

Water Right Conditions
Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17690

ROUTED TO: W.R

TOWNSHIP/
RANGE-SECTION: 4N/24E-15

CONDITIONS ATTACHED?: yes no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Alan North

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date November 12, 2013

FROM: Groundwater Section Marc Norton
Reviewer's Name

SUBJECT: Application G- 17690 Supersedes review of _____
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: Love's Travel Stop County: Morrow

A1. Applicant(s) seek(s) 0.067 cfs from 1 well(s) in the Columbia River Basin,
 _____ subbasin Quad Map: Crow Butte

A2. Proposed use Commercial & Irrigation (4.56 AF) Seasonality: Year round & April - October

A3. Well and aquifer data (**attach and number logs for existing wells; mark proposed wells as such under logid**):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	Proposed	1	CRBG	0.045	04N/24E-15 NE SE	1589.34' N, 1199.07' W fr SE/SE ¼ cor S 15
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 (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	325	--	--	--	1050	0 - 950	0 - 950	-----	-----	--	--	--

Use data from application for proposed wells.

A4. **Comments:** The applicant has requested a well completed in the Grande Ronde formation of the Columbia River Basalt Group (CRBG). A Hydrogeology Report was submitted by the agent to help clarify well construction and water source questions.

Requested discharge rate is 30.0 gpm = 0.067 cfs.

A5. **Provisions of the Umatilla** Basin rules relative to the development, classification and/or management of groundwater 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: NA
 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) 7B – Interference, 7N - Annual WL (February/March), 7P – Well Tag, 7T – Measuring Tube, Large measuring and reporting with flow meter on each well;
 - 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 production only from a single aquifer in the Columbia River Basalt reservoir between approximately _____ 950 _____ ft. and _____ 1050 _____ ft. below land surface;
- d. **Condition** to allow production only from a single aquifer in the Columbia River Basalt groundwater reservoir;
- e. **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:** Additional conditions are listed below:

Groundwater production in each well shall be limited to a single aquifer in the Columbia River Basalt Group. Each well shall be continuously cased and continuously sealed to within 100 feet of the bottom of the open borehole. A larger open interval may be approved by the Department if the permittee can demonstrate to the Department’s satisfaction, using packer tests or other suitable methods, that the hydraulic heads of water-bearing zones in the proposed open interval are equivalent or that the open interval is part of a continuous zone of interconnected porous materials. Following well completion, the wells shall be thoroughly developed to remove cuttings and drilling fluids. A video log of the wells shall be collected to demonstrate to the satisfaction of the Department that each well is only open to a single aquifer.

Each well with a pump shall be equipped with a dedicated 3/4-inch diameter (minimum) water-level measurement tube, separate from other methods of measuring the water level such as airlines or transducers. The annual water-level measurement required in the permit shall be measured through the measuring tube.

Drill cuttings shall be collected at the permitted wells and any test holes. Samples shall be collected at ten-foot intervals and at changes in lithology. The samples will be stored in one quart freezer bags with the Start Card Number and depth interval clearly marked on the bag.

All hydrologic, geologic, geochemical and video data collected shall be provided to OWRD in report and in electronic format specified by the Department.

The Department requires the water user to obtain, from a qualified individual (see below), and report annual static water levels for each well on the permit. The static water level shall be measured in the month of February. Reports shall be submitted to the Department within 30 days of measurement.

The permittee shall report an initial February static water-level measurement once well construction is complete and annual measurements thereafter. Annual measurements are required whether or not the well is used. The first annual measurement will establish a reference level against which future measurements will be compared. However, the Director may establish the reference level based on an analysis of other water-level data. The Director may require the user to obtain and report additional water levels each year if more data are needed to evaluate the aquifer system.

All measurements shall be made by a certified water rights examiner, registered professional geologist, registered professional engineer, licensed well constructor or pump installer licensed by the Construction Contractors Board. Measurements shall be submitted on forms provided by, or specified by, the Department. Measurements shall be made with equipment that is accurate to at least the standards specified in OAR 690-217-0045. The Department requires the individual performing the measurement to:

- A. Associate each measurement with an owner’s well name or number and a Department well log ID; and**
- B. Report water levels to at least the nearest tenth of a foot as depth-to-water below ground surface; and**
- C. Specify the method of measurement; and**
- D. Certify the accuracy of all measurements and calculations reported to the Department.**

The water user shall discontinue use of, or reduce the rate or volume of withdrawal from, the well(s) if any of the following events occur:

- A. Annual water-level measurements reveal an average water-level decline of three or more feet per year for five consecutive years; or**
- B. Annual water-level measurements reveal a water-level decline of 15 or more feet in fewer than five consecutive years; or**
- C. Annual water-level measurements reveal a water-level decline of 25 or more feet; or**
- D. Hydraulic interference leads to a decline of 25 or more feet in any neighboring well with senior priority.**

The period of restricted use shall continue until the water level rises above the decline level which triggered the action or the Department determines, based on the permittee's and/or the Department's data and analysis, that no action is necessary because the aquifer in question can sustain the observed declines without adversely impacting the resource or causing substantial interference with senior water rights. The water user shall not allow excessive decline, as defined in Commission rules, to occur within the aquifer as a result of use under this permit. If more than one well is involved, the water user may submit an alternative measurement and reporting plan for review and approval by the Department.

Prior to using water from any well listed on this permit, the permittee shall ensure that the well has been assigned an OWRD Well Identification Number (Well ID tag), which shall be permanently attached to the well. The Well ID shall be used as a reference in any correspondence regarding the well, including any reports of water use, water level, or pump test data.

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	CRBG – Grand Ronde formation	<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"/>

Basis for aquifer confinement evaluation: Confined aquifer determination based on information from nearby wells and CRBG hydrogeology in general

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?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Columbia River	>340		4065	<input type="checkbox"/>	<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"/>

Basis for aquifer hydraulic connection evaluation: Groundwater will be developed from a confined aquifer approximately 950 feet below ground surface.

Water Availability Basin the well(s) are located within: _____

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?
		<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: NA

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													
(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: _____

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

- D2. **THE WELL does not appear to meet current well construction standards based upon:**
 - a. review of the well log;
 - b. field inspection by _____
 - c. report of CWRE _____
 - d. other: (specify) _____

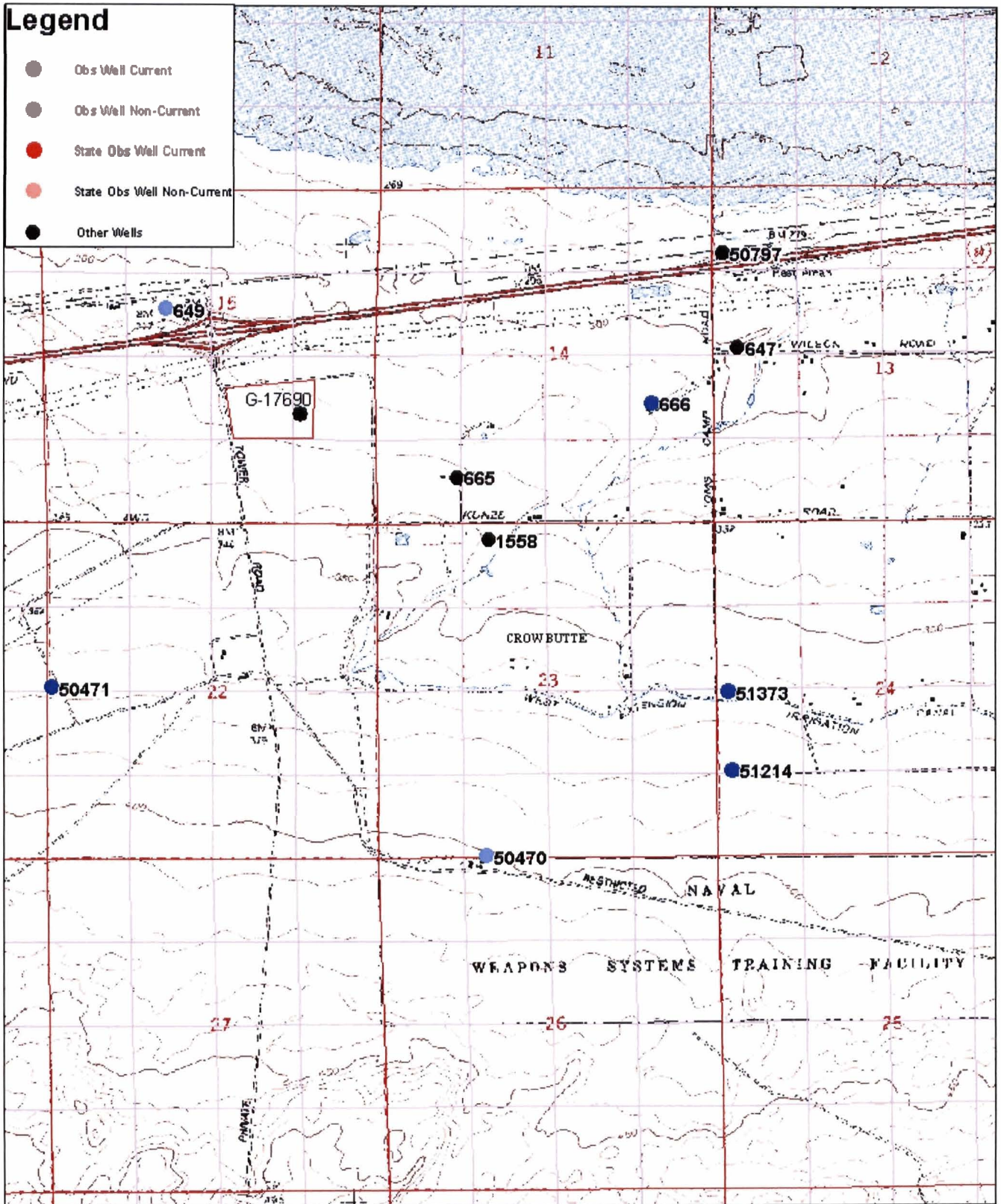
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Groundwater Application G-17690, Love's Travel Stop Morrow County, Crow Butte Quad

Legend

- Obs Well Current
- Obs Well Non-Current
- State Obs Well Current
- State Obs Well Non-Current
- Other Wells



Marc Norton

From: Alan Gay <AGay@uskh.com>
Sent: Monday, November 11, 2013 5:49 PM
To: Marc Norton
Subject: RE: Groundwater Application G-17690 for Love's Truck Stops

Marc:

I've plotted the well depths you provided against the proposed well location, as well as looked up those well logs and several others in the area. I've come to the conclusion that we'll be prepared to have the licensed driller (yet to be selected) drill as follows:

<u>Top of Interval</u>	<u>Bottom of Interval</u>	<u>Hole Diameter</u>	<u>Casing ID</u>
0-ft	25-ft	14-in	8-in
25-ft	950-ft	10-in	8-in
950-ft	1050-ft	8-in	Open

The target aquifer will be the Grande Ronde, with a target yield of 30 gpm. The preliminary selected pump (Grundfos 40S200-50) is 5.51 inches in maximum outer diameter, so this size of casing will work.

In the event sufficient yield is achieved in the Grande Ronde at a lesser depth, the casing depth and total well depth will be adjusted accordingly.

Please let me know if this information is satisfactory to continue processing the Love's water right application. If not, I'll revise as needed.

Thanks for your help,
Alan

From: Marc Norton [<mailto:marc.a.norton@state.or.us>]
Sent: Thursday, November 07, 2013 11:48 AM
To: Alan Gay
Subject: Groundwater Application G-17690 for Love's Truck Stops

Hi Alan,

I have read through your report and have a couple of questions about which aquifer you are wanting to develop and what the well construction will look like. Attached is a map of a few wells near the proposed development and a hydrograph with the water level for the four wells. The proposed well must be constructed to develop groundwater from one aquifer. The permit will have a condition that requires continuous casing and continuous seal with only 100 feet of open interval. This is to prevent commingling and loss of artesian pressure.

I need specific well construction and depth information so that I can review the application based on that data. If you have any questions, give me a call or email.

Marc
503-986-0841

This electronic communication (including all attachments) is intended only for the named addressee(s) and may contain confidential information. It has not passed through our standard review process. Design data and recommendations included herein are provided as a matter of convenience and should not be used for final design. RELY ONLY ON THE FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. If you are not the named addressee(s), any use, dissemination, distribution or copying of this communication is prohibited. If you have received this communication in error, please notify the sender immediately by return e-mail and delete the original communication from your system. This e-mail and all other electronic (including voice) communications from the sender's firm are not intended by the sender to constitute an

UMATILLA BASIN GROUNDWATER STUDY

