

Groundwater Review Summary Form

Application # G- 18389

GW Reviewer Mr. Thoma Date Review Completed: 12/20/16

Summary of GW availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☐ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

MEMO

12-20, 20 16

FROM: GW: Thomson
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES

The source of appropriation is within or above a Scenic Waterway

☐ NO☐ YES

Use the Scenic Waterway condition (Condition 7J)

☒ NO

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

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.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date December 20, 2016
 FROM: Groundwater Section Michael J Thoma
 SUBJECT: Application G- 18389 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 groundwater 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: Barbara K. Coon County: Lane

A1. Applicant(s) seek(s) 0.05 cfs from 2 well(s) in the Willamette Basin,
Long Tom River subbasin

A2. Proposed use Nursery (1 ac) Seasonality: Year-round

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

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	LANE 6719	1	Bedrock	0.03	15S/05W-33 SWSE	1250'N, 130'E of S ¼ cor S 33
2	LANE 6720	2	Bedrock	0.02	15S/05W-33 SWSE	1200'N, 750'E of S ¼ cor S 36
3						

* 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	30	6	5/30/88	405	0-19	+1-19	0-405	30-405	12		A
2	335	46	5	3/16/88	245	0-39	+1-39	0-245	40-245	7		A

Use data from application for proposed wells.

A4. **Comments:**

A5. ☒ **Provisions of the Willamette (OAR 690-502)** 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:

Comments:

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

B1. Based upon available data, I have determined that groundwater* 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 groundwater 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 groundwater 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 groundwater resource; or
- d. ☒ will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
- ☒ The permit should contain condition #(s) 7C (7-yr SWL); Medium Water-use Reporting;
 - ☐ The permit should be conditioned as indicated in item 2 below.
 - ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2. a. ☐ Condition to allow groundwater production from no deeper than _____ ft. below land surface;
- b. ☐ Condition to allow groundwater production from no shallower than _____ ft. below land surface;
- c. ☐ Condition to 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. 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 Groundwater 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. **Groundwater availability remarks:** There are no OWRD Observation Well data in the area of the proposed POA so groundwater over-appropriation cannot be determined. There are also no permitted groundwater POAs within several miles of the proposed POA so injury to existing permitted groundwater users is unlikely.

C. GROUNDWATER/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 of Spencer Fm	☒	☐
2	Bedrock of Spencer Fm	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: Well logs for the proposed POAs, along with most well logs for the surrounding area, report SWL above *First Water*, indicating at least partially-confined.

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	Bear Cr	320	300-320	2280	☒	☐	☐	☐	☒
1	2	Bear Cr	330	300-320	2860	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: GW elevations are estimated to be above SW elevations suggesting groundwater is flowing towards and discharging to surface water

Water Availability Basin the well(s) are located within: Long Tom R > Willamette R – AB Mouth (ID# 114)

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	☐	☐	None	-	☐	32.1	☐	<< 25 %	☐
2	1	☐	☐	None	-	☐	32.1	☐	<< 25 %	☐
		☐	☐			☐		☐		☐

Comments: Interference was estimated using the Hunt (2003) analytical stream-depletion model. Model results are not shown but the presence of low-conductivity streambed material severely reduces estimated interference.

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

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐

Comments: _____

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	No surface water sources beyond 1 mile were evaluated												
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
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 groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The applicant's proposed wells would be producing from an aquifer that has been found to be hydraulically connected to surface water at a distance of < 1 mile. However, the reviewer is unable to find a preponderance of evidence that the proposed use will have the Potential for Substantial Interference (PSI) with surface water.

References Used:

Herrera, N. B., Burns, E. R., and T. D. Conlon. 2014. *Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water in the Willamette Basin and Central Willamette Subbasin, Oregon*. USGS Scientific Investigations Report 2014-5136.

Hunt, B. 2003. *Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer*. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19

McClaghry, J. D., T. J. Wiley, M. L. Ferns, and I. P. Madin. 2010. *Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon*. Oregon Dept. of Geology and Mineral Industries. Open File Report O-10-13.

OWRD Well Log Database – Accessed 12/20/2016.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

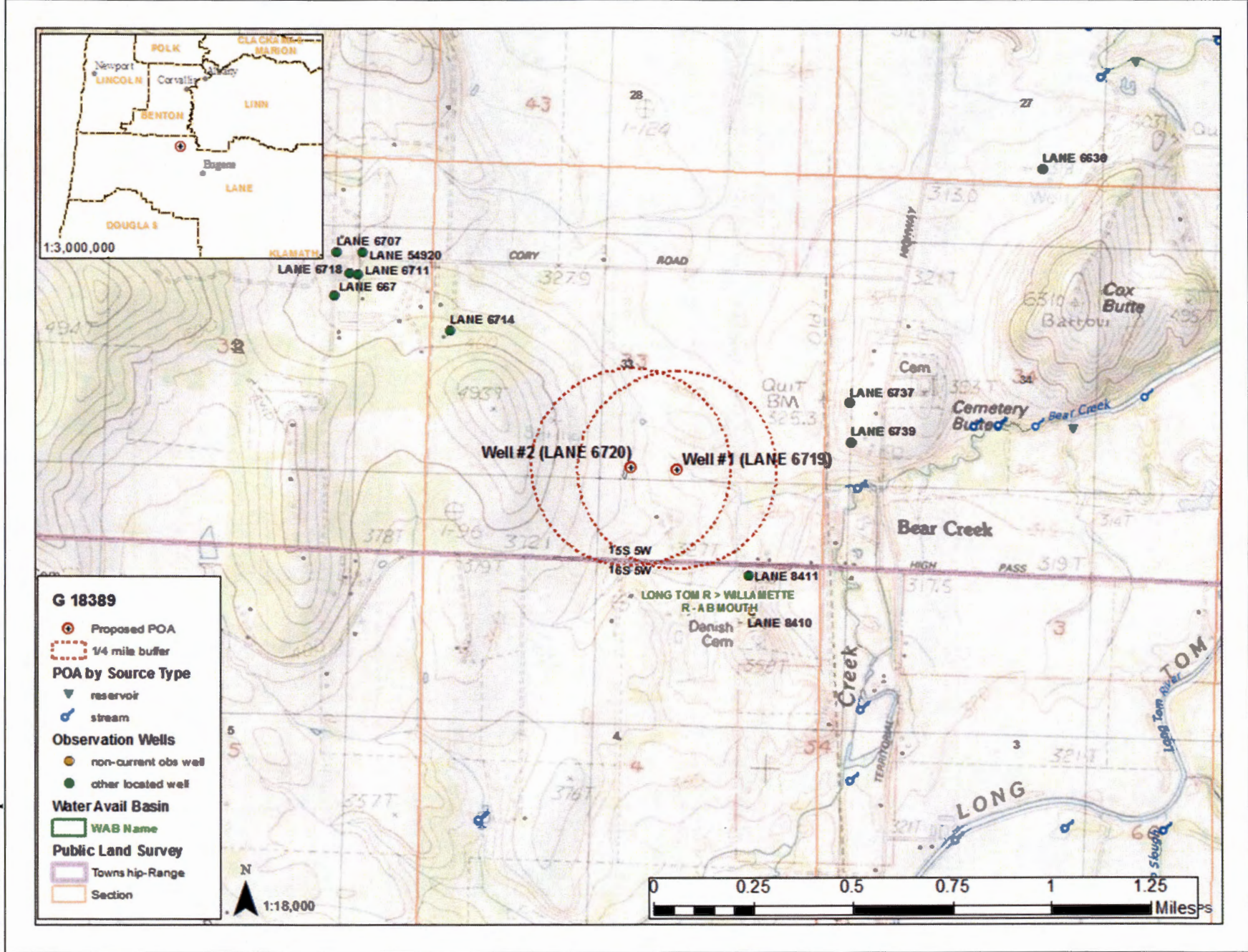
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- 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.****Water Availability Tables**

Water Availability Analysis Detailed Reports							
LONG TOM R > WILLAMETTE R - AB MOUTH WILLAMETTE BASIN							
Water Availability as of 12/20/2016							
Watershed ID #: 114 (Map)				Exceedance Level: 80% ▾			
Date: 12/20/2016				Time: 4:27 PM			
Water Availability Calculation		Consumptive Uses and Storages		Instream Flow Requirements		Reservations	
Water Rights		Watershed Characteristics					
Water Availability Calculation							
Monthly Streamflow in Cubic Feet per Second Annual Volume at 50% Exceedance in Acre-Feet							
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available	
JAN	568.00	150.00	418.00	0.00	0.00	418.00	
FEB	697.00	389.00	308.00	0.00	0.00	308.00	
MAR	596.00	556.00	40.20	0.00	0.00	40.20	
APR	373.00	250.00	123.00	0.00	0.00	123.00	
MAY	215.00	64.60	150.00	0.00	0.00	150.00	
JUN	105.00	30.10	74.90	0.00	0.00	74.90	
JUL	50.60	47.30	3.27	0.00	0.00	3.27	
AUG	35.40	38.40	-2.97	0.00	0.00	-2.97	
SEP	32.10	22.10	10.00	0.00	0.00	10.00	
OCT	35.30	6.49	28.80	0.00	0.00	28.80	
NOV	82.50	6.22	76.30	0.00	0.00	76.30	
DEC	364.00	106.00	258.00	0.00	0.00	258.00	
ANN	362,000.00	99,700.00	262,000.00	0.00	0.00	262,000.00	

Well Location Map



Well Logs for Proposed POAs

RECEIVED
LANE 6719
JUN 16 1988

LANE 6719
158/5W-33
Street Card
4450

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

(1) OWNER:
Name FireCrest Farms
Address P.O. Box 8
City Creswell State OR Zip 97426

(2) TYPE OF WORK:
☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD
☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval Yes ☐ No ☒ Depth of Completed Well 405 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE		SEAL		Amount	
Diameter	From To	Material	From To	sacks or pounds	
10"	0 19	Cement	0 19	5 Sacks	
6"	19 405				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____
Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6"	0	19	250	☒	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐

Final location of shoe(s) 19 ft

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Elect Drill
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
30	405	5	600			☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Sailer ☒ Air ☐ Flowing Artesian
Yield gal/min 12 Drawdown _____ Drill stem at _____ Time _____
Temperature of water _____ Depth Artesian Flow Found _____
Was a water analysis done? ☐ Yes By whom None
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Murky ☐ Odor ☐ Colored ☐ Other None
Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County Lane Latitude _____ Longitude _____
Township 15S N or S, Range 5W E or W, WM.
Section 33 1/4 1/4
Tax Lot _____ Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) High Pass Rd.

(10) STATIC WATER LEVEL:
6 ft. below land surface. Date 5/30/88
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 30 ft

From	To	Estimated Flow Rate	SWL
30	31	2 GPM	6
76	77	3	6
221	222	5	6
254	255	2	6

(12) WELL LOG: Ground elevation _____

Material	From	To	SWL
Topsoil	0	4	
Yellow Clay	4	12	
Grey Clay	12	14	
Grey Shale	14	185	30
Grey Sandstone	185	190	
Grey Shale	190	243	
Grey Sandstone	243	372	
Light Grey Sandstone	372	405	

Date started 5/16/88 Completed 5/18/88

(unbonded) Water Well Constructor Certification:
I certify that the work performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.
Signed _____ WWC Number _____ Date _____

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.
Signed Donald J. Forgy WWC Number 751 Date 5/30/88

WHITE COPIES - WATER RESOURCES DEPARTMENT
YELLOW COPY - CONSTRUCTOR
PINK COPY - CUSTOMER
928C 10/88

RECEIVED

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

APR 12 1988

LANE 6720

LANE
6720

155/SW-33

(1) OWNER: WATER RESOURCES DEPT
Name Fir Crest Farms LOCATION: OREGON
Address P.O. Box 8
City Creswell State OR Zip 97246

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable

☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 245 ft.

Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE SEAL
From To Material From To Amount
10" 0 39 Cement 0 39 9
6" 39 245

How was seal placed? Method ☐ A ☐ B ☒ C ☐ D ☐ E

☐ Other

Backfill placed from _____ ft. to _____ ft. Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Size From To Gauge Steel Plastic Welded Threaded
Casing: 6" 0 39 250 ☒ ☐ ☒ ☐
Liner: 4" 0 245 160 ☐ ☒ ☐ ☐

Location of shoe(s) None

(7) PERFORATIONS/SCREENS:

☒ Perforations Method Elect Drill
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tube/pipe size	Casing	Liner
40	80	1/2"	100	1/4"		☐	☒
120	180		120	1/4"		☐	☒
220	245		75	1/4"		☐	☒

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Boiler ☒ Air ☐ Flowing Artesian
Yield gal/min Drawdown Drill stem at Time
7 245 1 hr.

Temperature of water _____ Depth Artesian Flow Found _____

Was a water analysis done? ☐ Yes By whom None

Did any strata contain water not suitable for intended use? ☐ Yes ☒ No

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other None

Depth of strata: _____

WHITE COPIES - WATER RESOURCES DEPARTMENT

YELLOW COPY - CONSTRUCTOR

PINK COPY - CUSTOMER

00000 10/00

(9) LOCATION OF WELL by legal description:

County Lane Latitude _____ Longitude _____
Township 15S N or S, Range 5W E or W, Wld. _____
Section 33 1/4 1/4
Tax Lot _____ Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) Fir Crest Farms Station #6 High pass Rd.

(10) STATIC WATER LEVEL:

5 ft. below land surface. Date 3/14/88
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found 46 ft.

From	To	Estimated Flow Rate	SWL
46	47	3	5
135	136	4	5

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
Topsoil	0	3	
Brown clay	3	31	
Grey shale	31	61	5
Grey sandstone	61	63	
Grey shale	63	245	

Date started 3/14/88 Completed 3/16/88

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number _____
Signed _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 251
Signed Donald J. Foring Date 4/4/88