WATER RIGHT TRANSFER HYDROLOGIC ASSESSMENT
WATER RIGHT CERTIFICATE #66805
William and Blanche Patterson Property
John Day, Oregon

November 1996

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Prepared For:

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HCR 56 Box 20
John Day, Oregon 97845

Prepared By:

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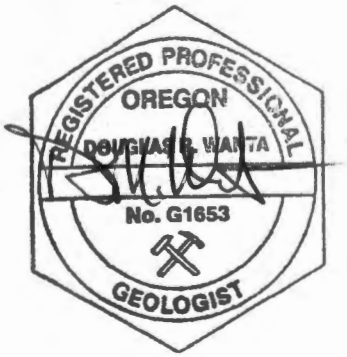

PN: 663022/November 1996

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EXECUTIVE SUMMARY

At the request of William and Blanche Patterson, Cascade Earth Sciences, Ltd. (CES), has completed a hydrologic evaluation for a proposed water right transfer near John Day, Oregon. The purpose of this assessment is to determine whether the use of groundwater at the new point of diversion (POD) will meet the criteria set forth in Section 4(2)(b) of House Bill 2184.

Based on the information available regarding the site and aquifer parameters, the results of this hydrologic assessment indicate that the new POD will affect the John Day River *similarly* to the previously authorized POD. As shown by using the Jenkins Model, the use of irrigation water from the new POD will result in stream depletion of approximately 66% of the rate of appropriation within 10 days of continuous pumping. In addition, the relatively low withdrawal rate and isolated location of the new POD indicate the surrounding water wells would not be adversely affected. Since the proposed POD meets the criteria set forth in Section 4(2)(b) of House Bill 2184, the request for transfer of water right appears appropriate.

1.0 PROJECT DESCRIPTION

1.1 Introduction

At the request of William and Blanche Patterson, Cascade Earth Sciences, Ltd. (CES), has completed a hydrologic evaluation for a proposed water right transfer near John Day, Oregon. This report presents the assessment findings and conclusions regarding the hydrologic similarity between the former and proposed point of diversion (POD).

1.2 Purpose and Scope

The purpose of this assessment is to determine whether the use of groundwater at the new POD will meet the criteria set forth in Section 4(2)(b) of House Bill 2184. As outlined in this bill, transfer of PODs from surface water to groundwater may be allowed if the transfer complies with the requirements set forth in ORS 540.520 and 540.530. This report is intended to document evidence demonstrating that the use of groundwater from the proposed POD meets the following:

- The proposed POD appropriates groundwater from an unconfined aquifer that is hydraulically connected to the John Day River.
- The proposed POD will not result in enlargement of the original water right or adversely affect other water right holders.

1.3 Project Background

On January 25, 1992, William and Blanche Patterson requested a change in the POD for tract 4 of Certificate of Water Right #66805 (Appendix A). The water right currently entitles 0.11 ft^3/s to be diverted from the Trowbridge Ditch at a point located within the NE¼, NE¼ of Section 25, Township 13 South, Range 31 East (Figure 1). Total water use is limited to 5 acre-ft per acre during the irrigation season of each year. Irrigation water supplied to the Trowbridge Ditch originates from the John Day River.

The new POD is located approximately 1/4 mile west of John Day in the NE¼, SW¼ of Section 22, Township 13 South, Range 31 East. The POD consists of a sump positioned in the northern end of a former gravel quarry about 900 feet north of the John Day River (Figure 1). Since the new POD is not located within the distance requirements set forth in House Bill 2184, a hydrologic assessment is necessary to verify that the new POD will affect the surface water source similarly to the previously authorized POD. Specifically, whether the use of water at the new POD will result in stream depletion of at least 50% of the rate of appropriation within 10 days of continuous pumping.

2.0 SUBSURFACE CHARACTERISTICS

2.1 Geology

John Day is located within the Blue Mountain Physiographic Province. The geology of the John Day area is dominated by Columbia River Basalts, which form the steeper walls north of the John Day valley, and the poorly consolidated gravels of the Rattlesnake Formation to the south. Sediments in the John Day valley are composed of interstratified gravel, sand, silt, and clay. These alluvial sediments were deposited by floods and migration of the John Day River.

Most of the alluvial sediments near the town of John Day (including the subject area) were placer mined for gold in the early to mid-1900's (Schlicker and Brooks, 1975; Mathiot, 1980). As a result, placer mine tailings and excavations dominate much of the valley topography. Dredging of the alluvial sediments may have reached depths up to 45 feet (Pereira, 1996a). Excavations were backfilled using the dredge tailings. This reworking of the sediments would have destroyed any sedimentary structure in the alluvium as well as washed out many of the fines (Schlicker and Brooks, 1975).

2.2 Hydrology

Groundwater in the John Day area occurs in the gravel alluvium and in the interbeds within basalt units. The alluvial aquifer is considered the uppermost aquifer in the area and is also generally considered unconfined. The new POD is located within a gravel quarry that intersects the alluvial aquifer. Direct observation of the water level in the quarry for many years suggests that the water level in the quarry is directly related to the elevation of the John Day River (Pereira, 1996b). This correlation indicates a hydraulic connection between the river and the alluvial aquifer. The recharge for the alluvial aquifer is therefore assumed to be predominated by the John Day River.

Based on the described aquifer characteristics, specific aquifer properties were estimated from published sources (Driscoll, 1989; Schlicker and Brooks, 1975; Dawson and Istok, 1991), local information (Pereira, 1996a), and CES' review of Oregon Water Resources Department (OWRD) well logs (Appendix B). Assuming that the aquifer materials are loose, clean gravels with coarse sand, the following characteristic values were determined:

Hydraulic conductivity (K) = 1,000 to 5,000 ft/day
Specific yield (S) = 0.15 to 0.25
Aquifer thickness (b) = 50 ft
Transmissivity (T) = 5×10^4 to 2.5×10^5 ft^2/day.

3.0 HYDRAULIC EVALUATION

3.1 Methodology

CES evaluated the effects of groundwater withdrawal from the new POD using techniques described in "Computation of Rate and Volume of Stream Depletion by Wells" (Jenkins, 1970).

According to this method, often referred to as the Jenkins Model, the rate and volume of stream depletion caused by a pumping well is a function of the aquifer transmissivity, the specific yield of the aquifer, and distance from the pumped well to the stream. The model uses a number of type curves and corresponding tables that can be used to calculate the rate and volume of stream depletion at any time during the pumping period. Stream depletion refers to either the direct depletion of the stream or reduction of groundwater flow to the stream. The symbols used in the Jenkins Model are defined below:

T = transmissivity
S = specific yield (dimensionless)
t = time during the pumping period since pumping began
Q = net steady pumping rate
q = rate of depletion of the stream
Qt = net volume pumped during time t
v = volume of stream depletion
a = perpendicular distance from the pumped well to the stream
sdf = stream depletion factor.

If the hydrologic system meets the assumptions of the model system, then

$$sdf = a^2S/T.$$

3.2 Depletion Calculations

The following values were used to estimate stream depletion according to the Jenkins Model:

Hydraulic conductivity (K) = 2,500 ft/day
Specific yield (S) = 0.20
Aquifer thickness (b) = 50 ft
Transmissivity (T) = 1.3 x 10^5 ft^2/day
Pumping rate (Q) = 0.11 ft^3/s (50 gpm)
Total time pumping (t) = 10 days
Distance from sump to stream (a) = 900 ft.

Using these data, the percentage of stream depletion at 10 days of continuous pumping was calculated as follows:

sdf = (900 ft)^2(0.2) / (1.3 x 10^5 ft^2/day) = 1.25 days
t/sdf = (10 days) / (1.25 days) = 8.0 days.

From Table 1 of the Jenkins Model, when t/sdf = 8.0 days

$$v/Qt = 0.659.$$

Therefore, about 66% of the water pumped from the sump during 10 days is stream depletion.

This relationship can also be used to estimate the time during continuous pumping for the sump when 50% stream depletion occurs. From Figure 1 in the Jenkins Model, when $v/Qt = 0.5$, $t/sdf = 3.2$, therefore:

$sdf = 1.25$
$t/sdf = 3.2$ days
$t = (1.25)(3.2) = 4.0$ days.

The time when stream depletion volume equals 50% of the pumped volume is 4.0 days.

4.0 POTENTIAL IMPACTS TO SURROUNDING WELLS

The proposed POD is approximately 840 ft from the nearest water supply well completed in the alluvial aquifer (Figure 1). Because the well is closer to the recharge source (i.e., the John Day River) than the new POD, it is highly unlikely that pumping at the new POD would affect available water in the well.

Additionally, during peak pumping there is minimal visible decline on the water level in the POD sump (Pereira, 1996b). For the cone of depression resulting from pumping at the new POD to intersect a well located 840 ft away, a significant decline (readily visible at a minimum) in the water elevation proximal to the pumping location would be apparent.

5.0 CONCLUSIONS

Based on the information available regarding the site and aquifer parameters, the results of this hydrologic assessment indicate that the new POD will affect the John Day River *similarly* to the previously authorized POD. The use of irrigation water from the new POD will result in stream depletion of at least 50% of the rate of appropriation within 10 days of continuous pumping. In addition, the relatively low withdrawal rate and isolated location of the new POD indicate the surrounding water wells would not be adversely affected. However, if pumping in the sump begins to have a noticeable affect on water level in the quarry, an assessment of the impact to surrounding wells should be performed. Since the proposed POD meets the criteria set forth in Section 2(4)(b) of House Bill 2184, the request for transfer of water right appears appropriate.

CASCADE EARTH SCIENCES, LTD.

Greg Thurman, P.E.
Senior Engineer

Doug Wanta, R.P.G.
Senior Geologist

REFERENCES

Dawson, K., and J. Istok, 1991. *Aquifer Testing: Design and Analysis of Pumping and Slug Tests*. Department of Civil Engineering, Oregon State University. Chelsea, Michigan. Lewis Publishers.

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Jenkins, C., 1970. "Computation of Rate and Volume of Stream Depletion by Wells." United States Geological Survey (USGS). Techniques of Water-Resources Investigations of the USGS, Chapter D1, Book 4, *Hydrologic Analysis and Interpretation.*

Mathiot, K., 1980. Hydrologist, Oregon Department of Water Resources. Interoffice memorandum dated March 14, 1980, addressed to Bill Diest, City Manager, John Day, Oregon, regarding city lagoons and groundwater quality.

Pereira, R., 1996a. Letter from Mr. Robert Pereira to Cascade Earth Sciences, Ltd. March 19, 1996.

Pereira, R., 1996b. Teleconference between Mr. Robert Pereira and Steve Airhart of Cascade Earth Sciences, Ltd. March 1996.

Schlicker, H., and H. Brooks, 1975. *Engineering Geology of the John Day Area, Grant County Oregon*. State of Oregon Department of Geology and Mineral Industries, Portland, Oregon.

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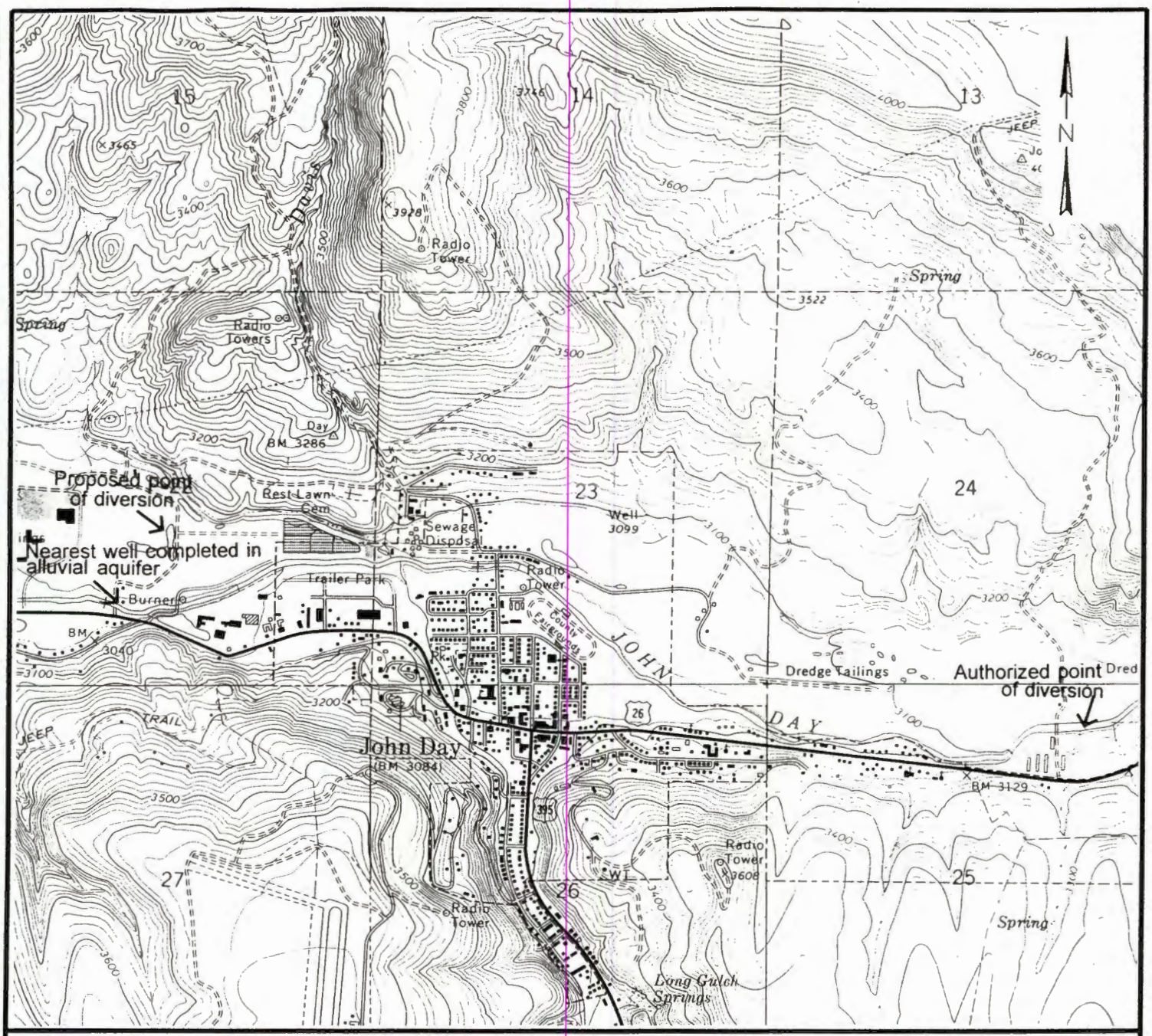
FIGURES

Figure 1. Site Location Map



SCALE 1 INCH = 2,000 FEET

1 ½ 0 1 MILE

CONTOUR INTERVAL =20 FEET

FIGURE 1 - Site Location Map

PROJECT NUMBER: 663022	Patterson Water Rights Transfer
DATE: 5/96	
DWG. – / DWG NO: –	John Day, Oregon
PROJECT MANAGER: spa	
REVISED:	CASCADE EARTH SCIENCES, LTD Oregon – Washington – Idaho

Source: 7.5 min USGS topographic map of John Day Quadrangle, Grant County, Oregon 1983.

APPENDICES

Appendix A. Water Right Transfer Application
Appendix B. OWRD Well Logs

Appendix A.

Water Right Transfer Application

RECEIVED
FEB 03 1992
WATER RESOURCES DEPT.
SALEM, OREGON

State of Oregon
WATER RESOURCES DEPARTMENT

APPLICATION FOR TRANSFER OF WATER RIGHT

Applicant: WILLIAM A. AND BLANCHE PATTERSON

Mailing Address: HCR 56 BOX 20

JOHN DAY (City or town) OREGON (State) 97845 (Zip) (503) 575-1615 (Phone)

Type of change: POINT OF DIVERSION
(In point of diversion: place of use; use heretofore made of the water)

1. WATER RIGHT

A) Is the water right in your name? YES (Yes, No) If not, list name below:

B) Was the water right determined by a court decree? YES (Yes, No)

1. If yes, list the title of the proceedings: JOHN DAY DECREE
2. Certificate No: 25806 - ORIGINAL CERTIFICATE

C) Was the water right acquired by a water permit? NO (Yes, No)

1. If yes, list the Permit No:
2. Certificate No:

D) Date of priority right: 1889, 19

E) What are your reasons for the proposed changes? PROPERTY THAT THE OLD DITCH WAS LOST IN LITIGATION, AND THE OLD DITCH WAS ABANDONED. NEW DIVERISION POINT IS MORE ECONOMICAL TO USE.

F) The water will be completely applied to the proposed use on or before: APRIL, 1992

2. LOCATION OF AUTHORIZED USE

A) What is the source of water (river, stream, well)? JOHN DAY RIVER

B) Describe the authorized point of diversion:

Location in Reference to Survey Corner	1/4,1/4 of Section	Section	Township	Range
460'S. & 920'W. OF NE COR SEC25	NE¼NE¼	25	13S	31E

C) What is the name of the ditch used? TROWBRIDGE DITCH

D) What is the use to which the water is applied? IRRIGATION

E) Give the location of the authorized area irrigated or place of use other than for irrigation:

Township	Range	Section	1/4,1/4 of Section	No. of acres irrigated
13S	31E	22	SE¼NW¼	4.5

F) Is the land within an irrigation district? Yes ____ No X

If Yes, which district?

G) County GRANT

3. LOCATION OF PROPOSED USE:

NOTE: Answer question A only if the application is for a change in the point of diversion.

A) Describe the proposed point of diversion:

Location in Reference to Survey Corner	1/4,1/4 of Section	Section	Township	Range
2000'N.&2600'E.OF SW COR. SEC. 22	NE¼ SW¼	22	13S	31E
BEGINNING AT A 5/8" IRON PIN MARKING THE SE CORNER OF THE N½NE¼NW¼ (see attached)	NE¼NW¼	22	13S	31E

NOTE: Answer questions B, C, D, and E only if the application is for a change in use or place of use.

B) Are the lands from which you propose to transfer your water right free of all encumbrances? _____ (Yes, No)

C) If no, give the description below of existing encumbrances:

Encumbrance	Held by	Amount

D) What is the use to which the water will be applied? _____

E) Give the proposed location of the area irrigated, or place of use if other than for irrigation:

Township	Range	Section	1/4,1/4 of Section	No. of acres irrigated

4. EXHIBITS

The following exhibits shall be attached to and made part of the application:

A) A map prepared by a Certified Water Right Examiner showing the location of the present and proposed points of diversion, the authorized and proposed places of use and, if any, lands from the existing right that would not be subject to transfer.

B) A copy of the current recorded deed to the subject lands.

C) Affidavits from any other landowners or encumbrance holders with interest in the original water right stating that they have no objection to the proposed transfer.

D) Evidence that the water has been used within the last five years.

5. NAME AND ADDRESS OF RECEIVING LANDOWNER(S) IF OTHER THAN APPLICANT:

_____

_____

6. REMARKS: _____

_____

_____

I (we) WILLIAM A. AND BLANCHE PATTERSON, applicant(s), hereby swear that I (we) have read the above application for transfer of water right and that the statements made are true and correct. Dated and signed this 25 TH day of JANUARY, 1992.

William A Patterson
(Signature)

Blanche E Patterson
(Signature)

Subscribed and sworn to before me

Bonnie J. Winegar
Notary Public for Oregon

(Notarial Seal)

OFFICIAL SEAL
BONNIE J WINEGAR
NOTARY PUBLIC - OREGON
COMMISSION NO 010397
MY COMMISSION EXPIRES NOV. 1, 1995

My commission expires: 11-1-95

STATE OF OREGON

COUNTY OF GRANT

CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

ESTATE OF JOHN C. SILVERS
BY JESSIE SILVERS AND E. J. BAYLEY, TRUSTEES
JOHN DAY, OREGON 97845

confirms the right to use the waters of the JOHN DAY RIVER, a tributary of the COLUMBIA RIVER, for IRRIGATION OF 85.8 ACRES AND STOCK.

This right was confirmed by decree of the Circuit Court of the State of Oregon for GRANT County. The decree is of record at Salem, in the Order Record of the WATER RESOURCES DIRECTOR, in Volume 15, at Page 461. The date of priority is 1865, TRACT NO. 1; 1870, TRACT NO. 2; 1876, TRACT NO. 3; 1889, TRACT NO. 4.

The point of diversion is located as follows:

NE 1/4 NE 1/4, SECTION 25, T 13 S, R 31 E, W.M.; TROWBRIDGE DITCH: 2150 FEET NORTH AND 920 FEET WEST FROM E 1/4 CORNER OF SECTION 25.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, is limited to a diversion of ONE-FORTIETH of one cubic foot per second PER ACRE IRRIGATED FROM APRIL 1 TO SEPTEMBER 30 (or its equivalent); and IS FURTHER LIMITED TO ONE acre-foot for each acre irrigated PER CALENDAR MONTH TO JULY 1 AND 3/4 ACRE-FOOT PER ACRE THEREAFTER; TOTAL FIVE ACRE-FEET PER ACRE FOR SEASON, MEASURED AT THE POINT OF DIVERSION during the irrigation season of each year.

SEE NEXT PAGE

A description of the place of use to which this right is appurtenant is as follows:

TRACT 1

SW 1/4 SW 1/4 25.0 ACRES
SECTION 19

NW 1/4 NW 1/4 34.0 ACRES
SECTION 30
TOWNSHIP 13 SOUTH, RANGE 31 EAST, W.M.

TRACT 2

NW 1/4 SW 1/4 10.3 ACRES
SECTION 22
TOWNSHIP 13 SOUTH, RANGE 31 EAST, W.M.

TRACT 3

NE 1/4 NE 1/4 2.0 ACRES
SE 1/4 NE 1/4 3.0 ACRES
SECTION 25
TOWNSHIP 13 SOUTH, RANGE 30 EAST, W.M.

SW 1/4 NW 1/4 7.0 ACRES
SECTION 30
TOWNSHIP 13 SOUTH, RANGE 31 EAST, W.M.

TRACT 4

SE 1/4 NW 1/4 4.5 ACRES — . Pattersons
SECTION 22
TOWNSHIP 13 SOUTH, RANGE 31 EAST, W.M.

This certificate correctly describes that portion of the water right confirmed by the prior certificate recorded at page 37364, Volume 29, State Record of Water Right Certificates, NOT modified by the provisions of orders of the Water Resources Director entered on August 6, 1980, canceling part of the right and entered on August 11, 1980, approving transfer application No. 4486, and supersedes certificate 50136.

The issuance of this superseding certificate does not confirm the status of the water right in reference to ORS 540.610.

The right to the use of the water for the above purpose is restricted to beneficial use on the lands or place of use described and is subject to all other conditions and limitations contained in said decree.

WITNESS the signature of the Water Resources Director, affixed OCTOBER 2, 1991.

/s/ WILLIAM H. YOUNG
William H. Young

Recorded in State Record of Water Right Certificates numbered 66805.

T-4486.LHN

Appendix B.

OWRD Well Logs

GRAN 321

RECEIVED
DEC 16 1992
WATER RESOURCES DEPT.
SALEM, OREGON

13S/31E/22b

(START CARD) # 18166

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

Well Number:

(1) OWNER:
Name David Murphey
Address P.O Box 507
City John Day State Or Zip 97845

(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 80 ft.
Explosives used Yes ☐ No ☒ Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10"	0	18'	Bentonite granular	0'	18'	11 SACKS
6"	+1'	80'				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Poured
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"	+12"	19'	.250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	5"	-5'	70'	188	☐	☒ glue	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Skill Saw
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
-5'	70'	1/8x8"	500			☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
36 gal	0		1 hr.

Temperature of water 64 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:

(9) LOCATION OF WELL by legal description:
County Grant Latitude Longitude
Township 13 S N or S. Range 31E E or W. WM.
Section 22 NW ¼ NW ¼
Tax Lot Lot Block Subdivision
Street Address of Well (or nearest address) Patterson Rd

(10) STATIC WATER LEVEL:
30 ft. below land surface. Date 8-19-92
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 72

From	To	Estimated Flow Rate	SWL
72'	80'	36 gal	30

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Brown Top soil	0	1	
Clay Conglomerate Brown	1	6	
Clay Conglomerate Redish Brown Hard	6	27	
Basit Hard gray	27	72	
Basit sand stone gray	72	69	30
Basit sand stone Redish Brown Water Bearing	69	80	30
water Bearing	72	80	
Completed Well with welded Cap			

RECEIVED
SEP 17 1992
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 8-5-92 Completed 8-19-92

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

WWC Number
Signed John Marriel Date 8-19-92

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonme work performed on this well during the construction dates reported above. work performed during this time is in compliance with Oregon w construction standards. This report is true to the best of my knowledge a belief.

WWC Number 1536
Signed Gary M. Raley Date 8-19-92

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

GRAN 411

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

RECEIVED
APR 16 1981
APR 1 1 1986
WATER RESOURCES DEPT
SALEM, OREGON

State Well No. 13s/31E-22C
State Permit No.

(1) OWNER:
Name Ken Kendig
Address P.O. Box 320, John Day, OR 97845

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [X]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

CASING INSTALLED:
Threaded [ ] Welded [X]
6" Diam. from +1 ft. to 230 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [ ] Yes [X] No
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow 1/10 g.p.m.
Temperature of water 51° Depth artesian flow encountered 380 ft.

(9) CONSTRUCTION:
Well seal—Material used Portland Cement
Well sealed from land surface to 20'; 200-230 ft.
Diameter of well bore to bottom of seal 10 & 6 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 40 sacks
How was cement grout placed? top pumped Bottom poured in and pipe driven into it.
Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County ~~Wheeler~~ GRANT Driller's well number 117
SW¼ SW¼ Section 22 T. 13 S. R. 31 E. W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 380 ft.
Static level 0 ft. below land surface. Date
Artesian pressure 16 lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 380 ft. Depth of completed well ft.

Formation: Describe color, texture, grain size and structure of materials: and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Brown Clay	0	10	
Blue Clay	10	90	
Black rock, fractured	90	92	
Blue clay	92	380	

Abandoned by owner. Jerry Rogers and

Work started 8/22 1980 Completed 3 1980
Date well drilling machine moved off of well 10 1980

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Robert Pilcher (Drilling Machine Operator) Date 4-9, 1981
Drilling Machine Operator's License No. 764

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Pilcher Well Drilling (Person, firm or corporation) (Type or print)
Address 577 S. Knight, Prineville, OR.
[Signed] Robert Pilcher (Water Well Contractor)
Contractor's License No. 698 Date 4-9, 1981

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

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JAN 7 1981
WATER RESOURCES DEPT
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

GRAN. 4/2 State Well No. 13S/31E-22

State Permit No. .....

(1) OWNER:
Name Kenneth Kindig
Address PO BOX 220
City John Day State Ore 97845

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary Air [X] Driven [ ]
Rotary Mud [ ] Dug [ ]
Cable [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]
Thermal: [ ] Withdrawal [ ] Reinjection [ ]

CASING INSTALLED:
Steel [X] Plastic [ ]
Threaded [ ] Welded [X]
8 " Diam. from +1 ft. to 39 ft. Gauge 250
" Diam. from ..... ft. to ..... ft. Gauge .....

LINER INSTALLED:
6 " Diam. from -1 ft. to 121 ft. Gauge 188

(6) PERFORATIONS:
Perforated? [X] Yes [ ] No
Type of perforator used Factory
Size of perforations 1/8 in. by 3 in.
234 perforations from 101 ft. to 121 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" - - -
Air test 100 gal./min. with drill stem at 122 ft. 1 hrs.
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ..... ft.

(9) CONSTRUCTION:
Special standards: Yes [ ] No [X]
Well seal—Material used Cement
Well sealed from land surface to 39 ft.
Diameter of well bore to bottom of seal 12 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 15 sacks
How was cement grout placed? Pumped
.....
.....
Was pump installed? No Type ..... HP ..... Depth ..... ft.
Was a drive shoe used? [ ] Yes [X] No Plugs ..... Size: location ..... ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

(10) LOCATION OF WELL:
County Grant Driller's well number 206
¼ ¼ Section 22 T. 13S R. 31E W.M.
Tax Lot # 133 122C 900 Lot Blk Subdivision
Address at well location:

(11) WATER LEVEL: Completed well.
Depth at which water was first found 110 ft.
Static level 5 ft. below land surface. Date 12-19-80
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 8
Depth drilled 122 ft. Depth of completed well 122 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Yellow Clay & Gravel	0	20	
Hard Black Claystone	20	110	
Broken Black Claystone	110	122	

RECEIVED
MAR 0 9 1981
WATER RESOURCES DEPT
SALEM, OREGON

Work started 12-15 1980 Completed 12-19 1980
Date well drilling machine moved off of well 12-22 1980

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Darrell Maphet (Drilling Machine Operator) Date 1-3, 1981
Drilling Machine Operator's License No. 768

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name MAPHET WELL DRILLING (Person, firm or corporation) (Type or print)
Address PLR 500 Davis Road PRINEVILLE, OREGON 97754
[Signed] Darrell Maphet (Water Well Contractor)
Contractor's License No. 584 Date 1-3, 1981

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

SP*12658-690

WATER WELL REPORT
STATE OF OREGON

RECEIVED GRAN. 4/3 State Well No. 13S/31E-22
NOV 18 1980
WATER RESOURCES DEPT.
SALEM, OREGON

State Permit No.

(1) OWNER:
Name Ken Kendig
Address PO Box 320
City John Day State Ore 97845

(2) TYPE OF WORK (check):
New Well ☐ Deepening ☐ Reconditioning ☒ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary Air ☐ Driven ☐
Rotary Mud ☐ Dug ☐
Cable ☒ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐
Thermal: Withdrawal ☐ Reinjection ☐

(5) CASING INSTALLED:
Steel ☐ Plastic ☐
Threaded ☐ Welded ☐
..." Diam. from ..... ft. to ..... ft. Gauge .....
..." Diam. from ..... ft. to ..... ft. Gauge .....

LINER INSTALLED:
..." Diam. from ..... ft. to ..... ft. Gauge .....

(6) PERFORATIONS:
Perforated? ☐ Yes ☐ No
Type of perforator used
Size of perforations in. by in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☐ No
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.
Diam. ..... Slot Size ..... Set from ..... ft. to ..... ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☐ No If yes, by whom?
eld: gal./min. with ft. drawdown after hrs.
" " " "
Air test gal./min. with drill stem at ft. hrs.
r test gal./min. with ft. drawdown after hrs.
tesian flow g.p.m.
emperature of water Depth artesian flow encountered ..... ft.

(9) CONSTRUCTION:
Special standards: Yes ☐ No ☐
Well seal—Material used .....
Well sealed from land surface to ..... ft.
Diameter of well bore to bottom of seal ..... in.
Diameter of well bore below seal ..... in.
Number of sacks of cement used in well seal ..... sacks
How was cement grout placed? .....
.....
.....
Was pump installed? ..... Type ..... HP ..... Depth ..... ft.
Was a drive shoe used? ☐ Yes ☐ No Plugs ..... Size: location ..... ft.
Did any strata contain unusable water? ☐ Yes ☐ No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☐ No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

(10) LOCATION OF WELL:
County Grant Driller's well number 199
¼ ¼ Section 22 T. 13S R. 31E W.M.
Tax Lot # Lot Blk Subdivision
Address at well location:
Tax Lot 133 122C 900

(11) WATER LEVEL: Completed well.
Depth at which water was first found ft.
Static level ft. below land surface. Date
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing .....
Depth drilled ft. Depth of completed well ft.
Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Cleaned hole from	200	230	
Installed 5" liner (188) to 230' then removed it			

Work started 10-24 1980 Completed 10-27 1980
Date well drilling machine moved off of well 11-8 1980

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Darrell Maphet (Drilling Machine Operator) Date 11-11, 1980
Drilling Machine Operator's License No. 768

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Darrell Maphet (Person, firm or corporation) (Type or print)
Address MAPHET WELL DRILLING
[Signed] PR 500 DAVIS RD 97754 (Water Well Contractor)
Contractor's License No. 584 Date ....., 19.....

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

SP*12658-690

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT.
SALEM, OREGON 97310
within 30 days from the date of well completion.

WATER WELL REPORT

STATE OF OREGON
(Please type or print)
(Do not write above this line)

GRAN. 4/4

State Well No. 13S/31E-22bq
State Permit No.

(1) OWNER:

Name Bill PATHERSON
Address John Day, Oregon

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:

Threaded ☐ Welded ☒
6 " Diam. from +1 ft. to 80 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:

Perforated? ☒ Yes ☐ No
Type of perforator used Mill Slot
Size of perforations 1/4 in. by 3 in.
480 perforations from 40 ft. to 80 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with 40 ft. drawdown after 1 hrs.
COMPRESSOR - Blow Tested "
- 35 gal/min "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 63 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Portland Cement
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 8 sacks
How was cement grout placed? Pumped thru pipe

Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County GRANT Driller's well number
SE ¼ NW ¼ Section 22 T. 13S R. 31E W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 40 ft.
Static level 35' ft. below land surface. Date 10-17-80
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 0
Depth drilled 80 ft. Depth of completed well 80 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
BROWN CLAY	0	20	
Blue Shale	20	35	
BROKEN BASALT WATER*	35	50	40
SOAPSTONE	50	60	
GRAVEL, FINE WATER*	60	70	60
GRAVEL, Med WATER*	70	80	70

RECEIVED
OCT 30 1980
WATER RESOURCES DEPT
SALEM, OREGON

Work started 10-16 1980 Completed 10-17 1980
Date well drilling machine moved off of well 10-17 1980

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Mike Baker (Drilling Machine Operator) Date 10-17, 1980
Drilling Machine Operator's License No. 1455

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name Lobe Drilling, Inc. (Person, firm or corporation) (Type or print)
Address Prairie City, Oregon
[Signed] Bud Lobe (Water Well Contractor)
Contractor's License No. 392 Date 28 Oct, 80

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
APR 9 1974
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

(Please type or print) (Do not write above this line)

State Well No. 13S/31E-22 b

State Permit No.

(1) OWNER:
Name Hines Lumber Co.
Address John Day Ore.

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☑ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☑
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☑
12 " Diam. from +1 ft. to 115 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☑ Yes ☐ No
Type of perforator used Miles
Size of perforations 3/8 in. by 3 in.
1120 perforations from 40 ft. to 110 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☑ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☑ Yes ☐ No If yes, by whom? Driller
Yield: 7 gal./min. with 150 ft. drawdown after 1 hrs.
" " " "
" " " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Bentonite
Well sealed from land surface to 20 ft.
Diameter of well bore to bottom of seal 16 in.
Diameter of well bore below seal 12 in.
Number of sacks of cement used in well seal sacks
Number of sacks of bentonite used in well seal 16 sacks
Brand name of bentonite Crystal Ben Gell #2 25
Number of pounds of bentonite per 100 gallons of water 400 lbs./100 gals.
Was a drive shoe used? ☑ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☑ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Grant Driller's well number
W½ ¼ NW ¼ Section 22 T. 13 R. 31 W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 16 ft.
Static level 9 ft. below land surface. Date 11-16-73
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 12"
Depth drilled 265 ft. Depth of completed well 265 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

MATERIAL	From	To	SWL
Clay Gravel + Boulders	0	14	✓
Blue Clay + Gravel	14	16	
Blue Clay	16	45	
Blue Clay + fine Gravel	45	79	
Brown Clay	79	92	
Gray Clay + Gravel	92	104	
Broken Clay	104	109	
Blue Clay	109	127	
Gray Clay + fine Gravel	127	134	
Broken Clay	134	160	
Gravel & Clay	160	178	
Brown Clay	178	180	
Rock Black	180	200	
Blue Clay	200	229	
Rock Gray	229	244	
Rock Gray Clay	244	265	

Work started 11-11 19 73 Completed 1-29 19 74
Date well drilling machine moved off of well 1-29 19 74

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Lee L Marlow (Drilling Machine Operator) Date Feb 15, 19 74
Drilling Machine Operator's License No. 101

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name HAROLD HARTLINE (Person, firm or corporation) (Type or print)
Address ONTARIO, ORE.
[Signed] Harold E Hartline (Water Well Contractor)
Contractor's License No. 273 Date 3/30, 19 74

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT.
SALEM, OREGON 97310
within 30 days from the date of well completion.

VC

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

RECEIVED
JUN 19 1978
WATER RESOURCES DEPT.
SALEM, OREGON

419
GRANT

State Well No. 13S/31E-22cc
State Permit No. .....

(1) OWNER:
Name City of John Day (Norene Wehr)
Address John Day, Oregon

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☑ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:
Threaded ☐ Welded ☑
6" Diam. from 0 ft. to 100 ft. Gage .250
..." Diam. from ... ft. to ... ft. Gage ...
..." Diam. from ... ft. to ... ft. Gage ...

PERFORATIONS:
Perforated? ☐ Yes ☐ No.
Type of perforator used
Size of perforations in. by in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☐ No
Manufacturer's Name ...
Type ... Model No. ...
Diam. ... Slot size ... Set from ... ft. to ... ft.
Diam. ... Slot size ... Set from ... ft. to ... ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☑ No If yes, by whom?
Yield: 1 gal./min. with ft. drawdown after hrs.
Compressor " "
" " " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 57 Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 35 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 15 sacks
How was cement grout placed? Pumped
Was a drive shoe used? ☐ Yes ☑ No Plugs ... Size: location ... ft.
Did any strata contain unusable water? ☑ Yes ☐ No
Type of water? Surface depth of strata 30'
Method of sealing strata off Cemented
Was well gravel packed? ☐ Yes ☑ No Size of gravel: ...
Gravel placed from ... ft. to ... ft.

(10) LOCATION OF WELL:
County Grant Driller's well number
SE ¼ SW ¼ Section 22 T. 13S R. 31E W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 10 ft.
Static level ft. below land surface. Date
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6"
Depth drilled 320 ft. Depth of completed well 320 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Boulders - Medium	0	26	
Shale, Blue	26	30	
Sand / Clay	30	40	
Shale - Hard Streaks	40	100	
Shale	100	200	
Shale - Black	200	320	

Work started 6-1 1978 Completed 6-6 1978
Date well drilling machine moved off of well 6-9 1978

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Bond Jobe (Drilling Machine Operator) Date 6-14, 1978
Drilling Machine Operator's License No. 85

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Jobe Drilling, Inc. (Person, firm or corporation) (Type or print)
Address Prairie City, Oregon
[Signed] Bond Jobe (Water Well Contractor)
Contractor's License No. 157 Date 6-14, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR: The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON, 97310 within 30 days from the date of well completion.

RECEIVED FEB 11 1972 STATE ENGINEER SALEM, OREGON

GRAN 4/6 7 4 5

WATER WELL REPORT

STATE OF OREGON (Please type or print) (Do not write above this line)

RECEIVED FEB 28 1972 STATE ENGINEER SALEM, OREGON

GRAN

State Well No. 13/31-22 cc

State Permit No. Grant County

(1) OWNER:

Name Harlan Hurlburt ~~Hurlburt~~

Address John Day, Ore.

(2) TYPE OF WORK (check):

New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☑ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☑ Test Well ☐ Other ☐

(5) CASING INSTALLED:

Threaded ☐ Welded ☑

6" Diam. from 0 ft. to 21 ft. Gage .250

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

(6) PERFORATIONS:

Perforated? ☐ Yes ☑ No.

Type of perforator used

Size of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☑ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.

Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☑ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " "

" " " "

Bailer test 9 gal./min. with 20 ft. drawdown after 1 hrs.

Artesian flow g.p.m.

Temperature of water 46 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Cement

Well sealed from land surface to 20 ft.

Diameter of well bore to bottom of seal 8 in.

Diameter of well bore below seal 6 in.

Number of sacks of cement used in well seal 1 sacks

Number of sacks of bentonite used in well seal sacks

Brand name of bentonite

Number of pounds of bentonite per 100 gallons of water lbs./100 gals.

Was a drive shoe used? ☑ Yes ☐ No Plugs Size: location ft.

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? depth of strata

Method of sealing strata off

Was well gravel packed? ☐ Yes ☑ No Size of gravel:

Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Grant Driller's well number

SW ¼ SW ¼ Section 22 T. 13S R. 31E W.M.

Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 23 ft.

Static level 10½ ft. below land surface. Date 10/12/71

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6"

Depth drilled 125 ft. Depth of completed well 125 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

MATERIAL	From	To	SWL
Gravel & Sil	0	3	
Brn. sandy Clay	3	9	
Gravel	9	11	
Cement gravel	11	14	
Brn. Clay	14	23	
Gravel	23	25	10½
Blue clay	25	93	
Blue Sand Rock	93	97	
Blue Clay	97	112	
Blue Sand Rock	112	115	
Blue Clay	115	125	

Work started 10 - 10 1971 Completed 10 - 12 1971

Date well drilling machine moved off of well 10 - 13 1971

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] W. J. Page (Drilling Machine Operator) Date 10/13, 1971

Drilling Machine Operator's License No. 65

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name Hyspell Pump & Drilling (Person, firm or corporation) (Type or print)

Address 365 N.E. St N. Vale, Oregon

[Signed] (Water Well Contractor)

Contractor's License No. 396 Date 10 - 13, 1971

(USE ADDITIONAL SHEETS IF NECESSARY)

SP-46656-119

NC

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310, within 30 days from the date of well completion.

RECEIVED
JUN 9 - 1971
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON GRAN. 423 State Well No. 13/31-22 cc
(Please type or print) (Do not write above this line)
State Permit No.

(1) OWNER:
Name Ray Weldin
Address Johnday Ore.

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☑ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☑
6 " Diam. from 0 ft. to 60 ft. Gage 250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☐ Yes ☑ No.
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☑ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WATER LEVEL: Completed well.
Static level 40 ft. below land surface Date May 20
Artesian pressure lbs. per square inch Date

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☑ No If yes, by whom?
Yield: 15 gal./min. with 30 ft. drawdown after 2 hrs.
" " " "
" " " "
Bailer test 15 gal./min. with 30 ft. drawdown after 2 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☑ No

(10) CONSTRUCTION:
Well seal—Material used Puddled Bentonite
Depth of seal 18 ft.
Diameter of well bore to bottom of seal 10 in.
Were any loose strata cemented off? ☐ Yes ☑ No Depth
Was a drive shoe used? ☐ Yes ☑ No
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☑ No Size of gravel:
Gravel placed from ft. to ft.

(11) LOCATION OF WELL:
County Grant Driller's well number
SW¼ of SW¼ of SW¼ Section 22 T. 13 R. 31 E W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 85 ft. Depth of completed well 85 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Top Soil Brown	0	1	
Brown Clay + large boulders	1	54	
blue CLAY	54	65	
BLACK ROCK	65	68	
Blue CLAY	68	80	
Medium sand + GRAVEL + WATER	80	85	40 ft.

Work started May 8 19 71 Completed May 20 19 71
Date well drilling machine moved off of well May 20 19 71

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Earl Skinner (Drilling Machine Operator) Date June 7 19 71
Drilling Machine Operator's License No. 606

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME Skinner & Sons (Person, firm or corporation) (Type or print)
Address Box 7 Crane Ore.
[Signed] Kathrine Skinner (Water Well Contractor)
Contractor's License No. 372 Date June 7, 19 71

(USE ADDITIONAL SHEETS IF NECESSARY)

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

GRAN 498

RECEIVED
AUG - 6 1993
WATER RESOURCES DEPT.
SALEM, OREGON

13S/31E/22

(START CARD) # 48668

(1) OWNER: Well Number
Name David Murphy
Address PO Box 507
City John Day State Or Zip 97845

(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 80 ft.
Explosives used ☐ Yes ☐ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10"	0"	33	Cement Portland #	0	33	11 Sacks
6"	12"	33				

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"	12"	33'	250	☒	☐	☒	☐
Casing has been Lowered From 18' to 33'					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	5"	-12'	80'	188	☒	☐	☒	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Mill Knife
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
60'	80'	1/8x4"	260	5"		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
85	0	75'	1 hr.

Temperature of Water 64 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:

(9) LOCATION OF WELL by legal description:
County Grant Latitude Longitude
Township 13 N or ☒ Range 31 ☐ or W. WM
Section 22 NW ¼ NW ¼
Tax Lot 330 Lot Block Subdivision
Street Address of Well (or nearest address) Patterson Rd

(10) STATIC WATER LEVEL:
30 ft. below land surface. Date 7-16-93
Artesian pressure lb. per square inch. Date

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

From	To	Estimated Flow Rate	SWL
72'	80'	85	3

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Top Soil Brown	0	1	
clay Brown Hard	1	6	
clay Redish Brown Hard	6	27	
Basit Hard gray	27	72	
Basit Broken Redish Brown Water Bearing	72	80	

Date started 7-15-93 Completed 7-16-93

(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. Material 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 1606
Signed John Maxwell Date 7-16-93

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 10/93