURTOM	БК	Dale 7/	13/00
· · ·		I	RECE	EIVE	D
с. С		1	PB 2	0 200	Ŀ

WATER RESOURCES DEPT SALEM, OREGON

(1) OWNER:

Other

New Well Deepening Alteration (repair/recondition) Abandonment

Special Construction approval Yes No Depth of Completed Well 150ft

Method A B

SEAL

From To

0 18

Community Industrial

Material

Auger

Irrigation

Amount

Sacks or pounds

8 sacks

C DD

Other

JOSE 53407 **JOSE 53407**

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

Name John Jones Address 858 NW 6th St City grants Pass (2) TYPE OF WORK

Rotary Air Rotary Mud Cable

Thermal Injection Livestock (5) BORE HOLE CONSTRUCTION:

Explosives used Yes No Type

To

18 150

0 18 Bent

(3) DRILL METHOD:

(4) PROPOSED USE: Domestic

HOLE

How was seal placed: X Other

Diameter From

10

6

WATER SUPPLY WELL RE (as required by ORS 537.765) Instructions for completing this rep	PORT ort are on the last pag	e of this form.	1	WELL I.D. # L START CARD # _	38691 131732
) OWNER: me John Jones	Well Number		(9) LOCATION OF W County Joseph	ELL by legal desc Latitude	ription: Longitude
Idress 858 NW 6th S	t		Township 36 S	N or S Range	06 W E or W. WM.
y grants Pass	State OR	Zip7526	Section 06	_NE1/4_	1/4
MUDE OF WORK			Taylot2202 lot	Block	Subdivision

Street Address of Well (or nearest address)	
Lower River Rd	
10) STATIC WATER LEVEL:	
	D. = /10 /00

38ft. below	and surface.	Date 1/13/00
Artesian pressure	lb. per square inch.	Date
(11) WATER BEARING	ZONES:	

Depth at which water was first found _____64 '

From	To	Estimated Flow Rate	SWI
64	137	18	38
		-	-
			-
			_

SWL

38

ndonment

(12) WELL LOG: E Ground Elevation

Backfill placed fromft. toft. Material Material From Gravel placed fromft. toft. Size of gravel Decomposed granite, uncons (6) CASING/LINER:	n <u>T</u> c 7 8	7
Gravel placed fromft. toft. Size of gravel Decomposed granite, (6) CASING/LINER: Decomposed granite, Diameter From To Gauge Steel Plastik Welded Threaded Decomposed granite, Casing: 6 +2 18250 XX Decomposed granite, Decomposed granite,	7	7
(6) CASING/LINER: 0 Diameter From To Gauge Steel Plastik Welded Threaded 0 Casing: 6 +2 18250 XX 1 XX 0 Decomposedgranite, 0 Casing: 6 -2 18250 XX 1 0 0 0 0	8	7
Diameter From To Gauge Steel Plastik Welded Threaded Casing: 6 +2 18250 XX I Decomposedgranite, I Casing: 6 +2 18250 XX I Decomposedgranite, I	8	7
Casing: 6 +2 18250 XX	8	7
□ □ □ □ □ □ <u>cons.</u> 7	3	7
	_	
□ □ □ □ □ □ Tombstone granite,		-
Liner:	7 15	0
		_
Final location of shoe(s)		
(7) PERFORATIONS/SCREENS:		
Perforations Method		_
Screens Type Material	_	
Slot Tele/pipe Size Casing Liner		
		1
(8) WELL TESTS: Minimum testing time is 1 hour Date started 7/13/00 Completed	7/13/	<u>′00</u>
Flowing (unbonded) Water Well Constructor Certification:		
Pump Bailer XAir Artesian I certify that the work I performed on the construction, a	alteration,	or aba
Yield gal/min Drawdown Drill stem at Time Of this well is in compliance with Oregon water supply well Materials used and information reported above are true to the supply well is in compliance with Oregon water supply well Materials used and information reported above are true to the supply well is in compliance with Oregon water supply well is the supply well is in compliance with Oregon water	he best of	my ki
18 140 1 hr. and belief.		

Pump Yield gal/min	Bailer Drawdown	Air Drill stem at	Artesian Time	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
18		140	1 hr.	and belief.
Temperature of wa	ater <u>54</u>	Depth Artesian Flow	SEIVED	Signed <u>Stury</u> Call Date 7/13/00 (bonded) Water Well Constructor Certification:
Was a water analy Did any strata con	rsis done?	Yes By whole the set of the set o	Too little	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
Salty Mud Depth of strata:	ldy 🗌 Odor 🗌	Colored Other	<u>G 1 0 2000</u>	construction standards. This report is true to the best of my knowledge and belief. WWC Number <u>675</u>
			DE DE DE	Psigned 200 Jun Date 7/13/00

ORIGINAL - WATER RESOURCES DEPARTMENT SALEM OREGON CONSTRUCTOR SECOND COPY - CUSTOMER



Output for H	unt Strea	m Deplet	tion, Sce	nerio 2 (s	s2):	Time pu	np on = :	214 days				
Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.0563	0.1614	0.2447	0.3088	0.3594	0.4005	0.4346	0.4216	0.3400	0.2755	0.2284	0.1934
Qw, cfs	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
H SD s2, cfs	0.001	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.01	0.01	0.01	cfs
Distance to stream	a	3700	3700	3700	ft
Aquifer hydraulic conductivity	ĸ	2	2	2	ft/day
Aquifer thickness	b	50	50	50	ft
Aquifer transmissivity	Т	100	100	100	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	10	10	10	ft
Streambed hydraulic conductivity	Ks	0.2	0.2	0.2	ft/day
Streambed thickness	bs	15	15	15	ft
Streambed conductance	sbc	0.133333333	0.133333333	0.133333333	ft/day
Stream depletion factor (Jenkins)	sdf	136.9	136.9	136.9	days
Streambed factor (Hunt)	sbf	4.933333333	4.933333333	4.933333333	



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

Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.0128	0.0783	0.1505	0.2131	0.2654	0.3093	0.3466	0.3711	0.3381	0.2897	0.2474	0.2132
Qw, cfs	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
H SD s2, cfs	0.000	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.003	0.003	0.002	0.002

Parameters:	Scenario 1	Scenario 2	Scenario 3	Units	
Net steady pumping rate	Qw	0.01	0.01	0.01	cfs
Distance to stream	а	6100	6100	6100	ft
Aquifer hydraulic conductivity	к	2	2	2	ft/day
Aquifer thickness	b	50	50	50	ft
Aquifer transmissivity	Т	100	100	100	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	WS	250	250	250	ft
Streambed hydraulic conductivity	Ks	0.2	0.2	0.2	ft/day
Streambed thickness	bs	60	60	60	ft
Streambed conductance	sbc	0.833333333	0.833333333	0.833333333	ft/day
Stream depletion factor (Jenkins)	sdf	372.1	372.1	372.1	days
Streambed factor (Hunt)	sbf	50.83333333	50.83333333	50.83333333	



Transient Stream Depletion (Jenkins, 1970; Hunt, 1999) JOSE 53407 to Pass Creek

	Jenkins s2 residual Hunt s3							Hunt s2 residual				
Output for Hunt Stream Depletion, Scenerio 2 (s2): Time pump on = 214 days												
Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.0429	0.1380	0.2181	0.2814	0.3321	0.3737	0.4084	0.4071	0.3378	0.2776	0.2322	0.1978
Qw, cfs	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
H SD s2, cfs	0.002	0.006	0.009	0.011	0.013	0.015	0.016	0.016	0.014	0.011	0.009	0.008

Parameters:	Scenario 1	Scenario 2	Scenario 3	Units	
Net steady pumping rate	Qw	0.04	0.04	0.04	cfs
Distance to stream	а	4000	4000	4000	ft
Aquifer hydraulic conductivity	ĸ	2	2	2	ft/day
Aquifer thickness	b	50	50	50	ft
Aquifer transmissivity	T	100	100	100	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	10	10	10	ft
Streambed hydraulic conductivity	Ks	0.2	0.2	0.2	ft/day
Streambed thickness	bs	15	15	15	ft
Streambed conductance	sbc	0.133333333	0.133333333	0.133333333	ft/day
Stream depletion factor (Jenkins)	sdf	160	160	160	days
Streambed factor (Hunt)	sbf	5.333333333	5.333333333	5.333333333	



Output for Hunt Stream Depletion, Scenerio 2 (s2): Time pump on = 214 days 90 240 270 300 360 30 60 120 150 210 330 Days 180 0.2641 Hunt SD s2 0.0062 0.0531 0.1143 0.1714 0.2212 0.3012 0.3302 0.3166 0.2809 0.2453 0.2147 Qw, cfs 0.040 0.040 0.040 0.040 0.040 0.040 0.040 0.040 0.040 0.040 0.040 0.040 H SD s2, cfs 0.000 0.002 0.005 0.007 0.009 0.011 0.012 0.013 0.013 0.011 0.010 0.009

Parameters:	Scenario 1	Scenario 2	Scenario 3	Units	
Net steady pumping rate	Qw	0.04	0.04	0.04	cfs
Distance to stream	а	6700	6700	6700	ft
Aquifer hydraulic conductivity	ĸ	2	2	2	ft/day
Aquifer thickness	b	50	50	50	ft
Aquifer transmissivity	Т	100	100	100	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	250	250	250	ft
Streambed hydraulic conductivity	Ks	0.2	0.2	0.2	ft/day
Streambed thickness	bs	60	60	60	ft
Streambed conductance	sbc	0.833333333	0.833333333	0.833333333	ft/day
Stream depletion factor (Jenkins)	sdf	448.9	448.9	448.9	days
Streambed factor (Hunt)	sbf	55.83333333	55.83333333	55.83333333	



Region	7	Steady st	ate strea	m deple	tion as a	fraction	of pumpi	ing norma	alized to	crop wat	er use co	nsumptio	on.
Month	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Resid
Qw	0.00	0.00	0.01	0.08	0.13	0.17	0.24	0.20	0.13	0.04	0.00	0.00	0.00
Jenkins SD													91
yr1	0.000	0.000	0.000	0.000	0.003	0.009	0.018	0.029	0.041	0.048	0.050	0.046	0.756
yrmax-1	0.066	0.060	0.055	0.050	0.049	0.052	0.058	0.067	0.076	0.082	0.082	0.076	0.227
yrmax	0.066	0.060	0.055	0.050	0.049	0.052	0.058	0.067	0.076	0.082	0.082	0.076	0.227
yrmax-yr1	0.066	0.060	0.055	0.050	0.046	0.043	0.040	0.038	0.035	0.034	0.032	0.030	0.529
J SD SS	0.095	0.086	0.078	0.072	0.069	0.070	0.075	0.083	0.091	0.096	0.095	0.089	0.000
Hunt SD 19	99												
yr 1	0.000	0.000	0.000	0.000	0.002	0.008	0.016	0.026	0.037	0.045	0.047	0.044	0.773
yr max-1	0.066	0.060	0.055	0.051	0.049	0.052	0.057	0.065	0.074	0.079	0.080	0.076	0.236
yr max	0.066	0.060	0.055	0.051	0.049	0.052	0.057	0.065	0.074	0.079	0.080	0.076	0.236
yrmax-yr1	0.066	0.060	0.055	0.051	0.047	0.044	0.041	0.038	0.036	0.034	0.033	0.031	0.537
H99 SD SS	0.095	0.087	0.079	0.073	0.070	0.071	0.075	0.082	0.090	0.095	0.094	0.089	0.000

Parameters:		Values	Units	
Maximum number of years pumped	yrmax	25	years	
Days pumped each month	tpoff	30.4375	days/month	
Perpendicular from well to stream	a	6700	ft	
Well depth	d	150	ft	
Aquifer hydraulic conductivity	к	2	ft/day	
Aquifer saturated thickness	b	50	ft	
Aquifer transmissivity	T_ft	100	ft*ft/day	= K*b
Aquifer transmissivity	T_gal	748	gpd/ft	= K*b
Aquifer storativity or specific yield	S	0.001		
Streambed conductivity (Hunt 1999)	Ks	0.2	ft/day	
Streambed thickness, Hunt 1999	bs	60	ft	
Stream width (Hunt 1999)	WS	250	ft	
Streambed conductance (lambda)	sbc	0.8333	ft/day	= Ks*ws/bs
Stream depletion factor	sdf	448.9000	days	= (a^2*S)/(T
Streambed factor	sbf	55.8333		= sbc*a/T

S:\groups\gwater\grondin\areas\jackson_josephine\water_rights\G_17194_Seclusion_Estates_Grants_Pass_scenic_str eam_depletion_sd_1033_3_30.xls