PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **August 7, 2006**

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

SUBJECT: Application G- **16454** Supersedes review of **July 11, 2005**
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: **Rowena Dell Water Assn.** County: **Wasco**

A1. Applicant(s) seek(s) **0.1671** cfs from **three** well(s) in the **Hood** Basin, subbasin Quad Map: **Lyle**

A2. Proposed use: **Quasi 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	**WASC 2787**	**1**	**CRB**	**0.0557**	**2N/12E-3 SW-SW**	**965' N, 780' E fr SW cor S 3**
2	**WASC 2792**	**2**	**CRB**	**0.0557**	**2N/12E-3 SW-SW**	**75' N, 310' E fr SW cor S 3**
3	**WASC 2794**	**3**	**CRB**	**0.0557**	**2N/12E-3 SE-SW**	**600' N, 1545' E fr SW cor S 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	**800**	**325**	**490**	**10/7/76**	**650**	**0-20**	**0-20**	**None**	**None**	**30**	**0**	**P**
2	**650**	**127**	**372**	**10/17/76**	**515**	**0-58**	**0-58**	**None**	**None**	**40**	**143**	**Air**
3	**575**	**620**	**342**	**10/10/76**	**640**	**0-18**	**0-18**	**None**	**None**	**6**	**298**	**Air**

Use data from application for proposed wells.

A4. **Comments:** WASC 2787 deepened: WASC 2793. This log was also attached to well #2, but based on the dates of construction, it appears that it is well #1 that is deepened. Drawdown estimated from air test.

A5. ☒ **Provisions of the** Hood 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:

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) 7A;
   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 _____ 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: Potential for water-level declines and overdraft of the resource exists virtually everywhere the Columbia River Basalt aquifers are developed, especially east of the Cascades where recharge is small. The attached hydrograph for well WASC 50012 displays declining water levels at a well in the vicinity (approx. 3.5 miles) of the subject wells. This well develops the Frenchman Springs Member of the Columbia River Basalt. Very similar declines have been documented at other wells that develop ground water in the Frenchman Springs Member (Lite, personal communication). The subject wells may be hydraulically isolated from the above-mentioned wells to the west by faulting. Another attached hydrograph for a well (WASC 2020) about 1.2 miles south displays relatively stable water levels. Therefore, a finding that the resource is over appropriated is not made here.

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
All	**Frenchman Springs Member* of the Columbia River Basalt**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Ground water in CRB aquifers is typically confined in this area. *The subject wells also are open to overlying Roza and Priest Rapids Members, but none obviously commingle, probably as a result of under-reporting of water-level information on the well logs. The Frenchmen Springs is therefore assumed to include the primary water-bearing zone.

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
1	1	Rowena Creek	310	620	650	☐	☒	☐	☐	☒
2	1	Rowena Creek	278	635	200	☐	☒	☐	☐	☒
3	1	Rowena Creek	233	560	150	☐	☒	☐	☐	☒
1	2	Columbia River	310	72	4200	☒	☐	☐	☐	☒
2	2	Columbia River	278	72	5100	☒	☐	☐	☐	☒
3	2	Columbia River	233	72	3800	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Rowena Creek is well above the head in the wells at the nearby reaches. The Columbia River is the likely discharge area for the water-bearing zones developed by the wells.

Water Availability Basin the well(s) are located within: Rowena Cr > Columbia R at mouth (30410531).

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	2	☐	☐			☐	*	☐		☐
2	2	☐	☐			☐	*	☐		☐
3	2	☐	☐			☐	*	☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: *See Dwight French memo of 12/6/2004 for water availability determinations for the Columbia River mainstem. Used Wozniak modification of the Hunt stream depletion model to determine interference at 30 days.

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													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(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: Local well logs; Recent reviews, especially G-16310; Ground Water Report #33 by Lite & Grondin; hydrographs of nearby wells; personal communication with Ken Lite regarding recent water-level data collected in the area.

Application G-16454 continued Date: August 7, 2006

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** All **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:** **In general, I suspect that commingling is possible or likely whenever deep wells are constructed in CRB aquifers with minimal, or near minimal, casing and seal depths. Note that, in WASC 2792, the constructor reports multiple water-bearing zones but does not report any water levels for these separate zones. Enforcement Section staff previously found that the well construction seems to protect the ground-water resource.**

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).**

Superceded 8/7/06

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date July 11, 2005

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

SUBJECT: Application G- 16454 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: Rowena Dell Water Assn. County: Wasco

A1. Applicant(s) seek(s) 0.1671 cfs from three well(s) in the Hood Basin,
subbasin Quad Map: Lyle

A2. Proposed use: Quasi 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	WASC 2787	1	CRB	0.0557	2N/12E-3 SW-SW	965' N, 780' E fr SW cor S 3
2	WASC 2792	2	CRB	0.0557	2N/12E-3 SW-SW	75' N, 310' E fr SW cor S 3
3	WASC 2794	3	CRB	0.0557	2N/12E-3 SE-SW	600' N, 1545' E fr SW cor S 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	800	325	490	10/7/76	650	0-20	0-20	None	None	30	0	P
2	650	127	372	10/17/76	515	0-58	0-58	None	None	40	143	Air
3	575	620	342	10/10/76	640	0-18	0-18	None	None	6	298	Air

Use data from application for proposed wells.

A4. **Comments:** WASC 2787 deepened: WASC 2793. This log was also attached to well #2, but based on the dates of construction, it appears that it is well #1 that is deepened. Drawdown estimated from air test.

A5. ☒ **Provisions of the** Hood 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:

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;

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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) 7A;
   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 _____ 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:** **Potential for water-level declines and overdraft of the resource exists virtually everywhere the Columbia River Basalt aquifers are developed, especially east of the Cascades where recharge is small. The attached hydrograph for well WASC 50012 displays declining water levels at a well in the vicinity (approx. 3.5 miles) of the subject wells. This well develops the Frenchman Springs Member of the Columbia River Basalt. Very similar declines have been documented at other wells that develop ground water in the Frenchman Springs Member (Lite, personal communication). The subject wells may be hydraulically isolated from the above-mentioned wells to the west by faulting. Another attached hydrograph for a well (WASC 2020) about 1.2 miles south displays relatively stable water levels. Therefore, a finding that the resource is over appropriated is not made here.**

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
All	**Frenchman Springs Member* of the Columbia River Basalt**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Ground water in CRB aquifers is typically confined in this area. *The subject wells also are open to overlying Roza and Priest Rapids Members, but none obviously commingle, probably as a result of under-reporting of water-level information on the well logs. The Frenchmen Springs is therefore assumed to include the primary water-bearing zone.

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3	2	Columbia River	233	72	3800	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Rowena Creek is well above the head in the wells at the nearby reaches. The Columbia River is the likely discharge area for the water-bearing zones developed by the wells.

Water Availability Basin the well(s) are located within: Rowena Cr > Columbia R at mouth (30410531).

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	2	☐	☐			☐	*	☐	70	☒
2	2	☐	☐			☐	*	☐	68	☒
3	2	☐	☐			☐	*	☐	70	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: ***See Dwight French memo of 12/6/2004 for water availability determinations for the Columbia River mainstem. Used Wozniak modification of the Hunt stream depletion model to determine interference at 30 days.**

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:

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: **Local well logs; Recent reviews, especially G-16310; Ground Water Report #33 by Lite & Grondin; hydrographs of nearby wells; personal communication with Ken Lite regarding recent water-level data collected in the area.**

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** All **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:** **In general, I suspect that commingling is possible or likely whenever deep wells are constructed in CRB aquifers with minimal, or near minimal, casing and seal depths. Note that, in WASC 2792, the constructor reports multiple water-bearing zones but does not report any water levels for these separate zones.**

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

July 12, 2005

TO **Application G-** 16454

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).

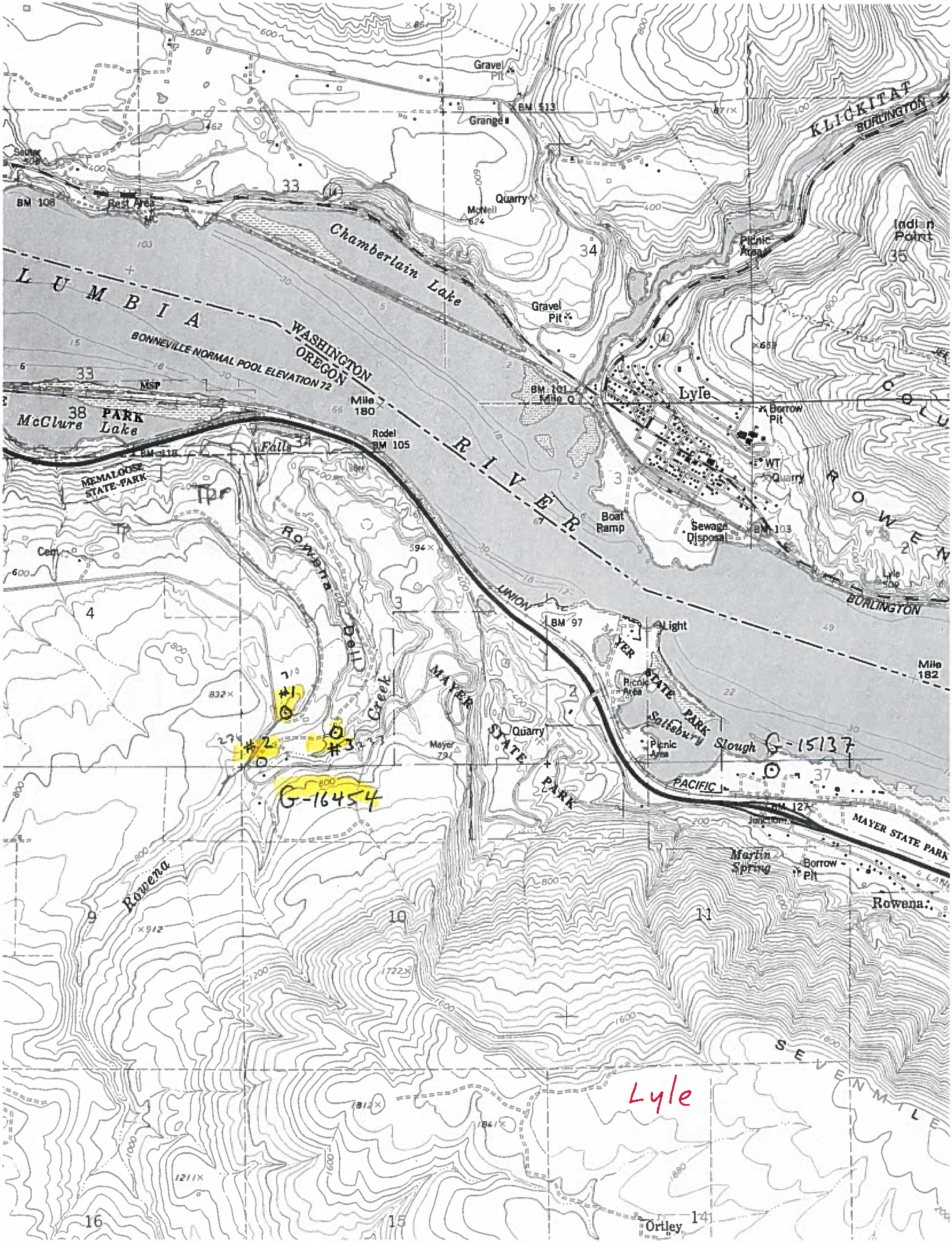
PREPONDERANCE OF EVIDENCE FINDING: (Check box only if statement is true)

☑ 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



COLUMBIA
RIVER
WASHINGTON
OREGON
BONNEVILLE NORMAL POOL ELEVATION 72
Chamberlain Lake
McClure Lake
PARK
MEMALOOSE STATE PARK
KLICKITAT
BURLINGTON
Lyle
Indian Point
Gravel Pit
Grange
BM 513
Quarry
McNeil
Rest Area
Picnic Area
BM 108
Mile 180
Rodel
BM 105
BM 101
Mile 0
Borrow Pit
WT
Boat Ramp
Sewage Disposal
BM 103
Falls
Cem
Rowena Dell
Creek
Mayer
UNION
PACIFIC
BM 97
Light
MAYER STATE PARK
Salisbury Slough
Mile 182
Junction
Marlin Spring
Rowena
SEVENMILE
Ortley
#1
#2
#3
G-16454
G-15137
Lyle

Well Location	2.00N11.00E12
Oregon Water Resources Department Well Log ID	WASC 50012
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	596
Land surface elevation, in feet above mean sea level	302
Primary use of well	IRRIGATION

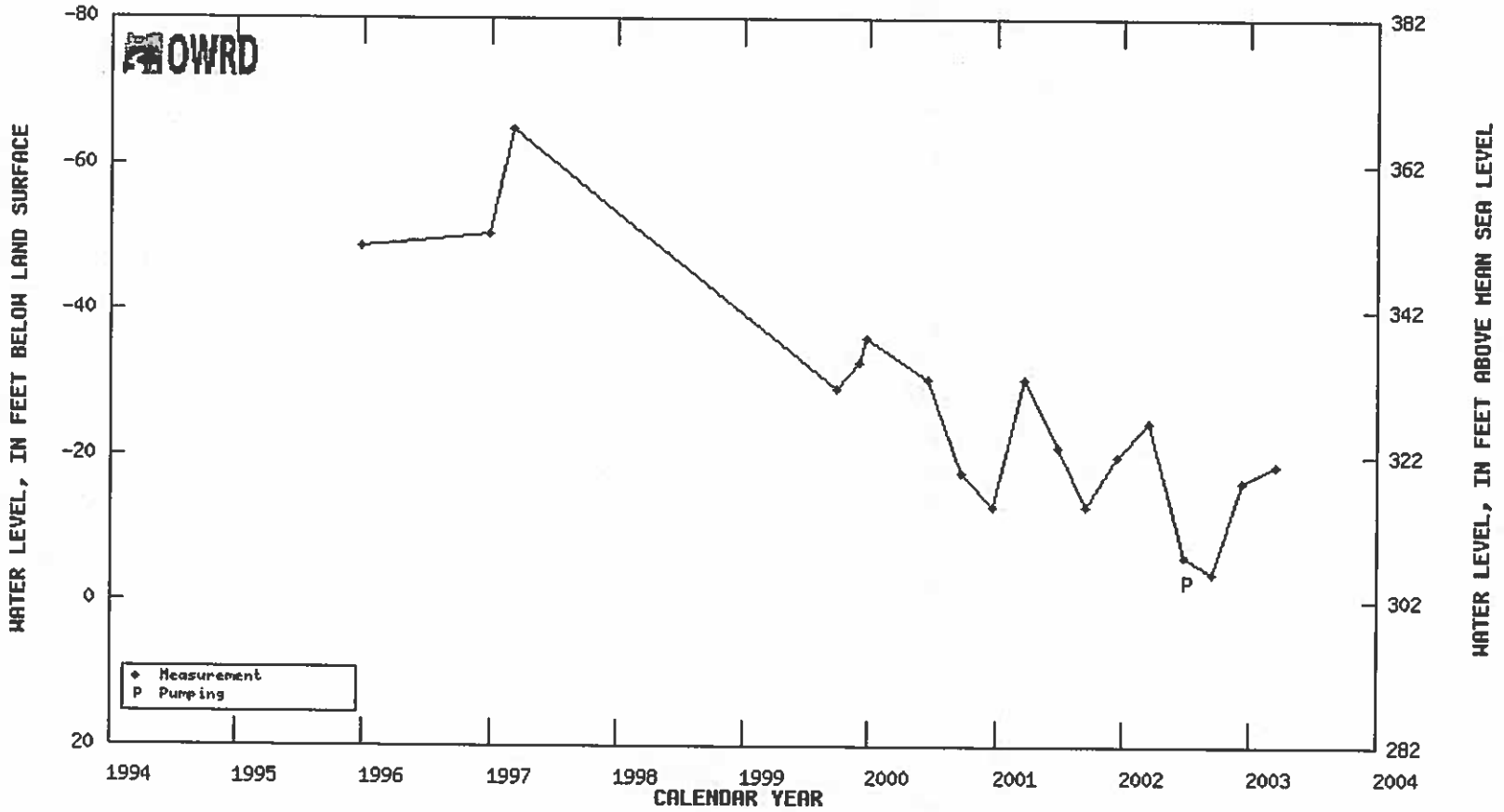


Table showing water-level data for State Well WASC 50012

Well Location	2.00N12.00E16ABC
Oregon Water Resources Department Well Log ID	WASC 2020
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	200
Land surface elevation, in feet above mean sea level	950
Primary use of well	UNUSED

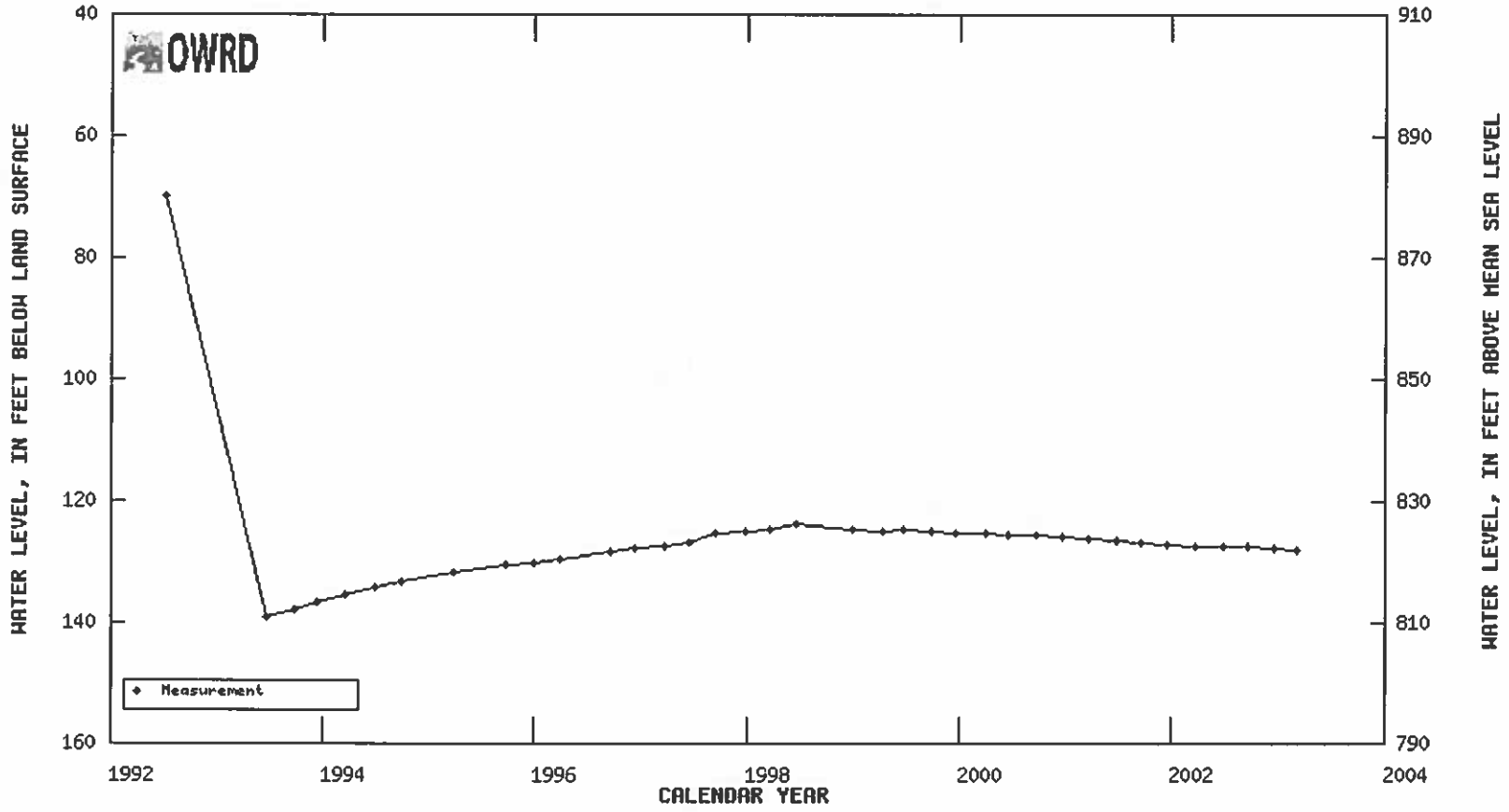
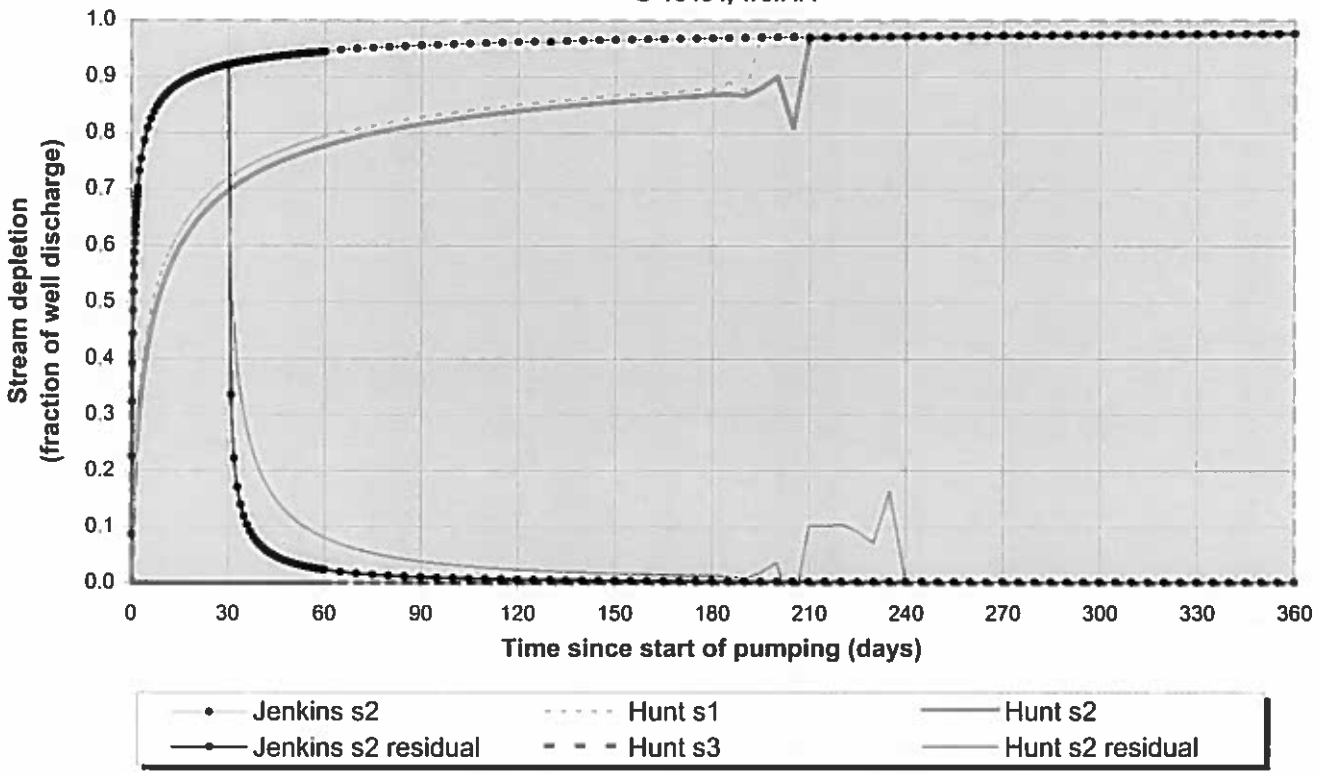


Table showing water-level data for State Well WASC 2020

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

G-16454, well #1



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

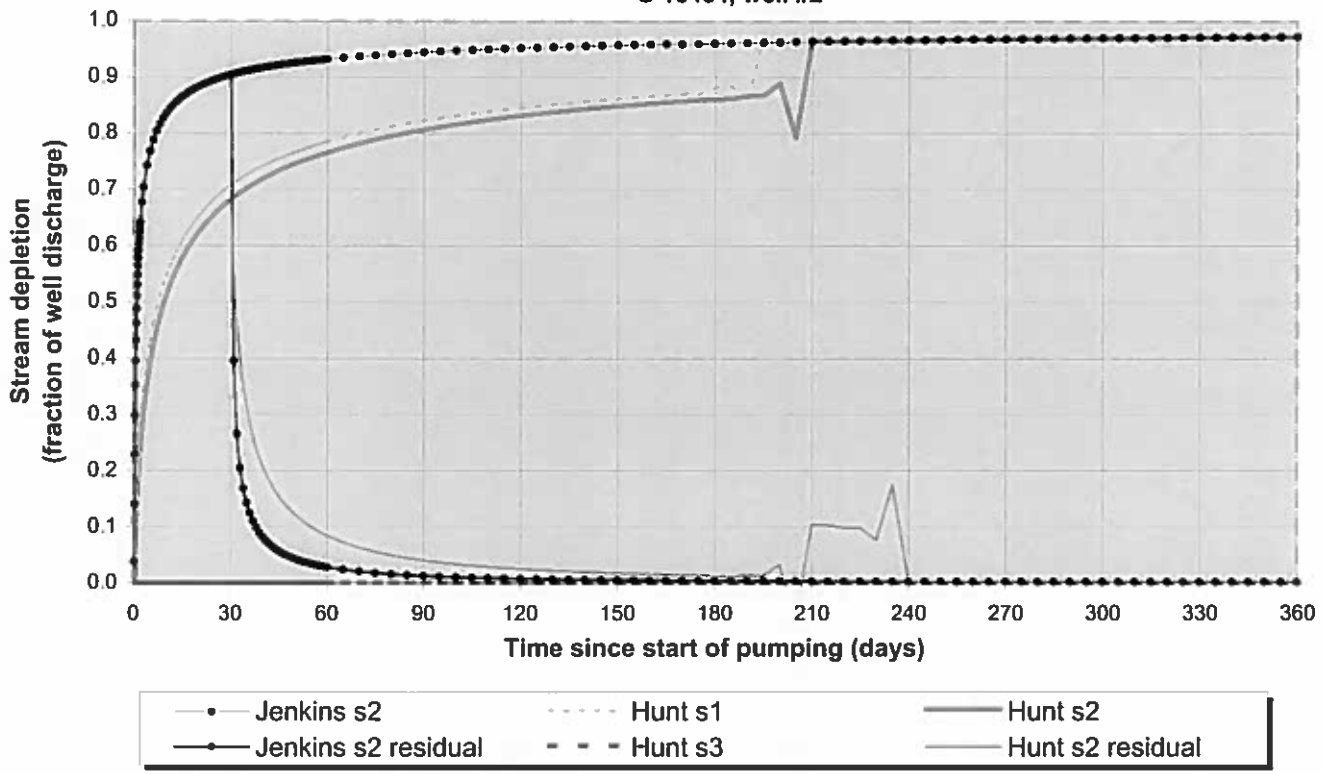
Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.697	0.080	0.038	0.023	0.016	0.013	0.102	0.002	0.002	0.001	0.001	0.001
Qw, cfs	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
H SD s2, cfs	0.039	0.004	0.002	0.001	0.001	0.001	0.006	0.000	0.000	0.000	0.000	0.000

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.0557	0.0557	0.0557	cfs
Distance to stream	a	4200	4200	4200	ft
Aquifer hydraulic conductivity	K	50	30	50	ft/day
Aquifer thickness	b	1000	1000	1000	ft
Aquifer transmissivity	T	50000	30000	50000	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	3000	3000	3000	ft

Streambed hydraulic conductivity	Ks	0.01	0.03	1	ft/day
Streambed thickness	bs	5	20	5	ft
Streambed conductance	sbc	6	4.5	600	ft/day
Stream depletion factor (Jenkins)	sdf	0.3528	0.588	0.3528	days
Streambed factor (Hunt)	sbf	0.504	0.63	50.4	

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

G-16454, well #2



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

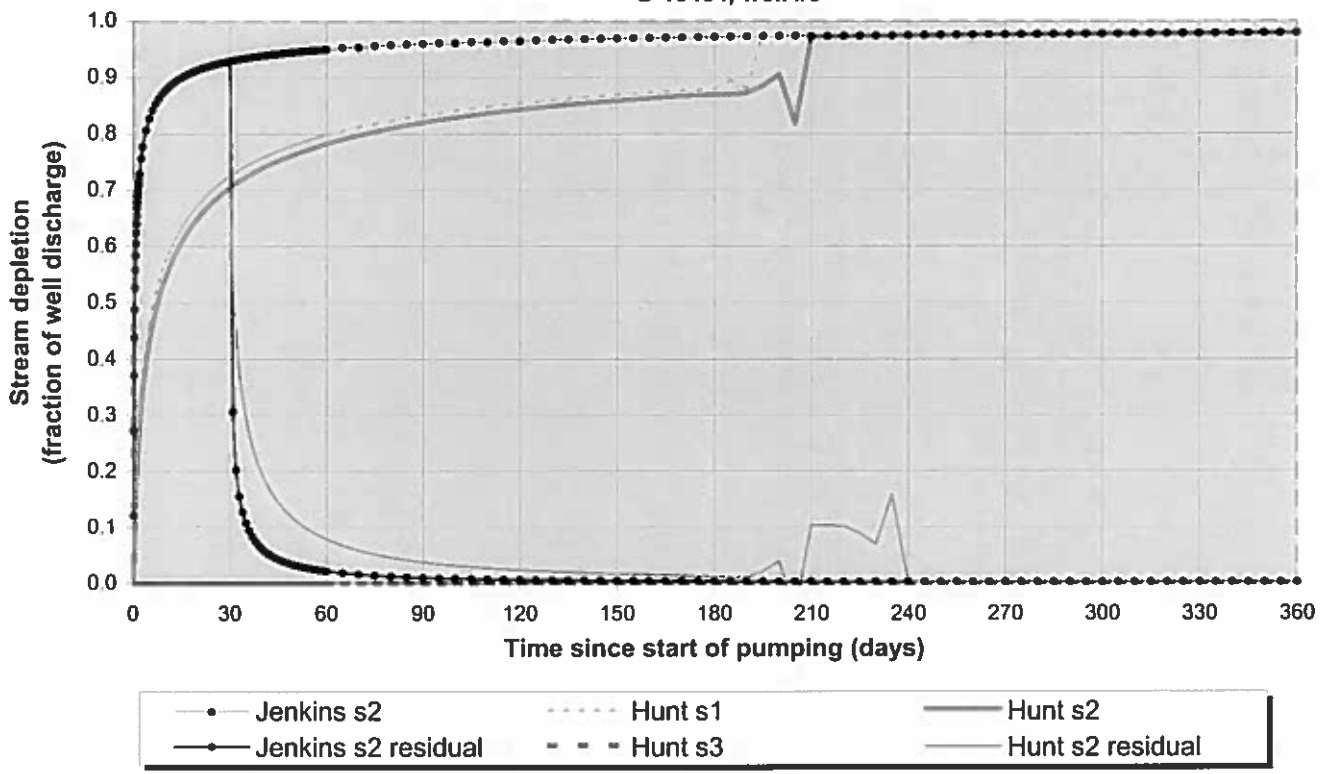
Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.682	0.084	0.040	0.025	0.017	0.012	0.104	0.002	0.002	0.002	0.001	0.001
Qw, cfs	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
H SD s2, cfs	0.038	0.005	0.002	0.001	0.001	0.001	0.006	0.000	0.000	0.000	0.000	0.000

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.0557	0.0557	0.0557	cfs
Distance to stream	a	5100	5100	5100	ft
Aquifer hydraulic conductivity	K	50	30	50	ft/day
Aquifer thickness	b	1000	1000	1000	ft
Aquifer transmissivity	T	50000	30000	50000	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	3000	3000	3000	ft

Streambed hydraulic conductivity	Ks	0.01	0.03	1	ft/day
Streambed thickness	bs	5	20	5	ft
Streambed conductance	sbc	6	4.5	600	ft/day
Stream depletion factor (Jenkins)	sdf	0.5202	0.867	0.5202	days
Streambed factor (Hunt)	sbf	0.612	0.765	61.2	

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

G-16454, well #3



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

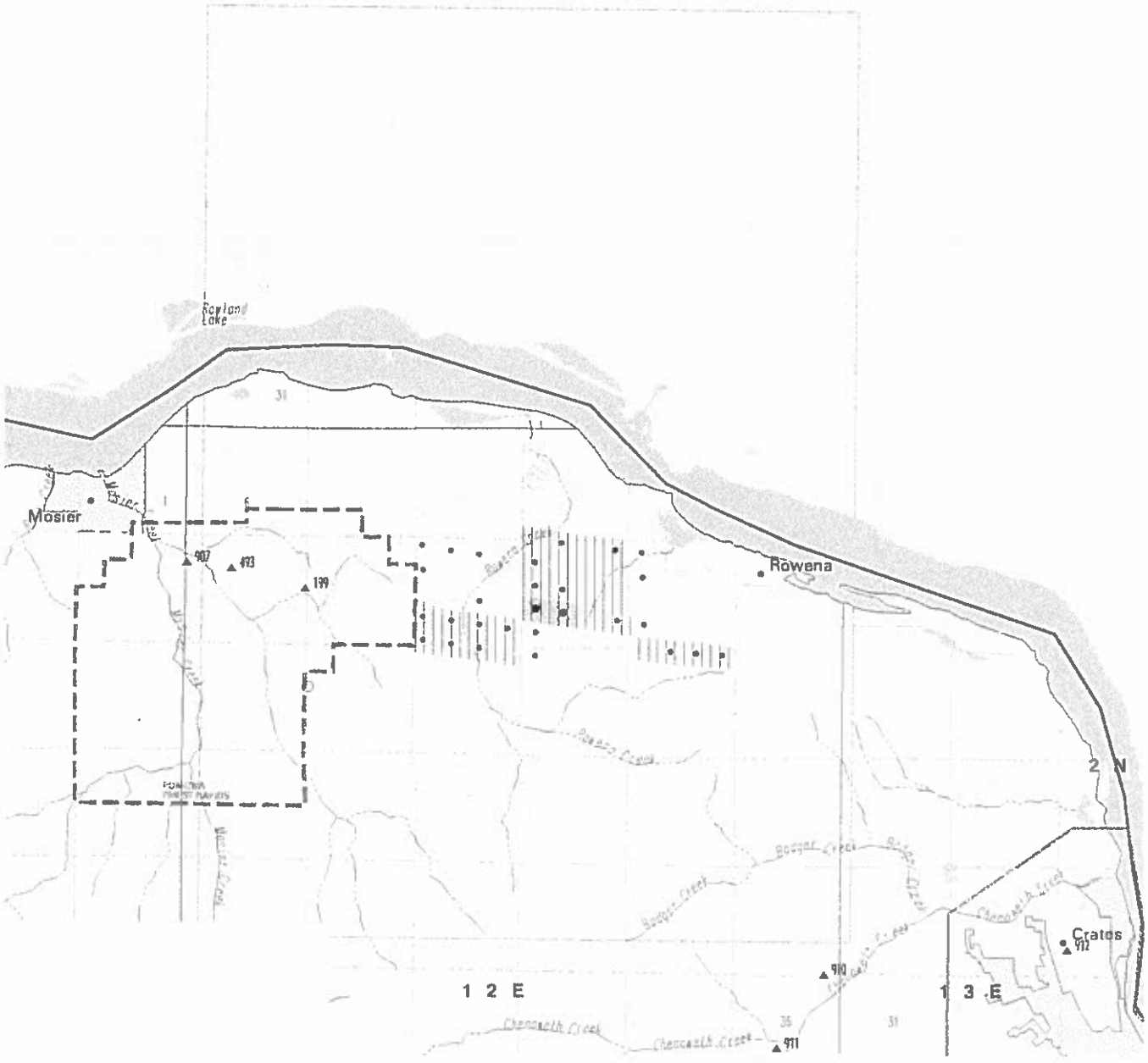
Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.704	0.078	0.037	0.023	0.016	0.011	0.103	0.002	0.001	0.001	0.001	0.001
Qw, cfs	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
H SD s2, cfs	0.039	0.004	0.002	0.001	0.001	0.001	0.006	0.000	0.000	0.000	0.000	0.000

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Qw	0.0557	0.0557	0.0557	cfs
Distance to stream	a	3800	3800	3800	ft
Aquifer hydraulic conductivity	K	50	30	50	ft/day
Aquifer thickness	b	1000	1000	1000	ft
Aquifer transmissivity	T	50000	30000	50000	ft*ft/day
Aquifer storage coefficient	S	0.001	0.001	0.001	
Stream width	ws	3000	3000	3000	ft

Streambed hydraulic conductivity	Ks	0.01	0.03	1	ft/day
Streambed thickness	bs	5	20	5	ft
Streambed conductance	sbc	6	4.5	600	ft/day
Stream depletion factor (Jenkins)	sdf	0.2888	0.481333333	0.2888	days
Streambed factor (Hunt)	sbf	0.456	0.57	45.6	

Wells in the vicinity of application G 16454

- 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



WELL LOGS WITHIN 1 MILE OF APPLICATION G 16454

ABANDON:	99
RECONDITIONED:	102
REPAIRED:	73
CONVERSION:	0
DEEPENINGS:	71
NEW CONSTRUCT:	899
COMMUNITY USE:	30
DOMESTIC USE:	893
INDUSTRIAL USE:	0
INJECTION USE:	0
IRRIGATION USE:	101
THERMAL USE:	0
LIVESTOCK USE:	24

****

PERMITTED WELLS WITHIN 1 MILE OF APPLICATION G 16454

$RECNO	APPLICATION	PERMIT	CLAIM	LOC-QQ	USE_CODE
1	G 16454	0	0	2.00N12.00E 3SWSW	QM
1	G 16454	0	0	2.00N12.00E 3SWSW	QM
2	G 16454	0	0	2.00N12.00E 3SESW	QM

****

CONDITIONED WELLS WITHIN 5 MILES OF APPLICATION G 16454

$RECNO	APPLICATION	PERMIT	LOC-QQ	CONDITION-CODE
1	G 13570	G 12411	2.00N12.00E17NWNW	7BG
1	G 13570	G 12411	2.00N12.00E17NWNW	7BR
1	G 13570	G 12411	2.00N12.00E17NWNW	7DG
1	G 13570	G 12411	2.00N12.00E17NWNW	7DR
1	G 13570	G 12411	2.00N12.00E17NWNW	7BG
1	G 13570	G 12411	2.00N12.00E17NWNW	7BR
1	G 13570	G 12411	2.00N12.00E17NWNW	7DG
1	G 13570	G 12411	2.00N12.00E17NWNW	7DR

****

APPLICATION G 16454 FALLS WITHIN THESE QUAD(S)

LYLE

****

The following OWRD Groundwater Management Areas are within the map extent:

$RECNO	NAME1	NAME2	SUB-AREA	STATUS
1	POMONA	PRIEST RAPIDS		WITH
2	THE DALLES			CRIT

****