





TO: Water Rights Section MAY 12, 2003  
 FROM: Ground Water/Hydrology Section IVAN GALL  
 SUBJECT: Application G- 15943 Reviewer's Name N/A  
 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: MARY E. BLANDAUL

A1. Applicant(s) seek(s) <sup>40 gpm</sup> 0.09 cfs from 1 well(s) in the ROGUE Basin,  
CONSTANCE CR subbasin Quad Map: BOSWELL MT

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             | Proposed Aquifer* | Proposed Rate(cfs) | Location (T/R-S QQ-Q) | Location, metes and bounds, example: 2250' N, 1200' E fr NW cor S 36 |
|------|-------------------|-------------------|--------------------|-----------------------|--|
| 1    | <u>JACK 55776</u> | <u>BEDROCK</u>    | <u>0.09</u>        | <u>35S/02W-13ab</u>   | <u>303'S, 1040' W fr N 1/2 cor NE 1/4 S 13</u>                       |
| 2    |                   |                   |                    |                       |  |
| 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 | Casing Intervals | Liner Intervals | Perforations Or Screens | Well Yield | Draw Down | Test Type  |
|----------|------------------|--------------------|------------|-------------------|-------------------------------|---------------|------------------|-----------------|-------------------------|------------|-----------|------------|
| <u>1</u> | <u>1380</u>      | <u>64</u>          | <u>35'</u> | <u>10/18/02</u>   | <u>300</u>                    | <u>0-20'</u>  | <u>0-19'</u>     | <u>0-300'</u>   | <u>180'-280'</u>        | <u>50+</u> | <u>-</u>  | <u>AIR</u> |
| <u>1</u> |                  |                    | <u>4'</u>  | <u>MARCH 2003</u> | <u>DATA FROM AQUIFER TEST</u> |               |                  |                 |                         |            |           |            |
|          |                  |                    |            |                   |                               |               |                  |                 |                         |            |           |            |
|          |                  |                    |            |                   |                               |               |                  |                 |                         |            |           |            |

Use data from application for proposed wells.

A4. Comments: See attached aquifer test data report from Cascade Earth Sciences March 5, 2003

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: \_\_\_\_\_

**RECEIVED**  
**MAY 15 2003**  
 WATER RESOURCES DEPT.  
 SALEM, OREGON Version: 04/01/2003

**B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130 (b) (c)**

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;
- b.  will not or  will likely be available in the amounts requested without injury to prior ground water rights;
- 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 7E;
  - 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: ① Require permittee to install a properly functioning, totalizing flow meter.

② See attached CES aquifer test report dated March 5, 2003. Data collected indicate hydraulic connection w/ neighboring wells but resource appears to be available to meet proposed use w/o the potential for substantial interference.

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_



**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                     | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|      |                             | <input type="checkbox"/> | <input type="checkbox"/>            |
|      |                             | <input type="checkbox"/> | <input type="checkbox"/>            |

Basis for aquifer confinement evaluation: Shallow water bearing zones (64-89 feet bgs), static water level change from 35 feet in 10/02 to 4 feet in 03/03. Aquifer test shows water level response in nearby shallow wells between deep and shallow WBZs. State obs well data shows rapid seasonal rechg. in area.

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.

| Well | SW # | Surface Water Name | GW Elev ft msl | SW Elev ft msl | Distance (ft) | Hydraulically Connected?            |                          |                          | Potential for Subst. Interfer. Assumed? |                                     |
|------|------|--------------------|----------------|----------------|---------------|-------------------------------------|--------------------------|--------------------------|---|-------------------------------------|
|      |      |                    |                |                |               | YES                                 | NO                       | ASSUMED                  | YES                                     | NO                                  |
| 1    | 1    | ROGUE RIVER        | 1376           | 1300           | 11,500        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| * 1  | 2    | CONSTANCE CREEK    | 1376           | 1380           | 800           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/>     | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |
|      |      |                    |                |                |               | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/>            |

Basis for aquifer hydraulic connection evaluation: Rogue is regional ground water discharge location. Static water level @ well ~55 feet higher than river stage. Payne Cliffs formation appears to be continuous up to Rogue River. (see GMS52 and GMS70)  
\* Constance Creek is seasonal, generally only running after rains. According to Menter, Jackson Cty. watermaster, no regulation conducted on creek.

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. If Q is not distributed by well, use full rate for each well. If modeled, include description and model parameters in Comments (C3b). Any checked  box indicates the well is assumed to have the potential to cause substantial interference with surface water.

| 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    | <input type="checkbox"/>            | <input type="checkbox"/> |                         | 1200                         | <input type="checkbox"/> | 1130                   | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
| 1    | 2    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | N/A                     | N/A                          | <input type="checkbox"/> | N/A                    | <input type="checkbox"/>     | No water avail. model      | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/>            | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |



C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

| SW # | Qw > 5 cfs?              | Instream Water Right ID | Instream Water Right Q (cfs) | Qw > 1% ISWR?            | 80% Natural Flow (cfs) | Qw > 1% of 80% Natural Flow? | Interference @ 30 days (%) | Potential for Subst. Interfer. Assumed? |
|------|--------------------------|-------------------------|------------------------------|--------------------------|------------------------|------------------------------|----------------------------|---|
|      | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |
|      | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

C4a. **690-09-040 (5):** Estimated impacts on surface water sources as percent or qualitative fraction\* of proposed pumping rate. Limit evaluation to one year of pumping.

| Well | SW# | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1    | 1   | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  | L   | L   | L   | VL  |
| 1    | 2   | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  | VL  |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      |     |     |     |     |     |     |     |     |     |     |     |     |     |

\*VL = Very Low (<5%), L = Low (5-25%), I = Intermediate (25-75%), H = High (>75%).

Basis for impact evaluation: VL for Constance Crk. due to stream seasonality. However, simplified analytical model for stream depletion suggests intermed. to high impact given conservative values of T&S as derived from ag. test data.  
Distance to Rogue River delays and minimizes impact from pumping well on a seasonal basis.

C4b. **690-09-040 (5):** Evaluation of paragraphs under subsection 5. A determination of  **Low** denotes no connection or a very indirect connection between surface water and ground water;  **High** denotes hydraulic connection that would likely reduce surface water availability in the first year of pumping. Do not equate "Low" and "High" between C4a and C4b.

- (a) The potential to reduce surface water availability in the Rogue River is  Low or  High
- The potential to reduce surface water availability in \_\_\_\_\_ is  Low or  High
- The potential to reduce surface water availability in Constance Creek is  Low or  High
- The potential to reduce surface water availability in \_\_\_\_\_ is  Low or  High

Basis: Constance Cr very seasonal; dry early in year; surface soils clay-rich, low permeability.

Simplified analytical modeling suggests Rogue R. flow would likely be reduced, but by only a fraction of rate from well. Note conservative T&S values used since governing assumption of analytical model not met.

(b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.



C4b. 690-09-040 (5): Evaluation of paragraphs under subsection 5 continued.

(c) The **percentage** of appropriation in the first year of use that will be at the expense of surface water \_\_\_\_\_

Basis: Constance Crk = 0%  
ROGUE RIVER = 5-10% by analytical modeling of stream depletion

(d) The timing of interference will be  **immediate** (within one year), or  **delayed**;

Basis: As above

(e) The potential for cumulative adverse impacts: A graphical distribution of POAs and summary of permitted rights  
 are or  are not available at this time of review.

| Impacted stream | Impacted basin or sub-basin | Existing Ground Water Rights (cfs) |
|-----------------|-----------------------------|------------------------------------|
|                 |                             |                                    |
|                 |                             |                                    |
|                 |                             |                                    |
|                 |                             |                                    |

Comments: \_\_\_\_\_

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) 7B 7E;
- ii.  The permit should contain special condition(s) as indicated in "Remarks" below;
- iii.  The permit should be conditioned as indicated in item 6 below;

C6.  **If the well is not reconstructed**, it will interfere with surface water. Well reconstruction, as follows, will adequately protect surface water from interference. If the ground water use under this permit is found to have the potential for substantial interference with surface water, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Ground Water Section.:

**The well should be reconstructed as follows:** \_\_\_\_\_

C7. SW / GW Remarks Require properly functioning, totalizing flow meter on well.



**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: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

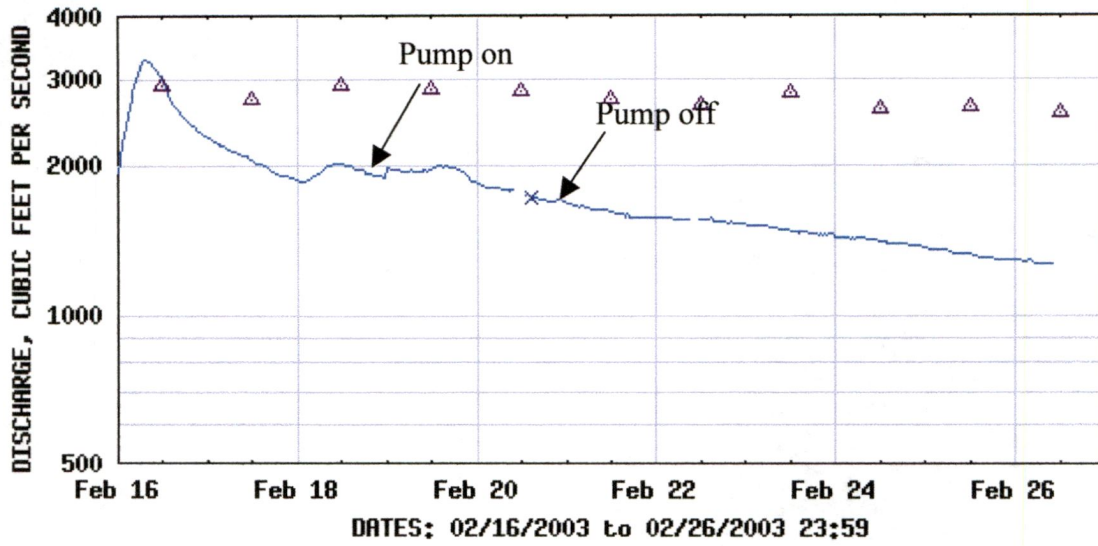
(Enforcement Section Signature)

, 200

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



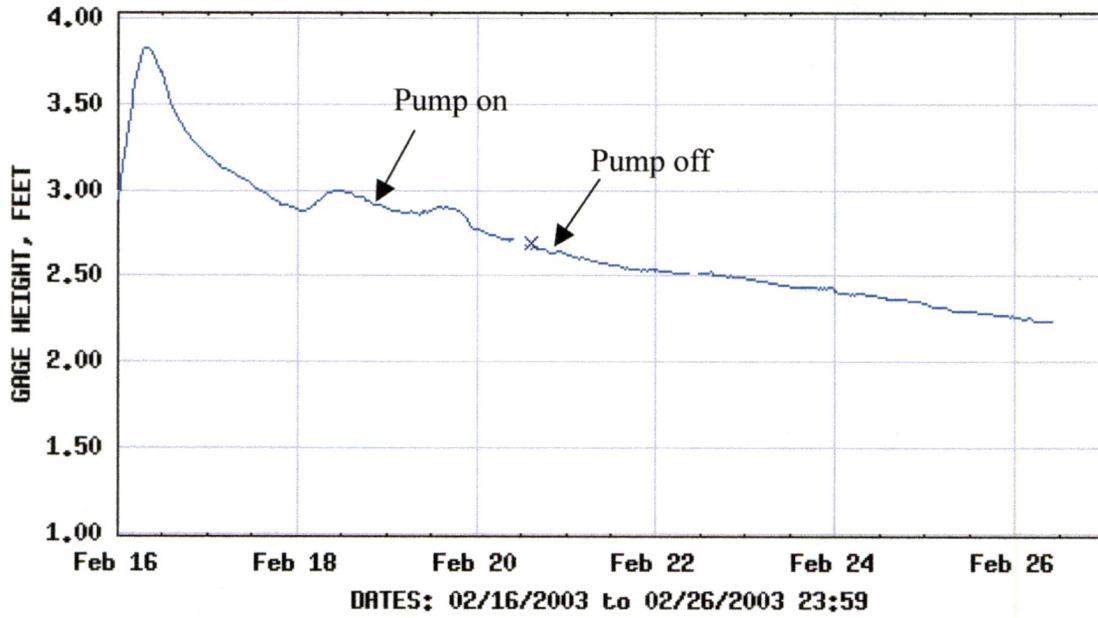
USGS 14339000 ROGUE R AT DODGE BR NR EAGLE POINT, OREG.



EXPLANATION

- DISCHARGE
- △ MEDIAN DAILY STREAMFLOW BASED ON 63 YEARS OF RECORD
- × MEASURED DISCHARGE

USGS 14339000 ROGUE R AT DODGE BR NR EAGLE POINT, OREG.



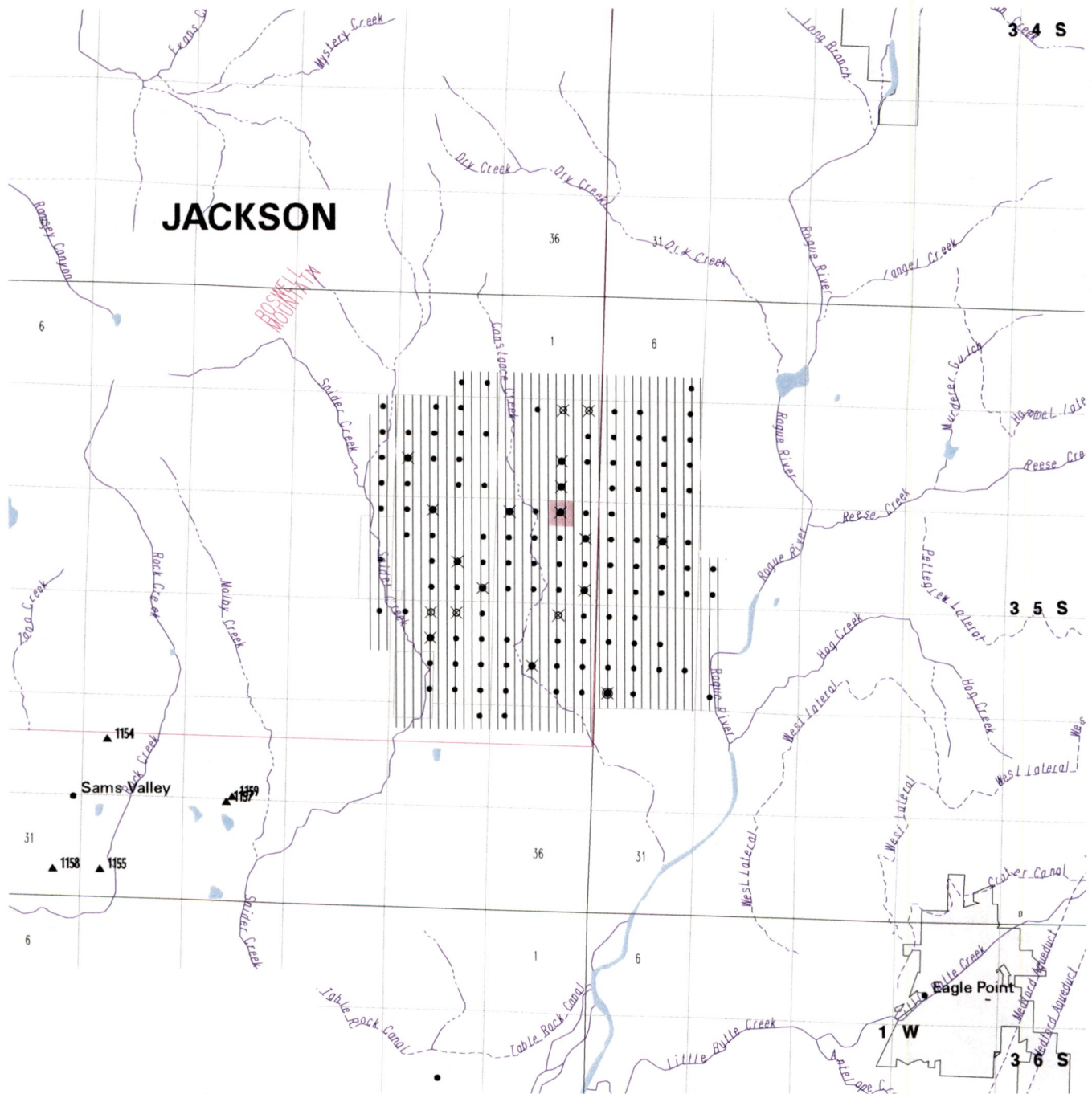
EXPLANATION

- GAGE HEIGHT
- × MEASURED GAGE HEIGHT



# Wells in the vicinity of application G 15943

- |  |   |   |   |
|--|---|---|---|
| <ul style="list-style-type: none"> <li>■ Application well(s) in this 1/4-1/4 section</li> <li>□ Well(s) identified in this section from OWRD's well log database within 1 mi. radius of application well(s)</li> </ul> | <ul style="list-style-type: none"> <li>• Well(s) identified in this 1/4-1/4 section from OWRD's well log database within 1 mi. radius of application well(s)</li> <li>⊗ Permitted well(s) in this 1/4-1/4 section within 1 mi. radius of application well(s)</li> </ul> | <ul style="list-style-type: none"> <li>○ Conditioned, permitted well(s) in this 1/4-1/4 section within 5 mi. radius of application well(s)</li> <li>▲ OWRD Observation well and well-id within 5 mi. radius of application well(s)</li> </ul> | <ul style="list-style-type: none"> <li>— Critical GW Area</li> <li>- - - Regulated GW Area</li> </ul> |
|--|---|---|---|





WELL LOGS WITHIN 1 MILE OF APPLICATION G 15943

ABANDON: 2  
 RECONDITIONED: 26  
 REPAIRED: 4  
 CONVERSION: 0  
 DEEPENINGS: 54  
 NEW CONSTRUCT: 456  
  
 COMMUNITY USE: 0  
 DOMESTIC USE: 520  
 INDUSTRIAL USE: 0  
 INJECTION USE: 0  
 IRRIGATION USE: 14  
 THERMAL USE: 0  
 LIVESTOCK USE: 0

\*\*\*\*\*

PERMITTED WELLS WITHIN 1 MILE OF APPLICATION G 15943

| \$RECNO | APPLICATION | PERMIT | CLAIM     | LOC-QQ               | USE_CODE |
|---------|-------------|--------|-----------|----------------------|----------|
| 1       | G           | 10851  | G 9964    | 0 35.00S 2.00W12NWNE | IR       |
| 1       | G           | 10851  | G 9964    | 0 35.00S 2.00W12NWNE | IR       |
| 2       | G           | 10851  | G 9964    | 0 35.00S 2.00W12NENE | IR       |
| 3       | G           | 10605  | G 9723    | 0 35.00S 2.00W11NWSW | IR       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | LV       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | DO       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | DO       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | LV       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | IR       |
| 4       | G           | 15794  | 0         | 0 35.00S 2.00W12NWSE | IR       |
| 4       | P           | 83132  | 0         | 0 35.00S 2.00W12NWSE | LV       |
| 4       | P           | 83132  | 0         | 0 35.00S 2.00W12NWSE | AS       |
| 5       | G           | 15674  | 0         | 0 35.00S 2.00W12SWSE | IR       |
| 6       | G           | 9247   | G 8679    | 0 35.00S 2.00W14NENW | IR       |
| 7       | G           | 6068   | G 5758    | 0 35.00S 2.00W13NWNW | IR       |
| 7       | G           | 6484   | G 6104    | 0 35.00S 2.00W13NWNW | IR       |
| 7       | G           | 8843   | G 8274    | 0 35.00S 2.00W13NWNW | IR       |
| 8       | G           | 8373   | G 7776    | 0 35.00S 2.00W13NWNE | IR       |
| 9       | G           | 14683  | G 13576   | 0 35.00S 2.00W13SENE | IR       |
| 10      |             | 0      | 0 GR 1536 | 35.00S 2.00W14NWSE   | IR       |
| 11      | G           | 11286  | G 10413   | 0 35.00S 2.00W14SESE | IR       |
| 11      | G           | 11575  | G 10688   | 0 35.00S 2.00W14SESE | IR       |
| 11      | G           | 11575  | G 10688   | 0 35.00S 2.00W14SESE | IR       |
| 12      | G           | 3257   | G 3056    | 0 35.00S 2.00W13SESE | IR       |
| 12      | G           | 5185   | G 5056    | 0 35.00S 2.00W13SESE | IR       |
| 12      | G           | 5185   | G 5056    | 0 35.00S 2.00W13SESE | IR       |
| 13      | G           | 11074  | G 10229   | 0 35.00S 2.00W23NENW | IR       |
| 14      | G           | 10949  | G 10112   | 0 35.00S 2.00W23NWNE | IR       |
| 15      | G           | 6474   | G 6098    | 0 35.00S 2.00W24NWNE | IR       |
| 15      | G           | 11699  | G 10774   | 0 35.00S 2.00W24NWNE | IR       |
| 16      | G           | 9875   | G 9386    | 0 35.00S 2.00W23SENW | IR       |
| 17      | G           | 10710  | G 9836    | 0 35.00S 2.00W24NESW | IR       |
| 18      | G           | 7397   | G 6906    | 0 35.00S 1.00W18SWNE | IR       |
| 19      | G           | 12728  | G 11657   | 0 35.00S 1.00W19SWSW | IR       |

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CONDITIONED WELLS WITHIN 5 MILES OF APPLICATION G 15943

| \$RECNO | APPLICATION | PERMIT | LOC-QQ                     | CONDITION-CODE |
|---------|-------------|--------|----------------------------|----------------|
| 1       | G           | 12728  | G 11657 35.00S 1.00W19SWSW | 4CG            |

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APPLICATION G 15943 FALLS WITHIN THESE QUAD(S)

BOSWELL MOUNTAIN

\*\*\*\*\*

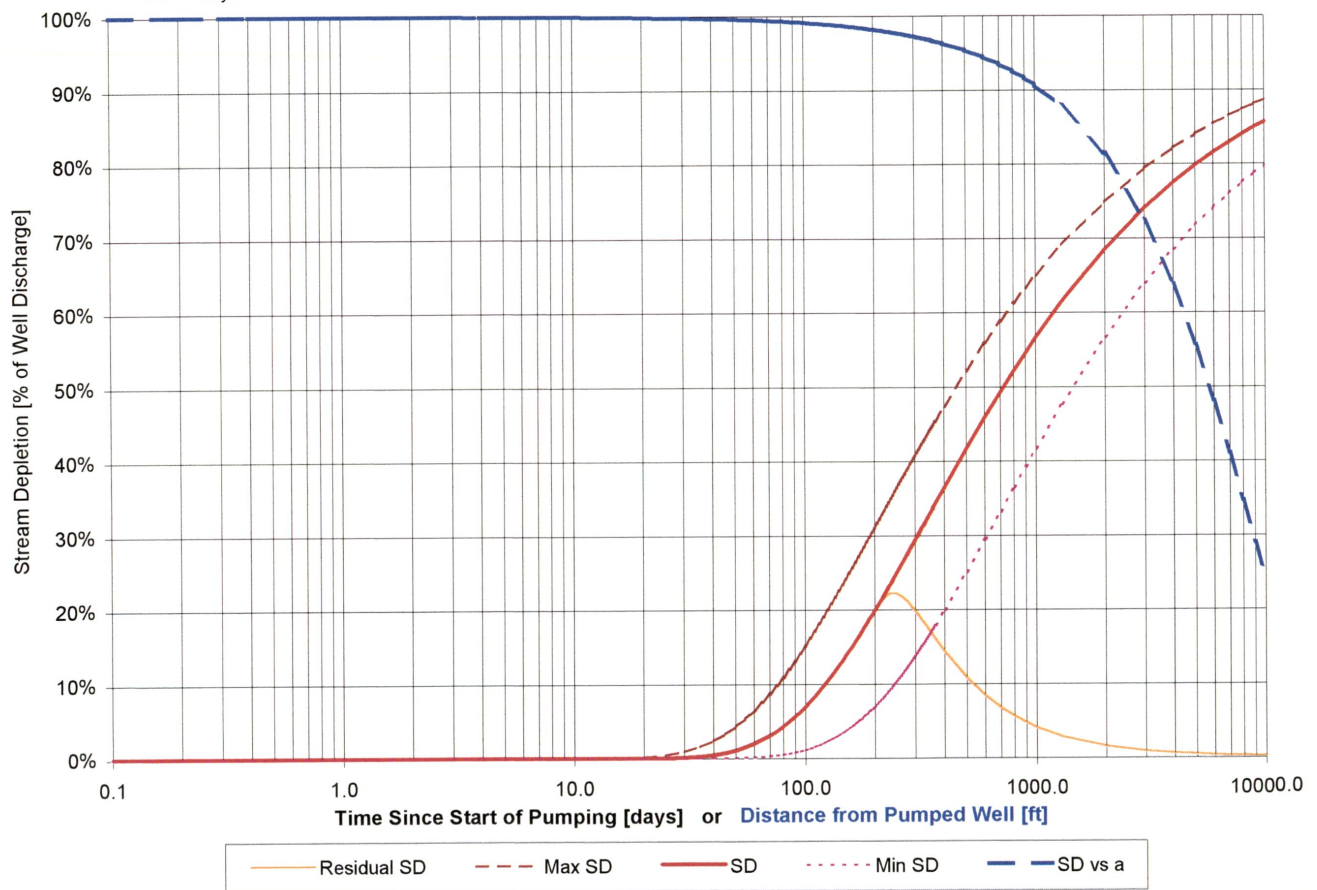


Q = 40 gpm    K Max = 16 gpd/ft\*ft  
 a = 11500 ft    K = 10 gpd/ft\*ft  
 S = 0.0020    K Min = 5 gpd/ft\*ft  
 t = 180.00 days

**G-15943**

T Max = 4,800 gpd/ft  
 T = 3,000 gpd/ft  
 T Min = 1,500 gpd/ft

Transient Stream Depletion = 18% at t = 180.00 days

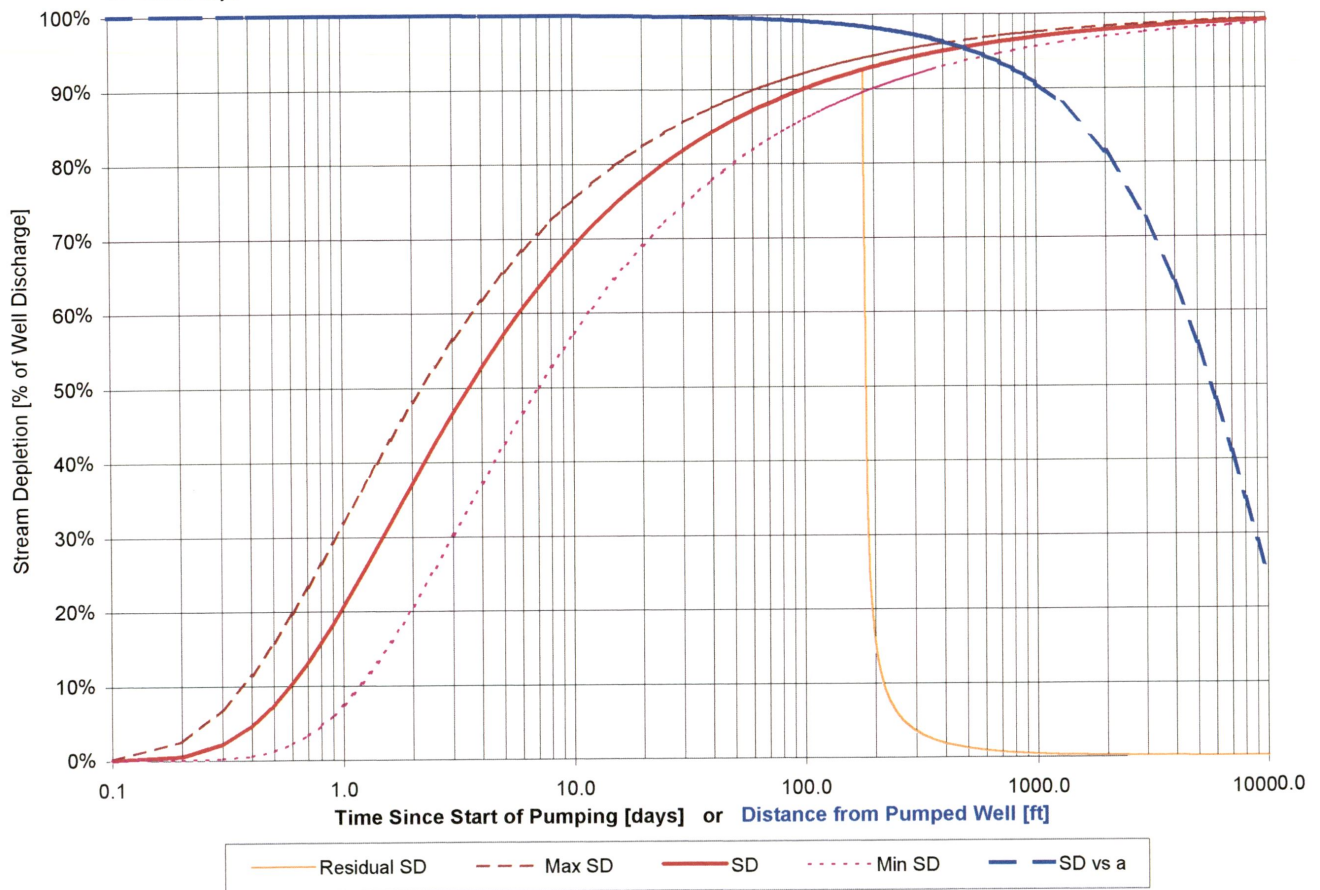


Q = 40 gpm    K Max = 16 gpd/ft\*ft  
 a = 800 ft    K = 10 gpd/ft\*ft  
 S = 0.0020    K Min = 5 gpd/ft\*ft  
 t = 180.00 days

**G-15943**

T Max = 4,800 gpd/ft  
 T = 3,000 gpd/ft  
 T Min = 1,500 gpd/ft

Transient Stream Depletion = 92% at t = 180.00 days





**Input Data:**

| Variable                                     | Name | Minimum | "Best"  | Maximum | Unit        |
|--|------|---------|---------|---------|-------------|
| Well Owner or Well Number                    | Well |         | G-15943 |         |             |
| X Coord. for X-Section (Head Distribution)   | x    |         | 0       |         | [ft]        |
| Perpendicular Distance From Well to Stream   | a    |         | 11,500  |         | [ft]        |
| Net Steady Pumping Rate                      | Q    |         | 40      |         | [gpm]       |
| Hydraulic Conductivity                       | K    | 5       | 10      | 16      | [gpd/ft*ft] |
| Aquifer Thickness                            | b    | 300     | 300     | 300     | [ft]        |
| Well Depth                                   | d    |         | 300     |         | [ft]        |
| Storativity                                  | S    |         | 0.00200 |         |             |
| Effective porosity                           | n    |         | 0.00100 |         |             |
| Hydr. Grad. Perpend. to Stream (must be > 0) | i    | 0.00100 | 0.00100 | 0.00100 |             |
| Time Since Pumping Started                   | time |         | 180.00  |         | [days]      |

**Output Data:**

**General Output:**

|                                |     |          |          |          |             |         |
|--------------------------------|-----|----------|----------|----------|-------------|---------|
| Transmissivity                 | T   | 1,500    | 3,000    | 4,800    | [gpd/ft]    | = K*b   |
| Hydraulic Conductivity         | K   | 5        | 10       | 16       | [gpd/ft*ft] |         |
|                                |     | 1        | 1        | 2        | [ft/day]    |         |
|                                |     | 2.34E-06 | 4.69E-06 | 7.50E-06 | [m/s]       |         |
| Average linear velocity        | ALV | 0.67     | 1.34     | 2.14     | [ft/day]    | = K*i/n |
|                                |     | 244.15   | 488.30   | 781.28   | [ft/yr]     |         |
| Ambient Flux at River per Foot | dQ  | 0.0010   | 0.0021   | 0.0033   | [gpm/ft]    | = K*b*i |

**Transient Stream Depletion Output:**

|  |        |        |        |        |  |                         |
|--|--------|--------|--------|--------|--|-------------------------|
| k  | SDTr_k | 1.8319 | 0.9160 | 0.5725 |  | = ((a^2*S)/(4Tt))^7.48  |
| Transient Stream Depletion (Theis/Jenkins)     | SDTr   | 6%     | 18%    | 28%    |  | = erfc SQRT(a*a*S)/4Tt) |
| Transient Induced Infiltration (Theis/Jenkins) | IITr   |        |        |        |  |                         |

**Steady-State Stream Depletion:**

|   |         |       |      |      |       |                          |
|---|---------|-------|------|------|-------|--------------------------|
| Dimensionless Pumping Rate<br>(B >= 1 ==> velocity divide has reached stream) | Beta, β | 1.06  | 0.53 | 0.33 |       | = Q/(K*b*i*a)            |
| SQRT(Beta-1)  |         | 0.25  | 0.00 | 0.00 |       |                          |
| Critical pumping rate   | Qc      | 38    | 75   | 120  | [gpm] | = K*b*i*a                |
| Dist. fr Well to Velocity Divide at Steady State                              | rwd     | 11500 | 3628 | 2102 | [ft]  | = a-(a*SQRT(1-β))        |
| Steady-State Stream Depletion (Wilson & Linderfelt)                           |         | 100%  | 100% | 100% |       |                          |
| Steady-State Induced Infiltration (Wilson & Linderfelt)                       |         | 1%    | 0%   | 0%   |       | = (2/a)*{-SQRT(β-1)/β+AT |

**Input Data:**

| Variable                                     | Name | Minimum | "Best"  | Maximum | Unit        |
|--|------|---------|---------|---------|-------------|
| Well Owner or Well Number                    | Well |         | G-15943 |         |             |
| X Coord. for X-Section (Head Distribution)   | x    |         | 0       |         | [ft]        |
| Perpendicular Distance From Well to Stream   | a    |         | 800     |         | [ft]        |
| Net Steady Pumping Rate                      | Q    |         | 40      |         | [gpm]       |
| Hydraulic Conductivity                       | K    | 5       | 10      | 16      | [gpd/ft*ft] |
| Aquifer Thickness                            | b    | 300     | 300     | 300     | [ft]        |
| Well Depth                                   | d    |         | 300     |         | [ft]        |
| Storativity                                  | S    |         | 0.00200 |         |             |
| Effective porosity                           | n    |         | 0.00100 |         |             |
| Hydr. Grad. Perpend. to Stream (must be > 0) | i    | 0.00100 | 0.00100 | 0.00100 |             |
| Time Since Pumping Started                   | time |         | 180.00  |         | [days]      |

**Output Data:**

**General Output:**

|                                |     |          |          |          |             |       |
|--------------------------------|-----|----------|----------|----------|-------------|-------|
| Transmissivity                 | T   | 1,500    | 3,000    | 4,800    | [gpd/ft]    | = K*b |
| Hydraulic Conductivity         | K   | 5        | 10       | 16       | [gpd/ft*ft] |       |
|                                |     | 1        | 1        | 2        | [ft/day]    |       |
| Average linear velocity        | ALV | 2.34E-06 | 4.69E-06 | 7.50E-06 | [m/s]       |       |
|                                |     | 0.67     | 1.34     | 2.14     | [ft/day]    |       |
| Ambient Flux at River per Foot | dQ  | 244.15   | 488.30   | 781.28   | [ft/yr]     |       |
|                                |     | 0.0010   | 0.0021   | 0.0033   | [gpm/ft]    |       |

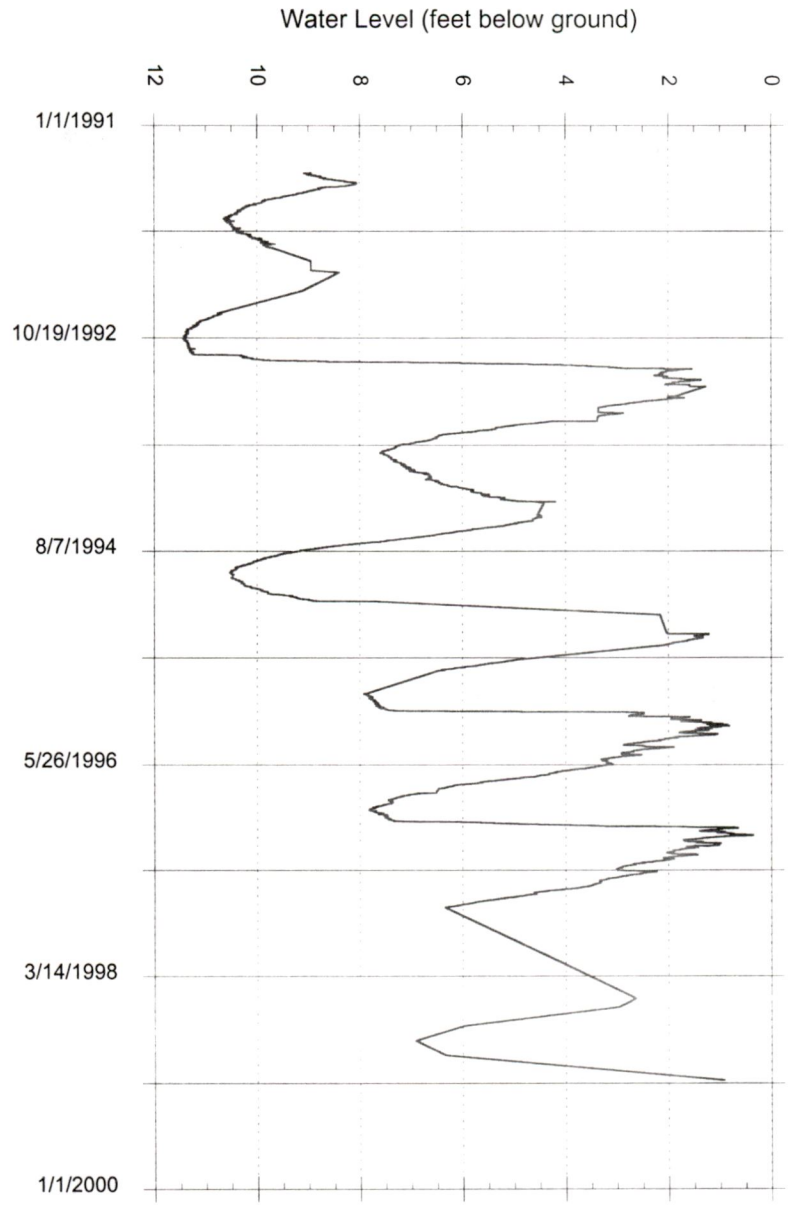
**Transient Stream Depletion Output:**

|  |        |        |        |        |  |                        |
|--|--------|--------|--------|--------|--|------------------------|
| k  | SDTr_k | 0.0089 | 0.0044 | 0.0028 |  | = ((a^2*S)/(4Tt))^7.48 |
| Transient Stream Depletion (Theis/Jenkins)     | SDTr   | 89%    | 92%    | 94%    |  | = erfc SQRT(a*a*S)/4Tt |
| Transient Induced Infiltration (Theis/Jenkins) | IITr   |        |        |        |  |                        |

**Steady-State Stream Depletion:**

|   |                 |       |      |      |       |  |
|---|-----------------|-------|------|------|-------|--|
| Dimensionless Pumping Rate<br>( $\beta \geq 1 \implies$ velocity divide has reached stream) | Beta, $\beta$   | 15.28 | 7.64 | 4.77 |       | = Q/(K*b*i*a)                            |
| SQRT(Beta-1)  |                 | 3.78  | 2.58 | 1.94 |       |  |
| Critical pumping rate   | Qc              | 3     | 5    | 8    | [gpm] | = K*b*i*a                                |
| Dist. fr Well to Velocity Divide at Steady State  | r <sub>vd</sub> | 800   | 800  | 800  | [ft]  | = a-(a*SQRT(1- $\beta$ ))                |
| Steady-State Stream Depletion (Wilson & Linderfelt)   |                 | 100%  | 100% | 100% |       |  |
| Steady-State Induced Infiltration (Wilson & Linderfelt)                                     |                 | 68%   | 55%  | 44%  |       | = (2/a)*{-SQRT( $\beta$ -1)/ $\beta$ +AT |

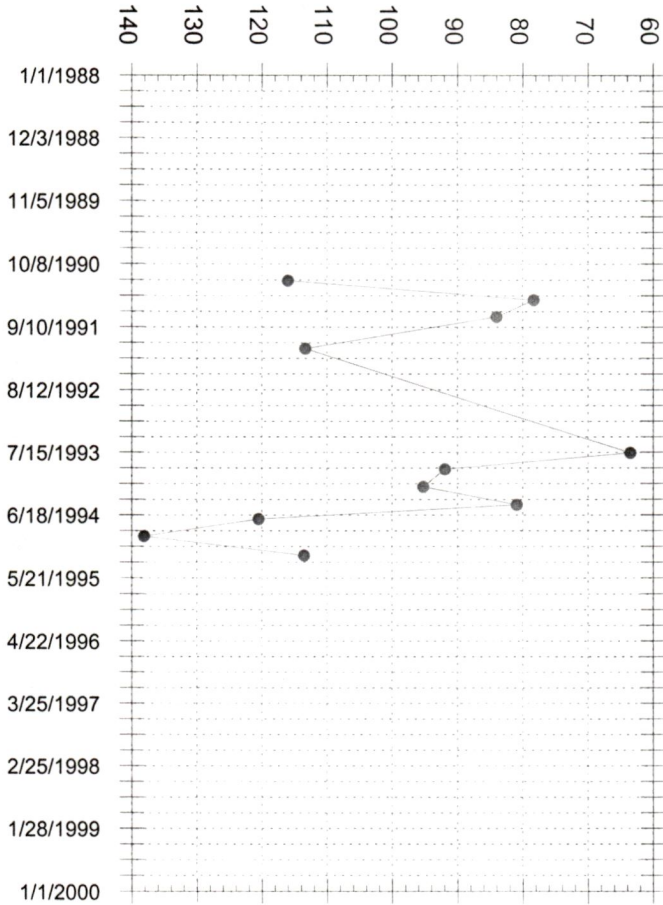




State Observation Well #1158  
 Gilman, 35S-2W-31db

6-8' seasonal  
 Rapid chg.

Water Level Measurements (ft)

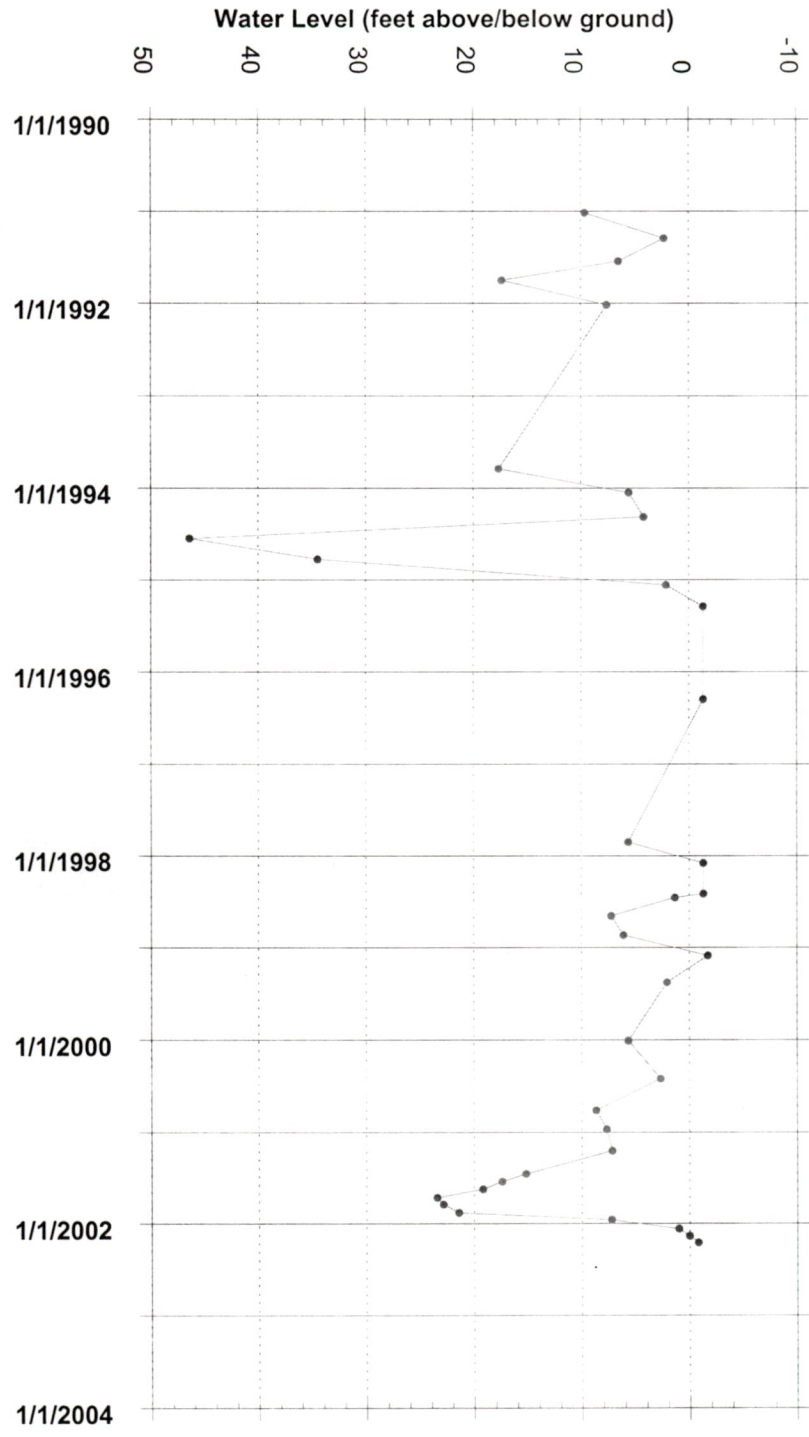


State Observation Well # 1154  
35S/02W-29bd  
VIRGINIA WHITE

275' Fluctuation total  
35' seasonal

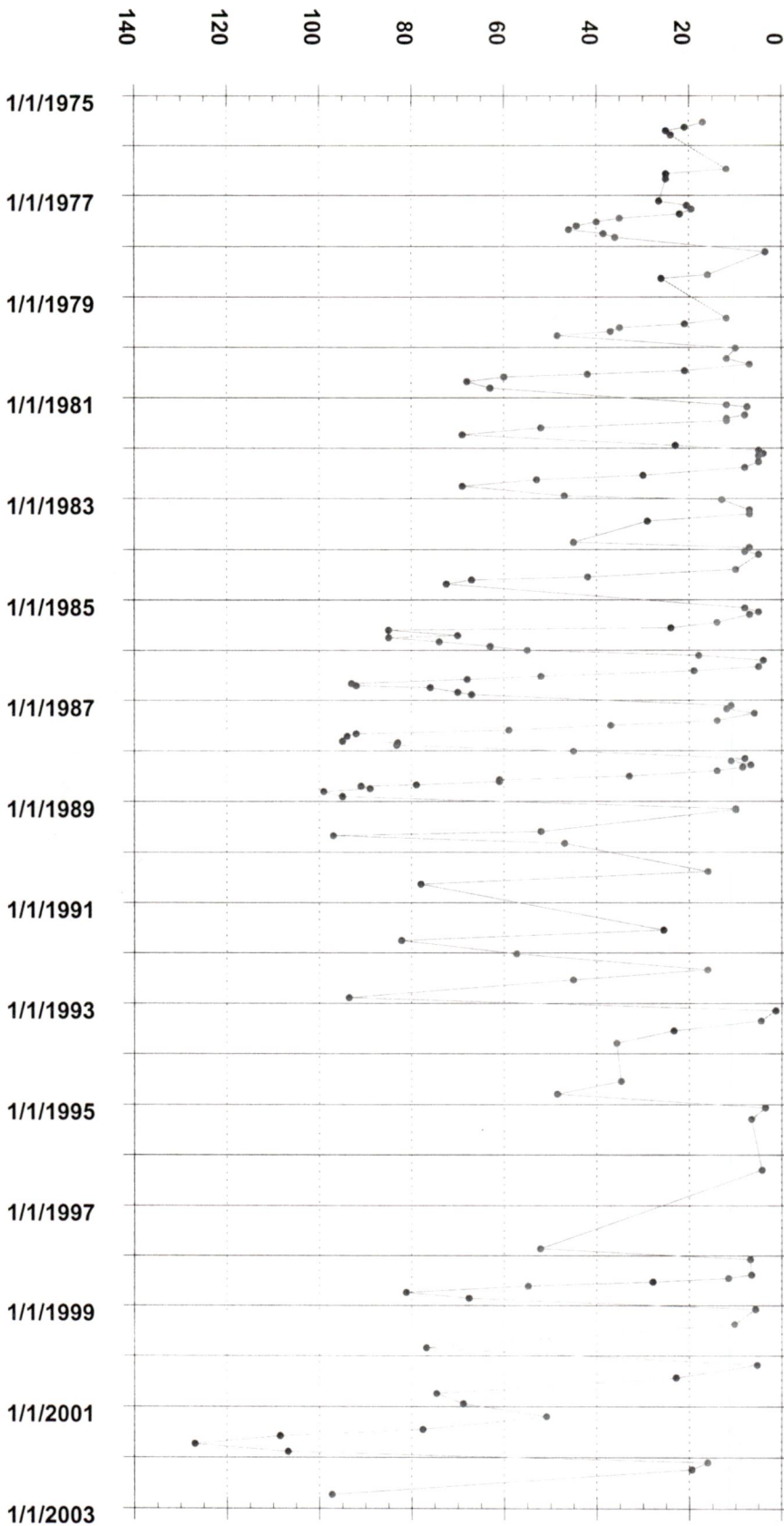


State Observation Well # 1155  
B.A. Stevens, 35S/02W-32cbd



5-10' seasonal

Water Level (feet above/below ground)



State Observation Well # 1157  
James Irrigation District #1, 35S-02W-33

270' fluct. 2 seasons