Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE ## G-15102

ROUTED TO: LAURA S.

TOWNSHIP/
RANGE-SECTION: 39S/01E-6

CONDITIONS ATTACHED? [X] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: DEW

Water Resources Department

MEMO 2-12, 2001

TO **Application G-** 15102

FROM **GW:** IVAN GALL
(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

TO: Water Rights Section

FEB 12, 2001 ~~1999~~

FROM: Groundwater/Hydrology Section IVAN GALL - GRANTS PASS
Reviewer's Name

SUBJECT: Application G- 15102

GROUNDWATER/SURFACE WATER CONSIDERATIONS

1. PER THE _____ Basin rules, one or more of the proposed POA's is/is not within _____ feet/mile of a surface water source (_____) and taps a groundwater source hydraulically connected to the surface water.

2. BASED UPON OAR 690-09 currently in effect, I have determined that the proposed groundwater use
   a. ___ will, or have the potential for substantial interference with the nearest
   b. X will not surface water source, namely _____; or
   c. ___ will if properly conditioned, adequately protect the surface water from interference:
      i. ___ The permit should contain condition #(s)_____;
      ii. ___ The permit should contain special condition(s) as indicated in "Remarks" below;
      iii. ___ The permit should be conditioned as indicated in item 4 below; or
   d. will, with well reconstruction, adequately protect the surface from substantial interference.

GROUNDWATER AVAILABILITY CONSIDERATIONS

3. BASED UPON available data, I have determined that groundwater for the proposed use
   a. ___ will, or likely be available in the amounts requested without injury to prior rights
   b. ___ will not and/or within the capacity of the resource; or
   c. X will if properly conditioned, avoid injury to existing rights or to the groundwater resource:
      i. ___ The permit should contain condition #(s) * ;
      ii. ___ The permit should contain special condition(s) as indicated in "Remarks" below;
      iii. ___ The permit should be conditioned as indicated in item 4 below; or

      * SEE ATTACHED MEMO

4. a. X THE PERMIT should allow groundwater production from no deeper than 425 ft. below land surface;
   b. ___ The permit should allow groundwater production from no shallower than _____ ft. below land surface;
   c. ___ The permit should allow groundwater production only from the _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;
   d. ___ Well reconstruction is necessary to accomplish one or more of the above conditions.
   e. ___ One or more POA's commingle 2 or more sources of water. The applicant must select one source of water per POA and specify the proportion of water to be produced from each source.

REMARKS: _____

(Well Construction Considerations on Reverse Side)

Oregon
John A. Kitzhaber, M.D., Governor

Water Resources Department
942 SW 6th Street
Suite E
Grants Pass, OR 97526
(541) 471-2886
FAX (541) 471-2876

WATER RESOURCES DEPARTMENT MEMORANDUM

Date: February 12, 2001

To: Groundwater/Hydrology

From: Ivan Gall – Grants Pass

Subject: Amended GW Application ***G-15102***

Applicant: Budget Truck Stop, Inc Profit Sharing & Money Purchase Pension Plan by Gary Hall, Trustee
Seek: 20 gpm for 4 acres
From: 1 drilled well, Bear Creek sub-basin, Rogue Basin
Proposed Use: Irrigation (Pasture during April-October) and Domestic (All Year)
Quad Name: Ashland

Well # 1 ***(JACK 52996)*** 39S/01E-6aa (NE of the NE) Jackson County
Well is located 853 feet North and 413 feet East from the 1/16th Cor. that is the S.W. Cor. Of the NE, NE
Well elevation at site is ~2060 ft (NGVD 1929)
Bear Creek elevation is ~1660 ft (NGVD 1929)
Well is 2,800 ft SW from Bear Creek
Well is 2,500 ft NW from Wrights Creek
Well is 500 ft SE from Wildcat Gulch
Well is 425 ft deep with WBZs at 306-307 and 418-425 ft bgs
SWLs: 3-3-99 146 ft (well log); 1-7-00 145.35 ft btoc (Gall; toc=1.1 ft ags); 6-00 157.4 ft (Ferrero Geologic aq. test)

Evaluation Summary

The subject property is located at 1000 Frank Hill Road just north of Ashland off of Ashland Mine Road. A Talent Irrigation District lateral follows the hill just below the property.

The initial proposed ground water use was for irrigation of pasture and landscaping (approximately 8 acres), and filling of two lined fish ponds connected by a waterfall. The well was also to be used for domestic water. The applicant asked for a rate of 40 gallons per minute with a total duty of 21 acre-feet. Following an unfavorable review,

the applicant, in a letter dated November 27, 2000, amended the original application by asking to delete the request for fish culture and landscaping, and reduce the rate to 20 gpm for 4 acres of irrigation.

The bedrock geology is composed of late Jurassic quartz diorite of the Mt. Ashland pluton. One of the ponds on the subject property was an old quarry for granitic rock, indicative of the shallow depth to competent bedrock (and subsequent lack of a thick weathered zone). The well log indicates decomposed granite to a depth of 31 feet, and granite from 31 to 425 feet. Topographically, the area is characterized by small draws and ridges which slope northeast towards Bear Creek. Based on the bedrock source of ground water, and the distance of 2,800 ft to Bear Creek, it is unlikely that significant interference with surface water flows would occur from use of the Hall well. However, it should be recognized that the bedrock aquifer may discharge ground water into alluvium hydraulically connected with Bear Creek.

Ground water appears to occur in fractures within the bedrock, as indicated by two discrete water bearing zones on the Budget Truck Stop well. Other well logs in the area also indicate discrete zones with ground water. It is unlikely that the unfractured bedrock has any significant permeability. Well log data can be incomplete when identifying water-bearing stratigraphy during the drilling of a well. The rate of drilling is often rapid, and often only noticeable or significant changes are noted on logs. Well yields in section 6 range from less than 1 gpm to greater than 100 gpm, with many wells having less than 5 gpm. Well depths vary greatly, generally being in excess of 100 feet and ranging to over 800 feet. Ignoring wellhead elevation differences, there does not appear to be any obvious correlation between well depth and yield, suggesting that the fractured nature of the bedrock aquifer is highly variable.

No long-term water level data from state observation wells exist for this area.

The applicant hired a consultant, Ferrero Geologic, to conduct a 24-hour aquifer test at WRD's suggestion. The purpose of the aquifer test was to assess the potential for well interference, and to evaluate the time-drawdown response to evaluate aquifer yield and potential boundary conditions. Results of the aquifer test, conducted in June 2000, indicate that the Hall (pumping) well had 56 feet of drawdown after 24 hours at 40 gpm, and that no boundary conditions appeared to be present. Although the aquifer test suggests that the Hall well can pump 40 gpm without short-term injury to the resource, the nature of fractured rock aquifers can result in a significantly reduced yield if the fracture set is small and is dewatered by over-pumping.

The Yockey observation well (JACK 20278) is located approximately 123 feet SW of the Hall well. The Yockey well is 661 feet deep with water-bearing zones from 635 to 661 feet bgs. During the Hall aquifer test, 36.1 feet of drawdown was observed in the Yockey well by the end of the 24-hour pumping period. Drawdown at the end of the 24-hour pumping period had not stabilized in either the Hall or the Yockey wells. No data on the specific capacity of the Yockey well is available, however, Tim Yockey, in a Summer 2000 conversation with Gall, claimed the well had never had any problems.

Water levels in three other nearby domestic wells were monitored during the pumping and recovery portions of the aquifer test. No obvious response to pumping from the Hall well was observed in any of these three wells. However, water levels in each of these three wells was either responding to other pumping in the area, or recovering from pumping conducted in that well prior to the aquifer test. For example, water levels in the Cook well were recovering for the duration of the pumping and recovery portions of the aquifer test.

The proposed ground water use to irrigate 4 acres, reduced from 8 acres, is still large relative to existing demands on the fractured bedrock aquifer in this area. Using an Excel spreadsheet to evaluate the data using the Theis equation, the aquifer transmissivity and storativity was estimated by matching the 36 feet of drawdown at the Yockey well with an idealized Theis analysis using a discharging well at 40 gpm located at a distance of 123 feet. Plots of the Theis analysis are attached. Resultant transmissivity estimates ranged from 200 to 600 (gal/day)/ft, and storativity from 0.0001 to 0.001 [within the range of storativities for confined aquifers provided in Freeze and Cherry (1979)]. Domenico and Schwartz (1990) list weathered granite *hydraulic conductivity* values ranging from 7 to 110 (gal/day)/ft^2. The degree of weathering at the site is minimal, and it is difficult to accurately estimate aquifer thickness given the limited amount of fractures in the granite.

Using the Theis spreadsheet model, a continuous pumping rate of 20 gpm for 101 days was simulated. The 101-day pumping period is the length of time that the applicant can exercise the 1/80th cfs rate per acre before exceeding a 2.5 acre/foot duty. The resulting drawdown at the Yockey well ranging from approximately 36 feet to 69 feet, depending on the combination of transmissivity and storativity values (given above). It is unlikely that the applicant would use 20 gpm continuously for 101 days, so this estimate should be conservative. A second series of simulations were run using the Theis spreadsheet model, pumping 10 gpm continuously for 202 days. Resultant simulated drawdown at the Yockey well ranged from approximately 18 feet to 38 feet.

It should be noted that the Yockey well is approximately 236 feet deeper than the Hall well with a deeper water-bearing zone. No specific capacity or seasonal water level fluctuation data are available for the Yockey well, nor data on water level fluctuations during extended periods of drought. Although the 24-hour duration of the aquifer test is sufficient to help characterize the response of water levels in nearby wells to short-term pumping at the Hall well, it is not sufficient to estimate the effects of long-term pumping. However, the spreadsheet model simulations suggest that with the Hall well pumping up to 20 gpm, the effect on water levels in the Yockey well is not likely to cause substantial interference, even when long-term pumping and possible drought conditions are considered.

LEFT A MESSAGE W/ IVAN CONCERNING THIS CONDITION. NO RESPONSE YET 7/16/01

Recommendation:

The ground water resource appears to be available at this location to support irrigation of 4 acres and domestic use without the potential for substantial interference with neighboring wells. The permit shall include the following conditions: 7B, 7C, 7F. Additionally, a condition shall be added to specify the source of appropriated ground water. For example, "Ground water shall be appropriated from a single drilled well, Well #1 (JACK 52996) located 853 feet North and 413 feet East from the 1/16th Cor. that is the S.W. Cor. of the NE, NE in the fractured granite aquifer, with total well depth not to exceed 425 feet below ground surface, and being cased and sealed to a depth of 39 feet below ground surface".

References:

1. Land Use Geology of Central Jackson County, Oregon. Oregon Department of Geology and Mineral Industries, Bulletin 94, 1977.
2. WRD GRID well log database.
3. USGS topographic map, Ashland, OR 1:24,000 sheet.
4. 24-Hour Pump Test, Well at 1000 Frank Hill Road, Ashland, Oregon, Application G-15102, Ferrero Geologic, 6-28-00.
5. Groundwater. Freeze, R.A., and Cherry, J.A., 1979. Prentice-Hall, Inc., Englewood Cliffs, N.J.
6. Physical and Chemical Hydrogeology. Domenico, P.A., and Schwartz, F.W., 1990. John Wiley & Sons, Inc.

Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # G-15102

ROUTED TO: LAURA S.

TOWNSHIP/
RANGE-SECTION: 39S/01E-6

CONDITIONS ATTACHED? [X] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: DEW

INTEROFFICE MEMORANDUM
Water Rights Section

TO: Fred Lissner

FROM: Dwight French, x268 DWF

12-5, ~~1999~~ 2000

RE: GW File Number G-15102

Please have someone on your staff review the file + memo attached.

Ivan Gall of your staff appears to be the most recent GW person to look at this file.

Please route to Laura S. when finished.

Thanks.

MEMO

DATE: December 5, 2000

TO: DWIGHT FRENCH

FROM: LAURA SNEDAKER, ext. 331

SUBJECT: File G-15102 for Budget Truck Stop

Please forward the attached file to the Groundwater Section for some additional review. The Department has received a request to amend the application to change to use to just irrigation of 4.0 acres and reduce the amount of water to be appropriated to 20.0 Gallons per Minute. Review of this request is necessary to determine whether the findings of the Division 9 review require modification. The request to amend the application was received by the Department on December 4, 2000.

Thank you.