STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

RECEIVED JAN 25 1988

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1S/39E-20cd

WATER RECORD No. 1 SALEM, OREGON

(1) OWNER:

Owner's Well Number:

Name City of Imbler

Address P. O. Box 40, or City Hall

City Imbler State OR Zip 97841

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD:

☒ Rotary Air ☒ Rotary Mud ☐ Cable ☐ Other

Rotary Mud 0 - 700 ft.

Reverse Rotary Air 700 - 1,546

(4) PROPOSED USE:

☐ Domestic ☒ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Depth of Completed Well 1,546 ft.

Special Standards date of approval

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
21"	0	36	Cement	6	36	409 sacks
19"	36	690	Cement	36	690	
12¼"	690	1546				

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:	16"	+1	690	.375	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	16x12 K-Packer @ 655'				☒	☐	☒	☐
	12"	657	677	.375"	☒	☐	☒	☐
	10"	677	1546	.250"	X		X	

Perforated location of shoe(s)

(7) PERFORATIONS/SCREENS:

☒ Perforations Method Manufactured

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
1240	1545	1/4"x3",	30 per	foot		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☐ Air ☒ Flowing Artesian

Yield gal/min	Pumping level	Drill stem at	Time
			½ hr
		-	1 hr
2500 gpm			

Temperature of water 78-80°F Depth Artesian Flow Found

Was a water analysis done? ☒ Yes By whom

Did any strata contain water not suitable for intended use? ☒ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other

Depth of strata: 36-49 & 276-282

(9) LOCATION OF WELL by legal description:

County Union Latitude 45°27 '28 " Longitude 117°57' 45 "

Township 1S N or S, Range 39E E or W, WM.

Section 20 SE ¼ of SW ¼

Tax Lot 3300 Lot 2 Block 24 Subdivision Imbler

Street Address of Well (or nearest address) on Esther Street west of City Hall

(10) STATIC WATER LEVEL:

ft. below land surface. Date

Artesian pressure 38 lb. per square inch. Date 12/12/87

(11) WELL LOG:

Ground elevation 2725

Material	From	To	WB?	SWL
See attached sheets for formations, list of water bearing zones, drilling summary, and a well diagram.				
NOTE: The well is 26' deeper than indicated by the formation log. 26' error made between 700' depth and 1,546'.				

Date started 7/28/87 Completed 12/11/87

(unbonded) Water Well Constructor Certification:

I constructed this well in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

Signed Wally Lowe, Driller Date 12/12/87

(bonded) Water Well Constructor Certification:

I accept responsibility for construction of this well and its compliance with all Oregon water well standards. This report is true to the best of my knowledge and belief.

Signed Date 1-18-87

Company Brown & Brown Drilling Co. Job No.

9809C 10/85

UW10298

FORMATIONS

Material	From	To
Silt	0	2
Sand	2	36
Sand and Clay Tan	36	49
Clay - Green	49	175
Clay - Gray	175	225
Clay - Sandy	175	229
Clay - Brown	229	276
Sand - Water Bearing	276	282
Clay - Green and Sandy	282	318
Clay - Green	318	408
Black Basalt	412	470
Gray Basalt	470	532
Red Cinders	532	549
Clay - Gray - Broken Rock	549	613
Clay - Green and Brown	613	638
Basalt - Black	638	706
Basalt - Gray	706	729
Basalt - Gray Fractured with Red Clay Cinders	729	734
Basalt Fractured - Green Clay	734	823
Red Clay	823	834
Basalt Green Clay	834	845
Clay - Tan	845	848
Clay - Green	848	856
Basalt - Black	856	876
Red Clay	876	877
Black Basalt - Green Clay	877	934
Green Clay	934	947
Fractured Basalt with some Clay	947	1,020*
Basalt - Gray	*1,056	1,076
Clay - Green	1,076	1,091
Basalt Black/Clay	1,091	1,170
Red Cinders and Clay - Green and Gray	1,170	1,187
Basalt - Black	1,187	1,281
Red Cinders and Clay - Green	1,281	1,305
Basalt - Black	1,305	1,310
Basalt - Gray	1,310	1,330
Red Cinders and Clay	1,330	1,335
Basalt - Vesicular	1,335	1,343
Basalt - Fractured, loose	1,343	1,380
Red Cinders and Green Clay	1,380	1,391
Basalt - Black	1,391	1,410
Red Cinders and Green Clay	1,410	1,413
Basalt - Gray	1,413	1,461
Basalt - Vesicular and Red Cinders	1,461	1,471
Basalt - Black	1,471	1,495
Basalt - Black, Fractured, Loose	1,495	1,506
Basalt - Black	1,506	1,509
Red Cinders and Clay	1,509	1,517
Basalt - Black, Fractured, Loose	1,517	1,520

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WATER BEARING ZONES

Material	From	To	Estimated Artesian Flow
Sandy Clay	36	49	
Sand	276	282	
Fractured Gray Basalt with Red Cinders	729	734	50 gpm
Red Cinders	1,170	1,178	100 gpm
Red Cinders	1,281	1,305	100 gpm
Fractured Basalt	1,305	1,308	150 gpm
Red Cinders	1,330	1,335	100 gpm
Fractured Basalt, Loose	1,343	1,380	500 gpm
Red Cinders	1,380	1,391	200 gpm
Red Cinders	1,410	1,413	100 gpm
Vesicular Basalt and Red Cinders	1,461	1,471	100 gpm
Fractured Basalt, Loose	1,495	1,506	500 gpm
Red Cinders	1,509	1,517	100 gpm
Fractured Basalt, Loose	1,517	1,520	500 gpm

NOTE: The Well is 26' deeper than indicated by the formation log. 26' error made between 700' depth and 1,546'.

DRILLING SUMMARY:

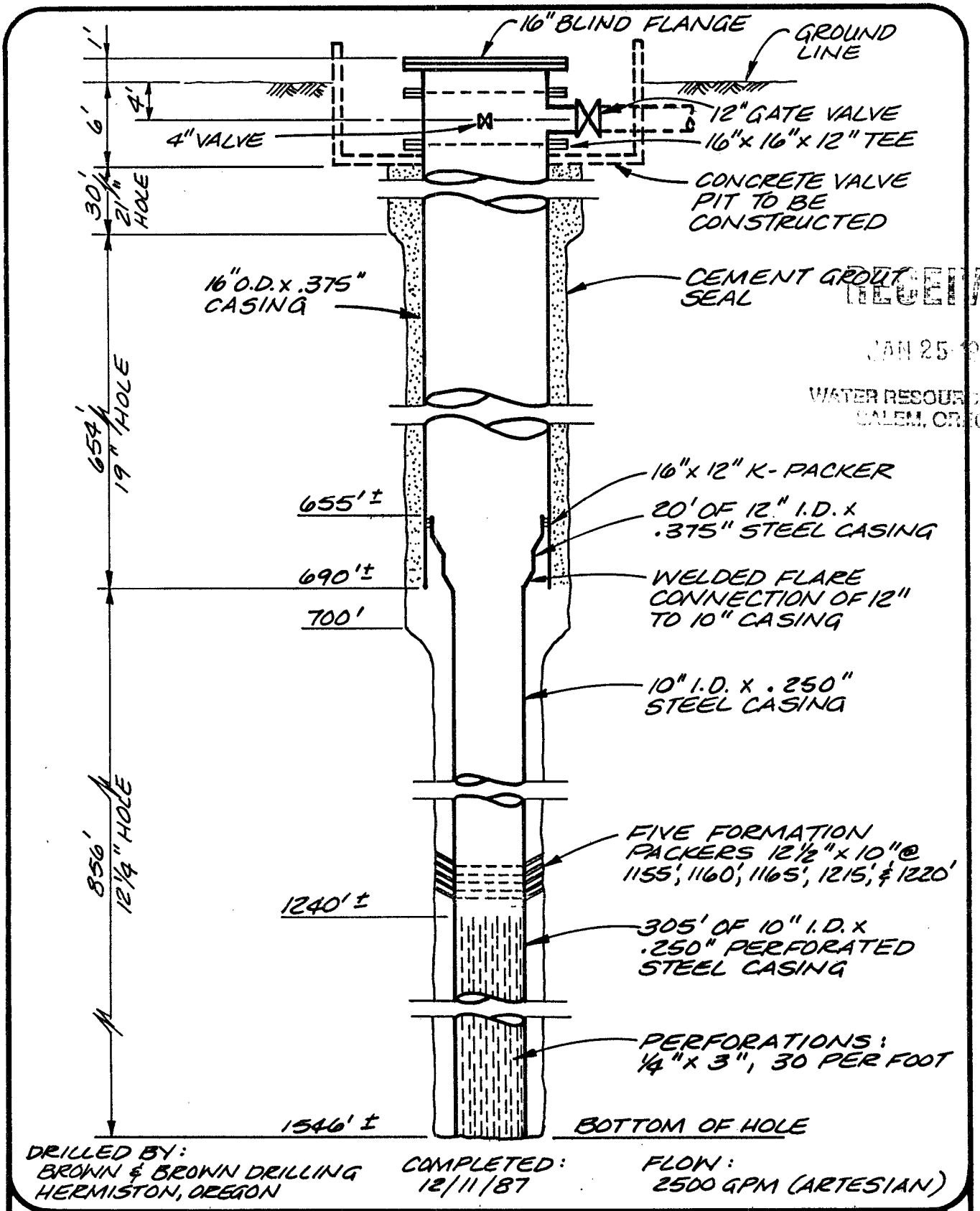
Well was drilled to 700 feet using mud. Set 16" casing with float shoe cemented from 690 to ground level.

Drilled air reverse from 700 to bottom at 1,546. Experienced clays caving continuously while drilling.

Decided to sacrifice top 100 gpm of water to shut clay stratas off to prevent clays plugging perforations.

Installed blank 10" casing from 1,250 to 675 with a K-packer on top to seal to 16" casing, 5 formation packers on 10" casing at various depths to ensure sealing to solid drilled hole to shut off caving clay.

Well has 305 feet of perforated 10" liner from 1,240 to 1,545. Well is flowing 2,500 gpm. Temperature is 78 - 80°F at 38 lbs. pressure.



BROWN & BROWN DRILLING

CITY OF
IMBLER, OREGON
MUNICIPAL WATER SUPPLY WELL

FIGURE
1

UNIO 208

COFFEY LABORATORIES, INC.
4914 N.E. 122nd Ave.
Portland, OR 97230
Phone: (503) 254-1794

Anderson Perry Association
P.O. Box 1107
La Grande, OR 97850
Attention: Jess Holt

December 23, 1987
Log #P871211-F
P.O.#881-20-02

Subject: EPA Inorganic and Oregon Secondary Contaminants Analysis

Sample Collected: 12/09/87
Sample Received: 12/11/87
Collection Point: Imbler Well

ANALYSIS	METHOD	UNITS	RESULTS	LIMIT
Arsenic	EPA 206.2	mg/L	< 0.001	0.050
Barium	*	mg/L	< 0.005	1.0
Cadmium	EPA 213.2	mg/L	< 0.001	0.010
Calcium	*	mg/L	2.04	---
Chloride	EPA 300.0	mg/L	1.47	250
Chromium	EPA 218.2	mg/L	< 0.001	0.050
Color	EPA 110.2	C.U.	< 1	15
Copper	*	mg/L	< 0.01	1.0
Fluorides	EPA 300.0	mg/L	1.34	1.4-2.4
Hardness	SM 314	mg/L	5.16	250
Iron	*	mg/L	< 0.010	0.3
Lead	EPA 239.2	mg/L	< 0.001	0.050
Magnesium	*	mg/L	0.017	---
Manganese	*	mg/L	< 0.005	0.05
Mercury	EPA 245.1	mg/L	< 0.0005	0.002
Nitrate	EPA 300.0	mg/L	< 0.1	10.0
Odor	SM 207	----	None Detected	---
pH	EPA 150.1	S.U.	9.21	6.5 Min.
Sand	EPA 160.2	mg/L	< 0.5	2
Selenium	EPA 270.2	mg/L	< 0.001	0.010
Silver	EPA 272.2	mg/L	< 0.001	0.050
Solids	EPA 160.1	mg/L	128	500
Sulfate	EPA 300.0	mg/L	6.04	250
Zinc	*	mg/L	< 0.005	5.0

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

* Federal Register, 40 CFR Part 136, Method 200.7, Friday, October 26, 1984, Part VIII

Sincerely,

Susan M. Coffey

Susan M. Coffey
President

SMC/lws

This report is for the sole and exclusive use of the above client. Samples are retained a maximum of 15 days from the date of this letter.