Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE ** G-16445

ROUTED TO: Water Rights

TOWNSHIP/
RANGE-SECTION: N 5/26E-24da
5N/27E-19cb

CONDITIONS ATTACHED? [ ]yes [✓]no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Michael Zwart

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **June 16, 2005**

FROM: Ground Water/Hydrology Section **Michael Zwart**
Reviewer's Name

SUBJECT: Application G- **16445** Supersedes review of **N/A**
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: **City of Irrigon** County: **Morrow**

A1. Applicant(s) seek(s) **6.6845** cfs from **two** well(s) in the **Umatilla** Basin, **Columbia-Umatilla Plateau** subbasin Quad Map: **Irrigon**

A2. Proposed use: **Municipal** 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**	**3**	**Alluvium**	**3.342**	**5N/26E-24 NE-SE**	**2600' N, 1120' W fr SE cor S24**
2	**Proposed**	**4**	**Alluvium**	**3.342**	**5N/27E-19 NW-SW**	**2600' N, 1400' E fr SW cor S19**
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
3	**274**	**40**	**15**		**100**	**0-40**	**0-100**		**40-100**	**1500**		
4	**272**	**40**	**15**		**100**	**0-40**	**0-100**		**40-100**	**1500**		

Use data from application for proposed wells.

A4. **Comments:**

A5. ☒ **Provisions of the Umatilla** 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: **See OAR 690-507-0070(3)(e).**

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) _____;
   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~~; DW

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 potential for injury to other ground-water users or overdraft of the resource is very low. This is due to the limited amount of drawdown and pumping interference that will likely be generated as a result of the significant recharge boundary effect of the Columbia River.**

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
3,4	**Alluvium adjacent to the Columbia River (Qal)**	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **Nearby well logs do not describe any low permeability materials immediately above the water-bearing zone within the alluvium.**

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
3	**1**	**Columbia River**	**259**	**265**	**150**	☒	☐	☐	☒	☐
4	**1**	**Columbia River**	**257**	**265**	**150**	☒	☐	☐	☒	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **The Division 9 rules require a finding of hydraulic connection for unconfined aquifers developed by wells less than one-quarter mile from surface water sources. In addition, the proposed well construction and likely head relationship suggest a strong hydraulic connection.**
Water Availability Basin the well(s) are located within: **No WAB in this area. See Dwight French memo to caseworkers dated 12/6/2004.**

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?
3	**1**	☒	☐			☐		☐	**96.5**	☒
4	**1**	☒	☐			☐		☐	**96.5**	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

Application G-16445 continued Date: June 16, 2005

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?
3+4	**1**		☒			☐		☐	**96.5**	☒
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: **Used Wozniak modification of Hunt stream depletion model. Percent interference calculated is not dependent on pumping rate, so there is no need to include additional graphs for each well pumped separately.**

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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: **This section does not apply.**

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: **Ground Water Reports #23 and #24; local well logs; regional geologic maps; reviews of nearby files; personal communication with Donn Miller.**

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).**

Water Resources Department

MEMO June 16, 2005

TO **Application G-** 16445

FROM **GW:** Michael Zwart
(Reviewer's Name)

SUBJECT **Scenic Waterway Interference Evaluation**

☐ Yes
☑ No

The source of appropriation is within or above a Scenic Waterway

☐ Yes
☑ No

Use the Scenic Waterway condition (Condition 7J).

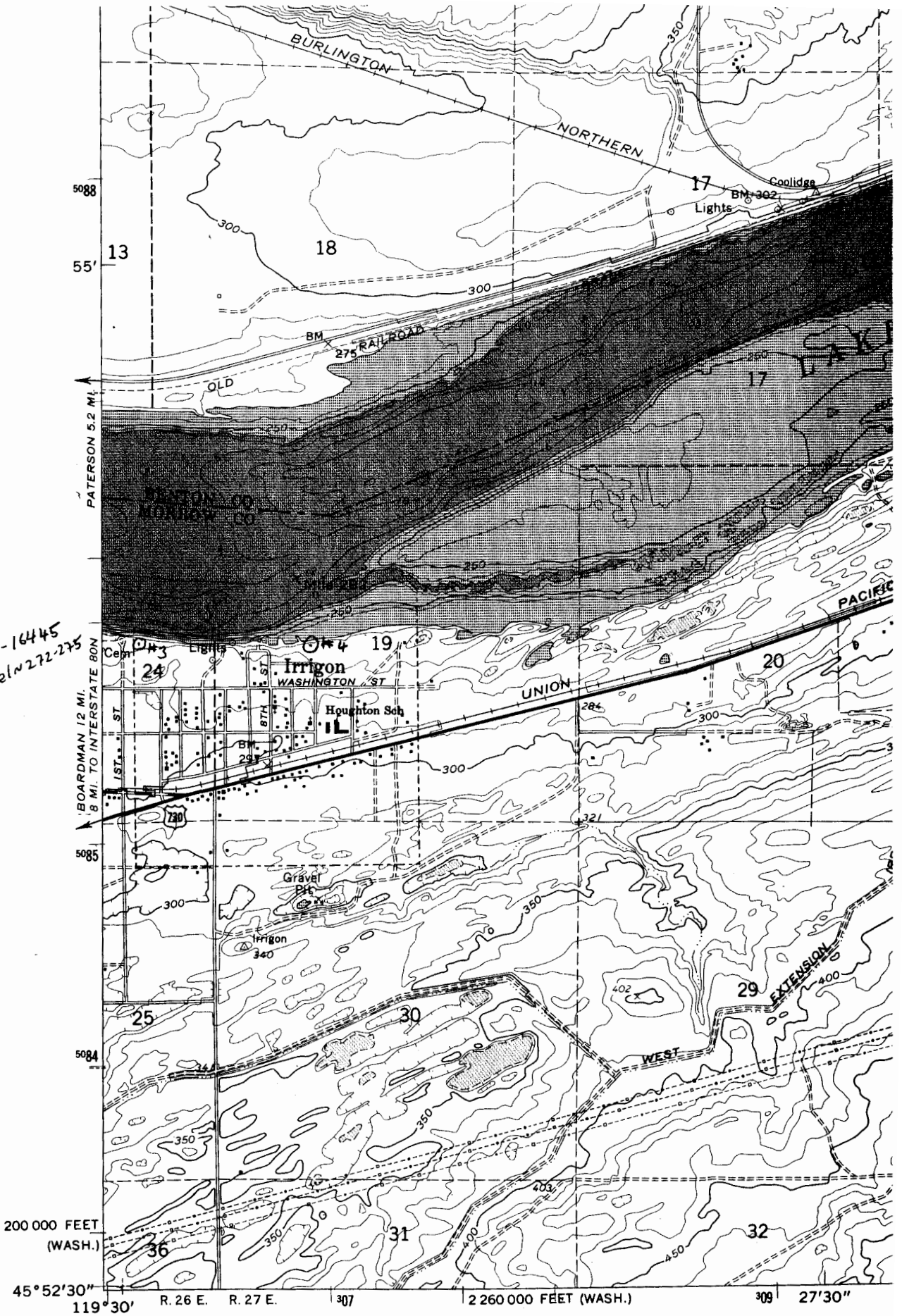
PREPONDERANCE OF EVIDENCE FINDING: (Check box only if statement is true)

☑ At this time the Department is unable to find that there is a preponderance of evidence that the proposed use of ground water will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife.

FLOW REDUCTION: *(To be filled out only if Preponderance of Evidence box is not checked)*

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



G-16445
el 272-275

(CLARKE)
2075 I SE

Mapped, edited and published by the Geological Survey

Control by USGS, USC&GS, and USCE

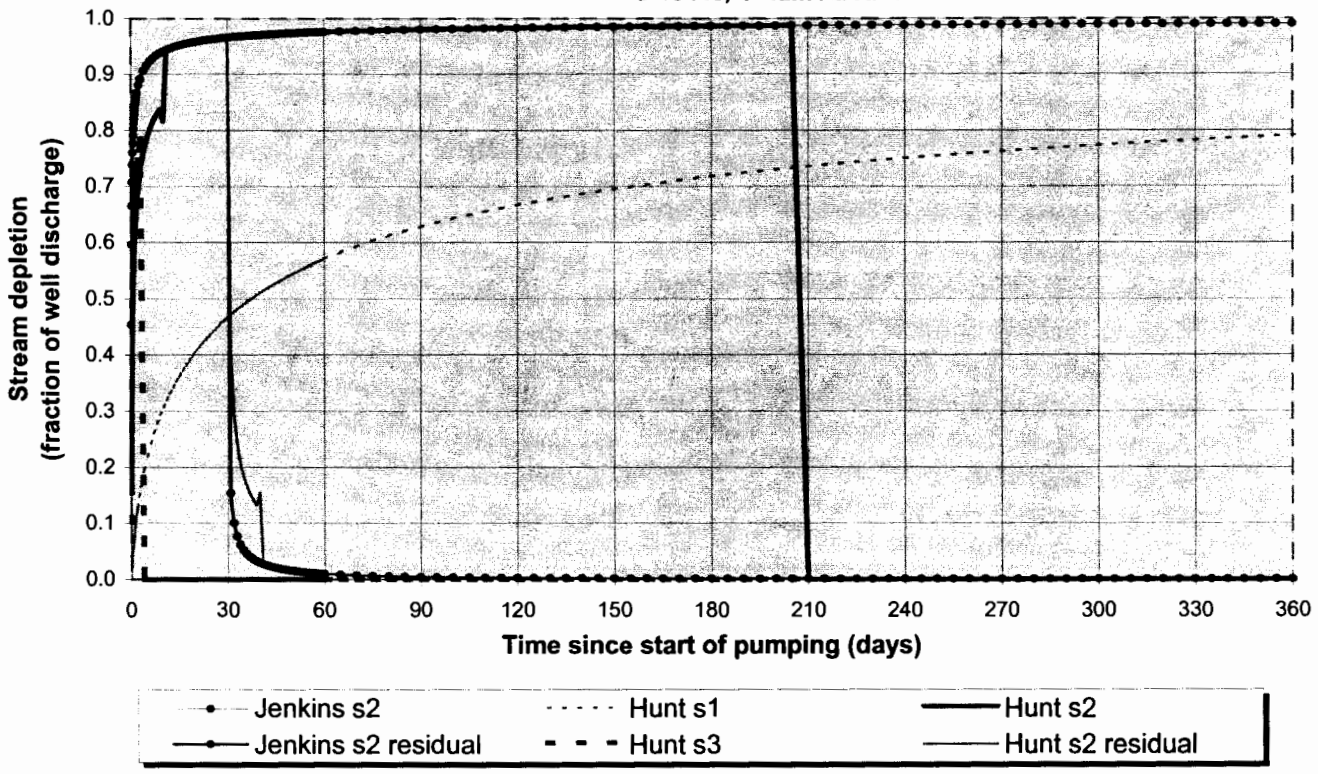
Topography by photogrammetric methods from aerial photographs taken 1958 and 1960. Field checked 1962

Selected hydrographic data compiled from USC&GS Chart 6162 (1961)
This information is not intended for navigational purposes

GN MN
1°45'
31 MILS
20½°
364 MILS

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

G-16445, Columbia River



Output for Hunt Stream Depletion, Scenerio 2 (s2): **Time pump on = 30 days**

Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.965	0.010	0.004	0.003	0.002	0.001	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
Qw, cfs	6.685	6.685	6.685	6.685	6.685	6.685	6.685	6.685	6.685	6.685	6.685	6.685
H SD s2, cfs	6.454	0.068	0.030	0.018	0.012	0.009	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

Parameters:		**Scenario 1**	**Scenario 2**	**Scenario 3**	**Units**
Net steady pumping rate	Qw	6.6845	6.6845	6.6845	cfs
Distance to stream	a	150	150	150	ft
Aquifer hydraulic conductivity	K	50	200	50	ft/day
Aquifer thickness	b	100	100	100	ft
Aquifer transmissivity	T	5000	20000	5000	ft*ft/day
Aquifer storage coefficient	S	0.1	0.1	0.1	
Stream width	ws	3300	3300	3300	ft

Streambed hydraulic conductivity	Ks	0.01	0.5	1	ft/day
Streambed thickness	bs	5	10	5	ft
Streambed conductance	sbc	6.6	165	660	ft/day
Stream depletion factor (Jenkins)	sdf	0.45	0.1125	0.45	days
Streambed factor (Hunt)	sbf	0.198	1.2375	19.8	

Wells in the vicinity of application G 16445

- Application well(s) in this 1/4-1/4 section
- Well(s) identified in this section from OWRD's well log database within 1 mi. radius of application well(s)
- Well(s) identified in this 1/4-1/4 section from OWRD's well log database within 1 mi. radius of application well(s)
- Permitted well(s) in this 1/4-1/4 section within 1 mi. radius of application well(s)
- Conditioned, permitted well(s) in this 1/4-1/4 section within 5 mi. radius of application well(s)
- OWRD Observation well and well-id within 5 mi. radius of application well(s)
- Critical GW Area
- Regulated GW Area