Water Resources Department

MEMO JANUARY 27, 2005

TO **Application G-** 16333

FROM **GW:** IVAN GALE
(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

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **January 27, 2005**

FROM: Ground Water/Hydrology Section **Ivan Gall**
Reviewer's Name

SUBJECT: Application G- **16333** Supersedes review of **NA**
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525.* Department staff review 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: **AD Inc.** County: **JACK**

A1. Applicant(s) seek(s) **0.121** cfs from **3** well(s) in the **Rogue** Basin, **Evans Creek** subbasin Quad Map: **Rogue River**

A2. Proposed use: **Irrigation** Seasonality: **April 1 – October 31**

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	**JACK 55470**	**1**	**bedrock**	**.04**	**35S/04W-27SWof SW**	**616'N, 300' E fr SW cor S 27**
2	**JACK 55471**	**2**	**bedrock**	**.04**	**35S/04W-27SWof SW**	**716'N, 500' E fr SW cor S 27**
3	**JACK 55511**	**3**	**Bedrock**	**.04**	**35S/04W-27SWof SW**	**548'N, 532' E fr SW cor S 27**
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	**1185**	**34**	**3**	**5/29/02**	**70**	**0-18**	**+2-38**	**0-70**	**60-70**	**61**		**A**
2	**1185**	**41**	**5**	**5/29/02**	**75**	**0-18**	**+2-52**	**0-75**	**65-75**	**46**		**A**
3	**1185**	**33**	**7**	**6/6/02**	**75**	**0-18**	**+2-38**	**0-75**	**65-75**	**41**		**A**

Use data from application for proposed wells.

A4. **Comments:**

A5. ☐ **Provisions of the Rogue** 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:

Application G-_____ continued Date_____

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

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

a. ☐ **is** over appropriated, ☐ **is not** over appropriated, *or* ☒ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the ground water portion of the over-appropriation determination as prescribed in OAR 690-310-130;

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the ground water portion of the injury determination as prescribed in OAR 690-310-130;

c. ☐ **will not** *or* ☐ **will** likely to be available within the capacity of the ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7B, 7F**;
   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:** The site is underlain by intrusive diorite/granodiorite rocks with a variable thickness of an overlying weathered zone. The weathered zone provides a greater amount of potential groundwater storage and possible enhanced permeability. Site well logs indicate that the wells were completed to depth of 70-75 feet bgs in the partially weathered zone. Wells in this area generally have relatively good yields, with many exceeding 20 gpm. Well depths in section 27 range from 50-200 feet, with 5 wells greater than 200 feet. Watermaster Menteer reports no well interference issues in this area.

A short aquifer test was conducted in April 2001 in support of application G-15234 at well JACK 5359 located approximately 0.75 miles north of this application's 3 wells. Results of this aquifer test suggest the aquifer had ample storage and transmissivity to support additional groundwater development without injury to other nearby users.

JACK 5453 is located approximately ¼ mile south of the subject wells. Seasonal water level fluctuations were approximately 10 feet over a 6 year period.

Application G-_____continued Date_____

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	**Bedrock**	☐	☒
2	**Bedrock**	☐	☒
3	**Bedrock**	☐	☒

Basis for aquifer confinement evaluation: Bedrock aquifer in the area is weathered to a depth exceeding total well depth of the three subject wells. Static water levels are within several feet of land surface. The relatively high well yields in the area suggest a significant amount of fracturing of the bedrock.

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**	**Evans Creek**	**1182**	**1040**	**2950**	☒	☐	☐	☐	☒
2	**1**	**Evans Creek**	**1180**	**1040**	**3150**	☒	☐	☐	☐	☒
3	**1**	**Evans Creek**	**1178**	**1040**	**3150**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Evans CR stage is significantly lower than groundwater elevations in the area; Evans Cr is a local groundwater discharge location, supporting good dry season flows.

Water Availability Basin the well(s) are located within: Evans Cr > Rogue River #70987

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	☐	☐	**70987a**	**18.6**	☐	**16.4**	☐	**17%***	☐
2	1	☐	☐	**70987a**	**18.6**	☐	**16.4**	☐	**<17%**	☐
3	1	☐	☐	**70987a**	**18.6**	☐	**16.4**	☐	**<17%**	☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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		☐	**70987a**	**18.6**	☐	**16.4**	☐	**17%***	☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: * Used analytical model of Hunt (1999) with several simplifying assumptions of the model not being met.

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

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

(A) = Total Interf.												
(B) = 80 % Nat. Q												
(C) = 1 % Nat. Q												
(D) = (A) > (C)												
(E) = (A / B) x 100	%	%	%	%	%	%	%	%	%	%	%	%

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

Application G-_____continued Date_____

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) **7J**;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** Evans Creek is likely the localized area for groundwater discharge. The stream stage and bed are significantly lower than groundwater levels at the applicant's site. Evans Creek supports year-round stream flow, with all of the water in the dry months coming from groundwater discharge (baseflow). Although the groundwater use at the applicant's site will have some impact to flow (there is hydraulic connection), no potential for substantial interference was found.

References Used: Beaulieu, J.D, and PW Hughes, 1977. Bulletin 94 Land Use Geology of Central Jackson County, Oregon. DOGAMI.

Freeze, R.A., and J.A. Cherry, 1979. Groundwater. Prentice Hall, Englewood, New Jersey.

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

Application G-_____continued Date_____

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).**

Application G-_____continued Date_____

WATER AVAILABILITY TABLE

Water Availability as of 1/27/2005 for

EVANS CR > ROGUE R - AT MOUTH

Watershed ID #: 70987 Basin: ROGUE Exceedance Level: 80

Time: 15:26 Date: 01/27/2005

Select an Item Number for More Details

Item #	Watershed ID #	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sto
1	266	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES	NO	YES	YES
2	31531008	NO	YES	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
3	31531001	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
4	31531002	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
5	31530801	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
6	268	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
7	70987	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 1/27/2005 for

EVANS CR > ROGUE R - AT MOUTH

Watershed ID #: 70987 Basin: ROGUE Exceedance Level: 80

Time: 15:26 Date: 01/27/2005

Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	137.00	0.82	0.68	136.00	0.00	170.00	-34.50
2	268.00	0.88	1.12	266.00	0.00	170.00	96.00
3	200.00	0.70	0.70	199.00	0.00	170.00	28.60
4	153.00	2.67	0.03	150.00	0.00	170.00	-19.70
5	83.10	4.14	0.00	79.00	0.00	105.00	-26.00
6	42.00	5.75	0.00	36.20	0.00	62.10	-25.90
7	23.20	7.64	0.00	15.60	0.00	31.00	-15.40
8	17.60	6.33	0.00	11.30	0.00	20.70	-9.43
9	**16.40**	4.21	0.00	12.20	0.00	75.00	-62.80
10	20.90	1.49	0.00	19.40	0.00	150.00	-131.00
11	31.40	0.34	0.00	31.10	0.00	150.00	-119.00
12	88.80	0.56	0.21	88.00	0.00	170.00	-82.00
Stor	124000	2150	162	122000	0	86900	51800

DETAILED REPORT OF INSTREAM REQUIREMENTS

Water Availability as of 1/27/2005 for

EVANS CR > ROGUE R - AT MOUTH

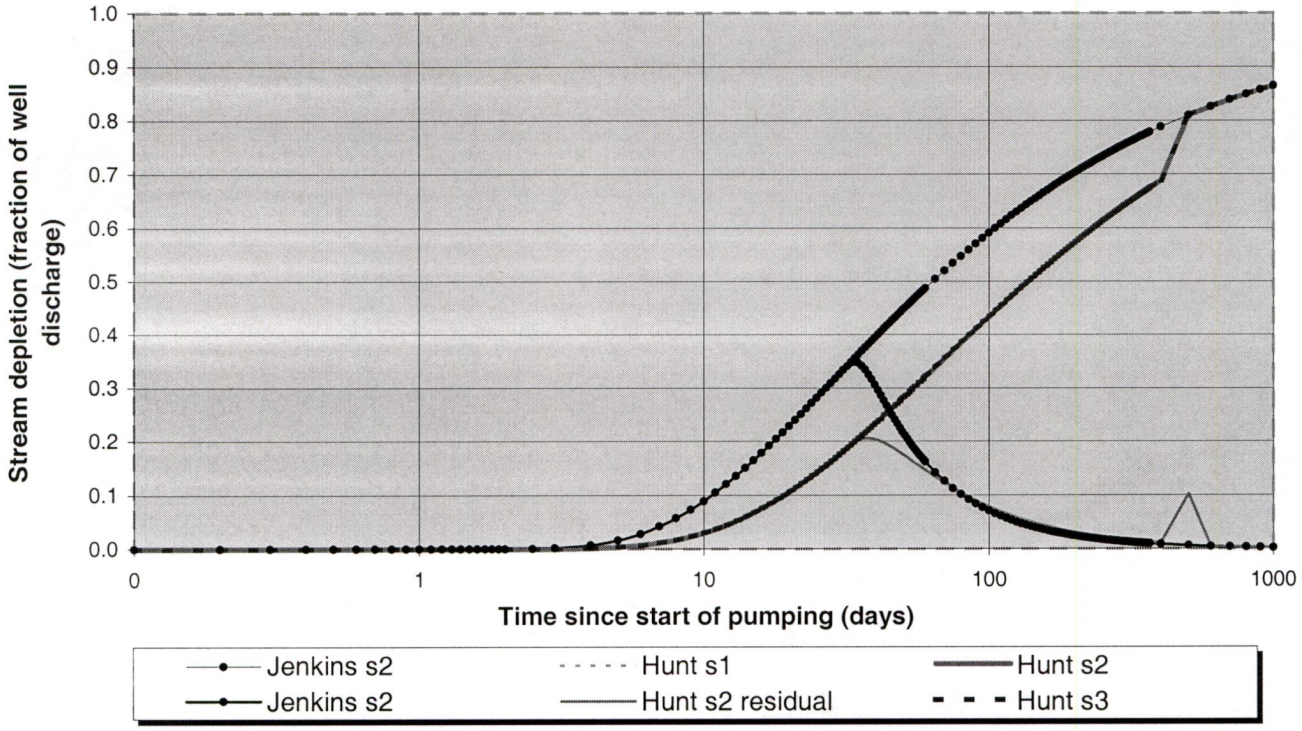
Watershed ID #: 70987 Basin: ROGUE Exceedance Level: 80

Time: 15:26 Date: 01/27/2005

	ISWRs							
APP #	254A	70987A	0	0	0	0	0	MAXIMUM
Status	Cert.	Cert.						
1	100.00	170.00	0.00	0.00	0.00	0.00	0.00	170.00
2	100.00	170.00	0.00	0.00	0.00	0.00	0.00	170.00
3	100.00	170.00	0.00	0.00	0.00	0.00	0.00	170.00
4	100.00	170.00	0.00	0.00	0.00	0.00	0.00	170.00
5	80.00	105.00	0.00	0.00	0.00	0.00	0.00	105.00
6	60.00	62.10	0.00	0.00	0.00	0.00	0.00	62.10
7	20.00	31.00	0.00	0.00	0.00	0.00	0.00	31.00
8	**15.00**	20.70	0.00	0.00	0.00	0.00	0.00	20.70
9	75.00	**18.60**	0.00	0.00	0.00	0.00	0.00	75.00
10	150.00	28.10	0.00	0.00	0.00	0.00	0.00	150.00
11	150.00	74.00	0.00	0.00	0.00	0.00	0.00	150.00
12	150.00	170.00	0.00	0.00	0.00	0.00	0.00	170.00

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

G-16333 AD INC



Output for Hunt Stream Depletion, Scenerio 2 (s2):

Days	30	60	90	120	150	180	210	240	270	300	330	360
Hunt SD s2	0.1749	0.1460	0.0898	0.0618	0.0457	0.0356	0.0287	0.0238	0.0201	0.0173	0.0151	0.0133
Qw, cfs	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121
H SD s2, cfs	0.021	0.018	0.011	0.007	0.006	0.004	0.003	0.003	0.002	0.002	0.002	0.002

Parameters:		**Scenario 1**	**Scenario 2**	**Scenario 3**	**Units**
Net steady pumping rate	Qw	0.121	0.121	0.121	cfs
Distance to stream	a	2950	2950	2950	ft
Aquifer hydraulic conductivity	K	25	25	25	ft/day
Aquifer thickness	b	60	60	60	ft
Aquifer transmissivity	T	1500	1500	1500	ft*ft/day
Aquifer storage coefficient	S	0.01	0.01	0.01	
Stream width	ws	40	40	40	ft
Streambed hydraulic conductivity	Ks	0.1	0.1	0.1	ft/day
Streambed thickness	bs	2	2	2	ft
Streambed conductance	sbc	2	2	2	ft/day
Stream depletion factor (Jenkins)	sdf	58.01666667	58.01666667	58.01666667	days
Streambed factor (Hunt)	sbf	3.933333333	3.933333333	3.933333333	

Well Location	34.00S4.00W34BBA1
Oregon Water Resources Department Well Log ID	JACK 5453
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	
Land surface elevation, in feet above mean sea level	1220
Primary use of well	not determined

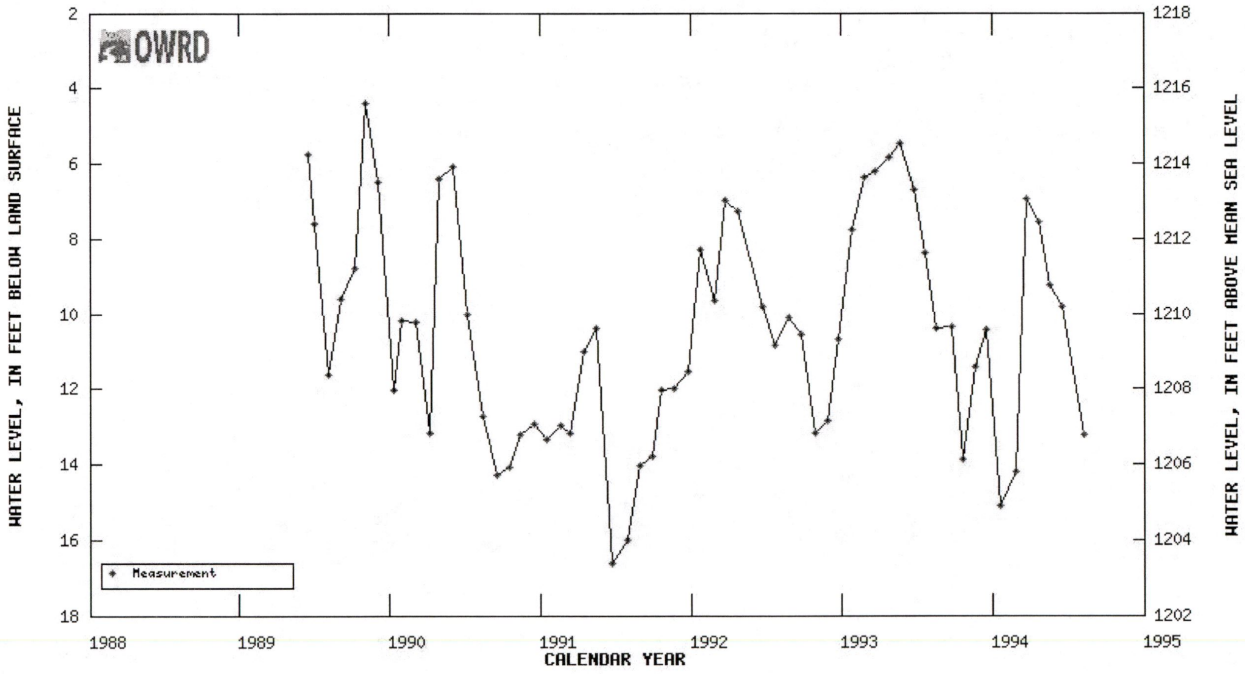


Table showing water-level data for State Well JACK 5453

G-16333 AD INC.
35S/04W-27CC
ROGUE RIVER QUAD 1:24,000