Appendix G

Water Assessment

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Technical Memorandum

DATE: January 26, 2024
TO: Deschutes County Landfill Siting Team
FROM: Rick Malin, RG
SUBJECT: Water Infrastructure Assessment Information and Observations – Moon Pit
CC: Ryan Rudnick, PE
PROJECT NUMBER: 553-2509-011
PROJECT NAME: Deschutes County SWMF Siting Consultant Services

This technical memorandum presents observations and findings associated with the development of a water infrastructure assessment for the Moon Pit site. The purpose of this memorandum is to compile and present current available information to assist in the investigative effort associated with initial future landfill facility operations water supply infrastructure planning at the Moon Pit site.

Anticipated Future Water Needs

A key component of the water infrastructure assessment is to understand anticipated future landfill water supply requirements/needs. For context, monthly volumes of water used for only landfill site operations at the Knott Landfill during 2020 was reviewed. Water use for the new landfill will initially be smaller, but will grow over time, and are anticipated to be similar to the Knott Land fill uses.

Table 1. Knott Landfill Water Use-2020

Month	Volume Used (Cubic Feet)	Volume Used (Gallons)	Max Exempt Well Production (Gallons)	Days in Month	Average Volume Used (Gallons per Day)
January	0	0	155,000	31	-
February	15,500	115,940	140,000	28	4,141
March	40,700	304,436	155,000	31	9,821
April	62,240	465,555	150,000	30	15,519
May	139,200	1,041,216	155,000	31	33,588
June	112,400	840,752	150,000	30	28,025
July	187,100	1,399,508	155,000	31	45,145
August	178,500	1,335,180	155,000	31	43,070
September	104,400	780,912	150,000	30	26,030
October	57,900	433,092	155,000	31	13,971
November	5,200	38,896	150,000	30	1,297
December	15,800	118,184	155,000	31	3,812
Total	918,940	6,873,671	1,825,000		

The 2020 Knott Landfill water use record indicates that water usage is much higher in the summer months particularly during July and August.

For reference, the typical water right agriculture irrigation use period is March through October. In general, under Oregon law, a water right permit must be obtained before using water from any well. However, there are exempt uses to this requirement that includes single industrial or commercial purposes not exceeding 5,000 gallons per day.

The maximum exempt volume of water that can be produced from a well under this exemption for each month is presented on the 2020 use table. This maximum exempt use would be exceeded from March through October. The 2020 use table indicates that the total volume of water used during 2020 was 5 million gallons more than the maximum industrial or commercial groundwater exempt use volume. This indicates a water right permit will be needed to meet anticipated future landfill operation water requirements if an on-site well is used to meet that need.

Based on 2020 water volume use, it is anticipated that a future landfill facility operation will need more than 45,000 gallons a day (gpd) for Maximum Month Average Day Demand. For future landfill facility planning purposes, the following water infrastructure estimates are provided:

- Annual duty of 21.5 acre-feet. This is based on an annual use of 7.0 million gallons.
- Maximum Daily Demand (MDD) of 100,000 gpd. This is based on an assumed maximum use of 50,000 gpd times a peak factor of 2.
- Production rate of 208 gpm to obtain MDD during an 8-hour facility daily operation schedule. This is based on MDD of 100,000 gpd times (24 hr/8 hr)/1440.
- Water storage of 200,000 gallons. This is based on consideration of a well or water system repair requiring up to 2 days to complete [MDD x 2 days = 200,000 gallons]. Also, for consideration is a fire flow needs of 60,000 gpm (1,000 gpm for a 60-minute duration equals [per OFC Table B105.1(1)]).

The 208 gpm production rate along with the identified annual duty and year around usage should be considered as objectives for well performance and water right for the future landfill facility.

Water Supply Wells

There are two water supply wells located on the Moon Pit site. These wells are known as Well A (DESC 5750) and Well B (DESC 9126). Prior research suggested a third well, the Horse Ridge Pit Well (DESC 56052), was located on the Moon Pit site. Site inspection determined that this well is not located on the Moon Pit site and had been mislocated. The following presents summary information for the two Moon Pit site wells.

Well Report	Owner (Well) Named	Complete Date	First Water	Static WL	Well Depth	Well Test	Completion type	Well Location Comments
DESC 5750	Eugene Moon (Well A)	12/20/1986	920 ? [top of identified WB zone]	850	931	10 gpm, nl ft dd, 1 Hr	open hole. WB zone 920-931.	**Sec 2**, 26300 Hwy 20. Well is located near SW corner, west side of site property boundary. This well is ~186 ft from DESC 9126.
DESC 9126	Hooker Creek Ranch (Well B)	2/14/1994	890	852	1135	50 gpm, 0 ft dd, 1 Hrs	perfs 870-970; 1095-1135	**Sec 2** NESE. Well is located near SW corner, west side of site property boundary. This well is ~186 ft from DESC 5750. Ground surface at DESC 9126 is ~5 ft higher than at DESC 5750.

Well A was installed in 1986, is currently not in use, and the pump currently in the well is understood to be inoperable. Well B was installed in 1994 and is currently used primarily for onsite dust

suppression. Well B is understood to be currently capable of producing 1,000 gpm. Well logs and photos of Well A and Well B are presented in Attachment A.

The two wells are located approximately 186 feet apart with Well A located north of Well B. Both wells are situated adjacent to the site's entrance road as shown on Figure 1. Ground elevation at Well B is approximately 3,600 feet. The ground elevation at Well A is approximately five feet lower. The depth of Well A is 931 feet below ground surface (bgs). Well B is 204 feet deeper extending down to 1135 ft bgs. The static water level reported for Well A following completion was 850 feet; an elevation of approximately 2,745 feet. The static water level reported for Well B, drilled eight years later is 852 feet; an elevation of approximately 2,748 feet. These are the only known water level measurements for the two wells.

Water Rights

Water right permit G-12860 is appurtenant to the Moon site property. The following identifies specifics associated with this water right.

- Permit application G-13686 was received by OWRD on 5/16/1994.
- Permit issued to: Howard M Day. Permit G-12860 was issued/signed on 10/10/96.
- Date of Priority: 5/16/1994.
- Water source: One well located 1450 ft north and 600 ft west from SW corner, Section 2 of T19S/R14E. The well is identified as DESC 9126 (Well B) completed 2/14/1994, owner Hooker Creek Ranch.
- Identified purpose of use: Industrial use (dust control and gravel washing).
- Maximum rate of use: 1.09 cfs [704,485 gpd] being; 0.27 cfs [174,505 gpd] for dust control and 0.82 cfs [529,978 gpd] for gravel washing.
- Period of use: year round.
- Place of use: Fully covers area of proposed landfill facility footprint including all of T19S/R14E Sec 12.
- Source of water: One well in Dry River Basin.

Attachment B includes a copy of Permit G-12860, an associated permit use map completed on 9/21/2000, and images from OWRD's water rights information query for the permit.

There is another water right approximately 3.5 miles south of the Moon Pit site, issued to 4-R Equipment (water right permit G-16243) with a maximum rate of 1.0 cfs and annual duty of 6.0 acre-feet. This permit is identified to be located at T19S/R15E Sec 30 SESW. It appears that DESC 56052 (4 R Equipment) is the well associated with this right. However, the location reported on DESC 56052 is T19S/R14E Sec 2 TL 700, which places it on the Moon Pit site. This well does not exist on the Moon Pit site; the reported location information is erroneous. Permit G-16423 includes a 4.2 acre-feet mitigation requirement in the General Zone of Impact that was satisfied with 4.2 mitigation credits from Mitigation Project MP-27 (Transfer T-9824). OWRD records indicate that this water right has not been certified. This water right had an extension final order issued allowing a completion date of October 1, 2022. It is not known if this water right has been developed.

Findings and Comments

The maximum use rate for water right permit G-12860 associated with Well B is significantly greater than anticipated future landfill operation water requirements/needs. The identified dust control usage rate of 0.27 cfs (174,240 gpd) alone is greater than the anticipated future landfill operations water requirements/needs. Identified use period is year around and use area encompasses the full area of the proposed landfill operations area. However, it is understood that water right permit G-12860 would not be included in a property transfer agreement.

Examination of OWRD's groundwater information system mapping tool indicates the following regarding the Moon Pit site:

- The Moon Pit site is in a groundwater restricted area identified as groundwater mitigation. The tool also indicates the site is located inside the Deschutes Groundwater Study Area; groundwater mitigation
- The Moon Pit site is in the Deschutes mitigation zones of impact; Crooked River.
- OWRD required mitigation in the General Zone of Impact for nearby water rights permits G-16873 and G-16243, although they are also located within the localized Crooked River Zone of Impact.
- The Moon Pit site area is also identified as yield limited under concern rating.

Comments with respect to water infrastructure assessment at the Moon Pit site:

- The Moon Pit site is located inside the Deschutes Groundwater Study area and the General Zone of Impact Area. As a water right already exists and is appurtenant to the Moon Pit site property, groundwater mitigation would not be required if all or a portion of water right permit G-12860 is retained. Under this scenario, use of the existing water right might be slightly modified to reflect future landfill operation usage, but it is assumed the point of use, rate, period of use, and place of use would not need to be modified, which are critical components related to groundwater mitigation. It is understood that Well B can produce water volumes/rates as allowed by the water right permit.
- Well B is the point of use for water right permit G-12860. According to well report DESC 9126, Well B can produce 50 gpm with no drawdown. Recent inspection of Well B indicates the well is currently capable of producing 1,000 gpm. It is understood that Well B is producing water from the regional aquifer.
- Permit G-12860 states that before water use begins a meter shall be installed and maintained. It is understood that no functioning meter has been installed, which is not compliant with permit conditions.
- Permit G-12860 states that "Complete application of the water to the use shall be made on or before October 1, 1993.". It is noted that a claim of beneficial use map for application G-13686/ permit G-12860 was completed on 9/21/00. Based on this information it is assumed that this use requirement has been met.
- Water right permit G-16243 (4R Equipment) and permit G-16873 (Gun Club) both had General Zone mitigation requirements that were roughly 60% to 70% of their annual duty and mitigated with general zone mitigation credits. These two nearby water rights examples suggest the possibility that a new ground water permit could likely be mitigated with General Zone credits and that the mitigation requirement might be less than the estimated 21.5 acre-feet annual duty, depending on OWRD's estimation of consumptive use for the proposed type of use.

- If a new water right permit is needed it will be complicated by the understanding that there is no knowledge of mitigation credits specific to the Crooked River Zone of Impact. If OWRD considers the Moon Pit site to be part of the General Zone of Impact, General Zone temporary mitigation rights may be a viable short-term option with an understood cost of around $3,300 per year. In this case, General Zone permanent mitigation credits could also be a possible long-term option at around $200,000 to $250,000. More coordination with OWRD and mitigation credit holders would be needed to confirm the viability, availability, and cost of General Zone credits if the County were to pursue them.

For the purposes of comparative cost evaluation, the estimated costs for water infrastructure upgrades are:

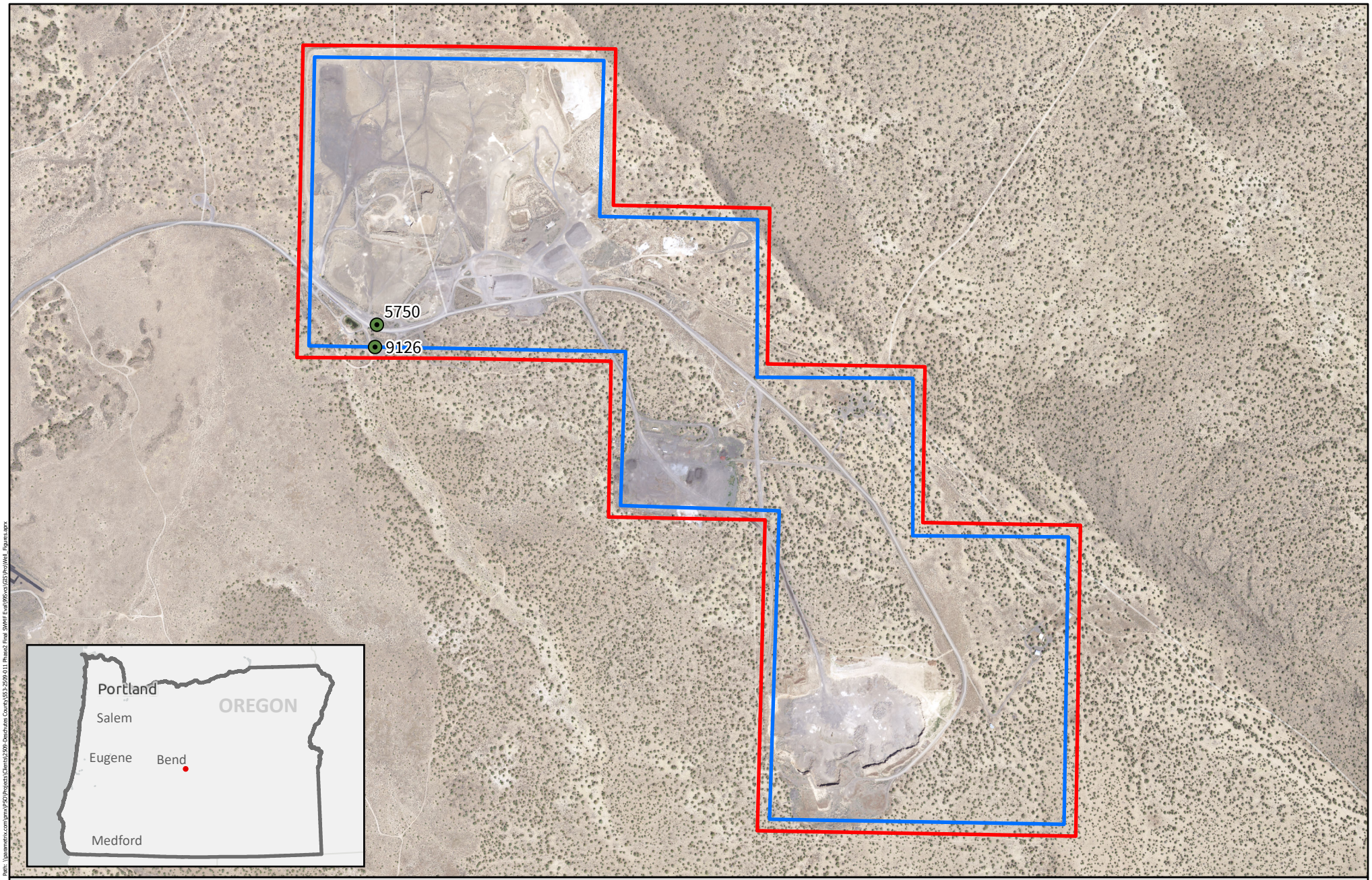
Water Rights	$215,000	(21.5 ac-ft mitigation requirement at $10k per credit)
Well improvements upgrades)	$100,000	(electrical connection, controls, new pump, wellhouse
Water Storage Tank	$400,000	(200,000 gallon capacity, epoxy-coated bolted steel, at grade)
Site Water Piping	$50,000	(assuming 400 LF at $125/LF)
ESTIMATE TOTAL =	$765,000	(Class V estimate range: $332,500 to $1,330,000)

FIGURES

ATTACHMENTS

A Well Logs and Photographs
B Water Rights Information

Figures



Date: 12/11/2023
Sources: Parametrix, ESRI
PCS: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Disclaimer: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes.

Proposed Development Area
Site/Taxlot Boundary
Water Well (Identified by log ID number)

Figure 1 - Moon Pit Site
Deschutes SWMF Siting

Parametrix

0 380 760 1,520
Feet

Deschutes Co, OR

Path: \\parametrix.com\proj\PSO\Projects\Clients\2309-Deschutes County\553-2509-011 Phase2 Final SWMF Eval\995\vcs\GIS\Proj\Wet_Figures.aprx

Attachment A

Well Logs and Photographs

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

RECEIVED
DEC 24 1986
WATER RESOURCES DEPT.
SALEM, OREGON

DESC 5750

(1) OWNER:

Owner's Well Number:

Name Eugene Moon

Address ~~1252~~ (P.O. Box) 5952

City Bend State Oregon Zip 97708

(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:

Depth of Completed Well 915 ft.

Special Standards date of approval

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
8"	0	19½	Bentonite			16 sacks

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

☒ Other Poured down dry

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:	8"	+1½	19½	.250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method ---------

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Pumping level	Drill stem at	Time
10	~~200~~	905	½ hr
10		905	1 hr

Temperature of water 62* Depth Artesian Flow Found

Was a water analysis done? ☐ Yes By whom no

Did any strata contain water not suitable for intended use? ☐ Too little no

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other

Depth of strata:

(9) LOCATION OF WELL by legal description:

County Deschutes Latitude ' " Longitude ' "

Township 19S N or S, Range 14E E or W, WM.

Section 2 ¼ ¼

Tax Lot Lot Block Subdivision

Street Address of Well (or nearest address) 26300 Bend-Burns Hwy. Star Rte. 97701

(10) STATIC WATER LEVEL:

850 ft. below land surface. Date 12-20-86

Artesian pressure lb. per square inch. Date

(11) WELL LOG:

Ground elevation unknown

Material	From	To	WB?	SWL
Sand	0	8		
Broken Lava	8	10		
Hard Grey Lava	10	25		
Broken Lava	25	29		
Mild Lava	29	55		
Mild Lava	55	58		
Broken Lava	58	87		
Cinders	87	95		
Broken Lava	95	105		
Hard Red Lava	105	122		
Broken Red Lava	122	128		
Mild Brown Lava	128	153		
Hard Grey Lava	153	168		
Broken Lava	168	185		
Hard Brown Lava	185	215		
Hard Grey Lava	215	225		
Broken Red Lava	225	228		
Mild Red Lava	228	241		
Broken Red Lava	241	246		
Hard Red Lava	246	253		
Broken Red Lava	253	256		
Mild Red Lava	256	267		
Red Conglomerate	267	273		
Mild Brown Lava	273	305		
Hard Grey Clay	305	308		
Broken Red Lava	308	315		
Hard Grey Lava	315	361		
Red Broken Lava	361	373		
Mild Red Lava	373	385		
Mild Grey Lava	385	396		
Broken Red Lava	396	402		

Date started Oct. 10-86 Completed Dec. 20-86

(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 [signature] Date 12-22-86

(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 [signature] Date 12-22-86

Company Orvail Buckner Well Drilling Co. Inc.

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

RECEIVED

DEC 24 1986

WATER RESOURCES DEPT.
SALEM, OREGON

(1) OWNER:

Name Eugen Moon

Address P.O. Box 5952

City Bend State Oregon Zip 97708

(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:

Depth of Completed Well _____ ft.

Special Standards date of approval _____

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
12"	0	19½	Bentonite			16 sacks

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

☒ Other Poured down dry

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:	8"	+1½	19½	.250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) _____

(7) PERFORATIONS/SCREENS:

☐ Perforations Method _____

☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Pumping level	Drill stem at	Time
10		905	½ hr
10		905	1 hr
10		905	

Temperature of water _____ 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 Deschutes Latitude _____ ' " Longitude _____ ' "

Township 19S N or S, Range 14E E or W, WM.

Section 2 ¼ ¼

Tax Lot _____ Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address) 26300 Bend-Burns Hwy. Star Rte. 97701....

(10) STATIC WATER LEVEL:

850 ft. below land surface. Date 12-20-86

Artesian pressure _____ lb. per square inch. Date _____

(11) WELL LOG:

Ground elevation unknown

Material	From	To	WB?	SWL
Mild Brown Lava	402	412		
Hard Grey Lava	412	429		
Broken Red Lava	429	432		
Broken Red Lava	432	445		
Broken Sandstone	445	515		
Broken Grey Lava	515	535		
Broken Red Lava	535	570		
Broken Grey Lava	570	680		
Hard Grey Lava	680	722		
Mild Broken Lava	722	735		
Hard Grey Lava	735	745		
Broken Lava	745	753		
Hard Grey Lava	753	769		
Broken Lava	769	771		
Hard Grey Lava	771	883		
Red Cinder Conglomerate	883	893		
Hard Black Lava	893	905		
W/B Red Cinder Gravels	905	913		
Mild Red Lava	913	920		
Red Cinder Gravels W/B	920	931		

Date started Oct. 10-86 Completed Dec. 20-86

(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 _____ Date 12-22-86

(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 12-22-86

Company Orvail Buckner Well Drilling, Inc.

9809C 10/85

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

Desc 9/26

MAR 15 1994

WATER RESOURCES DEPT SALEM, OREGON

19S/14E/2da

(START CARD) # 58111

(1) OWNER:

Name Hooker Creek Ranch Well Number

Address 65525 Gerking Market Road

City Bend State OR Zip 97702

(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 1135 ft.

Explosives used Yes ☐ No ☒ Type --- Amount ---

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
20	0	162	~~XXXXXXXX~~	0	55	14.5 yards
			Cement			
14"	162	1135				

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:	14	+3	1007	.375	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	12	1000	1048	.250	☒	☐	☒	☐
	10	1048	1135	.250	☒	☐	☒	☐

Final location of shoe(s) 14" 1007

(7) PERFORATIONS/SCREENS:

☒ Perforations Method Machine

☐ Screens Type ----- Material -----

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
870	970	1/8x3	5320	14		☒	☐
1095	1135	1/8x3	1520	10		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
50	0		1 hr.

Temperature of water 56 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 Deschutes Latitude Longitude

Township 19 S N or S, Range 14E E or W, WM.

Section 2 NE ¼ SE ¼

Tax Lot Unknown Lot Block Subdivision

Street Address of Well (or nearest address) 18 miles on Burns Highway

(10) STATIC WATER LEVEL:

852 ft. below land surface. Date 1/30/94

Artesian pressure --- lb. per square inch. Date ----

(11) WATER BEARING ZONES:

Depth at which water was first found 890

From	To	Estimated Flow Rate	SWL
890	895	50	852
1090	1130	50	852

(12) WELL LOG:

Ground elevation

Material	From	To	SWL
SEE ATTACHED SHEET			

Date started 8/30/93 Completed 2/14/94

(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 758

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 723

Signed Date

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 3/88

DESC 9126

Hooker Creek Ranch
65525 Gerking Market Rd
Bend, OR 97702

Start Card #
58111

(12) WELL LOG

MATERIAL	FROM	TO
Pumice brown	0	4
Clay sand gravel	4	12
Lava rock black	12	42
Basalt	42	46
Lava rock red	46	64
Broken lava rock	64	70
Lava black	70	75
Red lava	75	91
Cinders	91	95
Lava rock hard	95	100
Lava rock broken	100	110
Lava rock black	110	125
Lava rock brown	125	135
Black lava and red cinders	135	148
Basalt gray	148	163
Lava rock black and red layers	163	182
Cinders red and black layers	182	202
Lava rock black	202	208
:Lave rock brown	208	237
Andesite basalt	237	247
Lava and basalt layers black	247	277
Red lava	277	285
Lava brown pumice layers	285	305
Lava red	305	330
Gray tuffstone	330	355
Gray basalt soft	355	374
Red cinders and lava rock	374	385
Pumice	385	390
Red gray lava layers with cinders	390	429
Andesite basalt	429	440
Red lava	440	487
Basalt gray hard	487	501
Lava rock brown	501	528
Red basalt	528	536
Weathered rock yellow	536	565

Hooker Creek Ranch
Well Log

Gray basalt	565	612	
Pumice	612	615	
Black basalt	615	634	
Gray basalt	634	732	
Basalt with lava layers	732	865	
Lava broken red	865	882	
Lava rock solid	882	898	
Lava pourous	898	935	852
Lava broken	935	945	
Layers of pumice brown clay with red fibers	945	990	
Weathered rock yellow	990	1010	
Gray basalt	1010	1075	
Lava red black	1075	1090	
Pourous lava rock	1090	1105	852
Red lava rock	1105	1115	
Pourous lava	1115	1128	852
Gray basalt	1128	1135	

Photo 1. Well B (DESC 5750).

Photo 2. Well B (DESC 5750) and adjacent pump house structure.

Photo 3. Well B (DESC 9126).

Photo 4. Well B (DESC 9126 pump house structure.

Attachment B

Water Rights Information

STATE OF OREGON

COUNTY OF DESCHUTES

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

HOWARD M DAY
65525 GERKING MARKET RD
BEND, OREGON 97701

(541)389-2302

The specific limits for the use are listed below along with conditions of use.

APPLICATION FILE NUMBER: G-13686

SOURCE OF WATER: ONE WELL IN DRY RIVER BASIN

PURPOSE OR USE: INDUSTRIAL USE (DUST CONTROL AND GRAVEL WASHING)

MAXIMUM RATE: 1.09 CUBIC FEET PER SECOND (CFS) BEING; 0.27 CFS FOR DUST CONTROL AND 0.82 CFS FOR GRAVEL WASHING

PERIOD OF USE: YEAR ROUND

DATE OF PRIORITY: MAY 16, 1994

POINT OF DIVERSION LOCATION: NE 1/4 SE 1/4, SECTION 2, TOWNSHIP 19 SOUTH, RANGE 14 EAST, W.M.; 1450 FEET NORTH AND 600 FEET WEST FROM SE CORNER SECTION 2

THE PLACE OF USE IS LOCATED AS FOLLOWS:

SW 1/4 NW 1/4
NE 1/4 SW 1/4
NW 1/4 SW 1/4
SE 1/4 SW 1/4
SW 1/4 SE 1/4
SECTION 1
SE 1/4 NE 1/4
NE 1/4 SE 1/4
SECTION 2
ALL OF
SECTION 12
TOWNSHIP 19 SOUTH, RANGE 14 EAST, W.M.

Measurement, recording and reporting conditions:

A. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order.

B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

C. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.

STANDARD CONDITIONS

The wells shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.

The use shall conform to such reasonable rotation system as may be ordered by the proper state officer.

Prior to receiving a certificate of water right, the permit holder shall submit the results of a pump test meeting the department's standards, to the Water Resources Department. The Director may require water level or pump test results every ten years thereafter.

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

The use of water shall be limited when it interferes with any prior surface or ground water rights.

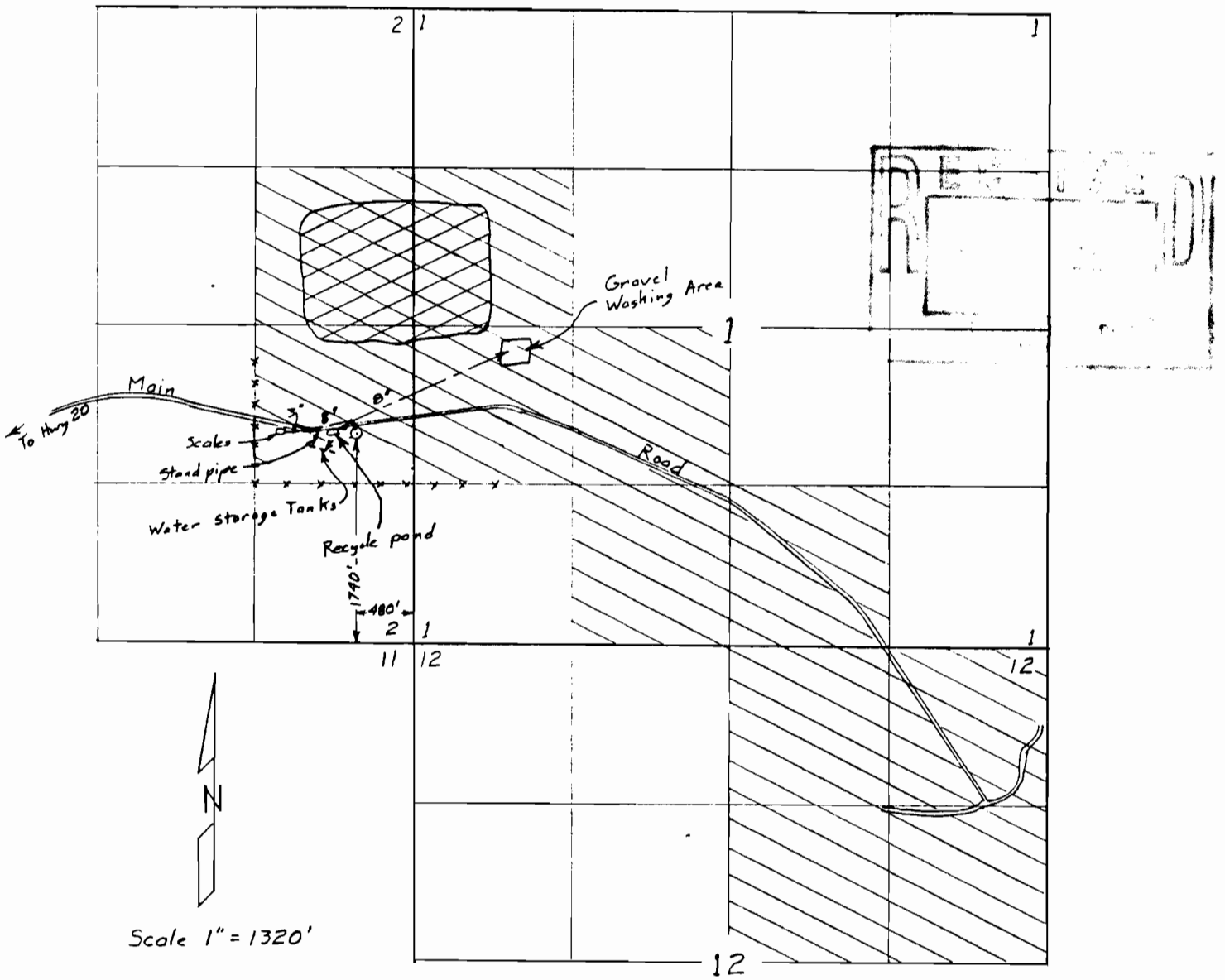
The Director finds that the proposed use(s) of water described by this permit, as conditioned, will not impair or be detrimental to the public interest.

Actual construction of the well shall begin within one year from permit issuance, and shall be completed on or before October 1, 1998. Complete application of the water to the use shall be made on or before October 1, 1999.

Issued October 10, 1996

Martha C. Pagel, Director
Water Resources Department

TOWNSHIP 19 SOUTH, RANGE 14 EAST, W.M.



Mined Area

Area to be Mined

Surveyed September 21, 2000

Claim of Beneficial Use Map
for
HOWARD M. DAY
(Moon Mine)

Certified Water Right Examiner
#1
Bruce A. Estes
Nov. 19, 1987
STATE OF OREGON

App G-13686
Per G-12860

This map is for the purpose of locating a water right only and has no intent to provide legal dimensions or the location of property lines.

ESTES SURVEYS

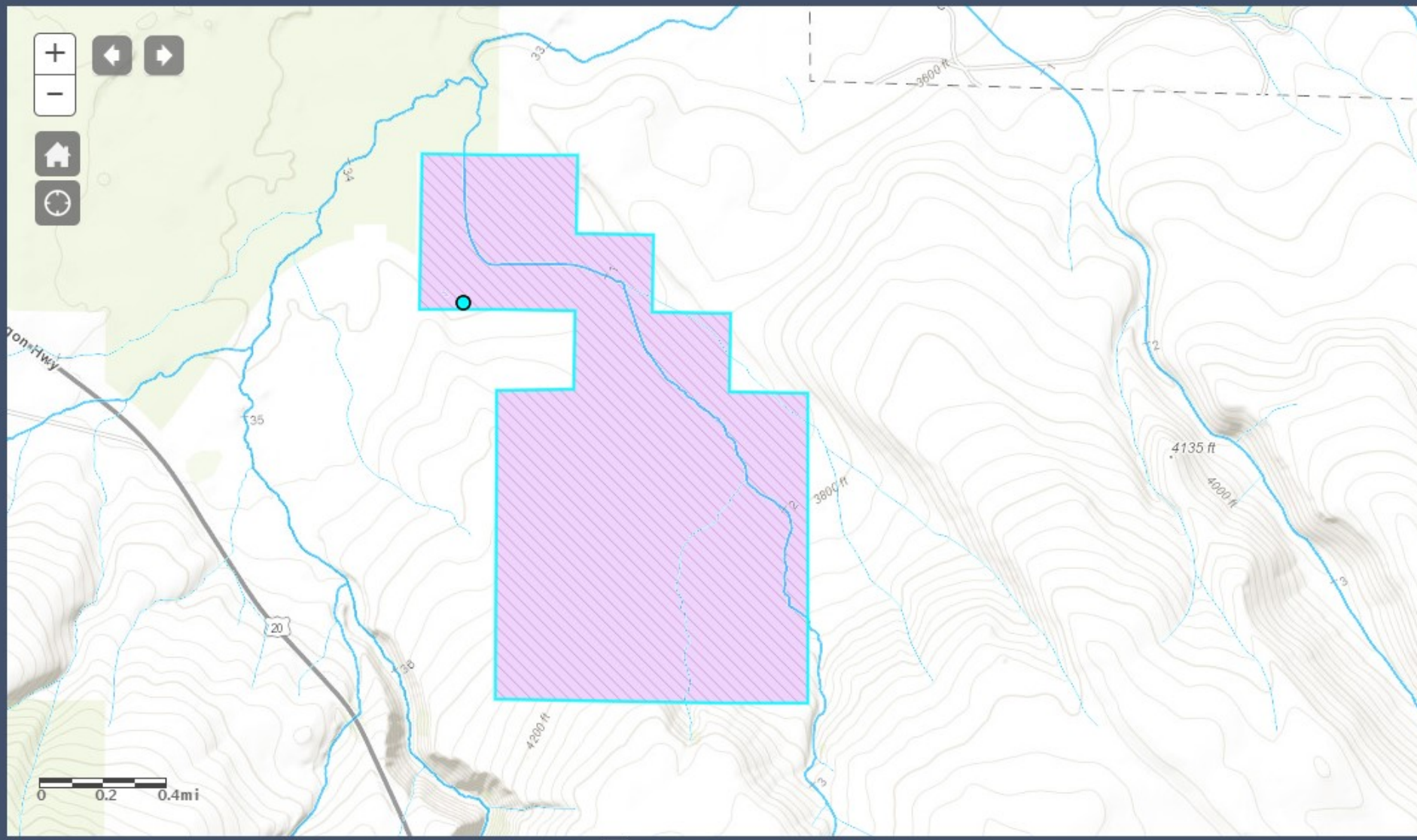
PO Box 17519
Salem, OR 97305-7519
(503) 585-7593

60382 Arnold Rd
Bend, OR 97702
(541) 382-7391

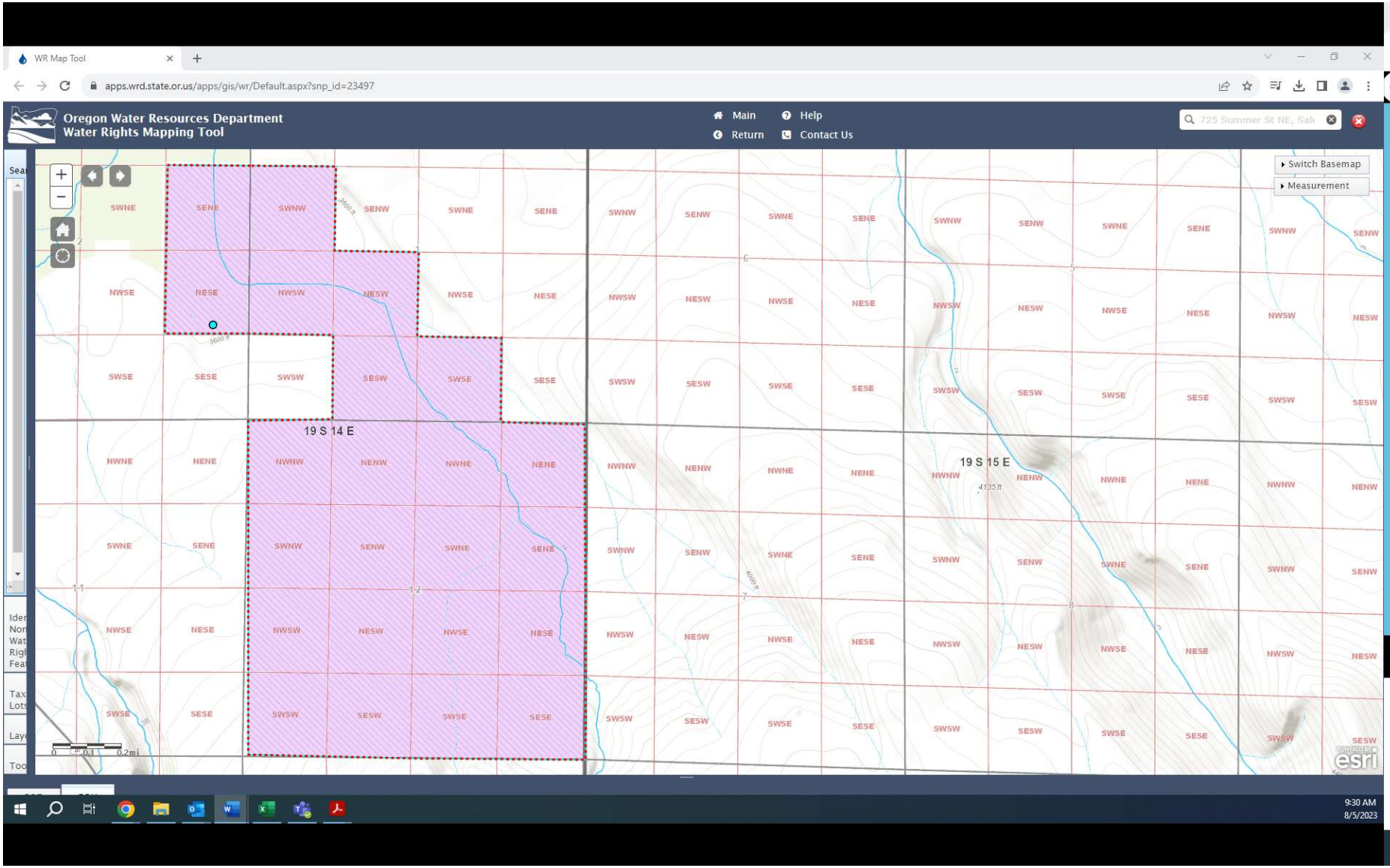
efault.aspx

ment

Main Help
Return Contact Us



	Water Type	First Name	Last Name	Company	Use Desc.	Priority Date	Supp.	Duty	Rate cfs	Rate cfs Est.	Max Rate cfs	Acre ft	Acre ft Est	M
M	GW	HOWARD	DAY		INDUSTRIAL/MANUFACTURING ...	05/16/1994	-		1.09	-	1.09		-	
M	GW	HOWARD	DAY		INDUSTRIAL/MANUFACTURING ...	05/16/1994	-		0.82000...	-	0.82000000...		-	


WR Map Tool
apps.wrd.state.or.us/apps/gis/wr/Default.aspx?snp_id=23497
Oregon Water Resources Department
Water Rights Mapping Tool
Main
Help
Return
Contact Us
Switch Basemap
Measurement
19 S 14 E
19 S 15 E
SWNE
SENE
SWNW
SENW
NWSE
NESE
NWSW
NESW
SWSE
SESE
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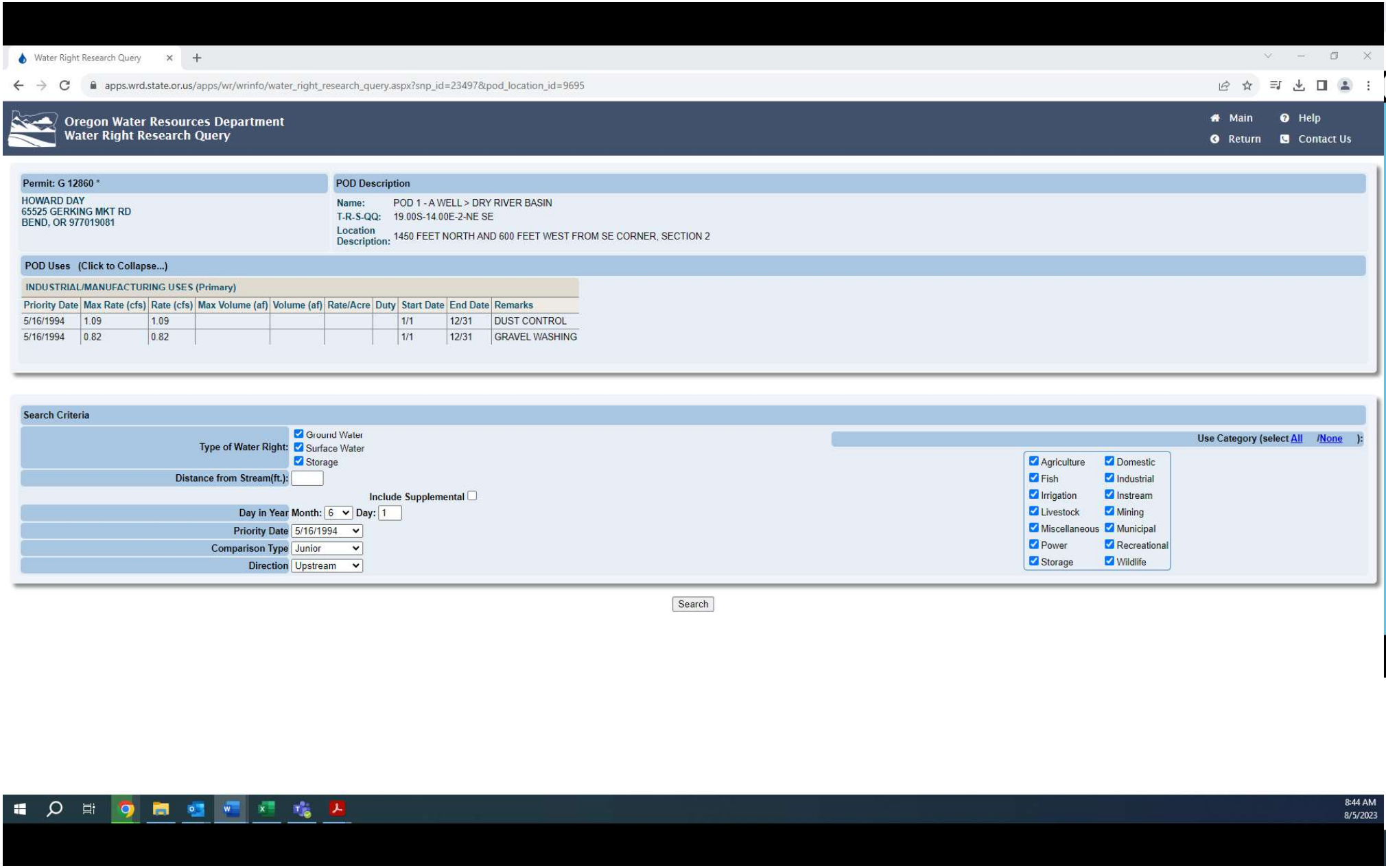
8/5/2023


Water Right Research Query
apps.wrd.state.or.us/apps/wr/wrinfo/water_right_research_query.aspx?snp_id=23497&pod_location_id=9695
Oregon Water Resources Department
Water Right Research Query
Main
Help
Return
Contact Us
Permit: G 12860 *
HOWARD DAY
65525 GERKING MKT RD
BEND, OR 977019081
POD Description
Name: POD 1 - A WELL > DRY RIVER BASIN
T-R-S-QQ: 19.00S-14.00E-2-NE SE
Location Description: 1450 FEET NORTH AND 600 FEET WEST FROM SE CORNER, SECTION 2
POD Uses (Click to Collapse...)
INDUSTRIAL/MANUFACTURING USES (Primary)
Priority Date | Max Rate (cfs) | Rate (cfs) | Max Volume (af) | Volume (af) | Rate/Acre | Duty | Start Date | End Date | Remarks
5/16/1994 | 1.09 | 1.09 | | | | | 1/1 | 12/31 | DUST CONTROL
5/16/1994 | 0.82 | 0.82 | | | | | 1/1 | 12/31 | GRAVEL WASHING
Search Criteria
Type of Water Right: Ground Water, Surface Water, Storage
Distance from Stream(ft.):
Include Supplemental
Day in Year Month: 6 Day: 1
Priority Date 5/16/1994
Comparison Type Junior
Direction Upstream
Use Category (select All /None):
Agriculture, Domestic, Fish, Industrial, Irrigation, Instream, Livestock, Mining, Miscellaneous, Municipal, Power, Recreational, Storage, Wildlife
Search
8:44 AM
8/5/2023

Parametrix
let's create tomorrow, together

Technical Memorandum

DATE: January 26, 2024
TO: Deschutes County Landfill Siting Team
FROM: Rick Malin, RG
SUBJECT: Water Infrastructure Assessment Information and Observations – Roth East
CC: Ryan Rudnick, PE
PROJECT NUMBER: 553-2509-011
PROJECT NAME: Deschutes County SWMF Siting Consultant Services

This technical memorandum presents observations and findings associated with the development of a water infrastructure assessment for the Roth East site. The purpose of this memorandum is to compile and present current available information to assist in the investigative effort associated with initial future landfill facility operations water supply infrastructure planning at the Roth East site.

Anticipated Future Water Needs

A key component of the water infrastructure assessment is to understand anticipated future landfill water supply requirements/needs. For context, monthly volumes of water used for only landfill site operations at the Knott Landfill during 2020 was reviewed. Water use for the new landfill will initially be smaller, but will grow over time, and are anticipated to be similar to the Knott Land fill uses.

Table 1. **Knott Landfill Water Use – 2020**

Month	Volume Used (Cubic Feet)	Volume Used (Gallons)	Max Exempt Well Production (Gallons)	Days in Month	Average Volume Used (Gallons per Day)
January	0	0	155,000	31	-
February	15,500	115,940	140,000	28	4,141
March	40,700	304,436	155,000	31	9,821
April	62,240	465,555	150,000	30	15,519
May	139,200	1,041,216	155,000	31	33,588
June	112,400	840,752	150,000	30	28,025
July	187,100	1,399,508	155,000	31	45,145
August	178,500	1,335,180	155,000	31	43,070
September	104,400	780,912	150,000	30	26,030
October	57,900	433,092	155,000	31	13,971
November	5,200	38,896	150,000	30	1,297
December	15,800	118,184	155,000	31	3,812
Total	918,940	6,873,671	1,825,000		

The 2020 Knott Landfill water use record indicates that water usage is much higher in the summer months particularly during July and August.

For reference, the typical water right agriculture irrigation use period is March through October. In general, under Oregon law, a water right permit must be obtained before using water from any well. However, there are exempt uses to this requirement that includes single industrial or commercial purposes not exceeding 5,000 gallons per day.

The maximum exempt volume of water that can be produced from a well under this exemption for each month is presented on the 2020 use table. This maximum exempt use would be exceeded from March through October. The 2020 use table indicates that the total volume of water used during 2020 was 5 million gallons more than the maximum industrial or commercial groundwater exempt use volume. This indicates a water right permit will be needed to meet anticipated future landfill operation water requirements if an on-site well is used to meet that need.

Based on 2020 water volume use, it is anticipated that a future landfill facility operation will need more than 45,000 gallons a day (gpd) for Maximum Month Average Day Demand. For future landfill facility planning purposes, the following water infrastructure estimates are provided:

- Annual duty of 21.5 acre-feet. This is based on an annual use of 7.0 million gallons.
- Maximum Daily Demand (MDD) of 100,000 gpd. This is based on an assumed maximum use of 50,000 gpd times a peak factor of 2.
- Production rate of 208 gpm to obtain MDD during an 8-hour facility daily operation schedule. This is based on MDD of 100,000 gpd times (24 hr/8 hr)/1440.
- Water storage of 200,000 gallons. This is based on consideration of a well or water system repair requiring up to 2 days to complete [MDD x 2 days = 200,000 gallons]. Also, for consideration is a fire flow needs of 60,000 gallons (1,000 gpm for a 60-minute duration equals [per OFC Table B105.1(1)]).

The 208 gpm production rate along with the identified annual duty and year around usage should be considered as objectives for well performance and water right for the future landfill facility.

Water Supply Wells

There is one existing well identified on the Roth East site. It is referred to as the Powell Well (a.k.a, the Deep Well, OWRD well log number DESC 194) and is located on Tax Lot 2015000000301, approximately 1.1 miles southeast of the proposed landfill development area.

Based on review of well report records, several other wells have been identified in the area of the Roth East landfill development area. With exception of the Powell Well (DESC 194), the location of these wells has not been field verified, and therefore there is uncertainty to their actual location. The following table summarizes well logs within two miles of the Roth site (Source OWRD WRIS). These wells are shown on Figure 1.

Well Report	Owner Named	Work Type	Primary Use	Complete Date	First Water	Static WL	Well Depth	Well Test	Completion type	Well Location Comments
DESC 194	Lloyd Powell (the deep well)	new	stock	8/6/1990	970	970	995	50 gpm, 0 dd, 1 hr	open hole	**Sec14** NW1/4SW1/4. Pine Mtn Observatory. Well appears to be located ~2,700 ft south of site property boundary. Lat 48.84, Long -120.91.
DESC 6478	Hersel Haley #1	new	domestic	11/15/1969		0	750	0 gpm, 0 ft dd, 1 hr	open hole	Well somewhere in E 1/2 **Sec 12.** DESC 50804 indicates well is located 20S/R15E Sec 12 NE/NE on TL 1000 w/ Sand Springs Rd address of well. This road runs south of Pine Mtn. The E 1/2 of Sec is also TL 1000.
DESC 6479	Hersel Haley #2	new	domestic	11/19/1969	nl	450	655	12 gpm, 150 ft dd, 1 hr	open hole	Well somewhere in E 1/2 **Sec 12.** DESC 50803 also indicates well is located 20S/R15E Sec 12 NE/NE on TL 1000 w/ Sand Springs Rd address of well.
DESC 50804	Hersel Haley (well #1)	alteration (recondition of well #1; DESC 6478)	domestic	3/25/1997	nl	nl	630	no water found	nl	Stated well location NE 1/4, NE 1/4 **Sec 12** on TL 1000. There are no visible structures on TL 1000. There are structures on SWSW of Sec 6 TL 1203 however this appears to be a OR water utilities property.
DESC 50803	Hersel Haley (well #2)	alteration (recondition of well #2; DESC 6479)	domestic	3/25/1997	nl	nl	see log comment	nl	nl	Stated well location NE 1/4, NE 1/4 **Sec 12** on TL 1000. See notes for DESC 50804. Well reportedly located near Sand Springs Road.
DESC 6477	Jack Vogt	Alteration (recondition old well)	domestic	9/1/1972	nl	485	495 original understood depth	3 gpm, 0 ft dd, 1 hr	nl	**Sec 1** SW1/4NW1/4. Based on location descrip this well appears to be located just east of Sec1 west line mid of Sec 1 ~3,100 ft east of site property boundary. There are no structures here.
DESC 58094	Doug McGee	new	domestic	6/27/2007	499	480	570	15+ gpm, 0 dd, 1 hr	perfs 524-544	**Sec 1** TL 101.Structures located west side of Newt Morris Rd/Fox Trail Butte Rd. TL name same as well log. ~1.5 miles east of Roth work site area.
DESC 6483	Max Mills	re-recorded old existing well	domestic	prior to 1935	nl	10 ??	507	nl	nl	T20R16 **Sec 6** SESE. DESC 54733 appears to be deepening of this well.
DESC 62152	Mark&Ann Mallot	new	dom/livestock	7/9/2020	460	480	630	10 gpm, nl, 1 hr	perf 570-590	**Sec 6** TL 1000, nearest address 27201 Hwy 20 (correct address is 29201 hwy 20) Same location as DESC 52142
DESC 52142	Larry Waugman	new (#1)	test hole/irr	1/16/1999	465	435	610	20+ gpm, 0 dd, 1	perf 425-505	**Sec 6.** WRD GW site info shows well location same as DESC 62152, correct address
DESC 54733	Pieratt Bros Inc	deepen. Original well drilled pre-1935.	domestic	2/28/2002	495	495	545	15 gpm, 0 dd, 1 l	perf 505-545	**Sec 6** TL 1203 (mislocated on GIS). This appears to be deepening of DESC 6483.
DESC 1371	Panelope A Behee (Branovic well)	new	domestic + livestock	6/10/1992	398	398	425	10 gpm, 3 ft dd, 1 hr	open hole	Ford Rd Milican T19R15**S34**TL1300. Residence visible on TL 1300, located in SWSW of Section. Well is approx. 3500 ft NW of work site area
DESC 58210	Bill Grafton (Bend Trap Club)	new	domestic	9/7/2007	476	423	565	35 gpm, dd nl, 1 hr	perf 505-565	Sec 5 NE 2/4 of NW 1/4. TL 1206. Address 29753 Hwy 20.

Well reports for the above wells are presented in Attachment A.

Per OWRD data, the Haley wells (DESC 6478 and DESC 6479) are identified as being located just to the east (on adjacent tax lot) 2015000000101) of the Roth East site. Both wells appear to have been abandoned due to either lack of water or caving (see DESC 50804 and DESC 50803).

The location of the Vogt (DESC 6477) well appears to be located somewhere northeast of the Roth East site on adjacent tax lot 2015000000101 east of the Roth TL 2015000000301. It may be located near the McGee well (DESC 58094), which also appears to be on TL 2015000000101. Status of the Vogt well is unknown. The McGee well appears to be located approximately 1.5 miles east the Roth East site and associated with structures near Newt Morris Road. TL 2015000000101 tax lot information on Deschutes County DIAL includes the name Doug Magee.

Another well of interest near the Roth site is DESC 1371 (Behee welll). This well is reportedly located near the Millican store. This well is also referred to locally as the Branovic well and reportedly is used as a water haul source. The well appears to be located approximately 515 feet south of the store and located on TL 1915000001500, which includes the store. Tax lot records indicate TL 1500 belongs to the estate of Leonard Peverieri. Well DESC 1371 is shallower and reportedly has lower water production than Deep Well DESC 194.

Well DESC 58210 is a water source for the Bend Trap Club located east of the Roth East site on TL 2016000001206. This well is further discussed below in the water rights discussion.

Review of the above listed water well reports, with exception of DESC 194, suggests first water was typically encountered 400 to 500 feet below ground surface (bgs). Static water levels in the wells were generally similar or slightly higher than reported first water depths. The occurrence of groundwater in the project area appears to vary. For example, DESC 6478 indicates water was not encountered in the 750-foot-deep boring. Post-construction well production information indicate completed wells typically could produce 10 to 20 gallons per minute (gpm). The Powell Well (DESC 194) has the highest reported productivity of 50 gpm.

The Deep Well is understood to currently have a 5-horsepower submersible pump. The well is reported to be primarily used by a nearby residence and for stock watering (at approximately one water truck per day). The only reported static water level for the well is the one listed on the well log and was completed on 8/6/90 following installation of the well.

Nearby Water Rights

There are no identified water rights appurtenant to the Roth properties.

The closest identified water right to the Roth East site is a water right issued to the Bend Trap Club (water right permit G-16505). The well (DESC 58210) associated with this water right is located in T20S/R16E Sec 5 NESW, approximately 2.0 miles northeast of the northeast corner of the Roth site boundary. Permit G-16505 has been perfected and certified water right 91906 was issued on 11/18/2016. This permit includes a 7.0 acre-feet mitigation requirement in the General Zone of Impact that was satisfied with 7.0 mitigation credits from Mitigation Project MP-27 (Transfer T-9824).

There is another water right approximately 5 miles northeast of the Roth East Site, issued to 4-R Equipment (water right permit G-16243) with a maximum rate of 1.0 cfs and annual duty of 6.0 acre-feet. This permit is identified to be located at T19S/R15E Sec 30 SESW. It appears that DESC 56052 (4 R Equipment) is the well associated with this right. However, the location reported on DESC 56052 is T19S/R14E Sec 2 TL 700, which places it on the Moon Pit site. This well does not exist on the Moon Pit site; the reported location information is erroneous. Permit G-16423 includes a 4.2 acre-feet mitigation requirement in the General Zone of Impact that was satisfied with 4.2 mitigation credits from Mitigation Project MP-27 (Transfer T-9824). OWRD records indicate that this water right has not been certified. This water right had an extension final order issued allowing a completion date of October 1, 2022. It is not known if this water right has been developed.

There is also a water right approximately 6 miles southeast (Permit G-17676) issued to Kenneth Burbank for four wells to irrigate 320 acres. The four wells associated with this right are located along the western side of T20S/R17E Sections 19 and 30 and are located more than 6.8 miles east of the Roth site. OWRD records indicate that this water right has not been certified and there was no mitigation requirement associated with this water right, as all four wells are just outside the USGS Groundwater Study Area.

Information regarding the Bend Trap Club, the 4-R Equipment, and the Burbank irrigation water rights is presented in Attachment B.

Finding and Comments

Examination of OWRD's groundwater information system mapping tool indicates the following:

- OWRD's Groundwater Information System Mapping Tool indicates Roth East site is within a groundwater restricted area requiring groundwater mitigation by the State of Oregon.
- Roth East site is mapped in the Deschutes mitigation zone of impact; Crooked River per OWRD's Groundwater Information System Mapping Tool.
- OWRD required mitigation in the General Zone of Impact for nearby water rights permits G-16873 and G-16243, even though OWRD mapping indicates they are located within the localized Crooked River Zone of Impact.
- The Roth site is also mapped by OWRD as having a "concern rating" of "yield limited".

Comments and questions with respect to water infrastructure assessment at the Roth East site:

- The site is located inside the Deschutes Groundwater Study area and the General Zone of Impact Area. As a water right does not currently exist that is appurtenant to the Roth East site property, it is understood groundwater mitigation would be required to obtain a water right to meet future landfill facility operations requirements/needs. A USGS groundwater flow direction map suggests flow of groundwater at the Roth East site is toward Redmond while a mitigation zone of impact map identifies the Crooked River, potentially the area of Prineville Reservoir. OWRD's input would be needed to understand what their determination may be with respect to obtaining a new water right at Roth East site. In addition to mitigation, water level data would need to be obtained or collected to meet the stable aquifer criteria that is anticipated to be enacted by OWRD in April 2024 and will become a water right issuance criteria. The closest identified OWRD active observation well is in Brothers.
- The Powell well (the deep well), located on the Roth East site property can produce 50 gpm with no drawdown according to the well log. This rate is higher than required to produce 50,000 gpd. As no drawdown was reported, the information suggests the well can produce water at a higher rate. However, the reported well production occurred in 1990 following well installation. Current well yield capacity is unknown. The well would need upgrades to function as a supply well for a future solid waste facility. Based on well depth, the deep well (DESC 194) is producing water from the regional aquifer.
- The occurrence of groundwater at the Roth East proposed facility site area is unknown. Available data suggest depth to first water is around 500 feet. Note this will vary with the ultimate elevation of the well site. Available information also suggests that water presence and yield in the Roth East area varies. Available water well report well test information for wells identified as being near the Roth East due diligence area (DESC 6478, 6479, 6477, and 58094) indicate yields of around 15 gpm or less, below the sustained production to meet anticipated future landfill facility operations requirements/needs.
- Development of a preliminary well design for a water supply well at the Roth East due diligence area would be based on an assumed depth to water producing zone and yield of producing zone. A field check should be completed on wells identified as being in the site area and used to inform a strategy for providing future landfill operations water supply requirements/needs. A possible component of this strategy may be completing site characterization borings down to groundwater that could function as future landfill facility groundwater monitoring wells. Information obtained from characterization borings could be used to inform the design and location of a future water supply well at the proposed landfill site.
- Water right permit G-16243 (4R Equipment) and Certificate 91906 (Gun Club) both had General Zone mitigation requirements that were roughly 60% to 70% of their annual duty and mitigated with general zone mitigation credits. These two nearby water rights examples suggest the possibility that a new ground water permit could potentially be mitigated with

General Zone credits and that the mitigation requirement might be less than the estimated 21.5 acre-feet annual duty, depending on OWRD's estimation of consumptive use for the proposed type of use.

- Obtaining a water right permit is complicated by the understanding that there is no knowledge of mitigation credits specific to the Crooked River Zone of Impact. If OWRD considers the Roth East site to be part of the General Zone of Impact, General Zone temporary mitigation rights may be a viable short-term option with an understood cost of around $3,300 per year. In this case, General Zone permanent mitigation credits could also be a possible long-term option from private water rights brokers at around $200,000 to $250,000. More coordination with OWRD and mitigation credit holders would be needed to confirm the viability, availability, and cost of General Zone credits if the County were to pursue them.
- Water right permit G-16243 (owned by 4R Equipment) might present an opportunity for the County to satisfy a portion of the need for 21.5 acre-feet per year, if this right were to be certified, transferable, and available to the County for purchase. It appears that the time extension associated with this water right expired on October 1, 2022, and there is no visible evidence of well development per aerial imagery.

For the purposes of comparative cost evaluation, the estimated costs for water infrastructure upgrades are:

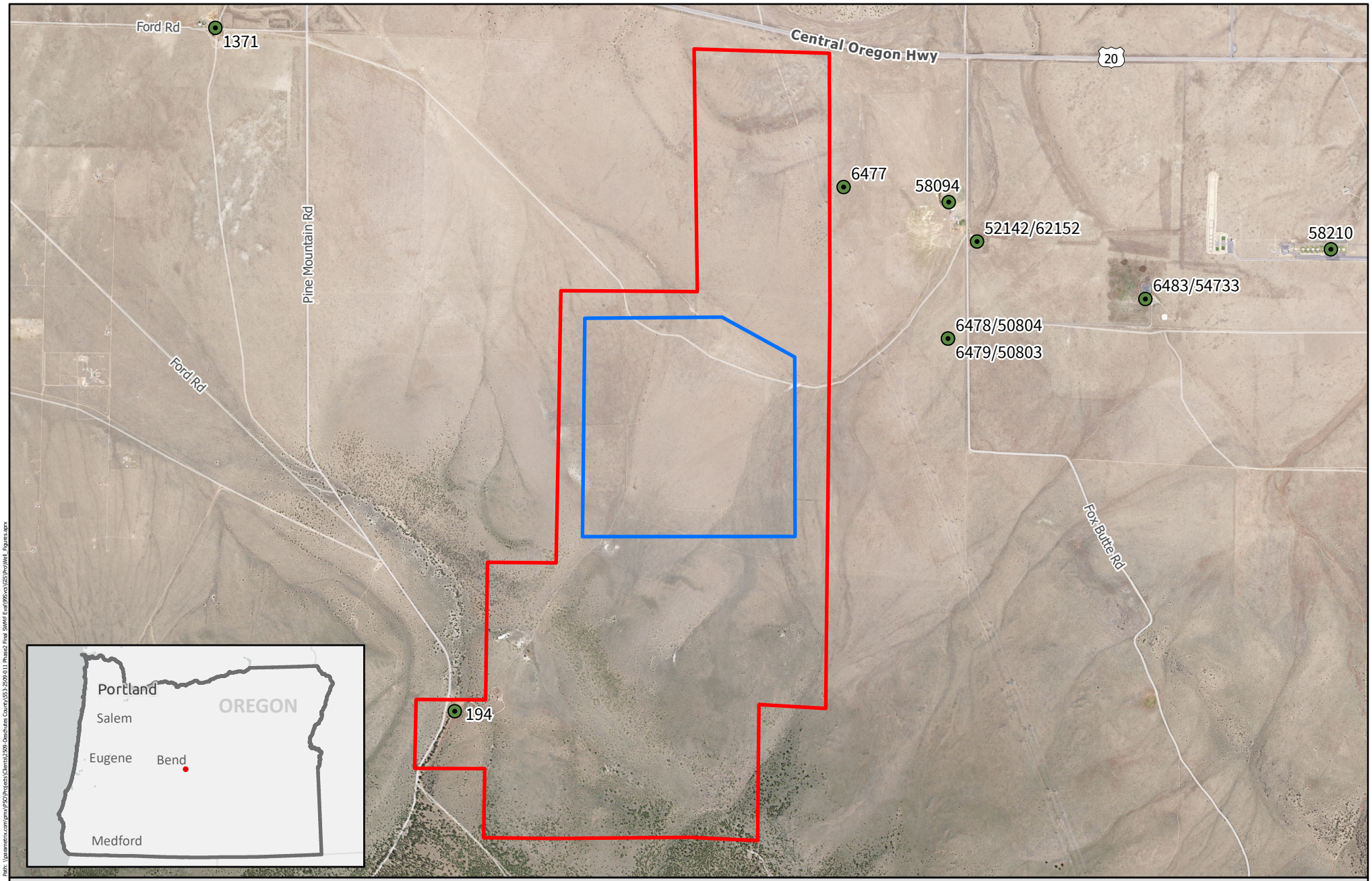
Water Rights	$215,000	(21.5 acre-feet mitigation requirement at $10k per credit)
New Well	$500,000	(~500 ft deep 8-inch casing, 110 gpm pump, well house)
Water Storage Tank	$400,000	(200,000-gallon capacity, epoxy-coated bolted steel, at-grade)
Site Water Piping	$50,000	(assuming 400 LF at $125/LF)
Water Truck Fill Station	$25,000	
ESTIMATE TOTAL =	$1,190,000	(Class V estimate range: $545,000 to $2,180,000)

FIGURES

ATTACHMENTS

A Well Logs and Photographs
B Water Rights Information

Figures



Date: 12/11/2023
Sources: Parametrix, ESRI
PCS: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Disclaimer: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes.

Site/Taxlot Boundary
Proposed Development Area
Water Well (Identified by log ID number)

Figure 1 - Roth East Site
Deschutes SWMF Siting

Parametrix

0 500 1,000 2,000
Feet

Deschutes Co, OR

Attachment A

Well Logs and Photographs

OCT 18 1990 #11 194 Desc

20S/15E/14 CD

STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

WATER RESOURCES DEPT.
SALEM, OREGON

(START CARD) # 20412

(1) OWNER:

Well Number: #1

Name Mr. Lloyd Powell

Address P.O.Box 97070

City Kirkland State WA. Zip 98083

(2) TYPE OF WORK:

XX New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

XX Rotary Air ☐ Rotary Mud ☐ Cable

☐ Other

(4) PROPOSED USE:

☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☒ Other Stock

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 995 ft.

Explosives used Yes ☐ No ☐ Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
12in.	0	25	Bentonite	0	25	20
8in.	25	995				

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:	8in.	+2	30	.250	X	☐	XX	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
50	0	970	1 hr.

Temperature of water 55F 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 Deschutes Latitude Longitude

Township 20S N or S. Range 15E E or W. WM.

Section 14 NW ¼ SW ¼

Tax Lot Lot Block Subdivision

Street Address of Well (or nearest address) Pine Mtn. Observatory

(10) STATIC WATER LEVEL:

970 ft. below land surface. Date 8-6-90

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 970 feet

From	To	Estimated Flow Rate	SWL
970	995	50 GPM	

(12) WELL LOG:

Ground elevation

Material	From	To	SWL
Boulders	0	15	
Broken red basalt	15	20	
Red shale	20	55	
Red basalt (broken)	55	110	
Broken gray basalt	110	125	
Red basalt	125	160	
Broken gray basalt	160	175	
Broken brown basalt	175	195	
Broken gray basalt	195	235	
Red basalt	235	315	
Broken brown basalt	315	495	
Broken gray basalt	495	635	
Hard gray basalt	635	655	
Red basalt	655	715	
Yellow clay stone	715	735	
Brown basalt	735	935	
Gray basalt	935	970	
Black and brown conglom.	970	995	

Date started 7-28-90 Completed 8-6-90

(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.

Signed Robert Bucker WWC Number 1385 Date 8-7-90

(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 Robert Bucker WWC Number 1385 Date 8-7-90

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STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

DESC 1371

RECEIVED

JUL 1 3 1992

WAT R RES URCES DEPT
SALEM, OREGON

19S/15E/34dc

(START CARD) # 38994

(1) OWNER: Well Number

Name PANELOPE A BEHEE

Address 28145 Hy 20 E

City BEND State OR Zip 97701

(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 LIVESTOCK

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 425 ft.

Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
12	0	25	BENTONITE	0	25	18 SACKS
8	25	425				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other POURED DRY

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:	8"	+1	25	250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
10	3'		1 hr.

Temperature of Water 51° 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 DESCHUTES Latitude Longitude

Township 19 N or (S) Range 15 (E) or W. WM.

Section 34 SW ¼ SE ¼

Tax Lot 1300 Lot Block Subdivision

Street Address of Well (or nearest address) FORD MILICAN

(10) STATIC WATER LEVEL:

398 ft. below land surface. Date 6-10-92

Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found 398

From	To	Estimated Flow Rate	SWL
398	425	10 gal	398

(12) WELL LOG:

Ground elevation

Material	From	To	SWL
SOIL	0	4	
GRAVEL	4	10	
SANDSTONE	10	52	
YELLOW CLAY	52	101	
YELLOW CLAY GRAVEL	101	392	
BLACK SAND	392	425	398

Date started 3-30-92 Completed 6-10-92

(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.

Signed Raymond Williams WWC Number 1495 Date 7-6-92

(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 Raymond Williams WWC Number 1495 Date 7-6-92

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

DESC 1601

19S/15E/33CC

(START CARD) # 49395

(1) OWNER: Well Number #1
Name Earl Conyers
Address 1241 Highway 508
City Chehalis State Wa Zip 98532

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

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
8	150	207	Not Disturbed			

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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

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

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

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

Temperature of Water 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 Deschutes Latitude Longitude
Township 19S N or S. Range 15E E or W. WM.
Section 33 SW ¼ SW ¼
Tax Lot 300 Lot Block Subdivision
Street Address of Well (or nearest address) 27650 Ford Rd Millican, Or 97712

(10) STATIC WATER LEVEL:
ft. below land surface. Date
Artesian pressure lb. per square inch. Date

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

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Well was cement grouted from 150 ft to 207 ft due to crevice at unknown depth. Hole was then redrilled and encountered steel of unknown type and cable chunks and some kind of wood handle. Unable to drill beyond 207 ft due to steel. Customer chose to abandon.			

Date started 11/22/92 Completed 11/23/92

(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.

Signed Robert Buckner WWC Number 1385
Date 11/23/92

(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 Robert Buckner WWC Number 1385
Date 1/2/93

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

DESC 1602

19S/15E/33CC

(START CARD) # 49398

(1) OWNER: Well Number #1
Name Earl Conyers
Address 1241 State Highway 508
City Chehalis State Wa Zip 98532

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

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
			Cement	0	207	81

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Pumped W/Trimmie
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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

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

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

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

Temperature of Water 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 Deschutes Latitude Longitude
Township 19S N or S. Range 15E E or W. WM.
Section 33 SW ¼ SW ¼
Tax Lot 300 Lot Block Subdivision
Street Address of Well (or nearest address) 27650 Ford Rd Millican Or 97712

(10) STATIC WATER LEVEL:
ft. below land surface. Date
Artesian pressure lb. per square inch. Date

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

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Casing was removed and defective seal was in place by original drilleer .Well was pumped full of cement and permanently abandoned.			

Date started 12/4/92 Completed 12/4/92

(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.
Signed Robert L Buckner WWC Number 1385 Date 1/2/93

(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 Robert L Buckner WWC Number 1385 Date 1/2/93

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

DESE 1603

19S/15E/33cc
Page 1

(START CARD) # 49400

(1) OWNER: Well Number #2
Name Earl Conyers
Address 1241 Highway 508
City Chehalis, State Wa Zip 98532

(2) TYPE OF WORK:
[X] New Well [ ] Deepen [ ] Recondition [ ] Abandon

(3) DRILL METHOD:
[X] Rotary Air [ ] Rotary Mud [ ] Cable
[ ] Other

(4) PROPOSED USE:
[X] Domestic [ ] Community [ ] Industrial [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [X] No Depth of Completed Well 405 ft.
Explosives used [ ] Yes [X] No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10"	0	43	Cement	22	43	6
8	43	348	Bentonite	0	22	14
7.5	348	405				

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other Pumped W/Trimmie
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:	8"	+2	43	.250	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:	6"	+1	347	.188	[X]	[ ]	[X]	[ ]
					[ ]	[ ]	[ ]	[ ]

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
[X] Perforations Method Electric Saw
[ ] Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
330	347	3/16	204			[ ]	[X]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

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

Yield gal/min	Drawdown	Drill stem at	Time
12	1	398	1 hr.

Temperature of Water 67 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 Deschutes Latitude Longitude
Township 19S N or S. Range 15E E or W. WM.
Section 33 SW ¼ SW ¼
Tax Lot 300 Lot Block Subdivision
Street Address of Well (or nearest address) 27650 Ford Rd
Millican, Or 97712

(10) STATIC WATER LEVEL:
352 ft. below land surface. Date 12/22/92
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 371

From	To	Estimated Flow Rate	SWL
371	388	10	356

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
Top Soil	0	9	
Brown Conglomerate	9	36	
Hard Grey Basalt	36	58	
Brown Sandstone	58	83	
Broken Brown Basalt	83	98	
Red Conglomerate	98	114	
Black Basalt	114	122	
Red Basalt	122	147	
Orange Sandstone	147	154	
Broken Brown Basalt	154	178	
Red Congloemrate	178	188	
Broken Basalt	188	209	
Brown Sandstone	209	237	
Hard Grey Basalt	237	258	
Red Sandstone	258	269	
Brown Sandstone	269	292	
Broken Brown Basalt	292	311	
Hard Grey Sandstone	311	334	
Broken Brown/Grey Basalt	334	358	

Date started 12/3/92 Completed 12/16/92

(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.

Signed Robert Bucker WWC Number 1385
Date 1/2/93

(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 Robert Bucker WWC Number 1385
Date 1/2/93

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STATE OF OREGON

WATER WELL REPORT

(as required by ORS 537.765)

(START CARD) # 049400

(1) OWNER:

Well Number #2

Name Earl Conyers

Address

City State Zip

(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 ____ ft.

Explosives used ☐ Yes ☐ No Type ____ Amount ____

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds

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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method

☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

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

Temperature of Water ____ 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 ____ Latitude ____ Longitude ____

Township ____ N or S. Range ____ E or W. WM.

Section ____ ¼ ____ ¼

Tax Lot ____ Lot ____ Block ____ Subdivision ____

Street Address of Well (or nearest address) ____

(10) STATIC WATER LEVEL:

____ ft. below land surface. Date ____

Artesian pressure ____ lb. per square inch. Date ____

(11) WATER BEARING ZONES:

Depth at which water was first found ____

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Ground elevation ____

Material	From	To	SWL
Brown Sandstone	358	371	
Red Cinders W/B	371	388	352
Red Conglomerate	388	397	
Black Basalt	397	407	

Date started 12/3/92 Completed 12/16/92

(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.

Signed Robert Buckner WWC Number 1385 Date 1/2/93

(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 Robert Buckner WWC Number 1385 Date 1/2/93

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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 OCT 4 1972 STATE ENGINEER SALEM, OREGON

RECEIVED NOV 30 1972 STATE ENGINEER SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

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

State Well No. 20S/15E-1 bc

State Permit No. DESC 6477

(1) OWNER:
Name Jack Vogt
Address Bend Ore. 97701

(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 ☐
..." Diam. from ... ft. to ... ft. Gage ...
..." 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 ~~none~~ 3 gal./min. with 0 ft. drawdown after 1 hrs.
Artesian flow ... g.p.m.
Temperature of water 57 Depth artesian flow encountered ... ft.

(9) CONSTRUCTION:
Well seal—Material used undisturbed
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
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 Deschutes Driller's well number
SW ¼ NW ¼ Section 1 T. 20 R. 15E W.M.
Bearing and distance from section or subdivision corner 2340 ' south and 200' east of the NW corner of section 1

(11) WATER LEVEL: Completed well.
Depth at which water was first found ... ft.
Static level 485 ft. below land surface. Date 9/1/72
Artesian pressure ... lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 6 ft. Depth of completed well 495 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
The is an old well that was supposed to be 495'deep. We hit sand at 492'-drilled to 498'- cleaned it out to our satisfaction and left the seal undisturbed.			485

Work started 8/28 19 72 Completed 9/1 19 72
Date well drilling machine moved off of well 9/1 19 72

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] Dale Crawford (Drilling Machine Operator) Date 9/14, 19 72
Drilling Machine Operator's License No. 678

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 Crawford Well Drilling (Person, firm or corporation) (Type or print)
Address Box 17 Terrebonne, Ore97760
[Signed] Dale Crawford (Water Well Contractor)
Contractor's License No. 451 Date 9/14, 19 72

(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.

(DESC64-78)

RECEIVED DEC 10 1969 STATE ENGINEER SALEM, OREGON

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

RECEIVED DEC 10 1969 STATE ENGINEER SALEM, OREGON

State Well No. 20/15-12
State Permit No.

(1) OWNER:
#1
Name Hersel Haley
Address Rte 1 ~~Box xxx~~ Hillsboro, Oregon 97124

(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 [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

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

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
6" Diam. from 0 ft. to 20 ft. Gage ¼ wall
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) 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.
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) WATER LEVEL: Completed well.
Static level 0 ft. below land surface Date 11-15-69
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 [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
~~Air~~
~~Bailer~~ test 0 gal./min. with 0 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? [ ] Yes [X] No

(10) CONSTRUCTION:
Well seal—Material used cement
Depth of seal 20 feet ft.
Diameter of well bore to bottom of seal 9 in.
Were any loose strata cemented off? [ ] Yes [X] No Depth
Was a drive shoe used? [ ] Yes [X] No
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.

(11) LOCATION OF WELL:
County ~~Deschutes~~ Deschutes Driller's well number
¼ E ½ Section 12 T. ~~20~~ 15S R. 15-E W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing 6 inch
Depth drilled 750 ft. Depth of completed well 750 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
Brown dirt and sand	0	1½	
Brown rock	1½	10	
Brown rock with clay	10	12	
Brown rock	12	100	
Brown lava rock	100	130	
Brown rock	130	150	
Soft brown lava	150	160	
Brown rock	160	200	
Grey rock	200	235	
Brown lava	235	270	
Red lava	270	345	
Brown lava cinders	345	375	
Red lava	375	450	
Brown lava	450	500	
Red lava	500	520	
Brown rock	520	655	
Light brown rock & lava ash	655	750	

Amount of water not known
Hit creavasses at 435 with 3 ft. and 4½ feet drops three times.

Work started 11-11-69 19 Completed 11-15-69 19
Date well drilling machine moved off of well 11-15-69 19

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] Martin Bent (Drilling Machine Operator) Date 12-8, 1969
Drilling Machine Operator's License No. 566

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 Ralph Turner Drilling Co. (Person, firm or corporation) (Type or print)
Address Rte 1 Box 141 Hillsboro, Oregon
[Signed] Ralph Turner (Water Well Contractor)
Contractor's License No. 247 Date 12-8, 1969

(USE ADDITIONAL SHEETS IF NECESSARY)

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.

DESC 6479

RECEIVED DEC 10 1969 STATE ENGINEER SALEM, OREGON

WATER WELL REPORT

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

RECEIVED DEC 15 1969 STATE ENGINEER SALEM, OREGON

State Well No. 20/15-12

State Permit No.

(1) OWNER: #2

Name Hershel Haley

Address Rte 1 Box Hillsboro, Oregon

(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 [X] Driven [ ]
Cable [ ] Jetted [ ]
[illegible] [ ] Bored [ ]

(4) PROPOSED USE (check):

Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) CASING INSTALLED:

Threaded [ ] Welded [X]

xxx6 6" Diam. from 0 ft. to 22 22' Gage 1/4 wall

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

(6) 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.
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) WATER LEVEL: Completed well.

[illegible]tic level 450 ft. below land surface Date 11-19-69

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 [X] No If yes, by whom?

[illegible]ld: gal./min. with ft. drawdown after hrs.

" " " " "

air " " " "

xxBailer test 12 gal./min. with 150 ft. drawdown after 1 hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? [ ] Yes [X] No

(10) CONSTRUCTION:

Well seal—Material used cement

Depth of seal 20 feet ft.

Diameter of well bore to bottom of seal 9 in.

Were any loose strata cemented off? [ ] Yes [X] No Depth

Was a drive shoe used? [ ] Yes [X] No

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.

(11) LOCATION OF WELL:

County Deschutes Driller's well number

¼ E ¼ Section 12 T 20 S R. 15-E W.M.

Bearing and distance from section or subdivision corner

(12) WELL LOG:

Diameter of well below casing 6 inch

Depth drilled 655 ft. Depth of completed well 655 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
Brown sand and rock	0	7	
Brown rock	7	15	
Light grey soft rock	15	20	
Brown rock	20	150	
Soft brown rock	150	275	
Hard grey rock	275	320	
Red lava	320	350	
Brown rock	350	390	
Light brown & yellow rock	390	440	
Hard dark grey rock	440	565	
Med. brown lava rock	565	620	
Light brown ,red rock	620	635	
Hard grey rock with seams	635	655	

Work started 11-15-69 19 Completed 11-19-69 19

Date well drilling machine moved off of well 11-19-69 19

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] Martin Brett (Drilling Machine Operator) Date 12-8, 1969

Drilling Machine Operator's License No. 566

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 Ralph Turner Drilling Co. (Person, firm or corporation) (Type or print)

Address Rte 1 Box 141 Hillsboro, Oregon

[Signed] Ralph Turner (Water Well Contractor)

Contractor's License No. 247 Date 12-8, 1969

(USE ADDITIONAL SHEETS IF NECESSARY)

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 14 1972
STATE ENGINEER
SALEM, OREGON

NC DESC 6483

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

State Well No. 20/16-6 dd

State Permit No. .....

(1) OWNER:
Name Max Mills
Address 849 E. 12th, Bend, Oregon 97701

(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 ☐
10 " Diam. from unknown ft. to ..... ft. Gage .....
..... " 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 10 ft. below land surface Date
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: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No

(10) CONSTRUCTION:
Well seal—Material used .....
Depth of seal ..... ft.
Diameter of well bore to bottom of seal ..... 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 Deschutes Driller's well number
SE ¼ SE ¼ Section 6 T. 20S R. 16E W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing .....
Depth drilled 507 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 as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Well prior to 1935.			

Work started 19 Completed 19
Date well drilling machine moved off of well 19

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] ..... Date ....., 19.....
(Drilling Machine Operator)

Drilling Machine Operator's License No. .....

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 .....
(Person, firm or corporation) (Type or print)

Address .....

[Signed] .....
(Water Well Contractor)

Contractor's License No. ..... Date ....., 19.....

(USE ADDITIONAL SHEETS IF NECESSARY)

Desc 50803 Well ID/Tag No. L04102

RECEIVED
MAR 31 1997
WATER RESOURCES DEPT.
SALEM, OREGON

STATE OF OREGON WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

(START CARD) # 94018

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number #2

Name Hersel Haley

Address 10961 NW Jackson Quarry Rd.

City Hillsboro State Ore. Zip 97124

(2) TYPE OF WORK

☐ New Well ☐ Deepening ☒ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

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

Explosives used ☐ Yes ☒ No Type ____ Amount ____

HOLE Diameter	From	To	Material	SEAL From	To	Sacks or pounds
		undistrubed				

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:		undisturbed			☐	☐	☐	☐
Liner:					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method n.a.

☐ Screens Type ____ Material ____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
		n.a.				☐	☐

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

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
	n.a.		1 hr.

Temperature of water ____ 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 Deschutes Latitude ____ Longitude ____

Township 20S N or S Range 15E E or W. WM.

Section 12 SE 1/4 NE 1/4

Tax Lot 1000 Lot ____ Block ____ Subdivision ____

Street Address of Well (or nearest address) Sand springs Rd.

(10) STATIC WATER LEVEL:

n.a. ft. below land surface. Date ____

Artesian pressure ____ lb. per square inch. Date ____

(11) WATER BEARING ZONES:

Depth at which water was first found ____

From	To	Estimated Flow Rate	SWL
n.a.			

(12) WELL LOG:

Ground Elevation ____

Material	From	To	SWL
well had caved in to 62'.			
Drilled on formation about 3'			
and determined well was probably			
caved in completely. Remove tools			
and welded cap on well.			

Date started 3-25-97 Completed 3-25-97

(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 water supply well construction standards. Materials used and information reported above are true to the best of my 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1658

Signed ____ Date ____

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

Desc 50804

RECEIVED

L04103

MAR 31 1997

WATER RESOURCES DEPT. 94017
SALEM, OREGON

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

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number #1

Name Hersel Haley

Address 10961 NW Jackson Quarry Rd.

City Hillsboro State Ore. Zip 97124

(2) TYPE OF WORK

☐ New Well ☐ Deepening ☒ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

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

Explosives used ☐ Yes ☒ No Type ____ Amount ____

HOLE Diameter	From	To	Material	SEAL From	To	Sacks or pounds
			undisturbed			

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:		undisturbed			☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☐ Perforations Method n.a.

☐ Screens Type ____ Material ____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.
NO water found			

Temperature of water ____ 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 Deschutes Latitude ____ Longitude ____

Township 20S N or S Range 15E E or W. WM.

Section 12 NE 1/4 NE 1/4

Tax Lot 1000 Lot ____ Block ____ Subdivision ____

Street Address of Well (or nearest address) ____

Sand Springs Rd.

(10) STATIC WATER LEVEL:

n.a. ft. below land surface. Date ____

Artesian pressure ____ lb. per square inch. Date ____

(11) WATER BEARING ZONES:

Depth at which water was first found n.a.

From	To	Estimated Flow Rate	SWL
n.a.			

(12) WELL LOG:

Ground Elevation ____

Material	From	To	SWL
Lowered tools to 630'			
Drilled at that depth removed tools			
and found evidence that tools had			
been drilling on iron.			

Date started 3-25-97 Completed 3-25-97

(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 water supply well construction standards. Materials used and information reported above are true to the best of my 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1658

Signed ____ Date 3-27-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

DESC
52142

JAN 21 1999

WATER RESOURCES DEPT.
SALEM, OREGON

WELL I.D. # L24901

(START CARD) # 115347

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

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number 1

Name LARRY WAUSMAN
Address 64120 JOHNSON RANCH RD.
City PRINEVILLE State OR Zip 97701

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:

[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger
[ ] Other

(4) PROPOSED USE:

[ ] Domestic [ ] Community [ ] Industrial [X] Irrigation
[ ] Thermal [ ] Injection [ ] Livestock [X] Other TEST HOLE

(5) BORE HOLE CONSTRUCTION:

Special Construction approval [ ] Yes [X] No Depth of Completed Well 610 ft.
Explosives used [ ] Yes [X] No Type ____ Amount ____

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
12"	0	19	BENTONITE	0	19	16 SACKS
8"	19	505				
6"	505	610				

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other BENTONITE POURED DRY
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:	8"	+1	19	.250	[X]	[ ]	[X]	[ ]
Liner:	6"	5	505		[X]	[ ]	[X]	[ ]

Final location of shoe(s) ____

(7) PERFORATIONS/SCREENS:

[X] Perforations Method FACTORY
[ ] Screens Type ____ Material ____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
425	505	1/8	1,056	1/8x6"	6"x.188	[ ]	[X]

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

[ ] Pump [ ] Bailer [X] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
20+	0	610'	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 DESCHUTES Latitude ____ Longitude ____
Township 20 N or (S) Range 16 (E) or W. WM.
Section 6 SW 1/4 NW 1/4
Tax Lot 1000 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) 29201 Hwy 20

(10) STATIC WATER LEVEL:

435 ft. below land surface. Date 1/16/99
Artesian pressure 0 lb. per square inch. Date 1/16/99

(11) WATER BEARING ZONES:

Depth at which water was first found 465'

From	To	Estimated Flow Rate	SWL
465'	470'	20+ gpm	435

(12) WELL LOG:

Ground Elevation ____

Material	From	To	SWL
TOP SOIL	0	2	
BROWN CLAY W/CEMENTED GRAVEL	2	12	
COARSE TAN SANDSTONE	12	26	
BROWN SANDSTONE	26	34	
MED BROWN SANDSTONE	34	73	
LIGHT BROWN SANDSTONE	73	191	
MED BROWN SANSTONE	191	435	
MED DARK GRAY SANDSTONE	435	505	435
MED LAVA GRAY	505	523	
MILD LAVA BROWN	523	560	
MILD GRAY LAVA	560	610	

Date started 1/9/99 Completed 1/14/99

(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 water supply well construction standards. Materials used and information reported above are true to the best of my 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1555
Signed [signature] Date 1/20/99

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

DESC 54733

1-25525

STATE OF OREGON

WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

Desc 54733

WELL I.D.# L 142750

START CARD #

(1) LANDOWNER Well Number

Name Pierratt Bros. Inc

Address 21350 Stevens Rd.

City Bend State OR Zip 97702

(2) TYPE OF WORK

☐ New Well ☒ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 545 ft.

Explosives used ☐ Yes ☐ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
5¾	787	545				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☐ Other undisturbed original well (drilled pre-1935)

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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4½	+1	545	SDR21	☐	☒	☒	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☐ Outside ☐ None

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☒ Perforations Method Saw cut

☐ Screens Type 1/8 X 6 Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
545	505	1/8x6	100	4½	pipe	☐	☒
						☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
15	0	540	1 hr.

Temperature of water 57° 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 Des Latitude Longitude

Township 20 N or S Range 16 E or W. WM.

Section 6 SE 1/4 SW 1/4

Tax Lot 1203 Lot Block Subdivision

Street Address of Well (or nearest address) Not Assigned

(10) STATIC WATER LEVEL:

495 ft. below land surface. Date Feb 28/02

Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:

Depth at which water was first found 495

From	To	Estimated Flow Rate	SWL
495	545	15+	495

(12) WELL LOG:

Ground Elevation

Material	From	To	SWL
Broken Rock (NR)	495	545	495

RECEIVED JUN 05 2002 WATER RESOURCES DEPT. SALEM, OREGON

RECEIVED JUN 13 2005 WATER RESOURCES DEPT. SALEM, OREGON

Date started 2/16/02 Completed 2/28/02

(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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number 137

Signed Melvin Brooks Date 2/28/02

(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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 137

Signed Melvin Brooks Date 2/28/02

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

Desc 58094

DESC 58094

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

WELL I.D. # L 86683

START CARD # 190754

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Well Number _____
Name Doug McGee
Address 21085 Knott Rd
City Bend State OR Zip 97702

(2) TYPE OF WORK ☒ New Well
☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment ☐ Conversion

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

(4) PROPOSED USE
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other _____

(5) BORE HOLE CONSTRUCTION Special Construction: ☐ Yes ☒ No
Depth of Completed Well 544 ft.
Explosives used: ☐ Yes ☐ No Type _____ Amount _____

BORE HOLE Diameter	From	To	SEAL Material	From	To	Sacks or Pounds
12	0	20	Bentonite	0	20	16 Sacks
8	20	570				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other poured dry
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:	8	+1½	33½	.250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	6	-4	544	.188	☒	☐	☒	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☐ Outside ☐ None
Final location of shoe(s) _____

(7) PERFORATIONS/SCREENS
☒ Perforations Method mech
☐ Screens Type _____ Material _____

From	To	Slot Size	Number	Diameter	Tele/pipe size	Casing	Liner
-524	-544	3/16	166	6		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

Yield gal/min	Drawdown	Drill stem at	Time
15+	0	565	1 hr

Temperature of water 50° 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: _____

RECEIVED
AUG 30 2007
WATER RESOURCES DEPT
SALEM, OREGON

(9) LOCATION OF WELL (legal description)
County Deschutes
Tax Lot 101 Lot _____
Township 20S N or S Range 15E E or W WM
Section 1 SW 1/4 NW 1/4
Lat ___°___'___" or _____ (degrees or decimal)
Long ___°___'___" or _____ (degrees or decimal)
Street Address of Well (or nearest address) Sand Springs & Hwy 20

(10) STATIC WATER LEVEL
-480 ft. below land surface. Date 6-27-07
_____ ft. below land surface. Date _____
Artesian pressure _____ lb. per square inch Date _____

(11) WATER BEARING ZONES
Depth at which water was first found -499

From	To	Estimated Flow Rate	SWL
-499	-570	15+	

(12) WELL LOG Ground Elevation _____

Material	From	To	SWL
cobbles & Brn Cly	0	190	
Brkn Rock cong	190	350	
Brkn Lava	350	370	stat 499 cave
Brn Rock cong	370	570	

Date Started 6-25-07 Completed 6-27-07

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

WWC Number _____ Date _____

Signed _____

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1568 Date 6-27-07

Signed David J Kuhn

RECEIVED
JUL 05 2007
WATER RESOURCES DEPT
SALEM, OREGON

WATER RESOURCES DEPT
SALEM, OREGON

DESC 58210

09-10-2007

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L 91682

START CARD # 1002088

(1) LAND OWNER

Owner Well I.D. _____

First Name BILL Last Name GRAFTON

Company BEND TRAP CLUB

Address P.O. BOX 7774

City BEND State OR Zip 97708

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud ☐ Reverse Rotary ☐ Other _____

(4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community ☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering ☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)

Depth of Completed Well 565.00 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
12	0	18.5	Bentonite	0	18.5	10	S
8	18.5	565					

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other Poured Dry

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

Filter pack from _____ ft. to _____ ft. Material _____ Size _____

Explosives used: ☐ Yes Type _____ Amount _____

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
◉	○	8	☒	1.5	18.5	.250	◉	○	☒	☐
○	◉	6	☐	0	565	.188	◉	○	☒	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐

Shoe ☐ Inside ☒ Outside ☐ Other Location of shoe(s) 565

Temp casing ☐ Yes Dia 6 From _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method Machined

Screens Type _____ Material _____

Perf/Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	6	505	525	.13	4	256	
Perf	Liner	6	545	565	.13	4	256	

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

◯ Pump ◯ Bailer ◉ Air ◯ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
35		560	1

Temperature 70 °F Lab analysis ☐ Yes By _____

Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County Deschutes Twp 20.00 S N/S Range 16.00 E E/W WM

Sec 5 NE 1/4 of the NW 1/4 Tax Lot 1206

Tax Map Number _____ Lot _____

Lat ° ' " or _____ DMS or DD

Long ° ' " or _____ DMS or DD

◯ Street address of well ◯ Nearest address

29753 HWY 20

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening			☐	
Completed Well	09-07-2007		☐	423

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 476

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
09-07-2007	476	565	35		☐	423
					☐	
					☐	
					☐	
					☐	

(11) WELL LOG

Ground Elevation _____

Material	From	To
Top Soil	0	2
Solid Brown Conglom	2	183
Hard Grey Lava	183	248
Red Sandstone	248	270
Mild Brown Lava	270	320
Hard Grey Lava	320	340
Broken Lava	340	361
Hard Grey Lava	361	458
Mild Broken Brown Lava	458	469
Hard Brown Lava	469	476
Mild Brown Lava w/ tan claystone	476	495
Coarse Brown Sandstone	495	535
Mild Black Lava	535	565

Date Started 09-06-2007 Completed 09-07-2007

(unbonded) Water Well Constructor Certification

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

License Number 1276 Date 09-10-2007

Electronically Filed

Signed VINCENT MACKEY (E-filed)

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1819 Date 09-10-2007

Electronically Filed

Signed JEFFREY R RANDALLS (E-filed)

Contact Info (optional) _____

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Form Version: 0.86

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

DESC 62152

8/4/2020

WELL I.D. LABEL# L 138630
START CARD # 1048033
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D.
First Name MARK & ANN Last Name MALLOT
Company
Address PO BOX 127
City POWELL BUTTE State OR Zip 97753

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (complete 2a & 10) ☐ Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other

(4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community
☐ Industrial/ Commericial ☒ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)
Depth of Completed Well 630.00 ft.

BORE HOLE

Dia	From	To
12	0	18.5
8	18.5	590
6	590	630

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite Chips	0	18.5	20	S
		Calculated	11.94	
		Calculated		

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other POURED DRY
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: ☐ Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●	○	8	☒	1.5	18.5	.250	●	○		
○	●	6	☐	0	590	.188	●	○	☒	
○	○		☐				○	○		
○	○		☐				○	○		
○	○		☐				○	○		

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s)
Temp casing ☐ Yes Dia From + ☐ To

(7) PERFORATIONS/SCREENS

Perforations Method FACTORY
Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	6	570	590	.125	3	228	

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

○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
10		630	1

Temperature 60 °F Lab analysis ☐ Yes By
Water quality concerns? ☐ Yes (describe below) TDS amount 166 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County DESCHUTES Twp 20.00 S N/S Range 16.00 E E/W WM
Sec 6 SW 1/4 of the NW 1/4 Tax Lot 1000
Tax Map Number Lot
Lat ° ' " or DMS or DD
Long ° ' " or DMS or DD
○ Street address of well ◉ Nearest address
27201 HWY 20

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	7/9/2020			480

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 460.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
7/9/2020	480	630	10			480

(11) WELL LOG

Ground Elevation

Material	From	To
TOP SOIL	0	3
BROWN CLAYSTONE	3	275
BROWN CLAYSTONE CONGLOMERATE	275	310
BASALT CLAYSTONE SEAMS	310	445
BROWN CLAYSTONE	445	460
W/B FRACTURED BROWN BASALT	460	505
W/B FRATURED BASALT W/ CLAYSTONE	505	555
W/B BROWN CONGLOMERATE	555	630

Date Started 7/6/2020 Completed 7/9/2020

(unbonded) Water Well Constructor Certification

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

License Number Date

Signed

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1720 Date 8/4/2020

Signed JACK ABBAS (E-filed)
Contact Info (optional) JACK ABBAS

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:

Photo 1. Powell Well B (DESC 194).

Photo 2. Powell Well B (DESC 5750) pump house structure.

Attachment B

Water Rights Information

DESC 58210

09-10-2007

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L 91682

START CARD # 1002088

(1) LAND OWNER

Owner Well I.D. _____

First Name BILL Last Name GRAFTON

Company BEND TRAP CLUB

Address P.O. BOX 7774

City BEND State OR Zip 97708

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud ☐ Reverse Rotary ☐ Other _____

(4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community ☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering ☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)

Depth of Completed Well 565.00 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
12	0	18.5	Bentonite	0	18.5	10	S
8	18.5	565					

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other Poured Dry

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

Filter pack from _____ ft. to _____ ft. Material _____ Size _____

Explosives used: ☐ Yes Type _____ Amount _____

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
◉	○	8	☒	1.5	18.5	.250	◉	○	☒	☐
○	◉	6	☐	0	565	.188	◉	○	☒	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐

Shoe ☐ Inside ☒ Outside ☐ Other Location of shoe(s) 565

Temp casing ☐ Yes Dia 6 From _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method Machined

Screens Type _____ Material _____

Perf/Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	6	505	525	.13	4	256	
Perf	Liner	6	545	565	.13	4	256	

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

◯ Pump ◯ Bailer ◉ Air ◯ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
35		560	1

Temperature 70 °F Lab analysis ☐ Yes By _____

Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County Deschutes Twp 20.00 S N/S Range 16.00 E E/W WM

Sec 5 NE 1/4 of the NW 1/4 Tax Lot 1206

Tax Map Number _____ Lot _____

Lat ° ' " or _____ DMS or DD

Long ° ' " or _____ DMS or DD

◯ Street address of well ◯ Nearest address

29753 HWY 20

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening			☐	
Completed Well	09-07-2007		☐	423

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 476

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
09-07-2007	476	565	35		☐	423
					☐	
					☐	
					☐	
					☐	

(11) WELL LOG

Ground Elevation _____

Material	From	To
Top Soil	0	2
Solid Brown Conglom	2	183
Hard Grey Lava	183	248
Red Sandstone	248	270
Mild Brown Lava	270	320
Hard Grey Lava	320	340
Broken Lava	340	361
Hard Grey Lava	361	458
Mild Broken Brown Lava	458	469
Hard Brown Lava	469	476
Mild Brown Lava w/ tan claystone	476	495
Coarse Brown Sandstone	495	535
Mild Black Lava	535	565

Date Started 09-06-2007 Completed 09-07-2007

(unbonded) Water Well Constructor Certification

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

License Number 1276 Date 09-10-2007

Electronically Filed

Signed VINCENT MACKEY (E-filed)

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1819 Date 09-10-2007

Electronically Filed

Signed JEFFREY R RANDALLS (E-filed)

Contact Info (optional) _____

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Form Version: 0.86

STATE OF OREGON

COUNTY OF DESCHUTES

CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

BEND TRAP CLUB
BILL GRAFTON
PO BOX 7774
BEND OR 97708-7774

confirms the right to the use of water perfected under the terms of Permit G-16505. The amount of water used to which this right is entitled is limited to the amount used beneficially, and shall not exceed the amount specified, or its equivalent in the case of rotation, measured at the point of diversion from the source. The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-16873

SOURCE OF WATER: A WELL IN DRY RIVER BASIN

RATE: 0.05 CUBIC FOOT PER SECOND

DATE OF PRIORITY: JUNE 18, 2007

USE: IRRIGATION ON 3.89 ACRES

PERIOD OF USE: MARCH 1 THROUGH OCTOBER 31

The well is located as follows:

Twp	Rng	Mer	Sec	Q-Q	Measured Distances
20 S	16 E	WM	5	NE SW	3825 FEET SOUTH AND 1682 FEET EAST OF NW CORNER, SECTION 5

The amount of water used for irrigation under this right, together with the amount secured under any other right exiting for the same lands, is limited to a diversion of ONE-EIGHTIETH of one cubic foot per second and 3.0 acre-feet for each acre irrigated during the irrigation season of each year.

A description of the place of use is as follows:

Twp	Rng	Mer	Sec	Q-Q	Acres
20 S	16 E	WM	5	NE SW	1.92
20 S	16 E	WM	5	NW SW	1.58
20 S	16 E	WM	6	NE SE	0.39

NOTICE OF RIGHT TO PETITION FOR RECONSIDERATION OR JUDICIAL REVIEW

This is an order in other than a contested case. This order is subject to judicial review under ORS 183.484 and ORS 536.075. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 183.484, ORS 536.075 and OAR 137-004-0080, you may petition for judicial review and petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied. In addition, under ORS 537.260 any person with an application, permit or water right certificate subsequent in priority may jointly or severally contest the issuance of the certificate within three months after issuance of the certificate.

The quantity of water diverted at the new point of appropriation, shall not exceed the quantity of water lawfully available at the original point of appropriation.

Measurement, recording and reporting conditions:

A. The water user shall maintain, in good working order, a totalizing flow meter at each point of appropriation.

B. The water user shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the water user to report general water-use information, including the place and nature of use of water under the right.

C. The water user shall allow the watermaster access to the meter; provided however, where any meter is located within a private structure, the watermaster shall request access upon reasonable notice.

D. The Director may provide an opportunity for the water user to submit alternative measuring and reporting procedures for review and approval.

GROUND WATER MITIGATION CONDITIONS

Mitigation Obligation:	7.0 acre-feet of mitigation water in the General Zone of Impact
Mitigation Source:	7.0 mitigation credits from Mitigation Project MP-27 (Transfer T-9824), which is a permanent instream transfer

Mitigation water must be legally protected instream in the General Zone of Impact for the life of the certificate or subsequent certificate(s). Regulation of the certificate or subsequent certificate(s) will occur if the required mitigation is not maintained.

The water user shall provide additional mitigation if the Department determines that average annual consumptive use of the subject appropriation has increased beyond the originally mitigated amount.

If mitigation is from a secondary right for stored water from a storage project not owned or operated by the water user, the use of water under this right is subject to the maintenance and terms and conditions of a valid contract or satisfactory replacement, with the owner/operators of the storage project, a copy of which must be on file in the records of the Water Resources Department.

Failure to comply with these mitigation conditions shall result in the Department regulating this certificate or subsequent certificate(s), and proposing to cancel the certificate or subsequent certificate(s).

Use of water under authority of this right may be regulated if analysis of data available after the right is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be reduced subsequently. However, the use of ground water allowed under the terms of this water right will not be subject to regulation for Scenic Waterway flows, provided the required mitigation is maintained.

Failure to comply with any of the provisions of this right may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the right.

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this right, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interference.

The well shall be maintained in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine the water level elevation in the well at all times.

Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to the agreement.

The Director may require water level or pump test results every ten years.

This right is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

Water shall be acquired from the same aquifer as the original point of appropriation.

The right to the use of the water for the above purpose is restricted to beneficial use on the place of use described.

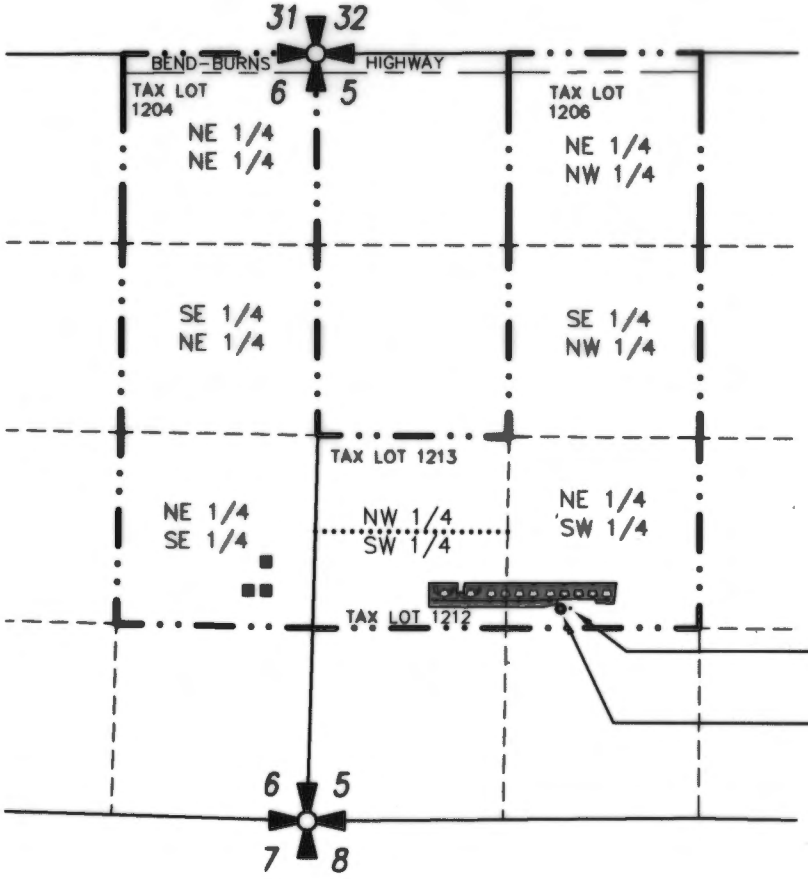
Issued NOV 18 2016.

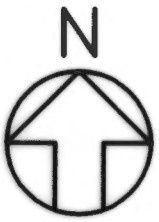
Dwight French
Water Right Services Division Administrator, for
Thomas M. Byler, Director
Oregon Water Resources Department

T.20S., R16E., W.M.

SECTIONS 5 AND 6

Located in NE 1/4 NW 1/4, SE 1/4 NW 1/4, NE 1/4 SW 1/4, and NW 1/4 SW 1/4 of Section 5, TAX LOTS 20-16-00-1206, 1212, and 1213,
And in NE 1/4 NE 1/4, SE 1/4 NE 1/4, and NE 1/4 SE 1/4 OF Section 6, TAX LOT 20-16-00-1204





SCALE: 1"= 1320'

LEGEND

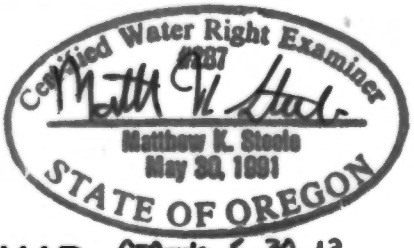
- Property Line
- 1/16th Line
- Tax Lot Line
- Section Line
- Place of Use

NE 1/4 SW 1/4 Section 5– 1.92 acres
NW 1/4 SW 1/4 Section 5– 1.58 acres
NE 1/4 SE 1/4 Section 6– 0.39 acres

Total = 3.89 Acres

Meter, approximately 5 feet East of POD

POD Well 3825 feet South, 1682 feet East of Northwest Corner of Section 5, T 20 S, R 16 E



renews 6-30-12

CLAIM OF BENEFICIAL USE MAP

UNDER

Application No.G-16873 Permit No.G-16505 Amendment No.T-10973

IN NAME OF

BEND TRAP CLUB

Prepared: Date 2-24-2011 by Hickman Williams & Associates, Inc.
62930 O.B. Riley Road, Ste. 100, Bend, Oregon, 97701
Phone: 541-389-9351, Fax: 541-388-5416

This map is for the purpose of identifying the location of water right only and is not intended to provide legal dimensions or locations of property ownership lines.

BEFORE THE WATER RESOURCES DEPARTMENT
OF THE
STATE OF OREGON

In the Matter of Permit Amendment T-10973, Deschutes County	)	**FINAL ORDER**
	)	APPROVING A CHANGE IN POINT OF
	)	APPROPRIATION AND A CHANGE IN
	)	PLACE OF USE

Authority

ORS 537.211 establishes the process in which a water right permit holder may submit a request to change the point of appropriation and/or place of use authorized under an existing water right permit.

Applicant

BEND TRAP CLUB
BILL GRAFTON
PO BOX 7774
BEND, OR 97708-7774

Agent

MATTHEW STEELE
C/O HICKMAN WILLIAMS & ASSOCIATES
1201 NW WALL ST
BEND, OR 97701

Findings of Fact

Background

1. On November 3, 2009, BEND TRAP CLUB filed an application to change the point of appropriation and to change in place of use under Permit G-16505. The Department assigned the application number T-10973.

2. The permit to be amended is as follows:

Permit: G-16505 in the name of BEND TRAP CLUB
Use: IRRIGATION of 3.89 ACRES
Priority Date: JUNE 18, 2007
Quantity: 0.05 CUBIC FOOT PER SECOND
Rate/Duty: The amount of water used for irrigation under this right, together with the amount secured under any other right existing for the same lands, is limited to a diversion of ONE-EIGHTIETH of one cubic foot per second and 3.0 acre-feet for each acre irrigated during the irrigation season of each year.
Period of Use: MARCH 1 THROUGH OCTOBER 31
Source: A WELL within the DRY RIVER BASIN

Authorized Point of Appropriation:

Twp	Rng	Mer	Sec	Q-Q	Measured Distances

This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-080 and OAR 690-01-005 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

Twp	Rng	Mer	Sec	Q-Q	Measured Distances
20 S	16 E	WM	5	NE SW	3660 FEET SOUTH AND 1520 FEET EAST FROM THE NW CORNER OF SECTION 5

Authorized Place of Use:

IRRIGATION					
Twp	Rng	Mer	Sec	Q-Q	Acres
20 S	16 E	WM	5	NE SW	3.89

3. Permit Amendment Application T-10973 proposes to move the authorized point of appropriation approximately 236 feet southeast from the existing point of appropriation to a well (ID #L91682) at the following location within the General Zone of Impact:

Twp	Rng	Mer	Sec	Q-Q	Measured Distances
20 S	16 E	WM	5	NE SW	3825 FEET SOUTH AND 1628 FEET EAST FROM THE NW CORNER OF SECTION 5

4. Permit Amendment Application T-10973 also proposes to change the place of use of the permit to:

IRRIGATION					
Twp	Rng	Mer	Sec	Q-Q	Acres
20 S	16 E	WM	5	NE SW	1.84
20 S	16 E	WM	5	NW SW	1.66
20 S	16 E	WM	6	NE SE	0.39
				Total	3.89

5. Notice of the application for the permit amendment was published in the Department's weekly notice on November 24, 2009, and in The Bulletin newspaper on December 15, 22 and 29, 2010, pursuant to ORS 540.520(5). No comments were filed in response to the notices.

Permit Amendment Review Criteria

6. The changes would not result in injury to other water rights.

7. The proposed place of use is owned and/or controlled by the permit holder.

8. The changes do not enlarge the permit.

9. The changes do not alter any other terms of the permit.

10. The proposed place of use is contiguous to the authorized place of use.

Conclusions of Law

The change in point of appropriation and change in place of use proposed by Permit Amendment Application T-10973 is consistent with the requirements of ORS 537.211.

Now, therefore, it is ORDERED:

The changes and subsequent use of water shall be subject to the following conditions:

1. The quantity of water diverted at the new point of appropriation, shall not exceed the quantity of water lawfully available at the original point of appropriation.

2. Measurement, recording and reporting conditions:

   A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter at each point of appropriation. The permittee shall maintain the meter in good working order.

   B. The permittee shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

   C. The permittee shall allow the Watermaster access to the meter; provided however, where any meter is located within a private structure, the Watermaster shall request access upon reasonable notice.

   D. The Director may provide an opportunity for the permittee to submit alternative measuring and reporting procedures for review and approval.

3. Water shall be acquired from the same aquifer as the original point of appropriation.

4. The former place of use shall no longer be irrigated as part of this permit.

5. All other terms and conditions of Permit G-16505 remain the same.

6. Permit G-16505, in the name of BEND TRAP CLUB, is amended as described herein.

Dated at Salem, Oregon this 31st day of January, 2011.

Dwight French for
PHILLIP C. WARD, DIRECTOR

Mailing Date: FEB 0 2 2011

STATE OF OREGON

COUNTY OF DESCHUTES

PERMIT TO APPROPRIATE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO:

BEND TRAP CLUB
PO BOX 7774
BEND OR 97708-7774

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-16873

SOURCE OF WATER: A WELL IN DRY RIVER BASIN

RATE: 0.05 CUBIC FOOT PER SECOND

DATE OF PRIORITY: JUNE 18, 2007

USE: IRRIGATION ON 3.89 ACRES

PERIOD OF USE: MARCH 1 THROUGH OCTOBER 31

Authorized Point of Diversion:

Twp	Rng	Mer	Sec	Q-Q	Measured Distances
20 S	16 E	WM	5	NE SW	3660 FEET SOUTH AND 1520 FEET EAST FROM NW CORNER, SECTION 5

Authorized Place of Use:

Twp	Rng	Mer	Sec	Q-Q	Acres
20 S	16 E	WM	5	NE SW	3.89

The amount of water used for irrigation under this right, together with the amount secured under any other right existing for the same lands, is limited to a diversion of ONE-EIGHTIETH of one cubic foot per second and 3.0 acre-feet for each acre irrigated during the irrigation season of each year.

Measurement, recording and reporting conditions:

A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter at each point of appropriation. The permittee shall maintain the meter in good working order.

B. The permittee shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

C. The permittee shall allow the watermaster access to the meter; provided however, where any meter is located within a private structure, the watermaster shall request access upon reasonable notice.

D. The Director may provide an opportunity for the permittee to submit alternative measuring and reporting procedures for review and approval.

Ground Water Mitigation Conditions:

1. Mitigation Obligation: 7.0 acre-feet of mitigation water in the General Zone of Impact.
2. Mitigation Source: 7.0 mitigation credits from Mitigation Project MP-27 (Transfer T-9824), which is a permanent instream transfer.
3. Mitigation water must be legally protected instream in the General Zone of Impact for the life of the permit and subsequent certificate(s). Regulation of the use and/or cancellation of the permit, or subsequent certificate(s) will occur if the required mitigation is not maintained.
4. The permittee shall provide additional mitigation if the Department determines that average annual consumptive use of the subject appropriation has increased beyond the originally mitigated amount.
5. If mitigation is from a secondary right for stored water from a storage project not owned or operated by the permittee, the use of water under this right is subject to the maintenance and terms and conditions of a valid contract or satisfactory replacement, with the owner/operator of the storage project, a copy of which must be on file in the records of the Water Resources Department.
6. Failure to comply with these mitigation conditions shall result in the Department regulating the ground water permit, or subsequent certificate(s), proposing to deny any permit extension application for the ground water permit, and proposing to cancel the ground water permit, or subsequent certificate(s).

Scenic Waterway Condition:

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right, or as those quantities may be reduced subsequently. However, the use of ground water allowed under the terms of this permit will not be subject to regulation for Scenic Waterway flows, provided the required mitigation is maintained.

STANDARD CONDITIONS

1. Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.
2. If the number, location, source, or construction of any well deviates from that proposed in the permit application or required by permit conditions, this permit may be cancelled, unless the Department authorizes the change in writing.
3. If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The

Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

4. The wells shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.
5. Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to such agreement.
6. Prior to receiving a certificate of water right, the permit holder shall submit to the Water Resources Department the results of a pump test meeting the Department's standards for each point of appropriation (well), unless an exemption has been obtained in writing under OAR 690-217. The Director may require water-level or pump-test data every ten years thereafter.
7. This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best-practice technologies or conservation practices to achieve this end.
8. By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged comprehensive land-use plan.
9. Completion of construction and application of the water shall be made within five years of the date of permit issuance. If beneficial use of permitted water has not been made before this date, the permittee may submit an application for extension of time, which may be approved based upon the merit of the application.
10. Within one year after making beneficial use of water, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner.

Issued JUNE 4, 2009

E. Timothy Wall

Phillip C. Ward, Director
Water Resources Department

DESC 56052

1 of 2

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WATER RESOURCES DEPT
SALEM, OREGON

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DESC56052 WELL ID # L 68435
START CARD # 82082

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

(1) OWNER: Well Number: Horse Ridge P.T.

Name: 4 R Equipment
Address: P.O. Box 5006
City: Bend State: OR Zip: 97708

(2) TYPE OF WORK: (repair)
☒ New Well ☐ Deepening ☐ Alteration (recondition) ☐ Abandonment

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

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No
Depth of Completed Well 1155'
Explosives Used ☐ Yes ☒ No Type = Amount =

Diameter	From	To	Material	SEAL From	SEAL To	Sacks or pounds
15	0	40	Cement	0	40	70 sacks
10	-40	1150	—	—	—	—
8	1150	1155	—	—	—	—

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

(6) CASING/LINER:
CASING:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
12	+1	40	.250	☒	☐	☒	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐

LINER:

8	-6	1150	.250	☒	☐	☒	☐
				☐	☐	☐	☐

Final location of Shoe(s):

(7) PERFORATIONS/SCREENS:
☒ Perforations Method: Fast Slot
☐ Screen Type: Material:

From	To	Slot Size	No.	Diameter	Tele/pipe size	Casing	Liner
990	1150	1/8x3	2360		P	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

Yield gpm	Drawdown	Drill Stem at	Time
			1 hr.
100		1050	

Temperature of water 50 Depth Artesian Flow Found =
Was a water analysis done? = By whom: =
Did any strata contain water not suitable for intended use? (explain)
=
Depth of Strata: =

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SALEM, OREGON

(9) LOCATION OF WELL by legal description:
County: Deschutes Latitude: ___ Longitude: ___
Township: 19S Range: 14E
Section: 2 SE ¼ NE ¼
Tax Lot: 1914020700 Block: ___ Subdivision: ___
Street Address of Well (or nearest address): 3 Mi. S off Hwy 20 on Old Bums Loop Rd 15425

(10) STATIC WATER LEVEL:
970 Ft. below land surface Date 3-7-04
Artesian pressure ___ lb. per sq. in. Date ___

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

From	To	Est. Flow Rate	SWL
1070	1086	20	970
1126	1128	50	970
1131	1134	25	970
1144	1147	35	970

(12) WELL LOG: Ground Elevation: ___

Material	From	To	SWL
Rubble brn	0	2	
Broken Conglomerate brn	2	23	
Basalt Lava Mix	23	32	
Basalt Med Gray	32	70	
Cinder Blk Red	70	92	
Basalt Med Gray	92	161	
Lava Gray	161	180	
Lava & Basalt Layers Blk	180	276	
Red Lava	276	310	
Lava Gray	310	320	
Lava Cinder Red Brown	320	410	
Conglomet Brown-Red-Black Volcanic	410	462	
Conglomet basalt Rubble Blk-Red	462	490	
Cinder Red Med	490	515	
Lava Gray Med Hard	515	601	
Cinder Red Med Soft	601	640	
Lava Gray Red	640	649	
Cinder Gray Red	648	702	
Lava Gray	702	740	
Cinder Red	740	774	
Basalt Black	774	807	
Lava Gray Hard	807	822	
Basalt Hard Gray Smooth	822	833	
Lava Cinder Mix Red Gray	833	844	
Basalt Hard Gray	844	893	
Lava Cinder Red Gray	893	919	
Soft Lava Cinder Rubble All Color	919	932	

Date Started: 6-1-03 Completed: 3-7-04

(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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 723
Signed ___ Date 3/20/04

(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 water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 723
Signed ___ Date 4-6-04

ORIGINAL & FIRST COPY - Water Resources Department SECOND COPY - Constructor THIRD COPY - Customer

F10 DESC 56052

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OVER THE COUNTER

MAY 10 2004
WATER RESOURCES DEPT
SALEM, OREGON

PAGE 2 OF 2

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

WELL ID # L ____
START CARD # ____

(1) OWNER:
Well Number: ____
Name: ____
Address: ____
City: ____ State: ____ Zip: ____

(2) TYPE OF WORK: (repair/
☐ New Well ☐ Deepening ☐ Alteration recondition) ☐ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other: ____

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☐ No
Depth of Completed Well ____
Explosives Used ☐ Yes ☐ No Type ____ Amount ____

HOLE Diameter	From	To	Material	SEAL From	To	sacks or pounds

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

(6) CASING/LINER:

CASING: Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
LINER:							
				☐	☐	☐	☐
				☐	☐	☐	☐

Final location of Shoe(s): ____

(7) PERFORATIONS/SCREENS:
☐ Perforations Method: ____
☐ Screen Type: ____ Material: ____

From	To	Slot Size	No.	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

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

Yield gpm	Drawdown	Drill Stem at	Time
			1 hr.

Temperature of water ____ Depth Artesian Flow Found ____
Was a water analysis done? ____ By whom: ____
Did any strata contain water not suitable for intended use? (explain)
____
Depth of Strata: ____

(9) LOCATION OF WELL by legal description:
County: ____ Latitude: ____ Longitude: ____
Township: ____ Range: ____
Section: ____ ¼ ____ ¼
Tax Lot: ____ Lot: ____ Block: ____ Subdivision: ____
Street Address of Well (or nearest address) ____
____

(10) STATIC WATER LEVEL:
____ Ft. below land surface Date ____
Artesian pressure ____ lb. per sq. in. Date ____

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

From	To	Est. Flow Rate	SWL

(12) WELL LOG: Ground Elevation: ____

Material	From	To	SWL
Lava Gray Med Hard	932	940	
Lava Cinder Conglom Red Gray	940	990	
Lava Gray Hard	990	1059	
Basalt Hard Gray	1059	1070	
Lava Cinder	1070	1086	
Basalt Very Hard Gray	1086	1104	
Rubble Loose Red brown Gray	1104	1110	
Basalt Hard Gray Smooth	1110	1116	
Rubble Red Gray	1116	1120	
Basalt Hard Gray	1120	1126	
Rubble Red	1126	1128	
Basalt Hard Red	1128	1131	
Lapse Cinder Red	1131	1135	
Basalt Hard Gray	1135	1144	
Cinder Red Broken	1144	1147	
Lava Gray Med Hard	1147	1155	
Well was Temp Capped from 6-10-03			
to 12-31-03 due to equipment Comp.			
restarted and completed in 2004			

Date Started: ____ Completed: ____

(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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number ____
Signed ____ Date 3-26-04

(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 water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 723
Signed ____ Date 3-26-04

ORIGINAL & FIRST COPY - Water Resources Department SECOND COPY - Constructor THIRD COPY - Customer

STATE OF OREGON

COUNTY OF DESCHUTES

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

4-R EQUIPMENT
PO BOX 5006
BEND, OR 97708

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-16403

SOURCE OF WATER: WELL 1 IN DRY RIVER BASIN

PURPOSE OR USE: INDUSTRIAL USE (GRAVEL MINING)

MAXIMUM RATE: 1.0 CUBIC FOOT PER SECOND, FURTHER LIMITED TO 6.0 ACRE FEET PER YEAR

PERIOD OF USE: YEAR ROUND

DATE OF PRIORITY: MARCH 7, 2005

WELL LOCATION: SE ¼ SW ¼, SECTION 30, T19S, R15E, W.M.; 600 FEET NORTH & 1400 FEET EAST FROM SW CORNER, SECTION 30

THE PLACE OF USE IS LOCATED AS FOLLOWS:

SW ¼ SW ¼
SE ¼ SW ¼
SECTION 30
TOWNSHIP 19 SOUTH, RANGE 15 EAST, W.M.

Measurement, recording and reporting conditions:

A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter or other suitable measuring device as approved by the Director at each point of appropriation. The permittee shall maintain the meter or measuring device in good working order, shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced. However, the use of ground water allowed under the terms of this permit will not be subject to regulation for Scenic Waterway flows so long as mitigation as required herein is maintained.

To monitor the effect of water use from the well(s) authorized under this permit, the Department requires the water user to obtain, from a qualified individual (see below), and submit annual static water level measurements. The static water level shall be measured in the month of March. Reports shall be submitted to the Department within 30 days of measurement.

Measurements must be made according to the following schedule:

Before Use of Water Takes Place
Initial and Annual Measurements
The Department requires the permittee to submit an initial water level measurement in the month specified above once well construction is complete and annually thereafter until use of water begins; and

After Use of Water has Begun
Seven Consecutive Annual Measurements
Following the first year of water use, the user shall submit seven consecutive annual reports of static water level measurements. The first of these seven annual measurements will establish the reference level against which future annual measurements will be compared. Based on an analysis of the data collected, the Director may require that the user obtain and report additional annual static water level measurements beyond the seven year minimum reporting period. The additional measurements may be required in a different month. If the measurement requirement is stopped, the Director may restart it at any time.

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 and be submitted to the Department on forms provided by the Department. The Department requires the individual performing the measurement to:

A. Identify each well with its associated measurement; and
B. Measure and report water levels to the nearest tenth of a foot as depth-to-water below ground surface; and
C. Specify the method used to obtain each well measurement; and
D. Certify the accuracy of all measurements and calculations submitted 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 non-use or restricted use shall continue until the water level rises above the decline level which triggered the action or until 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 senior water rights. The water user shall in no instance 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.

GROUND WATER MITIGATION CONDITIONS

Mitigation Obligation:	4.2 acre-feet annually in the General Zone of Impact, located in the Deschutes River Basin above the Madras gage, which is located below Lake Billy Chinook.
Mitigation Source:	4.2 Mitigation Credits originating from Mitigation Project MP-#27, which is a permanent instream transfer that meets the requirements of OAR 690-505-0610(2)-(5), within the General Zone of Impact.

Mitigation water must be legally protected instream for instream use within the General Zone of Impact and committed for the life of the permit and subsequent certificate(s). Regulation of the use and/or cancellation of the permit, or subsequent certificate(s), will occur if the required mitigation is not maintained.

The permittee shall provide additional mitigation if the Department determines that average annual consumptive use of the subject appropriation has increased beyond the originally mitigated amount.

If mitigation is from a secondary right for stored water from a storage project not owned or operated by the permittee the use of water under this right is subject to the terms and conditions of a valid contract, a copy of which must be on file in the records of the Water Resources Department prior to use of water.

Failure to comply with these mitigation conditions shall result in the Department regulating the ground water permit, or subsequent certificate(s), proposing to deny any permit extension application for the ground water permit, and proposing to cancel the ground water permit, or subsequent certificate(s).

STANDARD CONDITIONS

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

The wells shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.

Prior to receiving a certificate of water right, the permit holder shall submit the results of a pump test meeting the department's standards, to the Water Resources Department. The Director may require water level or pump test results every ten years thereafter.

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

The use of water shall be limited when it interferes with any prior surface or ground water rights.

Complete application of the water to the use shall be made on or before October 1, 2012. If the water is not completely applied before this date, and the permittee wishes to continue development under the permit, the permittee must submit an application for extension of time, which may be approved based upon the merit of the application.

Within one year after complete application of water to the proposed use, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner (CWRE).

Issued November 1, 2007

E. Timothy Ward

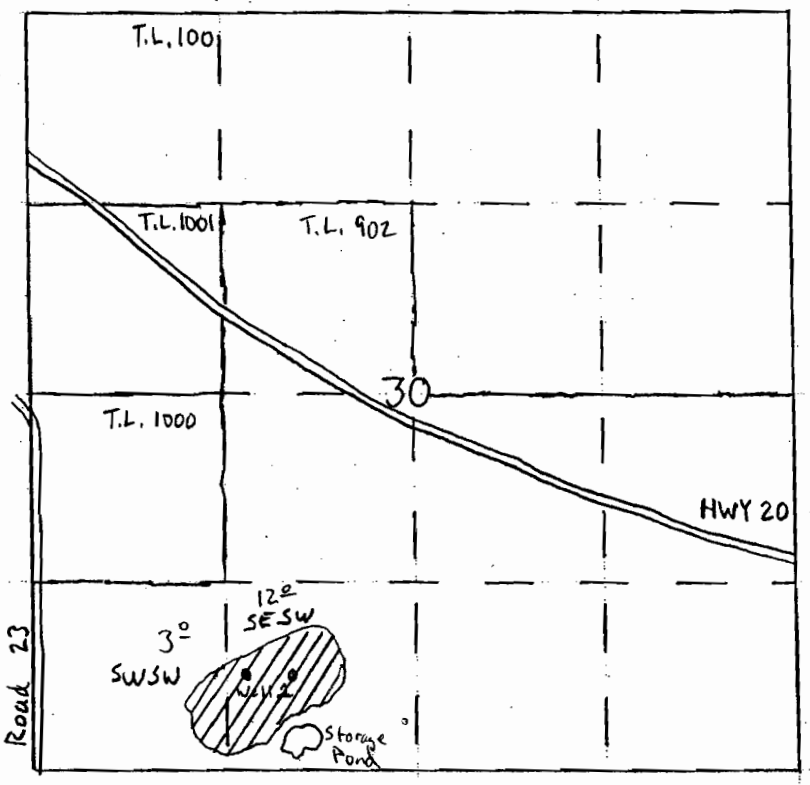
for Phillip C. Ward, Director
Water Resources Department

RECEIVED
MAR 07 2005
WATER RESOURCES DEPT
SALEM, OREGON

GROUNDWATER APPLICATION FOR JACK ROBINSON & SONS

TOWNSHIP 19 SOUTH RANGE 15 EAST SECTION 30

RECEIVED
FEB 24 2005
WATER RESOURCES DEPT
SALEM, OREGON



SCALE: 1" = 1320'

Well #1 = 1400' East & 600' North of the SW 1/4 of Section 30, Township 19 South Range 15 East, W.M.

▨ = Industrial P.O.U.

app # G 16403

Oregon Water Resources Department
Water Right Services Division

Application for Extension of Time

In the Matter of the Application for an Extension of Time for Permit G-16243, Water Right Application G-16403 in the name of 4-R Equipment	)))	PROPOSED FINAL ORDER

Permit Information

Application File G-16403 Permit G-16243
Basin: 5 – Deschutes / Watermaster District 11
Date of Priority: March 7, 2005

Authorized Use of Water
Source of Water: Well 1 in Dry River Basin
Purpose of Use: Industrial Use (Gravel Mining)
Maximum Rate: 1.0 cubic foot per second (cfs), further limited to 6.0 acre feet (AF) per year

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This Extension of Time request is being processed in accordance with Oregon Revised Statute 537.630 and 539.010(5), and Oregon Administrative Rule Chapter 690, Division 315

Please read this Proposed Final Order in its entirety as it contains additional conditions not included in the original permit.

This Proposed Final Order applies only to Permit G-16243, water right Application G-16403.
A copy of Permit G-16243 is enclosed as Attachment 1.

Summary of Proposed Final Order for Extension of Time

The Department proposes to:

- Grant an extension of time for complete construction of the water system and time to apply water to full beneficial use from October 1, 2012 to October 1, 2022.
- Make the extension subject to certain conditions set forth below.

ACRONYM QUICK REFERENCE

Department – Oregon Department of Water Resources
PFO – Proposed Final Order

Units of Measure
cfs – cubic feet per second
gpm – gallons per minute

AUTHORITY

Generally, see ORS 537.630 and OAR Chapter 690 Division 315.

ORS 537.630(1) provide in pertinent part that the Oregon Water Resources Department (Department) may, for good cause shown, order an extension of time within which: irrigation or other works shall be completed; the well or other means of developing and securing ground water shall be completed; or the right perfected. In determining the extension, the Department shall give due weight to the considerations described under ORS 539.010(5) and to whether other governmental requirements relating to the project have significantly delayed completion of construction or perfection of the right.

ORS 539.010(5) provides in pertinent part that the Water Resources Director, for good cause shown, may extend the time within which the full amount of the water appropriated shall be applied to a beneficial use. This statute instructs the Director to consider: the cost of the appropriation and application of the water to a beneficial purpose; the good faith of the appropriator; the market for water or power to be supplied; the present demands therefore; and the income or use that may be required to provide fair and reasonable returns upon the investment.

OAR 690-315-0040 provides in pertinent part that the Water Resources Department shall make findings to determine if an extension of time may be approved to complete construction and/or apply water to full beneficial use.

OAR 690-315-0050(5) states that extension orders may include, but are not limited to, any condition or provision needed to: ensure future diligence; mitigate the effects of the subsequent development on competing demands on the resource; and periodically document the continued need for the permit.

OAR 690-315-0050(6) requires the Department, for extensions exceeding five years, to establish checkpoints to determine if diligence is being exercised in the development and perfection of the water use permit. Intervals between checkpoints will not exceed five year periods.

FINDINGS OF FACT

Background

1. Permit G-16243 was granted by the Department on November 1, 2007. The permit authorizes the use of up to 1.0 cfs, further limited to 6.0 AF per year of water from Well 1 in Dry River Basin for industrial use (gravel mining). The permit specified construction of the water system and complete application of water was to be made on or before October 1, 2012.

2. The permit holder submitted an "Application for Extension of Time" to the Department on September 17, 2012 requesting the time to complete construction of the water system and the time to apply water to full beneficial use under the terms and conditions of Permit G-16243 be extended from October 1, 2012 to October 1, 2022. This is the first permit extension requested for Permit G-16243.

3. Notification of the Application for Extension of Time for Permit G-16243 was published in the Department's Public Notice dated September 25, 2012. No public comments were received regarding the extension application.

Review Criteria *[OAR 690-315-0040]*
The time limits to complete construction and/or apply water to full beneficial use may be extended if the Department finds that the permit holder has met the requirements set forth under OAR 690-315-0040. This determination shall consider the applicable requirements of ORS 537.230[1], 537.248[2], 537.630[3] and/or 539.010(5)[4].

Complete Extension of Time Application *[OAR 690-315-0040(1)(a)]*

4. On September 17, 2012, the Department received a completed Application for Extension of Time and the fee specified in ORS 536.050 from the permit holder.

Start of Construction *[OAR 690-315-0040(1)(b) and 690-315-0040(5)]*

5. Senate Bill 300 (1999 legislation) eliminated the requirement that holders of new surface water and ground water permits start construction on water projects within one year after the Department issues the permit. Senate Bill 300 applies to any application for a permit filed after October 23, 1999, including this application.

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[1]ORS 537.230 applies to surface water permits only.
[2]ORS 537.248 applies to reservoir permits only.
[3]ORS 537.630 applies to ground water permits only.
[4]ORS 539.010(5) applies to surface water and ground water permits.

Duration of Extension *[OAR 690-315-0040(1)(c)]*

Under OAR 690-315-0040(1)(c), in order to approve an extension of time for water use permits the Department must find that the time requested is reasonable and the applicant can complete the project within the time requested.

6. As of September 17, 2012, the remaining work to be completed consists of completing construction of the water system and applying water to full beneficial use.

7. Given the amount of development left to occur, the Department has determined that the permit holder's request to have until October 1, 2022, to complete construction of the water system and to accomplish the application of water to beneficial use under the terms and conditions of Permit G-16243 is both reasonable and necessary.

Good Cause *[OAR 690-315-0040(1)(d)]*

The Department's determination of good cause shall consider the requirements set forth under OAR 690-315-0040(2).

Reasonable Diligence of the Appropriator *[OAR 690-315-0040(2)(a)]*

The Department's determination of reasonable diligence shall consider the requirements set forth under OAR 690-315-0040(3)(a-d). In accordance with OAR 690-315-0040(3), the Department shall consider, but is not limited to, the following factors when determining whether the applicant has demonstrated reasonable diligence in previous performance under the permit:

Amount of Construction *[OAR 690-315-0040(3)(a)]*

8. Work was accomplished within the time allowed in the permit or previous extension as follows:

   a. Construction of the well was not completed prior to October 1, 2012.

Beneficial Use of Water *[OAR 690-315-0040(3)(b)]*

9. The following beneficial use of water was made during the permit or previous extension time limits:

   a. Since the issuance of Permit G-16243 on November 1, 2007, no water has been appropriated from the well for commercial use (gravel mining).

   b. Delay of full beneficial use of water under Permit G-16243 was due, in part, to legal issues which the permit holder must address prior to beginning construction or use of water as authorized under Permit G-16243.

Compliance with Conditions *[OAR 690-315-0040(3)(c)]*

10. The water right permit holder's conformance with the permit or previous extension conditions.

   a. The Department has considered the permit holder's compliance with conditions, including mitigation requirements, and did not identify any concerns.

Financial Investments *[OAR 690-315-0040(3)(d)]*

11. Financial investments made toward developing the beneficial water use.

    a. As of September 17, 2012, the permit holder has invested approximately $121,000, which is approximately 38 percent of the total projected cost for complete development of this project.

Cost to Appropriate and Apply Water to a Beneficial Purpose *[OAR 690-315-0040(2)(b)]*

12. The permit holder anticipates an additional $200,000 investment is needed for the completion of this project.

Good Faith of the Appropriator *[OAR 690-315-0040(2)(c)]*

13. The Department has found good faith of the appropriator under Permit G-16243.

The Market and Present Demands for Water *[OAR 690-315-0040(2)(d-e)]*

The Department's determinations of market and present demand for water or power to be supplied shall consider the requirements set forth under OAR 690-315-0040(4)(a-f). In accordance with OAR 690-315-0040(4), the Department shall consider, but is not limited to, the following factors when determining the market and the present demand for water or power to be supplied:

14. The amount of water available to satisfy other affected water rights and scenic waterway flows; special water use designations established since permit issuance, including but not limited to state scenic waterways, federal wild and scenic rivers, serious water management problem areas or water quality limited sources established under 33 U.S.C. 1313(d); or the habitat needs of sensitive, threatened or endangered species, in consultation with the Oregon Department of Fish and Wildlife *[OAR 690-315-0040(4)(a-c)]*.

    a. The amount of water available to satisfy other affected water rights and scenic waterway flows was determined at the time of issuance of Permit G-16243; furthermore, water availability for other affected water rights and scenic waterway flows after the permit was issued is determined at such time that such application for a new water right is submitted. The point of appropriation for Permit G-16243, located within the Dry River Basin Basin, is not located within a limited or critical ground water area. Dry River Basin is located within or above any state or federal scenic waterway, however it is located within an area ranked "moderate" for stream flow restoration needs as determined by the Department in consultation with the Oregon Department of Fish and Wildlife, and is located within a Sensitive, Threatened or Endangered Fish Species Area as identified by the Department in consultation with Oregon Department of Fish and Wildlife. Dry River Basin is not listed by the Department of Environmental Quality as a water quality limited stream.

15. Economic investment in the project to date *[OAR 690-315-0040(4)(d)]*.

    a. As of September 17, 2012, the permit holder has invested approximately $121,000.

16. Other economic interests dependent on completion of the project *[OAR 690-315-0040(4)(e)]*.

    a. None have been identified.

17. Other factors relevant to the determination of the market and present demand for water and power *[OAR 690-315-0040(4)(f)]*.

    a. None have been identified.

18. OAR 690-315-0050(6) requires the Department to place a checkpoint condition on this extension of time in order to ensure diligence is exercised in the development and perfection of the water use permit. A "Checkpoint Condition" is specified under Item 1 of the "Conditions" section of this PFO to meet this condition.

Fair Return Upon Investment *[OAR 690-315-0040(2)(f)]*

19. Use and income from the permitted water development will likely result in reasonable returns upon the investment made to date.

Other Governmental Requirements *[OAR 690-315-0040(2)(g)]*

20. Delay in the development of this project was not caused by any other governmental requirements.

Unforeseen Events *[OAR 690-315-0040(2)(h)]*

21. Unforeseen events extended the length of time needed to fully develop and perfect Permit G-16243, in that the permit holders were faced with legal issues that restricted their ability to complete development of the project in a timely manner.

CONCLUSIONS OF LAW

1. The applicant is entitled to apply for an extension of time to complete construction and/or completely apply water to the full beneficial use pursuant to ORS 537.630(1).

2. The applicant has submitted a complete extension application form and the fee specified in ORS 536.050, as required by OAR 690-315-0040(1)(a).

3. The applicant complied with begin actual construction timeline requirements pursuant to ORS 537.630 as required by OAR 690-315-0040(1)(b) and OAR 690-315-0040(5).

4. Completion of construction and full application of water to beneficial use can be accomplished by October 1, [5], as required by OAR 690-315-0040(1)(c).

5. The Department has considered the reasonable diligence and good faith of the appropriator, the cost to appropriate and apply water to a beneficial purpose, the market and present demands for water to be supplied, the financial investment made and fair and reasonable return upon the investment, the requirements of other governmental agencies, and unforeseen events over which the permit holder had no control, whether denial of the extension will result in undue hardship to the applicant and whether there are no other reasonable alternatives for meeting water use needs, any other factors relevant to a determination of good cause, and has determined that the applicant has shown that good cause exists for an extension of time to apply water to full beneficial use pursuant to OAR 690-315-0040(1)(d).

6. As required by OAR 690-315-0050(6) and as described in Finding 18 above, the Department has established, as specified in the "Conditions" section of this PFO (Item1), progress checkpoints in order to ensure future diligence is exercised in the development and perfection of Permit G-16243.

Proposed Order

Based upon the foregoing Findings of Fact and Conclusions of Law, the Department proposes to issue an order to:

> Extend the time for complete construction of the water system and the time to apply water to beneficial use under Permit G-16243 from October 1, 2012 to October 1, 2022.

Subject to the following conditions:

CONDITIONS

1. **Checkpoint Condition**
The permit holder must submit a completed Progress Report Form to the Department by **October 1, 2018.** ***A form will be enclosed with your Final Order.***

   (a) At each checkpoint, the permit holder shall submit and the Department shall review evidence of the permit holder's diligence towards completion of the

[5] Pursuant to ORS 537.630(4), upon the completion of beneficial use of water allowed under the permit, the permittee shall hire a certified water rights examiner to survey the appropriation. Within one year after the complete application of water to a beneficial use (or by the date allowed for the complete application of water to a beneficial use), the permittee shall submit a map of the survey and a new or revised claim of beneficial use as deemed appropriate by the Department.

project and compliance with terms and conditions of the permit and extension. If, after this review, the Department determines the permit holder has not been diligent in developing and perfecting the water use permit, or complied with all terms and conditions, the Department shall modify or further condition the permit or extension to ensure future compliance, or begin cancellation proceedings on the undeveloped portion of the permit pursuant to ORS 537.260 or 537.410, or require submission of a final proof survey pursuant to ORS 537.250;

(b) The Department shall provide notice of receipt of progress reports in its weekly notice and shall allow a 30 day comment period for each report. The Department shall provide notice of its determination to anyone who submitted comments.

DATED: July 23, 2013

Dwight French, Water Right Services Administrator

If you have any questions, please check the information box on the last page for the appropriate names and phone numbers.

Proposed Final Order Hearing Rights

1. Under the provisions of OAR 690-315-0100(1) and 690-315-0060, the applicant or any other person adversely affected or aggrieved by the proposed final order may submit a written protest to the proposed final order. The written protest must be received by the Water Resources Department no later than **September 6, 2013,** being 45 days from the date of publication of the proposed final order in the Department's weekly notice.

2. A written protest shall include:
   a. The name, address and telephone number of the petitioner;
   b. A description of the petitioner's interest in the proposed final order and if the protestant claims to represent the public interest, a precise statement of the public interest represented;
   c. A detailed description of how the action proposed in the proposed final order would adversely affect or aggrieve the petitioner's interest;
   d. A detailed description of how the proposed final order is in error or deficient and how to correct the alleged error or deficiency;
   e. Any citation of legal authority supporting the petitioner, if known;
   f. Proof of service of the protest upon the water right permit holder, if petitioner is other than the water right permit holder; and
   g. The applicant or non-applicant protest fee required under ORS 536.050.

3. Within 60 days after the close of the period for requesting a contested case hearing, the Director shall:
   a. Issue a final order on the extension request; or
   b. Schedule a contested case hearing if a protest has been submitted, and:
      1) Upon review of the issues, the Director finds there are significant disputes related to the proposed agency action; or
      2) The applicant submits a written request for a contested case hearing within 30 days after the close of the period for submitting protests.

- If you have any questions about statements contained in this document, please contact Michele McAleer at (503) 986-0825.
- If you have questions about how to file a protest or if you have previously filed a protest and you want to know the status, please contact Patricia McCarty at 503-986-0819.
- If you have any questions about the Department or any of its programs, please contact our Water Resources Customer Service Group at 503-986-0801.
- Address any correspondence to : Water Right Services Division
  725 Summer St NE, Suite A
  Fax: 503-986-0901 Salem, OR 97301-1266

Oregon Water Resources Department
Water Right Services Division

Water Rights Application
Number G-16403

Final Order
Extension of Time for Permit Number G-16243
Permit Holder: 4-R Equipment

Permit Information
Application File G-16403 Permit G-16243
Basin: 5 – Deschutes / Watermaster District 11
Date of Priority: March 7, 2005

Authorized Use of Water
Source of Water: Well 1 in Dry River Basin
Purpose of Use: Industrial Use (Gravel Mining)
Maximum Rate: 1.0 Cubic Foot per Second (cfs), further limited to 6.0 acre feet (AF) per year

This Extension of Time request is being processed in accordance with Oregon Revised Statute 537.630 and 539.010(5), and Oregon Administrative Rule Chapter 690, Division 315

Application History

Permit G-16243 was issued by the Department on November 1, 2007. The permit called for completion of construction and complete application of water to beneficial use by October 1, October 1, 2012. On September 17, 2012, 4-R Equipment submitted to the Department an Application for Extension of Time for Permit G-16243. In accordance with OAR 690-315-0050(2), on July 23, 2013, the Department issued a Proposed Final Order proposing to extend the time to complete construction and the time to fully apply water to beneficial use to October 1, 2022. The protest period closed September 6, 2013, in accordance with OAR 690-315-0060(1). No protest was filed.

Appeal Rights
This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. A request for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either file for judicial review, or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

Findings of Fact

The Department adopts and incorporates by reference the findings of fact in the Proposed Final Order dated July 23, 2013.

At time of issuance of the Proposed Final Order the Department concluded that, based on the factors demonstrated by the applicant, any comments received, and information within the file, the permit may be extended subject to the following conditions:

CONDITIONS

1. **Checkpoint Condition**

The permit holder must submit a completed Progress Report Form to the Department by **October 1, 2018.** ***A form will be enclosed with your Final Order.***

(a) At each checkpoint, the permit holder shall submit and the Department shall review evidence of the permit holder's diligence towards completion of the project and compliance with terms and conditions of the permit and extension. If, after this review, the Department determines the permit holder has not been diligent in developing and perfecting the water use permit, or complied with all terms and conditions, the Department shall modify or further condition the permit or extension to ensure future compliance, or begin cancellation proceedings on the undeveloped portion of the permit pursuant to ORS 537.260 or 537.410, or require submission of a final proof survey pursuant to ORS 537.250;

(b) The Department shall provide notice of receipt of progress reports in its weekly notice and shall allow a 30 day comment period for each report. The Department shall provide notice of its determination to anyone who submitted comments.

CONCLUSION OF LAW

The applicant has demonstrated good cause for the permit extension pursuant to ORS 537.630, 539.010(5) and OAR 690-315-0040(2).

Order

The extension of time for Application G-16403, Permit G-16243, therefore, is approved subject to conditions contained herein. The deadline for completing and for applying water to full beneficial use within the terms and conditions of the permit is extended from October 2012 to October 1, 2022.

DATED: September 20, 2013

Dwight W. French, Administrator
Water Right Services Division
for PHILLIP C. WARD, DIRECTOR

- If you have any questions about statements contained in this document, please contact Michele McAleer at (503) 986-0825.

- If you have other questions about the Department or any of its programs, please contact our Water Resources Customer Service Group at (503) 986-0900

Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301-1266
(503) 986-0900
www.wrd.state.or.us

Extension of Time
Progress Report Form
For Checkpoints

TO THE DIRECTOR OF THE OREGON WATER RESOURCES DEPARTMENT

Permit Holder: 4-R Equipment

Application G-16403
Permit G-16243

Report Due no later than October 1, 2018
DO NOT SUBMIT PRIOR TO 30 DAYS BEFORE DUE DATE

Progress Report Form for 2018

As authorized in ORS 690-315-0050(6), this progress report is required in order to ensure diligence is exercised in the development and perfections of Permit G-16243. **FAILURE TO SUBMIT THIS REPORT WILL MOST LIKELY RESULT IN ANY FUTURE EXTENSION BEING DENIED.**

INSERT DATES	LIST ALL WORK ACCOMPLISHED and FINANCIAL INVESTMENTS For the period of time between October 1, 2012 and October 1, 2018	FINANCIAL INVESTMENT

2. Compliance with terms and conditions of the permit and/or previous extension.

3. Total number of acres irrigated to date= _____ *(if applicable)*

4. Provide the maximum rate, or duty if applicable, of water diverted for beneficial use under this permit, if any, made to date.

Maximum rate used to date = _____cfs (cubic feet per second), or

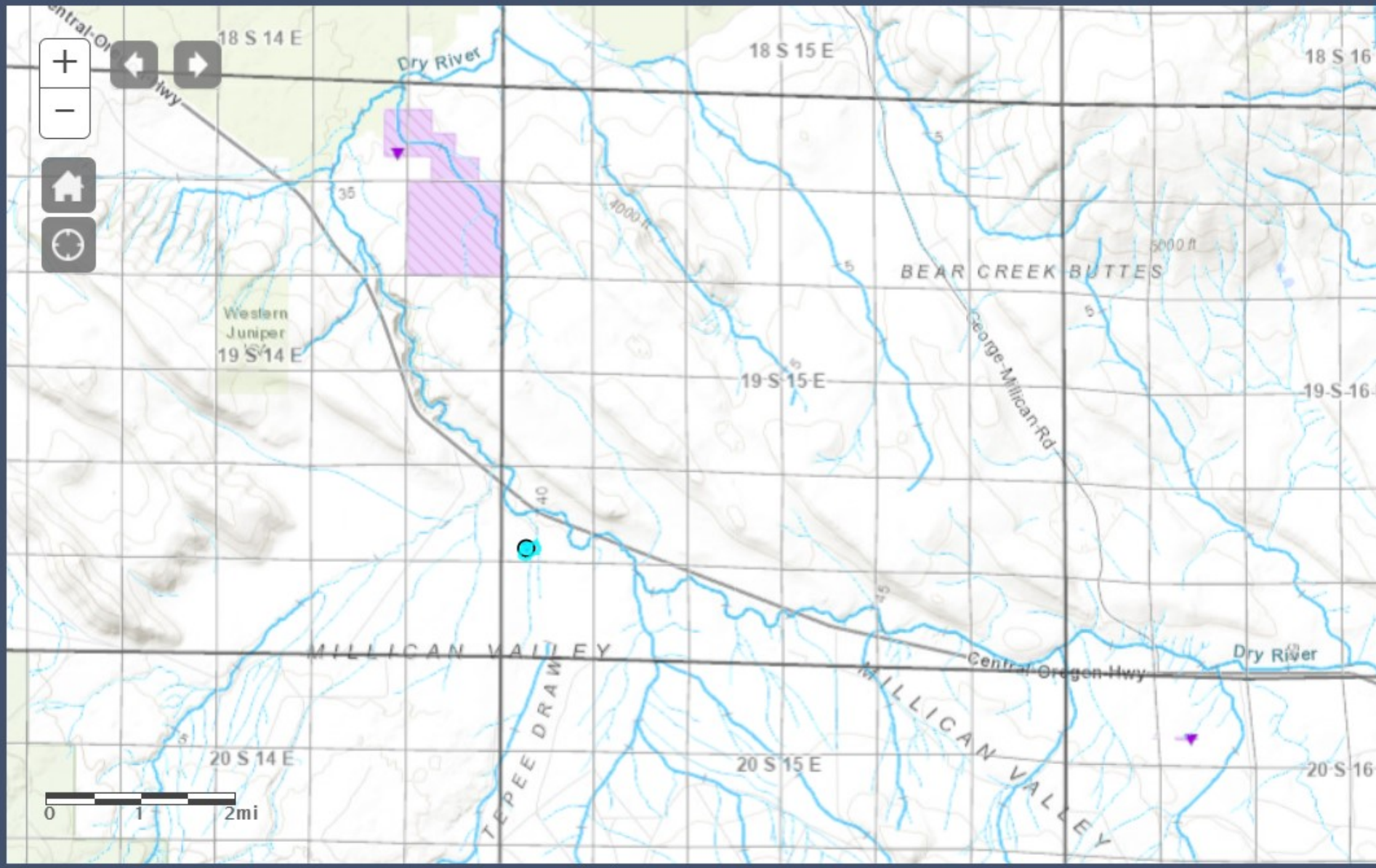
Maximum rate used to date = _____gpm (gallons per minute), or

Acre Feet stored to date = _____AF

Report the rate in the same units of measurement as specified in the permit, being cfs (cubic feet per second), gpm (gallons per minute) or AF (acre-feet). ***Do not provide daily, monthly or annual water volume totals.***

INCOMPLETE REORTS WILL BE RETURNED. AN ANSWER IS REQUIRED IN EACH ITEM. USE N/A FOR ITEM 3 IF THE USE IS NOT IRRIGATION.

Signature_____ Date_____



ght	Water Type	First Name	Last Name	Company	Use Desc.	Priority Date	Supp.	Duty	Rate cfs
G 16243 * IM	GW			4-R EQUIPMENT	INDUSTRIAL/MANUFACTURING ...	03/07/2005	-		1

STATE OF OREGON

COUNTY OF DESCHUTES

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

KENNETH BURBANK
FRED CRAMER
2101 MAIN ST
BAKER CITY, OR 97814

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-17065

SOURCE OF WATER: WELL 1, WELL 2, WELL 3, AND WELL 4 IN DRY RIVER BASIN

PURPOSE OR USE: IRRIGATION OF 320.0 ACRES

MAXIMUM RATE: 2.67 CUBIC FEET PER SECOND (CFS), FURTHER LIMITED TO 1.34 CFS FROM EACH WELL

PERIOD OF USE: MARCH 1 THROUGH OCTOBER 31

DATE OF PRIORITY: JUNE 5, 2008

WELL LOCATIONS:

WELL 1 - SW ¼ NW ¼, SECTION 19, T20S, R17E, W.M.; 3211 FEET NORTH AND 635 FEET EAST FROM SW CORNER, SECTION 19

WELL 2 - SW ¼ SW ¼, SECTION 19, T20S, R17E, W.M.; 627 FEET NORTH AND 620 FEET EAST FROM SW CORNER, SECTION 19

WELL 3 - SW ¼ NW ¼, SECTION 30, T20S, R17E, W.M.; 1996 FEET SOUTH AND 628 FEET EAST FROM NW CORNER, SECTION 30

WELL 4 - SW ¼ SW ¼, SECTION 30, T20S, R17E, W.M.; 671 FEET NORTH AND 624 FEET EAST FROM SW CORNER, SECTION 30

The amount of water used for irrigation under this right, together with the amount secured under any other right existing for the same lands, is limited to a diversion of ONE-EIGHTIETH of one cubic foot per second and 3.0 acre-feet for each acre irrigated during the irrigation season of each year.

THE PLACE OF USE IS LOCATED AS FOLLOWS:

SW ¼ NE ¼ 1.56 ACRES
SE ¼ NE ¼ 1.56 ACRES
NE ¼ SE ¼ 38.0 ACRES
NW ¼ SE ¼ 40.0 ACRES
SW ¼ SE ¼ 40.0 ACRES
SE ¼ SE ¼ 38.88 ACRES
SECTION 23

SW ¼ NE ¼ 27.82 ACRES
SE ¼ NE ¼ 1.12 ACRES
SW ¼ NW ¼ 1.11 ACRES
SE ¼ NW ¼ 27.79 ACRES
NE ¼ SW ¼ 38.15 ACRES
NW ¼ SW ¼ 4.36 ACRES
SE ¼ SW ¼ 8.61 ACRES
NE ¼ SE ¼ 4.34 ACRES
NW ¼ SE ¼ 38.19 ACRES
SW ¼ SE ¼ 8.51 ACRES
SECTION 25
TOWNSHIP 20 SOUTH, RANGE 16 EAST, W.M.

Measurement, recording and reporting conditions:

A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter or other suitable measuring device as approved by the Director at each point of appropriation. The permittee shall maintain the meter or measuring device in good working order.

B. The permittee shall keep a complete record of the amount of water used each month, and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

C. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where any meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

D. The Director may provide an opportunity for the permittee to submit alternative measuring and reporting procedures for review and approval.

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.

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.

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 March. Reports shall be submitted to the Department within 30 days of measurement.

The permittee shall report an initial March 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.

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 from each well required (as described above) shall be measured through the measuring tube(s).

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. All data collection shall be supervised by a registered professional geologist.

At least one long-term aquifer test shall be conducted to examine interference with nearby wells, aquifer boundaries, the ability of the wells to supply the requested amount, and aquifer properties. A data collection plan shall be submitted to the Department for approval prior to the commencement of any aquifer test. The test shall be conducted at a constant rate for a minimum of 72 hours. Water-level drawdown and recovery measurements shall be made in the pumped well and in at least one additional well, if available. The aquifer test shall be completed no later than six months after the first well is drilled. All data collection related to the aquifer test shall be supervised by a registered professional geologist.

STANDARD CONDITIONS

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

If the number, location, source, or construction of any well deviates from that proposed in the permit application or required by permit conditions, this permit may be subject to cancellation, unless the Department authorizes the change in writing.

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

The well(s) shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.

If the riparian area is disturbed in the process of developing a point of appropriation, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with ODFW's Fish and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.

The use may be restricted if the quality of downstream waters decreases to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.

Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to such agreement.

Prior to receiving a certificate of water right, the permit holder shall submit to the Water Resources Department the results of a pump test meeting the Department's standards for each point of appropriation (well), unless an exemption has been obtained in writing under OAR 690-217. The Director may require water-level or pump-test data every ten years thereafter.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

Completion of construction and application of the water shall be made within five years of the date of permit issuance. If beneficial use of permitted water has not been made before this date, the permittee may submit an application for extension of time, which may be approved based upon the merit of the application.

Within one year after making beneficial use of water, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner.

Issued June 10, 2010

E. Timothy Wall.

for Phillip C. Ward, Director
Water Resources Department

App G-17065

WATER RIGHTS APPLICATION MAP

PLACE OF USE

In Tax Lot 2400, Located in
SW¼ - NE¼ & SE¼ - NE¼
SE¼ of Section 23, T.20S., R.16E., W.M.
In Tax Lot 2400, Located in
SE¼ - NE¼ & SW¼ - NE¼ & NE¼ - SE¼
SW¼ - SE¼ & NW¼ - SE¼ & NE¼ - SW¼
SE¼ - SW¼ & NW¼ - SW¼ & SE¼ - NW¼
& SW¼ - NW¼ of Section 25
T.20S., R.16E., W.M.
Deschutes County, Oregon

WELL LOCATIONS

In Tax Lot 1400, Located in
SW¼ - NW¼ & SW¼ - SW¼
of Section 19, T.20S., R.17E., W.M.
Located in SW¼ - NW¼ & SW¼ - SW¼
of Section 30, T.20S., R.17E., W.M.
Deschutes County, Oregon

NOTES

1. This map was prepared for the purpose of identifying the location of water rights only and is not intended to provide legal dimensions or locations of property ownership lines.

LEGEND

- Gravel Road
- Tax Lot Boundary Line
- (TL #2400) Tax Lot ID Number
- #1 Approximate Location and Identification of Well
- Place of Use
- Boundary of Deschutes Basin Groundwater Study Area
- Denotes Study Area Side of Boundary Line

Certified Water Rights Examiner
419 WRE
DAVID J. NEWTON
JAN. 16, 1996
STATE OF OREGON

0' 1,320' 2,640'
SCALE: 1" = 1,320'

Water Rights Application Map (Revised)
Kenneth Burbank & Fred Cramer
Water Rights Permit Application
Deschutes County, Oregon

FIGURE 2a
PROJECT NO. 1073-101
DATE: OCT 2009
DRAWN BY: S.Schenck
DESIGNED BY: K.Turner

NEWTON CONSULTANTS INC.
Earth, Water and Rock Specialists
Ph: 541 504-9960 Fax: 541 504-9961

RECEIVED
OCT 13 2009
WATER RESOURCES DEPT
SALEM, OREGON

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STATE OF OREGON

COUNTY OF DESCHUTES

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

KENNETH BURBANK
2101 MAIN ST
BAKER CITY, OR 97814

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-18147

SOURCE OF WATER: WELL 1, WELL 2, WELL 3, AND WELL 4 IN DRY RIVER BASIN

PURPOSE OR USE: IRRIGATION OF 320.0 ACRES

MAXIMUM RATE/VOLUME: 2.67 CFS

PERIOD OF USE: MARCH 1 THROUGH OCTOBER 31

DATE OF PRIORITY: OCTOBER 13, 2015

WELL LOCATIONS:

WELL 1: SW ¼ NW ¼ SECTION 19, T20S, R17E, W.M.; 3211 FEET NORTH AND 635 FEET EAST FROM SW CORNER, SECTION 19

WELL 2: SW ¼ SW ¼ SECTION 19, T20S, R17E, W.M.; 627 FEET NORTH AND 620 FEET EAST FROM SW CORNER, SECTION 19

WELL 3: SW ¼ NW ¼ SECTION 30, T20S, R17E, W.M.; 1996 FEET SOUTH AND 628 FEET EAST FROM NW CORNER, SECTION 30

WELL 4: SW ¼ SW ¼ SECTION 30, T20S, R17E, W.M.; 671 FEET NORTH AND 624 FEET EAST FROM SW CORNER, SECTION 30

The amount of water used for irrigation under this right, together with the amount secured under any other right existing for the same lands, is limited to a diversion of ONE-EIGHTIETH of one cubic foot per second and 3.0 acre-feet for each acre irrigated during the irrigation season of each year.

THE PLACE OF USE IS LOCATED AS FOLLOWS:

SW ¼ NE ¼ 1.56 ACRES
SE ¼ NE ¼ 1.56 ACRES
NE ¼ SE ¼ 38.00 ACRES
NW ¼ SE ¼ 40.00 ACRES
SW ¼ SE ¼ 40.00 ACRES
SE ¼ SE ¼ 38.88 ACRES
SECTION 23

SW ¼ NE ¼ 27.82 ACRES
SE ¼ NE ¼ 1.12 ACRES
SW ¼ NW ¼ 1.11 ACRES
SE ¼ NW ¼ 27.79 ACRES
NE ¼ SW ¼ 38.15 ACRES
NW ¼ SW ¼ 4.36 ACRES
SE ¼ SW ¼ 8.61 ACRES
NE ¼ SE ¼ 4.34 ACRES
NW ¼ SE ¼ 38.19 ACRES
SW ¼ SE ¼ 8.51 ACRES
SECTION 25
TOWNSHIP 20 SOUTH, RANGE 16 EAST, W.M.

Measurement devices, and recording/reporting of annual water use conditions:

A. Before water use may begin under this permit, the permittee shall install a totalizing flow meter at each point of appropriation. The permittee shall maintain the device in good working order.

B. The permittee shall allow the watermaster access to the device; provided however, where any device is located within a private structure, the watermaster shall request access upon reasonable notice.

C. The permittee shall keep a complete record of the volume of water diverted each month, and shall submit a report which includes water-use measurements to the Department annually, or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water-use information, including the place and nature of use of water under the permit.

D. The Director may provide an opportunity for the permittee to submit alternative measuring and reporting procedures for review and approval.

Static Water Level Conditions

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 March. Reports shall be submitted to the Department within 30 days of measurement.

The permittee shall report an initial March 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 Department may require the discontinuance of groundwater use, 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.

Scenic Waterway Condition

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.

Dedicated Measuring Tube Condition

Wells with pumps shall be equipped with a minimum 3/4-inch diameter, unobstructed, dedicated measuring tube pursuant to figure 200-5 in OAR 690-200. If a pump has been installed prior to the issuance of this permit, and if static water levels and pumping levels may be measured using an electrical tape, then the installation of the measuring tube can be delayed until such time that water levels cannot be measured or the pump is repaired or replaced.

Well Construction Conditions

The Department's Groundwater Section must be notified 10 days prior to the beginning of construction of the first well.

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. Data collection shall be supervised by an Oregon Registered Geologist.

At least one long-term aquifer test shall be conducted to examine interference with nearby users, aquifer boundaries, the ability of the wells to supply the requested amount, and aquifer properties. A data collection plan shall be submitted for Department approval before testing. The test shall be conducted at a constant rate for a minimum of 72 hours. Water-level drawdown and recovery measurements shall be made in the pumped well, and must be made in at least one additional well. Data collection shall be supervised by an Oregon Registered Geologist.

Well Identification Tag Condition

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.

STANDARD CONDITIONS

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

If the number, location, source, or construction of any well deviates from that proposed in the permit application or required by permit conditions, this permit may be subject to cancellation, unless the Department authorizes the change in writing.

If substantial interference with surface water or a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

The well(s) shall be constructed and maintained in accordance with the General Standards for the Construction and Maintenance of Water Supply Wells in Oregon. The works shall be equipped with a usable access port adequate to determine water-level elevation in the well at all times.

If the riparian area is disturbed in the process of developing a point of appropriation, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with ODFW's Fish and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.

The use may be restricted if the quality of downstream waters decreases to the point that those waters no longer meet state or federal water quality standards due to reduced flows.

Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to such agreement.

Prior to receiving a certificate of water right, the permit holder shall submit to the Water Resources Department the results of a pump test meeting the Department's standards for each point of appropriation (well), unless an exemption has been obtained in writing under OAR 690-217. The Director may require water-level or pump-test data every ten years thereafter.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

Construction of the well shall be made within five years of the date of permit issuance. The deadline to begin construction may not be extended. This permit is subject to cancellation proceedings if the begin construction deadline is missed.

Complete application of the water shall be made within five years of the date of permit issuance. If beneficial use of permitted water has not been made before this date, the permittee may submit an application for extension of time, which may be approved based upon the merit of the application.

Within one year after making beneficial use of water, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner.

Issued OCTOBER 27 2016

E. Timothy Wallin

E. Timothy Wallin, Water Rights Program Manager
for Thomas M. Byler, Director

WATER RIGHTS APPLICATION MAP

PLACE OF USE

In Tax Lot 2400, Located in
SW¼ - NE¼ & SE¼ - NE¼
SE¼ of Section 23, T.20S., R.16E., W.M.
In Tax Lot 2400, Located in
SE¼ - NE¼ & SW¼ - NE¼ & NE¼ - SE¼
SW¼ - SE¼ & NW¼ - SE¼ & NE¼ - SW¼
SE¼ - SW¼ & NW¼ - SW¼ & SE¼ - NW¼
& SW¼ - NW¼ of Section 25
T.20S., R.16E., W.M.
Deschutes County, Oregon

WELL LOCATIONS

In Tax Lot 1400, Located in
SW¼ - NW¼ & SW¼ - SW¼
of Section 19, T.20S., R.17E., W.M.
Located in SW¼ - NW¼ & SW¼ - SW¼
of Section 30, T.20S., R.17E., W.M.
Deschutes County, Oregon

NOTES

1. This map was prepared for the purpose of identifying the location of water rights only and is not intended to provide legal dimensions or locations of property ownership lines.

LEGEND

- Gravel Road
- Tax Lot Boundary Line
- (TL #2400) Tax Lot ID Number
- #1 Approximate Location and Identification of Well
- Place of Use
- Boundary of Deschutes Basin Groundwater Study Area
- Denotes Study Area Side of Boundary Line

RECEIVED BY OWRD
OCT 13 2015
SALEM, OR

0' 1,320' 2,640'
SCALE: 1" = 1,320'

Water Rights Application Map (Revised)

2a

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G-18147